

**Note!**

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

**First Edition (December 1995)**

This edition applies to Version 3, Release 6, Modification Level 0, of Application Development Manager/400 (Feature 2213), a feature of the IBM Application Development ToolSet/400 (Program 5716-PW1) product, and to all subsequent releases and modifications until otherwise indicated in new editions. Make sure you are using the correct edition for the level of the product.

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## About This Guide

The purpose of this guide is to give you practical hands-on experience in using the Application Development Manager/400 feature of the Application Development ToolSet/400 product. This guide illustrates how to use the Application Development Manager/400 feature by leading you through a series of step-by-step exercises that focus on:

- Defining a project hierarchy
- Enrolling developers to projects
- Building an application
- Importing an application

You may need to refer to other IBM books for more specific information about a particular topic. The *Publications Reference*, provides information about all the books in the AS/400 library.

For a list of related publications, see the Bibliography.

---

## Who Should Use This Guide

This guide is intended for application programmers or analysts who want to familiarize themselves with the Application Development Manager/400 feature.

Note that this guide is designed to be a quick introduction to the main functions of Application Development Manager/400. For more detailed information, see the following publications:

- *ADTS/400: Application Development Manager/400 Introduction and Planning Guide*
- *ADTS/400: Application Development Manager/400 User's Guide*

You need experience in using applicable AS/400 menus and displays or control language (CL) commands.

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## How This Guide is Organized

This self-study guide contains:

- An overview of the Application Development Manager/400 feature describing the features and resulting benefits to the application developer.
- Installation instructions for the self-study exercises.
- Thirteen self-study modules that focus on the main functions of Application Development Manager/400.
- Instructions on how to clean up your system after completing the exercises.



- An appendix that gives the answers to the questions at the end of each module.

---

## Conventions Used in This Guide

| Convention  | Meaning  |
|---|--|
| ALL CAPS  | Commands, keywords, and names <sup>1</sup>   |
| <i>Italics</i>  | <ul style="list-style-type: none"><li>• Titles of manuals</li><li>• Prompts on displays</li><li>• Messages on displays</li></ul> |
| <b>Bold</b>   | Definition of terms and concepts   |
| Monospace type  | Information that you type on a display <sup>1</sup>  |
| <b>Note:</b><br>1. Although this guide always shows commands and entries in uppercase letters, you can use uppercase, lowercase, or mixed-case letters. |  |

---

## Chapter 1. Getting Started

This self-study guide contains thirteen modules that walk you through a scenario which requires you to:

- Create a project hierarchy.
- Enroll users to the project.
- Maintain the development environment by:
  - Redefining a project hierarchy as work on a new version begins, and as new groups are needed for development and maintenance.
  - Enrolling or removing developers as people join or leave the project.
- Create or change parts of an application.
- Compile an application, using a build process that automates much of this work.
- Test components, or applications, either within the control of this feature or by moving the code to a test or production environment outside the control of Application Development Manager/400.
- Import an existing application from an AS/400 library to be under Application Development Manager/400 control.
- Export a version of the application (source, objects, or both) from the development environment to a production or a test environment.

This sections describes:

- What you can do with the Application Development Manager/400 feature.
- How to setup your system for the self-study exercises.
- How to create the self-study user IDs.
- How to start the exercises.

---

### Overview of the Application Development Manager/400 Feature

The Application Development Manager/400, a feature of the Application Development ToolSet/400 product, offers version-control and software-configuration management functions. The Application Development Manager/400 feature assists a group of application developers in creating, managing, and organizing multiple versions of their application. Its powerful build process helps to automate the process of building, or compiling source code.

The Application Development Manager/400 feature answers many of the needs of today's application developers. It provides a team of application developers, working in an Application System/400 (AS/400) environment, with a mechanism for efficiently and effectively managing their development environment and its application objects throughout the life of the application. An application development team using this feature can:

- Define a flexible environment where production, follow-on, and maintenance versions of an application can be managed simultaneously.
- Organize several developers working on the same application.

- Build (or compile) an application quickly and easily, based on the components that have changed and the relationships between these components and all other components, and compile the components in the correct order, with a guarantee of no more level checks.
- Create and maintain several versions of an application. (A **version** can be a separate program or release that is either new or based on an existing application and that contains significant new code or function.)

---

## Installing the Self-Study Library

In order for you to do the exercises in this guide, your system administrator (or anyone else with appropriate authorities) must install the library that these exercises require. (If you have the appropriate authorities, of course, you can do these tasks yourself.) The installation requires restoring a library, and then running a command that creates user profiles and grants authorities to these user profiles.

To install the Application Development Manager/400 library required for the exercises of the self-study modules in this guide, the system administrator (or anyone else with appropriate authorities) must do the following:

1. Ensure that the following are installed on your AS/400 system:
  - Application Development Manager/400 feature
  - OPM RPG/400 compiler
2. Sign on to the AS/400 system with a user ID that has either:
  - A user class of \*PGMR and special authorities of \*ALLOBJ, \*SAVSYS, \*JOBCTL, and \*SECADM
  - A user class of \*SECOFR and default authorities
3. On any command line, type:

```
RSTLIB SAVLIB(QADMLAB) DEV(*SAVF) SAVF(QADM/QADMLAB) ALWOBJDIF(*ALL)
MBROPT(*ALL)
```

Press the Enter key. The following message appears at the bottom of the display:

*8 objects restored from QADMLAB to QADMLAB.*

**Note:** You need to restore the QADMLAB library only once, as long as it is not deleted from the system.

## Creating the Self-Study User IDs

Each person who will be doing the self-study exercises in this guide must be assigned three user IDs: ADMINx, JACKx, and JILLx (where x is a two-digit student identifier from 1 to 99). The first person is given the user IDs ADMIN1, JACK1, and JILL1, the second one ADMIN2, JACK2 and JILL2, and so on up to ADMIN99, JACK99 and JILL99. The scenario assumed here is that a number of people at a site will be working through the exercises at about the same time. A record may be maintained of each person's name and the user IDs that he or she has been assigned. (After each user has completed the exercises, the administrator must delete his or her user IDs and libraries from the AS/400 system using a specially provided Lab Clean Up (LABCLEANUP) command.)

To create the exercise user IDs, the system administrator (or anyone else with appropriate authority) must do the following:

1. Determine the maximum number of people at the site who will be doing the exercises. This number will be used in step 4.
2. To add the QADMLAB library to the library list, on any command line, type `ADDLIB QADMLAB` and then press the Enter key.
3. On any command line, type `QADMLAB/LABSETUP` and then press F4 (Prompt). The Appl. Dev. Mgr/400 Lab Setup (LABSETUP) display appears for the LABSETUP command.
4. Type the number of users decided in step 1, and press the Enter key.

The LABSETUP command creates ADMINx, JACKx, and JILLx user IDs (where x is a two-digit student identifier from 1 to 99), and grants them appropriate authorities for the lab exercises.

When the setup has completed successfully, the following message appears at the bottom of the display:

*Command completed successfully.*

**Note:** For security reasons, you may want to change the PASSWD parameters on the Create User Profile (CRTUSRPRF) command issued by the Lab Setup (LABSETUP) command. To do this, modify the LABSETUP member in the SETUPCLSRC source physical file in the QADMLAB library, recompile it, and then run the Lab Setup (LABSETUP) command. If you change the passwords, remember to tell your students.

5. Assign a set of "x" user IDs to a student (where x is a two-digit student identifier from 1 to 99).

---

## Starting the Exercises

From your administrator obtain a student identifier which will grant you access to three user IDs: ADMINx, JACKx, and JILLx (where x is a two-digit student identifier from 1 to 99). For example, the student identifier 2 gives you access to ADMIN2, JACK2, and JILL2.

To start the exercises, simply sign on to the AS/400 system using the user ID. (The password will be the same as your user ID. For example, the password to the JILL2 user ID is JILL2.) The instructions in the modules guide you from there.

The first time you sign on to the AS/400 system using the ADMINx, JACKx, and JILLx user IDs, you may change the password by using the CHGPWD command.

Whenever the instructions ask you to type a command or name containing the characters x, use your student identifier (where x is from 1 to 99). For example, in Module 1 you are asked to create a project. If your student identifier is 2, you would use the user ID ADMIN2 to create a project called ADMLAB2.

The longest exercise takes about 20 minutes to complete; most take between 5 and 15 minutes. Total time for all the exercises should be less than three hours. We recommend that you do all the exercises at least once and in the sequence shown. If you do them out of sequence, your results may not match those shown in this guide.

If you do have to interrupt an exercise, exit by pressing F3 (Exit) until you return to the AS/400 Main Menu display. To resume, enter STRPDM on the command line of this display, and start that particular exercise from the beginning again.

---

## Chapter 2. The Learning Modules

The modules in this chapter are designed to give you experience with those functions of the Application Development Manager/400 feature that are typically performed.

---

### Module 1: Create a Project Hierarchy

In this module you will create a project hierarchy through:

- Creating a project
- Creating project groups that are organized into levels

The exercises in this module are typically performed by a project administrator. Use the ADMINx user ID to do all the exercises in this module.

A **project** is a complete application consisting of a collection of one or more groups. A **group** in a project is a collection of parts at the same phase in a development process. A **part** is an object, such as an AS/400 physical file or a program, a source member containing RPG/400 code for an RPG program, or some other item, such as a field in a record or a record in a file that you have defined for your application. A **project hierarchy** is a collection of groups that are organized into levels, with each level representing one of the phases in the development process.

Figure 1 on page 6 shows the project hierarchy that you will create in this module for project ADMLABx. The project is comprised of four levels that contain five groups: MASTERV1, TEST, COLLECTOR, JACK, and JILL.

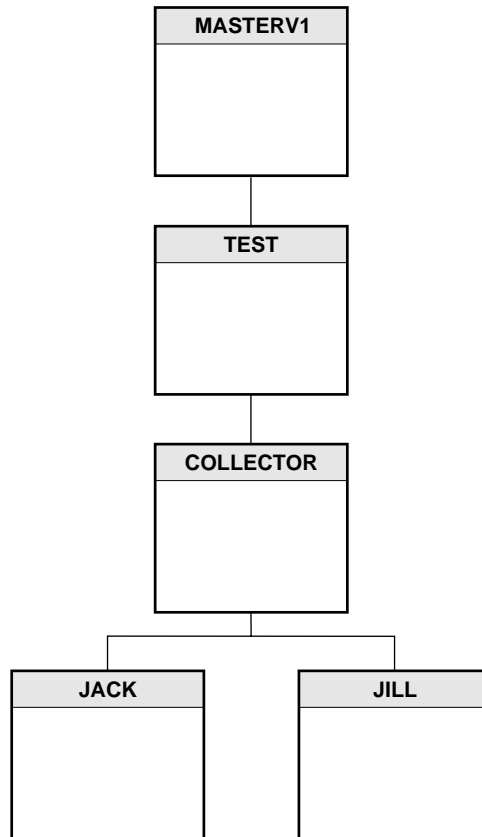


Figure 1. Project hierarchy with four levels for project ADMLABx.

## Create a Project

To create a project within which to manage your application development activities:

1. Sign on to the AS/400 system using the project administrator user ID of ADMINx. The password is initially ADMINx as well.
2. At this time, you may change the password to ADMINx using the CHGPWD command.
3. Type STRPDM on the command line, and press the Enter key.

The AS/400 Programming Development Manager (PDM) display appears:

```
AS/400 Programming Development Manager (PDM)

Select one of the following:

    1. Work with libraries
    2. Work with objects
    3. Work with members
    4. Work with projects
    5. Work with groups
    6. Work with parts

    9. Work with user-defined options

Selection or command
====> _____

F3=Exit      F4=Prompt    F9=Retrieve   F10=Command entry
F12=Cancel   F18=Change defaults

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```

Notice the three new options on the PDM main menu, when Application Development Manager/400 is installed. They are: Work with projects, Work with groups, and Work with parts.

4. Type 4 (Work with projects) on the command line, and press the Enter key. The Specify the Projects to Work With display appears:

```
Specify Projects to Work With

Type choice, press Enter.

Project . . . . . *ALL_____ *ALL, name
                                *generic*

F3=Exit      F5=Refresh   F12=Cancel
```

5. If no value was typed previously, then \*PRV means \*ALL projects. Press the Enter key again to display all projects to which you are authorized.



The Work with Projects Using PDM display appears:

```
Work with Projects Using PDM

Position to . . . . . _____

Type options, press Enter.
 2=Change      4=Delete      5=Display      6=Print
12=Work with   35=Display log 36=Print log   37=Reclaim ..

Opt Project          Text

(You are not authorized to work with any projects. List is empty)

Parameters or command
====>
F3=Exit      F4=Prompt      F5=Refresh      F6=Create
F9=Retrieve   F12=Cancel     F23=More options F24=More keys
```

The Work with Projects Using PDM display will also appear if you type the WRKPRJPDM command on any AS/400 command line.

6. Press F6 (Create) to create a project. The Create Project (CRTPRJ) display appears:

```
Create Project (CRTPRJ)

Type choices, press Enter.

Project . . . . . _____
Short project . . . . . _____ Name
Save physical file data . . . . *YES      *YES, *NO
Text description . . . . . _____ *BLANK

Bottom
F3=Exit F4=Prompt F5=Refresh F12=Cancel F13=How to use this display
F24=More keys
```

The Create Project (CRTPRJ) display will also appear if you type the CRTPRJ command on any AS/400 command line.

7. On the Create Project (CRTPRJ) display:

- a. Type ADMLABx in the *Project* prompt.
- b. Type ADx in the *Short project* prompt.

The **short project name** can be up to four characters long and it is used to create a unique library name for groups in a project. The first character

must be one of the following: alphabetic (A to Z), \$, #, or @. The remaining characters can be alphabetic (A to Z), numeric (0 to 9), \$, #, @, or \_.

- c. Leave the *Save physical file data* prompt defaulting to \*YES, so that the build facility will save (or restore) the physical file data every time a physical file is compiled in a project.
- d. Type This is the ADMLABx project in the *Text description* prompt, and press the Enter key.

Once the project is created, you are returned to the Work with Projects Using PDM display. This time, the project ADMLABx is listed:

```
Work with Projects Using PDM
Position to . . . . . _____
Type options, press Enter.
  2=Change      4=Delete      5=Display      6=Print
 12=Work with  35=Display log  36=Print log   37=Reclaim ...

Opt  Project      Text
_   ADMLABx      This is the ADMLABx project

Parameters or command
====> _____
F3=Exit      F4=Prompt      F5=Refresh      F6=Create
F9=Retrieve   F12=Cancel     F23=More options F24=More keys
Project ADMLABx created successfully.
```

## Create a Group

To create a group within project ADMLABx:

1. On the Work with Projects Using PDM display, type 12 (Work with) beside the project you just created, and press F4 (Prompt). The Specify Groups to Work With display appears:

```

                                Specify Groups to Work With
Type choices, press Enter.
Project . . . . . ADMLABx_____ Name
Group . . . . . *ALL_____ *ALL, name

F3=Exit   F5=Refresh   F12=Cancel
```

2. Leave the defaults unchanged and press the Enter key. The Work with Groups Using PDM display appears:

```

                                Work with Groups Using PDM
Project . . . . . ADMLABx_____
Type options, press Enter.
 2=Change      4=Delete      12=Work with      14=Build
25=Find string 29=Check in   30=Promote       38=Import...

Opt Level Group
(No groups in list)

Parameters or command
====> _____
F3=Exit      F4=Prompt      F5=Refresh      F6=Create
F9=Retrieve  F10=Command entry F23=More options F24=More keys
```

The Work with Groups Using PDM display will also appear if you type the WRKGRPPDM command on any AS/400 command line.

3. Press F6 (Create) to create a group. The Create Group (CRTGRP) display appears:

```

                                Create Group (CRTGRP)

Type choices, press Enter.

Project . . . . . > ADMLABx      Name
Group . . . . . _____
Short group . . . . . _____ Name
Parent group . . . . . _____
Promote code . . . . . *PARENT
Coded character set . . . . . *PARENT *PARENT, integer, *JOB, *HEX
Notify . . . . . *NONE *NONE, name, *DEVELOPER
PARTL required . . . . . *NO *NO, *YES
Text description . . . . . *BLANK _____

Bottom
F3=Exit F4=Prompt F5=Refresh F12=Cancel F13=How to use this display
F24=More keys

```

The Create Group (CRTGRP) display will also appear if you type the CRTGRP command on any AS/400 command line.

4. On the Create Group (CRTGRP) display:
- Type MASTERV1 in the *Group* prompt.
  - Type MSTV1 in the *Short group* prompt.

The **short group name** must be a unique name within the project hierarchy and can be a maximum of five characters long. The first character must be one of the following: alphabetic (A to Z), \$, #, or @. The remaining characters can be alphabetic (A to Z), numeric (0 to 9), \$, #, @, or \_. The short project name and the short group name are combined to form the AS/400 library name.

- Type \*NONE in the *Parent group* prompt.
- Type This is the V1 master group in the *Text description* prompt.
- Accept the defaults for the other prompts, and press the Enter key.

Once the group is created, you are returned to the Work with Groups Using PDM display. This time, the MASTERV1 group is listed:

```

                                Work with Groups Using PDM

Project . . . . . ADMLABx _____

Type options, press Enter.
 2=Change      4=Delete      12=Work with      14=Build
25=Find string 29=Check in   30=Promote       38=Import...

Opt Level Group
_   01  MASTERV1

```

5. Press F6 (Create) to create another group. The Create Group (CRTGRP) display appears again.

6. On the Create Group (CRTGRP) display:
  - a. Type TEST in the *Group* prompt.
  - b. Type TST in the *Short group* prompt.
  - c. Type MASTERV1 in the *Parent group* prompt.
  - d. Type This is the test group in the *Text description* prompt.
  - e. Accept the defaults for the other prompts, and press the Enter key.

Once the group is created you are returned to the Work with Groups Using PDM display. This time, two groups, MASTERV1 and TEST are listed:

```

                                Work with Groups Using PDM
Project . . . . . ADMLABx_____
Type options, press Enter.
 2=Change      4=Delete      12=Work with      14=Build
25=Find string 29=Check in   30=Promote      38=Import...

Opt  Level  Group
--   01    MASTERV1
--   02     TEST

```

7. Press F6 (Create) to create another group. The Create Group (CRTGRP) display appears again.
8. On the Create Group (CRTGRP) display:
  - a. Type COLLECTOR in the *Group* prompt.
  - b. Type COLL in the *Short group* prompt.
  - c. Type TEST in the *Parent group* prompt.
  - d. Type This is the collector group in the *Text description* prompt.
  - e. Accept the defaults for the other prompts, and press the Enter key.

In this exercise, the COLLECTOR group allows you to promote your changes to a common group, without affecting test and master (or production) versions of the application. This approach has the following benefits:

- The administrator can ensure that all the developer changes are able to be compiled before promoting them to the TEST group, and if they do not compile, can get the developers to make the necessary changes.
- Developers can make numerous check outs, changes, or promotes without affecting test or master versions of the application.
- When you export your application from a production or test library, you can always track it back to the exact version of source that created that object.
- This will also provide a better control over who can promote parts to the test and production groups, in case you need to implement a signoff procedure for audit purposes.

Once the group is created, you are returned to the Work with Groups Using PDM display. This time, three groups, MASTERV1, TEST and COLLECTOR are listed:

```

Work with Groups Using PDM
Project . . . . . ADMLABx_____
Type options, press Enter.
 2=Change      4=Delete      12=Work with    14=Build
25=Find string 29=Check in   30=Promote     38=Import...

Opt  Level  Group
--   01    MASTERV1
--   02     TEST
--   03     COLLECTOR

```

9. Press F6 (Create) to create another group. The Create Group (CRTGRP) display appears again.
10. On the Create Group (CRTGRP) display:
  - a. Type JACK in the *Group* prompt.
  - b. Type JACK in the *Short group* prompt.
  - c. Type COLLECTOR in the *Parent group* prompt.
  - d. Type This is Jack's group in the *Text description* prompt.
  - e. Accept the defaults for the other prompts, and press the Enter key.

The JACK group is where the developer JACKx will check out parts and where changes will be made to the parts.

Once the group is created, you are returned to the Work with Groups Using PDM display. This time, four groups, MASTERV1, TEST, COLLECTOR and JACK are listed:

```

Work with Groups Using PDM
Project . . . . . ADMLABx_____
Type options, press Enter.
 2=Change      4=Delete      12=Work with    14=Build
25=Find string 29=Check in   30=Promote     38=Import...

Opt  Level  Group
--   01    MASTERV1
--   02     TEST
--   03     COLLECTOR
--   04      JACK

```

11. Press F6 (Create) to create the final group in the sample project hierarchy. The Create Group (CRTGRP) display appears.
12. On the Create Group (CRTGRP) display:
  - a. Type JILL in the *Group* prompt.
  - b. Type JILL in the *Short group* prompt.
  - c. Type COLLECTOR in the *Parent group* prompt.
  - d. Type This is Jill's group in the *Text description* prompt.
  - e. Accept the defaults for the other prompts, and press the Enter key.

The JILL group is where the developer JILLx will check out parts and where changes will be made to the parts.

Once the group is created, you are returned to the Work with Groups Using PDM display again. This time, all the groups in the sample project hierarchy are listed:

```
Work with Groups Using PDM
Project . . . . . ADMLABx _____
Type options, press Enter.
 2=Change      4=Delete      12=Work with   14=Build
25=Find string 29=Check in   30=Promote    38=Import...
Opt  Level  Group
--   --    ---
 01  MASTERV1
 02  TEST
 03  COLLECTOR
 04  JACK
 04  JILL
```

Notice that the groups are indented to show their position in the hierarchy. So, for example, MASTERV1 is the parent group of TEST, and COLLECTOR is the parent group of JACK and JILL.

Also, the level indicator for each group helps you determine the project hierarchy. The purpose of this level indicator is to clarify the hierarchical nature of the groups within the project.

You have now created the project hierarchy shown in Figure 1 on page 6.

## What You have Learned in Module 1

In this module, you have learned how to:

- Create a project
- Create project groups that are organized into levels

## Module 1 Questions

1. A project consists of one or more \_\_\_\_\_ .
2. A group is a collection of \_\_\_\_\_ at a specific development phase.
3. A \_\_\_\_\_ is a collection of groups that are organized into levels.
4. After you sign on to the system with the project administrator user ID (ADMINx), the command you type to start the Application Development Manager/400 feature is the \_\_\_\_\_ command.

5. The three Application Development Manager/400 options that appear on the AS/400 Programming Development Manager (PDM) menu are: the \_\_\_\_\_, the \_\_\_\_\_, and the \_\_\_\_\_.
6. To create a project, you can either type the \_\_\_\_\_ command, or press \_\_\_\_\_ on the Work with Projects Using PDM display.
7. After you create a project, you can create groups once you specify option \_\_\_\_\_ beside the name of the project you created, and then by pressing F6 (Create) on the \_\_\_\_\_ display.
8. The COLLECTOR group is useful because:
  - The administrator can ensure that all developer changes can be compiled before promoting them to the \_\_\_\_\_ level.
  - Developers can make check outs, changes, or promotes without affecting \_\_\_\_\_ or \_\_\_\_\_ versions of the application.
9. You can determine the hierarchy of the groups you create by looking at how the groups are \_\_\_\_\_ and by the \_\_\_\_\_ on the Work with Groups Using PDM display.

---

## Module 2: Access and Print Project Reports

In this module you will:

- Display information about a project
- Enroll users to a project
- Print information about a project

The exercises in this module are typically performed by a project administrator. Use the ADMINx user ID to do all the exercises in this module.

Once a project hierarchy is created, it is a good idea to check the group information to make sure that the project is set up correctly. In this module you will display the text and promote codes for the groups created in the previous module, enroll users to the project, and then print the information about the project.



## Display Group Information

A **promote code** identifies the highest group to which parts in a given group can eventually be promoted.

To display information about a group:

1. On the Work with Groups Using PDM display, press F24 (More keys), and then press F14 (Display text) to display the text for each group. The Work with Groups Using PDM display appears:

```

Work with Groups Using PDM

Project . . . . . ADMLABx_____

Type options, press Enter.
 2=Change      4=Delete      12=Work with    14=Build
25=Find string 29=Check in   30=Promote     38=Import...

Opt Level Group                               Text
--  ---  ---
 01  MASTERV1   This is the V1 master group
 02  TEST       This is the test group
 03  COLLECTOR  This is the collector group
 04  JACK       This is Jack's group
 04  JILL       This is Jill's group

Parameters or command                                     Bottom
====>
F11=Display groups only  F12=Cancel  F13=Repeat  F14=Display promote code
F18=Change defaults     F23=More options  F24=More keys

```

On the Work with Groups Using PDM display, the level is the only indication of the position of each group in the project hierarchy.

2. To display the promote codes for each group, press F14 (Display promote code). The Work with Groups Using PDM display appears, showing the promote codes in the list.

```

Work with Groups Using PDM

Project . . . . . ADMLABx_____

Type options, press Enter.
 2=Change      4=Delete      12=Work with    14=Build
25=Find string 29=Check in   30=Promote     38=Import...

Opt Level Group                               Promote code
--  ---  ---
 01  MASTERV1   MASTERV1
 02  TEST       MASTERV1
 03  COLLECTOR  MASTERV1
 04  JACK       MASTERV1
 04  JILL       MASTERV1

Parameters or command                                     Bottom
====>
F11=Display groups only  F13=Repeat  F14=Display Hierarchy
F18=Change defaults     F23=More options  F24=More keys

```

In this example, the promote codes indicate that parts from any group in the hierarchy can eventually be promoted to the MASTERV1 group, since all groups were created with the default promote code of \*PARENT.

3. To print a list of the groups that appears on your display, press F21 (Print list).
4. Type WRKSPLF on the command line of any AS/400 display, and press the Enter key.

The Work with All Spooled Files display appears. The group list appears in the last QPUOPRTF file in the list.

5. To display a file called QPUOPRTF, type 5 (Display) beside it, and press the Enter key.

A report similar to the one in Figure 2 is shown.

---

|                             |  |              |                             |        |
|-----------------------------|--|--------------|-----------------------------|--------|
| 5716PW1 V3R6M0 950929       | Programming Development Manager - Group list | 9/29/95      | 9:21:29                     | Page 1 |
| Project . . . . . : ADMLABx |  |              |                             |        |
| Level                       | Group  | Promote code | Text                        |        |
| 01                          | MASTERV1                                     | MASTERV1     | This is the V1 master group |        |
| 02                          | TEST   | MASTERV1     | This is the test group      |        |
| 03                          | COLLECTOR                                    | MASTERV1     | This is the collector group |        |
| 04                          | JACK   | MASTERV1     | This is Jack's group        |        |
| 04                          | JILL   | MASTERV1     | This is Jill's group        |        |

---

Figure 2. Sample of a Group List Report

6. To exit this display, press F12 (Cancel) repeatedly until you return to the Work with Projects Using PDM display.

You have now displayed and printed all the groups in the ADMLABx project.

## Enroll Users to a Project

In this exercise you will enroll (or add) two users (in this case, JACKx and JILLx) to the project. Each will have update access to their respective development groups.

1. On the Work with Projects Using PDM display, press F23 (More options) until you see option 41 (Add user).
2. To add a user, JACKx, to a project, type 41 (Add user) beside the project you created, and press the Enter key.

The Add Project User (ADDPJRUSR) display appears:

```

                                Add Project User (ADDPJRUSR)

Type choices, press Enter.

Project . . . . . > ADMLABx      Name
User profile . . . . .          Name
User type . . . . . *DEVELOPER  *DEVELOPER, *ADMIN

                                Bottom

F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F13=How to use this display
F24=More keys
```

3. On the Add Project User (ADDPJRUSR) display:
  - a. Type JACKx in the *User profile* prompt, and press the Enter key. More prompts will appear on the Add Project User (ADDPJRUSR) display.
  - b. Type \*UPDATE in the *Project access level* prompt.
  - c. Type JACK in the *Development group* prompt, and press the Enter key. You are returned to the Work with Projects Using PDM display.
4. To add another user, JILLx, to a project, type 41 (Add user) beside the project you created, and press the Enter key. The Add Project Users (ADDPJRUSR) display appears.
5. On the Add Project User (ADDPJRUSR) display:
  - a. Type JILLx in the *User profile* prompt, and press the Enter key. More prompts will appear on the Add Project User (ADDPJRUSR) display.
  - b. Type \*UPDATE in the *Project access level* prompt.
  - c. Type JILL in the *Development group* prompt, and press the Enter key. You are returned to the Work with Projects Using PDM display.

You have now added the JACKx and JILLx users to the ADMLABx project. These users can look at any part in the entire project. However, they can only update or build a part in their development groups.

## Print the Project Hierarchy Report—PRTPRJ

A project hierarchy report lists all the characteristics of a project and the groups within the project hierarchy. Both project administrators and application developers can print the report using the PRTPRJ command.

You can also review this report after creating your project hierarchy to verify your promote path. A **promote path** is the sequence of groups between the lowest group containing parts that must be promoted and the highest group that will eventually hold the final version of the parts.

The promote path of a part through a project hierarchy is determined by the promote code you specify when you create the part's group. A promote code determines the highest group to which a part can be promoted. This group is called the **target group**. Thus, the promote path controls how far up the project hierarchy a part can be promoted.

To print a project hierarchy report, you should do the following:

1. On the Work with Projects Using PDM display, type 6 (Print) beside the project you created, and press the Enter key.
2. Type WRKSPLF on the command line of any AS/400 display, and press the Enter key.

The Work with All Spooled Files display appears. The project hierarchy report is in the last file QPLYPPRJ in the list.

3. To display the QPLYPPRJ file, type 5 (Display) beside it, and press the Enter key.

A report similar to the one in Figure 3 is shown.

**Note:** If you do not need to print the report, then type 5 (Display) beside the project on the Work with Projects Using PDM display. This will perform the above three steps and then it will delete the spool file.

---

```

5716PW1  V3R6M0          Application Development Manager/400 - Print Project  9/29/95  10:09:55      Page . . . 0001
Project . . . . . : ADMLABx
Short project name . . . . . : ADx
DBCS data . . . . . : No
Save physical file data . . . . . : Yes
Text . . . . . : This is the ADMLABx project
                    Short
Level  Group          name  Promote code  Notify  PARTL  Req  Text
01  MASTERV1         MSTV1  MASTERV1     *NONE   N     This is the V1 master gro
02  TEST             TST    MASTERV1     *NONE   N     This is the test group
03  COLLECTOR        COLL   MASTERV1     *NONE   N     This is the collector gro
04  JACK             JACK   MASTERV1     *NONE   N     This is Jack's group
04  JILL             JILL   MASTERV1     *NONE   N     This is Jill's group
                    * * * * *  E N D   O F   L I S T I N G   * * * * *

```

---

Figure 3. Sample of a Project Hierarchy Report

4. Press F12 (Cancel) repeatedly until you return to the Work with Projects Using PDM display.

## Print a List of Projects You Can Access—QRYPRJ

Use the Query Project (QRYPRJ) command to obtain a list of all the projects to which you are enrolled on the AS/400 system. Only the projects that you are authorized to read or update appear on this list.

You can use this command to verify that a project was created successfully, or to determine if any of the projects were damaged or made inconsistent by a system failure.

To print the query project report that lists all the projects to which you are enrolled, you should do the following:

1. On the command line, type QRYPRJ, and press the Enter key.
2. On the command line, type WRKSPLF, and press the Enter key.

The Work with All Spooled Files display appears. The list of projects to which you have access is in the last file QPLYQPRJ in the list.

- To display the QPLYQPRJ file, type 5 (Display) beside it, and press the Enter key.

A report similar to the one in Figure 4 is shown.

```

5716PW1  V3R6M0      Application Development Manager/400 - Query Project  9/29/95  10:10:20      Page . . : 0001
                                     Short DBCS  Save
Project   name data data Text      Damaged
ADMLABx  ADx  No  Yes  This is the ADMLABx project      No
          * * * * *  E N D  O F  L I S T I N G  * * * * *

```

Figure 4. Sample of a Query Project Report

- Press F12 (Cancel) repeatedly until you return to the Work with Projects Using PDM display.

## Print the Project Users Report—PRTPRJUSR

Use the Print Project Users (PRTPRJUSR) command to print all the enrollment information for all the users enrolled in a project: the user profile name, the type of user (developer or administrator), and a list of groups to which the user is authorized. Both project administrators and developers can use this command.

- On the Work with Projects Using PDM display, type 46 (Print user) beside the project you created, and press the Enter key. The Print Project User (PRTPRJUSR) display appears:

```

                                Print Project User (PRTPRJUSR)

Type choices, press Enter.

Project . . . . . > ADMLABx      Name
User profile . . . . .          Name, *ALL
Output . . . . . *PRINT__       *PRINT, *OUTFILE

                                Bottom

F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F13=How to use this display
F24=More keys

```

- Type \*ALL in the *User profile* prompt, and press the Enter key accepting the defaults for the other prompts.
- Type WRKSPLF on the command line, and press the Enter key.

The Work with All Spooled Files display appears. The project user report is in the last file QPLYPUSR in the list.

- To display the QPLYPUSR file, type 5 (Display) beside it, and press the Enter key.

A report similar to the one in Figure 5 on page 21 is shown.

---

```
5716PW1  V3R6M0      Application Development Manager/400 - Print Project User  9/29/95  10:10:49      Page . . : 0001
-----
Project . . . . . : ADMLABx
User . . . . . : ADMINx
User type . . . . . : *ADMIN
Project access level. . . . . : *ALL
Authorized groups
*** ALL ***
-----
Project . . . . . : ADMLABx
User . . . . . : JACKx
User type . . . . . : *DEVELOPER
Project access level. . . . . : *UPDATE
Authorized groups
JACK
-----
Project . . . . . : ADMLABx
User . . . . . : JILLx
User type . . . . . : *DEVELOPER
Project access level. . . . . : *UPDATE
Authorized groups
JILL
          * * * * *  E N D  O F  L I S T I N G  * * * * *
```

---

Figure 5. Sample of a Project User Report

5. Press F12 (Cancel) until you return to the Work with Projects Using PDM display.

Note that all the reports generating commands have an option of writing the output to an outfile instead of a spooled file. These outfiles may be used as input to your user programs.

You have now completed a phase that sets up an Application Development Manager/400 environment for application development.

## What You have Learned in Module 2

In this module, you have learned how to:

- Display information about a project
- Enroll users to a project
- Print information about a project

## Module 2 Questions

1. \_\_\_\_\_ determine the highest group to which parts in a given group can eventually be promoted.
2. Press \_\_\_\_\_ to display the promote codes for each group in the Work with Groups Using PDM display.
3. To print a list of groups, you press \_\_\_\_\_ on the Work with Groups Using PDM display.
4. To add users (developers) to a project, from the Work with Projects Using PDM display, you type option \_\_\_\_\_ .

5. You control the update authority that users can have within a development group by the value you type in the \_\_\_\_\_ prompt, and the group names in the \_\_\_\_\_ prompt.
6. The three types of reports that this module shows you how to print are:
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
7. A project hierarchy report contains the characteristics of a \_\_\_\_\_ and \_\_\_\_\_ within the project hierarchy.
8. A \_\_\_\_\_ is a sequence of groups through which a part can be promoted.
9. A query project report lists all the \_\_\_\_\_ to which you are enrolled on the AS/400 system.
10. A print project user report lists all the \_\_\_\_\_ enrolled in a project.

---

## Module 3: Set Up Your Application

In this module you will:

- Import an application into your project
- Display imported parts
- Build an application
- Add a project to your library list
- Run an application

The exercises in this module are typically performed by a project administrator. Use the ADMINx user ID to do all the exercises in this module.

## Import an Application

In this exercise, you will import an existing application called PROC1 stored in the LABSRC file into the ADMLABx project.

**Import** means to copy one or more objects, parts, or source members from an AS/400 library into an Application Development Manager/400 project hierarchy. Either a project administrator or an application developer can import objects, provided that they have sufficient AS/400 authority to the objects that they want to import. They also need update access to the group in which they are importing the objects. Typically, the administrator imports an entire application or a large piece of an application, while a developer is more likely to import just a few source members or objects.

To import LABSRC into the ADMLABx project:

1. On the Work with Projects Using PDM display, type 12 (Work with) beside the ADMLABx project, and then press the Enter key. The Work with Groups Using PDM display appears.
2. On this display, type 38 (Import) beside the MASTERV1 group, and then press the Enter key. The Import Part (IMPPART) display appears:

Import Part (IMPPART)

Type choices, press Enter.

|                            |       |                              |
|----------------------------|-------|------------------------------|
| Object to import . . . . . | _____ | Name, generic*, *ALL         |
| Library . . . . .          | _____ | Name, *CURLIB, *LIBL         |
| Object type . . . . .      | _____ | *ALL, *SRC, *NONSRC, *CLD... |

Bottom

F3=Exit   F4=Prompt   F5=Refresh   F12=Cancel   F13=How to use this display  
F24=More keys

3. On the Import Part (IMPPART) display, type:
  - a. LABSRC in the *Object to import* prompt.
  - b. QADMLAB in the *Library* prompt.
  - c. \*SRC in the *Object type* prompt, which specifies that only source members will be imported.
  - d. Press the Enter key twice.



The Import Part (IMPPART) display appears with more prompts:

```

                                Import Part (IMPPART)

Type choices, press Enter.

Object to import . . . . . > LABSRC_____ Name, generic*, *ALL
Library . . . . . > QADMLAB_____ Name, *CURLIB, *LIBL
Object type . . . . . > *SRC_____ *ALL, *SRC, *NONSRC, *CLD...
Member . . . . . *ALL_____ *ALL, name, generic*
Project . . . . . > ADMLABx_____ Name
Group . . . . . > MASTERV1_____ Name
Type . . . . . *OBJTYPE_____ *OBJTYPE, name, BLDOPT...
Part . . . . . *NAME_____ *NAME, name
Language . . . . . *ATTR_____ *ATTR, name, *NONE, BND, C...
Promote code . . . . . *GRP_____ *GRP, *NONE
Source file . . . . . *FROMFILE_ *FROMFILE, name, *TYPE
Replace existing part . . . . . *NO *NO, *YES
Part list . . . . . > *NONE_____ *NONE, *PRV, name
Archive . . . . . *NO_____ *NO, *YES
Text description . . . . . *TEXT_____

Bottom
F3=Exit F4=Prompt F5=Refresh F12=Cancel F13=How to use this display
F24=More keys

```

4. On this display:
  - a. Change the *Source file* prompt from \*FROMFILE to \*TYPE which specifies that each source part should be stored in a default file according to its type. For example, source RPGSRC would go into file QRPGRSRC.
  - b. Accept the defaults for the other prompts, and press the Enter key.

The following message appears at the bottom of the Work with Groups Using PDM display:

*6 parts processed, 0 parts not processed.*

You have now imported LABSRC into the ADMLABx project.

## Display Imported Parts

To display the parts that you imported:

1. On the Work with Groups Using PDM display, type 12 (Work with) beside the MASTERV1 group, and press the Enter key. The Work with Parts Using PDM display appears, showing the parts that you imported.

```

Work with Parts Using PDM
Project . . . . . ADMLABx
Specified group . . . . MASTERV1
Position to . . . . . Position to type . . . . .

Type options, press Enter.
  2=Change      3=Copy      4=Delete      5=Display      6=Print      7=Rename
  8=Display information 13=Change information 14=Build      16=Run ...

Opt Part      Type      Language      Group
--- EMPMST     DDSSRC     PF            MASTERV1
--- MSTDSP     DDSSRC     DSPF          MASTERV1
--- PRJMST     DDSSRC     PF            MASTERV1
--- REFMST     DDSSRC     PF            MASTERV1
--- RSNMST     DDSSRC     PF            MASTERV1
--- PROC1     RPGSRC     RPG           MASTERV1

Parameters or command
====>
F3=Exit      F4=Prompt      F5=Refresh      F6=Create
F9=Retrieve   F10=Command entry F23=More options F24=More keys

```

2. Press F12 (Cancel) to return to the Work with Groups Using PDM display.

## Build an Application

In this exercise you will build an application by compiling all the parts in the MASTERV1 group. You will also display a build report using the WRKSPLF command.

The Application Development Manager/400 build process determines which parts of an application have changed and, based on the relationships between those parts, recompiles them so that all parts are current in relation to their dependencies.

A **create relationship** is established when a source part is compiled to create an output part such as a program. There are several kinds of **dependency relationships**. A dependency relationship between two parts exists when one requires another part in order to be built. Each time you compile a part, the information about dependent parts used in the compilation of the part is stored as its dependency relationships. Parts that have never been built before do not have relationships. Their relationships are added after their first build from the information returned from the compilers.

To build an application interactively, do the following:

1. On the Work with Groups Using PDM display, press F18 (Change defaults) to change the defaults for the compile command. A Change Defaults display similar to the one below appears:

```

Change Defaults

Type choices, press Enter.

Object library . . . . . *SRCLIB__ Name, *CURLIB, *SRCLIB
Replace object . . . . . N Y=Yes, N=No
Compile in batch . . . . . Y Y=Yes, N=No
Run in batch . . . . . N Y=Yes, N=No
Save session defaults . . . . . Y Y=Yes, N=No
Save/Restore option . . . . . 1 1=Single, 2=All
Job description . . . . . QBATCH__ Name, *USRPRF, F4 for list
  Library . . . . . *LIBL__ Name, *CURLIB, *LIBL
Change type and text . . . . . Y Y=Yes, N=No
Option file . . . . . QAUOOPT__ Name
  Library . . . . . QGPL__ Name, *CURLIB, *LIBL
Member . . . . . QAUOOPT__ Name
Full screen mode . . . . . N Y=Yes, N=No
Scan hierarchy . . . . . Y Y=Yes, N=No
Search path . . . . . *DFT__ Name, *DFT
Build scope . . . . . 1 1=Normal, 2=Limited, 3=Extended,
  4=Direct Chain

F3=Exit F4=Prompt F5=Refresh F12=Cancel More...

```

2. Change the *Compile in Batch* prompt to N, and press the Enter key, accepting the defaults for the other prompts. The Work with Groups Using PDM display appears.

This is simply to show you the progress and the order of the compilations and the build process.

3. Type 14 (Build) beside the group called MASTERV1, and press F4 (Prompt). The Build Part (BLDPART) display appears:

```

Build Part (BLDPART)

Type choices, press Enter.

Project . . . . . > ADMLABx Name
Group . . . . . > MASTERV1 Name
Type . . . . . > *ALL__ Name, *generic*, *ALL...
Part . . . . . > *ALL__ Name, *generic*, *ALL
Language . . . . . *ALL__ *ALL, name, *generic*
Search path . . . . . > *DFT__ *DFT, name
Scope of build . . . . . > *NORMAL__ *NORMAL, *LIMITED...
Force build . . . . . *NO *NO, *YES
Build mode . . . . . *COND__ *COND, *UNCOND, *RPTONLY
Save list . . . . . *NO *NO, *YES, *DLT
Perform bind step . . . . . *YES *YES, *NO
Part list . . . . . *NONE__ *NONE, *PRV, name

F3=Exit F4=Prompt F5=Refresh F12=Cancel F13=How to use this display Bottom
F24=More keys

```

4. On the Build Part (BLDPART) display:
  - a. Leave the *Search path* prompt set to \*DFT. The build process will use the default hierarchy to find parts when building, which in this case is the MASTERV1 group.
  - b. Leave the *Scope of build* prompt set to the default value \*NORMAL since we are building all the parts.
  - c. Leave the *Force build* prompt set to the default value \*NO since the parts have never been compiled before but are now compiled.
  - d. Leave the *Build mode* prompt set to the default value \*COND. Using this default value will stop the build processing for the part if the development part to this part fails to build. Since all the parts will be compiled, this prompt has no effect here.
  - e. Leave the *Save list* prompt set to \*No to specify that the compiler listing and build-report listing need not be saved in the group.
  - f. Accept the defaults for the other prompts.
5. To compile all the parts in the group called MASTERV1, press the Enter key.

**Note:** You may notice some parts being compiled twice. BLDPART only knows what the compiler tells it, so it may not compile some parts in the correct order, *until* it has learned about all the dependent relationships between parts.

The following message appears at the bottom of the Work with Groups Using PDM display when all the parts in the MASTERV1 group have been compiled:

*6 parts built, 0 parts failed, 0 warnings.*

## Display the Build Report and Compiler Listings

A build report is always generated when you compile one or more parts. It consists of three sections: the build report, the build messages, and the build outputs. The build-report section lists the parameters that were specified on the Build Part (BLDPART) display. The build-messages section lists both the message numbers and message text for warnings or errors found during the build process. The build-outputs section shows the build outputs created by the build process.

To view the complete build report:

1. Type WRKSPLF on the command line of the Work with Groups Using PDM display, and press the Enter key. The Work with All Spooled Files display appears.
2. To display the last QPLYBLDP file, type 5 (Display), and press the Enter key.

A report similar to the one in Figure 6 on page 28 is shown.

```

Project . . . . . : ADMLABx
Group . . . . . : MASTERV1
Type . . . . . : *ALL
Part . . . . . : *ALL
Search path . . . . . : *DFT
Scope of build . . . . . : *NORMAL
Force build . . . . . : *NO
Build mode . . . . . : *COND
Save list . . . . . : *NO
Perform Bind Step . . . . . : *YES
Search path part used . . . . . : *DFT
Search path used . . . . . : ADMLABx

```

MASTERV1

| DDSSRC-PF |          | FILE    | BLDOPT |       |  |
|-----------|----------|---------|--------|-------|--|
| Part      | Group    | Created | Part   | Group | Reason for Building                    |
| REFMST    | MASTERV1 | REFMST  | *DFT   | *NONE | Source part has not been built before. |
| RSNMST    | MASTERV1 | RSNMST  | *DFT   | *NONE | Source part has not been built before. |
| EMPMST    | MASTERV1 | EMPMST  | *DFT   | *NONE | Source part has not been built before. |
| PRJMST    | MASTERV1 | PRJMST  | *DFT   | *NONE | Source part has not been built before. |

| DDSSRC-DSPF |          | FILE    | BLDOPT |       |  |
|-------------|----------|---------|--------|-------|--|
| Part        | Group    | Created | Part   | Group | Reason for Building                    |
| MSTDSP      | MASTERV1 | MSTDSP  | *DFT   | *NONE | Source part has not been built before. |

| RPGSRC |          | PGM     | BLDOPT |       |  |
|--------|----------|---------|--------|-------|--|
| Part   | Group    | Created | Part   | Group | Reason for Building                    |
| PROC1  | MASTERV1 | PROC1   | *DFT   | *NONE | Source part has not been built before. |

\* \* \* \* \* E N D O F B U I L D R E P O R T \* \* \* \* \*

Figure 6. Sample of Build-Report and Build-Outputs Listings

Notice that since the build was successful, there is no build-messages listing.

You may have to press the Page Down and the F20 (Scroll Right) keys in order to view all the information on the report.

- To exit this display, press F12 (Cancel) repeatedly until you return to the Work with Groups Using PDM display.

## Add a Project to Your Library List

In this exercise you will add the project libraries of project ADMLABx to your library list.

A **user-defined option** can be either any AS/400 system command or user command containing parameters allowing you to carry out operations that you do frequently simply by typing an option on a PDM display. A **system-supplied user-defined option** is an already defined user-defined option that is available in PDM. In this case, AP is a system-supplied user-defined option that allows you to add project libraries to your library list.

- On the Work with Groups Using PDM display, type 12 (Work with) beside the MASTERV1 group, and press the Enter key. The Work with Parts Using PDM display appears.
- To add the project ADMLABx to the library list, type the system-supplied user-defined option AP beside any part, and press F4 (Prompt). The Add Project Library List (ADDPRJLIBL) display appears.

```

                                Add Project Library List (ADDPRLIBL)

Type choices, press Enter.

Project . . . . . > ADMLABx      Name
Group . . . . . > MASTERV1      Name
Scan hierarchy . . . . . > *YES   *YES, *NO
Search path . . . . . > *DFT     *DFT, name

```

- To add project libraries (in this case the project library of the MASTERV1 group) to the library list, press the Enter key.

The following message appears at the bottom of the Work with Parts Using PDM display:

*ADDPRLIBL completed successfully.*

- To verify that your group library is added to the library list, type DSPLIBL on the command line, and then press the Enter key. Your display will look similar to this one:

```

                                Display Library List

Type options, press Enter.
 5=Display objects in library

Opt Library   Type      Text
-  QSYS       SYS      System Library
-  QSYS2      SYS      System Library for CPI's
-  QHLPSYS    SYS
-  QUSRSYS    SYS
-  QPDA       PRD
-  QADM       PRD
-  ADx.MSTV1  USR      This is the V1 master group
-  QGPL       USR      General Purpose Library
-  QTEMP      USR

                                Bottom

F3=Exit  F12=Cancel  F17=Top  F18=Bottom
(C) COPYRIGHT IBM CORP. 1980, 1995.

```

Notice that MASTERV1 group from the ADMLABx project has been added to the library list.

- To return to the Work with Parts Using PDM display, press F12 (Cancel).

You have now successfully added ADMLABx to the library list.

## Run an Application

In this exercise you will run the application that you created in “Build an Application” on page 25. Running the application allows you to verify it. Note that this application references files which were built in the group library MASTERV1. So the ADDPRJLIBL performed in “Add a Project to Your Library List” on page 28 is essential to add the project libraries to the library list before running the application to verify it.

To run the application:

1. On the Work with Parts Using PDM display, type 16 (Run) beside the PROC1 PGM part, and press the Enter key. Your display looks like this:

```
PRG01                Time Reporting System          9/29/95
                    Maintenance Selection           13:27:55

                    Type an X beside the application you want to maintain

                    _ Employee Master Maintenance
                    _ Project Master Maintenance
                    _ Reason Code Master Maintenance

F3-End of Job
```

2. To leave the application, press F3 (End of Job).
3. To sign off, type SIGNOFF on any AS/400 command line, and press the Enter key.

If you want to take a break from the exercises, this is a good place to do so.

## What You have Learned in Module 3

In this module, you have learned how to:

- Import an application into your project
- Display imported parts
- Build an application
- Add a project to your library list
- Run an application

## Module 3 Questions

1. To import means to \_\_\_\_\_ one or more objects, parts or source members from an AS/400 library into a project hierarchy.
2. You need \_\_\_\_\_ access to the group which will receive the imported parts.
3. To build an application, you type option \_\_\_\_\_ beside the group that contains the application source parts in the Work with Groups Using PDM display.

4. The build report consists of the following sections:
  - \_\_\_\_\_.
  - \_\_\_\_\_.
  - \_\_\_\_\_.
5. The build report is stored in a spooled file named \_\_\_\_\_ and you can find it using the \_\_\_\_\_ command.
6. A \_\_\_\_\_ option can either be a system-supplied or a user-written command which provides a convenient means to perform a frequent operation by simply typing an option on a PDM display.
7. To add project libraries to a library list, you type option \_\_\_\_\_ beside any part displayed on the Work with Parts Using PDM display, and press the Enter key.
8. To verify that the group library has been added to the library list, use the \_\_\_\_\_ command.
9. To run an application, you type option \_\_\_\_\_ beside a program displayed in the Work with Groups Using PDM display.

---

## Module 4: Update Your Application

In this module you will:

- View parts in Jack's Group
- Check out a source part
- Change a source part
- Rebuild the application to reflect changes you made
- Run the updated application

The exercises in this module are typically performed by an application developer. Use the JACKx user ID to do all the exercises in this module.

### View Parts in Jack's Group

In this exercise you will view all the parts in the hierarchy from Jack's group. You will also add the project libraries starting from the group JACK to your library list.

To view parts using the JACKx user ID:

1. Log on to the system using the JACKx user ID. (The password will be the same as your user ID.)
2. At this time, you may change the password to JACKx using the CHGPWD command.



- Type STRPDM, and then press the Enter key.
- To look at all of the projects to which you have access from this user ID, type 4 (Work with projects), and press the Enter key twice.
- On the Work with Projects Using PDM display, type 12 (Work with) beside the project ADMLABx, and press the Enter key. The Work with Groups Using PDM display appears.
- Type 12 (Work with) beside the JACK group, and press the Enter key. The Work with Parts Using PDM display appears:

```

Work with Parts Using PDM

Project . . . . . ADMLABx_____
Specified group . . . . JACK_____
Position to . . . . . _____ Position to type . . . . . _____

Type options, press Enter.
 2=Change      3=Copy      4=Delete  5=Display  6=Print  7=Rename
 8=Display information 13=Change information 14=Build 16=Run ...

Opt Part      Type      Language  Group
-- EMPMST     DDSSRC   PF        MASTERV1
-- MSTDSP     DDSSRC   DSPF      MASTERV1
-- PRJMST     DDSSRC   PF        MASTERV1
-- REFMST     DDSSRC   PF        MASTERV1
-- RSNMST     DDSSRC   PF        MASTERV1
-- PROC1      RPGSRC   RPG       MASTERV1
-- PROC1      PGM      RPG       MASTERV1
                                          More...

Parameters or command
====>
F3=Exit      F4=Prompt  F5=Refresh F6=Create
F9=Retrieve   F10=Command entry F23=More options F24=More keys

```

You are now looking at a view of the parts in the hierarchy from Jack's group. All parts in this example exist at the MASTERV1 level.

- To add the project called ADMLABx to the library list, type 45 (Add project library list) beside any part entry and press F4 (Prompt). The Add Project Library List (ADDPRJLIBL) display appears.
- To add the project library to your library list, press the Enter key.

The following message appears at the bottom of the Work with Parts Using PDM display:

*ADDPRJLIBL completed successfully.*

You have now successfully added ADMLABx to the library list.

## Check Out a Source Part

In this exercise you will check a part out using the JACKx user ID and then change it.

Before you can change a part, it must be under your exclusive control. The **check out** function of the Application Development Manager/400 feature allows you to copy a part to a group to which you have update access. This part is then locked to prevent other developers from changing it.

To check a part out, you must do the following:

1. On the Work with Parts Using PDM display, type 28 (Check out) beside MSTDSP DDSSRC, and then press the Enter key. This action will check this part out to you, lock it to the JACKx user ID and copy it down to your development group (JACK). Your display will look similar to this one:

```

Work with Parts Using PDM
Project . . . . . ADMLABx _____
Specified group . . . . . JACK _____
Position to . . . . . _____ Position to type . . . . . _____

Type options, press Enter.
 2=Change      3=Copy      4=Delete  5=Display  6=Print  7=Rename
 8=Display information 13=Change information 14=Build 16=Run ...

Opt Part      Type      Language  Group
--  ---      ---      ---      ---
--  EMPMST   DDSSRC   PF        MASTERV1
--  MSTDSP   DDSSRC   DSPF      JACK
--  PRJMST   DDSSRC   PF        MASTERV1
--  REFMST   DDSSRC   PF        MASTERV1
--  RSNMST   DDSSRC   PF        MASTERV1
--  PROC1    RPGSRC   RPG       MASTERV1
--  PROC1    PGM      RPG       MASTERV1
                                          More...

Parameters or command
====>
F3=Exit      F4=Prompt      F5=Refresh      F6=Create
F9=Retrieve   F10=Command entry  F23=More options  F24=More keys
Part MSTDSP checked out to you.

```

Notice that the MSTDSP DDSSRC part now appears in the JACK group. It still exists in the MASTERV1 group, but PDM is showing you the lowest version of each part in the hierarchy.

## Change a Source Part

You can change a source part using a choice of editors supported by Application Development Manager/400 feature, such as Source Entry Utility (SEU), Screen Design Aid (SDA), Data File Utility (DFU), or Report Layout Utility (RLU). Since the part we are working on is the source for a display file, we will change it using SDA.

To change a source part, you must do the following:

1. On the Work with Parts Using PDM display, type 17 (Change using SDA) beside the MSTDSP DDSSRC part, and press the Enter key. This action calls the Screen Design Aid (SDA).





7. To return to the Work with Parts Using PDM display, press the Enter key.

The part is now changed.

## Rebuild the Application

In this exercise you will rebuild the application to reflect the changes that you made to the source part in the previous example. You will also change the SCOPE parameter on the BLDPART command to allow you to compile not only the changed part but also any other part that is related to it.

To rebuild the application:

1. On the Work with Parts Using PDM display, press F18 (Change defaults) and change the *Compile in batch* prompt to N, and press the Enter key. The purpose of this step is to demonstrate which parts are compiled.
2. Type 14 (Build) beside MSTDSP DDSSRC, and press F4 (Prompt). The Build Part (BLDPART) display appears.
3. Change the value of the *Scope of build* prompt to \*EXTENDED, and press the Enter key.

\*EXTENDED will cause not only this part to compile but, if necessary, any other part related to it that needs to be compiled as well.

The MSTDSP DDSSRC will be compiled first, because it has changed, and then the PROC1 RPGSRC will be recompiled because the FILE MSTDSP part has changed.

The following message appears at the bottom of the Work with Parts Using PDM display:

*2 parts built, 0 parts failed, 0 warnings.*

Notice how the PROC1 PGM and FILE MSTDSP parts were created in Jack's group, and that PDM now reflects that information automatically.

You are now ready to run the application.

## Run the Updated Application

In this exercise you will verify the changes you made to the display file by running the application.

To verify the changes you made to the display file:

1. To add project libraries to the library list, in the Work with Parts Using PDM display, type user-defined option AP beside any part, and press the Enter key.  
Libraries starting from the given group (JACK) to the root group (MASTERV1) are added to your library list.
2. To run the application, type 16 (Run) beside the PROC1 PGM part, and press the Enter key.

Your display looks similar to this one:

```
PRG01                                Time Reporting System          9/29/95
                                      Maintenance Selection          13:27:55

                                     Type an X beside the application you want to maintain

                                     _ Employee Master Maintenance
                                     _ Project Master Maintenance
                                     _ Reason Code Master Maintenance

                                     Jack added this field... ____

                                     F3-End of Job
```

BLDPART has successfully updated the application with your changes. You have now successfully run the application.

3. To return to the Work with Parts Using PDM display, press F3 (End of Job).
4. To sign off, type SIGNOFF on any AS/400 command line, and press the Enter key.

If you want to take a break from the exercises, this is a good place to do so.

## What You have Learned in Module 4

In this module, you have learned how to:

- View parts in Jack's Group
- Check out a source part
- Change a source part
- Rebuild the application to reflect changes you made
- Run the updated application

## Module 4 Questions

1. To work with files in another library, add the library to your \_\_\_\_\_.
2. To add project libraries to your library list, type the system-supplied option \_\_\_\_\_ or type the system-supplied user-defined option \_\_\_\_\_ beside a part.
3. When you check out a part in order to change it, the Application Development Manager/400 feature \_\_\_\_\_ the part to your user ID, and copies the part to your \_\_\_\_\_.

4. Ensure that the value of the *Create display file* prompt is \_\_\_\_\_ on the Save DDS - Create Display File display, so that the display file is not created in this step while changing a part using SDA.
5. To prepare to compile interactively, instead of in batch mode, you press \_\_\_\_\_ from the Work with Parts Using PDM display. Then, you set the \_\_\_\_\_ prompt to N (No).
6. When you build an application to update it when source parts are changed, you can change the \_\_\_\_\_ parameter on the BLDPART command to \_\_\_\_\_ to allow you to not only build the changed part, but any part that is related to it.
7. To build the application, from the Work with Parts Using PDM display, type option \_\_\_\_\_ beside the source part or its output part.

---

## Module 5: Access Parts

In this module you will:

- Try to check out a part that is already checked out
- Try to access parts even though you do not have proper authority
- Print the part information report
- Print a query report

The exercises in this module are typically performed by an application developer. Use the JILLx user ID to do all the exercises in this module.

### Part Development Using the JILLx User ID

In this exercise you will try to update a part that is already checked out.

To check a part out using the JILLx user ID:

1. Log on to the system using JILLx user ID. (The password will be the same as your user ID.)
2. At this time, you may change the password to JILLx using the CHGPWD command.
3. Type STRPDM, and press the Enter key.
4. Type 4 (Work with projects), and press the Enter key twice to look at all the projects you have access to.
5. Type 12 (Work with) beside the project, and press the Enter key. The Work with Groups Using PDM display appears.
6. Type 12 (Work with) beside the JILL group, and press the Enter key.

The Work with Parts Using PDM display appears:

```

Work with Parts Using PDM
Project . . . . . ADMLABI_____
Specified group . . . . . JILL_____
Position to . . . . . _____ Position to type . . . . . _____

Type options, press Enter.
 2=Change      3=Copy      4=Delete      5=Display      6=Print      7=Rename
 8=Display information 13=Change information 14=Build      16=Run ...

Opt Part      Type      Language   Group
--  ---      ---      ---      ---
---  EMPMST    DDSSRC    PF        MASTERV1
---  MSTDSP    DDSSRC    DSPF      MASTERV1
---  PRJMST    DDSSRC    PF        MASTERV1
---  REFMST    DDSSRC    PF        MASTERV1
---  RSNMST    DDSSRC    PF        MASTERV1
---  PROC1     RPGSRC    RPG       MASTERV1
---  PROC1     PGM       RPG       MASTERV1

Parameters or command
====>
F3=Exit      F4=Prompt      F5=Refresh      F6=Create
F9=Retrieve   F10=Command entry F23=More options F24=More keys
More...

```

Notice that from JILL's group, it looks like there are parts only in the MASTERV1 group.

7. Type user-defined option AP beside any part, and press the Enter key. This will add project libraries to your library list.
8. Type 28 (Check out) beside MSTDSP DDSSRC, and press the Enter key to check out the same part JACK has checked out. The following message appears on the bottom of the Work with Parts Using PDM display:  
*Part MSTDSP is checked out to user JACKx.*
9. To remove 28 from the display, press the Delete key twice.
10. In the *Specified group* prompt at the top of the Work with Parts Using PDM display, change JILL to JACK, and press the Enter key.
11. You will be presented with the list of parts in JACK's group. Now try to change MSTDSP DDSSRC by typing 2 (Change) beside this part, and then pressing the Enter key. Note that you are not allowed to change it because the user ID JILLx does not have update access to the JACK group. Even if JILLx had access to JACK's group, the part cannot be changed because it is checked out to JACKx.
12. To return to the Work with Groups Using PDM display, press F12 (Cancel).  
Since the part is checked out to JACK and you do not at the moment have access to the JACK group, the part cannot be updated by you.



## Print the Part Information Report—PRTPARTINF

You can print the information that the Application Development Manager/400 feature keeps to track a given part. Use the PRTPARTINF command to display or print information about the MSTDSP DDSSRC part.

To produce a Print Part Information report (PRTPARTINF):

1. On the Work with Groups Using PDM display, type 12 (Work with) beside the JILL group, and press the Enter key.
2. On the Work with Parts Using PDM display, type 26 (Print information) in the *Opt* prompt beside MSTDSP DDSSRC part, and press the Enter key.
3. Type WRKSPLF on the command line, and press the Enter key. The print part information report is a spooled file called QPLYPARTI in the list.
4. To display the QPLYPARTI file, type 5 (Display) beside it, and press the Enter key.

A report similar to the one in Figure 7 is shown.

**Note:** Typing 8 (Display information) beside a part on the Work with Parts Using PDM display will perform the above steps and then it will delete the spooled file after you have looked at it.

---

```
5716PW1 V3R6M0      Application Development Manager/400 - Print Part Information 9/29/95  14:34:18      Page . . . : 0001
Project . . . . . : ADMLABx
Group . . . . . : MASTERV1
Type . . . . . : DDSSRC
Part . . . . . : MSTDSP
Language . . . . . : DSPF
Last changed (user id) . . . . . : ADMINx
Date last changed . . . . . : 9/29/95  15:11:27
Date created . . . . . : 9/29/95  15:11:27
Promote code . . . . . : MASTERV1
Drawdown lock . . . . . : JACK
Access key (holder) . . . . . :
System name:
  Object . . . . . : QDDSSRC
  Library . . . . . : ADx.MSTV1
  Type . . . . . : *FILE
Group of lowest occurrence
of part . . . . . : JACK
Holder of lowest-occurring
part . . . . . : JACKx
Text . . . . . : Displays for Master File Maintenance
          * * * * * E N D   O F   L I S T I N G   * * * * *
```

---

Figure 7. Sample of a Print Part Information Report

The *Holder of lowest-occurring part* is either set to:

- User profile—This means the user who has checked the part out has exclusive update access to the part.
- Blank—This means that the part is not checked out to anyone.

Note that the holder of the lowest-occurring part in Figure 7 is JACK.

5. To return to the Work with Parts Using PDM display, press F12 (Cancel) twice.

## Print a Query Report—QRYPART

If you know the name of the project to which you are enrolled, you can get a list of the parts in a particular group, in a search path, or in the entire project using the QRYPART command. You can also find parts checked out by a specific user using the *Access key* prompt on the QRYPART command.

1. Type QRYPART on any command line, and press F4 (Prompt). Your display looks like this:

Query Part (QRYPART)

Type choices, press Enter.

|                      |             |                          |
|----------------------|-------------|--------------------------|
| Project . . . . .    | _____       |                          |
| Group . . . . .      | _____       |                          |
| Type . . . . .       | _____       | Name, *generic*, *ALL... |
| Part . . . . .       | _____       | Name, *generic*, *ALL... |
| Access key . . . . . | *ALL_____   | *ALL, name               |
| Output . . . . .     | *PRINT_____ | *PRINT, *OUTFILE         |

Bottom

F3=Exit F4=Prompt F5=Refresh F12=Cancel F13=How to use this display  
F24=More keys

2. On the Query Part display, type:
  - a. ADMLABx in the *Project* prompt.
  - b. J111 in the *Group* prompt.
  - c. \*ALL in the *Type* prompt.
  - d. \*ALL in the *Part* prompt, and press the Enter key three times accepting the defaults for the other prompts.

In this case, all the parts from the group specified up to the root group are listed.

3. Type WRKSPLF on the command line, and press the Enter key. The print part information report is a spooled file called QPLYQPART in the list.
4. To display the QPLYQPART file, type 5 (Display) beside it, and press the Enter key.

A report similar to the one in Figure 8 on page 42 is shown.

```

5716PW1  V3R6M0          Application Development Manager/400 - Query Part    9/29/95  14:36:25      Page . . . 0001
Project . . . . . : ADMLABx
Group . . . . . : JILL
Type . . . . . : *ALL
Part . . . . . : *ALL
Access key (holder) . . . . . : *ALL
Scan hierarchy. . . . . : *YES
Search path . . . . . : *DFT

                Parts That Meet the Search Criteria
Part      Type      Language  Group      Date Last  Holder  Text
EMPST    DDSSRC    PF        MASTERV1   9/29/95
MSTDSP   DDSSRC    DSPF      MASTERV1   9/29/95   Employee Master File
PRJMST   DDSSRC    PF        MASTERV1   9/29/95   Displays for Master File Maintenance
REFMST   DDSSRC    PF        MASTERV1   9/29/95   Project Master File
RSNMST   DDSSRC    PF        MASTERV1   9/29/95   Reference File
PROC1    DDSSRC    PF        MASTERV1   9/29/95   Reason Master File
PROC1    RPGRSRC   RPG       MASTERV1   9/29/95   Time Reporting System Maintenance Prog
PROC1    PGM       RPG       MASTERV1   9/29/95   Time Reporting System Maintenance Prog
EMPST    FILE      PF        MASTERV1   9/29/95   Employee Master File
MSTDSP   FILE      DSPF      MASTERV1   9/29/95   Displays for Master File Maintenance
PRJMST   FILE      PF        MASTERV1   9/29/95   Project Master File
REFMST   FILE      PF        MASTERV1   9/29/95   Reference File
RSNMST   FILE      PF        MASTERV1   9/29/95   Reason Master File
          * * * * *  E N D  O F  L I S T I N G  * * * * *

```

Figure 8. Sample of a Query Part Report

5. To return to the Work with Parts Using PDM display, press F12 (Cancel) twice.
6. To sign off, type SIGNOFF on any AS/400 command line and press the Enter key.

If you want to take a break from the exercises, this is a good place to do so.

## What You have Learned in Module 5

You have learned:

- That you cannot check out a part that is already checked out
- That you cannot access parts even though you do not have proper authority
- To print a part information report
- To print a query report

## Module 5 Questions

1. You cannot \_\_\_\_\_ a part that is already checked out.
2. You cannot access a part without having the proper \_\_\_\_\_ .
3. The Part Information report, can be printed using the \_\_\_\_\_ command which creates a spooled file called \_\_\_\_\_ .
4. To print a list of parts report, you use the \_\_\_\_\_ command which creates a spooled file called \_\_\_\_\_ .

---

## Module 6: Build the Application Using the Build Options Part

In this module you will:

- Promote a part
- Create a BLDOPT part
- Build using the BLDOPT part
- Delete a part

The exercises in this module are typically performed by an application developer. Use the JACKx user ID to do all the exercises in this module.

### Promote a Part

In this exercise you will promote the MSTDSP DDSSRC part from the JACK group to the COLLECTOR group. You will also delete two parts: PROC1 PGM and MSTDSP FILE.

When the updates to a part are complete, the developer **promotes** or moves the part out of his or her development group up to its parent group. You can only promote parts that are in groups that you have update access to. The parts do not have to be checked out to you. However, they cannot be checked out to another user. If the part to be promoted is already checked out by you, it is automatically checked back in first before it is promoted.

To promote a part:

1. Log on to the system using the JACKx user ID.
2. Type STRPDM, and then press the Enter key.
3. To look at all projects to which you have access from this user ID, type 4 (Work with projects), and press the Enter key twice.
4. Type 12 (Work with) beside the ADMLABx project, and press the Enter key. The Work with Groups Using PDM display appears.
5. Type 12 (Work with) beside the JACK group, and press the Enter key. The Work with Parts Using PDM display appears.
6. Type 30 (Promote) beside the DDSSRC MSTDSP part, and press F4 (Prompt). The Promote Part (PRMPART) display appears. Accept the defaults for the prompts on this display, and press the Enter key.

Your display will look similar to this one:

```
Work with Parts Using PDM
Project . . . . . ADMLABx _____
Specified group . . . . . JACK _____
Position to . . . . . _____ Position to type . . . . . _____

Type options, press Enter.
 2=Change      3=Copy      4=Delete    5=Display    6=Print      7=Rename
 8=Display information 13=Change information 14=Build    16=Run ...

Opt Part      Type      Language   Group
-- EMPMST     DDSSRC    PF         MASTERV1
-- MSTDSP     DDSSRC    DSPF       COLLECTOR
-- PRJMST     DDSSRC    PF         MASTERV1
-- REFMST     DDSSRC    PF         MASTERV1
-- RSNMST     DDSSRC    PF         MASTERV1
-- PROC1     RPGSRC    RPG        MASTERV1
-- PROC1     PGM       RPG        JACK

Parameters or command
====>
F3=Exit      F4=Prompt    F5=Refresh    F6=Create
F9=Retrieve   F10=Command entry F23=More options F24=More keys
Part MSTDSP checked in before being promoted.

More...
```

Notice the following:

- The part is checked in automatically.
- The part is promoted to the COLLECTOR group.
- PDM automatically updated the part list.

## Create a Build-Option Part

In this exercise you will create a build-option part called MSTDSP. A **build-option part** is the Application Development Manager/400 part that allows you to specify compiler or processing commands. This part, itself, cannot be built. This part contains all the compiler or preprocessor commands that the Build Part (BLDPART) command uses when processing parts.

To create a build-option part, use the Create Part (CRTPART) command to create the part in the same way you would create a source part. The CRTPART command automatically copies the default build-option part from the QADM library installed with the Application Development Manager/400 feature into your part of type BLDOPT to give you a starting point.

To create the BLDOPT part:

1. On the Work with Parts Using PDM display, press F6 (Create). The Create Part (CRTPART) display appears:

Create Part (CRTPART)

Type choices, press Enter.

|                                 |           |                              |
|---------------------------------|-----------|------------------------------|
| Project . . . . .               | > ADMLABx | Name                         |
| Group . . . . .                 | > JACK    | Name                         |
| Type . . . . .                  | _____     | Name, BLDOPT, BNDDIR...      |
| Part . . . . .                  | _____     | Name, *GENERATE              |
| Language . . . . .              | *DFT      | *DFT, name, *NONE, BND, C... |
| Prompt create command . . . . . | *NO       | *NO, *YES                    |
| Promote code . . . . .          | *GRP      | *GRP, *NONE                  |
| Source file . . . . .           | *TYPE     | *TYPE, name                  |
| Part list . . . . .             | *NONE     | *NONE, *PRV, name            |
| Text description . . . . .      | *BLANK    |                              |

---

Bottom

F3=Exit F4=Prompt F5=Refresh F12=Cancel F13=How to use this display  
F24=More keys

2. On the Create Part (CRTPART) display, type:
  - a. BLDOPT in the *Type* prompt.
  - b. MSTDSP in the *Part* prompt.
  - c. Accepting the defaults for the prompts, press the Enter key. The Work with Parts Using PDM display appears.
3. On the Work with Parts Using PDM display, type 2 (Change) beside the MSTDSP BLDOPT part, which is a template copied for you to change. Press the Enter key. The Edit display appears.
4. On the Edit display:
  - a. Press the Page Down key until the CRTDSPF command appears on your display.
  - b. Remove the comments from the CRTDSPF command by typing blanks over /\* and \*/ characters surrounding the command.
  - c. Move the cursor to the CRTDSPF command, and press F4 (Prompt). The Create Display File (CRTDSPF) display appears.
5. On the Create Display File (CRTDSPF) display, press F10 (Additional parameters), and add any new options, such as \*LIST, in the *Source listing options (OPTIONS)* prompt of the command.
6. To return to the Edit display, press the Enter key.
7. Press F3 (Exit). The Exit display appears.
8. Save your changes by pressing the Enter key. The Work with Parts Using PDM display appears.

Now the BLDPART command will use the CRTDSPF compile command from the MSTDSP build-option part, rather than the default command, to build the MSTDSP DDS source.

## Build Using the Build-Option Part

In this exercise you will use the build-option (BLDOPT) part called MSTDSP that was created in the previous exercise. To show the effect of having the BLDOPT part, you will build the part in report-only mode. The report-only mode provides a quick and easy way to perform the impact analysis without actually compiling any parts.

To use the BLDOPT part:

1. On the Work with Parts Using PDM display, type 14 (Build) beside the MSTDSP DDSSRC part, and press F4 (Prompt). The Build Part (BLDPART) display appears:

Build Part (BLDPART)

Type choices, press Enter.

|                             |                 |                          |
|-----------------------------|-----------------|--------------------------|
| Project . . . . .           | > ADMLABx       | Name                     |
| Group . . . . .             | > JACK          | Name                     |
| Type . . . . .              | > DDSSRC        | Name, *generic*, *ALL... |
| Part . . . . .              | > MSTDSP        | Name, *generic*, *ALL    |
| Language . . . . .          | > *ALL _____    | *ALL, name, *generic*    |
| Search path . . . . .       | > *DFT _____    | *DFT, name               |
| Scope of build . . . . .    | > *NORMAL _____ | *NORMAL, *LIMITED...     |
| Force build . . . . .       | *NO _____       | *NO, *YES                |
| Build mode . . . . .        | *COND _____     | *COND, *UNCOND, *RPTONLY |
| Save list . . . . .         | *NO _____       | *NO, *YES, *DLT          |
| Perform bind step . . . . . | *YES _____      | *YES, *NO                |
| Part list . . . . .         | *NONE _____     | *NONE, *PRV, name        |

Bottom

F3=Exit F4=Prompt F5=Refresh F12=Cancel F13=How to use this display  
F24=More keys

2. On the Build Part (BLDPART) display, type:
  - a. \*LIMITED in the *Scope of build* prompt.
  - b. \*NO in the *Force build* prompt.

If you make changes to the part to add new dependencies, then you should use FORCE(\*YES), so the build part is forced to re-build the part and add new dependency relations. Note that in this case FORCE(\*YES) is not necessary. The build part will recognize that the build-option part now contains the compiler command.

- c. \*RPTONLY in the *Build mode* prompt, and press the Enter key.
3. When the BLDPART command has completed, type WRKSPLF and press the Enter key to look at the last spooled file QPLYBLDP in the list. A report similar to Figure 9 on page 47 is shown.

If you press the Page Down key, you can see that the build process used the CRTDSPF command from the BLDOPT part.

```

Project . . . . . : ADMLABx
Group . . . . . : JACK
Type . . . . . : DDSSRC
Part . . . . . : MSTDSP
Search path . . . . . : *DFT
Scope of build . . . . . : *LIMITED
Force build . . . . . : *NO
Build mode . . . . . : *RPTONLY
Save list . . . . . : *NO
Perform Bind Step . . . . . : *YES
Search path part used . . . . . : *DFT
Search path used . . . . . : ADMLABx          JACK
                                   ADMLABx          COLLECTOR
                                   ADMLABx          TEST
                                   ADMLABx          MASTERV1
    
```

| DDSSRC-DSPF                     |           | FILE    | BLDOPT |       |                          |
|---------------------------------|-----------|---------|--------|-------|--------------------------|
| Part                            | Group     | Created | Part   | Group | Reason for Building      |
| MSTDSP                          | COLLECTOR | MSTDSP  | MSTDSP | JACK  | Source part has changed. |
| ***** END OF BUILD REPORT ***** |           |         |        |       |                          |

Figure 9. Sample of a Build Report Using BLDOPT Part

4. To return to the Work with Parts Using PDM display, press F3 (Exit) twice.
5. To check the part in, type 29 (Check in) beside MSTDSP BLDOPT part, and press the Enter key.

You have now built a part using the newly created BLDOPT part.

You can customize your builds using the build option parts. For example, you can build your entire application using the debug information in the TEST group, and without the debug information in the production group MASTERV1. You can also pre-process, post-process or override files during the build.

For more information about using the BLDOPT part, see *ADTS/400: Application Development Manager/400 User's Guide*.

## Delete a Part

To delete a part:

1. Type 4 (Delete) in the *Opt* prompt beside the PROC1 PGM and MSTDSP FILE parts (use the Page Down key to find the latter part), and press the Enter key. The Confirm Delete of Parts display appears.
2. To confirm your delete choices, press the Enter key.

The build outputs, such as PGM or FILE, have promote codes of \*NONE, so they cannot be normally promoted. That is why they are deleted here.

The build outputs cannot be promoted except when dragged along using an extended promote. The extended promote will not guarantee that there will not be level checks in the parent group.



## What You have Learned in Module 6

In this module, you have learned how to:

- Promote a part
- Delete a part
- Create a BLDOPT part
- Build using the BLDOPT part

## Module 6 Questions

1. Promote moves a part up \_\_\_\_\_ level in the project hierarchy.
2. To promote a part, you type option \_\_\_\_\_ beside the part in the Work with Parts Using PDM display.
3. When you promote a part:
  - The part is checked \_\_\_\_\_, if required.
  - The part is promoted to the \_\_\_\_\_ group.
  - PDM updates the \_\_\_\_\_.
4. You must have \_\_\_\_\_ access to the group from where you want to promote parts.
5. A build-option part lets you specify customized \_\_\_\_\_ or \_\_\_\_\_ commands.
6. To create a BLDOPT part in the Application Development Manager/400 feature, you press \_\_\_\_\_ from the Work with Parts Using PDM display, and enter the required parameters on the \_\_\_\_\_ display.
7. To make the changes to the BLDOPT part, type option \_\_\_\_\_ beside the part in the Work with Parts Using PDM display.
8. If you want to change the default compiler options used by the Application Development Manager/400 feature, create a part of type \_\_\_\_\_ with the same name as the part you want to build, and then issue a BLDPART command by typing option \_\_\_\_\_ on the Work with Parts Using PDM display.

---

## Module 7: Work with a Search-Path Part

In this module you will:

- Create a search-path part
- Use a search-path part

The exercises in this module are typically performed by an application developer. Use the JACKx user ID to do all the exercises in this module.

Since a typical project has several groups organized within a project hierarchy, there can be several versions of source and output. A **search path** is an arrangement of groups that determines the order in which the Application Development Manager/400 feature searches when looking for parts in a project hierarchy.

A **search-path part** (SCHPTH) contains the list of groups that determines the order in which groups will be searched for a specified part. The default search path from group JACK is JACK, COLLECTOR, TEST, and MASTERV1. You can change the order of the groups that are searched using a search-path part.

### Create a Search-Path Part

To create a search-path part:

1. On the Work with Parts Using PDM display, press F6 (Create) to create the SCHPTH part. The Create Part (CRTPART) display appears.
2. On the Create Part (CRTPART) display:
  - a. Type SCHPTH in the *Type* prompt.
  - b. Type NEW in the *Part* prompt, and press the Enter key.

A part called NEW is created and displayed on the Work with Parts Using PDM display.

### Use a Search-Path Part

If JACK and JILL are simultaneously working on some dependent parts in their development groups, and JACK needs to use the changes made by JILL to build his code, then JACK can create a SCHPTH part in his group, and add an entry for JILL's group just after the entry of his own group. If JACK specifies that this SCHPTH part is to be used when building his code, the Application Development Manager/400 build first searches JACK's group and then JILL's group to find the required parts.

To view the search-path part that you created in the previous exercise:

1. On the Work with Parts Using PDM display, type 5 (Display) in the *Opt* prompt beside the NEW SCHPTH part, and press the Enter key.

A Browse display similar to this one appears:

```
Columns . . . : 1 71          Browse          ADx.JACK/QSCHPTHSRC
SEU==>
FMT **  ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
***** Beginning of data *****
0001.00 ADMLABx JACK
0002.00 ADMLABx COLLECTOR
0003.00 ADMLABx TEST
0004.00 ADMLABx MASTERV1
***** End of data *****

F3=Exit  F5=Refresh  F9=Retrieve  F10=Cursor  F11=Toggle  F12=Cancel
F16=Repeat find      F24=More keys
(C) COPYRIGHT IBM CORP. 1981, 1995.
```

The SCHPTH part is automatically filled in with the default hierarchy. The SCHPTH part can be changed at any time.

Each line in the part consists of project and group combinations. If you specify the groups from the other project (**cross project**) in the search-path parts and you are enrolled in that project, then the specified cross project groups are also searched for the parts.

2. To return to the Work with Parts Using PDM display, press F3 (Exit).
3. To sign off, type SIGNOFF on any AS/400 command line, and press the Enter key.

If you want to take a break from the exercises, this is a good place to do so.

## What You have Learned in Module 7

In this module, you have learned how to:

- Create a search-path part
- Use a search-path part

## Module 7 Questions

1. A search-path part contains a list of \_\_\_\_\_ that determines the order in which groups will be searched for a specific part.
2. On the Create Part (CRTPART) display that appears when you press F6 (Create) on the Work with Parts Using PDM (WRKPARTPDM) display, type \_\_\_\_\_ on the *Type* prompt, and type the name you want to assign to the part on the *Part* prompt to create a search-path part.
3. The SCHPTH part is automatically filled with the \_\_\_\_\_ .

- Each line in the SCHPTH part consists of combinations of \_\_\_\_\_ and \_\_\_\_\_ .

---

## Module 8: Produce the Final Application

In this module you will:

- Promote and build the final application
- Export an application

The exercises in this module are typically performed by an application builder or an administrator. Use the ADMINx user ID to do all the exercises in this module.

At this point in the guide, the developers have made the changes and promoted the parts to the COLLECTOR group. Periodically (every day, every other day, once a week), the project administrator builds everything in this collector group.

The BLDPART command only compiles what needs to be compiled. This reduces the number of compiles in the developer groups because the parts will already be up-to-date at the collector level, or above.

Normally the project administrator would compile and ensure that the entire application is tested at each level before promoting parts.

### Create a Production Version of an Application

To promote and build the final version of the application:

- Log on to the system using the ADMINx user ID.
- Type STRPDM, and press the Enter key.
- To look at all projects to which you have access from this user ID, type 4 (Work with projects), and press the Enter key twice.
- Type 12 (Work with) beside the project ADMLABx, and press the Enter key. The Work with Groups Using PDM display appears.
- Type 30 (Promote) beside the JACK group, and press F4 (Prompt), to prompt on the Promote Part (PRMPART) command. The Promote Part (PRMPART) display appears:

```

                                Promote Part (PRMPART)

Type choices, press the Enter key.

Project . . . . . > ADMLABx      Name
Group . . . . . > JACK_____  Name
Type . . . . . > *ALL_____  Name, *ALL, BLDOPT, BNDDIR...
Part . . . . . > *ALL_____  Name, *ALL
Extended promote . . . . . *NO_  *NO, *YES
PARTL processing option . . . . *LIST  *LIST, *PART, *BOTH
Part list . . . . . *NONE_____ *NONE, *PRV, name
Archive . . . . . *NO_        *NO, *YES

```

6. To check in all the parts in the JACK group and promote them to the COLLECTOR group, press the Enter key.

All the parts of the application that have changed have now been promoted from the development level to the collector level. Note that generally the parts from a development group are promoted by a developer when the updates are complete.

The following message appears at the bottom of the Work with Groups Using PDM display:

*2 parts processed, 0 parts not processed.*

When it was verified that they compiled successfully, they were then promoted to the TEST level, where they were built. Typically, the project administrator would then export the objects from the hierarchy, starting from the TEST group level, to a test library outside of Application Development Manager/400 control.

7. Type 30 (Promote) beside the COLLECTOR group, and press the Enter key.

All the parts in the COLLECTOR group have now been promoted to the TEST group, where they will be built.

The following message appears at the bottom of the Work with Groups Using PDM display:

*3 parts processed, 0 parts not processed.*

8. Type 30 (Promote) beside the TEST group, and press the Enter key.

All the parts in the TEST group have now been promoted to the MASTERV1 group.

The parts promoted to the MASTERV1 level contain the source and objects that make up the production version of the application.

The following message appears at the bottom of the Work with Groups Using PDM display:

*3 parts processed, 0 parts not processed.*

9. To build all the parts (compiling only if necessary), type 14 (Build) in the *Opt* prompt beside the MASTERV1 group, and press the Enter key.

*2 parts built, 0 parts failed, 0 warnings.*

You have now promoted and built the necessary parts. The application is ready to be used in the production environment.

## Export an Application

In this exercise you will export all object parts, PGMs and FILEs to name a few.

**Export** means to copy one or more parts of an application from an Application Development Manager/400 project hierarchy into a given AS/400 library. You can also export or copy parts to a library that you intend to restore on another AS/400 system. Note that exporting can be done from any group at any time. This capability allows you to create early-ship drivers of your application, send them out to your users while preserving what you sent out, and allowing your development team to continue.

When the application is completed and ready for production, or test, the administrator is typically the one to export it to the production or test libraries.

To export an application:

1. On the Work with Groups Using PDM, type 39 (Export) beside the MASTERV1 group and press F4 (Prompt). The Export Part (EXPPART) display appears:

```

Export Part (EXPPART)

Type choices, press Enter.

Project . . . . . > ADMLABx      Name
Group . . . . . > MASTERV1     Name
Type . . . . . > *ALL_____   Name, *generic*, *ALL...
Part . . . . . > *ALL_____   Name, *generic*, *ALL
Language . . . . . > *ALL_____ *ALL, name, *NONE, BND, C...
Change date . . . . . > *BEGIN__ *BEGIN, *CURRENT, date
Scan hierarchy . . . . . > *YES   *YES, *NO
Search path . . . . . > *DFT_____ *DFT, name
Cross project . . . . . > *NO_____ *NO, *YES
To library . . . . . > *CURLIB_____ *CURLIB, name
To source file . . . . . > *FROMFILE_____ *FROMFILE, name, *TYPE
Copy data . . . . . > *NO_____ *NO, *YES
Replace object . . . . . > *YES_____ *YES, *NO
Owner of exported part . . . . . > *TOOBJ_____ *TOOBJ, name, *USRPRF
Authority . . . . . > *TOOBJ_____ *TOOBJ, name, *LIBCRTAUT...
PARTL processing option . . . . . > *LIST_____ *LIST, *PART, *BOTH
More...

F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F13=How to use this display
F24=More keys

```

2. On the Export Part (EXPPART) display, type:
  - a. \*NONSRC in the *Type* prompt, so that only the non-source object parts are exported.
  - b. QTEMP in the *To library* prompt.
  - c. Accept the defaults for the other prompts, and press the Enter key twice.

Six objects from the MASTERV1 group are copied to the QTEMP library.

You have now exported all the object parts to the QTEMP library. You can type DSPLIB QTEMP on the command line to view the list of objects exported. When you have finished viewing it, press the Enter key to return to the Work with Groups Using PDM display.

## What You have Learned in Module 8

In this module, you have learned how to:

- Promote and build the final application
- Export an application

## Module 8 Questions

1. The BLDPART command \_\_\_\_\_ only what needs to be compiled.
2. When you type 30 (Promote) in the *Opt* prompt beside a group, every part in the group is promoted to the next \_\_\_\_\_ group.

3. The export part function is useful to create a \_\_\_\_\_ or \_\_\_\_\_ version from a specific group.
4. Specifying the \*NONSRC on the *Type* prompt on the Export Part (EXPPART) display will mean that only \_\_\_\_\_ objects will be exported.

---

## Module 9: Develop the Follow-on Version of an Application

In this module you will:

- Create the Version 2 hierarchy
- Move the Version 1 hierarchy under Version 2
- Change the promote code

The exercises in this module are typically performed by an administrator. Use the ADMINx user ID to do all the exercises in this module.

Now that Version 1 of your hierarchy is complete, you could expand the hierarchy to allow for development of a Version 2. There are two ways of doing this:

- Move the existing group hierarchy below the MASTERV1 group, under a new group, MASTERV2. Development for the follow-on version is done in the new MASTERV2 branch of the hierarchy, thereby preserving Version 1 code. Groups that allow fixes to Version 1 need to be created.
- Create new groups under the new MASTERV2 group. The advantage to this approach is that you can preserve your Version 1 branch for fixes to Version 1.

In the following exercise, the existing Version 1 branch is moved over to Version 2. Figure 10 on page 55 shows the project hierarchy that you will create in this exercise.

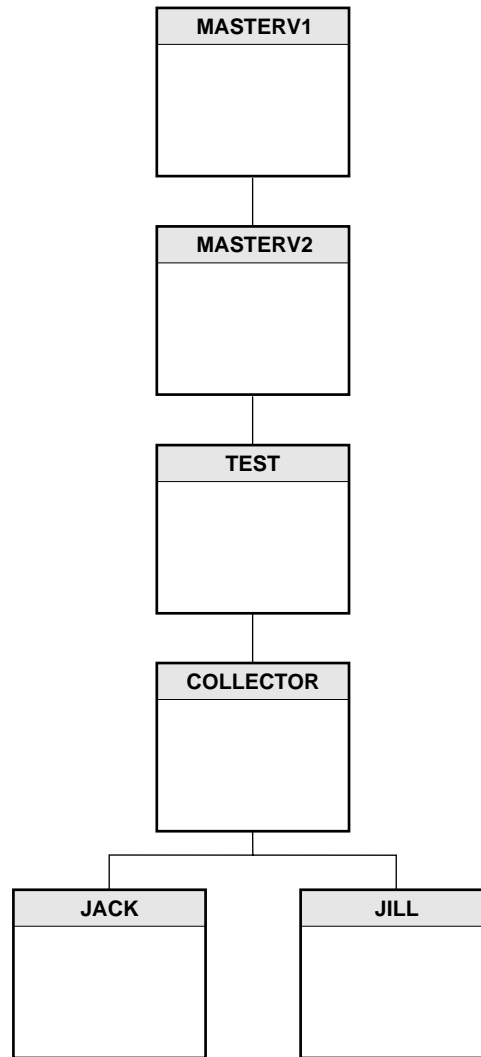


Figure 10. Project hierarchy for a follow-on version

**Note:** Note that the JACK and JILL user IDs should not be logged on. You should be on the STRPDM display before proceeding. The hierarchy cannot be changed while people are using it. If it could, the integrity of the project hierarchy would be jeopardized.

You cannot change a part of the hierarchy which contains the parts waiting to be promoted to the higher group. That means to change a branch of a hierarchy, you must not have any parts in that branch.

## Create Version 2 Hierarchy

To create a Version 2 hierarchy:

1. On the Work with Groups Using PDM display, press F6 (Create) to create a group. The Create Group (CRTGRP) display appears.
2. On this display:
  - a. Type MASTERV2 in the *Group* prompt.
  - b. Type MSTV2 in the *Short group* prompt.
  - c. Type MASTERV1 in the *Parent group* prompt.



d. Type MASTERV2 in the *Promote code* prompt.

This approach means that parts changed in or below MASTERV2 cannot be promoted to the MASTERV1 group, thereby preserving the integrity of Version 1.

e. Type This is the V2 master group in the *Text description* prompt, and press the Enter key. The Work with Groups Using PDM display appears:

```

Work with Groups Using PDM

Project . . . . . ADMLABx_____

Type options, press Enter.
  2=Change      4=Delete      12=Work with      14=Build
 25=Find string 29=Check in   30=Promote       38=Import...

Opt Level Group
--  01  MASTERV1
--  02  MASTERV2
--  02   TEST
--  03   COLLECTOR
--  04   JACK
--  04   JILL

Parameters or command _____ Bottom
====>
F3=Exit      F4=Prompt      F5=Refresh      F6=Create
F9=Retrieve   F10=Command entry F12=Cancel     F24=More keys
Group MASTERV2 created successfully.

```

You have added the MASTERV2 group under the MASTERV1 group.

## Move Version 1 Hierarchy Under Version 2

Now we want to move the Version 1 hierarchy under the Version 2 MASTER group. Do the following:

1. On the Work with Groups Using PDM display, type 2 (Change) beside the TEST group, and press F4 (Prompt). Your display looks like this:

```

Change Group (CHGGRP)

Type choices, press Enter.

Project . . . . . > ADMLABx      Name
Group . . . . . > TEST          Name
Parent group . . . . . MASTERV1 _____
Promote code . . . . . MASTERV1 _____
Notify . . . . . *NONE_____ *SAME, name, *NONE, *DEVELOPER
PARTL required . . . . . *NO_____ *SAME, *NO, *YES
Text description . . . . . > 'This is the test group _____
                                     , _____

_____

Bottom
F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F13=How to use this display
F24=More keys

```

2. On this display:

a. Type MASTERV2 in the *Parent group* prompt.

b. Type MASTERV2 in the *Promote code* prompt, and press the Enter key. Your display looks like this:

```
Work with Groups Using PDM
Project . . . . . ADMLABx_____
Type options, press Enter.
 2=Change      4=Delete      12=Work with      14=Build
25=Find string 29=Check in   30=Promote       38=Import...

Opt  Level  Group
---   01    MASTERV1
---   02    MASTERV2
---   03     TEST
---   04     COLLECTOR
---   05     JACK
---   05     JILL

Parameters or command                                     Bottom
====>
F3=Exit      F4=Prompt      F5=Refresh      F6=Create
F9=Retrieve   F10=Command entry F12=Cancel     F24=More keys
Group TEST changed.
```

You have moved the TEST group to be under the MASTERV2 group.

## Change the Promote Code

Now change the promote codes for the other groups:

1. To change the promote code for the COLLECTOR group:

a. On the Work with Groups Using PDM display, type 2 (Change) beside the COLLECTOR group and press F4 (Prompt). The Change Group (CHGGRP) display appears.

b. On this display, type MASTERV2 in the *Promote code* prompt, and press the Enter key. The Work with Groups Using PDM display again appears.

2. To change the promote code for the JACK group:

a. On this display, type 2 (Change) beside the JACK group, and press F4 (Prompt). The Change Group (CHGGRP) display again appears.

b. On this display, type MASTERV2 in the *Promote code* prompt, and press the Enter key. The Work with Groups Using PDM display appears.

3. To change the promote code for the JILL group:

a. On this display, type 2 (Change) beside the JILL group, and press F4 (Prompt). The Change Group (CHGGRP) display appears.

b. On this display, type MASTERV2 in the *Promote code* prompt, and press the Enter key.

4. On the Work with Groups Using PDM display, press F14 (Display text) twice to see the following display showing the promote codes for each group:

```

Work with Groups Using PDM

Project . . . . . ADMLABx_____

Type options, press Enter.
 2=Change      4=Delete      12=Work with    14=Build
25=Find string 29=Check in   30=Promote     38=Import...

Opt  Level  Group                Promote code
---   01   MASTERV1            MASTERV1
---   02   MASTERV2            MASTERV2
---   03   TEST                MASTERV2
---   04   COLLECTOR          MASTERV2
---   05   JACK                MASTERV2
---   05   JILL                MASTERV2

Parameters or command                                     Bottom
====>
F3=Exit      F4=Prompt      F5=Refresh     F6=Create
F9=Retrieve   F10=Command entry F12=Cancel    F24=More keys

```

5. To return to the indented view of the groups, press F14 (Display hierarchy).

You have now moved the Version 1 hierarchy over to Version 2, since there are no parts in any of the groups that can be promoted to the MASTERV1 group. Ensure that all parts are promoted to the MASTERV1 group before moving the groups.

## What You have Learned in Module 9

In this module, you have learned how to:

- Create the Version 2 hierarchy
- Move the Version 1 hierarchy under Version 2
- Change the promote code

## Module 9 Questions

1. To expand a hierarchy to allow another version of development to begin, you:
  - Create a new \_\_\_\_\_ for the new version.
  - Move the \_\_\_\_\_ under the new group.
  - Change the \_\_\_\_\_ code of the changed groups.
  
2. Adding groups for follow-on versions is a useful procedure because your previous version of code is then maintained so that you can do \_\_\_\_\_, and you can also continue working with the new \_\_\_\_\_ of code in the new group.
  
3. To set up the project hierarchy for a follow-on version, you would add another \_\_\_\_\_ under the group containing the final code of the previous version, and add new \_\_\_\_\_ under the new group.

4. The group hierarchy \_\_\_\_\_ be changed when other users are using that project or parts are waiting to be \_\_\_\_\_

---

## Module 10: Handle Fixes

In this module you will:

- Expand the hierarchy to handle Version 1 fixes
- Check out a part to two groups
- Promote a part to a group with a different promote code

The exercises in this module are typically performed by an administrator and an application developer. Continue using the ADMINx user ID to start the exercise in this module, and later on use JACKx and JILLx user IDs.

### Expand the Hierarchy to Handle Version 1 Fixes

In this exercise you will expand the hierarchy to handle fixes to the application by:

1. Creating a new group called FIXV1.
2. Changing the access authority for the JACKx user ID.

Figure 11 on page 60 shows the modified project hierarchy that you will create in this exercise.

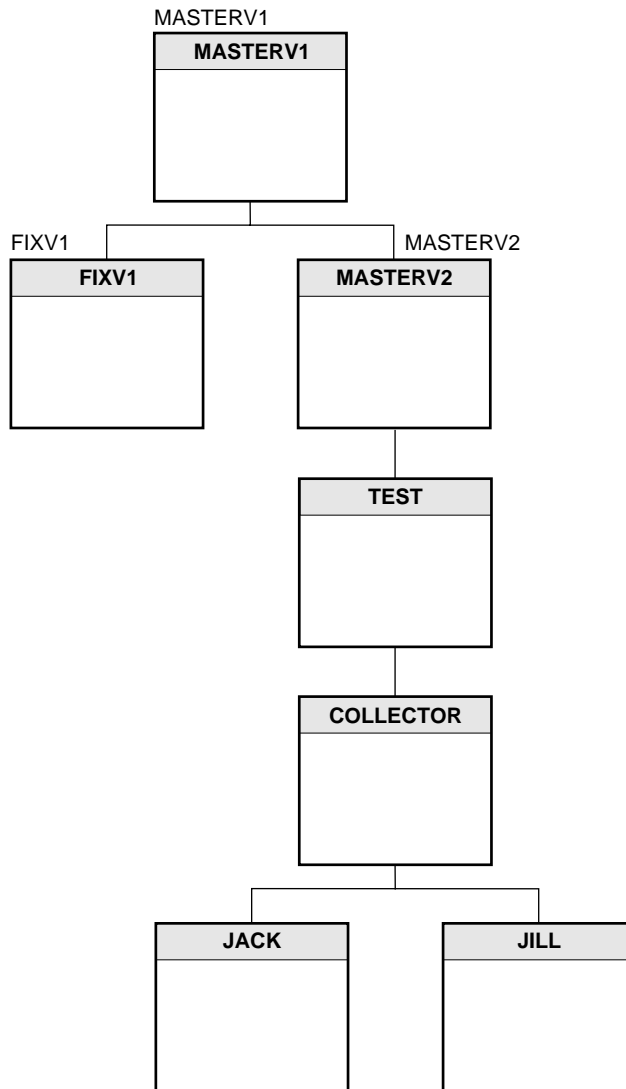


Figure 11. Project hierarchy for Version 2

To create a new group to handle Version 1 fixes:

1. On the Work with Groups Using PDM display, press F6 (Create) to create a group to handle the fixes for Version 1. The Create Group (CRTGRP) display appears.

For the purposes of this guide, we will create only one group.

2. On this display:
  - a. Type FIXV1 in the *Group* prompt.
  - b. Type FIXV1 in the *Short group* prompt.
  - c. Type MASTERV1 in the *Parent group* prompt.
  - d. Type FIXV1 in the *Promote code* prompt.

The promote code of FIXV1 will prevent any parts from being promoted to the MASTERV1 group, thereby preserving the Version 1 application.

- e. Press the Enter key.

The Work with Groups Using PDM display appears:

```

Work with Groups Using PDM
Project . . . . . ADMLABx_____
Type options, press Enter.
  2=Change      4=Delete      12=Work with      14=Build
 25=Find string 29=Check in   30=Promote       38=Import...

Opt Level Group
--  01  MASTERV1
--  02  FIXV1
--  02  MASTERV2
--  03  TEST
--  04  COLLECTOR
--  05  JACK
--  05  JILL

Parameters or command
====>
F3=Exit      F4=Prompt      F5=Refresh      F6=Create
F9=Retrieve   F10=Command entry F12=Cancel     F24=More keys
Group FIXV1 created successfully.
Bottom

```

3. To return to the Work with Projects Using PDM display, press F12 (Cancel).
4. Type 42 (Change user) beside the project ADMLABx, and press the Enter key.

The Change Project User (CHGPRJUSR) display, similar to the one below, appears.

```

Change Project User (CHGPRJUSR)
Type choices, press Enter.
Project . . . . . > ADMLABx      Name
User profile . . . . .          Name
User type . . . . . *DEVELOPER  *SAME, *DEVELOPER, *ADMIN

Bottom
F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F13=How to use this display
F24=More keys

```

On this display you can change a particular user profile's enrollment information, such as information on the user type or the access authority for a project. Ensure that the user whose enrollment information is changing does not have any parts checked out. Only a project administrator can make these changes.

5. To give JACK update access to the FIXV1 groups, on the Change Project User (CHGPRJUSR) display:
  - a. Type JACKx in the *User profile* prompt.
  - b. Type \*DEVELOPER in the *User type* prompt, and press the Enter key for more options.
  - c. Type \*UPDATE in the *Project access level* prompt.
  - d. Type JACK in the *Development group* prompt, and then type FIXV1 on the next line.
 

**Note:** You must type all the development groups to ensure the correct access to them, since the previous authorities will be updated by the CHGPRJUSR command.
  - e. Press the Enter key.
6. To sign off, type SIGNOFF on any AS/400 command line, and press the Enter key.
 

If you want to take a break from the exercises, this is a good place to do so.

## Check a Part Out to Two Groups

In this exercise you will check the same part called DDSSRC MSTDSP out to more than one group.

Note that you cannot check out the same part in two groups with the same promote codes if you use the promote code of \*GRP (default value) on the CHKOUTPART command.

1. Log on to the system using the JACKx user ID.
2. On any AS/400 display, type WRKGRPPDM ADMLABx on the command line, and press the Enter key. The Work with Groups Using PDM display appears.
3. Type 12 (Work with) beside the JACK group, and press the Enter key. The Work with Parts Using PDM display appears.
4. Type 28 (Check out) beside MSTDSP DDSSRC, and press the Enter key. Doing so will check the part out to you, lock it to your JACKx user ID, and copy it down to your development group (JACK). This part is now checked out and undergoing changes for Version 2.
 

Now JACK is working on the Version 2 DSPF, but he needs to make a fix to the Version 1 DSPF.
5. To return to the Work with Groups Using PDM display, press F12 (Cancel).
6. Press the Page Up key to display the FIXV1 group.
7. Type 12 (Work with) beside the FIXV1 group, and press the Enter key. The Work with Parts Using PDM display appears.
8. Type 28 (Check out) beside MSTDSP DDSSRC, and press the Enter key. Doing so will check the part out to you, lock it to your JACKx user ID, and copy it down to the fix group (FIXV1).

You now have three active versions of the DSPF part MSTDSP. It is in MASTERV1 (which means it is in production), it is in group JACK, which means it is undergoing changes for Version 2, and it is in FIXV1, which means it is being fixed for Version 1.

## Promote a Part To a Group with a Different Promote Code

Now let's try promoting the part into a group with a different promote code.

1. On the Work with Parts Using PDM display, type 30 (Promote) beside the MSTDSP DDSSRC part, and press the Enter key. Your display looks like this:

```

Work with Parts Using PDM

Project . . . . . ADMINx _____
Specified group . . . . . FIXV1 _____
Position to . . . . . _____ Position to type . . . . . ____

Type options, press Enter.
 2=Change      3=Copy      4=Delete      5=Display      6=Print      7=Rename
 8=Display information 13=Change information 14=Build      16=Run ...

Opt Part      Type      Language  Group
--- EMPMST     DDSSRC    PF        MASTERV1
30  MSTDSP     DDSSRC    DSPF      FIXV1
--- PRJMST     DDSSRC    PF        MASTERV1
--- REF MST   DDSSRC    PF        MASTERV1
--- RSNMST    DDSSRC    PF        MASTERV1
--- PROC1     RPSRC     RPG       MASTERV1
--- PROC1     PGM       RPG       MASTERV1

Parameters or command
====>
F3=Exit      F4=Prompt      F5=Refresh      F6=Create
F9=Retrieve   F10=Command entry F23=More options F24=More keys
Cannot promote parts out of group FIXV1.

```

2. For additional message information, press F1 on the message:

*Cannot promote parts out of group FIXV1.*

The Additional Message Information display, similar to the one shown below appears:

```

Additional Message Information

Message ID . . . . . : ADM1656      Severity . . . . . : 30
Message type . . . . . : Information
Date sent . . . . . : 09/29/95      Time sent . . . . . : 17:05:30

Message . . . . . : Cannot promote parts out of group FIXV1.
Cause . . . . . : Group FIXV1 is the target group of a promote path or has
the promote code *NONE. No parts can be promoted out of this group.
Recovery . . . . . : None.

Bottom

Press Enter to continue.

F3=Exit F6=Print F9=Display message details
F10=Display messages in job log F12=Cancel F21=Select assistance level

```

The promote code for FIXV1 has prevented the developer from promoting into the MASTERV1 group, thereby preserving the original code.

3. To return to the Work with Groups Using PDM display, press F12 (Cancel) twice.



4. On the Work with Groups Using PDM display, type 12 (Work with) beside the JACK group, and press the Enter key. The Work with Parts Using PDM display appears.
5. On the Work with Parts Using PDM display, type 30 (Promote) beside the MSTDSP DDSSRC part, and press the Enter key.

The following message appears at the bottom of the Work with Parts Using PDM display:

*Part MSTDSP checked in before being promoted.*

6. To sign off, type SIGNOFF on any AS/400 command line, and press the Enter key.

If you want to take a break from the exercises, this is a good place to do so.

As a project administrator, you can now export multiple versions of the application (or pieces thereof), from the FIXV1 group (the Version 1 application with fixes), from MASTERV1 (the original Version 1 application), and from MASTERV2 (the follow-on version).

## What You have Learned in Module 10

In this module, you have learned how to:

- Expand the hierarchy to handle Version 1 fixes
- Check out a part to two groups
- Promote a part to a group with a different promote code

## Module 10 Questions

1. To change the user enrollment information, type the \_\_\_\_\_ command.
2. To display additional message information, press \_\_\_\_\_ on the message itself located at the bottom of the Work with Parts Using PDM display.
3. The \_\_\_\_\_ prevents the developer from promoting a part into the wrong group, overwriting the stable or frozen code.

---

## Module 11: Compare and Merge Parts

In this module you will:

- Compare parts
- Merge parts

The exercises in this module are typically performed by an application developer. Use the JILLx user ID to do all the exercises in this module.

## Compare Parts

The Compare Part (CMPPART) command allows you to compare two or more parts stored in source members. You can compare the fixed version of the part with the production or test version.

Let us see how Jill can undo the previous changes made by Jack in MSTDSP DDSSRC, and compare the parts to ensure that the changes made by her are correct.

1. Log on to the system using the JILLx user ID.
2. On any AS/400 display, type WRKPARTPDM and press F4 (Prompt). (This action is similar to typing 12 on the Work with Groups Using PDM display.) The Work with Parts Using PDM (WRKPARTPDM) display appears:

```
Work with Parts Using PDM (WRKPARTPDM)

Type choices, press Enter.

Project . . . . . *PRV _____
Group . . . . . *PRV _____
Part type . . . . . *PRV _____ *PRV, *ALL, type, *generic*
Part Name . . . . . *PRV _____ *PRV, *ALL, name, *generic*
Language . . . . . *PRV _____ *PRV, *ALL, *NONE, language
Part List . . . . . *PRV _____ *PRV, *NONE, name

                                                                    Bottom
F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F13=How to use this display
F24=More keys
```

3. On this display type:
  - a. Type ADMLABx in the *Project* prompt.
  - b. Type JILL in the *Group* prompt.
  - c. Type \*ALL in the *Part type* prompt.
  - d. Type \*ALL in the *Part Name* prompt.
  - e. Type \*ALL in the *Language* prompt.
  - f. Type \*NONE in the *Part List* prompt, and press the Enter key. The Work with Parts Using PDM display appears.
4. To add project libraries to the library list, type the user-defined option AP beside any part entry, and press the Enter key.
5. To check out the part, type 28 (Check out) beside MSTDSP DDSSRC, and press the Enter key.
6. To change this part using SDA, type 17 (Change using SDA) beside MSTDSP DDSSRC, and press the Enter key.

Your display looks like this:

```

Work with Display Records

File . . . . . : QDSSRC          Member . . . . . : MSTDSP
Library . . . . : ADX.JILL       Source type . . . : DSPF

Type options, press Enter.
1=Add          2=Edit comments      3=Copy          4=Delete
7=Rename      8=Select keywords      12=Design image

Opt  Order  Record      Type      Related Subfile  Date      DDS Error
---  ---    -----
---   10    SELECT      RECORD    09/29/95
---   20    EMPSEL      RECORD    06/29/92
---   30    EMPMNT      RECORD    04/10/89
---   40    PRJSEL      RECORD    04/10/89
---   50    PRJMNT      RECORD    04/10/89
---   60    RSNSEL      RECORD    04/10/89
---   70    RSNMNT      RECORD    04/10/89

F3=Exit      F12=Cancel  F14=File-level keywords
F15=File-level comments  F17=Subset  F24=More keys
(C) COPYRIGHT IBM CORP. 1981, 1995.

Bottom

```

7. Type 12 (Design image) beside the SELECT record, and press the Enter key.
8. Type blanks over "Jack added this... BBBB", and press the Enter key.
9. Press F3 (End of job).
10. To save your changes, press the Enter key three times.
11. To exit the Save DDS - Create Display File display, press F3 (Exit).
12. Type 54 (Compare) beside MSTDSP DDSSRC, and press F4 (Prompt). The Compare Part (CMPPART) display appears:

```

Compare Part (CMPPART)

Type choices, press Enter.

Project . . . . . > ADMLABx      Name
New group . . . . . > JILL        Name
New type . . . . . > DDSSRC       Name, *ALL, BLDOPT, BNSRC...
New part . . . . . > MSTDSP       Name, *ALL
Old group . . . . . *NEWGRP
Old type . . . . . *NEWTYPE__ *NEWTYPE, name, BLDOPT...
Old part . . . . . *NEWPART__ *NEWPART, name
Compare type . . . . . *LINE      *LINE, *FILE, *WORD
Report type . . . . . *DIFF__    *DIFF, *SUMMARY, *CHANGE...
Output . . . . . *_____ * , *PRINT, *OUTFILE

F3=Exit  F4=Prompt  F5=Refresh  F10=Additional parameters  F12=Cancel
F13=How to use this display  F24=More keys

Bottom

```

- On this display, type COLLECTOR in the *Old group* prompt, and press the Enter key.

A Display Spooled File display, similar to the one below, appears showing you the compare results of the MSTDSP display source part in JILL's group and the MASTERV1 group, which is the MSTDSP source found in the hierarchy above the COLLECTOR group.

```

Display Spooled File
File . . . . . : QUEPRT                               Page/Line  1/6
Control . . . . .                               Columns   1 - 78
Find . . . . .
*...+...1...+...2...+...3...+...4...+...5...+...6...+...7...+...
IBM COMPARE V3R1M0  940909
NEW:  ADx.JILL/QDDSSRC(MSTDSP)                       OLD:  ADx.
LISTING OUTPUT SECTION (LINE COMPARE)

ID      SOURCE LINES
-----+-----1-----+-----2-----+-----3-----+-----4-----+-----5-----+-----6-----+-----7-----+
I -    A*%TS SD 19950609 101555 JILLx      REL-V3R6M0 5716-PW1
D -    A*%TS SD 19950608 160726 JACKx      REL-V3R6M0 5716-PW1

I -    A*%TS SD 19950609 101555 JILLx      REL-V3R6M0 5716-PW1
D -    A*%TS SD 19950608 160726 JACKx      REL-V3R6M0 5716-PW1

D -    A                               19 23'Jack'
D -    A                               19 28'added'
D -    A                               19 34'this'
D -    A                               19 39'field...'

More...

F3=Exit  F12=Cancel  F19=Left  F20=Right  F24=More keys

```

- To see the complete report, page down a few times.
- To return to the Work with Parts Using PDM display, press F12 (Cancel),

## Merge Parts

The Merge Part (MRGPART) command allows you to merge two or more parts stored in source members. It compares the two versions of a part and merges the changes in the target version. This approach can be useful if you must migrate a change from a fix version of a part to a follow-on version of a part, or if you want to merge someone else's changes with your own change to a given part.

The **maintenance** part is the source part containing the updates to be merged into the target part. The **target** part is the source part containing updates to be merged with the maintenance part. The **root** part is the original version of the source part on which both sets of updates are based.

Since Jill has made some changes to her version of MSTDSP DDSSRC, and wants to merge the changes made by Jack as well, she can use the MRGPART command to add Jack's changes to her copy of MSTDSP.

1. On the Work with Parts Using PDM display, type 55 (Merge) beside MSTDSP DDSSRC, and press F4 (Prompt). The Merge Part (MRGPART) display appears:

```

Merge Part (MRGPART)

Type choices, press Enter.

Project . . . . . > ADMLABx      Name
Target group . . . . . > JILL      Name
Target type . . . . . > DDSSRC     Name, *ALL, BLDOPT, BNDSRC...
Target part . . . . . > MSTDSP     Name, *ALL
Maintenance group . . . . . *TARGET
Maintenance type . . . . . *TARGET _____ Name, *TARGET, BLDOPT...
Maintenance part . . . . . *TARGET _____ Name, *TARGET
Root group . . . . . *MAINT
Root type . . . . . *MAINT _____ Name, *MAINT, BLDOPT...
Root part . . . . . *MAINT _____ Name, *MAINT
Part list . . . . . > *NONE _____ *NONE, *PRV, name
Select changes . . . . . *YES _____ *YES, *NO

Bottom
F3=Exit  F4=Prompt  F5=Refresh  F10=Additional parameters  F12=Cancel
F13=How to use this display  F24=More keys

```

2. On this display,
  - a. Type FIXV1 in the *Maintenance group* prompt.
  - b. Type JILL in the *Root group* prompt. (Normally, you would use COLLECTOR here, but we know that the parts in FIXV1 and MASTERV1 are the same, resulting in no merge.)
  - c. Press the Enter key.

A display similar to the one below appears:

```

Columns . . . . : 1 71      Target      Adx.JILL/QDDSSRC
MRG=>           MSTDSP
BASE .....A* 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
***** Beginning of data *****
>>>>>> A*%TS SD 19950609 101555 JILLx      REL-V3R6M0 5716-PW1
0000.20 A* 89/04/10 16:28:41 SING      REL-R01M02 5728-PW1
0000.30 A*****
0000.40 A* THIS DISPLAY FILE PROVIDES MAINTENANCE FORMATS FOR ALL THE
0000.50 A* TIME REPORTING MASTER FILES - EMPLOYEE MASTER
0000.60 A* - PROJECT MASTER

Columns . . . . : 1 71      Maintenance  Adx.FIXV1/QDDSSRC
MRG=>           MSTDSP
***** Beginning of data *****
>>>>>> A*%TS SD 19950608 160726 JACKx      REL-V3R6M0 5716-PW1
0000.20 A* 89/04/10 16:28:41 SING      REL-R01M02 5728-PW1
0000.30 A*****
0000.40 A* THIS DISPLAY FILE PROVIDES MAINTENANCE FORMATS FOR ALL THE
0000.50 A* TIME REPORTING MASTER FILES - EMPLOYEE MASTER
0000.60 A* - PROJECT MASTER

F2=Reject  F14=Accept all  F15=Accept  F16=Next
F17=Previous  F22=Alternative keys  F24=More keys
Showing maintenance update 1 of 3.

```

3. Keep pressing F16 (Next) until you reach a display that reads "Jack added this field...".
4. To accept the merge which copies these updates into the target part, press F15 (Accept).
5. To end this display, press F3 (Exit), and then press the Enter key on the Exit display. You are returned to Work with Parts Using PDM display.
6. Type 5 (Display) beside the MSTDSP DDSSRC part, and press the Enter key.
7. Verify that the source contains "Jack added this field..." string by pressing Page Down key until you see it.
8. To return to Work with Parts using PDM display, press F12 (Cancel).

## What You have Learned in Module 11

In this module, you have learned how to:

- Compare parts
- Merge parts

## Module 11 Questions

1. Comparing parts is useful if you want to \_\_\_\_\_ that the fix made in the source part is correct.
2. To compare parts, you type \_\_\_\_\_ in the *Opt* prompt beside one of the parts you want to compare on the Work with Parts Using PDM display, and press F4 (Prompt) to change the \_\_\_\_\_ prompt on the Compare Part command.
3. Merging parts is useful if you want to include the changes that were made by different \_\_\_\_\_ in different versions of a part.
4. To merge parts, you type \_\_\_\_\_ in the *Opt* prompt beside the part to which you want to merge the changes.

---

## Module 12: Archive and Roll Back Parts

In this module you will:

- Archive a part
- Create a roll back user-defined option
- Roll back a part

The exercises in this module are typically performed by an application developer. Use the JILLx user ID to do the archive and the roll back exercises in this module.

## Archive a Part

In an Application Development Manager/400 environment, with the contents of parts constantly changing, you might want to keep back-level versions of parts. The **archive** function of the Application Development Manager/400 feature allows you to save a backup copy when you change, import, or promote a part. You can automatically archive up to five versions of a source part in a given group.

A **group archive library** contains the back-level versions of parts. This library can contain source files with names the same as their part names, and with each containing up to five back-level version members. The member's name is "archiven", where n=1 is the most recent version and n=5 is the oldest version.

To archive a part use the JILLx user ID when completing the following steps:

1. On the Work with Parts Using PDM display, type 28 (Check out) beside PROC1 RPGSRC, and press the Enter key.
2. Type 2 (Change) beside PROC1 RPGSRC, and press F4 (Prompt). The Change Part (CHGPART) display appears:

```
Change Part (CHGPART)

Type choices, press Enter.

Project . . . . . > ADMLABx      Name
Group . . . . . > JILL          Name
Type . . . . . > RPGSRC         Name, BLDOPT, BNDDIR...
Part . . . . . > PROC1          Name
Change command . . . . . > *TYPE *TYPE, STRSDA, STRRLU, UPDDTA
Part list . . . . . > *NONE     *NONE, *PRV, name
Archive . . . . . *NO_         *NO, *YES

Bottom
F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F13=How to use this display
F24=More keys
```

3. On this display, type \*YES in the *Archive* prompt, and press the Enter key. The Source Entry Utility (SEU) display appears.
4. On the EDIT display, type This is an RPG program on the PROGRAM NAME line, and press the Enter key.
5. To exit the EDIT display, press F3 (Exit),
6. To exit the Exit display, press the Enter key.
7. On the Work with Parts Using PDM display, type 52 (Work with archived members) beside PROC1 RPGSRC, and press the Enter key.

The Work with Members Using PDM display appears:

```

Work with Members Using PDM
File . . . . . PROC1_____
Library . . . . . ADx_JILL__      Position to . . . . . _____

Type options, press Enter.
2=Edit      3=Copy 4=Delete 5=Display      6=Print      7=Rename
8=Display description 9=Save 13=Change text 14=Compile 15=Create module...

Opt Member      Type      Text
_ "archive1"    RPG_____ Time Reporting System Maintenance Program_____

Parameters or command
====>
F3=Exit      F4=Prompt      F5=Refresh      F6=Create
F9=Retrieve      F10=Command entry  F23=More options  F24=More keys
(C) COPYRIGHT IBM CORP. 1981, 1995.
Bottom

```

Note the archive file and archive library name at the top of the screen. The archive file name is the same as the part name.

8. Type 5 (Display) beside the "archive1" RPG member, and press the Enter key.
9. The Source Entry Utility (SEU) display appears. Verify that the PROGRAM NAME line contains the old data.
10. To return to the Work with Members Using PDM display, press F3 (Exit).

## Create a Roll Back User-Defined Option

In this exercise you will create a user-defined option called RB (Roll Back) which will be used to import an archived part.

To create a roll back user-defined option:

1. On the Work with Members Using PDM display, press F16 (User options). The Work with User-Defined Options display appears.
2. To copy an existing user-defined option, type 3 (Copy) beside the IM option, and press the Enter key. The Copy User-Defined Options display appears.
3. On this display, type RB on the *New Option* prompt, and press the Enter key. The following message appears at the bottom of the Work with User-Defined Options display:
 

*User-defined option IM was copied to option RB.*
4. On this display, type 2 (Change) beside the RB option, and press the Enter key. The Change User-Defined Options display appears.
5. On this display:
  - a. Type ? in front of IMPPART.
  - b. Change PART(&N) to PART(&F) to ensure that the correct part is rolled back and replaced.
  - c. Type REPLACE(\*YES) before the TEXT(&X) parameter.



Your display looks similar to:

```
Change User-Defined Option

Type changes, press Enter.

Option . . . . . RB Value to change to

Command . . . . . ?IMPPART ??OBJ(&L/&F) ??OBJTYPE(*FILE) ??MBR(&N)_
?PART(&F) ??LANG(&S) REPLACE(*YES) TEXT(&X)_____

_____

_____

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

- d. Press the Enter key. The following message appears at the bottom of the Work with Members Using PDM display:

*User-defined option RB is changed.*

## Roll Back a Part

In this exercise you will use the user-defined option RB (Roll Back) that you created in the previous exercise to roll back a part that you archived in the previous exercise. The **roll back** or retrieve function of the Application Development Manager/400 feature allows you to restore the part from the backup version.

To roll back a part:

1. On the Work with Members Using PDM display, type RB beside the "archive1" RPG member, and press F4 (Prompt). The Import Part (IMPPART) display appears.
2. On this display:
  - a. Type ADMLABx in the *Project* prompt.
  - b. Type JILL in the *Group* prompt, and press the Enter key twice.
3. To return to the Work with Parts Using PDM display, press F3 (Exit).
4. To browse the part and verify that the archived version is rolled back, type 5 (Display) beside PROC1 RPGSRC.
5. To exit the SEU display, press F3 (Exit).
6. To sign off, type SIGNOFF on any AS/400 command line, and press the Enter key.

If you want to take a break from the exercises, this is a good place to do so.

## What You have Learned in Module 12

In this module, you have learned how to:

- Archive a part
- Create a roll back user-defined option
- Roll back a part

## Module 12 Questions

1. The archive feature allows you to \_\_\_\_\_ a backup copy before updating old parts using actions such as changing parts, importing parts, or promoting parts.
2. Up to \_\_\_\_\_ versions of a source part in a given group can be archived.
3. The group archive library contains \_\_\_\_\_ versions of parts.
4. The archived versions of a part is stored in an archive file named as the \_\_\_\_\_.
5. To archive a part, you specify \_\_\_\_\_ on the *Archive* prompt of the CHGPART, IMPPART, or PRMPART commands.
6. The roll-back feature allows you to \_\_\_\_\_ changes by restoring a part from a backup version created while making changes, importing parts, or promoting parts.
7. To restore a part from the backup version, you use the \_\_\_\_\_ command.

---

## Module 13: Working with Reason Control

In this module you will:

- Set up a part-list part for reason control
- Use the part-list part for reason control

The exercises in this module are typically performed by an application developer. Use the ADMINx user ID to set up the part-list part for the reason control exercises in this module. Use the JACKx user ID to use the part-list part for the reason control exercises in this module.

## Set Up the Part-List Part for Reason Control

A **part-list part** is a part with a part type of PARTL that contains a list of parts and their types. Part-list parts may be used to:

- Promote a particular set of parts.
- Build a particular set of parts.
- Export a particular set of parts.
- Track a particular set of parts that were changed for a particular fix or enhancement.

In this exercise we will use the part list for **reason control**, that is, to keep track of problems. The project administrator can turn the reason control on for any specific group. This will require a developer to specify a part-list part (reason) when any part development is done in that group. This approach helps the administrators and the auditors to more efficiently track changes following new requirements or enhancements.

To set up a part-list part for reason control:

1. Log on to the system using the ADMINx user ID.
2. On any AS/400 display, type CHGGRP on the command line and press F4 (Prompt). The Change Group (CHGGRP) display appears.
3. On this display:
  - a. Type ADMLABx in the *Project* prompt.
  - b. Type FIXV1 in the *Group* prompt, and press the Enter key for more options.
  - c. Type \*YES in the *PARTL required* prompt.
  - d. Accept the defaults for the other prompts, and press the Enter key.  
Any part development done in the FIXV1 group will now require a part-list part as a reason.
4. To sign off, type SIGNOFF on any AS/400 command line, and press the Enter key.

If you want to take a break from the exercises, this is a good place to do so.

## Use the Part-List Part for Reason Control

In this exercise you will make changes to a part in the FIXV1 group and these changes will require you to specify a part-list part (or reason).

1. Log on to the system using the JACKx user ID.
2. On any AS/400 display, type G0 CMDADM, and press the Enter key. The Application Dev Mgr/400 Cmds display appears.
3. Press the Page Down key until you see option 18 (Create Part) on your display.
4. Type 18 (Create Part) on the Selection or command line, and press the Enter key. The Create Part (CRTPART) display appears.
5. On this display:
  - a. Type ADMLABx in the *Project* prompt.
  - b. Type FIXV1 in the *Group* prompt.

- c. Type PARTL in the *Type* prompt.
- d. Type \*GENERATE in the *Part* prompt.
- e. Type Reason for defect 1 in the *Text description* prompt.
- f. Accept the defaults for the other prompts, and press the Enter key.

Notice that a PARTL part with the name ADx000001 is created.

6. To exit the Application Dev Mgr/400 Cmds menu, press F3 (Exit).
7. Type WRKPARTPDM on any AS/400 command line, and press F4 (Prompt). The Work with Parts Using PDM (WRKPARTPDM) display appears.
8. On this display:
  - a. Type ADMLABx in the *Project* prompt.
  - b. Type FIXV1 in the *Group* prompt.
  - c. Accept the defaults for the other prompts, and press the Enter key. The Work with Parts Using PDM display appears.
9. To add project libraries to the library list, type user-defined option AP beside any part entry, and press the Enter key.
10. Type 28 (Check out) beside PROC1 RPGSRC, and press the Enter key. The PROC1 RPGSRC part is checked out to you.

### **Specify the Reason for Changing a Part**

1. On the Work with Parts Using PDM display, type 2 (Change) beside PROC1 RPGSRC, and press the Enter key.

The following message appears at the bottom of your Work with Parts Using PDM display:

*PARTL(\*NONE) not valid for group FIXV1 project ADMLABx.*

This message appears because the project administrator has set up the group FIXV1 so that no parts can be created or changed without a PARTL specified.

2. Press F4 (Prompt). The Change Part (CHGPART) display appears.
3. On this display, type ADx000001 in the *Part list* prompt, and press the Enter key. The Source Entry Utility (SEU) display appears.
4. Make any change in the comment section of the source, and press the Enter key.
5. Press F3 (Exit), and press the Enter key. You should see the following message at the bottom of your PDM display:
 

*Part PROC1 added to PARTL part ADx000001.*
6. On the Work with Parts Using PDM display, press the Page Down key until you see the part-list part at the bottom of the list.
7. Type 5 (Display) beside ADx000001 PARTL part, and press the Enter key.
 

You should see an entry for the RPGSRC PROC1 part. You can edit the part-list part using the CHGPART command, if you want to add or remove an entry.
8. To return to the Work with Parts Using PDM display, press F3 (Exit).
9. Press the Page Up key to move to the top of the list.

## Specify the Reason for Building a Part

Specify the reason for building a part.

1. On the Work with Parts Using PDM display, type 14 (Build) beside PROC1 RPGSRC, and press the Enter key.

The following message appears at the bottom of your PDM display:

*PARTL(\*NONE) not valid for group FIXV1 project ADMLABx.*

2. Press F4 (Prompt). The Build Part (BLDPART) display appears.
3. On this display, type ADx000001 in the *Part list* prompt, and press the Enter key.

When the build is complete, the following message appears at the bottom of your display:

*Part PROC1 added to PARTL part ADx000001.*

## Verify the Changes to the Part-List Part

Verify the changes to the part-list part.

Verify that an entry for the PGM PROC1 part has been added to the part list.

1. On the Work with Parts Using PDM display, press the Page Down key until you see the part-list part at the bottom of the list.
2. Type 5 (Display) beside ADx000001 PARTL part, and press the Enter key.

The Display Physical File Member display, similar to the one below appears.

You should see the entries for the RPGSRC PROC1 and PGM PROC1 parts in the part list.

```
Display Physical File Member
File . . . . . : ADx000001      Library . . . . . : ADx.JACK
Member . . . . . : QALYPRTL     Record . . . . . : 1
Control . . . . . :              Column . . . . . : 1
Find . . . . . :
*...+...1...+...2...+...3...+...4...+...5...+...6...+...7...+...
RPGSRC  PROC1  Time Reporting System Maintenance Program
PGM     PROC1  Time Reporting System Maintenance Program
                ***** END OF DATA *****

F3=Exit  F12=Cancel  F19=Left  F20=Right  F24=More keys

Bottom
```

3. To exit the Display Physical File Member display, press F3 (Exit).

To make it easier to work with the part-list parts, a new field is added on the WRKPARTPDM command. Explore it on your own. (Hint: Press F3 (Exit) to exit the WRKPARTPDM display. Re-enter the WRKPARTPDM display by prompting on the command and entering the part-list name).

Note that you can specify the PARTL part to be exported on the EXPPART command which will allow you to export the parts listed inside the PARTL. You can also promote a subset of parts by specifying a PARTL on the PRMPART command.

4. To sign off, type SIGNOFF on any AS/400 command line, and press the Enter key.

As a student you have completed all the exercises now. Remember to clean up your project as described in the next chapter.

## What You have Learned in Module 13

In this module, you have learned how to:

- Set up a part-list part for reason control
- Use the part-list part for reason control

## Module 13 Questions

1. A part-list part is a part with a part type of \_\_\_\_\_ that contains a list of parts and their types.
2. A \_\_\_\_\_ can be used as a reason control to track a code fix.
3. The reason control is activated when you specify \*YES on the \_\_\_\_\_ prompt in the Create Group (CRTGRP) or Change Group (CHGGRP) displays.
4. You can view the part list by typing \_\_\_\_\_ beside the part list in the Work with Parts Using PDM display.



---

## Chapter 3. Clean Up the AS/400 System

In this chapter you will:

- Clean up your project
- Clean up your system

---

### Clean Up Your Project

As a student you have completed all the exercises. In this module you will delete the spooled files for the JACKx, JILLx and ADMINx user ID, and delete the project. *The commands mentioned in the following steps can be typed on any AS/400 command line.* The steps are as follows:

1. Log on to the system using the JILLx user ID.
  - a. To delete spooled files for the JILLx user ID, type the following, and press the Enter key:  
DLTSPLF FILE(\*SELECT)
  - b. At the bottom of your display, a message appears telling you that your files were deleted.
  - c. To sign off, type the following, and press the Enter key:  
SIGNOFF
2. Log on to the system using the JACKx user ID.
  - a. To delete spooled files for the JACKx user ID, type the following, and press the Enter key:  
DLTSPLF FILE(\*SELECT)
  - b. At the bottom of your display, a message appears telling you that your files were deleted.
  - c. To sign off, type the following, and press the Enter key:  
SIGNOFF
3. Log on to the system using the ADMINx user ID.
  - a. To delete spooled files for the ADMINx user ID, type the following, and press the Enter key:  
DLTSPLF FILE(\*SELECT)  
  
At the bottom of your display, a message appears telling you that your files were deleted.
  - b. To delete the exercise project, type the following, and press the Enter key:  
DLTPRJ PRJ(ADMLABx)
  - c. To sign off, type the following, and press the Enter key:  
SIGNOFF



---

## Clean Up Your System

This section should be done by your system administrator (or anyone else with appropriate authorities) after all the students have completed all the exercises in this guide. The steps are as follows:

1. Log on to the system using the QSECOFR user ID. Ensure that none of the exercise user IDs are logged on.
2. To add the QADMLAB library to the library list, on any command line, type `ADDLIB QADMLAB` and press the Enter key.
3. On the command line, type `LABCLEANUP` and press the F4 (Prompt).
4. On the Appl.Dev. Mgr/400 Lab Clean Up (LABCLEANUP) display, in the *Number of users to remove* prompt, type the number specified in step 4 of the “Creating the Self-Study User IDs” on page 2 section, and press the Enter key.

The Lab Clean Up (LABCLEANUP) command deletes all the ADMLABx projects along with the groups and all the ADMINx, JACKx, and JILLx user IDs from the AS/400 system.

When the cleanup has completed successfully, the following message appears at the bottom of the display:

*Command completed successfully.*

If the cleanup fails, the following message appears at the bottom of the display:

*Errors occurred on command.*

In this case, press F10 to see the detailed messages, complete the appropriate actions, and issue the Lab Clean Up (LABCLEANUP) command again.

The exercise projects, groups, libraries, and exercise user IDs are now deleted from the AS/400 system.

**Note:** The Lab Clean Up (LABCLEANUP) command does not delete QADMLAB library. If you want to delete it, use this command:

```
DLTLIB QADMLIB
```

---

## Appendix A. Answers to the Module Questions

---

### Module 1 Answers

1. groups
2. parts or objects
3. project hierarchy
4. STRPDM
5. 4 (Work with projects)  
5 (Work with groups)  
6 (Work with parts)
6. CRTPRJ  
F6 (Create)
7. 12 (Work with)  
Work with Groups Using PDM
8. TEST  
test  
production or master
9. indented  
level indicator

---

### Module 2 Answers

1. Promote codes
2. F14 (Display promote code)
3. F21 (Print list)
4. 41 (Add user)
5. Project access level  
Development group
6. print project  
query project  
print project user
7. project

- groups
- 8. promote path
- 9. projects
- 10. users

---

## Module 3 Answers

- 1. copy
- 2. update
- 3. 14 (Build)
- 4. build report  
build messages report  
build outputs report
- 5. QPLYBLDP  
WRKSPLF
- 6. user-defined
- 7. 45
- 8. DSPLIBL
- 9. 16 (Run)

---

## Module 4 Answers

- 1. library list
- 2. 45 (Add project library list)  
AP
- 3. locks  
development group
- 4. N (No)
- 6. SCOPE  
\*EXTENDED
- 5. F18 (Change defaults)  
Compile in batch
- 7. 14 (Build)

---

## Module 5 Answers

1. check out
2. authority
3. PRTPARTINF  
QPLYPARTI
4. QRYPART  
QPLYQPART

---

## Module 6 Answers

1. one
2. 30 (Promote)
3. out  
COLLECTOR  
part list
4. update
5. compiler  
processing
6. F6 (Create)  
Create Part (CRTPART)
7. 2 (Change)
8. BLDOPT  
14 (Build)

---

## Module 7 Answers

1. groups
2. SCHPTH
3. default hierarchy
4. project  
group

---

## Module 8 Answers

1. compiles
2. higher
3. test  
production
4. non source

---

## Module 9 Answers

1. group  
existing hierarchy  
promote
2. bug fixes  
release
3. group  
groups
4. cannot  
promoted

---

## Module 10 Answers

1. CHGPRJUSR
2. F1
3. promote code

---

## Module 11 Answers

1. verify
2. 54 (Compare)  
Old group
3. developers
4. 55 (Merge)

---

## Module 12 Answers

1. save
2. five
3. back-level
4. part
5. \*YES
6. roll back or undo
7. IMPPART

---

## Module 13 Answers

1. PARTL
2. part list
3. PARTL required
4. 5 (Display)



---

## Bibliography

This bibliography lists a variety of books that may be of use or interest to you as you work with the Application Development Manager/400 feature.

The Application Development Manager/400 library contains the following publications:

- *ADTS/400: Application Development Manager/400 API Reference*, SC09-2180
- *ADTS/400: Application Development Manager/400 Introduction and Planning Guide*, GC09-1807
- *ADTS/400: Application Development Manager/400 User's Guide*, SC09-2133

The Application Development ToolSet/400 library contains the following publications:

- *ADTS/400: Advanced Printer Function*, SC09-1766
- *ADTS/400: Character Generator Utility*, SC09-1769
- *ADTS/400: Data File Utility*, SC09-1773
- *ADTS/400: File Compare and Merge Utility*, SC09-1772
- *ADTS/400: Interactive Source Debugger*, SC09-1897
- *ADTS/400: Programming Development Manager*, SC09-1771
- *ADTS/400: Report Layout Utility*, SC09-1767
- *ADTS/400: Screen Design Aid*, SC09-1768
- *ADTS/400: Source Entry Utility*, SC09-1774
- *Introducing ADTS/400 and AS/400 Server Access Programs*, GC09-2088

The Application Dictionary Services/400 library contains the following publications:

- *ADTS/400: Application Dictionary Services/400 Self-Study Guide*, SC09-2086
- *ADTS/400: Application Dictionary Services/400 User's Guide*, SC09-2087

The following publications in the AS/400 library may be of interest to you in relation to this feature:

- *CL Programming*, SC41-4721
- *CL Reference*, SC41-4722
- *DDS Reference*, SC41-3712
- *Experience RPG IV*, SC09-1938
- *ILE RPG/400 Programmer's Guide*, SC09-2074
- *ILE RPG/400 Reference*, SC09-2077
- *ILE RPG Reference Summary*, SX09-1306
- *Publications Reference*, SC41-4003
- *System Operation for New Users*, SC41-3200





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