

# WORKFLOW • BPR

Integration with  
Workflow Applications  
Guide

Version 3.4



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# About This Integration with Workflow Applications Guide

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Information required to use Workflow•BPR™, in the context of Business Process Modeling in preparation for exporting the Process information for use in a workflow application, is provided in this document.

The chapters in this Integration Guide are organized by the type of application that you are interested in using as a Workflow Application.

**Chapter 1:** *Introduction to Workflow Integration* describes the basic concepts of workflow technology.

**Chapter 2:** *Integration with IBM FlowMark* provides information regarding preparation and export to the IBM FlowMark application.

**Chapter 3:** *Integration with IBM MQ Workflow* provides information regarding preparation and export to the IBM FlowMark application.

**Chapter 4:** *Integration with FileNet Visual WorkFlo* provides information regarding preparation and export to the FileNet Visual WorkFlo application.

**Chapter 5:** *Integration with Other Workflow Applications* includes information regarding preparation and export to the SNS Open Image application and export to the Workflow Management Coalition Standards.

**References:** Includes a list of Workflow Application publications.

**Index:** Provides an index of key words that are used throughout the Integration with Workflow Applications Guide.

## Related Guides

*Getting Started* provides installation information, a tour of the Workflow•BPR application, and a short tutorial to assist you in quickly becoming familiar with Workflow•BPR.

*Tutorial* provides a “hands-on” practice session that will familiarize you with the basic components of Workflow•BPR and how to use the software for BPR. The Tutorial takes approximately four to six hours to complete.

*User’s Guide* provides a general introduction to Workflow•BPR, a description of the contents of the Repository, and information about how to customize the Workflow•BPR application.

*Modeling Guide* provides information about the objects used to create Process Models and how to handle specific situations in a Process Model.

*Analysis Guide* provides information about how to perform Case, Weighted Average, and Simulation Analysis.

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*Reporting Guide* provides information about how to generate and use the many tables, charts, and reports produced from analysis of Workflow•BPR Processes.

## Document Conventions

This guide uses the typographic conventions as shown in the following table:

Example	Description
File menu	Within instructions, items that appear in a Workflow•BPR window or dialog box appear in <b>bold</b> .
⌘ Choose	Instructions, which specify user actions that involve using the mouse, are preceded by a mouse symbol.
⌨ Type	Instructions, which specify user actions that involve using the keyboard, are preceded by a keyboard symbol.
Ctrl+V	A plus sign (+) between key names indicates a combination of keys. For example, Ctrl+V means to ⌘ hold down the <b>Ctrl</b> key while ⌖ pressing the <b>V</b> key.
Task	Words that refer to Workflow•BPR data objects (e.g., Task) are capitalized. The same words used in a generic sense (e.g., "...the tasks performed by the organization...") are not capitalized.
☞ Note:	Throughout the document, points of emphasis will be highlighted and marked with a hand holding a pen icon.
☞ Pointer:	Throughout the document, tips or pointers will be highlighted and marked with hand and index finger pointing icon.

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# Chapter 1: Introduction to Workflow Integration

The business community is beginning to recognize that defining and modeling processes is a prerequisite for improving performance. A **Process** is a variable pattern of interactions between an organization's components and its environment so that the organization can achieve its goals. The *Workflow•BPR User's Guide* documents the use of Workflow•BPR for Process Modeling and Analysis. Process Models can be developed in Workflow•BPR for many purposes, such as procedure documentation and communication, gradual and drastic reengineering, and staff requirements determination. This *Integration with Workflow Applications Guide* is focused on the use of Workflow•BPR in preparing a Process Model for integration with a Workflow Application.

## 1.1 What is Workflow?

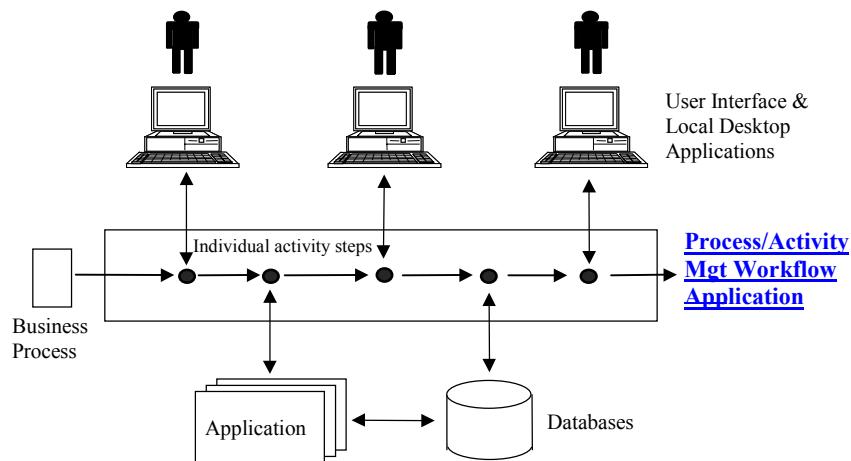
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Workflow is the automation of the transfer of documents, information, or tasks between personnel of an organization. The automation is performed by a Workflow Application. The Workflow Application acts as a “middle-person” that transfers data and opens specific applications on the computers of authorized personnel. The Workflow Application can act passively by providing a work list for users to pick and choose a task or the Workflow Application can actively open the application without prompting.<sup>1</sup>

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<sup>1</sup> The figure was derived from the Workflow Management Coalition: The Workflow Reference Model (Document Number TC00-1003).

## Chapter 1: Introduction to Workflow Integration



In order to perform its functions, the Workflow Application must maintain a large amount of information:

- Who are the users and what are their authorities
- Where are the applications that will be opened
- What data will the applications require
- Where is the data going to be stored (the databases)
- What are the activities that will be performed
- Who will perform them
- What application will be used
- What is the sequence of the activities
- What are the rules for context-specific sequences (branches in the flow)

The combination of the information required for workflow automation can be considered the Business Process. The Workflow Application uses a model of the process to perform its functions. Although the concept sounds simple enough, attempts to implement workflow engines in the past have failed because workflow engineers assumed that the processes that they were automating were perfectly optimal. If one automates a system that is assumed to be perfectly efficient when it is not, problems can be exacerbated to the point of complete breakdown of the Process. Therefore, an organization should optimize their processes before they implement a workflow system, because bottlenecks and other process problems exist even if a process is automated. Workflow•BPR is a software tool that allows organizations to model, analyze, and optimize their processes.

## 1.2 Preparing for Workflow

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The commitment that an organization makes when integrating with a Workflow Application is usually part of a formal Reengineering Project. As part of this Reengineering Project, an organization needs to understand their Business Processes and then improve them so that they take full advantage of the technology that is going to be introduced. Workflow•BPR is a Process modeling and analysis tool that can help with the following steps of a Reengineering Project:

1. Creating a Model of the As-Is Process
2. Performing Baseline Analysis on the As-Is Process
3. Modifying the As-Is Model based on a Vision of the To-Be Model (Creating a To-Be Model)
4. Optimizing the To-Be Process to meet Reengineering Goals
5. Preparing the To-Be Process for Integration with Workflow

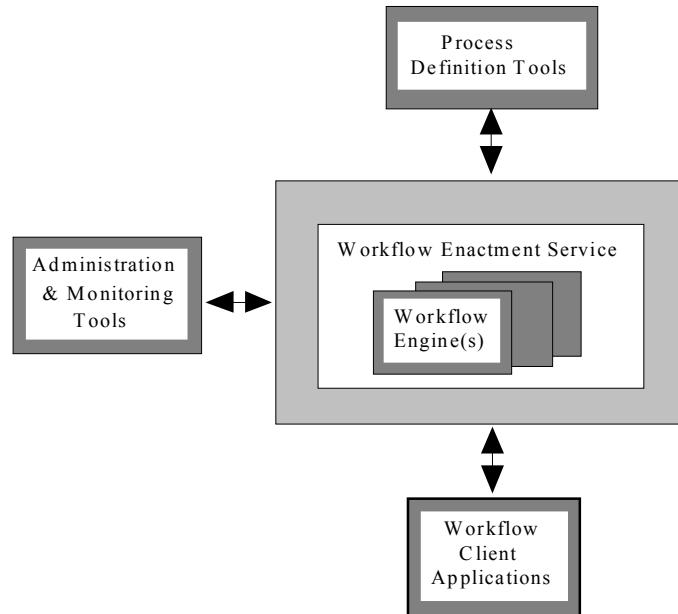
Refer to the *Workflow•BPR User's Guide* for information about using Workflow•BPR to conduct the first four (4) steps of the reengineering project. The remaining chapters of this guide describe the unique steps of preparation of a Process for integration with the Workflow Application of your choice. Workflow•BPR supports the integration with three (4) Workflow Applications (IBM FlowMark, IBM MQ Workflow, FileNet Visual WorkFlo, and SNS Open Image) as well as the Workflow Management Coalition Standards (beta).

## **1.3 After Integration—The Payoff**

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The competition in the global marketplace puts pressure on organizations to provide superior products and services. At the same time, organizations have a responsibility to be profitable and provide a return for their investors. These two (2), potentially conflicting goals have been dramatically supported, in recent years, by the focus on optimizing the way organizations do business—their processes. In addition, Workflow Applications provide a technology boost that reduces communication delays and routing errors.

A Process Modeling tool, such as Workflow•BPR, allows the organization to fully understand and then optimize their processes. The Workflow Application then follows the optimized process to ensure smooth performance. The combination of the two (2) tools enable an organization to produce their products quicker and with fewer errors. This reduces organization cost and makes the organization more competitive. A third tool, which follows the Process Modeling tool and Workflow Application, is the Monitoring and Administration tools. This tool will extend an organization's ability to track the processes *real-time* and then react to solve problems or change staffing to appropriate levels.<sup>2</sup>



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<sup>2</sup> The figure was derived from the Workflow Management Coalition: The Workflow Reference Model (Document Number TC00-1003).

Software technology has not reached the point of having sophisticated monitoring and administration tools. Such tools will likely be available in the near future (some by Holosofx). The key to having a sophisticated Monitoring tool is to have a detailed Business Process Model as the basis for monitoring. A detailed Business Process contains more information than is necessary for performance of a Workflow Application. A detailed Business Process Model contains information necessary for analysis and simulation, which then can be performed on real-time data. In addition, performance measures and organization goals can be built into the Process Model so that performance can be automatically tracked. This is the true payoff of the workflow integration effort and can only be realized with a detailed Process Model.



# Chapter 2: Integration with IBM FlowMark

The FlowMark Workflow Manager helps an organization to automate its Business Processes. It integrates the tasks performed by computer programs with the everyday tasks of staff members. Using FlowMark, you can start Processes, manage Processes that are already started, and track Processes and the status of activities assigned to staff members.

Workflow•BPR contains all the information you will need to define a Process Model that can be managed by the FlowMark Runtime.

-  This chapter has been written based on the assumption that you are familiar with the FlowMark Builder and Runtime applications. For details not covered in this chapter, refer to the IBM FlowMark documentation.**
-  In addition, this chapter has been written based on the assumption that you are familiar with Workflow•BPR and have created Process Models that you want to prepare for export as an FDL file. For details about Workflow•BPR modeling procedures not covered in this chapter, refer to the *Workflow•BPR User's Guide* and *Modeling Guide*.**

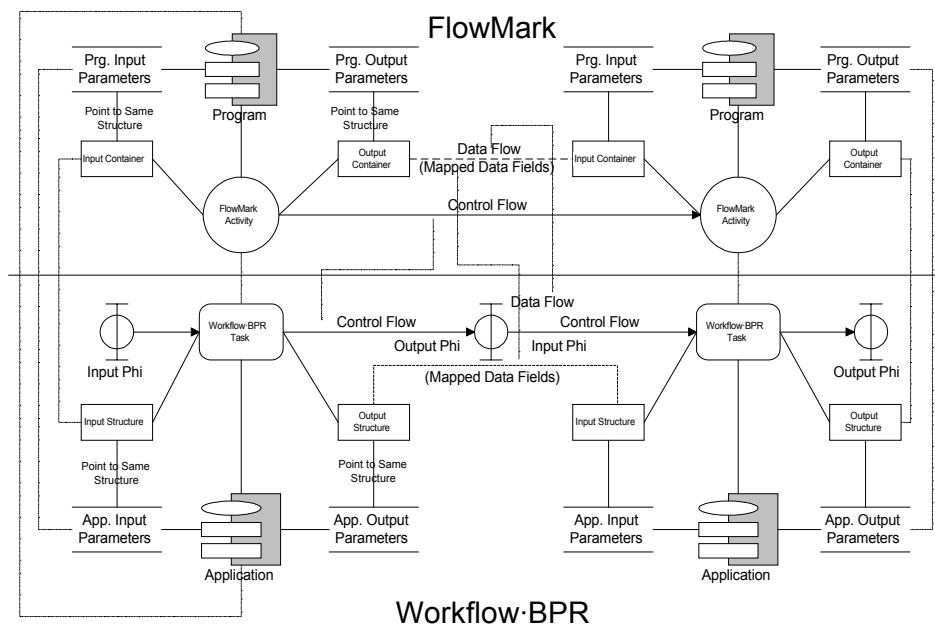
## 2.1 Introduction

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Workflow•BPR is a software tool that allows organizations to model, analyze, and optimize their Processes. In addition to preparing the structure of the Processes so that the organization can take full advantage of the capabilities of FlowMark, Workflow•BPR provides direct linkage to FlowMark. The Processes developed in Workflow•BPR can be exported as workable files, which can be used directly by FlowMark. The following sections will cover these points:

1. Preparing a Process for Export into the FlowMark Environment
2. Modeling Conventions for Compatibility with FlowMark
3. The IBM FlowMark Window
4. Creating and Exporting FDL Files

The figure below depicts the basic architecture of FlowMark (in the top half) and how this architecture is represented in Workflow•BPR (in the bottom half). The dotted lines, which are drawn from the top half to the bottom half of the figure, mark FlowMark objects and their corresponding Workflow•BPR objects. For example, a FlowMark Activity is equivalent to a Workflow•BPR Task.



## 2.2 Preparing a Process for Export into the FlowMark Environment

---

After a To-Be Process has been defined, then the Process can be integrated into a FlowMark environment. Another advantage for using Workflow•BPR is that the model of the To-Be Process can be exported for use by FlowMark. There is no duplication of effort.

To prepare a Process Model for export to FlowMark:

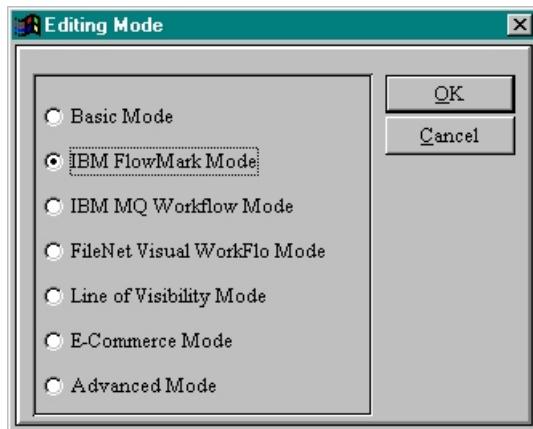
1. Define the Organization Setting and Roles.
2. Define the staff and associate them with Roles.
3. Define the Data Structures that are required for the programs and activity Input and Output Containers and add them to the Repository.
4. Define the Applications that represent the Programs or Functions that are controlled by the workflow engine.
5. Define the Servers that will run the Applications.
6. Define the Level Settings.
7. Assign Input and Output Data Structures to the Applications.
8. Assign the Applications (Programs) to the Tasks in the Process.
  - \* The Data Structures of the Input and Output Containers of the Tasks are automatically derived from the Data Structures of the Application.
9. Define the settings of the Activities.
10. If necessary, map the Input Data Fields of a Task to the Output Data Fields of previous Tasks.
11. Assign the Data Structures for the Source and Sink of the Process.
12. Add Expressions to Decision Choices to serve as the rules for Branches.
13. Validate the Process for consistency with FlowMark.
14. Select the Process and go to the FlowMark view to export the Process information.

## 2.2.1 Setting Workflow•BPR for the FlowMark Editing Mode

The process modeling capabilities of Workflow•BPR can be used for many purposes. The data required for modeling in preparation for integration with one Workflow application can be different than the data required for another Workflow application. To avoid confusion of what data is applied for which purpose, Workflow•BPR will configure the Activity Decision Flow Diagram dialog boxes and menus so that the data will be applied towards one purpose, and all data not relevant for FlowMark integration will be hidden from view. There is a difference between the IBM FlowMark Editing Mode and the IBM MQ Workflow Editing Mode and the settings are very specific for each version of the IBM product. Therefore, if you are building a model for the FlowMark product, then you should not use the IBM MQ Workflow Editing Mode.

To set Workflow•BPR for the FlowMark Editing Mode:

1. Choose **Editing Mode** from the **Format** menu. The **Editing Mode** dialog box will appear (see the figure below).



2. Select the **IBM FlowMark Mode** radio button.
3. Click **OK** or press **Enter**. The ADF object dialog boxes will be configured to support process modeling for the purpose of integrating with FlowMark.  
 You can also type **Alt+2** to set the Editing Mode to the IBM FlowMark Editing Mode.

- The current Editing Mode will be displayed in the status bar at the bottom of the Workflow•BPR application. If the Editing Mode is not displayed then click on the main menu bar (away from a menu item).

## 2.2.2 Define the Organization Setting

FlowMark maintains information about the organization in order to ensure that the work gets routed to the appropriate person. The creation of the organization structure is generally done during the initial creation of the Process Model. If you haven't defined the Organization Units at this time (i.e., preparing the model for FlowMark integration), then refer to the section entitled "Organization Units" in Chapter 2 of the *User's Guide*.

The information about Organization Units is captured with the Organization Units dialog box. The Manager of an Organization Unit is mandatory if the organization data is to be exported to FlowMark. The absence of a Manager is detected in the FlowMark Validation report (refer to the section entitled "The FlowMark Validation Report" on page 2-124).

The following table displays the FlowMark to Workflow•BPR conversions for Organization Units:

<u>FlowMark</u>	<u>Workflow•BPR</u>	
<u>Organization Setting</u>	<u>Organization Unit</u>	<u>Location</u>
Name	Name	General tab
Description	Notes	Notes tab
Manager	Manager	General tab
Parent Organization	Head Unit	General tab
Members	Deduced from Employees related to Organization Unit	

## 2.2.3 Define the Roles

FlowMark maintains information about the organization in order to ensure that the work gets routed to the appropriate person. The definition of the Roles is generally done during the initial creation of the Process Model. If you haven't defined the Roles at this time (i.e., preparing the model for FlowMark integration), refer to the section entitled "Roles" in Chapter 2 of the *User's Guide*.

The information about Roles is captured with the Roles dialog box. The following table displays the FlowMark to Workflow•BPR conversions for Roles:

<u>FlowMark</u>	<u>Workflow•BPR</u>	
<u>Role</u>	<u>Role</u>	<u>Location</u>
Name	Name	General Tab
Description	Coordinator	General Tab
Coordinator	Notes	Notes Tab
Members	Deduced from Employees related to Role	

## 2.2.4 Define the Level Settings

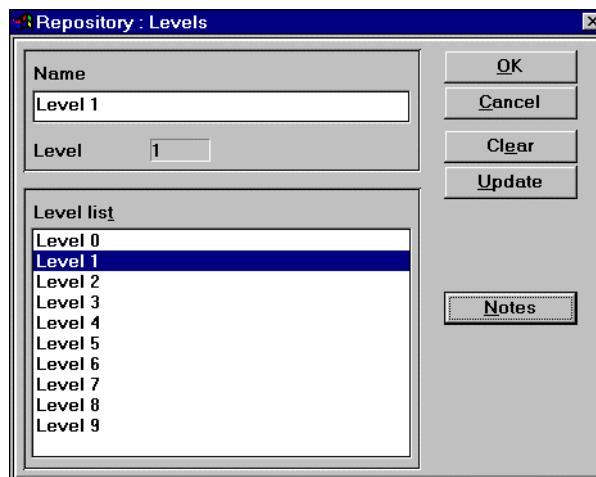
FlowMark maintains information about the organization in order to ensure that the work gets routed to the appropriate person. FlowMark uses levels from zero (0) to nine (9) to restrict the routing of activities to those Employees that meet the level criteria. The Levels are pre-defined in Workflow•BPR; however, you can add notes for each level to aid in the assigning of a Level to an Employee. This information is also presented in the section entitled “Roles” in Chapter 2 of the *User’s Guide*.

The information about Levels is captured with the Levels dialog box. The following table displays the FlowMark to Workflow•BPR conversions for Levels:

<b><u>FlowMark</u></b>	<b><u>Workflow•BPR</u></b>
<b><u>Level</u></b>	<b><u>Level</u></b>
Name	Name
Description	Notes
Level	Level

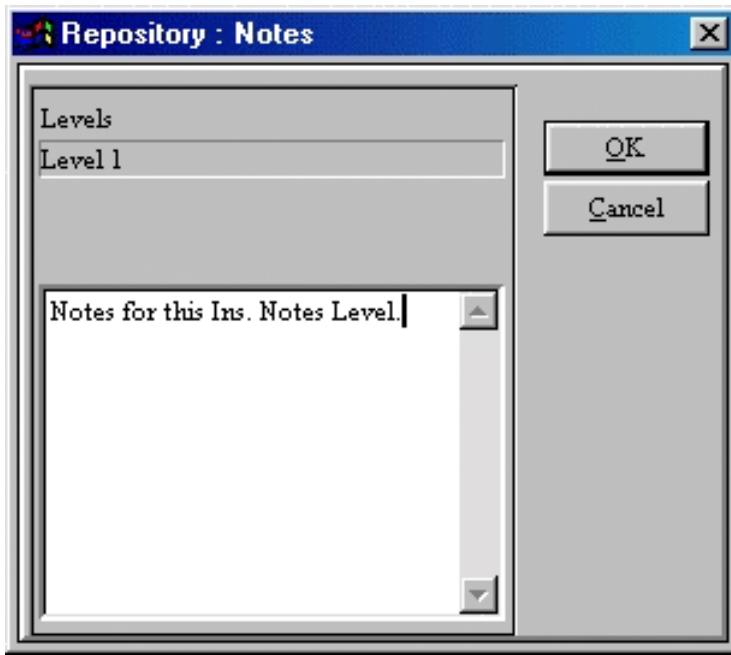
To add Notes to a Level:

1. Choose **Organization Data** from the **Repository** menu. A sub-menu appears.
2. Choose **Levels**. The **Levels** dialog box appears (see the figure below).



3. Select the level from the **Level** list box.

4.  Click **Notes** to open the **Notes** dialog box (see the figure below).



- \*  Type in the notes for the Level in the text box.
  - \* If you want to add a **Carriage Return** to the text of your Notes, then  type **Ctrl+Enter**.
  - \*  Click **OK** or  press **Enter** to return to the **Levels** dialog box.
5.  Click **OK** or  press **Enter** when defining one entry. If you are editing multiple entries,  click **Update**, and then  click **Close** after the last entry has been edited.

## 2.2.5 Define the Staff

Staff or employees are the people that do the work (Tasks) for an organization. There are many ways to assign an employee to a Task—refer to the section entitled “Staff Assignment” on page 2-85. The following sections describe the information that is stored for the employees. This information is also available in the section entitled “Employees” of Chapter 2 of the *User’s Guide*.

The information about Employees is captured with the Employees dialog box and its four (4) tabs. The following table displays the FlowMark to Workflow•BPR conversions for Employees:

<u>FlowMark</u>	<u>Workflow•BPR</u>	
<u>Staff</u>	<u>Employee</u>	<u>Location</u>
User ID	User ID	General Tab
Password	Password	Details Tab
Verify Password	Verify Password	Details Tab
Person ID	Person ID	General Tab
First Name	First Name	General Tab
Middle Name	Middle Name	General Tab
Last Name	Last Name	General Tab
Phone Number	Phone Number	General Tab
2 <sup>nd</sup> Phone	Phone 2	General Tab
Level	Emp. Level	Details Tab
Substitute Staff	Substitute Employee	Details Tab
Organization Name	Organization Unit	General Tab
Member of	Job Title and Roles	General Tab, Details Tab
Coordinator of	Deduced from Coordinator of Roles	General Tab, Roles dialog box
Process Authorizations	Process Authorizations	Authorization Tab
Other Definitions	Process Definition	Authorization Tab
Start and Control of Processes	Start and Control of Processes	Authorization Tab
All Categories	Control of All Process Functions	Authorization Tab
Categories	Control of Process Functions List	Authorization Tab
Staff Authorization	Staff Authorization	Authorization Tab
Employee Definition	Employee Definition	Authorization Tab
This person to all people	Access to All Employees	Authorization Tab
This person to these people	Access to Employees List	Authorization Tab

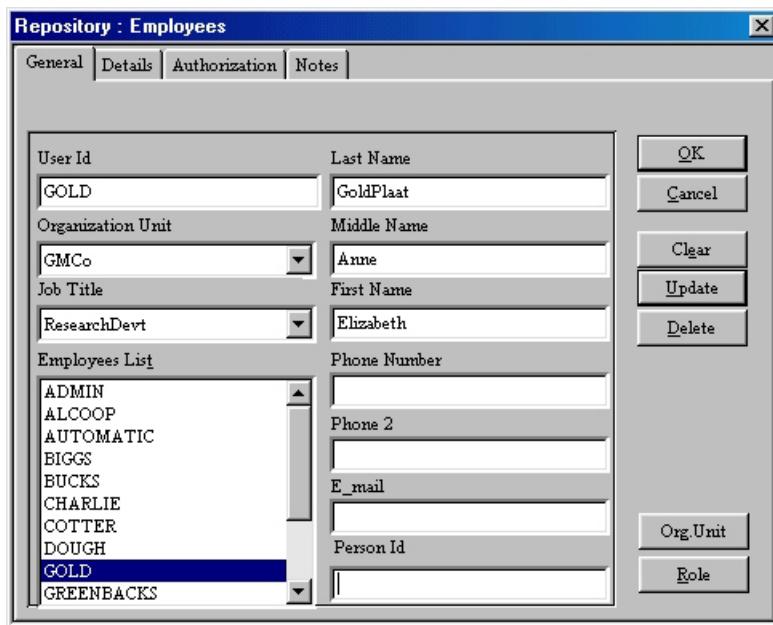
The following sections describe the procedures for entering data in the tabs of the Employees dialog box.

### 2.2.5.1 General

The General Tab contains general information about the Employees. Each Employee must have a User ID, Organization Unit, Job Title, and Last Name.

To define an Employee:

1. Select **Organization Data** from the **Repository** menu. A sub-menu will appear.
2. Select **Employee** from the sub-menu. The **Employees** dialog box will appear—open to the **General** tab (see the figure below).



3. Type the user ID of the Employee in the **User ID** text box. This ID will be used to select the employee in other dialog boxes.
  - \* The User ID must be numeric or capitalized letters.
4. Select the Employee's Organization Unit from the **Organization Unit** selection box.
  - \* If the Organization Unit you want is not included on the list, then you need to create it. Click **Org. Unit** to access the Repository **Organization Units** dialog box in order to create the item (refer to the section entitled “Organization Units” in Chapter 2 of the *User’s Guide*). Upon returning to the **Employee** dialog box, the new item(s) will be included on the list.
5. Select the Employee's Job Title from the **Job Title** selection box. This list will be the list of Repository **Roles**.
  - \* If the Role you want is not included on the list, then you need to create it. You can click the **Role** Go To button to access the Repository **Roles**

## **Chapter 2: Integration with IBM FlowMark**

dialog box in order to create the item (refer to the section entitled “Roles” in Chapter 2 of the *User’s Guide*). Upon returning to the **Employee** dialog box, the new item(s) will be included on the list.

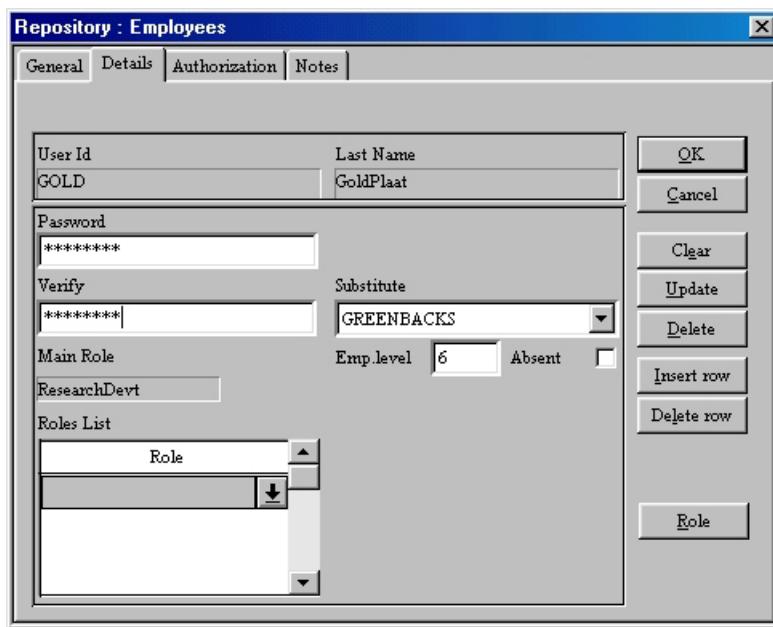
- \* The Job Title will appear as the first Role in the **Roles** selection box of the Details tab (refer to the next section).
6. Type the following information in the appropriate text box:
    - \* Last Name, Middle Name, First Name, Phone Number, Phone 2, E-Mail, Person ID
  7. Click **Add** to create the item or you can continue to add more information about the Employees in the other tabs of the **Employees** dialog box.

### 2.2.5.2 Details

The Details Tab is where additional and optional information about an Employee is stored: User Password, Verification Of User Password, Person ID, Level, an Absent check box, Substitute, and Calendar. If the Absent checkbox is checked, then a workflow engine will route any work to the employee selected in the Substitute selection box. During the performance of the Process, jobs are only routed to the employee if the employee is assigned to an activity and the Level of the employee is within the range defined in the activity.

To add more details about an Employee:

1. Select the **Details** tab in the **Employees** dialog box (see the figure below).



2. Type the Employee's password in the **Password** text box.
3. Type the Employee's password again in the **Verify** text box.
4. If you want to change the Employee's Level, edit the number in the **Emp. Level** text box.
  - \* This Level can be used by FlowMark to filter out Employees during dynamic assignment at run-time.
5. In **Line 2** through **n** of the **Roles List** box, click on the Arrow button that is on the right side of the **Role** column. A list of Roles will appear. Add as many Roles as are appropriate.

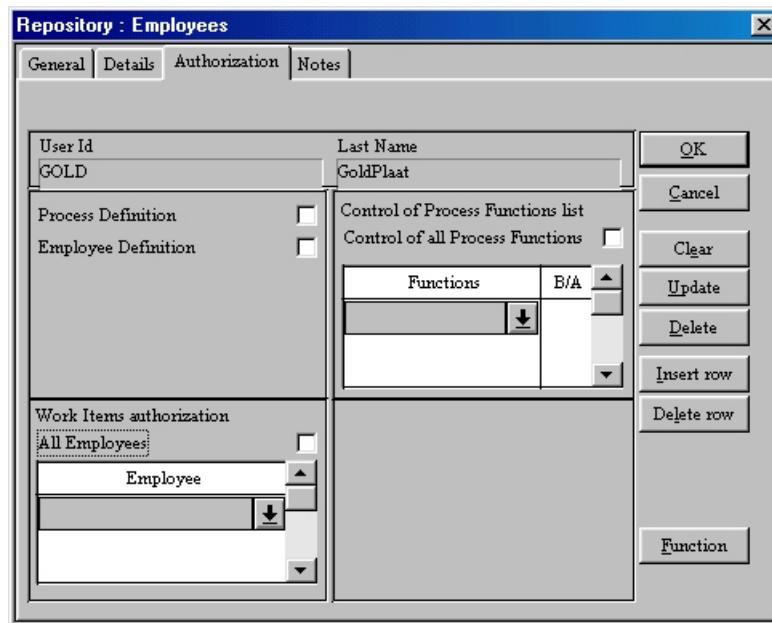
- ☞ The Role that is entered as the Job Title in the General tab is displayed above the Roles List in the Main Role Text box. This is the default role for the Employee. Only add Roles to the Roles List if you want to assign additional Roles to the Employee.
    - \* If the Role you want is not included on the list, then you need to create it. You can ☞ click the **Role Go To** button to access the Repository **Roles** dialog box in order to create the item (refer to the section entitled “Roles” in Chapter 2 of the *User’s Guide*). Upon returning to the **Employee** dialog box, the new item(s) will be included on the list.
  - ☞ If you select more than one (1) Role, then Employees will have to be assigned to ALL of the Roles or they will not be authorized to perform the activity.
6. ☞ Select the Employee that will substitute if the current Employee is absent from the **Substitute** selection box.
  7. ☞ Select the **Absent** check box if the Employee is currently absent.
  8. ☞ Click **Add** to create the item or you can continue to add more information about the Employees in the other tabs of the **Employees** dialog box.

### 2.2.5.3 Authorization

In the Authorization Tab, the employee can be given control of parts of the Process or other employees. If the user is given Process control, then it can be specified whether the control is for all Process functions or to selected functions. If the employee is given employee control, then it can be specified whether the control is for all employees or to selected employees.

To add authorization details about an Employee:

1. Select the **Authorization** tab in the **Employees** dialog box (see the figure below).



2. Select the **Process Definition** check box if the Employee is authorized to create or modify the FlowMark data.
3. Select the **Employee Definition** check box if the Employee can add or modify information about other Employees.
4. Select the **All Employees** check box if the Employee is to have access to the Work List of *all* Employees during Run Time.
5. An Employee can have access to other Employees worklists during Run Time. You can select these Employees:
  - \* In **Line 1 through n of the Access to Employees list** list box, click on the **Arrow** button that is on the right side of the **Employee** column. A list of Employees will appear. Add as many Employees as are appropriate.

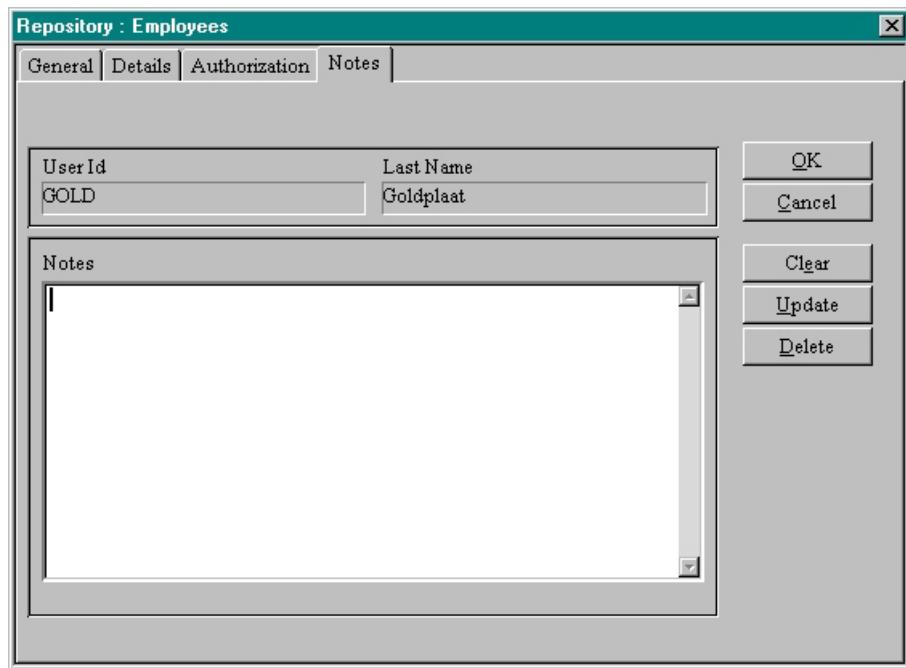
6. You can select specific functions that the Employee has control over during Run Time. In **Line 1** through **n** of the **Control of Process Functions list** list box, click on the **Arrow** button that is on the right side of the **Functions** column. A list of Functions will appear. Add as many Functions as are appropriate.
  - \* The Function is exported as a FlowMark Category.
  - \* If the Function you want is not included on the list, then you need to create it. You can click the **Function Go To** button to access the Repository **Functions** dialog box in order to create the item (refer to the section entitled “Functions” in Chapter 4 of the *User’s Guide*). Upon returning to the **Employee** dialog box, the new item(s) will be included on the list.
7. For each function that is listed, you can specify the type of control. Click on the **Arrow** button that is on the right side of the **B/A** column and select either **Basic** (default) or **Admin**.
8. Click **Add** to create the item or you can continue to add more information about the Employees in the other tabs of the **Applications** dialog box.

### 2.2.5.4 Notes

In the Notes Tab, descriptive notes can be stored for each employee.

To add notes about an Employee:

1. Select the **Notes** tab in the **Employees** dialog box (see the figure below).



2. Type notes about the Employee in the **Notes** text box.
  - \* The notes will be exported as the Description of the Employee.
  - \* If you want to add a **Carriage Return** to the text of your Notes, then type **Ctrl+Enter**.
3. Click **Add** to create the item or you can continue to add more information about the Employees in the other tabs of the **Employees** dialog box.

## **2.2.6 Define the Data Structures**

In FlowMark, data structures are used to define the data that is input and output to both programs and activities. A data structure is a special type of data field that contains a list of other data fields. Data fields are defined in the Workflow•BPR Repository. In general, you will define all the Data Fields and Data Structures, and then assign the Data Fields as elements of the Data Structures.

### **2.2.6.1 Data Fields**

Data Fields can be assigned to five (5) types of objects: Processes, Tasks, Applications, Phis, and other Data Fields (Structures). Workflow•BPR supports the following types of Data Fields:

- Character
- Integer
- Boolean
- Float
- Structure
- Time
- Date and Time
- Long

The information about Data Fields is captured with the Data Fields dialog boxes. The following table displays the FlowMark to Workflow•BPR data conversions for Data Fields:

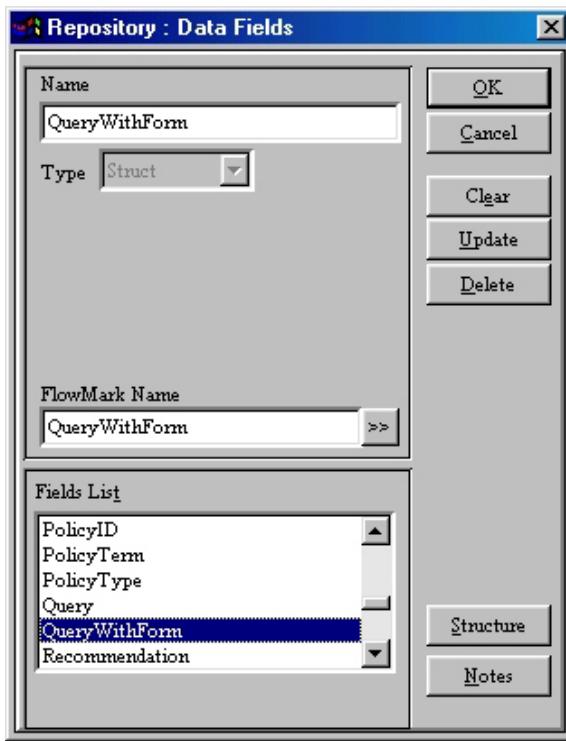
<b><u>FlowMark</u></b>	<b><u>Workflow•BPR</u></b>	
<b><u>Data Structure</u></b>	<b><u>Data Fields</u></b>	<b><u>Location</u></b>
Name	FlowMark Name	Data Fields dialog box
String	Char	Data Fields dialog box
Long	Integer, Boolean, Time	Data Fields dialog box
Float	Float	Data Fields dialog box
Structure	Structure	Data Fields dialog box

Data Fields can be an array of whatever size you can define. You can assign an alias and an initial value for the Data Fields. This information is also available in the section entitled “Data Fields” of Chapter 3 of the *User’s Guide*.

 **FlowMark only supports String, Long, and Float types of Data Fields. Therefore, the Integer, Boolean, and Time types will be translated as Long.**

To create a data field:

1. Select **Process Data** from the **Repository** menu. A sub-menu will appear.
2. Select **Data Fields** from the sub-menu. The **Data Fields** dialog box will appear (see the figure below).



3. Type the Name of the data field in the **Name** text box.
  4. Select the Type of the data field (**Char** is default) from the **Type** list box.
- Warning: After you select a type and save the Data Field item, you cannot change the type at a later time. You will have to delete the item and then create it again.**
5. The **FlowMark Name** text box displays the name that will be exported to the FDL file. This name can be different from the name specified for the Data Field.
    - \* You can type in the **FlowMark** text box to change the FlowMark name. This name has to be unique.
    - \* You can reset a modified FlowMark name by clicking on the << button to the right of the **FlowMark** text box.
  6. Click **Structure** to go to the **Data Structure Tree** dialog box to see where the data field you have selected resides in the Organization's data structure.
  7. Click **Notes** to go to the **Notes** dialog box to record any additional information about the Data Field.

- \* Click to position your cursor inside the text box and then type in the additional information.
  - \* If you want to add a **Carriage Return** to the text of your Notes, then type **Ctrl+Enter**.
  - \* Click **OK** to return to the **Data Fields** dialog box.
8. Click **OK** when defining one entry. Click **Add** if defining multiple entries, and then click **Close** after the last entry has been added.

### 2.2.6.2 Data Structures

Structures are a collection of other data fields and can include other Structures. Refer to the section entitled “Assign the Data Structures to the Application” on page 2-27 to see how data structures are applied to inputs and outputs of programs. This information is also available in the section entitled “Data Structures” of Chapter 3 of the *User’s Guide*.

The information about Data Structures is captured with the Structure Fields and Data Fields dialog boxes. The following table displays the FlowMark to Workflow•BPR data conversions for Data Structures:

<u>FlowMark</u>	<u>Workflow•BPR</u>	
<u>Data Structure</u>	<u>Data Fields</u>	<u>Location</u>
Name	Name	Data Fields dialog box
Member Name	Name	List in Data Structure Details dialog box or Data Structure Tree dialog box, Name in Data Fields dialog box
Member Type	Type	Data Fields dialog box
Member Description	Notes	Notes dialog box from Data Structure Details dialog box
Member Array	Array	Data Structure Detail dialog box
Member Alias	Alias	Data Structure Detail dialog box
Description	Notes	Notes dialog box from Data Fields dialog box

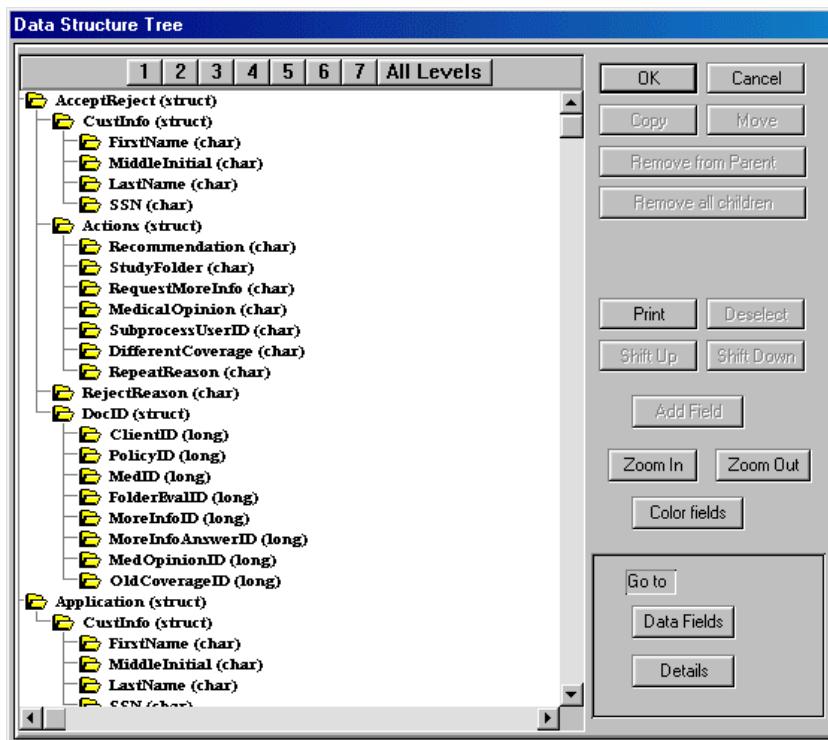
## *Creating a Data Structure*

To create a Data Structure:

1. Select **Process Data** from the **Repository** menu. A sub-menu will appear.
2. Select **Data Fields** from the sub-menu. The **Data Fields** dialog box will appear.
3. Define all the data fields that will be contained in the data structure (refer to the section entitled “Data Fields” on page 2-16).
4. Select **Struct** as the Data Field **Type**.
5. Click **Add**.
6. Close the **Data Fields** dialog box.

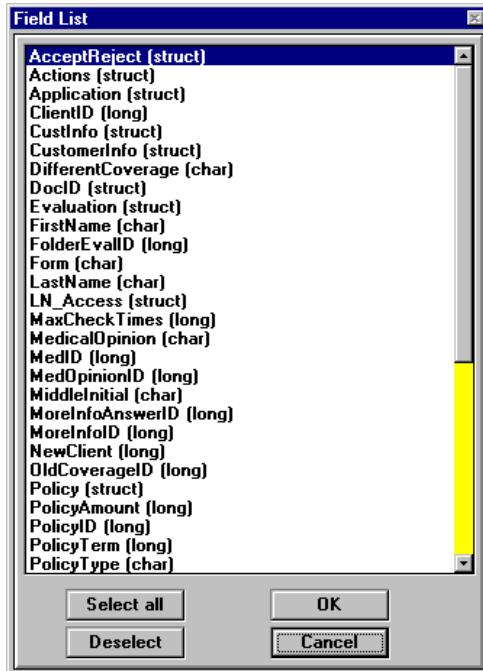
## *Adding Elements to a Data Structure*

1. Select **Process Data** from the **Repository** menu. A sub-menu will appear.
  2. Select **Data Fields** from the sub-menu. The **Data Structure Tree** dialog box will appear (see the figure below).
- \* All defined Data Structures will appear in the dialog box.



3. Click on a Data Structure. It will be highlighted.

4. Click on the **Add Field** Go To Button. The **Field List** dialog box will appear (see the figure below).



- \* Click on an unselected item to select it. It will be highlighted.
  - \* Click on a selected item to deselect it. The highlighting will be removed.
  - \* Click **Select All** to select all (highlight) the items.
  - \* Click **Deselect** to deselect all (remove highlighting) the items.
- Select the elements in the order that the Application will use them.**
5. Click **OK** and the selected items will be added as children to the Data Structure and you will be returned to the **Data Structure Tree** dialog box.

### *Removing Elements from a Data Structure*

Only Data Fields can be removed from the Data Structure Tree dialog box. All Repository Data Structure items will always be displayed in the dialog box. A Data Structure item will either be at the top level in the dialog box or will be a child of another Data Structure.

There are two methods of deleting Data Structure elements. The first method removes a child element from its association with the parent:

1.  Select a Data Field of a Data Structure.
2.  Click the **Remove from Parent** button. The Data Field will be removed from the Data Structure.

The second method removes all the children from a Data Structure:

1.  Select a Data Structure (either a top-level or a lower-level Data Structure) that has one or more Data Fields as children.
2.  Click the **Remove all Children** button. All the child Data Fields of the Data Structure will be removed.

Any Child Data Structure will be placed at the top level of the Data Structure Tree dialog box.

 **Data Fields removed from the Data Structure Tree dialog box are NOT removed from the Repository.**

### *Moving Elements in a Data Structure*

There are five (5) methods of moving Data Structure elements. The first method is as follows:

1.  Select an element of a Data Structure (either a Data Field or a lower-level Data Structure).
2.  Click the **Move** button. The mouse cursor will change to a document icon.
3.  Click on a Data Structure (at any level). The Element will be moved to the bottom position of the Data Structure.
  - \* If you  click on an element that is not a Data Structure, a message will appear that says, “Cannot perform this operation.”

 **Rearrange the Data Fields in the order that the program will use them.**

The second method is as follows:

1. Select an element of a Data Structure (either a Data Field or a lower-level Data Structure).
2. Drag the cursor from the selected element. The cursor will change to a document icon.
3. Release the click on a Data Structure (at any level). The Element will be pasted to the bottom position of the Data Structure.
  - \* If you release the click on an element that is not a Data Structure, a message will appear that says, "Cannot perform this operation."

The third method is as follows:

1. Select an element of a Data Structure (either a Data Field or a lower-level Data Structure).
2. Click the **Shift Up** button. The Data Structure element will move up one position.
  - \* If the element is in the top position within the Data Structure, a message will appear that says, "Cannot perform this operation."
3. Click the **Shift Down** button. The Data Structure element will move down one position.
  - \* If the element is in the bottom position within the Data Structure, a message will appear that says, "Cannot perform this operation."

The fourth method removes a child element from its association with the parent:

1. Select a lower-level Data Structure within the Data Structure Tree.
2. Click the **Remove from Parent** button. The Data Structure will be placed at the top level of the Data Structure Tree dialog box.

The fifth method removes all the children from the Data Structure Tree:

1. Select a Data Structure (either a top-level or a lower-level Policy) that has one or more Data Structure as children.
2. Click the **Remove all Children** button. All of the child Data Structures will be placed at the top level of the Data Structure Tree dialog box.

Any Child Data Fields of the Data Structure will be removed from the Data Structure Tree dialog box.

### *Copying and Pasting Elements*

There are two methods of copying and pasting Data Structure elements. The first method is as follows:

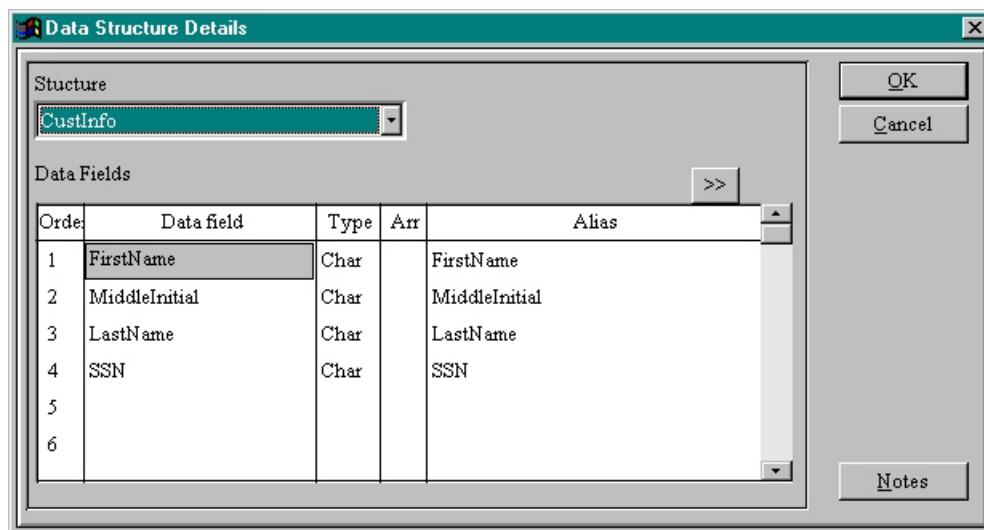
1. Select an element of a Data Structure (either a Data Field or a lower-level Data Structure).
2. Click the **Copy** button. The cursor will change to a document icon.
3. Click on a Data Structure (at any level). The Element will be pasted to the bottom position of the Data Structure.
  - \* If you click on an element that is not a Data Structure, a message will appear that says, "Cannot perform this operation."

The second method is as follows:

1. Ctrl+Select an element of a Data Structure (either a Data Field or a lower-level Data Structure).
2. Drag the cursor from the selected element. The cursor will change to a document icon.
3. Release the click on a Data Structure (at any level). The Element will be pasted to the bottom position of the Data Structure.
  - \* If you release the click on an element that is not a Data Structure, a message will appear that says, "Cannot perform this operation."

### *Adding Details to Elements*

1. Click on the **Details** Go To Button. The **Data Structure Details** dialog box will appear (see the figure below).



2. Select the Structure you want to edit from the **Structure** selection box (if it is not already selected).
  - \* If the Structure you want is not included on the list, it needs to be created:
    - First, close the **Data Structure Details** dialog box and go to **Data Fields** dialog box (refer to the section entitled “Data Fields” on page 2-16). Create a new Data Structure item and close the **Data Fields** dialog box.
    - Next, open the **Data Structure Tree** dialog box and add the appropriate elements to the Data Structure (refer to the section entitled “Data Structures” on page 2-18).
    - Click the **Details** button to return to the **Data Structure Details** dialog box. The new item(s) will be included on the list.
3. If you want the element to exist as an array within the Data Structure, type the number of the size of the array in the **Arr column** of the **Data Fields** list box.
4. If you want the name of the Data Structure element to be different from the name that was used to define the element in the Repository, then type the name in the **Alias** column of the **Data Fields** list box.
  - \* To reset the Alias to be the same as the name of the Data Field, click the >> button above the Alias column.
5. If you want to add notes for the Data Structure element, then click on the **Notes** button. The **Notes** dialog box will appear.
  - \* Type in the notes for the Data Structure element in the text box.
  - \* If you want to add a Carriage Return to the text of your Notes, then type Ctrl+Enter.
  - \* Click OK or press Enter to return to the **Data Structure Details** dialog box.
  - \* Each Data Structure element can have separate Notes.
6. Repeat the selection for each line of the Data Fields list box until all Data Fields have been modified.
7. Click **OK** when defining one entry. To edit another Data Structure, select it from the **Structure** selection box (The changes you have made to the previous Data Structure will be automatically saved).

## 2.2.7 Define the Programs as Applications

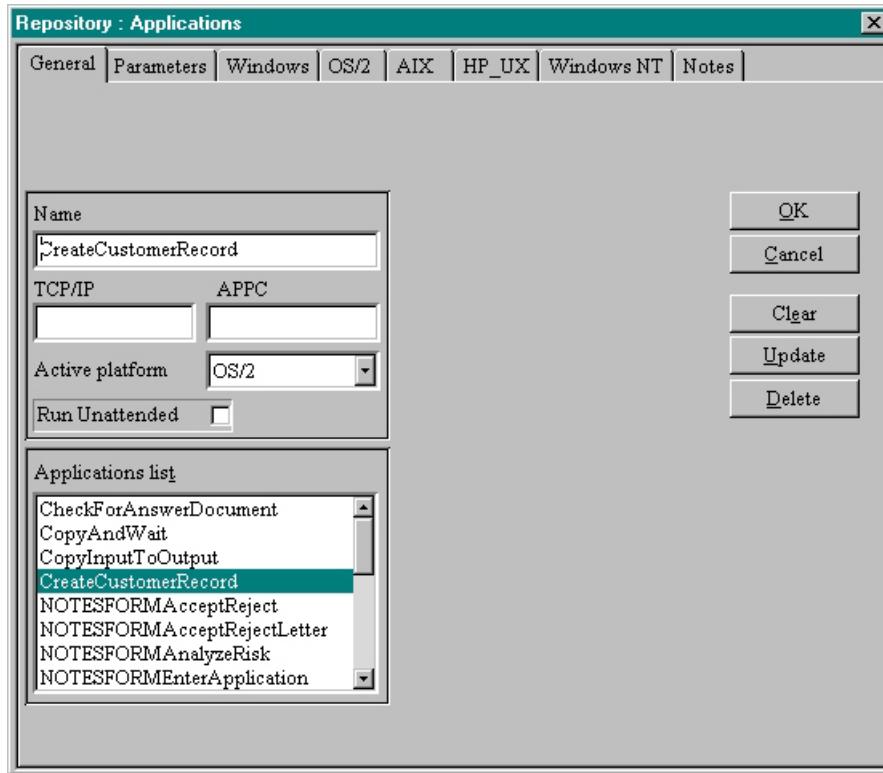
FlowMark controls the activation of software programs. These programs have specific data inputs and outputs (Parameters defined in a data structure). In Workflow•BPR, a program is represented by an Application object. The Application is linked to a specific Software Program that resides on the network of an organization. This information is also available in the section entitled “Applications” of Chapter 2 of the *User’s Guide*.

The information about Programs is captured with the Applications dialog box. The following table displays the FlowMark to Workflow•BPR conversions for Applications:

<u>FlowMark</u>	<u>Workflow•BPR</u>	
<u>Program (Program Setting)</u>	<u>Application</u>	<u>Location</u>
Name	Name	General Tab
Description	Note	Notes Tab
Same data structures for program activity	Same Data as Task	Parameters Tab
Input Structure	Input Structure	Parameters Tab
Output Structure	Output Structure	Parameters Tab
TCP/IP address	TCP/IP	General Tab
APPC address	APPC	General Tab
Run program unattended	Run Unattended	General Tab
Path and filename	Path & File Name	Windows, OS/2, AIX, HP/UX, or Windows NT Tab
Entry Point	Entry Point	Windows, OS/2, AIX, HP/UX, or Windows NT Tab
Command Line	Command Line	Windows, OS/2, AIX, HP/UX, or Windows NT Tab
Working Directory	Working Directory	Windows, OS/2, AIX, HP/UX, or Windows NT Tab
Environment	Environment	Windows, OS/2, AIX, HP/UX, or Windows NT Tab
Inherit environment	Inherit Environment	Windows, OS/2, AIX, HP/UX, or Windows NT Tab
Style	Style	Windows, OS/2, AIX, HP/UX, or Windows NT Tab
Start in foreground	Start in Foreground	Windows, OS/2, Windows NT Tab
No automatic close	No Automatic Close	OS/2 Tab
X-Windows application	Run in AIXTerm; Run in HPTerm	AIX, HP/UX Tab
User Account	Employee	AIX, HP/UX Tab

To define the Application General and Network settings:

1. Select **Organization Data** from the **Repository** menu. A sub-menu will appear.
2. Select **Applications** from the sub-menu. The **Applications** dialog box will appear—open to the **General** tab.



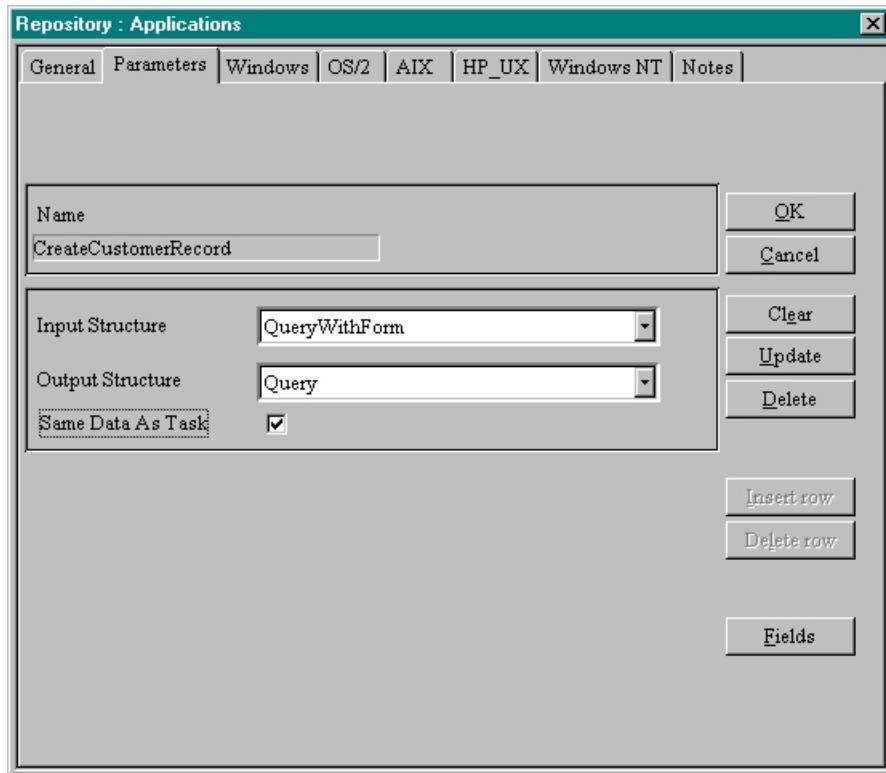
3. Type the **Name** of the Application in the **Name** text box.
4. Type the TCP/IP address of the Target machine in the **TCP/IP** text box.
  - \* This protocol is available for all platforms.
5. Type the APPC address of the Target machine in the **APPC** text box.
  - \* This protocol is available for the OS/2 platform only.
6. Select the active platform for the application from the Active Platform selection box.
  - \* You can select Windows (default), OS/2, AIX, HP/UX, or Windows NT.
7. Select the **Run Unattended** check box if the program is for an automatic Task and you want it to be started even if no eligible user is logged on.
  - \* You must also specify at least one target machine address.
8. Click **Add** to create the item or you can continue to add more information about the Applications in the other tabs of the **Applications** dialog box.

### 2.2.7.1 Assign the Data Structures to the Application

In Workflow•BPR, Data Structures are assigned to Applications to create the input and output structures for FlowMark programs. You can specify whether the data structures are inputs, outputs, or both.

To assign the Data Structures of an Application:

1. Select the **Parameters** tab in the **Applications** dialog box (see the figure below).



2. Select a Data Structure from the **Input Structure** selection box.
  - \* If the Data Field you want is not included in the list, it needs to be created. Click **Fields** to go to the **Data Fields** dialog box (refer to the section entitled “Data Fields” in Chapter 3 of the *User’s Guide*). Upon returning to the **Applications** dialog box, the new item(s) will be included on the list.
3. Select a Data Structure from the **Output Structure** selection box.
4. Deselect the **Same data as task** check box if you want to specify data structures for the Task input and output containers that are different from the data structures of the program—the check box is selected by default.
5. Click **Add** to create the item or you can continue to add more information about the Application in the other tabs of the **Applications** dialog box.

### **2.2.7.2 Define the Details of the Program**

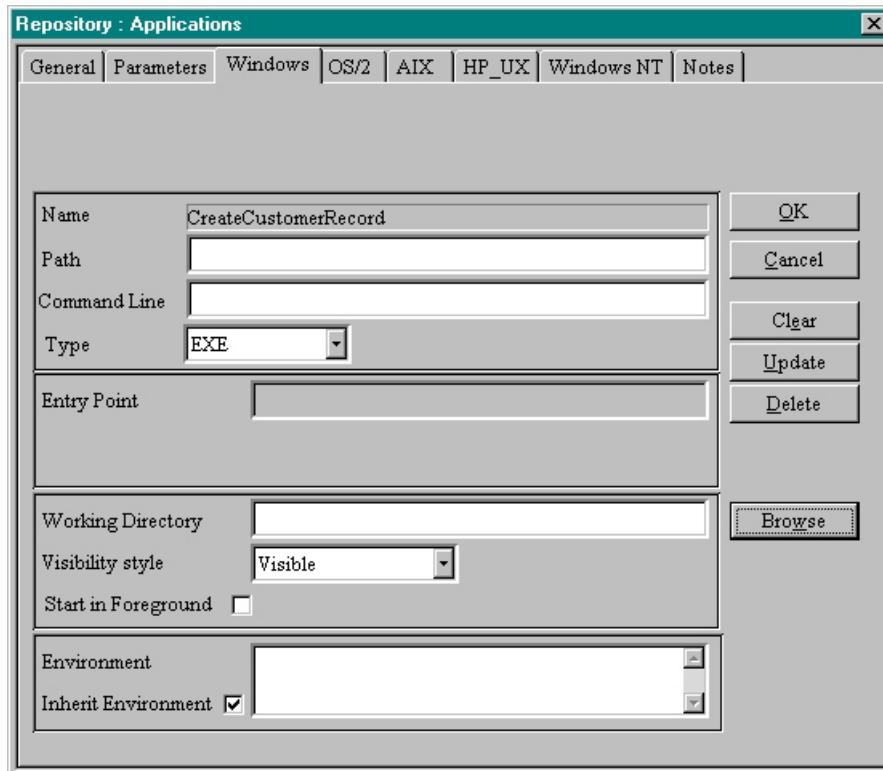
FlowMark can open programs on many platforms. In addition, a single program can reside on many platforms. Thus, for any single program, you can specify the information specific to more than one platform. There are five (5) platforms that FlowMark will operate on: Windows, OS/2, AIX, HP/UX, and Windows NT.

#### **Windows**

This tab allows you to enter information about the program that will run on a Windows platform.

To define the Application details for the Windows platform:

1. Select the **Windows** tab of the **Applications** dialog box (see the figure below).



2. Type the path and filename of the program.
  - \* The full file path is not required. The path can be specified in the CONFIG.SYS file of the client where the program will run.
  - \* If the filename does not have an extension of .EXE, .COM, .PIF, .CMD, and .BAT, then the program will be assumed to be a .DLL.

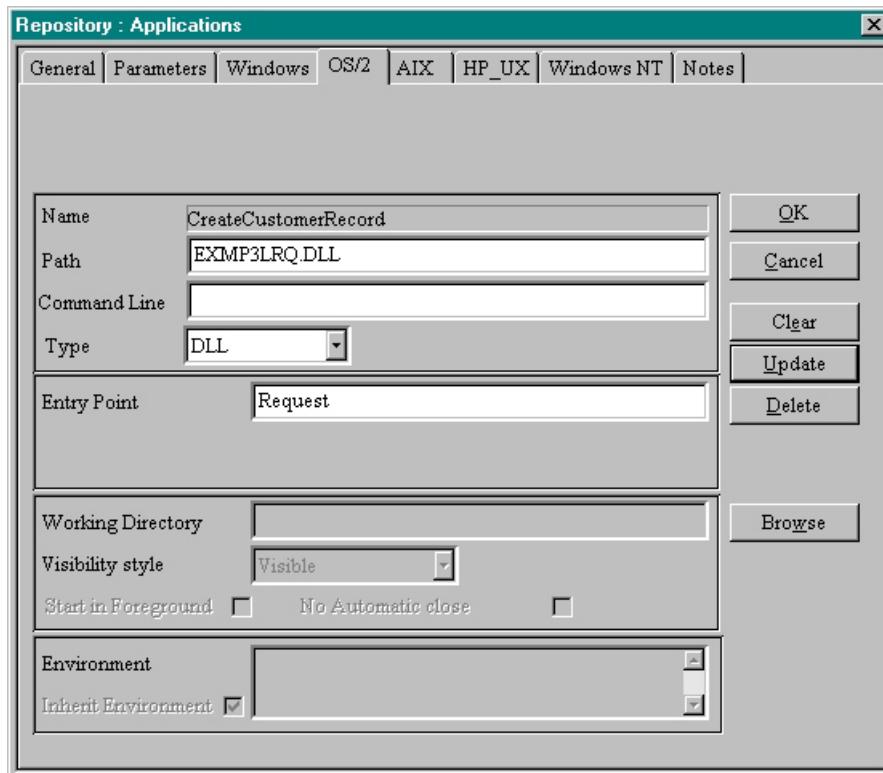
- \* You can specify the FlowMark bundle planning tool:  
**EXMCOBCL.EXE**.
  - \* You can specify the FlowMark manual checklist program:  
**EXMCOMAN.EXE**.
3. Type any valid parameters for the executable program in the **Command Line** text box.
  4. Select the type of program in the Type selection box.
    - \* The following types are possible: **.EXE**, **.COM**, **.PIF**, **.BAT**, **.CMD** and **.DLL**.
  5. Type an Entry Point in the **Entry Point** text box.
    - \* Entry Points are only specified for **.DLL** files.
  6. Type a working directory for the program in the **Working Directory** text box.
  7. Select a visibility style of the Application from the **Visibility Style** selection box.
    - \* There are four (4) initial states for the program: **Visible** (default), **Invisible**, **Minimized**, or **Maximized**.
  8. To specify that the program starts in foreground, select the **Start in Foreground** check box.
    - \* Do not select the check box for Presentation Manager programs. If you do, the Task list pops up when the program is started.
    - \* This setting will override the Visibility Style of Minimized.
    - \* If the Visibility Style is invisible, this check box has no effect.
  9. Type any Environment Settings in the **Environment** text box.
    - \* These settings will be merged with the Windows environment settings if the **Inherit Environment** check box is selected.
  10. To use the Windows environment settings, select the **Inherit Environment** check box.
    - \* These settings will be merged with any user defined environment settings.
  11. Click **Add** to create the item or you can continue to add more information about the Application in the other tabs of the **Applications** dialog box.

### OS/2

This tab allows you to enter information about the program that will run on an OS/2 platform.

To define the Application details for the OS/2 platform:

1. Select the **OS/2** tab of the **Programs** dialog box (see the figure below).



2. Type the path and filename of the program.
  - \* The full file path is not required. The path can be specified in the CONFIG.SYS file of the client where the program will run.
  - \* For .DLL files you can enter only the filename. You *cannot* specify the full file path. A LIBPATH statement and path must be added to the CONFIG.SYS file of the client where the program will run.
  - \* You can specify the FlowMark bundle planning tool (optional): **EXMPOBCL.EXE**.
  - \* You can specify the FlowMark manual checklist program (optional): **EXMPOMAN.EXE**.

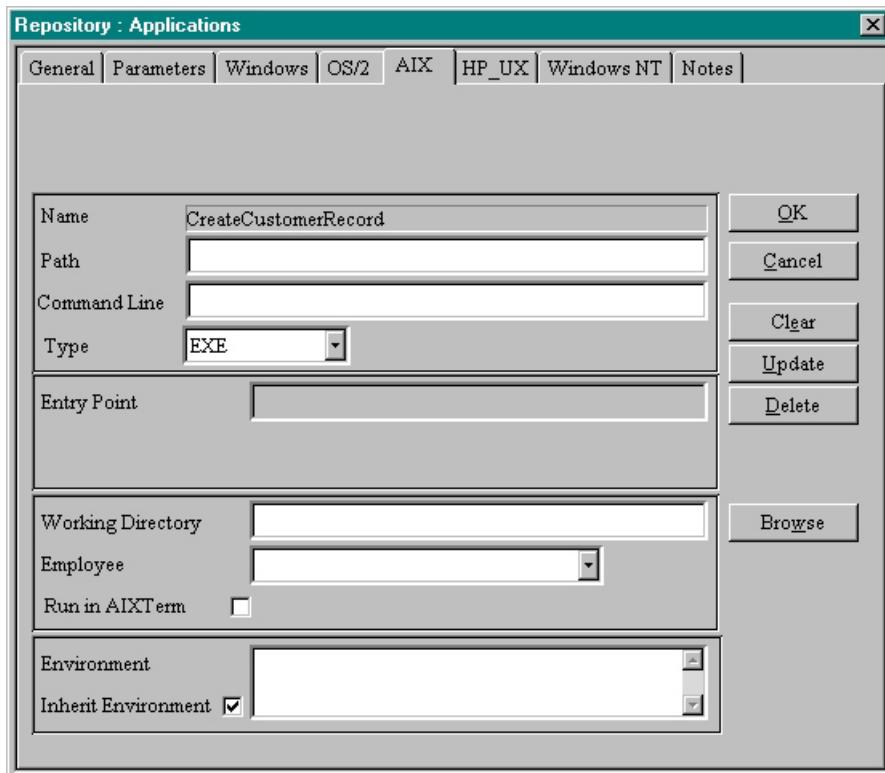
3.  Type any valid parameters for the executable program in the **Command Line** text box.
4.  Select the type of program in the Type selection box.
  - \* The following types are possible: **.EXE**, **.COM**, **.PIF**, **.BAT**, and **.DLL**.
5.  Type an Entry Point in the **Entry Point** text box.
  - \* Entry Points are only specified for **.DLL** files.
6.  Type a working directory for the program in the **Working Directory** text box.
7.  Select the Visibility Style in the **Visibility Style** selection box.
  - \* There are four initial states for the program: **Visible** (default), **Invisible**, **Minimized**, or **Maximized**.
8. To specify that the program starts in foreground,  select the **Start in Foreground** check box.
  - \* Do not select the check box for Presentation Manager programs. If you do, the Task list pops up when the program is started.
  - \* This setting will override the Visibility Style of Minimized.
  - \* If the Visibility Style is invisible, this check box has no effect.
9. To specify that the program will not close automatically when the program finishes,  select the **No Automatic Close** check box.
10.  Type any Environment Settings in the **Environment** text box.
  - \* These settings will be merged with the OS/2 environment settings if the **Inherit Environment** check box is selected.
11. To use the OS/2 environment settings,  select the **Inherit Environment** check box.
  - \* These settings will be merged with any user defined environment settings.
12.  Click **Add** to create the item or you can continue to add more information about the Application in the other tabs of the **Applications** dialog box.

## AIX

This tab allows you to enter information about the program that will run on an AIX platform.

To define the Application details for the AIX platform:

1. Select the **AIX** tab of the **Applications** dialog box (see the figure below).



2. Type the path and filename of any executable files or scripts.
  - \* You can specify the FlowMark bundle planning tool: **exmcobcl**.
  - \* You can specify the FlowMark manual checklist program: **exmpoman**.
3. Type any valid parameters for the executable program in the **Command Line** text box.
4. Select the type of program in the Type selection box.
  - \* The following types are possible: **.EXE**, **.COM**, **.PIF**, **.BAT**, and **.DLL**.
5. Type an Entry Point in the **Entry Point** text box.
  - \* Entry Points are only specified for **.DLL** files.

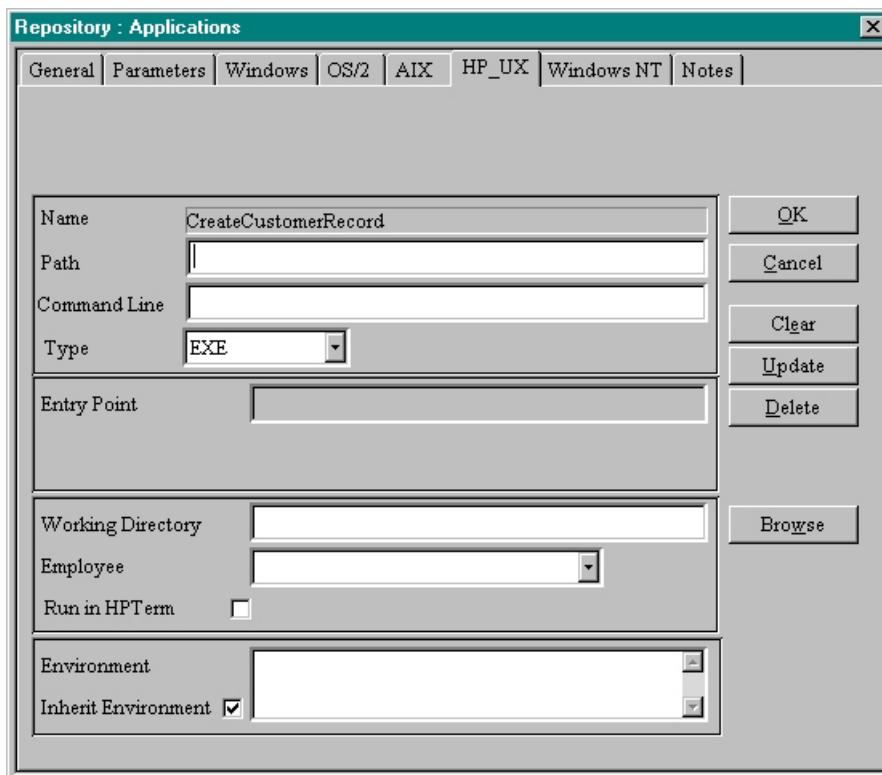
6.  Type a working directory for the program in the **Working Directory** text box.
7. You can specify the User Account ID by  selecting an Employee in the **Employee** selection box.
8. To specify that the program is an X-Windows application,  select the **Run in AIXTerm** check box.
9. Type any Environment Settings in the **Environment** text box.
  - \* These settings will be merged with the AIX environment settings if the **Inherit Environment** check box is selected.
10. To use the AIX environment settings,  select the **Inherit Environment** check box.
  - \* These settings will be merged with any user defined environment settings.
11.  Click **Add** to create the item or you can continue to add more information about the Application in the other tabs of the **Applications** dialog box.

## **HP/UX**

This tab allows you to enter information about the program that will run on a HP/UX platform.

To define the Application details for the HP/UX platform:

1. Select the **HP/UX** tab of the **Applications** dialog box (see the figure below).



2. Type the path and filename of any executable files or scripts.
  - \* You can specify the FlowMark bundle planning tool: **exmcobcl**.
  - \* You can specify the FlowMark manual checklist program: **exmpoman**.
3. Type any valid parameters for the executable program in the **Command Line** text box.
4. Select the type of program in the Type selection box.
  - \* The following types are possible: **.EXE**, **.COM**, **.PIF**, **.BAT**, and **.DLL**.
5. Type an Entry Point in the **Entry Point** text box.
  - \* Entry Points are only specified for **.DLL** files.

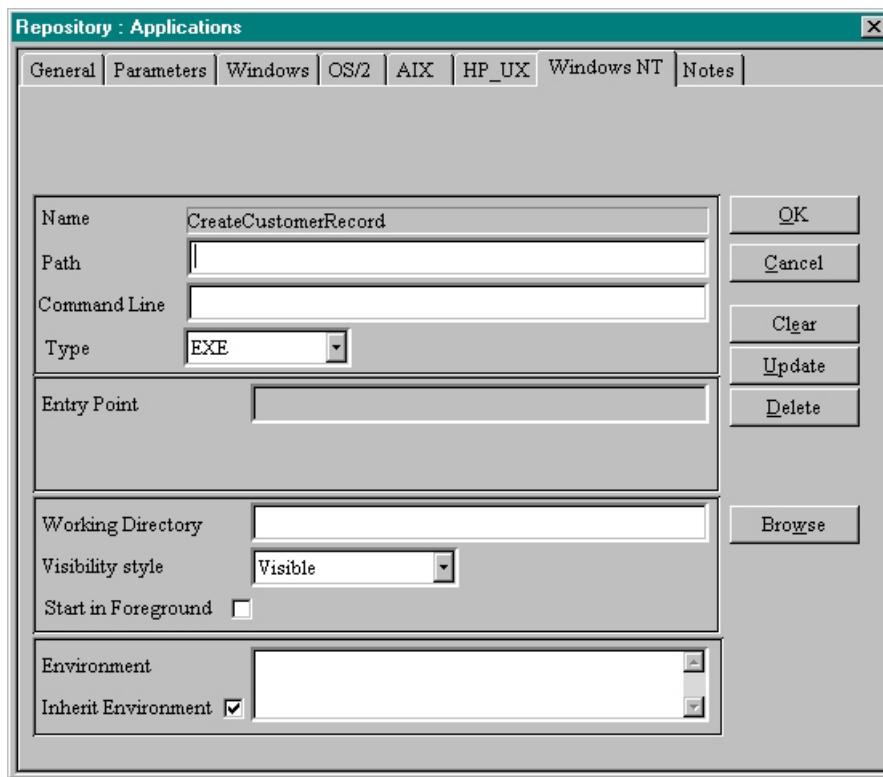
6.  Type a working directory for the program in the **Working Directory** text box.
7. You can specify the User Account ID by  selecting an Employee in the **Employee** selection box.
8. To specify that the program is an X-Windows application,  select the **Run in HPTerm** check box.
9. Type any Environment Settings in the **Environment** text box.
  - \* These settings will be merged with the HP/UX environment settings if the **Inherit Environment** check box is selected.
10. To use the HP/UX environment settings,  select the **Inherit Environment** check box.
  - \* These settings will be merged with any user defined environment settings.
11.  Click **Add** to create the item or you can continue to add more information about the Application in the other tabs of the **Applications** dialog box.

### Windows NT

This tab allows you to enter information about the program that will run on a Windows NT platform.

To define the Application details for the Windows platform:

1. Select the **Windows NT** tab of the **Applications** dialog box (see the figure below).



2. Type the path and filename of the program.
  - \* The full file path is not required. The path can be specified in the CONFIG.SYS file of the client where the program will run.
  - \* If the filename does not have an extension of .EXE, .COM, .PIF, and .BAT, then the program will be assumed to be a .DLL.
  - \* You can specify the FlowMark bundle planning tool:  
**EXMCOBCL.EXE**.
  - \* You can specify the FlowMark manual checklist program:  
**EXMCOMAN.EXE**.

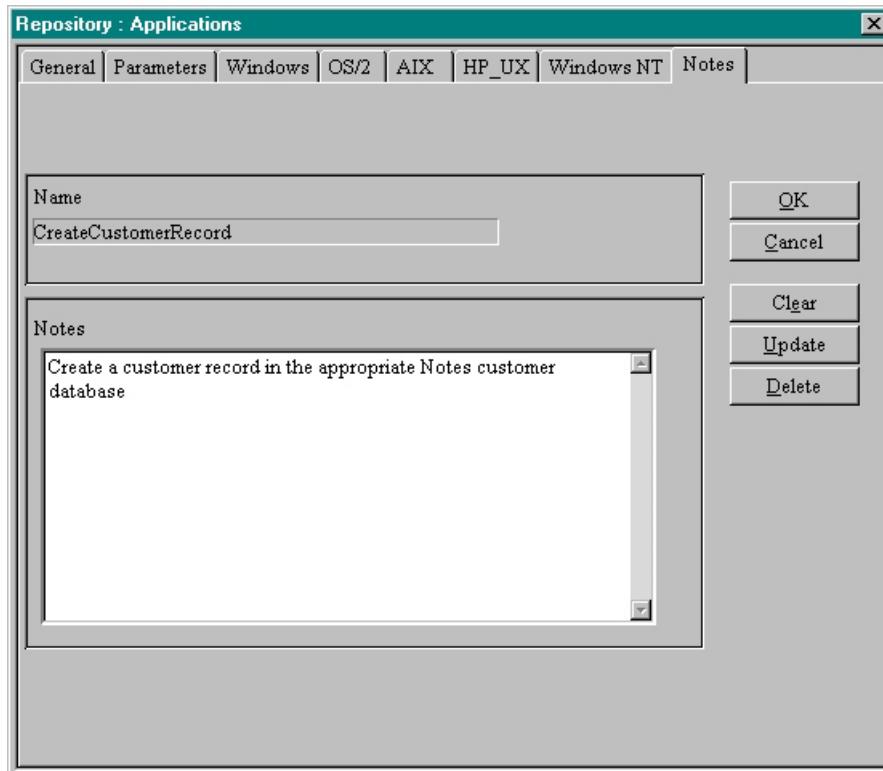
3.  Type any valid parameters for the executable program in the **Command Line** text box.
4.  Select the type of program in the Type selection box.
  - \* The following types are possible: **.EXE**, **.COM**, **.PIF**, **.BAT**, and **.DLL**.
5.  Type an Entry Point in the **Entry Point** text box.
  - \* Entry Points are only specified for **.DLL** files.
6.  Type a working directory for the program in the **Working Directory** text box.
7.  Select the Visibility Style in the **Visibility Style** selection box.
  - \* There are four initial states for the program: **Visible** (default), **Invisible**, **Minimized**, or **Maximized**.
8. To specify that the program starts in foreground,  select the **Start in Foreground** check box.
  - \* Do not select the check box for Presentation Manager programs. If you do, the Task list pops up when the program is started.
  - \* This setting will override the Visibility Style of Minimized.
  - \* If the Visibility Style is invisible, this check box has no effect.
9.  Type any Environment Settings in the **Environment** text box.
  - \* These settings will be merged with the Windows NT environment settings if the **Inherit Environment** check box is selected.
10. To use the Windows NT environment settings,  select the **Inherit Environment** check box.
  - \* These settings will be merged with any user defined environment settings.
11.  Click **Add** to create the item or you can continue to add more information about the Application in the other tabs of the **Applications** dialog box.

### Notes

This tab allows you to enter notes about the Application.

To define the notes for the Application platform:

1. Select the **Notes** tab of the **Applications** dialog box (see the figure below).



2. Type notes in the **Notes** text box.
  - \* The notes will be exported as the Program Description in the FDL file.
  - \* If you want to add a **Carriage Return** to the text of your Notes, then type **Ctrl+Enter**.
3. Click **Add** to create the item or you can continue to add more information about the Application in the other tabs of the **Applications** dialog box.

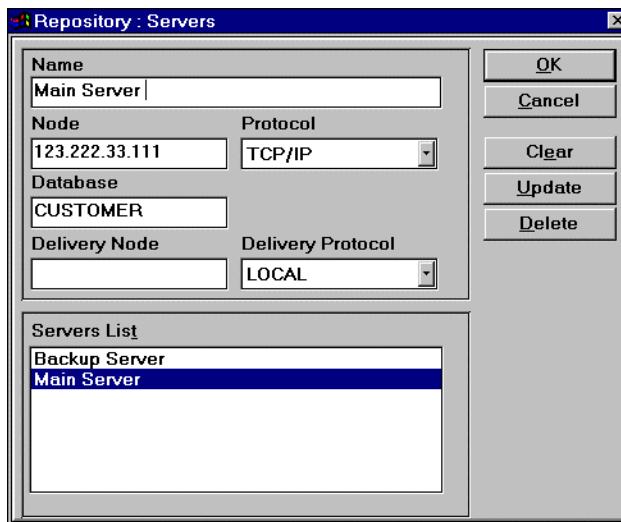
## 2.2.8 Define the Servers

Workflow•BPR allows for the identification of database and workflow servers. The information about the servers can be used by FlowMark when the Process is translated into a FDL file. The information about Servers is captured with the Servers dialog box. The following table displays the FlowMark to Workflow•BPR conversions for Servers:

<u>FlowMark</u>	<u>Workflow•BPR</u>
<b>Program (Program Setting)</b>	<b>Application</b>
Server name	Name
Server node	Node
Server protocol	Protocol
Database name	Database
Delivery server node	Delivery Node
Delivery server protocol	Delivery Protocol

To define a Server:

1. Choose **Organization Data** from the **Repository** menu. A sub-menu appears.
2. Choose **Servers**. The **Servers** dialog box appears (see the figure below).



3. Type the name of the function in the **Name** text box.
4. Select the protocol from the **Protocol** selection box.
  - \* If you select APPC as the Protocol, then type the APPC address in the **Node** text box.
  - \* If you select TCP/IP as the Protocol, then type the TCP/IP address in the **Node** text box.

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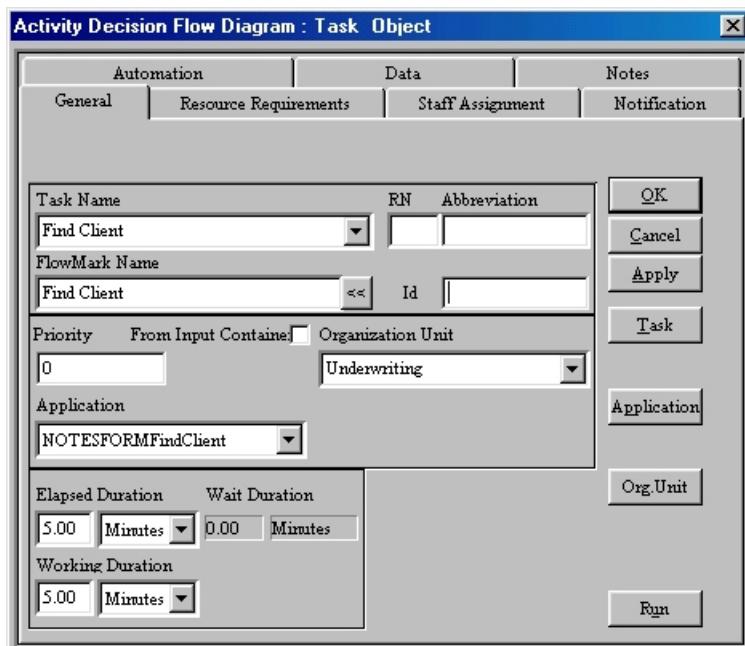
5. Type the name of the Database, if any, in the Database text box.
6. Select the delivery protocol from the **Delivery Protocol** selection box.
  - \* If you select APPC as the Protocol, then type the APPC address in the **Delivery Node** text box.
  - \* If you select TCP/IP as the Protocol, then type the TCP/IP address in the **Delivery Node** text box.
7. Click **OK** or press **Enter** when defining one entry. If defining multiple entries, click **Add**, and then click **Close** after the last entry has been added.

## 2.2.9 Assign the Applications to the Tasks

After the Applications and the Tasks have been created, the Applications need to be associated with one (or more) Tasks. The input and output structures of the Application will automatically be used as the structures for the Input and Output Containers of the Task.

To assign a program to the Task:

1. Double-click on the Task object. The **Task Object** dialog box will appear—open to the General tab (see the figure below).



2. Select the Application from the **Application** selection box.
  - \* If the Application you want is not included on the list, then you need to create it. Click the **Application** Go To button to access the Repository **Applications** dialog box in order to create the item (refer to the section entitled “Define the Programs as Applications” on page 2-25). Upon returning to the **Task Object** dialog box, the new item(s) will be included on the list.

## **2.2.10 Define the Settings for Activities**

FlowMark has three (3) basic types of activities: Process Activities, Blocks, and Program Activities.

A Workflow•BPR Process Object that is set to the type Process is equivalent to a FlowMark Process Activity. The Process Object itself is considered an activity that appears in an Employees queue, but the actual work performed is defined in the Sub-Process that the Process Object represents. When the Sub-Process is completed, if the end condition of the Process Object is evaluated to True, then the activity is completed. Otherwise the activity will start again.

A Workflow•BPR Process Object that is set to the type Block is equivalent to a FlowMark Block. The Block is a Process that begins and will be repeated until the end condition evaluates to True.

A Workflow•BPR Task is equivalent to a FlowMark Program Activity, which has an Application assigned to perform it. The program is started when the Task is started. When the Application ends, the end condition of the Task is evaluated. If the condition evaluates to True, then the Task is completed. Otherwise, the Task reset to the ready status.

A Workflow•BPR Process Object that is set to the type Activity is also equivalent to a FlowMark Program Activity. This will be discussed in greater detail in the section entitled “Exporting a Process Object as a Program Activity (Task)” on page 2-105.

### **2.2.10.1 The Process**

The top-level Process is treated differently than a Process Activity in FlowMark. The settings necessary to initiate a Process are documented in this section. The settings necessary to initiate a Process Activity within a Process are documented in the next section.

The information about Processes is captured with the Info dialog box when accessed through the Info tool of the ADF toolbar or the Info command from the Process Menu. The Details and Costs tabs of the Info dialog box are not used for defining FlowMark information.

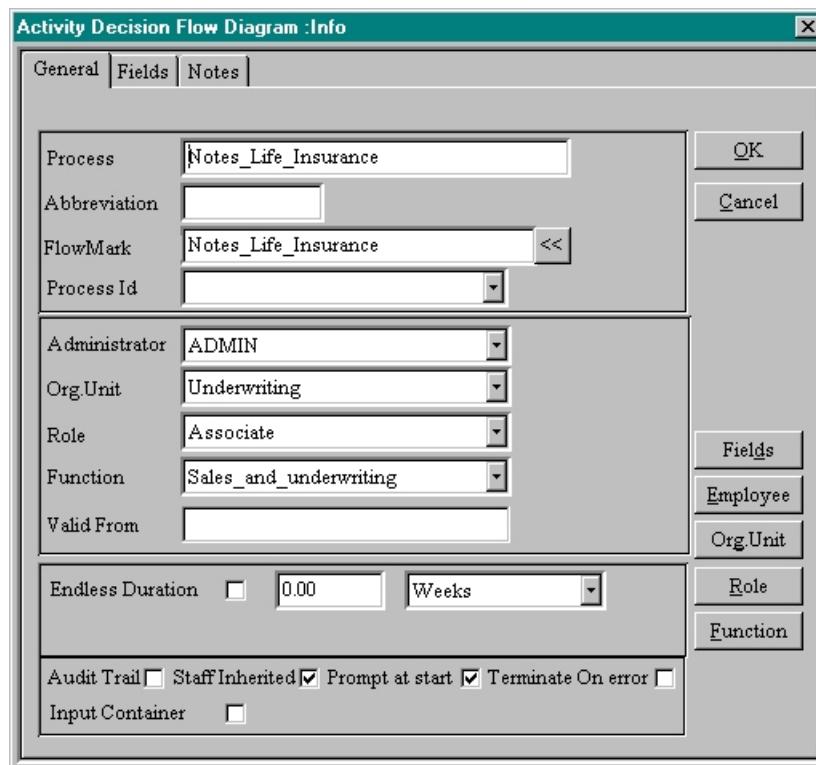
The following table displays the FlowMark to Workflow•BPR conversions for Processes:

<b>FlowMark</b>	<b>Workflow•BPR</b>	
<b>Process Setting</b>	<b>Process</b>	<b>Location</b>
Name	FlowMark	General Tab
Description	FlowMark Description Header	Notes Tab
Input data Structure	Input Data Structure	Fields Tab
Output Data Structure	Output Data Structure	Fields Tab
Category	Function	General Tab
Audit	Audit Trail	General Tab
Prompt at Process Start	Prompt at Start	General Tab
Terminate on Error	Terminate on Error	General Tab
Documentation	Documentation Header	Notes Tab
Organization	Organization Unit	General Tab
Role	Role	General Tab
Endless Duration	Endless Duration	General Tab
Notification Duration	Duration	General Tab
Inherited	Staff Inherited	General Tab
Process Administrator	Administrator	General Tab
Data from Input Container	Input Container	General Tab

### General and Staff Information

To specify the FlowMark General and Staff settings:

1.  Choose **Info** from the **Process** menu, or  click the **Info** tool button  on the **ADF Toolbar**. Workflow•BPR displays the **Info** dialog box—open to the General Tab (see the figure below).



2.  Edit the name of the Process in the **Process** text box.
3. The **FlowMark** text box displays the name that will be exported to the FDL file. The FlowMark name is derived from a combination of the Process name and the RN and has a maximum of 35 characters (for a RN value of 00, the RN does not appear in the FlowMark name).
  - \* You can  type in the **FlowMark** text box to change the FlowMark name. This name has to be unique.
  - \* You can reset a modified FlowMark name by  clicking on the << button to the right of the **FlowMark** text box.

4. Select the Data Field that contains the Process ID in the **Process ID** list box.
5. Select the Employee that is the administrator of the Process from the **Administrator** selection box:
  - \* If the Employee you want is not included on the list, then you need to create it. Click the **Employee** Go To button to access the Repository **Employees** dialog box in order to create the item (refer to the section entitled “Define the Staff” on page 2-8). Upon returning to the **Info** dialog box, the new item(s) will be included on the list.
6. Select the Organization Unit responsible for the Process from the **Organization Unit** selection box.
  - \* Employees assigned to FlowMark activities must belong to this organization.
  - \* If the unit you want is not included on the list, then you need to create it. Click the **Org. Unit** Go To button to access the Repository **Organization Units** dialog box in order to create the item (refer to the section entitled “Organization Units” in Chapter 2 of the *User’s Guide*). Upon returning to the **Info** dialog box, the new item(s) will be included on the list.
7. Select the Role responsible for overseeing the Process from the **Role** selection box.
  - \* Employees that fill this Role can perform any individual Task in the Process (as well as those Roles specified in the individual Tasks).
  - \* If the Role you want is not included on the list, then you need to create it. Click the **Roles** Go To button to access the Repository **Roles** dialog box in order to create the item (refer to the section entitled “Roles” in Chapter 2 of the *User’s Guide*). Upon returning to the **Info** dialog box, the new item(s) will be included on the list.
8. To add or change the Function associated with the Process, choose a function name from the **Function** combo box.
  - \* The Function will be exported as the Process Category in the FDL file.
  - \* If the Function you want is not included on the list, then you need to create it. Click the **Function** Go To button to access the Repository **Functions** dialog box in order to create the item (refer to the section entitled “Functions” in Chapter 2 of the *User’s Guide*). Upon returning to the **Info** dialog box, the new item(s) will be included on the list.
9. De-select the **Endless Duration** check box if you want to specify a duration for the Process.
  - \* To change the Duration of the Process, type the appropriate value in the **Duration** text box and then select the appropriate time unit from the **Duration** Unit selection box.
    - The Process Administrator will be notified if the duration of the Process exceeds the Duration setting.

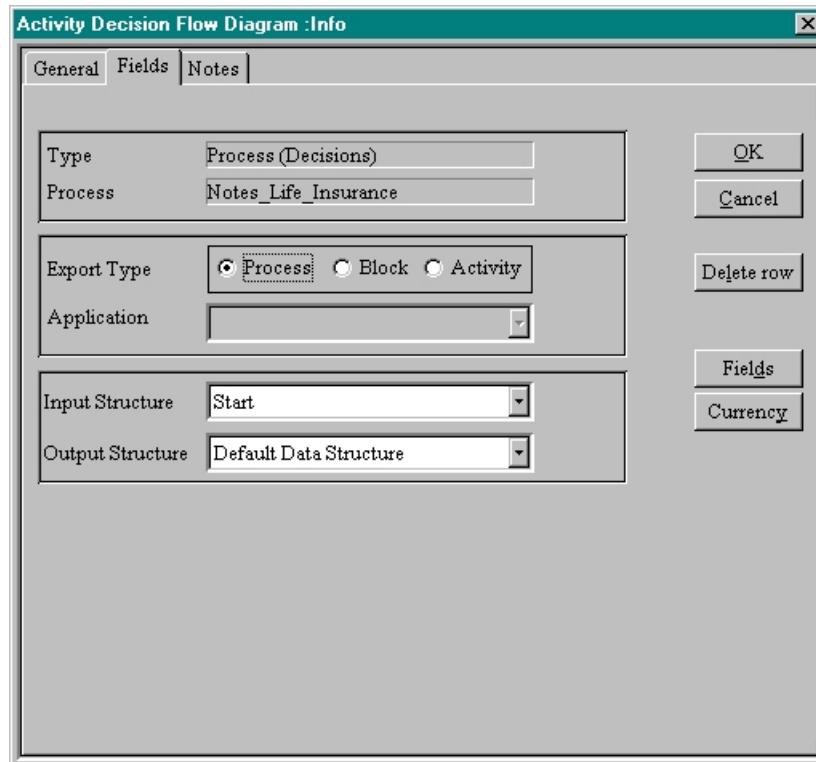
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10. If you want to specify the FlowMark Process Staff settings from the data that is contained in the Input Container of the Process, then select the **Input Container** check box.
  - \* The **Administrator**, **Organization Unit**, **Role**, **Duration**, and **Inherited** fields will be disabled.
11. If you want an audit trail of the Process, then select the **Audit Trail** check box.
12. If you want the Process Starter to be prompted to initialize the Input Container data items that are not set, then select the **Prompt at Start** check box.
13. If the Process is used as a FlowMark process activity by another Process and you want it to inherit the process administrator and other settings, then select the **Staff Inherited** check box.
14. If you want FlowMark to exit the Process if there is an error in an exit condition or transition condition, then select the **Terminate on Error** check box.
15. When finished with the **General Tab**, click **OK** or press **Enter** or continue in another tab.

### *Data Information*

To specify the FlowMark Data settings of a Process:

1. Click the **Fields** tab at the top of the **Info** dialog box (see the figure below).



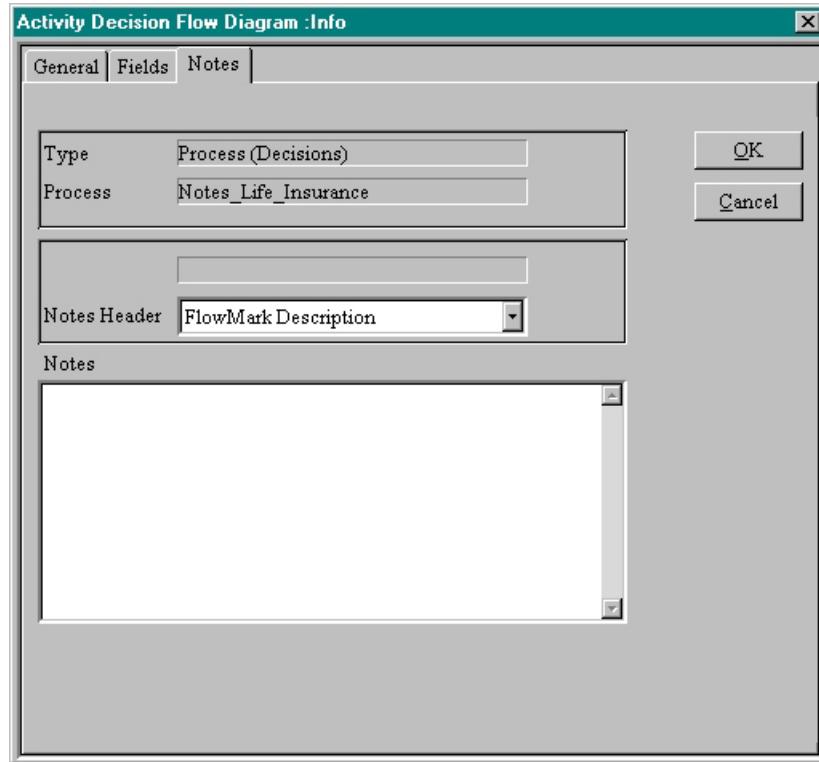
2. Select the Appropriate radio button from the **Export Type** box.
  - \* The **Process** radio button will specify that the Process will be exported to a FlowMark FDL file as a Process Activity.
  - \* The **Block** radio button will specify that the Process will be exported to a FlowMark FDL file as a Block.
  - \* The **Activity** radio button will specify that the Process will be exported to a FlowMark FDL file as a Program Activity.
    - All lower-level details of the Process Object will be ignored during export. Refer to the section entitled “Exporting a Process Object as a Program Activity (Task)” on page 2-105 for more details.

-  Select an Application from the **Application** selection box to define the FlowMark program that will be used for the Program Activity that is exported to the FDL file.
    - If the Application you want is not included on the list, then you need to create it.  Click the **Application Go To** button to access the Repository **Applications** dialog box in order to create the item (refer to the section entitled “Define the Programs as Applications” on page 2-25). Upon returning to the **Info** dialog box, the new item(s) will be included on the list.
3. To define the input structure of the Process,  select a Data Structure from the **Input Structure** selection box.
  4. To define the output structure of the Process,  select a Data Structure from the **Output Structure** selection box.
  5. When finished with the **Fields** Tab,  click **OK** or  press **Enter** or continue in another tab.

### *Documentation Information*

To specify the FlowMark Documentation of a Process:

1. Click the **Notes** tab at the top of the **Info** dialog box (see the figure below).



- \* There are two independent types of Notes available for a Process: Description (default) and Documentation.
2. To add or update FlowMark Description Notes about the Process, select **FlowMark Description** from the **Notes Header** selection box. Then type in the **Notes** text box.
    - \* If you want to add a **Carriage Return** to the text of your Notes, then type **Ctrl+Enter**.
    - \* If a Data Field, bordered by % signs, is listed the Description Notes, then the actual value of this Data Field become available for display during FlowMark runtime. In this way, critical information can be passed from user to user very easily.
    - \* The Notes will be exported as Description in the FDL file.
      - If there are no single or double quotes in the Notes, then it will be exported with single quotes surrounding the text.

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- If there are single quotes in the Notes, then it will be exported with double quotes surrounding the text and the single quotes inside.
  - If there are double quotes in the Notes, then it will be exported with single quotes surrounding the text and the double quotes inside.
  - If there are single quotes and double quotes in the Notes, then it will be exported with double quotes surrounding the text, the double quotes inside will be converted to single quotes, and the single quotes will remain inside.
3. To add or update Documentation Notes about the Process, select **Documentation** from the **Notes Header** selection box. Then type in the **Notes** text box.
    - \* The notes will be exported as the Documentation in the FDL file.
  4. When finished with the **Notes** Tab, click **OK** or press **Enter** or continue in another tab.

### 2.2.10.2 Sub-Processes and Blocks

A Workflow•BPR Process Object can be used to represent a FlowMark Process Activity, Block, or Program Activity. This section documents the settings for a Process Activity and Block. Refer to the section entitled “Exporting a Process Object as a Program Activity (Task)” on page 2-105 for information on using a Process Object as a Program Activity.

The procedures documented here are for the attributes that apply to the creation of a FlowMark FDL file. For information on attributes other than those documented here, refer to the section entitled “Modeling Process Objects (Within A Process)” in Chapter 4 of the *Modeling Guide*.

The information about Process Activities and Blocks is captured with the Process Object dialog box for a Process Object that has been set to export as a Process or a Block. The following table displays the FlowMark to Workflow•BPR conversions for Process Objects (Process Activities and Blocks):

<b>FlowMark</b>	<b>Workflow•BPR</b>	
<b>Process Activity or Block</b>	<b>Process Object</b>	<b>Location</b>
Name	FlowMark Name	General Tab
Description	FlowMark Description Header	Notes Tab
Organization	Organization Unit	General Tab
Category	Function	General Tab
Start (Not used for Block)	Start Execution	Expressions Tab
Start Condition (Not used for Block)	Automatic Execution Wait For	Expressions Tab
Exit	End Execution	Expressions Tab
Exit Condition	End Condition	Expressions dialog box
Documentation	Documentation Header	Notes Tab
Priority (Not used for Block)	Priority	General Tab
From Input Container (Not used for Block)	Input Container	General Tab
Node Layout	Deduced	
Input Container	Input Structure	Data Tab
Output Container	Output Structure	Data Tab
Notification	Notification	Notification Tab
Person to notify of delay	Notification	Notification Tab
None	None	Notification Tab
Process administrator	Process administrator	Notification Tab
Manager	Manager	Notification Tab
Coordinator	Coordinator	Notification Tab
Person	Employee	Notification Tab
Person ID	Employee	Notification Tab
From input container	From input container	Notification Tab
Duration of activity	Notification Duration	Notification Tab
Duration for Making Decision	Decision Duration	Notification Tab
Staff Assignment (Not used for Block)	Staff Assignment	Staff Assignment Tab
Dynamic	Dynamic	Staff Assignment Tab
Roles	Roles—Staff Assignment Tab	Staff Assignment Tab
Member/Coordinator Flag	Member/Coordinator Flag	Staff Assignment Tab
Organization	Organization Unit	General Tab
Include Child Organizations	Include Child Organizations	Staff Assignment Tab

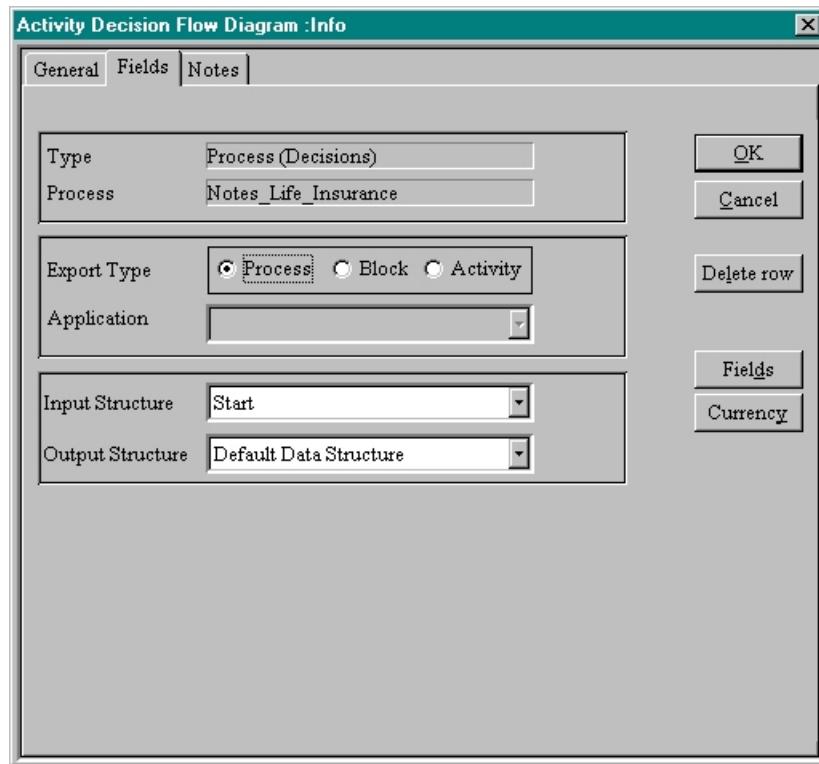
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<u>Process Activity or Block, Cont.</u>	<u>Process Object</u>	<u>Location</u>
Level (From/To)	Level (From/To)	Staff Assignment Tab
People who currently meet criteria	Employees Assigned to Role	Employees dialog box
Process Starter	Process Starter	Staff Assignment Tab
Manager of Process Starter	Manager of Process Starter	Staff Assignment Tab
Starter of Activity	Starter of Activity	Staff Assignment Tab
Activity	Process (if in contained Block) Activity	Staff Assignment Tab Staff Assignment Tab
Manager of Starter of Activity	Manager of Starter of Activity	Staff Assignment Tab
Activity	Process (if in contained Block) Activity	Staff Assignment Tab Staff Assignment Tab
Not Starter of Activity	Not Starter of Activity	Staff Assignment Tab
Activity	Process (if in contained Block) Activity	Staff Assignment Tab Staff Assignment Tab
Data from Input Container	Data from Input Container	Staff Assignment Tab
Process Administrator	Process Administrator	Staff Assignment Tab
People specifically assigned	Assigned Employees	Staff Assignment Tab
Employees	Employees	Staff Assignment Tab
Server (Not used for Block)	Server	General Tab
Server	Server	General Tab
From input container	From input container	General Tab
Remote Starter (Not used for Block)	Remote Starter	General Tab
Person ID	Employee	General Tab
From input container	From input container	General Tab

### *Define the Process Object as a Process Activity*

To define the Process as being a FlowMark Process Activity:

1. Click on the Process Object.
2. Click the **Open Process** tool button on the **ADF Toolbar**. Workflow•BPR opens the Activity Decision Flow Diagram for that Process.
3. Choose **Info** from the **Process** menu, or click the **Info** tool button on the **ADF Toolbar**. Workflow•BPR displays the **Info** dialog box—open to the General Tab.
4. Click the **Fields** tab at the top of the **Info** dialog box (see the figure below).

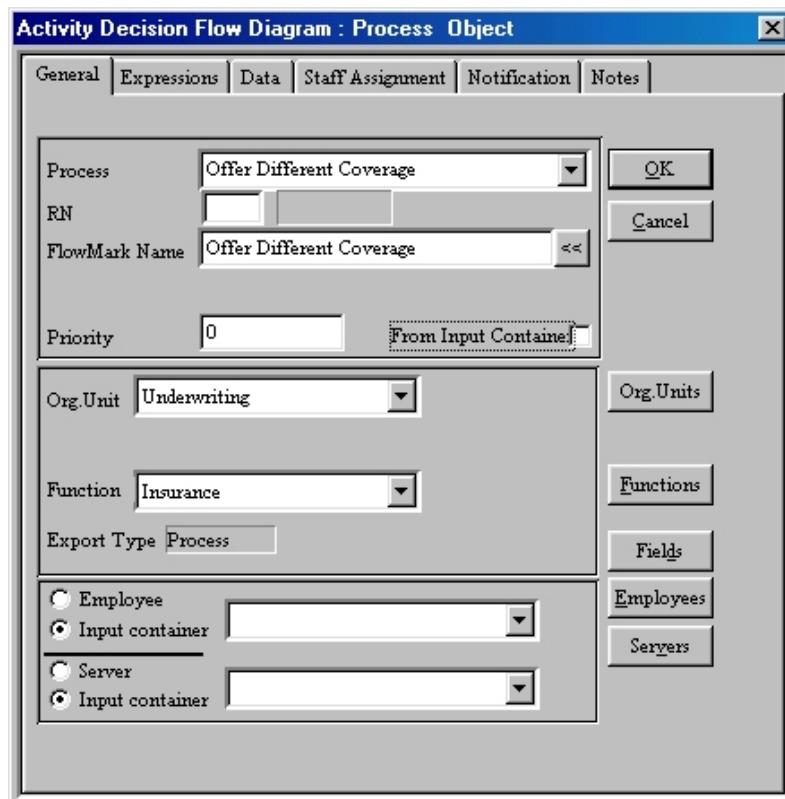


5. Select the **Process** radio button from the **Export Type** box.
  - \* The Process will be exported to a FlowMark FDL file as a Process Activity.
6. Click **OK** or press **Enter** or continue in another tab.

### General Information

To define general information about Process Object that is a type Process Activity:

1. Double-click on the Process Object. The **Process Object** dialog box will appear—open to the General tab (see the figure below).



2. To select a Process from those already defined, select one from the **Name** list (click on the arrow on the right end of the **Process** combo box to bring up the list).
  - \* If the Process you want is not included on the list, then you need to create it:
    - The Process name can be typed in the **Process** combo box. When you click **OK**, a new Process with that name will be created.
3. The **FlowMark Name** text box displays the name that will be exported to the FDL file. The FlowMark name is derived from a combination of the Process name and the RN and has a maximum of 35 characters (for a RN value of 00, the RN does not appear in the FlowMark name).
  - \* You can type in the **FlowMark** text box to change the FlowMark name. This name has to be unique.
  - \* You can reset a modified FlowMark name by clicking on the <> button to the right of the **FlowMark** text box.

4. Edit the Priority in the **Priority** text box.
5. If the priority of the Task is defined in the Input Container of the Task, then select the Input Container check box.
  - \* The **Priority** check box will be disabled.
6. To add or change the Organization Unit assigned to the Process, select a unit from the **Org. Unit** selection box.
  - \* If the unit you want is not included on the list, then you need to create it.  
 Click the **Org. Units Go To** button to access the Repository **Organization Units** dialog box in order to create the item (refer to the section entitled “Organization Units” in Chapter 2 of the *User’s Guide*). Upon returning to the **Process Object** dialog box, the new item(s) will be included on the list.
7. To add or change the Function associated with the Process, choose a function name from the **Function** combo box.
  - \* The Function will be exported as the Process Activity Category in the FDL file.
  - \* If the Function you want is not included on the list, then you need to create it. Click the **Function Go To** button to access the Repository **Functions** dialog box in order to create the item (refer to the section entitled “Functions” in Chapter 2 of the *User’s Guide*). Upon returning to the **Info** dialog box, the new item(s) will be included on the list.
8. To define an Employee as a Remote Starter of the Process for a Workflow Application— select the **Employee** radio button of the **Remote Starter** box, then select an Employee from the selection box.
  - \* If the Employee you want is not included on the list, then you need to create it. Click the **Employees Go To** button to access the Repository **Employees** dialog box in order to create the item (refer to the section entitled “Define the Staff” on page 2-8). Upon returning to the **Process Object** dialog box, the new item(s) will be included on the list.
9. To specify that the information about the Remote Starter is in a Data Field within the Input Container of the Process— select the Input Container radio button of the **Remote Starter** box, then select the Data Field from the selection box in the **Remote Starter** box.
10. To define a Server of the Process for a Workflow Application— select the **Server** radio button of the **Server** box, and then select a Server from the selection box.
  - \* If the Server you want is not included on the list, then you need to create it. Click the **Servers Go To** button to access the Repository **Servers** dialog box in order to create the item (refer to the section entitled “Define the Servers” on page 2-39). Upon returning to the **Process Object** dialog box, the new item(s) will be included on the list.
11. To specify that the information about the Server is in a Data Field within the Input Container of the Process, select the Input Container radio button of

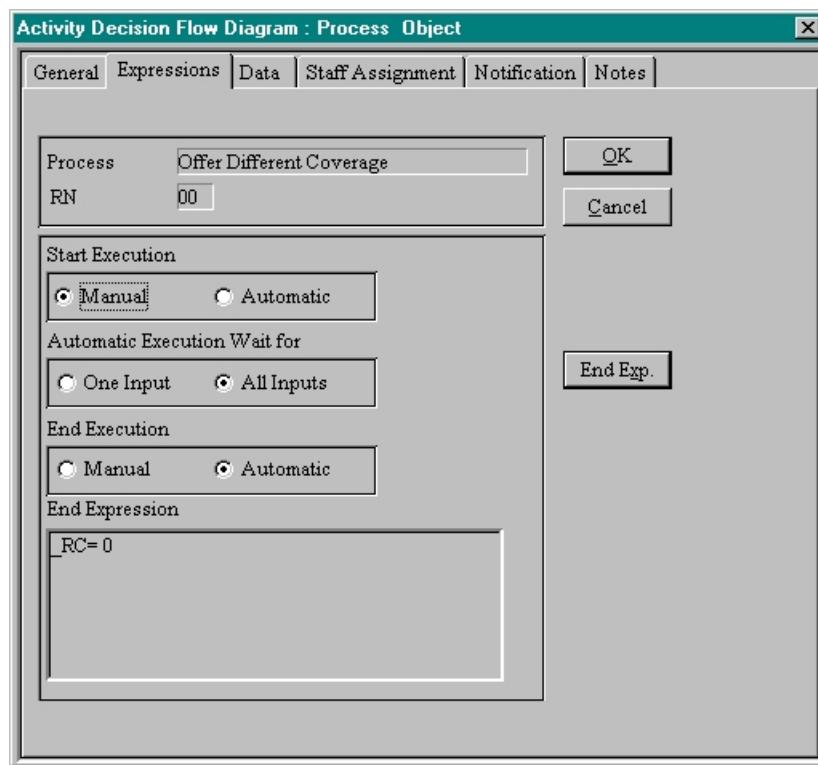
the **Server** box, then select the Data Field from the selection box in the **Server** box.

- When finished with the **Process Object** dialog box, click **OK** or press **Enter** or continue in another tab.

### *Start and End Execution*

To define the start and end conditions a Process Object that is a type Process Activity:

- Double-click on the Process Object. The **Process Object** dialog box will appear—open to the General tab.
- Click the **Expression** tab at the top of the **Process Object** dialog box (see the figure below).

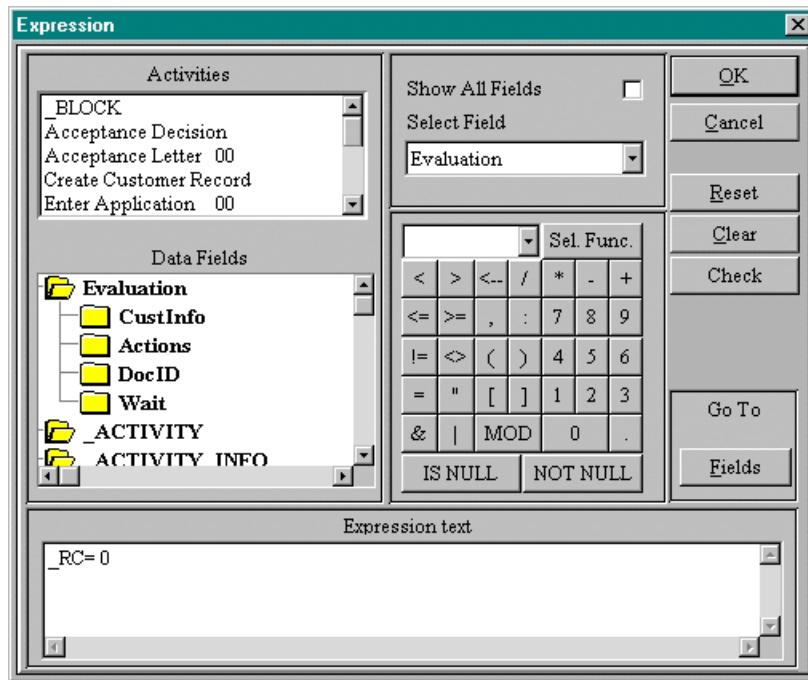


- Select the appropriate radio button to specify whether the start of the Process will be **Manual** (Default) or **Automatic** in the **Start Execution** Box.
  - Select the appropriate radio button to specify whether the start of the Process will wait for **One Input** (default) or **All Inputs** in the **Automatic Execution Wait for** box.
- If the Execution is set to wait for All Inputs, the conditions for all the control connectors must be True. In addition, all activities CONNECTED to the target activity must be COMPLETED before all the conditions are evaluated.

5. Select the appropriate radio button to specify whether the end of the Process will be **Manual** (Default) or **Automatic** in the **End Execution** Box.
6. If you want to add an expression that can be used by a Workflow Application to determine if the Process has been completed, click the **End Exp.** button to open the **Expression** dialog box. Refer to the next section for details on using the **Expression** dialog box.
7. When you have finished defining the object, click **OK** or press **Enter**.

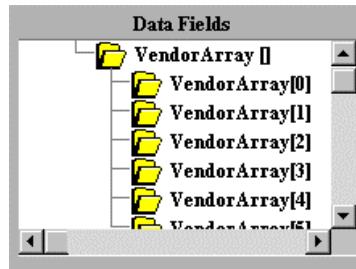
## Adding an Expression

To add an Expression to the Expression dialog box (see the figure below):



1. Type the text of the **Expression** in the **Expression text** box. You can also:
  - \* Double-click on a **Task** that is listed in the **Activities** list box to include it in the Expression.
  - Only “upstream” Tasks are appropriate for including in an expression.**
  - \* Click on a **Data Field** or **Data Structure** in the **Data Fields** list box to include it in the Expression.
    - If the Data Field or Data Structure you want is not on the list, then you need to create it. Click the **Fields Go To** button to open the **Data Fields** dialog box (refer to the section entitled “Data Fields” in Chapter 3 of the *User’s Guide*).
  - \* To control the levels of Data Structures displayed in the **Data Fields** list box:
    - Select the **Show All Fields** check box to display all Data Fields, as well as Data Structures, in the **Data Fields** list box.
    - De-select the **Show All Fields** check box to display only Data Structures in the **Data Fields** list box.

- Right-click on a collapsed **Data Structure** (denoted by a closed folder) to expand the Data Structure. This will reveal all of the lower-level Data Fields within the Data Structure.
- Right-click on an expanded **Data Structure** (denoted by an open folder) to collapse the Data Structure. This will hide all of the lower-level Data Fields within the Data Structure.
- \* If the **Data Field** you want to select is an array, a pair of brackets is displayed just after the name of the Data Field (see the figure below). You can select a specific element of the array:



- First, Right-click on the collapsed **Data Field**. This will expand the Data Field to reveal all of the array element numbers within it (see the figure on the right).
- Click on the array element number that you want to use. This will copy the array element into the **Expression** text box.
- \* Select a Function from the Function selection box, then click the **Sel. Func.** button to include those items in the expression.
- \* Click the **Clear** button to remove all text from the **Expression** text box.
- \* Click the **Reset** button to remove the text that has been added to the **Expression** text box since the **Expression** dialog box was opened.
- \* Click the **Check** button to validate the Expression. Any errors in the Expression will be identified.

**The Expression must be evaluated as either being True or False.**

2. Click **OK** or press **Enter** to return to the previous dialog box.

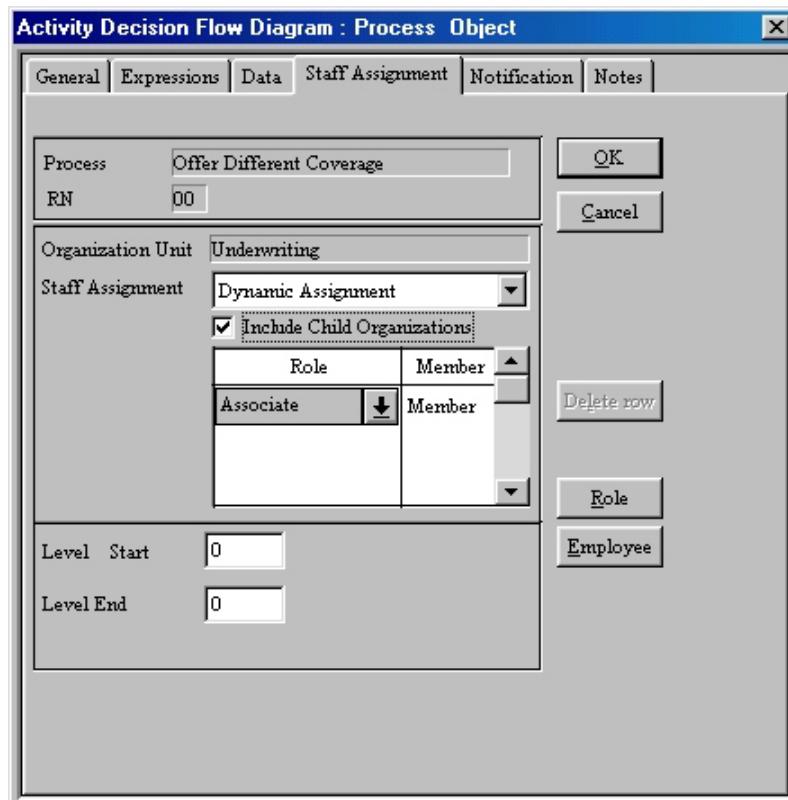
### Staff Assignment

A FlowMark Process Activity is treated as an item that will show on an Employee's work queue. This Employee will supervise the start and end of the Process and other Employees will perform the Tasks of the Process. Therefore, a staff assignment function is required for a Process Object.

- ☒ **Staff Assignment is not available for Process Objects defined as the type Block.**

To perform staff assignment for a Process Object that is a type Process Activity:

1. ↵ Double-click on the Process Object. The **Process Object** dialog box will appear—open to the General tab.
2. ↵ Select the **Staff Assignment** tab (see the figure below).



3. ↵ Select the type of assignment from the lower left panel of the dialog box.
  - \* The following table displays the types of assignments and any additional user actions that may be required:

Type of Assignment	Additional User Action(s)
<b>Dynamic Assignment</b> (Default): An employee that is linked with the selected list of Roles can perform the Process.	<ul style="list-style-type: none"> <li>*  Select the <b>Include Child Organizations</b> check box if you want Employees to perform the Process that are part of Organization Units that are children of the Organization Unit specified for the Process.</li> <li>* In Line 1 of the Role list box,  click on the Arrow button that is on the right side of the <b>Role</b> column. A list of Roles will appear.  Select the Role.</li> <li>* Repeat the  selection for each line of the <b>Roles</b> list box until all Roles have been selected. <ul style="list-style-type: none"> <li>* <b>If more than one Role is selected, Employees must be assigned to all the Roles on the list before they are eligible to perform the activity.</b></li> </ul> </li> <li>* For each selected Role, if you want to specify that the Coordinator of the Role perform the Process,  click on the Arrow button that is on the right side of the <b>Member</b> column (<b>Member</b> is the default).  Select <b>Coordinator</b> from the list.</li> <li>*  Enter the lowest level of Employee that can perform the Process in the <b>Level From</b> text box.</li> <li>*  Enter the highest level of Employee that can perform the Process in the <b>Level To</b> text box.</li> </ul>
<b>Process Administrator</b> : The defined Process Administrator will perform the Process.	None
<b>Process Starter</b> : The starter of the Process will perform the Process.	None
<b>Manager of Process Starter</b> : The Manager of the Starter of the Process will perform the Process.	None
<b>Starter of Activity</b> : The Starter of a selected activity will perform the Process.	Select an activity from the <b>Activity</b> selection box
<b>Manager of Starter of Activity</b> : The Manager of the Starter of a selected activity will perform the Process.	Select an activity from the <b>Activity</b> selection box
<b>Not Starter of Activity</b> : An employee that was not the Starter of a selected activity will perform the Process	Select an activity from the <b>Activity</b> selection box
<b>Assigned Employees</b> : The selected employee will perform the Process	Select one or more Employees from the <b>Employee</b> selection box
<b>Data From Input Container</b> : The information about the employees that can start the Process is contained in the Input Container of the Process.	None

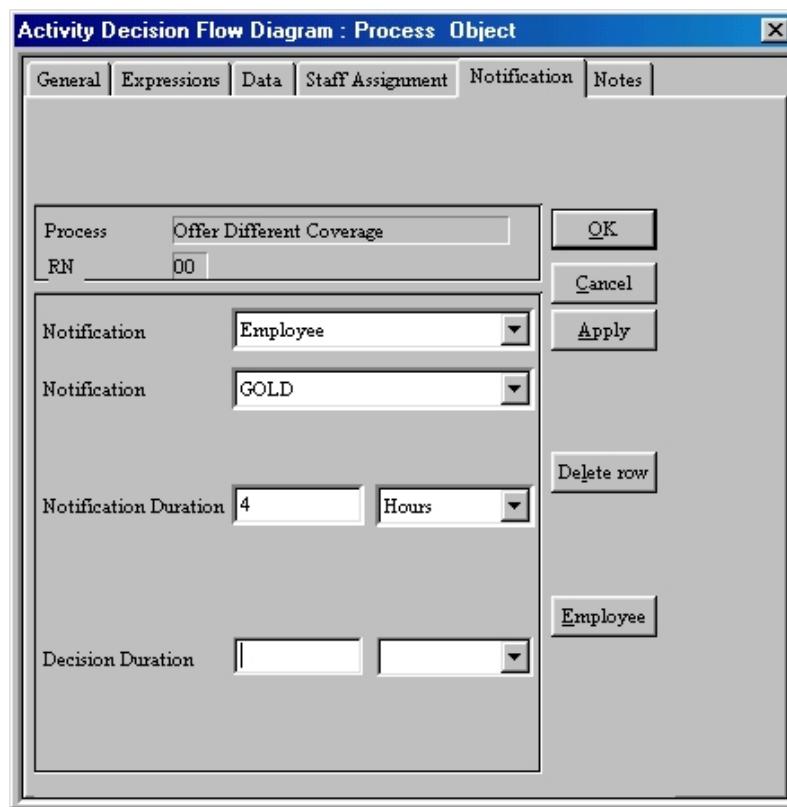
4. When finished with the **Process Object** dialog box, click **OK** or press **Enter** or continue in another tab.

### Notification

If a Process takes longer than a specified duration, then an employee that gets notified can be specified. In addition, if the notified employee does not respond within a specified period, then the Process Administrator will be notified.

To define notification settings for a Process Object that is a type Process Activity:

1. Double-click on the Process Object. The **Process Object** dialog box will appear—open to the General tab.
2. Select the **Notification** tab (see the figure below).



3. Select the type of Notification from the **Notification** selection box.
  - \* The following table displays the types of Notifications and any additional user actions that may be required:

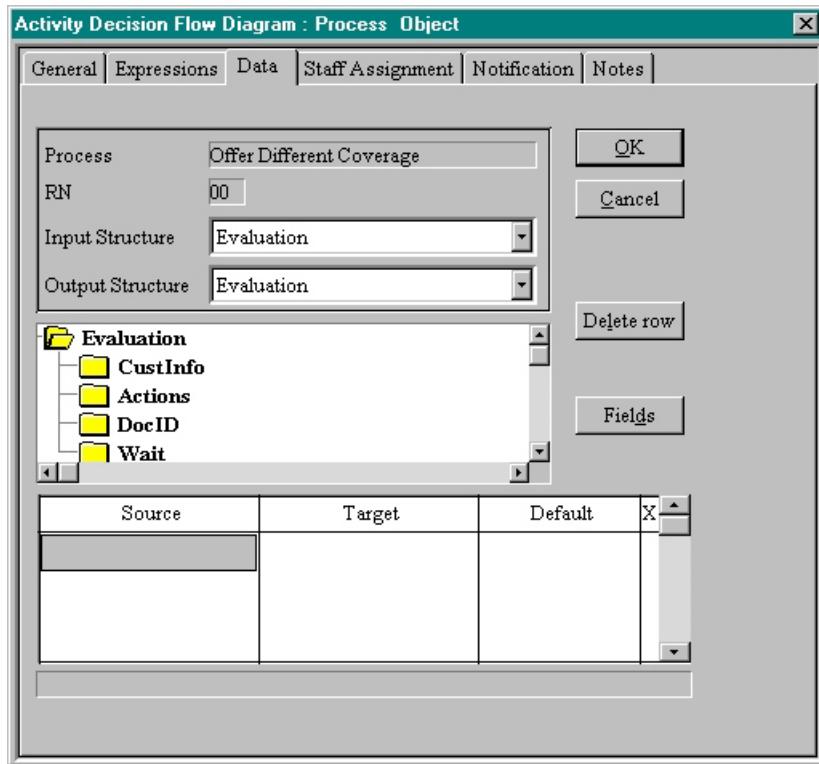
Type of Notification	Additional User Action(s)
<b>None</b> (Default): Then there will be no notification.	* None
<b>Process Administrator</b> : Then the Process Administrator will be notified.	* None
<b>Manager</b> : Then the Manager of the Employee performing the Task will be notified.	* None
<b>Coordinator</b> : Then the Coordinator of the Employee performing the Task will be notified.	* None
<b>Employee</b> : Then a Selected Employee will be notified.	*  Select the Employee that will be notified from the <b>Notification</b> selection box.
<b>From Input Container</b> : The notification information will be taken from the data in the Input Container.	* None

4. Enter the Notification Duration number in the **Notification Duration** text box. Select the Notification Duration unit in the **Notification Duration** selection box.
5. Enter the Decision Duration number in the **Decision Duration** text box (optional). Select the Decision Duration unit in the **Decision Duration** selection box.
6. When finished with the **Process Object** dialog box, click **OK** or press **Enter** or continue in another tab.

### Data Structures, Initial Values, and Loops

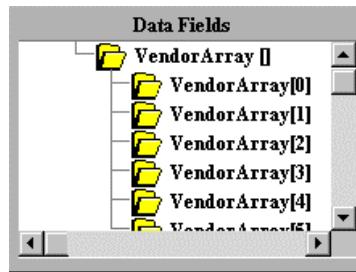
To define the Data Structures and Loops for a Process Object that is a type Process Activity:

1. Double-click on the Process Object. The **Process Object** dialog box will appear—open to the General tab.
2. Click the **Data** tab at the top of the **Process Object** dialog box (see the figure below).



3. To change the Input Container Data Structure of the Process, select a Data Structure from the **Input Structure** selection box.
  - \* If the Data Structure you want is not included on the list, then you need to create it. Click the **Fields** Go To button to access the Repository **Data Fields** dialog box in order to create the item (refer to the section entitled “Data Fields” in Chapter 3 of the *User’s Guide*). Upon returning to the **Info** dialog box, the new item(s) will be included on the list.

4. To change the Output Container Data Structure of the Process,  $\text{Ctrl}$  select a Data Structure from the **Output Structure** selection box.
5. In **Line 1** of the Mapping list box,  $\text{Ctrl}$  click on the cell within the **Source** column. The Fields list in the center of the dialog box will be updated to show the Data Structure of the Input Container of the Process, in addition to the FlowMark default Data Structures and variables.
  - \*  $\text{Ctrl}$  Click on the appropriate **Data Field** from the **Data Structure** tree list box to insert it into the mapping cell.
  - \* To control the levels of Data Structures displayed in the **Data Fields** list box:
    - $\text{Ctrl}$  Select the **Show All Fields** check box to display all Data Fields, as well as Data Structures, in the **Data Fields** list box.
    - $\text{Ctrl}$  De-select the **Show All Fields** check box to display only Data Structures in the **Data Fields** list box.
    - $\text{Ctrl}$  Right-click on a collapsed **Data Structure** (denoted by a closed folder) to expand the Data Structure. This will reveal all of the lower-level Data Fields within the Data Structure.
    - $\text{Ctrl}$  Right-click on an expanded **Data Structure** (denoted by an open folder) to collapse the Data Structure. This will hide all of the lower-level Data Fields within the Data Structure.
  - \* If the **Data Field** you want to select is an array, a pair of brackets is displayed just after the name of the Data Field (see the figure below). You can select a specific element of the array:



- First,  $\text{Ctrl}$  Right-click on the collapsed **Data Field**. This will expand the Data Field to reveal all of the array element numbers within it (see the figure on the right).
- $\text{Ctrl}$  Click on the array element number that you want to use. This will copy the array element into the **Expression** text box.

 **You can use the Shift+Arrow keys to navigate the editing cursor through the Mapping table.**

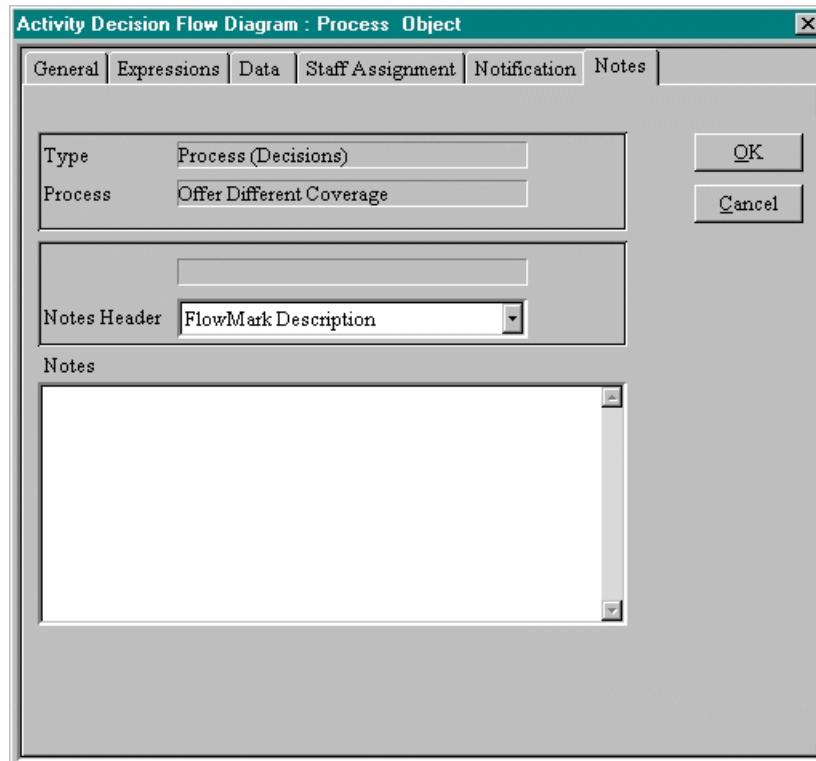
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6. Click on the cell within the **Target** column. The Fields list in the center of the dialog box will be updated to show the Data Structure of the Output Container of the Process in addition to the FlowMark default Data Structures and variables.
  - \* Select the appropriate Data Field from the Data Structure tree list box.
    - If the Data Field of the source does not have the same data type as the Data Field of the target, the cell in the **X** column will be marked with an “X.”
7. Type a default value for the Target Data Field in the cell of the **Default** column.
8. Repeat Steps 4 through 6 to add additional mappings for the looping of the Process.
9. When finished with the **Process Object** dialog box, click **OK** or press **Enter** or continue in another tab.

### *Documentation Information*

To define Notes for a Process Object that is a type Process Activity:

1. Double-click on the Process Object. The **Process Object** dialog box will appear—open to the General tab.
2. Click the **Notes** tab at the top of the **Process Object** dialog box (see the figure below).

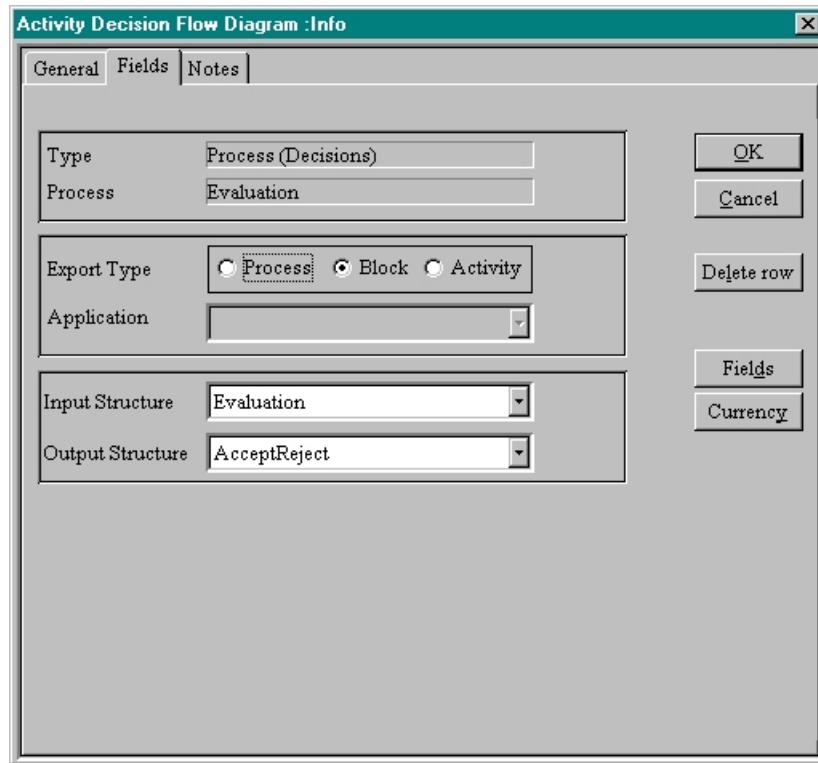


- \* There are two independent types of Notes available for a Process:  
FlowMark Description (default) and Documentation.
3. To add or update FlowMark Description Notes about the Process,  select **FlowMark Description** from the **Notes Header** selection box. Then  type in the **Notes** text box.
    - \* To add a **Carriage Return** in your Notes,  type **Ctrl+Enter**.
    - \* If a Data Field, bordered by % signs, is listed the Description Notes, then the actual value of this Data Field become available for display during FlowMark runtime. In this way, critical information can be passed from user to user very easily.
    - \* The Notes will be exported as Description in the FDL file.
      - If there are no single or double quotes in the Notes, then it will be exported with single quotes surrounding the text.
      - If there are single quotes in the Notes, then it will be exported with double quotes surrounding the text and the single quotes inside.
      - If there are double quotes in the Notes, then it will be exported with single quotes surrounding the text and the double quotes inside.
      - If there are single quotes and double quotes in the Notes, then it will be exported with double quotes surrounding the text, the double quotes inside will be converted to single quotes, and the single quotes will remain inside.
  4. To add or update Documentation Notes about the Process,  select **Documentation** from the **Notes Header** selection box. Then  type in the **Notes** text box.
    - \* The notes will be exported as the Documentation in the FDL file.
  5. When finished with the **Process Object** dialog box,  click **OK** or  press **Enter**.

**Define the Process Object as a Block**

To define the Process as being a FlowMark Block:

1.  Click on the Process Object.
2.  Click the **Open Process** tool button on the **ADF Toolbar**. Workflow•BPR opens the Activity Decision Flow Diagram for that Process.
3.  Choose **Info** from the **Process** menu, or  click the **Info** tool button on the **ADF Toolbar**. Workflow•BPR displays the **Info** dialog box—open to the General Tab.  Click the **Fields** tab at the top of the **Info** dialog box (see the figure below).

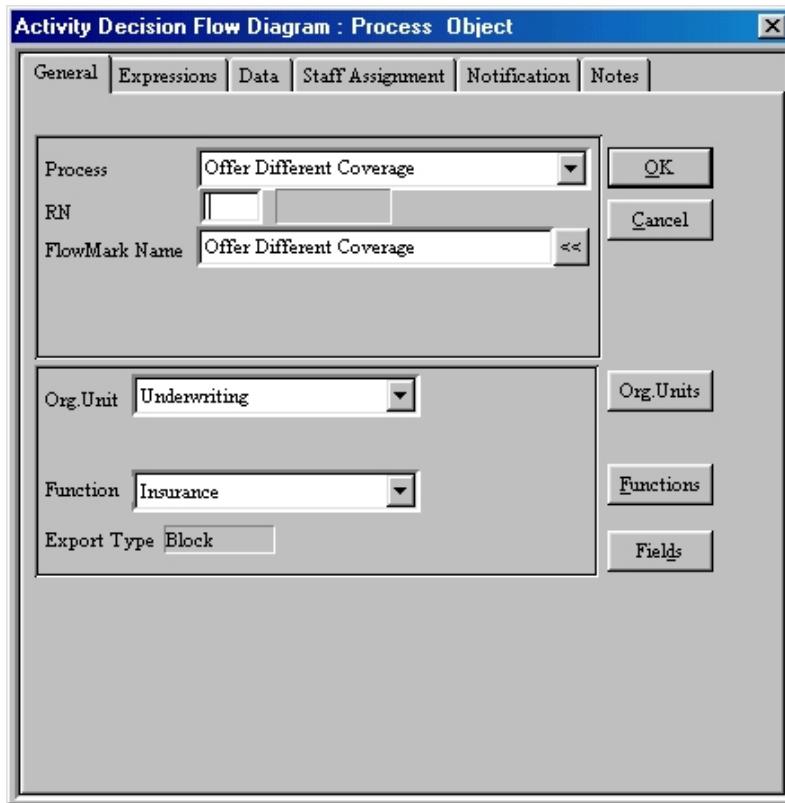


4.  Select the **Block** radio button from the **Export Type** box.
  - \* The Process will be exported to a FlowMark FDL file as a Block.
5.  Click **OK** or  press **Enter** or continue in another tab.

### *General Information*

To define general information about Process Object that is a type Block:

1. Double-click on the Process Object. The **Process Object** dialog box will appear—open to the General tab (see the figure below).



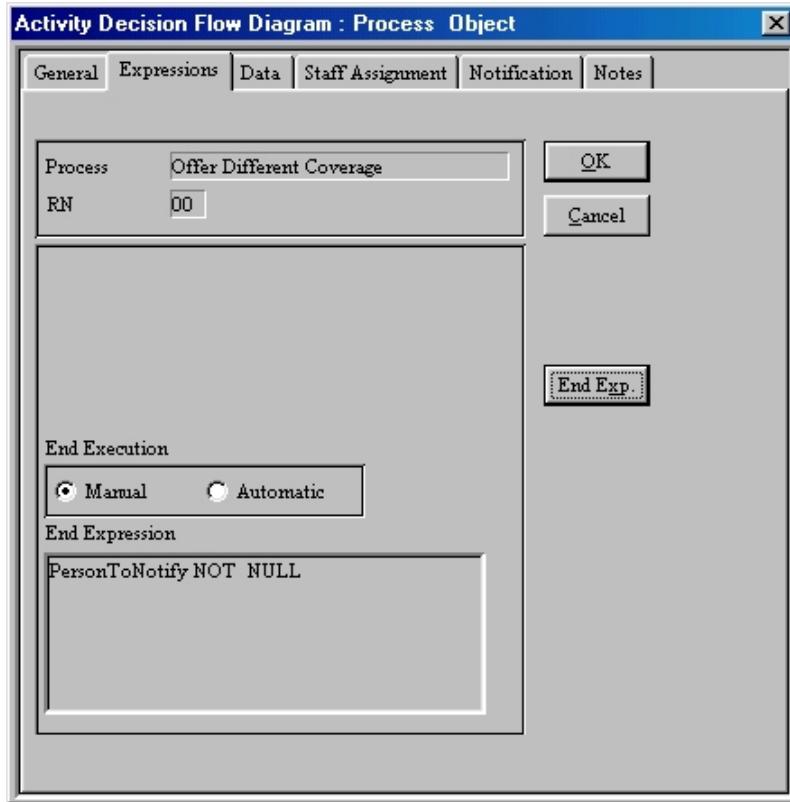
2. To select a Process from those already defined, select one from the **Name** list ( click on the arrow on the right end of the **Process** combo box to bring up the list).
  - \* If the Process you want is not included on the list, then you need to create it:
    - The Process name can be typed in the **Process** combo box. When you click **OK**, a new Process with that name will be created.
3. The **FlowMark Name** text box displays the name that will be exported to the FDL file. The FlowMark name is derived from a combination of the Process name and the RN and has a maximum of 35 characters (for an RN value of 00, the RN does not appear in the FlowMark name).
  - \* You can type in the **FlowMark** text box to change the FlowMark name. This name has to be unique.
  - \* You can reset a modified FlowMark name by clicking on the << button to the right of the **FlowMark** text box.

4. To add or change the organization unit assigned to the Process, select a unit from the **Org. Unit** selection box.
  - \* If the unit you want is not included on the list, then you need to create it.  
 Click the **Org. Units Go To** button to access the Repository **Organization Units** dialog box in order to create the item (refer to the section entitled “Organization Units” in Chapter 2 of the *User’s Guide*). Upon returning to the **Info** dialog box, the new item(s) will be included on the list.
5. To add or change the Function associated with the Process, choose a function name from the **Function** combo box.
  - \* The Function will be exported as the Block Category in the FDL file.
  - \* If the Function you want is not included on the list, then you need to create it. Click the **Function Go To** button to access the Repository **Functions** dialog box in order to create the item (refer to the section entitled “Functions” in Chapter 2 of the *User’s Guide*). Upon returning to the **Info** dialog box, the new item(s) will be included on the list.
6. When finished with the **Process Object** dialog box, click **OK** or press **Enter** or continue in another tab.

*Start and End Execution*

To define the start and end conditions for a Process Object that is a type Block:

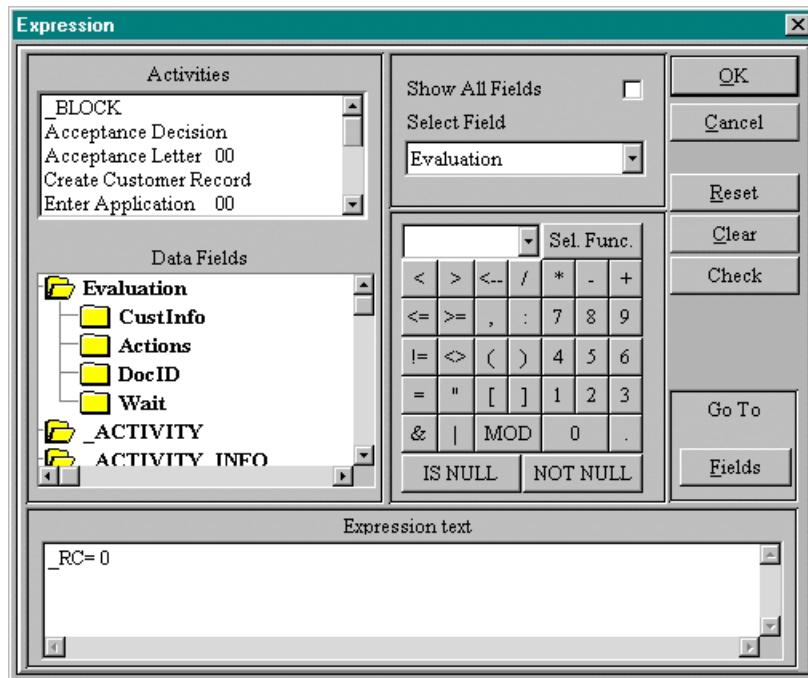
1. Double-click on the Process Object. The **Process Object** dialog box will appear—open to the General tab (see the figure below).



2. Click the **Expression** tab at the top of the **Process Object** dialog box.
3. Select the appropriate radio button to specify whether the end of the Process will be **Manual** (Default) or **Automatic** in the **End Execution** Box.
4. If you want to add an expression that can be used by a workflow application to determine if the Process has been completed, click the **End Exp.** button to open the **Expression** dialog box. Refer to the next section for details on using the **Expression** dialog box.
5. When you have finished defining the object, click **OK** or press **Enter**.

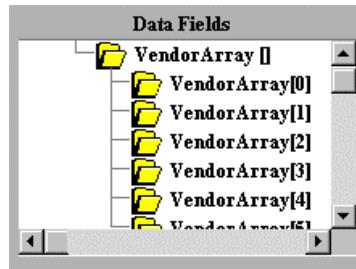
### Adding an Expression

To add an Expression to the Expression dialog box (see the figure below):



1. Type the text of the **Expression** in the **Expression text** box. You can also:
  - \* Double-click on a **Task** that is listed in the **Activities** list box to include it in the Expression.
  - Only “upstream” Tasks are appropriate for including in an expression.**
  - \* Click on a **Data Field** or **Data Structure** in the **Data Fields** list box to include it in the Expression.
    - If the Data Field or Data Structure you want is not on the list, then you need to create it. Click the **Fields Go To** button to open the **Data Fields** dialog box (refer to the section entitled “Data Fields” in Chapter 3 of the *User’s Guide*).
  - \* To control the levels of Data Structures displayed in the **Data Fields** list box:
    - Select the **Show All Fields** check box to display all Data Fields, as well as Data Structures, in the **Data Fields** list box.
    - De-select the **Show All Fields** check box to display only Data Structures in the **Data Fields** list box.

- Right-click on a collapsed **Data Structure** (denoted by a closed folder) to expand the Data Structure. This will reveal all of the lower-level Data Fields within the Data Structure.
- Right-click on an expanded **Data Structure** (denoted by an open folder) to collapse the Data Structure. This will hide all of the lower-level Data Fields within the Data Structure.
- \* If the **Data Field** you want to select is an array, a pair of brackets is displayed just after the name of the Data Field (see the figure below). You can select a specific element of the array:



- First, Right-click on the collapsed **Data Field**. This will expand the Data Field to reveal all of the array element numbers within it (see the figure on the right).
- Click on the array element number that you want to use. This will copy the array element into the **Expression** text box.
- \* Select a Function from the Function selection box, then click the **Sel. Func.** button to include those items in the expression.
- \* Click the **Clear** button to remove all text from the **Expression** text box.
- \* Click the **Reset** button to remove the text that has been added to the **Expression** text box since the **Expression** dialog box was opened.
- \* Click the **Check** button to validate the Expression. Any errors in the Expression will be identified.

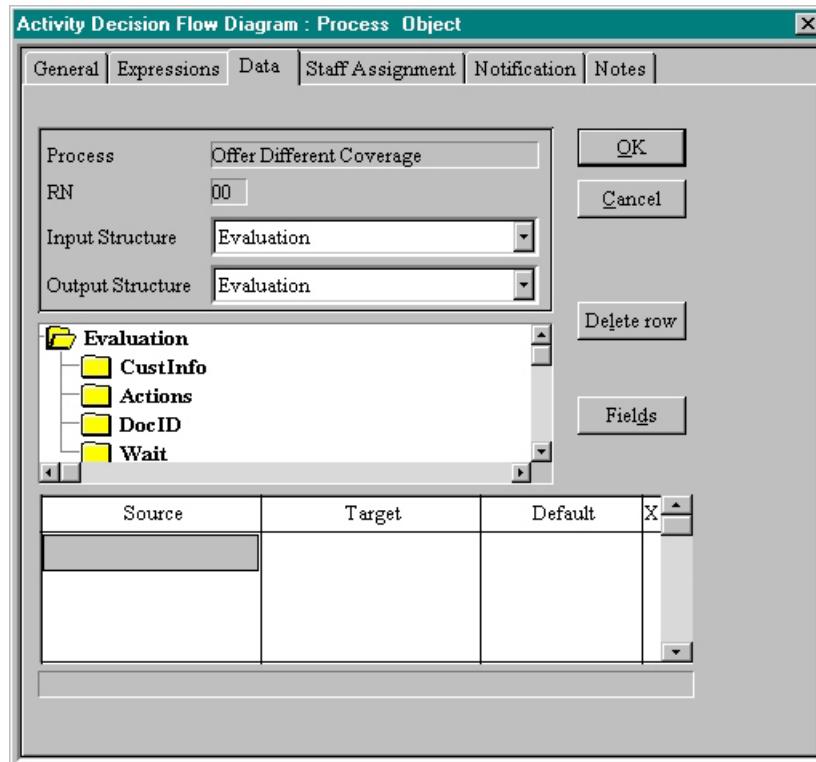
**The Expression must be evaluated as either being True or False.**

2. Click **OK** or press **Enter** to return to the previous dialog box.

### Data Structures, Initial Values, and Loops

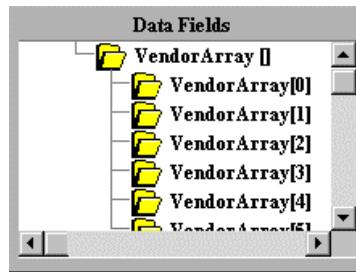
To define the Data Structures and Loops for a Process Object that is a type Block:

1. Double-click on the Process Object. The **Process Object** dialog box will appear, open to the General tab.
2. Click the **Data** tab at the top of the **Process Object** dialog box (see the figure below).



3. To change the Input Container Data Structure of the Process, select a Data Structure from the **Input Structure** selection box.
  - \* If the Data Structure you want is not included on the list, then you need to create it. Click the **Fields** Go To button to access the Repository **Data Fields** dialog box in order to create the item (refer to the section entitled “Data Fields” in Chapter 3 of the *User’s Guide*). Upon returning to the **Info** dialog box, the new item(s) will be included on the list.

4. To change the Output Container Data Structure of the Process,  $\text{Ctrl}$  select a Data Structure from the **Output Structure** selection box.
5. In **Line 1** of the Mapping list box,  $\text{Ctrl}$  click on the cell within the **Source** column. The Fields list in the center of the dialog box will be updated to show the Data Structure of the Input Container of the Process, in addition to the FlowMark default Data Structures and variables.
  - \*  $\text{Ctrl}$  Click on the appropriate **Data Field** from the **Data Structure** tree list box to insert it into the mapping cell.
  - \* To control the levels of Data Structures displayed in the **Data Fields** list box:
    - $\text{Ctrl}$  Select the **Show All Fields** check box to display all Data Fields, as well as Data Structures, in the **Data Fields** list box.
    - $\text{Ctrl}$  De-select the **Show All Fields** check box to display only Data Structures in the **Data Fields** list box.
    - $\text{Ctrl}$  Right-click on a collapsed **Data Structure** (denoted by a closed folder) to expand the Data Structure. This will reveal all of the lower-level Data Fields within the Data Structure.
    - $\text{Ctrl}$  Right-click on an expanded **Data Structure** (denoted by an open folder) to collapse the Data Structure. This will hide all of the lower-level Data Fields within the Data Structure.
  - \* If the **Data Field** you want to select is an array, a pair of brackets is displayed just after the name of the Data Field (see the figure below). You can select a specific element of the array:



- First,  $\text{Ctrl}$  Right-click on the collapsed **Data Field**. This will expand the Data Field to reveal all of the array element numbers within it (see the figure on the right).
- $\text{Ctrl}$  Click on the array element number that you want to use. This will copy the array element into the **Expression** text box.

 **You can use the Shift+Arrow keys to navigate the editing cursor through the Mapping table.**

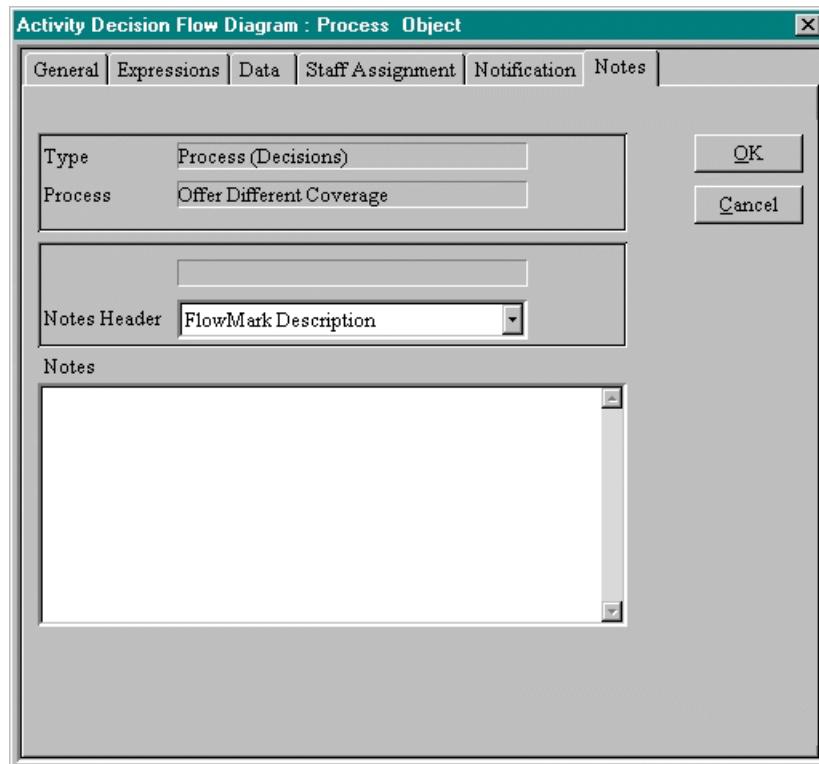
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6. Click on the cell within the **Target** column. The Fields list in the center of the dialog box will be updated to show the Data Structure of the Output Container of the Process in addition to the FlowMark default Data Structures and variables.
  - \* Select the appropriate Data Field from the Data Structure tree list box.
    - If the Data Field of the source does not have the same data type as the Data Field of the target, the cell in the **X** column will be marked with an “X.”
7. Type a default value for the Target Data Field in the cell of the **Default** column.
8. Repeat Steps 4 through 6 to add additional mappings for the looping of the Process.
9. When finished with the **Process Object** dialog box, click **OK** or press **Enter** or continue in another tab.

*Documentation Information*

To define Notes for a Process Object that is a type Block:

1. Double-click on the Process Object. The **Process Object** dialog box will appear—open to the General tab.
2. Click the **Notes** tab at the top of the **Process Object** dialog box (see the figure below).



- \* There are two independent types of Notes available for a Process (Block): FlowMark Description (default) and Documentation.
3. To add or update FlowMark Description Notes about the Process, select **FlowMark Description** from the **Notes Header** selection box. Then type in the **Notes** text box.
    - \* To add a **Carriage Return** in your Notes, type **Ctrl+Enter**.
    - \* If a Data Field, bordered by % signs, is listed the Description Notes, then the actual value of this Data Field become available for display during FlowMark runtime. In this way, critical information can be passed from user to user very easily.
    - \* The Notes will be exported as Description in the FDL file.
      - If there are no single or double quotes in the Notes, then it will be exported with single quotes surrounding the text.

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- If there are single quotes in the Notes, then it will be exported with double quotes surrounding the text and the single quotes inside.
  - If there are double quotes in the Notes, then it will be exported with single quotes surrounding the text and the double quotes inside.
  - If there are single quotes and double quotes in the Notes, then it will be exported with double quotes surrounding the text, the double quotes inside will be converted to single quotes, and the single quotes will remain inside.
4. To add or update Documentation Notes about the Process, select **Documentation** from the **Notes Header** selection box. Then type in the **Notes** text box.
    - \* The notes will be exported as the Documentation in the FDL file.
  5. When finished with the **Process Object** dialog box, click **OK** or press **Enter**.

### 2.2.10.3 Tasks

The information about the settings of a Task is described in the following sections. The procedures documented here are for the attributes that apply to the creation of a FlowMark FDL file. For information on attributes other than those documented here, refer to the section entitled “Modeling Tasks” in Chapter 3 of the *Modeling Guide*.

The information about Program Activities is captured with the Task Object dialog box. The following table displays the FlowMark to Workflow•BPR conversions for Tasks:

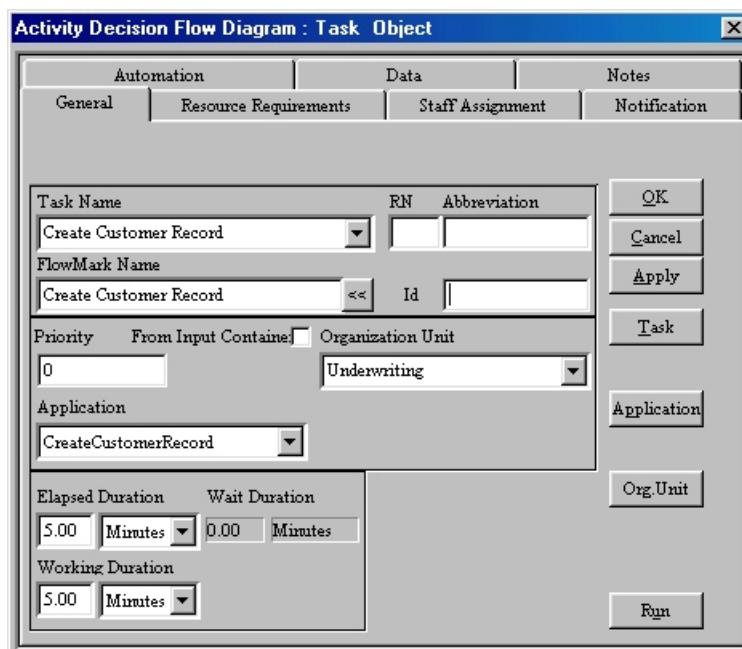
<b><u>FlowMark</u></b>	<b><u>Workflow•BPR</u></b>	
<b><u>Program Activity</u></b>	<b><u>Task</u></b>	<b><u>Location</u></b>
Name	FlowMark Activity Name	General Tab
Description	FlowMark Description Header	Notes Tab
Organization	Organization Unit	General Tab
Program	Application	General Tab
Start	Start Execution	Automation Tab
Start Condition	Automatic Execution Wait For	Automation Tab
Exit	End Execution	Automation Tab
Exit Condition	End Condition	Expressions dialog box
Documentation	Documentation Header	Notes Tab
Priority	Priority	General Tab
From Input Container	Input Container	General Tab
Node Layout	Deduced	
Input Container	Input Structure	Data Tab
Output Container	Output Structure	Data Tab
Notification	Notification	Notification Tab
Person to notify of delay	Notification	Notification Tab
None	None	Notification Tab
Process administrator	Process administrator	Notification Tab
Manager	Manager	Notification Tab
Coordinator	Coordinator	Notification Tab
Person	Employee	Notification Tab
Person ID	Employee	Notification Tab
From input container	From input container	Notification Tab
Duration of activity	Notification Duration	Notification Tab
Duration for Making Decision	Decision Duration	Notification Tab
Support Tools	Additional Resources (Applications)	Resource Requirements Tab
Staff Assignment	Staff Assignment	Staff Assignment Tab
Dynamic	Dynamic	Staff Assignment Tab
Roles	Roles—Staff Assignment Tab	Staff Assignment Tab
Member/Coordinator Flag	Member/Coordinator Flag	Staff Assignment Tab
Organization	Organization Unit—General Tab	Staff Assignment Tab
Include Child Organizations	Include Child Organizations	Staff Assignment Tab
Level (From/To)	Level (From/To)	Staff Assignment Tab
People who currently meet criteria	Employees Assigned to Role	Roles dialog box
Process Starter	Process Starter	Staff Assignment Tab
Starter of Activity	Starter of Activity	Staff Assignment Tab
Activity	Activity	Staff Assignment Tab
Manager of Starter of Activity	Manager of Starter of Activity	Staff Assignment Tab

<b>Program Activity</b>	<b>Task</b>	<b>Location</b>
Activity	Activity	Staff Assignment Tab
Not Starter of Activity	Not Starter of Activity	Staff Assignment Tab
Activity	Activity	Staff Assignment Tab
Data from Input Container	Data from Input Container	Staff Assignment Tab
Process Administrator	Process Administrator	Staff Assignment Tab
People specifically assigned	Assigned Employees	Staff Assignment Tab
Employees	Employees	Staff Assignment Tab

### *General Information*

To define general information about the Task:

1. Double-click on the Task object. The **Task Object** dialog box will appear—open to the General tab (see the figure below).



2. Edit the name of the Task in the **Task Name** text box.
3. The **FlowMark Activity Name** text box displays the name that will be exported to the FDL file. The FlowMark name is derived from a combination of the Process name and the RN and has a maximum of 35 characters (for an RN value of 00, the RN does not appear in the FlowMark name).
  - \* You can type in the **FlowMark Activity Name** text box to change the FlowMark name. This name has to be unique.
  - \* You can reset a modified FlowMark name by clicking on the <> button to the right of the **FlowMark Activity Name** text box.

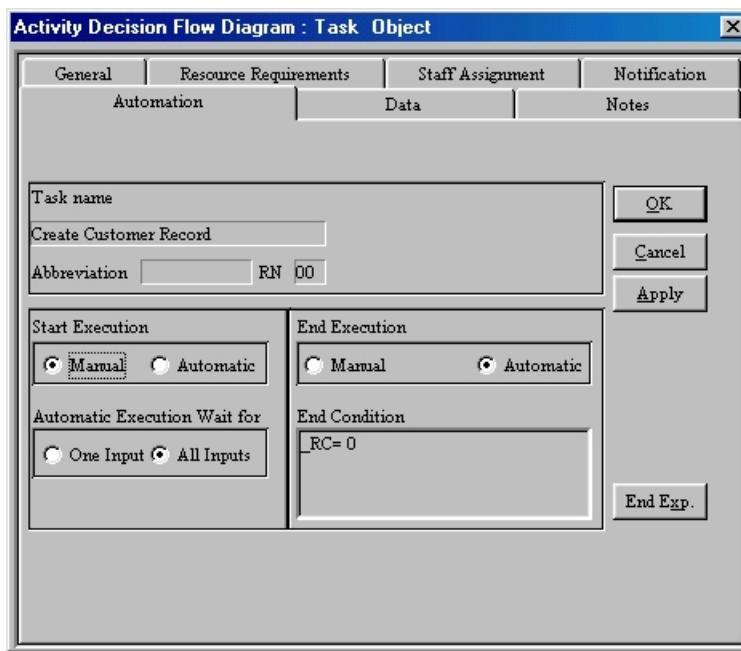
4.  Edit the Priority of the Task in the **Priority** text box.
5. If the priority of the Task is defined in the Input Container of the Task, then  select the Input Container check box.
  - \* The **Priority** check box will be disabled.
6.  Select the Application from the **Application** selection box.
  - \* If the Application you want is not included on the list, then you need to create it.  Click the **Applications Go To** button to access the Repository **Applications** dialog box in order to create the item (refer to the section entitled “Applications” in Chapter 2 of the *User’s Guide*). Upon returning to the **Task Object** dialog box, the new item(s) will be included on the list.
7. To add or change the organization unit assigned to the Task,  choose a unit from the **Organization Unit** combo box.
  - \* The Organization Unit will be used as the defined Organization for FlowMark Staff Assignment.
  - \* If the unit you want is not included on the list, then you need to create it. You have two (2) options.
    - You can  type its name in the **Organization Unit** combo box. When **OK** or **Apply** is  clicked a new item with that name will be recorded in the Repository.
    - Click the **Org. Unit Go To** button to access the Repository **Organization Units** dialog box in order to create the item (refer to the section entitled “Organization Units” in Chapter 2 of the *User’s Guide*). Upon returning to the **Task Object** dialog box, the new item(s) will be included on the list.
8. When you have finished defining the object,  click **OK** or  press **Enter**. To save the current edits and continue with additional edits (e.g., in another tab),  click **Apply**.

### **Start and End Execution**

The following are the types of information that can be specified regarding the starting of a Task.

To modify the Start and End Execution options of a Task:

1. Double-click on the Task object. The **Task Object** dialog box will appear—open to the General tab.
2. Click the **Automation** tab at the top of the **Task Object** dialog box. The following Task attributes can be added and/or updated: Start and End execution (see the figure below).

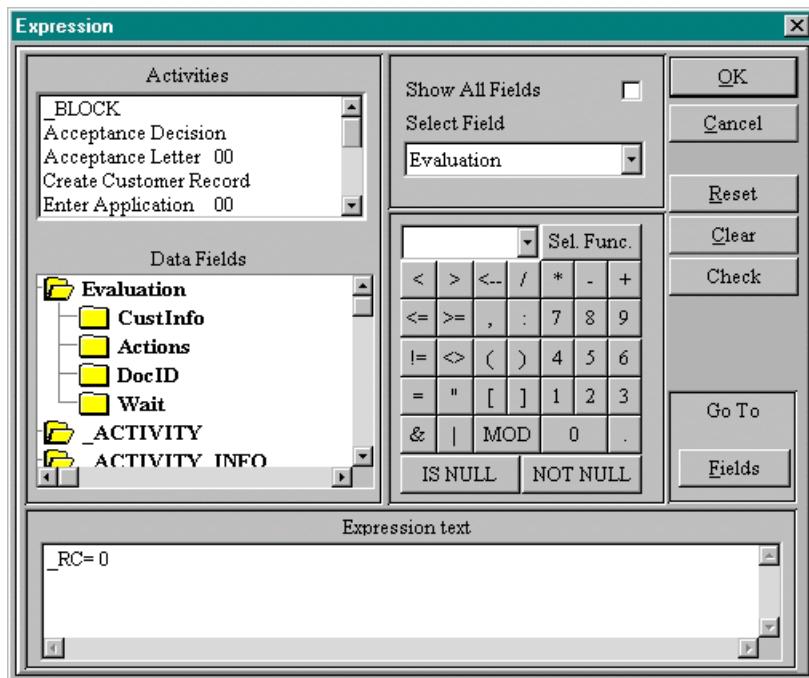


3. Select the appropriate radio button to specify whether the start of the Task will be **Manual** (Default) or **Automatic** in the **Start Execution** Box.
  4. Select the appropriate radio button to specify whether the start of the Task will wait for **One Input** (Default) or **All Inputs** in the **Automatic Execution Wait for** box.
- If the Execution is set to wait for All Inputs, the conditions for all the control connectors must be True. In addition, all activities prior to the target activity must be COMPLETED before all the conditions are evaluated.**
5. Select the appropriate radio button to specify whether the end of the Task will be **Manual** (Default) or **Automatic** in the **End Execution** Box.
    - \* If the end of the Task is Manual, then the Employee must confirm that the Task is finished.

6. If you want to add an expression that can be used by a workflow application to determine if the Task has been completed, click the **End Exp.** button to open the **Expression** dialog box. Refer to the next section for details on using the **Expression** dialog box.
7. When you have finished defining the object, click **OK** or press **Enter**. To save the current edits and continue with additional edits (e.g., in another tab), click **Apply**.

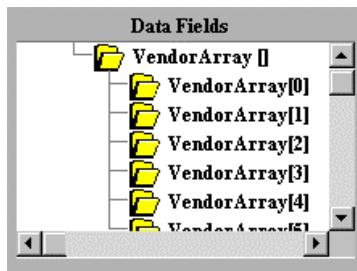
#### *Adding an Expression*

To add an Expression to the Expression dialog box (see the figure below):



1. Type the text of the **Expression** in the **Expression** text box. You can also:
  - \* Double-click on a **Task** that is listed in the **Activities** list box to include it in the Expression.
  - \* **Only “upstream” Tasks are appropriate for including in an expression.**
    - \* Click on a **Data Field** or **Data Structure** in the **Data Fields** list box to include it in the Expression.
      - If the Data Field or Data Structure you want is not on the list, then you need to create it. Click the **Fields Go To** button to open the **Data Fields** dialog box (refer to the section entitled “Data Fields” in Chapter 3 of the *User’s Guide*).
    - \* To control the levels of Data Structures displayed in the **Data Fields** list box:

- Select the **Show All Fields** check box to display all Data Fields, as well as Data Structures, in the **Data Fields** list box.
- De-select the **Show All Fields** check box to display only Data Structures in the **Data Fields** list box.
- Right-click on a collapsed **Data Structure** (denoted by a closed folder) to expand the Data Structure. This will reveal all of the lower-level Data Fields within the Data Structure.
- Right-click on an expanded **Data Structure** (denoted by an open folder) to collapse the Data Structure. This will hide all of the lower-level Data Fields within the Data Structure.
- \* If the **Data Field** you want to select is an array, a pair of brackets is displayed just after the name of the Data Field (see the figure below). You can select a specific element of the array:



- First, Right-click on the collapsed **Data Field**. This will expand the Data Field to reveal all of the array element numbers within it (see the figure on the right).
- Click on the array element number that you want to use. This will copy the array element into the **Expression** text box.
- \* Select a Function from the Function selection box, then click the **Sel. Func.** button to include those items in the expression.
- \* Click the **Clear** button to remove all text from the **Expression** text box.
- \* Click the **Reset** button to remove the text that has been added to the **Expression** text box since the **Expression** dialog box was opened.
- \* Click the **Check** button to validate the Expression. Any errors in the Expression will be identified.

**The Expression must be evaluated as either being True or False.**

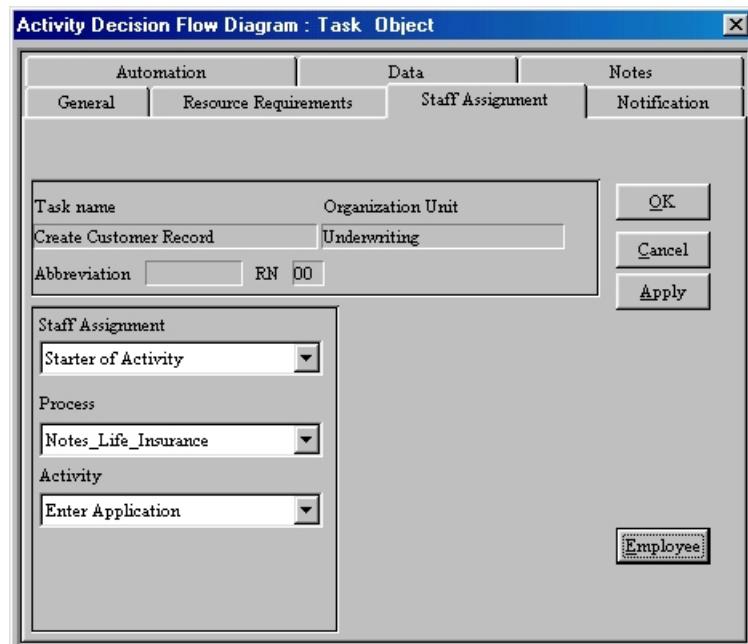
2. Click **OK** or press **Enter** to return to the previous dialog box.

## Staff Assignment

The mechanism for defining the Staff Assignment for the FlowMark workflow engine is different than defining the responsible Role or other resource requirements for Workflow•BPR analysis.

To define the staff assignment for Tasks:

1. Double-click on the Task object. The **Task Object** dialog box will appear—open to the General tab.
2. Select the **Staff Assignment** tab (see the figure below).



3. Select the type of assignment from the lower left panel of the dialog box.
  - \* The following table displays the types of assignments and any additional user actions that may be required:

Type of Assignment	Additional User Action(s)
<b>Dynamic Assignment</b> (Default): An employee that is linked with the selected list of Roles can perform the Task.	<ul style="list-style-type: none"> <li>*  Enter the lowest level of Employee that can perform the Task in the <b>Level From</b> text box.</li> <li>*  Enter the highest level of Employee that can perform the Task in the <b>Level To</b> text box.</li> <li>*  Select the <b>Include Child Organizations</b> check box if you want Employees to perform the Task that are part of Organization Units that are children of the Organization Unit specified for the Task.</li> <li>* In Line 1 of the Roles list box,  click on the Arrow button that is on the right side of the Roles column. A list of Roles will appear.  Select the Role.</li> <li>* Repeat the  selection for each line of the <b>Roles</b> list box until all Roles have been selected. <ul style="list-style-type: none"> <li>* If more than one Role is selected, Employees must be assigned to all the Roles on the list before they are eligible to perform the activity.</li> </ul> </li> <li>* For each selected Role, if you want to specify that the Coordinator of the Role perform the Task,  click on the Arrow button that is on the right side of the <b>Member</b> column (<b>Member</b> is the default).  Select <b>Coordinator</b> from the list.</li> </ul>
<b>Process Administrator</b> : The defined Process Administrator will perform the Task.	None
<b>Process Starter</b> : The starter of the Process will perform the Task.	None
<b>Manager of Process Starter</b> : The Manager of the Starter of the Process will perform the Task.	None
<b>Starter of Activity</b> : The Starter of a selected activity will perform the Task.	Select an activity from the <b>Activity</b> selection box.
<b>Manager of Starter of Activity</b> : The Manager of the Starter of a selected activity will perform the Task.	Select an activity from the <b>Activity</b> selection box.
<b>Not Starter of Activity</b> : An employee that was not the Starter of a selected activity will perform the Task	Select an activity from the <b>Activity</b> selection box.
<b>Assigned Employees</b> : The selected employee will perform the Task	Select one or more Employees from the <b>Employee</b> selection box.
<b>Data From Input Container</b> : The information about the employees that can start the Task is contained in the Input Container of the Task.	None

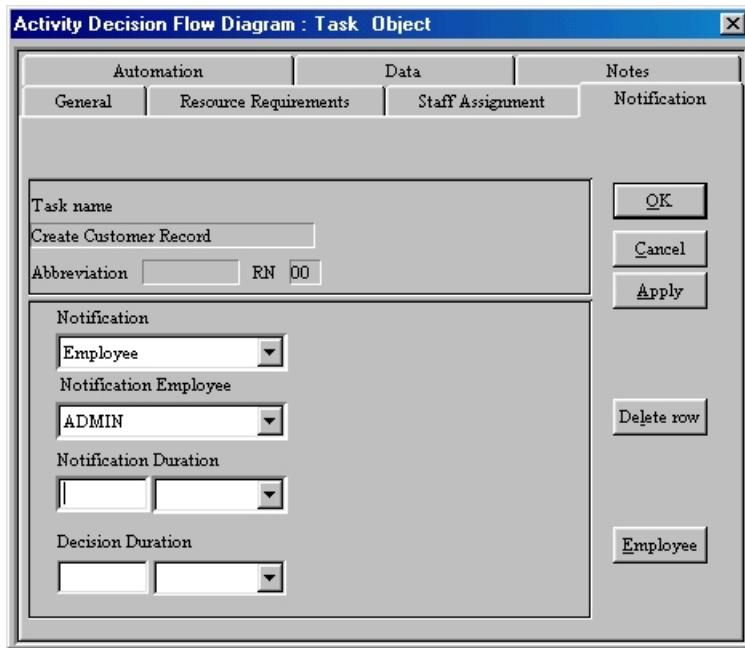
4. When finished with the **Task Object** dialog box, click **OK** or press **Enter** or continue in another tab.

### *Notification*

If a Task takes longer than a specified duration, the employee that gets notified can be specified. In addition, if the notified employee does not respond within a specified period, then the Process Administrator will be notified.

To define notification settings for Tasks:

1. Double-click on the Task object. The **Task Object** dialog box will appear—open to the General tab.
2. Select the **Notification** tab (see the figure below).



3. Select the type of Notification from the **Notification** selection box.
  - \* The following table displays the types of Notifications and any additional user actions that may be required:

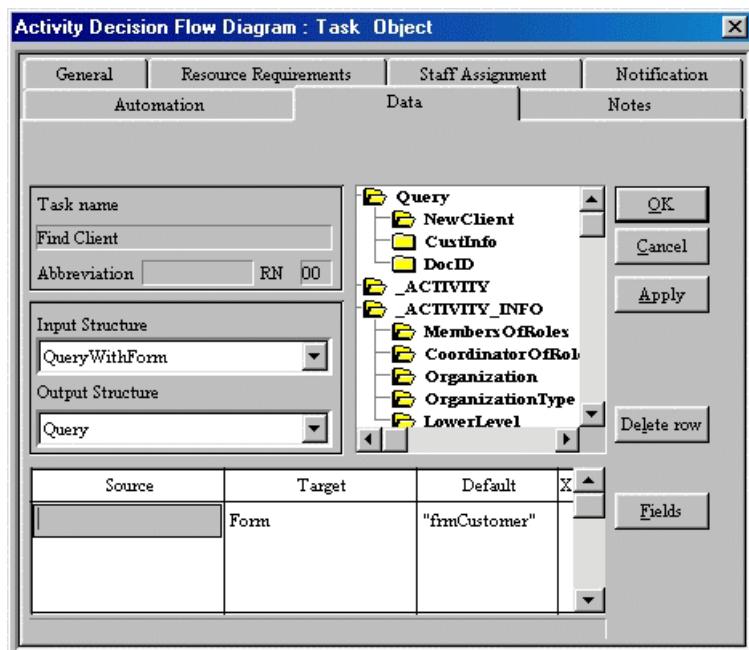
Type of Notification	Additional User Action(s)
<b>None</b> (Default): There will be no notification.	* None
<b>Process Administrator</b> : Then the Process Administrator will be notified.	* None
<b>Manager</b> : Then the Manager of the Employee performing the Task will be notified.	* None
<b>Coordinator</b> : Then the Coordinator of the Employee performing the Task will be notified.	* None
<b>Employee</b> : Then a Selected Employee will be notified.	*  Select the Employee that will be notified from the <b>Notification Employee</b> selection box.
<b>From Input Container</b> : The notification information will be taken from the data in the Input Container.	* None

4. Enter the Notification Duration number in the **Notification Duration** text box. Select the Notification Duration unit in the **Notification Duration** selection box.
5. Enter the Decision Duration number in the **Decision Duration** text box. Select the Decision Duration unit in the **Decision Duration** selection box.
6. When finished with the **Task Object** dialog box, click **OK** or press **Enter** or continue in another tab.

## Data Structures, Initial Values, and Loops

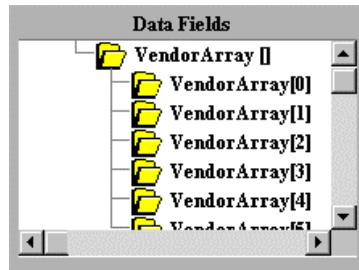
To modify the Data Structures or Loop Mapping of a Task:

1. Double-click on the Task object. The **Task Object** dialog box will appear—open to the General tab.
2. Click the **Data** tab at the top of the **Task Object** dialog box (see the figure below). This tab displays Input Container and Output Container of the Process. You can also specify the data flow mapping if the Process loops.



3. To change the Input Container Data Structure of the Task, select a Data Structure from the **Input Structure** selection box.
  - \* If the Data Structure you want is not included on the list, then you need to create it. Click the **Fields Go To** button to access the Repository **Data Fields** dialog box in order to create the item (refer to the section entitled “Data Fields” in Chapter 3 of the *User’s Guide*). Upon returning to the **Task Object** dialog box, the new item(s) will be included on the list.
4. To change the Output Container Data Structure of the Process, select a Data Structure from the **Output Structure** selection box.
5. In **Line 1** of the Mapping list box, click on the cell within the **Source** column. The Fields list in the center of the dialog box will be updated to show the Data Structure of the Input Container of the Process, in addition to the FlowMark default Data Structures and variables.
  - \* Click on the appropriate **Data Field** from the **Data Structure** tree list box to insert it into the mapping cell.

- \* To control the levels of Data Structures displayed in the **Data Fields** list box:
  - Select the **Show All Fields** check box to display all Data Fields, as well as Data Structures, in the **Data Fields** list box.
  - De-select the **Show All Fields** check box to display only Data Structures in the **Data Fields** list box.
  - Right-click on a collapsed **Data Structure** (denoted by a closed folder) to expand the Data Structure. This will reveal all of the lower-level Data Fields within the Data Structure.
  - Right-click on an expanded **Data Structure** (denoted by an open folder) to collapse the Data Structure. This will hide all of the lower-level Data Fields within the Data Structure.
- \* If the **Data Field** you want to select is an array, a pair of brackets is displayed just after the name of the Data Field (see the figure below). You can select a specific element of the array:



- First, Right-click on the collapsed **Data Field**. This will expand the Data Field to reveal all of the array element numbers within it (see the figure on the right).
- Click on the array element number that you want to use. This will copy the array element into the **Expression** text box.

**You can use the Shift+Arrow keys to navigate the editing cursor through the Mapping table.**

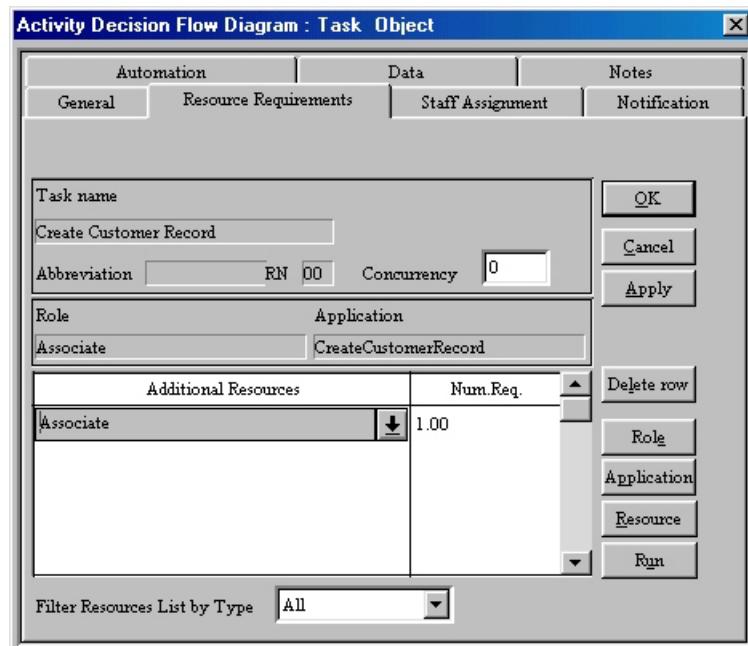
6. Click on the cell within the **Target** column. The Fields list in the center of the dialog box will be updated to show the Data Structure of the Output Container of the Process in addition to the FlowMark default Data Structures and variables.
  - \* Select the appropriate Data Field from the Data Structure tree list box.
    - If the Data Field of the source does not have the same data type as the Data Field of the target, the cell in the **X** column will be marked with an “X.”

7. Type a default value for the Target Data Field in the cell of the **Default** column.
8. Repeat Steps 4 through 6 to add additional mappings for the looping of the Task.
9. When you have finished defining the object, click **OK** or press **Enter**. To save the current edits and continue with additional edits (e.g., in another tab), click **Apply**.

## *Support Tools*

To define the Applications that will serve as Task support tools:

1. Double-click on the Task object. The **Task Object** dialog box will appear—open to the General tab.
2. Click the **Resource Requirements** tab at the top of the **Task Object** dialog box (see the figure below). This tab displays the Task name, abbreviation, RN, and the resource responsible for performing the Task. It also allows for the selection of additional assigned resource names and the required number.



3. To add an additional Role, Application, or other Resource that will participate in the Task, click on the first available row in the **Additional Resources** box, then click on the arrow at the end of the row and select a resource from the list.
  - \* To filter the resource list by Application, select an **Application** from the **Filter Resources List by Type** selection box.

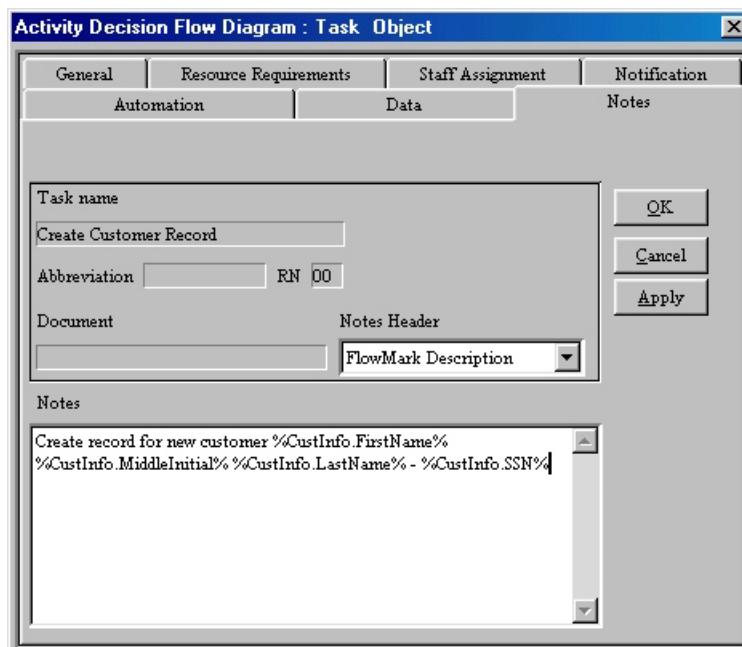
## Chapter 2: Integration with IBM FlowMark

- \* If the Application you want is not included on the list, then you need to create it. Click the **Application Go To** button to access the Repository **Applications** dialog box in order to create the item (refer to the section entitled “Applications” in Chapter 2 of the *User’s Guide*). Upon returning to the **Task Object** dialog box, the new item(s) will be included on the list.
  - \* To change the number required for a required resource, type the new value in the **Num. Req.** text box.
4. An assigned resource can be deleted by selecting the resource from the **Additional Resources** list box and then clicking **Delete Row**.
  5. Click **Run** to open the Application assigned to the Task.
    - \* The path of the application must be defined in the Repository.
  6. When you have finished defining the object, click **OK** or press **Enter**. To save the current edits and continue with additional edits (e.g., in another tab), click **Apply**.

### Documentation Information

To define Notes for a Task:

1. Double-click on the Task object. The **Task Object** dialog box will appear—open to the General tab.
2. Click the **Notes** tab at the top of the **Task Object** dialog box (see the figure below).



- \* There are two independent types of Notes available for a Task: FlowMark Description (default) and Documentation.

3. To add or update FlowMark Description Notes about the Task,  select **FlowMark Description** from the **Notes Header** selection box. Then  type in the **Notes** text box.
  - \* To add a **Carriage Return** in your Notes,  type **Ctrl+Enter**.
  - \* If a Data Field, bordered by % signs, is listed the Description Notes, then the actual value of this Data Field become available for display during FlowMark runtime. In this way, critical information can be passed from user to user very easily.
  - \* The Notes will be exported as Description in the FDL file.
    - If there are no single or double quotes in the Notes, then it will be exported with single quotes surrounding the text.
    - If there are single quotes in the Notes, then it will be exported with double quotes surrounding the text and the single quotes inside.
    - If there are double quotes in the Notes, then it will be exported with single quotes surrounding the text and the double quotes inside.
    - If there are single quotes and double quotes in the Notes, then it will be exported with double quotes surrounding the text, the double quotes inside will be converted to single quotes, and the single quotes will remain inside.
4. To add or update Documentation Notes about the Task,  select **Documentation** from the **Notes Header** selection box. Then  type in the **Notes** text box.
5. When you have finished defining the object,  click **OK** or  press **Enter**. To save the current edits and continue with additional edits (e.g., in another tab),  click **Apply**.

## 2.2.11 Map the Data Flow between Tasks

For FlowMark, the data flow between activities has to be defined or mapped. The information about Data Flow Connectors is captured with the Phi dialog box in the Data Flow tab. The following table displays the FlowMark to Workflow•BPR conversions for Data Flow Mapping:

- All Data Connections should be explicitly mapped. Even if the Output Data Structure of the Source Task is the same as the Input Data Structure of the Target Task, you should map \_Struct to \_Struct.

<u>FlowMark</u>	<u>Workflow•BPR</u>
<u>Data Flow Connector</u>	<u>Phi Object</u>
Origin	Source Task, or Source of Process
Target	Target Task, or Sink of Process
Default	Default
Mapping Between Origin to Target	Mapping from Phi Flow Between Nodes

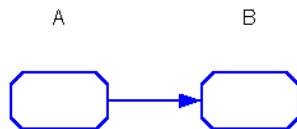
### 2.2.11.1 Types of Connections

An Activity Decision Flow Diagram represents the flow of Control (i.e., the sequence of activities) and the flow of Data (i.e., the Phis). There are three states of Flow:

- Control Flow Only
- Control Flow and Data Flow
- Data Flow Only

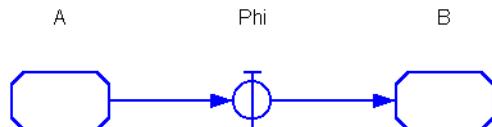
#### *Control Flow Only*

The Connectors are use to determine the Control Flow. A Connector that is drawn with a solid line represents a flow of Control from the source activity, Task “A,” to the target activity, Task “B” (see the figure below).



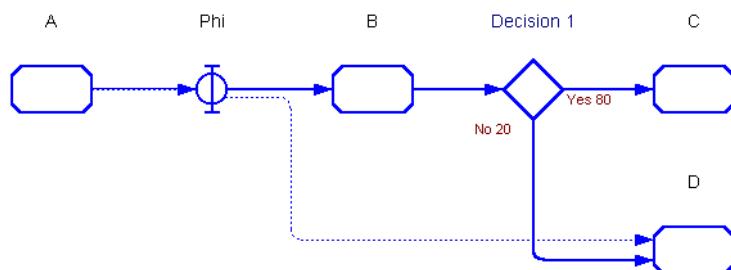
### *Control Flow and Data Flow*

This are used to represent data or any other type of input and output of activities. For the purposes of this discussion, we will refer to all Phis, whether they are electronic documents or components of an automobile, as being the data that flows between activities. In the figure below, the Phi represents the data that flows from the source activity (Task “A”) to the target activity (Task “B”). The Connector drawn with a solid line indicates that there is also a flow of Control between the activities.



### *Data Flow Only*

There are situations where you would want to create a connection between two activities that is only a flow of data. This will happen often for Processes intended for export to a workflow engine. In the figure below, the Phi represents data flow from the source activity (Task “A”) to two (2) target activities (Task “B” and Task “D”).



The Connector drawn with a solid line between the Phi and Task “B” indicates that there is also a flow of Control between the activities. However, the Connector drawn with a dotted line between the Phi and Task “D” indicates that there is *only* a flow of Data between the activities. Since there is no direct flow of Control between Task “A” and Task “D,” the dotted Connector is not included in the analyses that can be performed on the Process. During Expansion, all the Data Flow only Connectors will be ignored. Thus, these connections will not be considered during Case Analysis, Weighted Average Analysis, or Simulation.

- ☒ **Data Flow Only Connectors are not included in Expansion, Case Analysis, Weighted Average Analysis, or Simulation.**

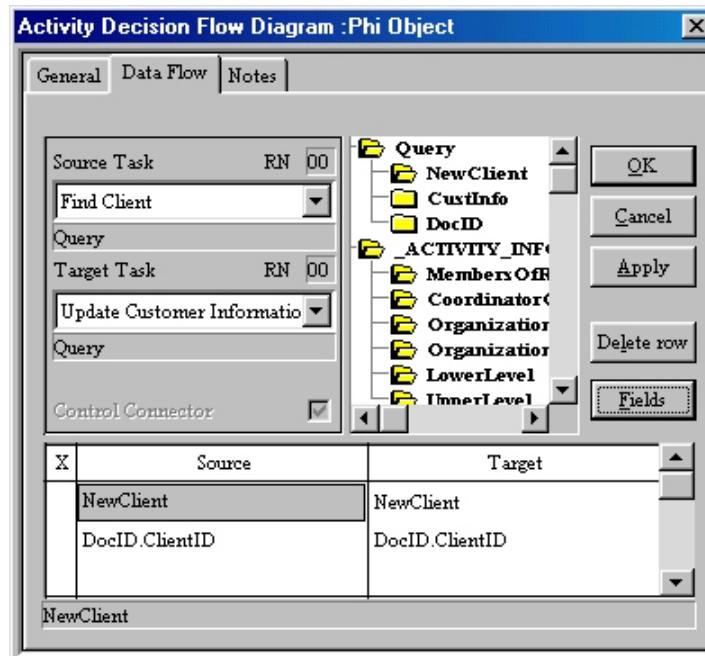
### 2.2.11.2 Data Flow Mapping

Data Flow occurs between activities and also from the Source of the Process and to the Sink of the Process. Mapping from the Source or to the Sink can occur wherever there is a Phi. Unless the Phi is the *first* Phi of the Process and you make a connection between the Phi and a target Task, there will be no graphical indication that there has been mapping from the Source of the Process to the target activity. Likewise, unless the Phi is the *last* Phi of the Process, there will be no graphical indication that there has been mapping from the source activity to the Sink of the Process.

- ☛ All Data Connections should be explicitly mapped. Even if the Output Data Structure of the Source Task is the same as the Input Data Structure of the Target Task, you should map \_Struct to \_Struct.

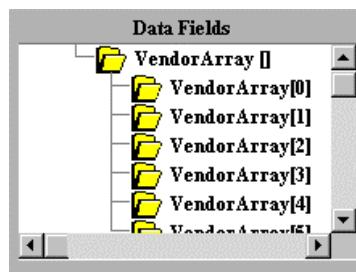
To map a data flow between two activities:

1. Double-click on the Phi object. The **Phi Object** dialog box will appear—open to the General tab.
2. Click the **Data Flow Mapping** tab at the top of the **Phi Object** dialog box (see the figure below). This tab allows you to create a data flow between two activities.



3. If the Phi is connected from more than one Task via a Decision, then select the source Task from the **Source Task** selection box
  - \* You can also select the Source of the Process as the source.

- \* For each possible source, you can create an independent data flow mapping.
4. If the Phi is connected to more than one Task, then select the target Task from the **Target Task** selection box.
- \* You can also select the Sink of the Process as the target.
  - \* For each possible target, you can create an independent data flow mapping.
5. If the Connector between the two Workflow•BPR Tasks should only represent data flow and not control flow, then de-select **Control Connector** check box.
6. In **Line 1** of the Mapping list box, click on the cell within the **Source** column. The Fields list in the center of the dialog box will be updated to show the Data Structure of the Output Container of the source Task in addition to the FlowMark default Data Structures and variables.
7. Select the appropriate Data Field from the Data Structure tree list box.
- \* Click on the appropriate **Data Field** from the **Data Structure** tree list box to insert it into the mapping cell.
  - \* If the Data Field you want to select is an array, a pair of brackets is displayed just after the name of the Data Field (see the figure on the right). You can select a specific element of the array:
  - \* To control the levels of Data Structures displayed in the **Data Fields** list box:
    - Right-click on a collapsed **Data Structure** (denoted by a closed folder) to expand the Data Structure. This will reveal all of the lower-level Data Fields within the Data Structure.
    - Right-click on an expanded **Data Structure** (denoted by an open folder) to collapse the Data Structure. This will hide all of the lower-level Data Fields within the Data Structure.
  - \* If the **Data Field** you want to select is an array, a pair of brackets is displayed just after the name of the Data Field (see the figure below). You can select a specific element of the array:



- First, Right-click on the collapsed **Data Field**. This will expand the Data Field to reveal all of the array element numbers within it (see the figure on the right).

- Click on the array element number that you want to use. This will copy the array element into the mapping cell.
8. Click on the cell within the **Target** column. The Fields list in the center of the dialog box will be updated to show the Data Structure of the Input Container of the target Task in addition to the FlowMark default Data Structures and variables.
    - \* Select the appropriate Data Field from the Data Structure tree list box.
    - \* If the Data Field of the source does not have the same data type as the Data Field of the target, the cell in the **X** column will be marked with an "X."
    - \* Type a default value for the Target Data Field in the cell of the **Default** column.
  9. Repeat Steps 3 through 5 to add additional mappings for the selected target Task.
  10. Repeat Steps 2 through 6 to create mappings for another target Task or the Process Sink.
  11. When you have finished defining the object, click **OK** or press **Enter**, or continue to edit the object in one of the other tabs.

### 2.2.12 Define the Transition Conditions

Logical Expressions have been included in Workflow•BPR to provide information about how to route the Process at Branch points. In Workflow•BPR, Branches are represented by Decisions. The Choices of a Decision represent the alternative paths of the Branch point. To route the Process in the proper direction at a Branch point, FlowMark needs to know the conditions that define the path that should be taken. These conditions are determined by the evaluation of one or more Data Fields.

Workflow•BPR allows the user to define logical expressions to evaluate the Data Fields. For example, a path may be taken if the following expression is evaluated as True: *Contract = Small* or *Contract < \$20,000*. A Logical Expression is assigned to a Choice of a Decision. The expression will be part of the FlowMark FDL file.

The information about Transition Conditions is captured with the Decision Object dialog box or the Choice Object dialog box. The following table displays the FlowMark to Workflow•BPR conversions for Processes:

<b>FlowMark</b>	<b>Workflow•BPR</b>
<b>Control Flow Connector</b>	<b>Connector and Decision Choice</b>
Origin	Source
Target	Target
Name	Not Supported
Transition	Expression of Decision Choice
Description	Not Supported

During the FlowMark runtime, if a transition condition is determined to be True, then the process will *continue* along that path. If the transition condition is determined to be False, then the process will *stop* along that path. Thus, in the strictest sense, a FlowMark transition condition is equivalent to a single Workflow•BPR Binary Decision. Therefore, you should be careful in how the Workflow•BPR Decisions will be used to create FlowMark transition conditions. You should follow the following rules:

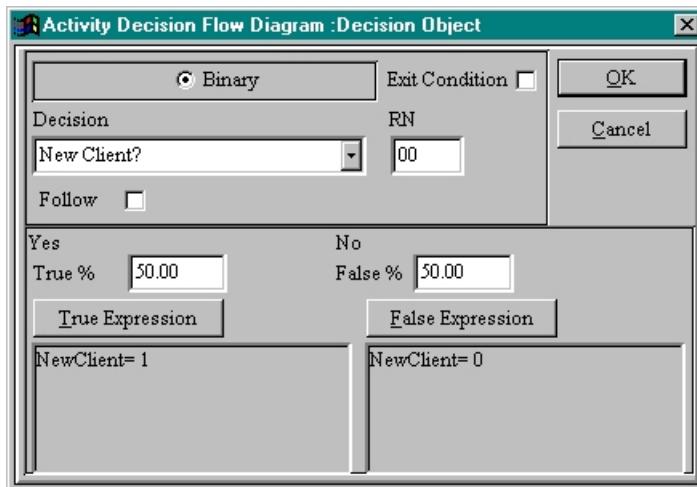
- If a FlowMark transition condition is independent of any other transition condition, then use a Binary Decision where one of the Choices (either Yes or No) contains an Expression and the other Choice does not contain an Expression. This means that a point in the process is reached where a transition condition may occur without regard to whether other transition conditions occur or not.
  - \* *Do not* connect the Choice without the Expression to another object.
- Only use a Multiple Decision or *both* Choices of a Binary Decision when the FlowMark transition conditions are dependent and create exclusive branches. This means that a point in the process is reached where there are more than one transition condition and the expressions are defined such that only one of the transitions can occur at runtime (to the exclusion of the other transitions).

The next two (2) sections describe how to define the expressions for the Transitions for both Binary Decision and Multiple Decision Choices.

### 2.2.12.1 Binary Decision Choices

To define the branch expression for Choices of a Binary Decision:

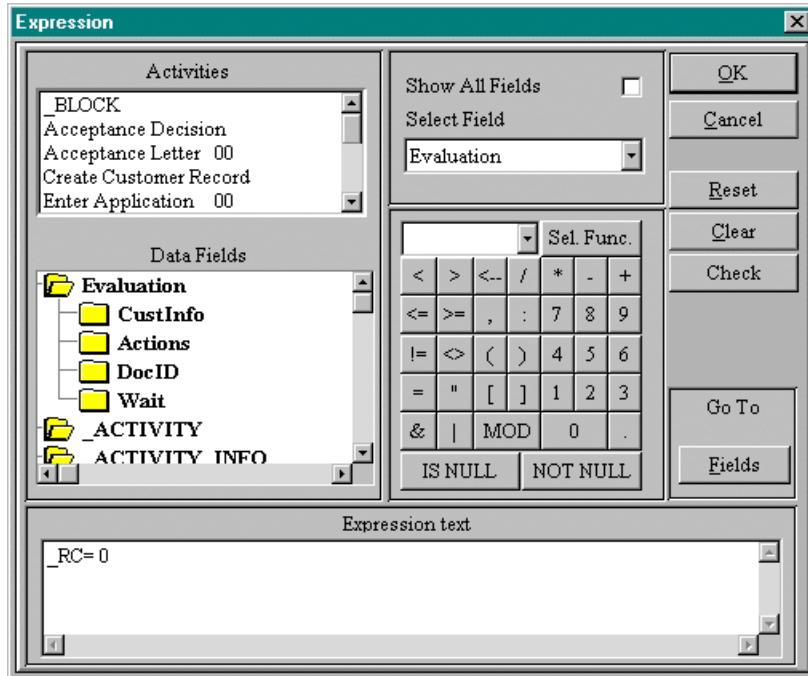
1. Double-click on a Decision. Workflow•BPR displays the **Decision Object** dialog box (see the figure below).



2. To define the Expression for the Yes Choice, click the **Yes Expression** button. The **Expression** dialog box will appear. Refer to the next section for details on using the **Expression** dialog box.
  3. To define the Expression for the No Choice, click the **No Expression** button. The **Expression** dialog box will appear. Refer to the next section for details on using the **Expression** dialog box.
  4. If the Decision is not used for FlowMark Transitions Conditions and is added to the end of the Process to compensate for the End Expression of the Process (see the section entitled “Loops” on page 2-122), the select the **End Condition** check box.
- This setting will enable the Workflow Monitor to track the Decision.**
5. Click **OK** or press **Enter**.

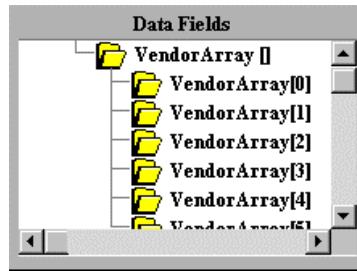
## Adding an Expression

To add an Expression to the Expression dialog box (see the figure below):



1. Type the text of the **Expression** in the **Expression text** box. You can also:
  - \* Double-click on a **Task** that is listed in the **Activities** list box to include it in the Expression.
  - Only “upstream” Tasks are appropriate for including in an expression.**
  - \* Click on a **Data Field** or **Data Structure** in the **Data Fields** list box to include it in the Expression.
    - If the Data Field or Data Structure you want is not on the list, then you need to create it. Click the **Fields Go To** button to open the **Data Fields** dialog box (refer to the section entitled “Data Fields” in Chapter 3 of the *User’s Guide*).
  - \* To control the levels of Data Structures displayed in the **Data Fields** list box:
    - Select the **Show All Fields** check box to display all Data Fields, as well as Data Structures, in the **Data Fields** list box.
    - De-select the **Show All Fields** check box to display only Data Structures in the **Data Fields** list box.

- Right-click on a collapsed **Data Structure** (denoted by a closed folder) to expand the Data Structure. This will reveal all of the lower-level Data Fields within the Data Structure.
- Right-click on an expanded **Data Structure** (denoted by an open folder) to collapse the Data Structure. This will hide all of the lower-level Data Fields within the Data Structure.
- \* If the **Data Field** you want to select is an array, a pair of brackets is displayed just after the name of the Data Field (see the figure below). You can select a specific element of the array:



- First, Right-click on the collapsed **Data Field**. This will expand the Data Field to reveal all of the array element numbers within it (see the figure on the right).
- Click on the array element number that you want to use. This will copy the array element into the **Expression** text box.
- \* Select a Function from the Function selection box, then click the **Sel. Func.** button to include those items in the expression.
- \* Click the **Clear** button to remove all text from the **Expression** text box.
- \* Click the **Reset** button to remove the text that has been added to the **Expression** text box since the **Expression** dialog box was opened.
- \* Click the **Check** button to validate the Expression. Any errors in the Expression will be identified.

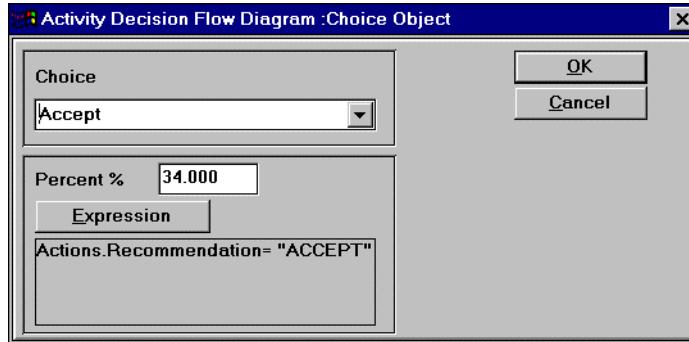
**The Expression must be evaluated as either being True or False.**

2. Click **OK** or press **Enter** to return to the previous dialog box.

### 2.2.12.2 Multiple Decision Choices

To define the branch expression for Choices of a Binary Decision:

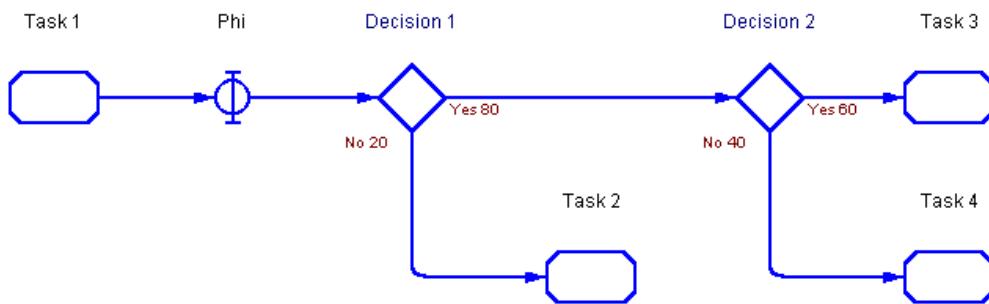
1. Double-click on the Choice. Workflow•BPR displays the **Choice Object** dialog box (see the figure below).



2. To define the Expression for the Choice, click the **Expression** button. The **Expression** dialog box will appear. Refer to the *previous* section for details on using the **Expression** dialog box.
3. Click **OK** or press **Enter**.

### 2.2.12.3 Combining Decisions

If two Decisions are used back-to-back (i.e., they are connected) and the Choices in both Decisions have expressions, then for each unique path created by the combination of Decisions a single FlowMark control connector will be exported with the transition condition equal to the *combination* of the expressions in the Choices. As an example, refer to the figure below.



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The figure displays two (2) Decisions that are directly connected. The following table displays the Expressions that are contained in the Yes and No Choices of Decision 1 and Decision 2.

	Decision 1	Decision 2
Yes	“RC = 0”	“Errors = 0”
No	Undefined	“OTHERWISE”

The following table displays the three (3) FlowMark control connectors, and their transition conditions, that would be created based on this model. Note that the connection from Task 1 to Task 3 and the connection from Task 1 to Task 4 are generated through the navigation of both Decisions in the Model. Furthermore, the FlowMark transition conditions are created from the combination of the Expressions in the Choices of both of the Decisions. The transition condition from Task 1 to Task 3 is created from the Yes Choice of Decision 1 and the Yes Choice of Decision 2. The transition condition from Task 1 to Task 4 is created from the Yes Choice of Decision 1 and the No Choice of Decision 2.

	FlowMark Transition Condition
From Task 1 to Task 2	Undefined
From Task 1 to Task 3	“RC = 0 AND Errors = 0”
From Task 1 to Task 4	“RC = 0 AND OTHERWISE”

In this simple example, there are actually two errors in the modeling of the transition conditions. First, the No Choice for Decision 1 does not have an Expression. This means that this connection will be exported as a control connector with no transition condition in the FDL file. Thus, the process will always proceed from Task 1 to Task 2, despite the Decision that was created for the Workflow•BPR model. To fix this error, an Expression should be added to the No Choice of Decision 1. The Expression could be “RC != 0.”

The second error is in the No choice of Decision 2, where the Expression is “OTHERWISE.” As part of a compound expression where AND is used, OTHERWISE is illegal in FlowMark syntax. This error might occur if the user does not understand the relationship between back-to-back Decisions. To correct this error, the Expression should be changed to “Errors != 0.”

## 2.3 Modeling Conventions for Compatibility with FlowMark

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Workflow•BPR is intended to be a comprehensive modeling tool that can represent almost all business situations, automated or not. FlowMark, as a tool to automate the flow of work in an organization, requires that the Process be structured in a specific format. To use Workflow•BPR to create a Process that will be exported to FlowMark, you must follow the modeling conventions documented in the following sections.

### 2.3.1 Exporting a Process Object as a Program Activity (Task)

FlowMark and other Workflow Applications route work from one Employee to another and open Applications. Therefore, a Process Model designed to support a Process that will be run by a Workflow Application must be at a level of detail that specifies what Applications will be run, when they will run, and who will run them. This type of Process Model can be referred to as a Workflow Process Model.

However, a Process Model that is designed for the purposes of Analysis and Simulation, must define a lower-level of detail than a Workflow Process Model. When an Employee is working, that Employee makes many Decisions. These Decisions are the Business Rules by which the organization operates. It is important for an organization to understand the Business Rules in order to maintain and improve their Processes. In addition, understanding the Business Rules also allows the organization to ensure that the Applications that they use and develop will meet their requirements. A Process Model that contains all the Business Rules can be referred to as a Business Process Model.

It is not practical for an organization to maintain two (2) versions of a Process Model for their Processes. For this reason, Workflow•BPR allows you to develop a Business Process Model and export that model as a Workflow Process Model. Given the low level of detail in a Business Process Model, it is possible that there are many Tasks and Decisions that are performed within the context of a single Application. All of these Tasks and Decisions can be grouped and then exported as a single Task for the Workflow Process Model. A Sub-Process in the Business Process Model can perform this grouping. The Sub-Process would contain the Tasks and Decisions relevant to the Application. For FlowMark purposes, however, the Sub-Process would be seen as a Task and exported as a FlowMark Program Activity.

The information about the settings of a Process Object is described in the following sections. The procedures documented here are for the attributes that apply to the creation of a FlowMark FDL file. For information on attributes other than those documented here, refer to the section entitled “Modeling Process Objects (Within A Process)” in Chapter 4 of the *Modeling Guide*.

## Chapter 2: Integration with IBM FlowMark

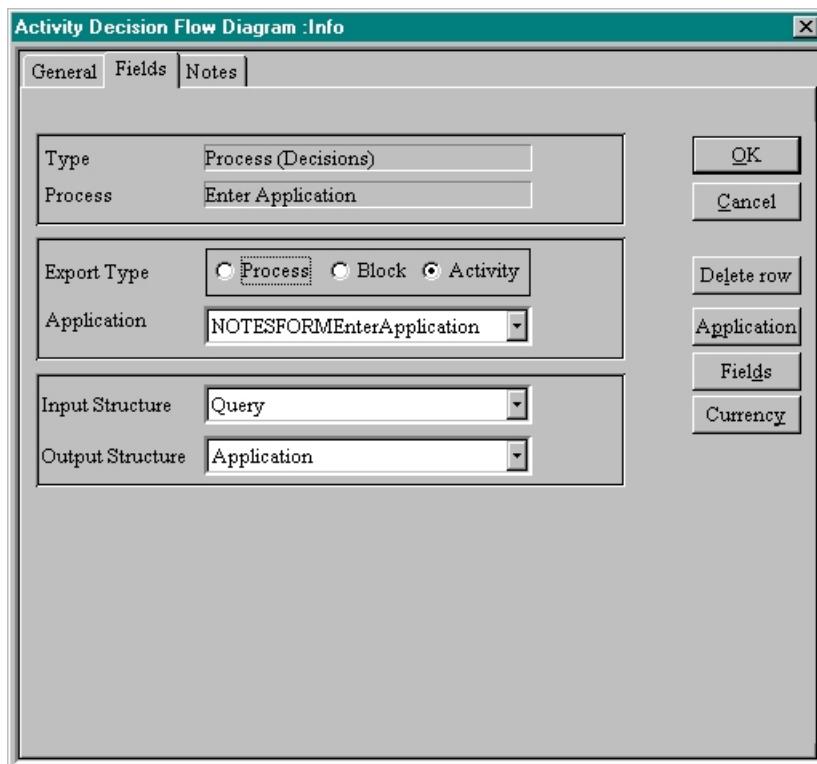
The information about Program Activities is captured with the Process Object dialog box. The following table displays the FlowMark to Workflow•BPR conversions for Process Objects (to Program Activities):

<b><u>FlowMark</u></b>	<b><u>Workflow•BPR</u></b>	
<b><u>Program Activity</u></b>	<b><u>Process Object</u></b>	<b><u>Location</u></b>
Name	FlowMark Name	General Tab
Description	FlowMark Description Header	Notes Tab
Organization	Organization Unit	General Tab
Program	Application	Fields Tab of Info dialog box for the Process
Start	Start Execution	Expressions Tab
Start Condition	Automatic Execution Wait For	Expressions Tab
Exit	End Execution	Expressions Tab
Exit Condition	End Condition	Expressions dialog box
Documentation	Documentation Header	Notes Tab
Priority	Priority	General Tab
From Input Container	Input Container	General Tab
Node Layout	Deduced	
Input Container	Input Structure	Data Tab
Output Container	Output Structure	Data Tab
Notification	Notification	Notification Tab
Person to notify of delay	Notification	Notification Tab
None	None	Notification Tab
Process administrator	Process administrator	Notification Tab
Manager	Manager	Notification Tab
Coordinator	Coordinator	Notification Tab
Person	Employee	Notification Tab
Person ID	Employee	Notification Tab
From input container	From input container	Notification Tab
Duration of activity	Notification Duration	Notification Tab
Duration for Making Decision	Decision Duration	Notification Tab
Support Tools	Additional Resources (Applications)	Resource Requirements Tab
Staff Assignment	Staff Assignment	Staff Assignment Tab
Dynamic	Dynamic	Staff Assignment Tab
Roles	Roles—Staff Assignment Tab	Staff Assignment Tab
Member/Coordinator Flag	Member/Coordinator Flag	Staff Assignment Tab
Organization	Organization Unit—General Tab	Staff Assignment Tab
Include Child Organizations	Include Child Organizations	Staff Assignment Tab
Level (From/To)	Level (From/To)	Staff Assignment Tab
People who currently meet criteria	Employees Assigned to Role	Roles dialog box
Process Starter	Process Starter	Staff Assignment Tab
Starter of Activity	Starter of Activity	Staff Assignment Tab
Activity	Activity	Staff Assignment Tab
Manager of Starter of Activity	Manager of Starter of Activity	Staff Assignment Tab
Activity	Activity	Staff Assignment Tab
Not Starter of Activity	Not Starter of Activity	Staff Assignment Tab
Activity	Activity	Staff Assignment Tab
Data from Input Container	Data from Input Container	Staff Assignment Tab
Process Administrator	Process Administrator	Staff Assignment Tab
People specifically assigned	Assigned Employees	Staff Assignment Tab
Employees	Employees	Staff Assignment Tab

### 2.3.1.1 Define the Process Object as a Program Activity

To define the Process as being a FlowMark Program Activity:

1.  Click on the Process Object.
2.  Click the **Open Process** tool button on the **ADF Toolbar**. Workflow•BPR opens the Activity Decision Flow Diagram for that Process.
3.  Choose **Info** from the **Process** menu, or  click the **Info** tool button on the **ADF Toolbar**. Workflow•BPR displays the **Info** dialog box—open to the General Tab.
4.  Click the **Fields** tab at the top of the **Info** dialog box (see the figure below).

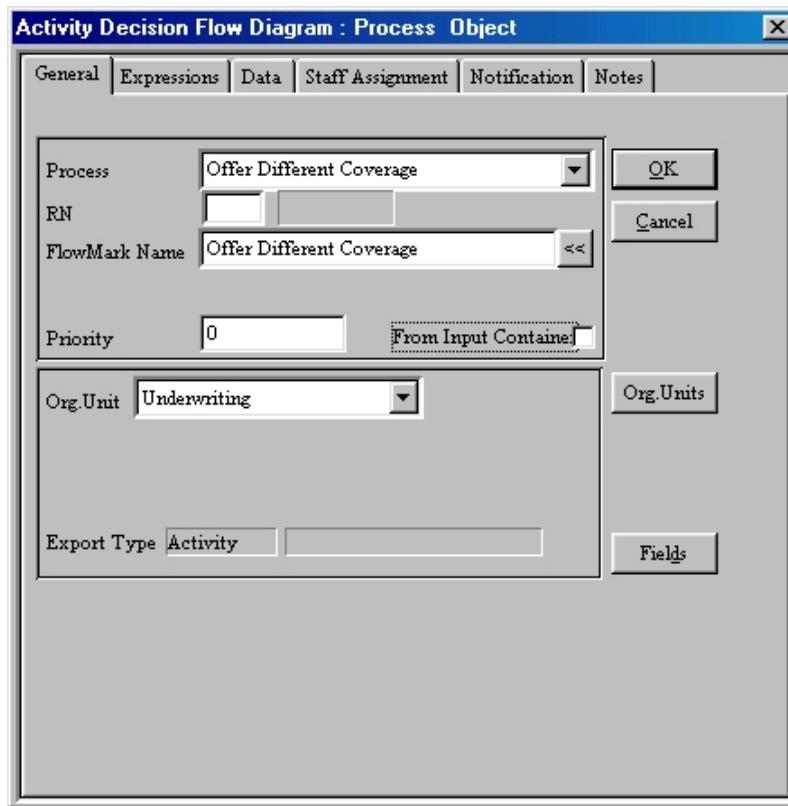


5.  Select the **Activity** radio button from the **Export Type** box.
  - \* The Process will be exported to a FlowMark FDL file as a Program Activity.
    - All lower-level details of the Process Object will be ignored during export.
6.  Select an Application from the **Application** selection box to define the FlowMark program that will be used for the Program Activity that is exported.
7.  Click **OK** or  press **Enter** or continue in another tab.

### General Information

To define general information about Process Object that is a type Program Activity:

1. Double-click on the Process Object. The **Process Object** dialog box will appear—open to the General tab (see the figure below).



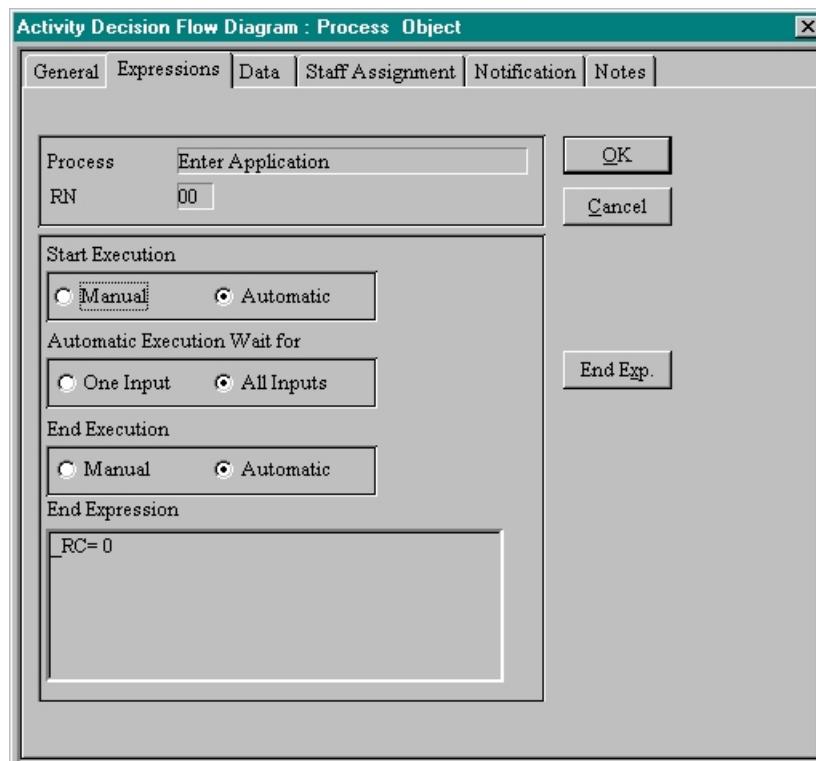
2. To select a Process from those already defined, select one from the **Name** list ( click on the arrow on the right end of the **Process** combo box to bring up the list).
  - \* If the Process you want is not included on the list, then you need to create it:
    - The Process name can be typed in the **Process** combo box. When you click **OK**, a new Process with that name will be created.
3. The **FlowMark** text box displays the name that will be exported to the FDL file. The FlowMark name is derived from a combination of the Process name and the RN and has a maximum of 35 characters (for an RN value of 00, the RN does not appear in the FlowMark name).
  - \* You can type in the **FlowMark** text box to change the FlowMark name. This name has to be unique.
  - \* You can reset a modified FlowMark name by clicking on the << button to the right of the **FlowMark** text box.

4. Edit the Priority in the **Priority** text box.
5. If the priority of the Task is defined in the Input Container of the Task, then
  - \* select the Input Container check box.
    - \* The **Priority** check box will be disabled.
6. To add or change the organization unit assigned to the Process, select a unit from the **Org. Unit** selection box.
  - \* If the unit you want is not included on the list, then you need to create it.
    - Click the **Org. Units Go To** button to access the Repository **Organization Units** dialog box in order to create the item (refer to the section entitled “Organization Units” in Chapter 2 of the *User’s Guide*). Upon returning to the **Info** dialog box, the new item(s) will be included on the list.
7. When finished with the **Process Object** dialog box, click **OK** or press **Enter** or continue in another tab.

### Start and End Execution

To define the start and end conditions a Process Object that is a type Program Activity:

1. Double-click on the Process Object. The **Process Object** dialog box will appear—open to the General tab.
2. Click the **Expression** tab at the top of the **Process Object** dialog box (see the figure below).

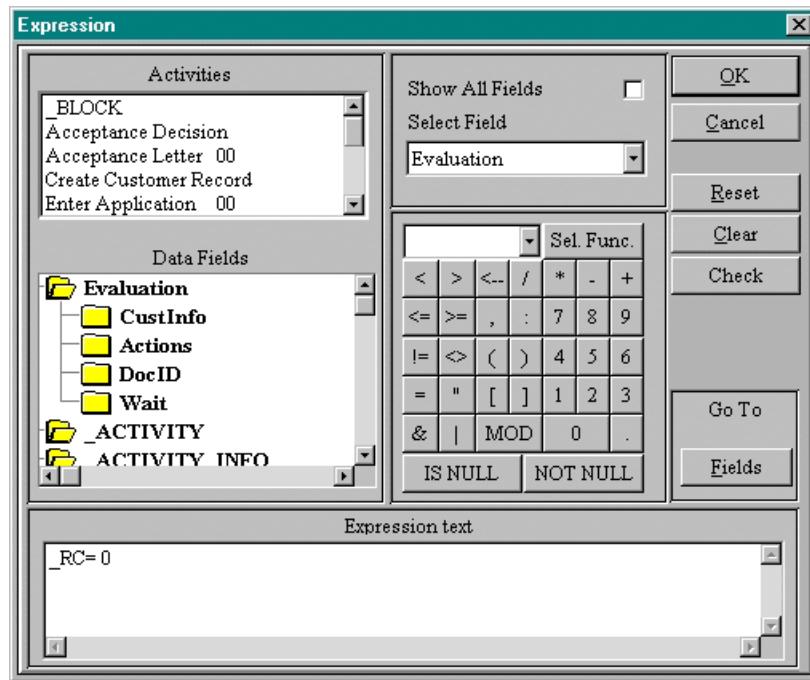


3.  Select the appropriate radio button to specify whether the start of the Task will be **Manual** (Default) or **Automatic** in the **Start Execution** Box.
4.  Select the appropriate radio button to specify whether the start of the Task will wait for **One Input** (Default) or **All Inputs** in the **Automatic Execution Wait for** box.

 **If the Execution is set to wait for All Inputs, the conditions for all the control connectors must be True. In addition, all activities prior to the target activity must be COMPLETED before all the conditions are evaluated.**
5.  Select the appropriate radio button to specify whether the end of the Task will be **Manual** (Default) or **Automatic** in the **Start Execution** Box.
6. If you want to add an expression that can be used by a workflow application to determine if the Process has been completed,  click the **End Exp.** button to open the **Expression** dialog box. Refer to the next section for details on using the **Expression** dialog box.
7. When finished with the **Process Object** dialog box,  click **OK** or  press **Enter** or continue in another tab.

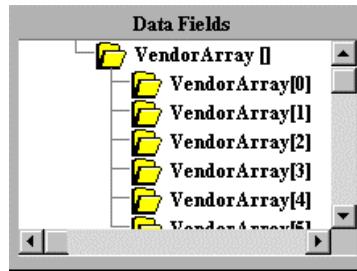
### *Adding an Expression*

To add an Expression to the Expression dialog box (see the figure below):



1. Type the text of the **Expression** in the **Expression** text box. You can also:
  - \* Double-click on a **Task** that is listed in the **Activities** list box to include it in the Expression.
  - \* Only “upstream” Tasks are appropriate for including in an expression.
    - \* Click on a **Data Field** or **Data Structure** in the **Data Fields** list box to include it in the Expression.
      - If the Data Field or Data Structure you want is not on the list, then you need to create it. Click the **Fields Go To** button to open the **Data Fields** dialog box (refer to the section entitled “Data Fields” in Chapter 3 of the *User’s Guide*).
    - \* To control the levels of Data Structures displayed in the **Data Fields** list box:
      - Select the **Show All Fields** check box to display all Data Fields, as well as Data Structures, in the **Data Fields** list box.
      - De-select the **Show All Fields** check box to display only Data Structures in the **Data Fields** list box.

- Right-click on a collapsed **Data Structure** (denoted by a closed folder) to expand the Data Structure. This will reveal all of the lower-level Data Fields within the Data Structure.
- Right-click on an expanded **Data Structure** (denoted by an open folder) to collapse the Data Structure. This will hide all of the lower-level Data Fields within the Data Structure.
- \* If the **Data Field** you want to select is an array, a pair of brackets is displayed just after the name of the Data Field (see the figure below). You can select a specific element of the array:



- First, Right-click on the collapsed **Data Field**. This will expand the Data Field to reveal all of the array element numbers within it (see the figure on the right).
- Click on the array element number that you want to use. This will copy the array element into the **Expression** text box.
- \* Select a Function from the Function selection box, then click the **Sel. Func.** button to include those items in the expression.
- \* Click the **Clear** button to remove all text from the **Expression** text box.
- \* Click the **Reset** button to remove the text that has been added to the **Expression** text box since the **Expression** dialog box was opened.
- \* Click the **Check** button to validate the Expression. Any errors in the Expression will be identified.

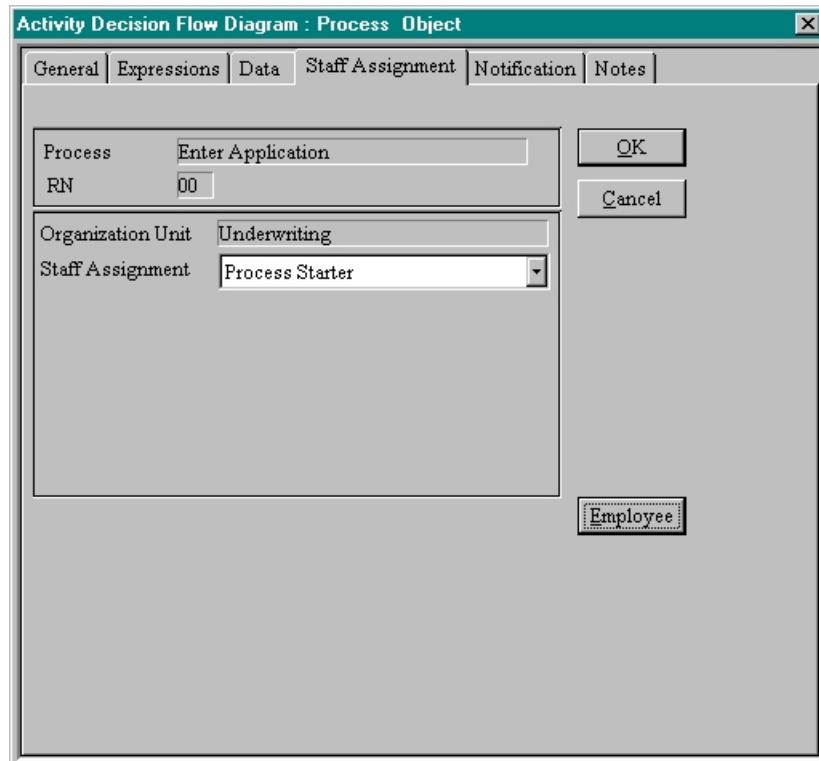
**The Expression must be evaluated as either being True or False.**

2. Click **OK** or press **Enter** to return to the previous dialog box.

## Staff Assignment

To perform staff assignment for Process Objects that is a type Program Activity:

1. Double-click on the Process Object. The **Process Object** dialog box will appear—open to the General tab.
2. Select the **Staff Assignment** tab (see the figure below).



3. Select the type of assignment from the lower left panel of the dialog box.
  - \* The following table displays the types of assignments and any additional user actions that may be required:

Type of Assignment	Additional User Action(s)
<b>Dynamic Assignment</b> (Default): An employee that is linked with the selected list of Roles can perform the Process.	<ul style="list-style-type: none"> <li>*  Enter the lowest level of Employee that can perform the Process in the <b>Level From</b> text box.</li> <li>*  Enter the highest level of Employee that can perform the Process in the <b>Level To</b> text box.</li> <li>*  Select the <b>Include Child Organizations</b> check box if you want Employees to perform the Process that are part of Organization Units that are children of the Organization Unit specified for the Process.</li> <li>* In Line 1 of the Roles list box,  click on the Arrow button that is on the right side of the Roles column. A list of Roles will appear.  Select the Role.</li> <li>* Repeat the  selection for each line of the <b>Roles</b> list box until all Roles have been selected.           <ul style="list-style-type: none"> <li>* <b>If more than one Role is selected, Employees must be assigned to all the Roles on the list before they are eligible to perform the activity.</b></li> </ul> </li> <li>* For each selected Role, if you want to specify that the Coordinator of the Role perform the Process,  click on the Arrow button that is on the right side of the <b>Member</b> column (<b>Member</b> is the default).  Select <b>Coordinator</b> from the list.</li> </ul>
<b>Process Administrator:</b> The defined Process Administrator will perform the Process.	None
<b>Process Starter:</b> The starter of the Process will perform the Process.	None
<b>Manager of Process Starter:</b> The Manager of the Starter of the Process will perform the Process.	None
<b>Starter of Activity:</b> The Starter of a selected activity will perform the Process.	Select an activity from the <b>Activity</b> selection box.
<b>Manager of Starter of Activity:</b> The Manager of the Starter of a selected activity will perform the Process.	Select an activity from the <b>Activity</b> selection box.
<b>Not Starter of Activity:</b> An employee that was not the Starter of a selected activity will perform the Process.	Select an activity from the <b>Activity</b> selection box.
<b>Assigned Employees:</b> The selected employee will perform the Process.	Select one or more Employees from the <b>Employee</b> selection box.
<b>Data From Input Container:</b> The information about the employees that can start the Process is contained in the Input Container of the Process.	None

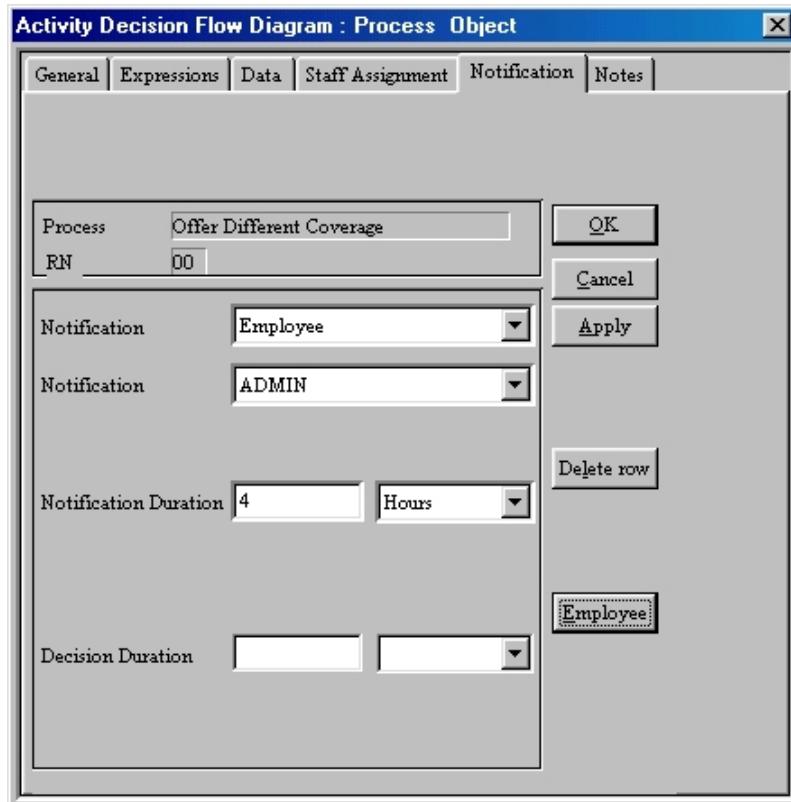
4. When finished with the **Process Object** dialog box, click **OK** or press **Enter** or continue in another tab.

### *Notification*

If an activity takes longer than a specified duration, then an employee that gets notified can be specified. In addition, if the notified employee does not respond within a specified period, then the Process Administrator will be notified.

To define notification settings for a Process Object that is a type Program Activity:

1. Double-click on the Process Object. The **Process Object** dialog box will appear—open to the General tab.
2. Select the **Notification** tab (see the figure below).



3. Select the type of Notification from the **Notification** selection box.
  - \* The following table displays the types of Notifications and any additional user actions that may be required:

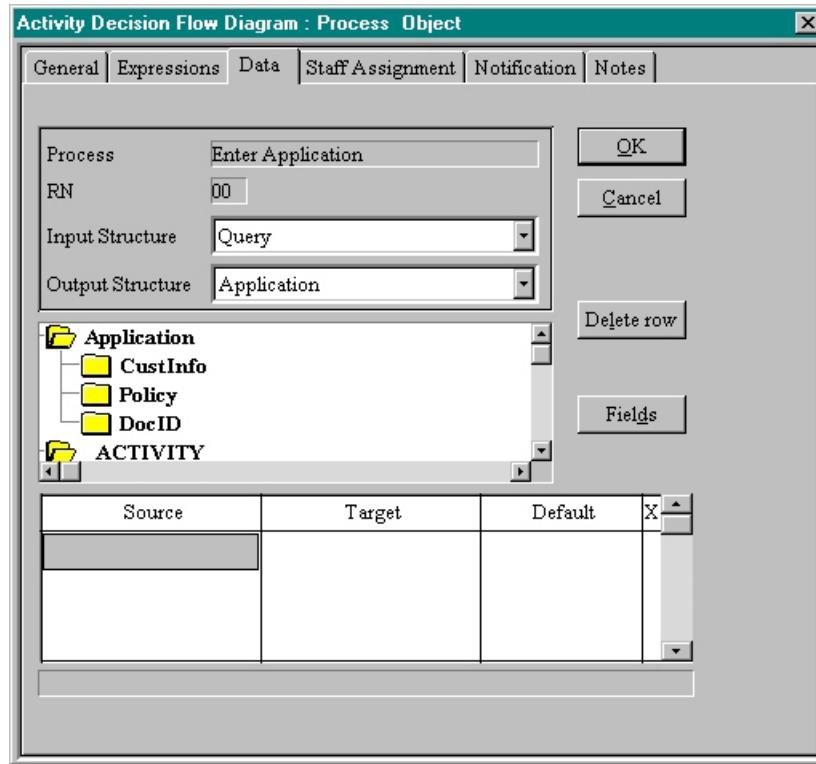
Type of Notification	Additional User Action(s)
<b>None</b> (Default): There will be no notification.	* None
<b>Process Administrator</b> : Then the Process Administrator will be notified.	* None
<b>Manager</b> : Then the Manager of the Employee performing the Task will be notified.	* None
<b>Coordinator</b> : Then the Coordinator of the Employee performing the Task will be notified.	* None
<b>Employee</b> : Then a Selected Employee will be notified.	*  Select the Employee that will be notified from the <b>Notification</b> selection box.
<b>From Input Container</b> : The notification information will be taken from the data in the Input Container.	* None

4. Enter the **Notification Duration** number in the **Notification Duration** text box. Select the Notification Duration unit in the **Notification Duration** selection box.
5. Enter the **Decision Duration** number in the **Decision Duration** text box. Select the Decision Duration unit in the **Decision Duration** selection box.
6. When finished with the **Process Object** dialog box, click **OK** or press **Enter** or continue in another tab.

### *Data Structures, Initial Values, and Loops*

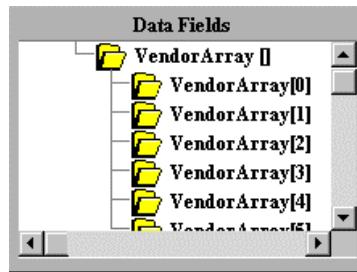
To define the Data Structures and Loops for a Process Object that is a type Program Activity:

1. Double-click on the Process Object. The **Process Object** dialog box will appear—open to the General tab.
2. Click the **Data** tab at the top of the **Process Object** dialog box (see the figure below).



3. To change the Input Container Data Structure of the Process, select a Data Structure from the **Input Structure** selection box.
  - \* If the Data Structure you want is not included on the list, then you need to create it. Click the **Fields** Go To button to access the Repository **Data Fields** dialog box in order to create the item (refer to the section entitled “Data Fields” in Chapter 3 of the *User’s Guide*). Upon returning to the **Info** dialog box, the new item(s) will be included on the list.

4. To change the Output Container Data Structure of the Process,  $\text{Ctrl}$  select a Data Structure from the **Output Structure** selection box.
5. In **Line 1** of the Mapping list box,  $\text{Ctrl}$  click on the cell within the **Source** column. The Fields list in the center of the dialog box will be updated to show the Data Structure of the Input Container of the Process, in addition to the FlowMark default Data Structures and variables.
  - \*  $\text{Ctrl}$  Click on the appropriate **Data Field** from the **Data Structure** tree list box to insert it into the mapping cell.
  - \* To control the levels of Data Structures displayed in the **Data Fields** list box:
    - $\text{Ctrl}$  Select the **Show All Fields** check box to display all Data Fields, as well as Data Structures, in the **Data Fields** list box.
    - $\text{Ctrl}$  De-select the **Show All Fields** check box to display only Data Structures in the **Data Fields** list box.
    - $\text{Ctrl}$  Right-click on a collapsed **Data Structure** (denoted by a closed folder) to expand the Data Structure. This will reveal all of the lower-level Data Fields within the Data Structure.
    - $\text{Ctrl}$  Right-click on an expanded **Data Structure** (denoted by an open folder) to collapse the Data Structure. This will hide all of the lower-level Data Fields within the Data Structure.
  - \* If the **Data Field** you want to select is an array, a pair of brackets is displayed just after the name of the Data Field (see the figure below). You can select a specific element of the array:



- First,  $\text{Ctrl}$  Right-click on the collapsed **Data Field**. This will expand the Data Field to reveal all of the array element numbers within it (see the figure on the right).
- $\text{Ctrl}$  Click on the array element number that you want to use. This will copy the array element into the **Expression** text box.

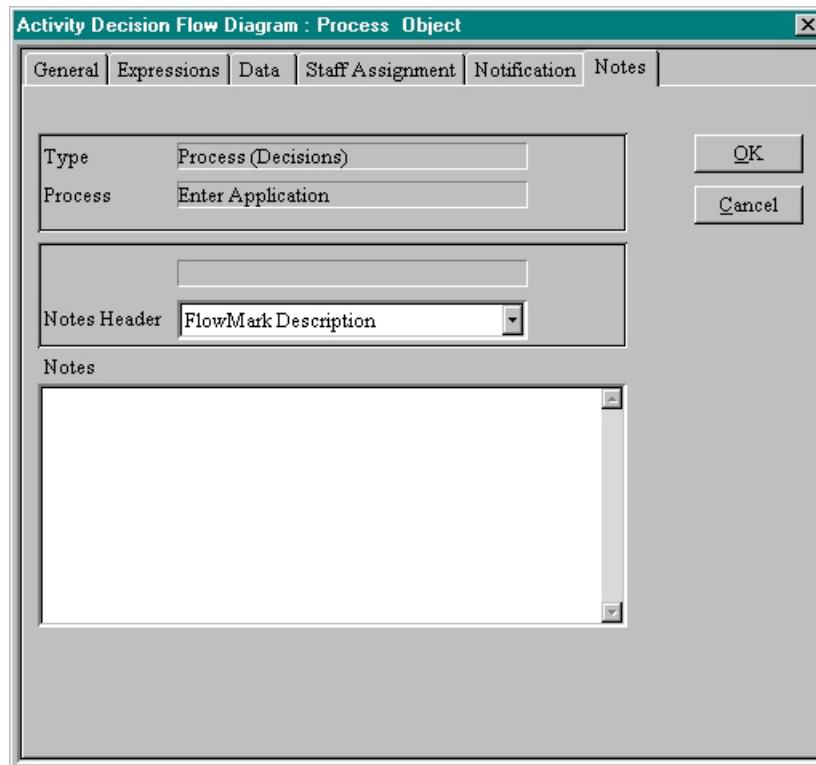
 **You can use the Shift+Arrow keys to navigate the editing cursor through the Mapping table.**

6. Click on the cell within the **Target** column. The Fields list in the center of the dialog box will be updated to show the Data Structure of the Output Container of the Process in addition to the FlowMark default Data Structures and variables.
  - \* Select the appropriate Data Field from the Data Structure tree list box.
    - If the Data Field of the source does not have the same data type as the Data Field of the target, the cell in the **X** column will be marked with an “X.”
7. Type a default value for the Target Data Field in the cell of the **Default** column.
8. Repeat Steps 4 through 6 to add additional mappings for the looping of the Process.
9. When finished with the **Process Object** dialog box, click **OK** or press **Enter** or continue in another tab.

### Documentation Information

To define Notes for a Process Object that is a type Program Activity:

1. Double-click on the Process Object. The **Process Object** dialog box will appear—open to the General tab.
2. Click the **Notes** tab at the top of the **Process Object** dialog box (see the figure below).



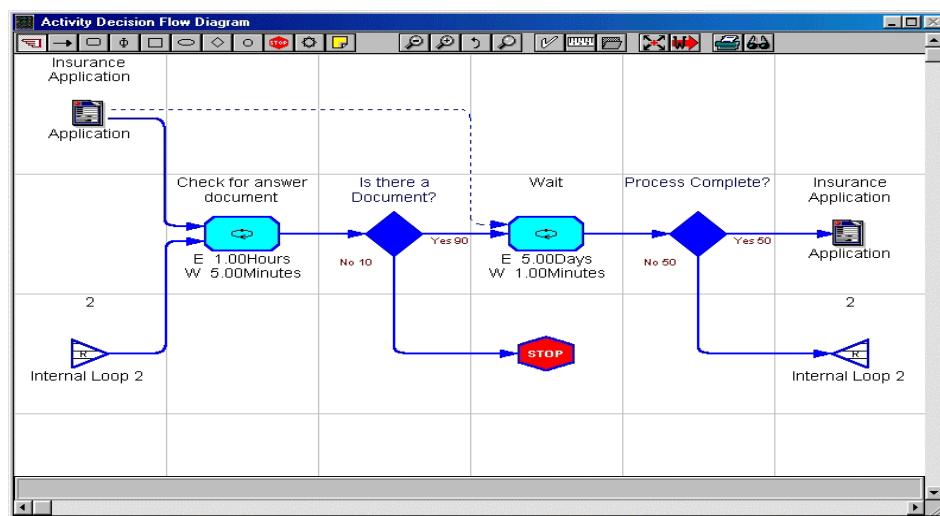
- \* There are two independent types of Notes available for a Process (Program Activity): FlowMark Description (default) and Documentation.
- 3. To add or update FlowMark Description Notes about the Process, select **FlowMark Description** from the **Notes Header** selection box. Then type in the **Notes** text box.
  - \* To add a **Carriage Return** in your Notes, type **Ctrl+Enter**.
  - \* If a Data Field, bordered by % signs, is listed the Description Notes, then the actual value of this Data Field become available for display during FlowMark runtime. In this way, critical information can be passed from user to user very easily.

- \* The Notes will be exported as Description in the FDL file.
  - If there are no single or double quotes in the Notes, then it will be exported with single quotes surrounding the text.
  - If there are single quotes in the Notes, then it will be exported with double quotes surrounding the text and the single quotes inside.
  - If there are double quotes in the Notes, then it will be exported with single quotes surrounding the text and the double quotes inside.
  - If there are single quotes and double quotes in the Notes, then it will be exported with double quotes surrounding the text, the double quotes inside will be converted to single quotes, and the single quotes will remain inside.
- 4. To add or update Documentation Notes about the Process,  select **Documentation** from the **Notes Header** selection box. Then  type in the **Notes** text box.
  - \* The notes will be exported as the Documentation in the FDL file.
- 5. When finished with the **Process Object** dialog box,  click **OK** or  press **Enter**.

## 2.3.2 Loops

In FlowMark, loops are restricted to loop from the end of an activity (either Task or Process) to the beginning of the same activity. You can create the loops for the FlowMark model by defining End Expression for Process Activities or Blocks that end automatically. This can be done in the **Expressions** tab of the **Process Object** dialog box (refer to the section entitled “Start and End Execution” on page 2-56 or page 2-71). The End Expressions set in Tasks (Program Activities) are not considered loops in Workflow•BPR. The Task is considered open until the End Expression is True.

Workflow•BPR does not use the End Expression of a Process Activity or Block. Thus, it is necessary to create an equivalent Workflow•BPR modeling situation to correspond to the loop that FlowMark will perform. This will ensure that the Process Model that is analyzed by Workflow•BPR corresponds to the Process Model that is run by FlowMark. To do this, create a loop structure that will loop from the end of the Process to the beginning of the Process (see the figure below).



The loop structure will have a Decision that follows the last activity. The “Yes” path from the Decision will be connected to the Phi that ends the Process and is used for connection to the higher-level Process. The “Yes” path represents the End Expression that is True. The “No” path is connected to a Source Go To Object. The “No” path represents the End Expression that is False. The Target Go To Object is connected to the first Task of the Process and, thus, completes the loop.

The Go To Objects and the Connectors to the Go To Objects will not be exported in the FDL file. In addition, do not add an expression to the Decision that ends the Process (“Internal Loop” in the example). This Decision is not intended for a branch in the FlowMark model. In the FlowMark FDL, there is no Control Connector from the last Program Activity to the Sink. Therefore, any expression intended for a Transition Condition will not be used.

- ☒ This use of Go To Objects for the loop within a Process is the only situation where Go To Objects can be used in Workflow•BPR for models intended for export to FlowMark. Any other use of Go To Objects within a Workflow•BPR model will not have a corresponding structure in the FDL model that is run by FlowMark.

### 2.3.3 Starting a Process

A Process in Workflow•BPR can start with a Decision that occurs before there are any activities. A Process in FlowMark must start with an activity. Therefore, you should create a Task that precedes any Decisions if the Process is intended for export to an FDL file.

### 2.3.4 Non-Automated Activities

Many Business Processes are a mix of automated and non-automated activities. The hand-off between automated and non-automated activities is not directly handled by FlowMark. FlowMark requires an Application for all activities. Therefore, non-automated activities need to be assigned an Application in order for FlowMark to maintain the flow of the Process. Custom Applications are often built to track the status of non-automated activities. E-mail is often used for notification of starting and completing an activity. FlowMark also provides a default Application (**EXMCOMAN.EXE**) that has a simple check box interface for notification of starting and completing an activity.

- ☒ All Tasks in a Workflow•BPR must have an Application if the model is intended for export to FlowMark.

### 2.3.5 External Activities

Many Business Processes contain interactions with outside organizations and customers. The hand-off between external and internal activities is not directly handled by FlowMark. FlowMark requires an Application for all activities. Therefore, external activities need to be assigned an Application in order for FlowMark to maintain the flow of the Process. Custom Applications are often built to track the status of external activities. E-mail is often used for notification of starting and completing an activity. FlowMark also provides a default Application (**EXMCOMAN.EXE**) that has a simple check box interface for notification of starting and completing an activity.

- ☒ All Tasks in a Workflow•BPR must have an Application if the model is intended for export to FlowMark.

### **2.3.6 Activity Names**

Workflow•BPR allows Tasks and Processes to have the same name. However, if a Task has the same name as an included Sub-Processes then the two names will be confused by FlowMark. Therefore, you should ensure that Tasks and Processes have unique names.

## **2.4 Validating the FlowMark Data**

---

A Process Model in Workflow•BPR can be developed for many purposes, one of which is to export to FlowMark. The modeling conventions of Workflow•BPR do not necessarily coincide with the modeling conventions of FlowMark. All the necessary data that FlowMark requires can be generated from Workflow•BPR. However, it is necessary to ensure that the data is in the proper format.

Workflow•BPR provides a validation feature that will check the data of the Process Model for compatibility with FlowMark. A FlowMark Validation Report will be created to itemize the errors in the Process Model.

- ☞ **Each Sub-Process of the Process hierarchy that is to be exported must be validated individually.**

### **2.4.1 The FlowMark Validation Report**

To access the FlowMark Validation Report:

1. ☞ Choose the **FlowMark Validation** from the **Report** menu. The **FlowMark Validation window** will be opened.

The FlowMark Validation Report identifies four (4) different types of errors. The following sections will document these types of errors.

#### **2.4.1.1 Names**

The names of objects in FlowMark are 32 characters while the names in Workflow•BPR are 35 characters. In addition, FlowMark does not allow the duplication of names within a Process Model. The FlowMark Validation report will identify names that are duplicated at input or due to the truncation from 35 to 32 characters. Object names are also checked for illegal characters. The following Process Model objects are checked:

- Tasks
- Data Fields
- Processes
- Organization Units

- Functions
- Resources
- Servers
- Employees

#### **2.4.1.2 *Mapping***

The Data Flow Mapping is verified in the FlowMark Validation Report. The two (2) items that are checked are:

- The Input and Output Containers defined properly.
- The Data Fields that are specified have the appropriate child-parent relationships.

#### **2.4.1.3 *Expressions***

The format of expressions used for Control Connectors and Exit Conditions are checked for the following characteristics:

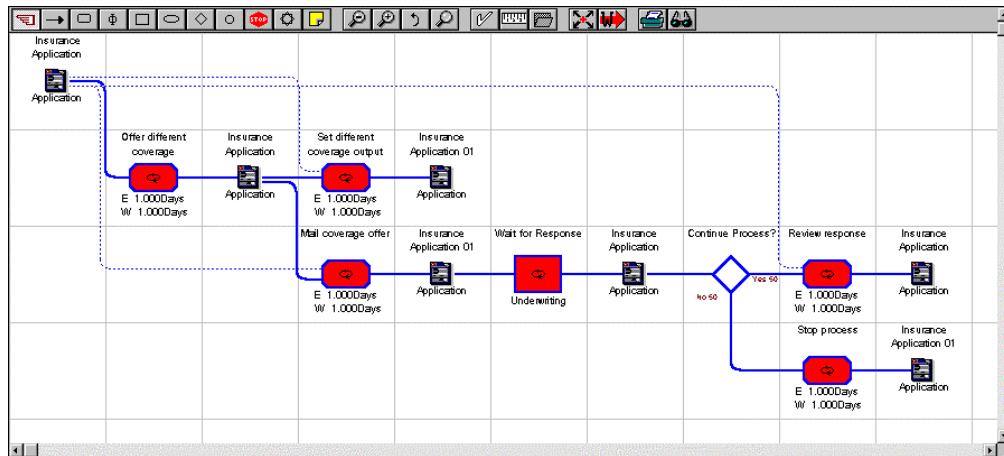
- All Data Fields and Activity names used are still valid in the repository (i.e., they have not been deleted).
- The Data Fields that are specified have the appropriate child-parent relationships.
- Any Activity that is specified must be from an upstream position in the Process.
- Source Data Fields must be a child of the Output Container of the source Activity.

#### **2.4.1.4 *Organization Unit Managers***

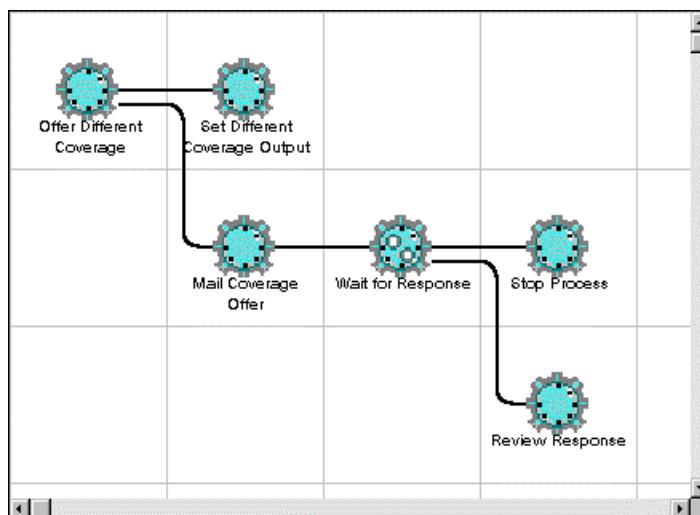
The FlowMark Validation will check to make sure that all Organization Units have Managers specified.

## 2.5 The IBM FlowMark Window

The FlowMark View window provides a graphical depiction of a Process as it would appear in the FlowMark Builder. The objects of a Process in an Activity Decision Flow Diagram (see the figure below) are translated into the appropriate objects of a FlowMark builder diagram.

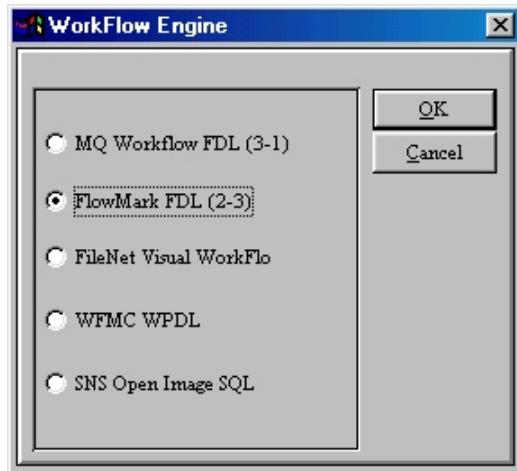


Tasks are converted to Program Activities. Process Objects are converted into Process Activities, Blocks, or Program Activities, depending on the settings. The result of the translation is a diagram similar to that in the figure below. Program Activities, Process Activities, and Blocks are shown connected by Control Connectors. Data Connectors are not shown in the FlowMark view.



To access the IBM FlowMark View window:

1.  Click on the **Workflow** tool button  of your **Process ADF Toolbar**.  
The **Workflow Engine** dialog box appears (see the figure below).



-  If you are in the **IBM FlowMark Editing Mode**, clicking the **Workflow** tool button will take you directly to the **IBM FlowMark** window.
2.  Select the **IBM FlowMark FDL** radio button.
  3.  Click **OK** or  press **Enter**. The **IBM FlowMark** window appears.

## 2.5.1 The FlowMark View Toolbar

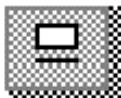
The following tools are available on the FlowMark View toolbar:

- **Pointer Tool:**  Looks like a pointing hand. When the tool is selected, the cursor will also look like a pointing hand. Use the Pointer tool to select or move single objects in the FlowMark View. When you double-click on an object, Workflow•BPRWorkflow•BPR *will not* open the dialog box for that particular object in this window. Use the Pointer tool to also insert and delete columns or rows.
- **Zoom-Out Tool:**  This button looks like a magnifying glass with a minus sign within it (see the figure on the right). Use this tool to reduce the scale of your diagram. Each time the Zoom-Out tool is clicked, the scale of your diagram is reduced by one increment.
- **Zoom-In Tool:**  This button looks like a magnifying glass with a plus sign within it (see the figure on the right). Use this tool to increase the scale of your diagram. Each time the Zoom-In tool is clicked, the scale of your diagram is increased by one increment.
- **Process Tree Tool:**  Allows you to view the Process hierarchical structure.
- **Print Tool:**  Opens the Print Preview window from which you can print a copy of the Instruction Sheet.
- **Export Tool:**  Has the image of a floppy disk with a red arrow (see the figure on the right). The Export tool is utilized to export the FlowMark FDL file in a text file format.
- **Exit Tool:**  Has a picture of an arrow pointing to an open door. This tool is used to close the window and to return to the Activity Decision Flow Diagram window.

The Process Tree view is also a specialized view that will show all the levels of Processes to help the user understand the methods of decomposition.

## 2.5.2 FlowMark View Objects

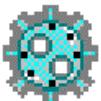
As you saw in the figure on page 2-126, the FlowMark View translates an ADF diagram into a FlowMark Process Diagram as would be seen in the FlowMark Builder. The following is a list of the icons supported for the FlowMark Process Diagram:



Source: The source of the data that is used to initiate the Process. The input data structure of the Process is the Source .



Program Activity: Has a program assigned to perform it. This program is invoked when the activity is started. When the program ends, the program activity's exit condition is evaluated. Depending on the evaluation of the exit condition, the activity either reaches finished status or returns to ready status. If a manual exit is specified for the activity, the person who starts the activity must confirm that it is finished.



Process Activity: Has a process assigned to perform it. The process is invoked when the activity is started. When the invoked process ends, the process activity's exit condition is evaluated. Depending on the evaluation, the process activity either ends or starts again.



Block: Contains a set of activities and blocks to be performed repeatedly until an exit condition for the whole set evaluates to true.



Sink: The sink is where the data that is outputs of the Process is stored. The output data structure of the Process is the Sink.

## 2.5.3 The Yellow Tag Feature

When you right-click on an object in the FlowMark View window, a Yellow Tag appears that provides information about the object. The Yellow Tag displays messages that serve two (2) main purposes:

1. The Yellow Tag displays the name of the activity in blue text.



2. If there is no program assigned to the Program Activity, then the Program Activity icon will display an X and the Yellow Tag will inform the user of the nature of the error in red text.



### 2.5.3.1 Yellow Tag Messages

Each type of icon in the Visual WorkFlo View has different Yellow Tag messages. The following sections list the messages.

#### *Program Activities*

If there are no errors, then the message displays the name of the activity. If there are any errors, the system will export the Task as No Operation.

There is one (1) type of error message:

1. There is no program assigned.

#### *Process Activities and Blocks*

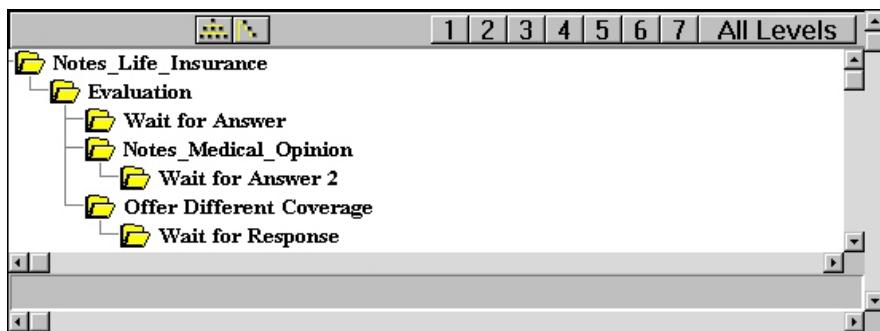
The message displays the name of the activity.

## 2.5.4 Navigating the Process Hierarchy

Workflow•BPR and FlowMark allow for a hierarchical decomposition of a Process. In FlowMark, each Process and Sub-Process is represented by a Process Diagram. Workflow•BPR generates the Diagrams of the Process Hierarchy and allows you to navigate between them. In the FlowMark View of Workflow•BPR, you can display a Tree structure of the Process Hierarchy and then click on any Process Object to access the Instruction Sheet for that Process.

To navigate through the Process Hierarchy in the FlowMark View:

1.  Click on the **Process Tree** tool button on the **FlowMark View** toolbar. A Process Tree window will appear that displays the structure of the Process with its Sub-Processes (see the figure below).



2.  Click on any of the Process Icons to open the Instruction Sheet for that Process.

## 2.6 Creating and Exporting FDL Files

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From the FlowMark View window, you can export the Process information as a FDL file. This file will conform to the FlowMark syntax.

To export FlowMark FDL files:

1.  Click on the **Export** tool button  on the **IBM FlowMark** view toolbar. The **Export FDL Options** dialog box appears (see the figure below).



2. If you do not want to export information about the organization,  deselect the **Export Organization** check box.
3. If you do not want to export information about the Processes,  deselect the **Export Process** check box.
4. If you only want to export the information about a specific Process within the Process hierarchy,  select the Process from the selection box.
  - \* The selection box will be disabled if you have deselected the **Export Process** check box.
5. If you want the FDL to be created in the format of FlowMark v2.3, then  select the **IBM FlowMark (2-3)** radio button.
6. If you want the FDL to be created in the format of MQ Workflow v3.1, then  select the **IBM MQ Workflow (3-1)** radio button.

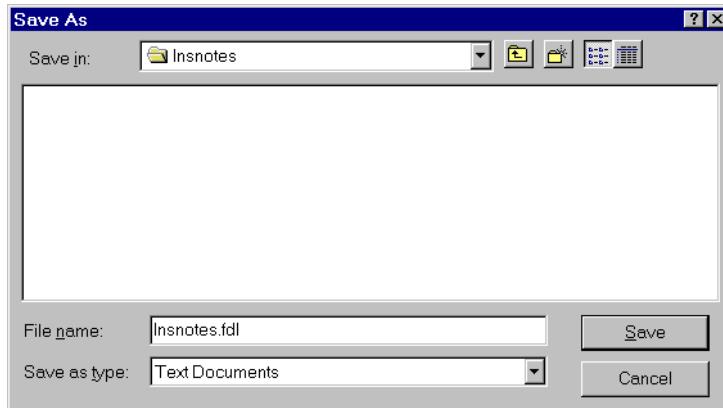
7. Click **OK** or press **Enter**. The **Note Pad** application is opened with the FDL file as the text document (see the figure below).

```

Cs2wfiaa.fdl - Notepad
File Edit Search Help
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
Source      : WorkflowBPR / HOLOSOFX
Target      : IBM FlowMark
Exported Items : STRUCTURES, PROGRAM_ACTIVITY, CONTROL
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx/
CODEPAGE 850 FM_RELEASE U2R3
/***** Servers *****/
/***** Structures *****/
STRUCTURE 'AcceptReject'
    DESCRIPTION 'AcceptReject'
    'CustInfo' : 'CustInfo';
    'Actions' : 'Actions';
    DESCRIPTION 'Actions'
;
    'RejectReason' : STRING ;
    'DocID' : 'DocID';
END 'AcceptReject'
STRUCTURE 'Actions'
    DESCRIPTION 'Actions'
    'Recommendation' : STRING ;
    'StudyFolder' : STRING ;
    'RequestMoreInfo' : STRING ;
    'MedicalOpinion' : STRING ;
    'SubprocessUserID' : STRING ;

```

8. If you created the FDL only and are in the Note Pad application, Choose **Save As** from the **File** menu. The **Save As** dialog box appears (see the figure below).



## **Chapter 2: Integration with IBM FlowMark**

9. Navigate through the tree chart in the **Save in** selection box and  select a directory in which to place the FDL text file.
  10.  Type the name of the text file where you want to save your FDL data in the **File Name** text box.
  11.  Click **OK** or  press **Enter**.
-  **The file that is created will have an extra “.txt” extension. Go to the Windows Explorer or File Manager to remove the extension.**

# Chapter 3: Integration with IBM MQ Workflow

**M**Q Workflow is IBM's next phase after FlowMark in Business Process Management. It is based on the concept of Message Queuing (MQ), a system of communication between an administration server and user clients. It allows the transfer of database information through the levels of a prescribed hierarchy: Domain, System Group, System, Process, and Activity. Like IBM FlowMark, it integrates the tasks performed by computer programs with the everyday tasks of staff members. Using MQ Workflow, you can start Processes, manage Processes that are already started, and track Processes and the status of activities assigned to staff members.

Workflow•BPR contains all the information you will need to define a Process Model that can be managed by the MQ Workflow Runtime.

- ☞ This chapter has been written based on the assumption that you are familiar with the MQ Workflow Builder and Runtime applications. For details not covered in this chapter, refer to the IBM MQ Workflow documentation.**
  
- ☞ In addition, this chapter has been written based on the assumption that you are familiar with Workflow•BPR and have created Process Models that you want to prepare for export as an FDL file. For details about Workflow•BPR modeling procedures not covered in this chapter, refer to the *Workflow•BPR User's Guide* and *Modeling Guide*.**

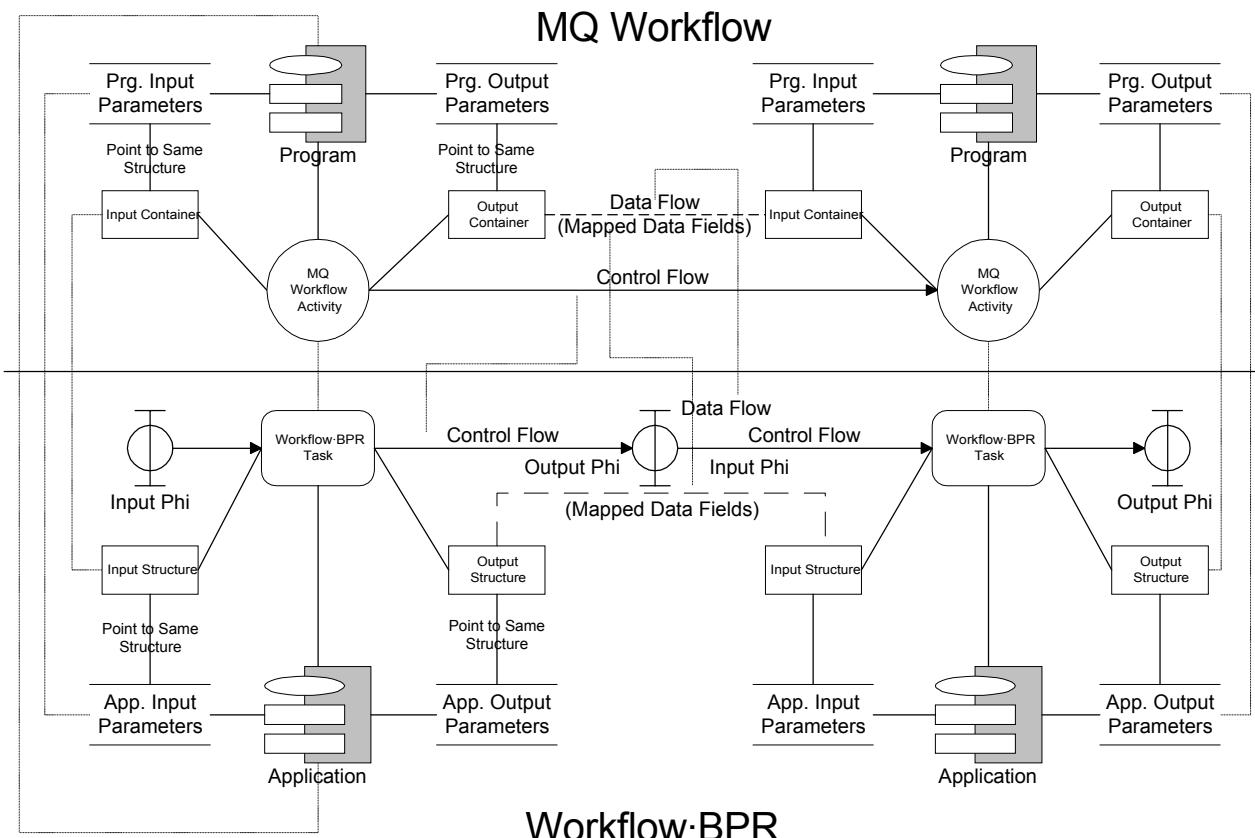
## 3.1 Introduction

---

Workflow•BPR is a software tool that allows organizations to model, analyze, and optimize their Processes. In addition to preparing the structure of the Processes so that the organization can take full advantage of the capabilities of MQ Workflow, Workflow•BPR provides direct linkage to MQ Workflow. The Processes developed in Workflow•BPR can be exported as workable files, which can be used directly by MQ Workflow. The following sections will cover these points:

1. Preparing a Process for Export into the MQ Workflow Environment
2. Modeling Conventions for Compatibility with MQ Workflow
3. The IBM MQ Workflow Window
4. Creating and Exporting FDL Files

The figure below depicts the basic architecture of MQ Workflow (in the top half) and how this architecture is represented in Workflow•BPR (in the bottom half). The dotted lines, which are drawn from the top half to the bottom half of the figure, mark MQ Workflow objects and their corresponding Workflow•BPR objects. For example, a MQ Workflow Activity is equivalent to a Workflow•BPR Task.



## 3.2 Preparing a Process for Export into the MQ Workflow Environment

---

After a To-Be Process has been defined, then the Process can be integrated into a MQ Workflow environment. Another advantage for using Workflow•BPR is that the model of the To-Be Process can be exported for use by MQ Workflow. There is no duplication of effort.

To prepare a Process Model for export to MQ Workflow:

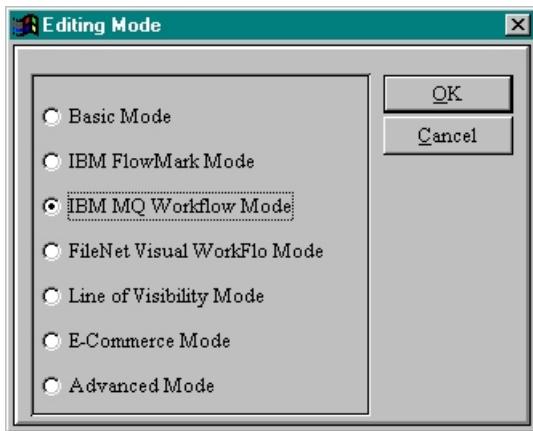
1. Define the Organization Setting and Roles.
2. Define the Level Settings.
3. Define the Staff and associate them with Roles.
4. Define the Data Structures that are required for the programs and activity Input and Output Containers and add them to the Repository.
5. Define the Applications that represent the Programs or Functions that are controlled by the workflow engine.
  - \* This includes assigning Input and Output Data Structures to the Applications.
6. Define the MQ Workflow Settings, i.e., Domain, System Group, System, Node, and Queue Manager.
7. Assign the Applications (Programs) to the Tasks in the Process.
8. Define the settings of the MQ Workflow Activities.
  - \* The Process
  - \* Process Activities and Blocks
  - \* Program Activities
9. Assign the Data Structures for the Source and Sink of the Process.
10. Map the Data Structure Fields from one Task to another.
11. Add Expressions to Decision Choices to serve as the rules for Branches.
12. Validate the Process for consistency with MQ Workflow.
13. Select the Process and go to the MQ Workflow view to export the Process information.

### 3.2.1 Setting Workflow•BPR for the MQ Workflow Editing Mode

The process modeling capabilities of Workflow•BPR can be used for many purposes. The data required for modeling in preparation for integration with one Workflow application can be different than the data required for another Workflow application. To avoid confusion of what data is applied for which purpose, Workflow•BPR will configure the Activity Decision Flow Diagram dialog boxes and menus so that the data will be applied towards one purpose, and all data not relevant for MQ Workflow integration will be hidden from view. There is a difference between the IBM FlowMark Editing Mode and the IBM MQ Workflow Editing Mode, and the settings are very specific for each version of the IBM product. Therefore, if you are building a model for the MQ Workflow product, then you should not use the IBM FlowMark Editing Mode.

To set Workflow•BPR for the MQ Workflow Editing Mode:

1. Choose **Editing Mode** from the **Format** menu. The **Editing Mode** dialog box will appear (see the figure below).



2. Select the **IBM MQ Workflow Mode** radio button.
3. Click **OK** or press **Enter**. The ADF object dialog boxes will be configured to support process modeling for the purpose of integrating with MQ Workflow.

You can also type **Alt+3** to set the **Editing Mode** to the **IBM MQ Workflow Editing Mode**.

The current **Editing Mode** will be displayed in the status bar at the bottom of the Workflow•BPR application. If the **Editing Mode** is not displayed then click on the main menu bar (away from a menu item).

### 3.3 Define the Organization Setting

---

MQ Workflow maintains information about the organization in order to ensure that the work gets routed to the appropriate person. The creation of the organization structure is generally done during the initial creation of the Process Model. If you haven't defined the Organization Units at this time (i.e., preparing the model for MQ Workflow integration), then refer to the section entitled "Organization Units" in Chapter 2 of the *User's Guide*.

The information about Organization Units is captured with the **Organization Units** dialog box. The Manager of an Organization Unit is mandatory if the organization data is to be exported to MQ Workflow. The absence of a Manager is detected in the MQ Workflow Validation report (refer to the section entitled The MQ Workflow Validation Report on page 3-208).

The following table displays the MQ Workflow to Workflow•BPR conversions for Organization Units:

<b><u>MQ Workflow</u></b>	<b><u>Workflow•BPR</u></b>	
<b><u>Organization Setting</u></b>	<b><u>Organization Unit</u></b>	<b><u>Location</u></b>
Name	Name	General tab
Description	Notes	Notes tab
Manager User ID	Manager	General tab
Parent Organization Name	Head Unit	General tab
Members	Deduced from Employees related to Organization Unit	

### 3.4 Define the Roles

---

MQ Workflow maintains information about the organization in order to ensure that the work gets routed to the appropriate person. The definition of the Roles is generally done during the initial creation of the Process Model. If you haven't defined the Roles at this time (i.e., preparing the model for MQ Workflow integration), refer to the section entitled "Roles" in Chapter 2 of the *User's Guide*.

The information about Roles is captured with the **Roles** dialog box. The following table displays the MQ Workflow to Workflow•BPR conversions for Roles:

<b><u>MQ Workflow</u></b>	<b><u>Workflow•BPR</u></b>	
<b><u>Role</u></b>	<b><u>Role</u></b>	<b><u>Location</u></b>
Name	Name	General Tab
Description	Coordinator	General Tab
Coordinator User ID	Notes	Notes Tab
Members	Deduced from Employees related to Role	

## 3.5 Define the MQ Workflow Hierarchy

---

### 3.5.1 Domain

 The Domain dialog box is available only in the IBM MQ Workflow Editing Mode; it is not available in any other Editing Mode.

There are three levels of hierarchy in the IBM MQ Workflow environment: Domain, System Group, and System. Workflow•BPR allows for the field-level description of each of these levels of hierarchy, so that a Workflow•BPR Process edited in the IBM MQ Workflow Editing Mode can be smoothly translated into an IBM MQ Workflow FDL file. This section deals with the Domain level of the hierarchy.

The information about the Domain is captured with the **Domain** dialog box. Each of the tabs in the Domain dialog box is described in the sections below. The following table displays the MQ Workflow to Workflow•BPR conversions for Domains.

<b><u>MQ Workflow</u></b>	<b><u>Workflow•BPR</u></b>	
<b>Domain</b>	<b>Domain</b>	<b>Location</b>
Name	Name	General Tab
Description	Description	General Tab
Maximum Message Size	Message Size	General Tab
Unlimited Message Size	Unlimited Message	General Tab
Execute Dlls In Fenced Mode	Execute Dlls In Fenced Mode	Program/Import Tab
Keep Dlls Loaded	Keep Dlls Loaded	Program/Import Tab
Dlls Use Flowmark Version 2 Signature	Dlls Use Flowmark Version 2 Signature	Program/Import Tab
Input Container Access	Input Container Access	Program/Import Tab
Output Container Access	Output Container Access	Program/Import Tab
Execution User	Execution User	Program/Import Tab
Execution Mode	Execution Mode	Program/Import Tab
Trust Mode	Trust Mode	Program/Import Tab
Dll Load Mode	Dll Load Mode	Pea/Oper/Session Tab
System Qualifier	System Qualifier	Pea/Oper/Session Tab
Error Retention Period	Error Retention Period	Pea/Oper/Session Tab
Message Retention Period	Message Retention Period	Pea/Oper/Session Tab
External Restart Mechanism	External Control Mechanism	Message/Restart Tab
Context Information For Restart Manager	Context	Message/Restart Tab
Session Expiration Time Check Interval	Session Expiration Check Time Interval	Pea/Oper/Session Tab
Session Expiration Time	Session Expiration Time	Pea/Oper/Session Tab
Unified Logon For Windows NT Clients	Unified Logon For Winnt Clients	PEA/Oper/Session Tab
Overwrite Existing Objects	Overwrite Existing Objects	Program/Import Tab
Message Layer Refresh Interval	Message Layer Refresh Interval	Message/Restart Tab
Query Message Size	Query Message Size	Message/Restart Tab
Client Message Expiration Time	Client message expiration time	Message/Restart Tab

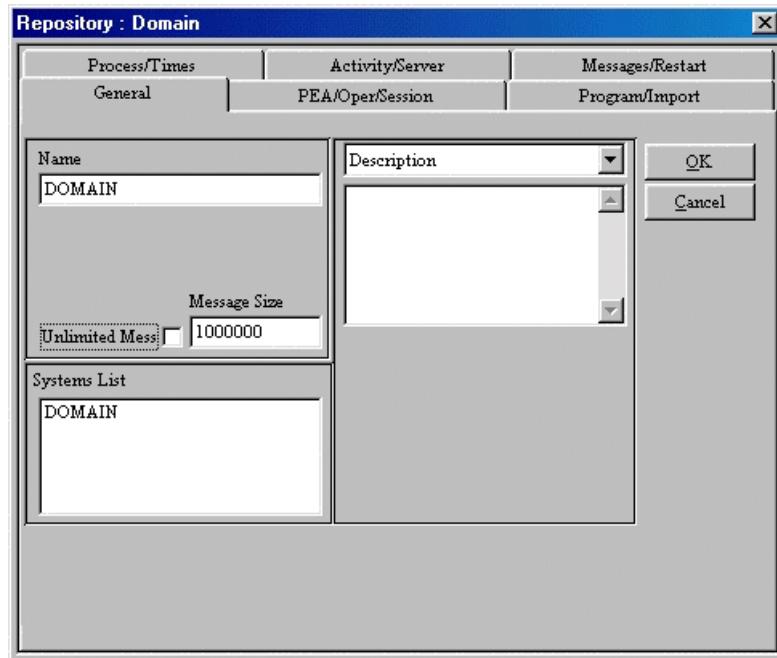
Message Retry Limit	Message Retry Limit	Message/Restart Tab
<b>Domain, Cont.</b>	<b>Domain</b>	<b>Location</b>
Complete Execution Server Settings	Execution Server	Activity/Server Tab
Complete Scheduling Server Settings	Scheduling Server	Activity/Server Tab
Complete Cleanup Server Settings	Cleanup Server	Activity/Server Tab
Complete Program Execution Server Settings	Program Execution Server	Activity/Server Tab
Autonomy	Autonomy	Process/Times Tab
Audit Trail Settings	Audit Trail Settings	Process/Times Tab
Work Items Refresh Policy	Work Item Refresh	Process/Times Tab
Notification Mode	Notification Mode	Process/Times Tab
Keep Finished Process Times (Retention Time)	Keep Finished Process Times	Process/Times Tab
Keep Finished Work Items Time (Retention Time)	Keep Finished Work	Process/Times Tab
Program Activity Can be Checked Out	Program Activity Can be Checked Out	Activity/Server Tab
Include Process Assignment	Include Process Assignment	Activity/Server Tab
Prefer Local Users	Prefer Local Users	Activity/Server Tab
Prefer Not Absent Users	Prefer Not Absent Users	Activity/Server Tab
Assign Substitute If User Is Absent	Assign Substitute If User Is Absent	Activity/Server Tab
Assign Substitute For Notification If User Is Absent	Assign Substitute For Notification If User Is Absent	Activity/Server Tab
Send Second Notification To Same User	Send Second Notification For Same User	Activity/Server Tab

### 3.5.1.1 General

This tab gathers general information about the Domain.

To create or modify an IBM MQ Workflow Domain Repository item:

1. Select Organization Data from the Repository menu. A sub-menu will appear.
2. Select Domain from the sub-menu. The Domain dialog box will appear—open to the **General** tab (see the figure below).



3. Type the name of the Domain in the **Name** text box.
  - \* You can also select a name from the **Systems List** list box.
  - \* This field is required.
4. Select the **Unlimited Mess** checkbox to allow Domain messages of unlimited size.
  - \* If the **Unlimited Mess** checkbox is not selected, then you must type the number, in bytes, of the maximum allowable message size in the **Message Size** text box.
    - The IBM default is “**1000000**” bytes (1 MB).
    - This field is required.

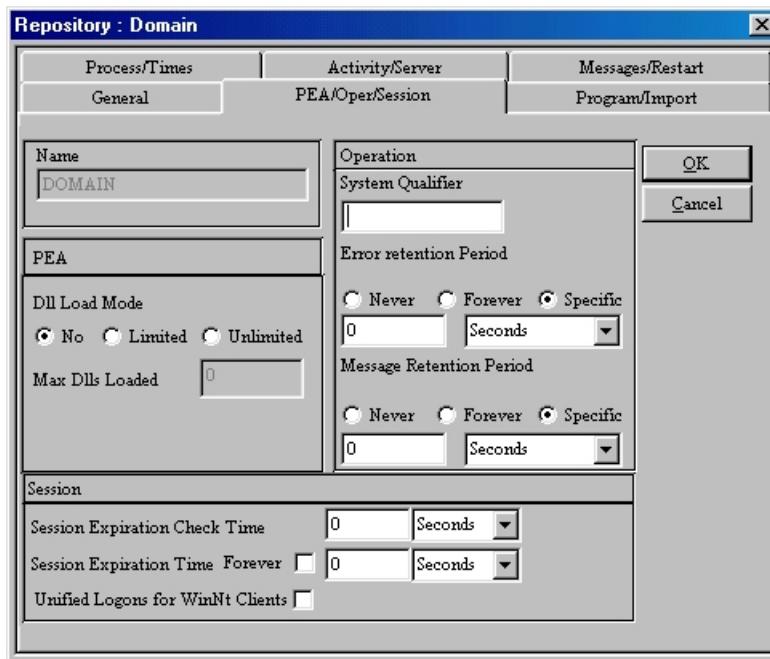
5.  Select a Notes Header from the drop-down list in the Notes Header selection box.
  - \* There are two (2) independent types of Notes available for a Domain: **Description** (default) and **Documentation**.
6.  Type the Notes appropriate to the Header you have selected in the text box below the Notes Header selection box.
  - \* The Notes pertaining to the **Description** Header will be exported in the FDL file.
  - \* If you want to add a **Carriage Return** to the text of your notes,  type **Ctrl+Enter**.

### 3.5.1.2 PEA/Oper/Session

This tab gathers information about the Domain's Program Execution Agent, Operator, and Session.

To create or modify an IBM MQ Workflow Domain PEA/Oper/Session item:

1. Select the **PEA/Oper/Session** tab in the **Domain** dialog box (see the figure below).



2. Select the **No** radio button in the **DLL Load Mode** box to keep no inactive DLL files loaded.
3. Select the **Limited** radio button in the **DLL Load Mode** box to keep a specific number of inactive DLL files loaded.
  - \* Type the specific number of inactive DLL files to be kept loaded in the **Max Dlls Loaded** text box.
4. Select the **Unlimited** radio button in the **DLL Load Mode** box to keep all inactive DLL files loaded (default).
5. Type the name of the System Qualifier in the **System Qualifier** text box.
  - \* The IBM default is “FMC.”

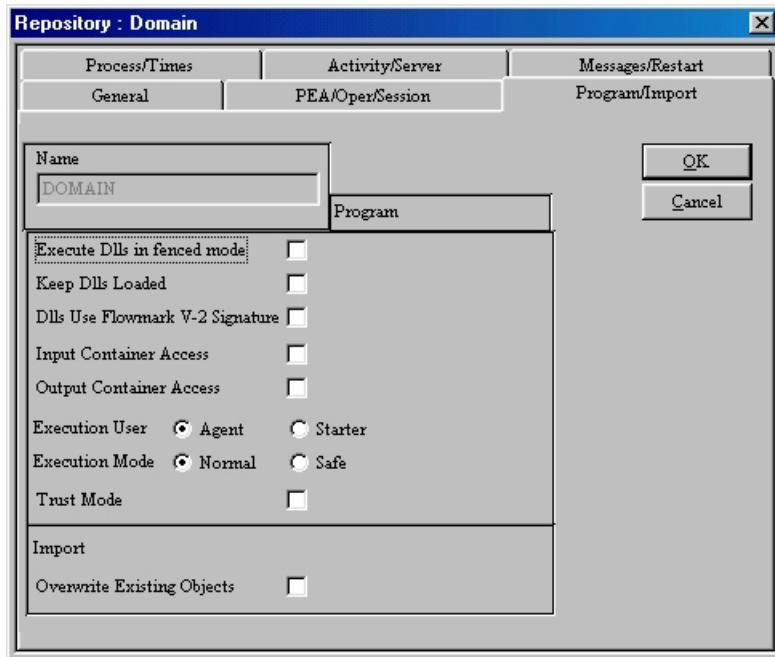
6.  Select the **Never** radio button below the **Error Retention Period** label to keep no error messages in the error database of the administration server.
7.  Select the **Forever** radio button below the **Error Retention Period** label to keep all error messages in the error database of the administration server.
8.  Select the **Specific** radio button below the **Error Retention Period** label to keep only those error messages that issued within a specific past time frame (default).
  - \*  Select the units of time from the drop-down list in the box on the right.
    - The IBM default is “**Days**.”
  - \*  Type the specific number of those units in the box on the left.
    - The IBM default is “7.”
9.  Select the **Never** radio button in the **Message Retention Period** box to keep no messages in the message database of the administration server.
10.  Select the **Forever** radio button in the **Message Retention Period** box to keep all messages in the message database of the administration server.
11.  Select the **Specific** radio button in the **Message Retention Period** box to specify how long messages are kept in the message database of the administration server (default).
  - \*  Select the units of time from the drop-down list in the box on the right.
    - The IBM default is “**Days**.”
  - \*  Type the specific number of those units in the box on the left.
    - The IBM default is “7.”
12. Enter the **Session Expiration Check Time**:
  - \*  Select the units of time from the drop-down list in the box on the right.
  - \*  Type the specific number of those units in the box on the left.
13.  Select the **Forever** checkbox to set no time limit for the session—i.e., the session is never terminated by the system (default).
  - \* If the **Forever** checkbox is not selected, then you must enter the **Session Expiration Time**:
    - Select the units of time from the drop-down list in the box on the right.
    - Type the specific number of those units in the box on the left.
14.  Select the **Unified Logons for WinNt Clients** check box to have MQ Workflow takes its user ID and password from the Windows NT logon. (Do not select the check box if the MQ Workflow user must enter a separate user ID and password.)

### 3.5.1.3 Program/Import

This tab gathers information about the Domain's Program and Import parameters.

To create or modify an IBM MQ Workflow Domain Program/Import item:

1. Select the **Program/Import** tab in the **Domain** dialog box (see the figure below).



2. Select the **Execute Dlls in Fenced Mode** checkbox to have the PEA and program Dll files run in separate processes (default).
3. Select the **Keep Dlls Loaded** checkbox to have the PEA keep program Dll files loaded (default).
4. Select the **Dlls Use Flowmark V-2 Signature** checkbox to use the Version 2 signature to invoke a Dll file.
  - \* The IBM default is the **Dlls Use Flowmark V-2 Signature** checkbox not selected (the Version 3 signature is used).
5. Select the **Input Container Access** checkbox to have the program access the input container of the activity (default).
6. Select the **Output Container Access** checkbox to have the program access the output container of the activity (default).
7. Select the **Agent** radio button beside the **Execution User** label to run the program under the operating system identifier of the PEA or server (default).
  - \* If the **Execute Dlls in Fenced Mode** checkbox is not selected, then the **Agent** radio button must be selected.

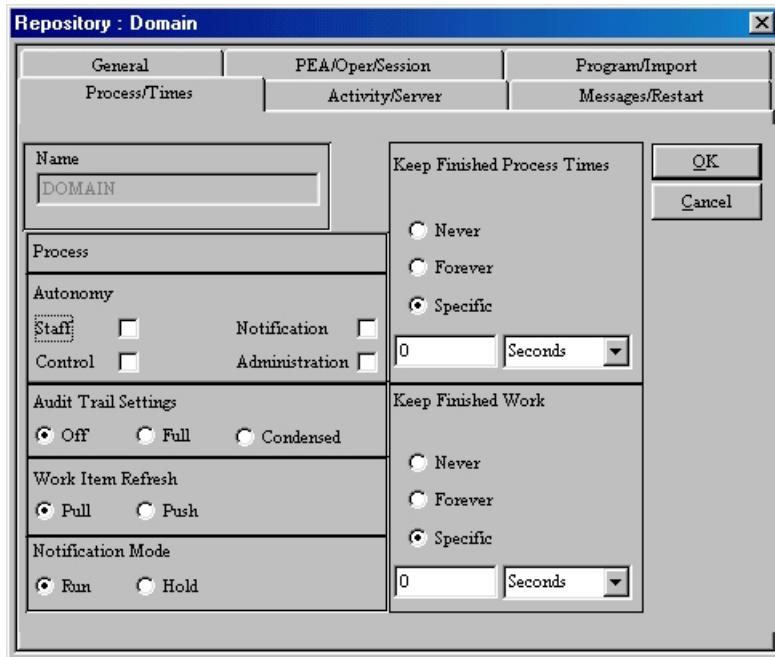
8.  Select the **Starter** radio button beside the **Execution User** label to run the program under the operating system identifier of the user who started the work item associated with the activity.
  - \* The operating system identifier is set equal to the IBM MQ Workflow user ID.
  - \* The **Starter** radio button can only be selected for an EXE, a fenced DLL, or external services.
  - \* The **Starter** radio button cannot be selected unless the **Execute Dlls in Fenced Mode** checkbox is also selected.
9.  Select the **Normal** radio button beside the **Execution Mode** label to send non-persistent messages among IBM MQ Workflow components (default).
10.  Select the **Safe** radio button beside the **Execution Mode** label to send persistent messages IBM MQ Workflow components.
  - \* If the **Safe** radio button is selected for both **Execution Mode** and **Support Mode** (refer to the section—for Domain—entitled “Program Execution Server” on page 3-30), the program runs as a safe application in the transaction context of the Program Execution Server.
11.  Select the **Trust Mode** checkbox to have the executable program obtain a correlation ID.
  - \* The IBM default is the **Trust Mode** checkbox not selected.
12.  Select the **Overwrite Existing Objects** checkbox to overwrite the currently existing object in the database during import.

### 3.5.1.4 Process/Times

This tab gathers information about the Domain's Process and Times parameters.

To create or modify an IBM MQ Workflow Domain Process/Times item:

1. Select the **Process/Times** tab in the **Domain** dialog box (see the figure below).



2. Select the **Staff** checkbox in the **Autonomy** box to disregard the organization and staff of the parent process.
3. Select the **Control** checkbox in the **Autonomy** box to disregard the terminate, suspend, and resume requests from the parent process (default).
4. Select the **Notification** checkbox in the **Autonomy** box to disregard the notification specifications of the parent process.
5. Select the **Administration** checkbox in the **Autonomy** box to disregard the process administrator of the parent process.
6. Select the **Off** radio button in the **Audit Trail Settings** box to keep no audit trail records (default).
7. Select the **Full** radio button in the **Audit Trail Settings** box to keep a full set of audit trail records.
8. Select the **Condensed** radio button in the **Audit Trail Settings** box to keep a limited set of audit trail records.
9. Select the **Pull** radio button in the **Work Items Refresh** box to make the user explicitly request to receive new work items in the user's Worklist (default).

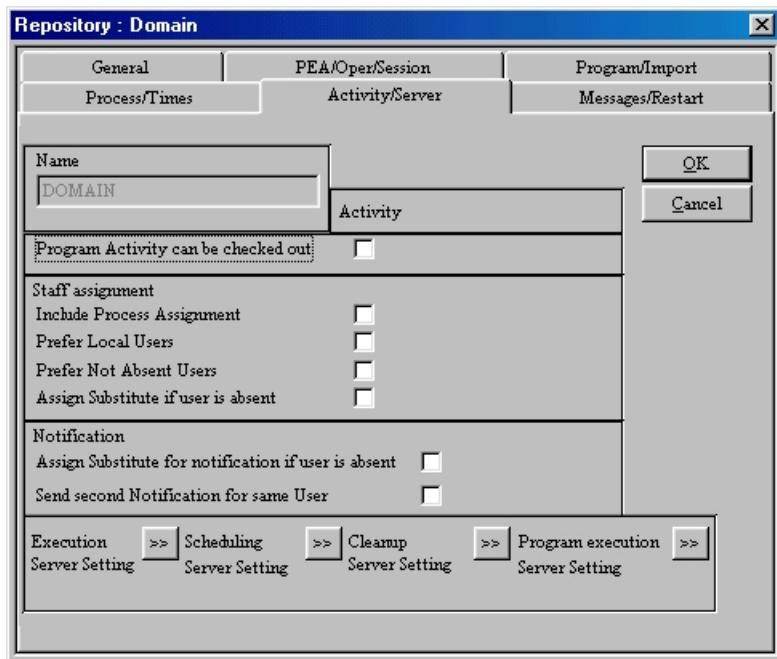
10. Select the **Push** radio button in the **Work Items Refresh** box to have the user automatically receive new work items in the user's worklist.
11. Select the **Run** radio button in the **Notification Mode** box to have the notification timer continue running when the process instance is suspended (default).
12. Select the **Hold** radio button in the **Notification Mode** box to have the notification timer pause when the process instance is suspended.
13. Select the **Never** radio button in the **Keep Finished Process Times** box to keep no finished processes (default).
14. Select the **Forever** radio button in the **Keep Finished Process Times** box to keep all finished processes.
15. Select the **Specific** radio button in the **Keep Finished Process Times** box to specify how long finished processes are kept.
  - \* Select the units of time from the drop-down list in the box on the right.
  - \* Type the specific number of those units in the box on the left.
16. Select the **Never** radio button in the **Keep Finished Work** box to keep no finished work items (default).
17. Select the **Forever** radio button in the **Keep Finished Work** box to keep all finished work items.
18. Select the **Specific** radio button in the **Keep Finished Work** box to specify how long finished work items are kept.
  - \* Select the units of time from the drop-down list in the box on the right.
  - \* Type the specific number of those units in the box on the left.

### 3.5.1.5 Activity/Server

This tab gathers information about the Domain's Activity and Server parameters.

To create or modify an IBM MQ Workflow Domain Activity/Server item:

1. Select the **Activity/Server** tab in the **Domain** dialog box (see the figure below).



2. Select the **Program Activity Can Be Checked Out** checkbox to allow program activities to be checked out (default).
3. Select the **Include Process Assignment** checkbox in the **Staff Assignment** box to use the role and organization settings of the process model as part of the final staff assignment of the activity (default).
4. Select the **Prefer Local Users** checkbox in the **Staff Assignment** box to have staff resolution prefer local users to receive work items in a distributed environment (default).
5. Select the **Prefer Not Absent Users** checkbox in the **Staff Assignment** box to have staff resolution prefer users who are not absent to receive work items (default).
6. Select the **Assign Substitute if User is Absent** checkbox in the **Staff Assignment** box to have staff resolution select a substitute if the user is absent.

7.  Select the **Assign Substitute for Notification if User is Absent** checkbox in the **Notification** box to have the substitute for a user receive the notification (default).
8.  Select the **Send Second Notification for Same User** checkbox in the **Notification** box to have a second notification sent to the same person who received the first notification (default).

Each of the buttons in the **Server Settings** box – **Execution Server Setting**, **Scheduling Server Setting**, **Cleanup Server Setting**, and **Program Execution Server Setting** – opens a new dialog box. These are discussed in the following sections.

### *Execution Server Setting*

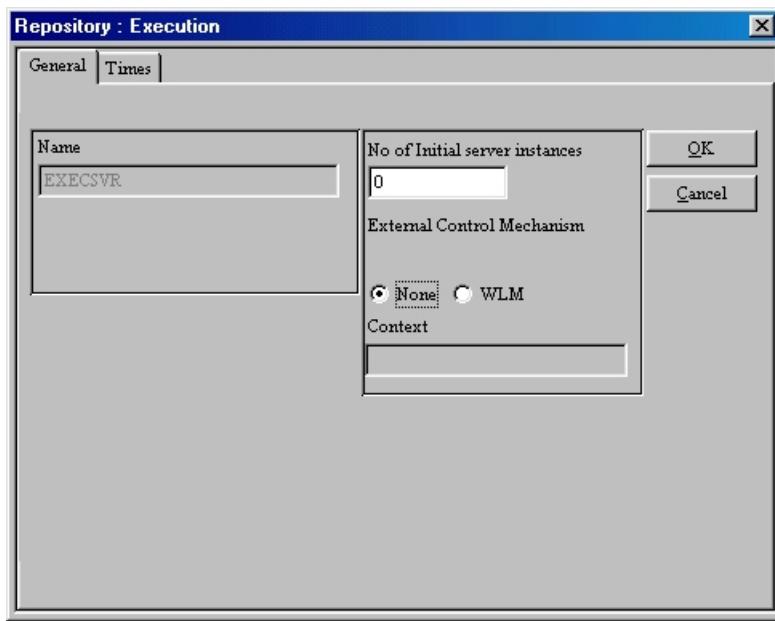
This dialog box gathers information about the Domain's Execution Server. There are two tabs in this dialog box: **General** and **Times**. These tabs are discussed in the sections below. The following table displays the MQ Workflow to Workflow•BPR conversions for Execution Servers.

<b><u>MQ Workflow</u></b>	<b><u>Workflow•BPR</u></b>	
<b><u>Execution Server</u></b>	<b><u>Execution Server</u></b>	<b><u>Location</u></b>
Number of Initial Server Instances	No. of Initial server instances	Execution Server Dialog Box in the Domain, System, Group, and System Dialog Box
External Control Mechanism	External Control Mechanism	Execution Server Dialog Box in the Domain, System, Group, and System Dialog Box
Context Information For External Control	Context	Execution Server Dialog Box in the Domain, System, Group, and System Dialog Box
Check Interval	Check Interval	Execution Server Dialog Box in the Domain, System, Group, and System Dialog Box
Navigation Transaction Threshold	Navigation Threshold	Execution Server Dialog Box in the Domain, System, Group, and System Dialog Box
Immediate Cleanup	Immediate Cleanup	Execution Server Dialog Box in the Domain, System, Group, and System Dialog Box
Name	Name	Execution Server Dialog Box in the System Dialog Box
Description	Description	Execution Server Dialog Box in the System Dialog Box
System	System	General Tab, System Dialog Box
Documentation	Documentation	Execution Server Dialog Box in the System Dialog Box

### General

This tab gathers general information about the Domain's Execution Server. To modify this information:

1. Click on the **Execution Server Setting** button. The **Execution** dialog box will appear—open to the **General** tab (see the figure below).

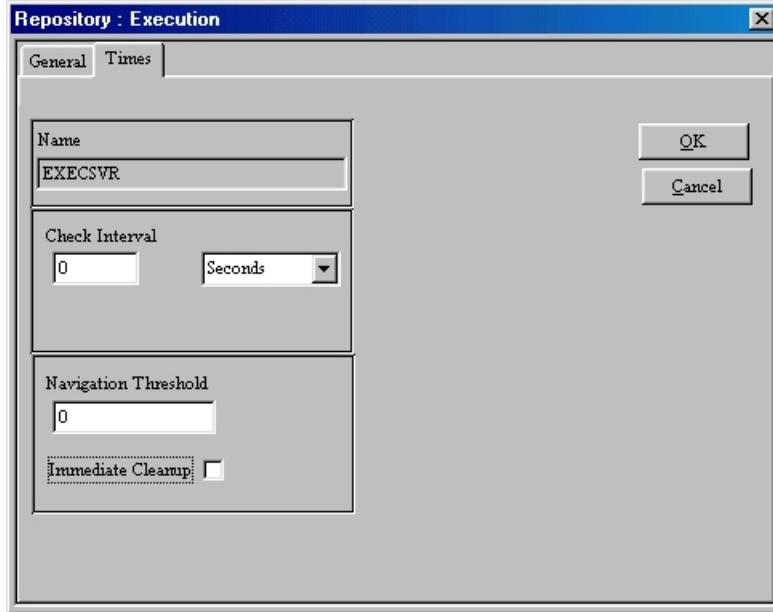


2. Type the number of multiple-instance Execution Server hotpool instances to be created when an Execution Server is started in the **No of Initial Server Instances** text box.
  - \* The IBM default is “5.”
3. Select the **None** radio button below the **External Control Mechanism** label to have the start and stop of the Execution Server and the number of hotpool instances not controlled externally (default).
4. Select the **WLM** radio button below the **External Control Mechanism** label to have the OS/390 workload manager control all servers.
  - \* If the **WLM** radio button is selected, then you must type in the **Context** text box the context string that is passed from the administration server to the control mechanism.

*Times*

This tab gathers timer information about the Domain's Execution Server. To modify this information:

1. Select the **Times** tab in the **Execution** dialog box (see the figure below).



2. Enter the desired Execution Server check interval rate in the boxes below the **Check Interval** label.
  - \* Select the units of time from the drop-down list in the box on the right.
  - \* Type the specific number of those units in the box on the left.
3. Type the maximum number of generated work items to be allowed within a navigation transaction in the **Navigation Threshold** text box.
  - \* If the number of generated work items exceeds this number, the transaction becomes a stratified transaction.
  - \* The IBM default is “10.”
4. Select the **Immediate Cleanup** checkbox to physically remove process instances and work items at the time they are marked deleted.
  - \* If the **Immediate Cleanup** checkbox is not selected, process instances and work items marked deleted are physically removed by the cleanup server.

### *Scheduling Server Setting*

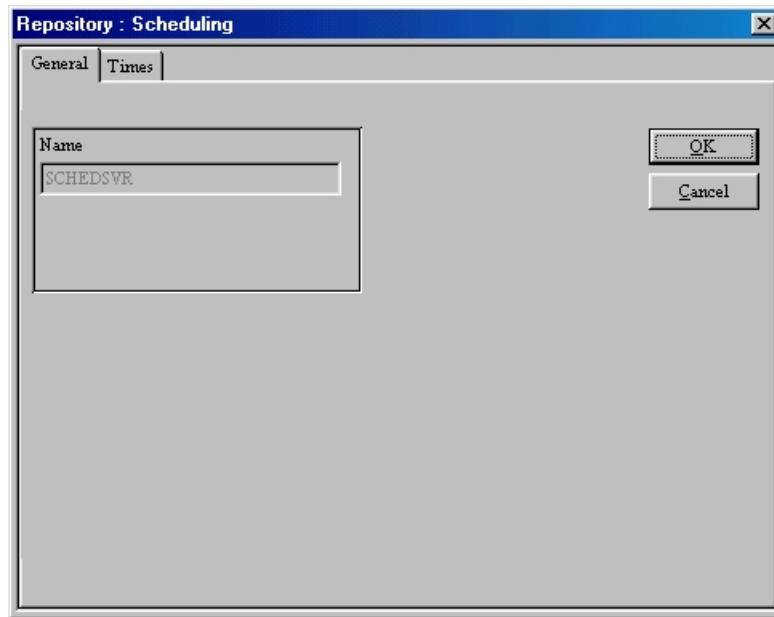
This dialog box gathers information about the Domain's Scheduling Server. There are two tabs in this dialog box: **General** and **Times**. These tabs are discussed in the sections below. The following table displays the MQ Workflow to Workflow•BPR conversions for Scheduling Servers.

<u>MQ Workflow</u>	<u>Workflow•BPR</u>	
<u>Scheduling Server</u>	<u>Scheduling Server</u>	<u>Location</u>
Check Interval	Check Interval	Scheduling Server Dialog Box in the Domain, System, Group, and System Dialog Box
Server Start/Stop Time	Server Start Time Server Stop Time Start Mode	Scheduling Server Dialog Box in the Domain, System, Group, and System Dialog Box
Notification Check Interval	Notification Check Interval	Scheduling Server Dialog Box in the Domain, System, Group, and System Dialog Box
Number of notification items deleted by the scheduling server in one transaction	Deletion Notification Threshold	Scheduling Server Dialog Box in the Domain, System, Group, and System Dialog Box
Number of notification item requests the scheduling server sends to the execution server in one transaction	Requests Notification Threshold	Scheduling Server Dialog Box in the Domain, System, Group, and System Dialog Box
Name	Name	Scheduling Server Dialog Box in the System Dialog Box
Description	Description	Scheduling Server Dialog Box in the System Dialog Box
System	System	General Tab, System Dialog Box
Documentation	Documentation	Scheduling Server Dialog Box in the System Dialog Box

*General*

This tab displays general information about the Domain's Scheduling Server. To view this information:

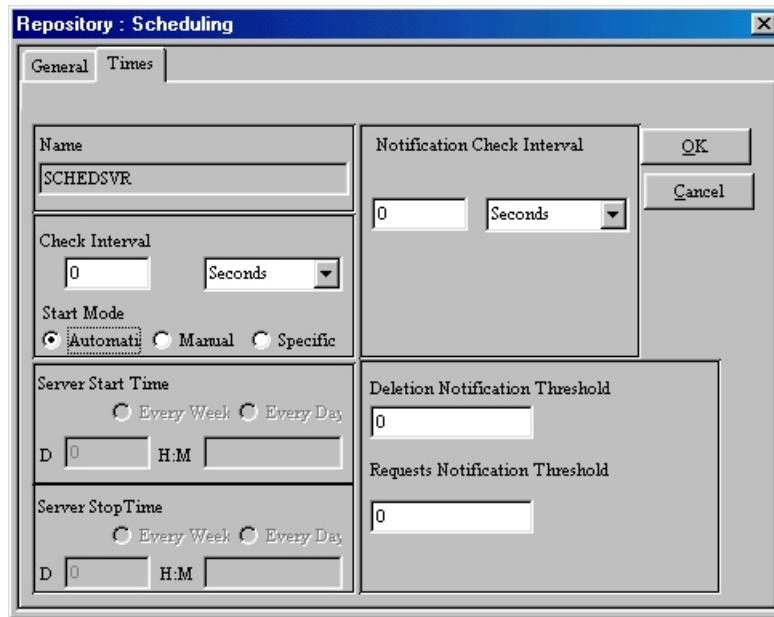
1.  Click on the Scheduling Server Setting button. The **Scheduling** dialog box will appear—open to the **General** tab (see the figure below).



### Times

This tab gathers times information about the Domain's Scheduling Server. To modify this information:

1. Select the **Times** tab in the **Scheduling** dialog box (see the figure below).



2. Enter the desired Scheduling Server check interval rate in the boxes below the **Check Interval** label.
  - \* Select the units of time from the drop-down list in the box on the right.
  - \* Type the specific number of those units in the box on the left.
3. Select the **Automatic** radio button below the **Start Mode** label to start and stop the Scheduling Server automatically with the start and stop of the corresponding IBM MQ Workflow system.
4. Select the **Manual** radio button below the **Start Mode** label to start and stop the Scheduling Server manually with the operation administration command.
5. Select the **Specific** radio button below the **Start Mode** label to start and stop the Scheduling Server as defined by the **Server Start Time** and the **Server Stop Time** (default).
6. Select the **Every Week** radio button in the **Server Start Time** box to start the Scheduling Server every week on a regular day and at a regular time.
  - \* Enter the day of the week in the **D** text box.
    - Type the number, **1...7**, corresponding to the desired day, **Sunday...Saturday**.

- \* Enter the time of day in the **H:M** text box.
    - Type the two digits of the hour, **00...23**, then a colon, then the two digits of the minute, **00...59**, i.e., **HH:MM**.
7.  Select the **Every Day** radio button in the **Server Start Time** box to start the Scheduling Server every day at a regular time.
- \* Enter the time of day in the **H:M** text box.
    - Type the two digits of the hour, **00...23**, then a colon, then the two digits of the minute, **00...59**, i.e., **HH:MM**.
8.  Select the **Every Week** radio button in the **Server Stop Time** box to stop the Scheduling Server every week on a regular day and at a regular time.
- \* Enter the day of the week in the **D** text box.
    - Type the number, **1...7**, corresponding to the desired day, **Sunday...Saturday**.
  - \* Enter the time of day in the **H:M** text box.
    - Type the two digits of the hour, **00...23**, then a colon, then the two digits of the minute, **00...59**, i.e., **HH:MM**.
9.  Select the **Every Day** radio button in the **Server Stop Time** box to stop the Scheduling Server every day at a regular time.
- \* Enter the day of the week in the **D** text box.
    - Type the number, **1...7**, corresponding to the desired day, **Sunday...Saturday**.
  - \* Enter the time of day in the **H:M** text box.
    - Type the two digits of the hour, **00...23**, then a colon, then the two digits of the minute, **00...59**, i.e., **HH:MM**.
10. Enter the desired notification check interval rate in the boxes below the **Notification Check Interval** label.
- \*  Select the units of time from the drop-down list in the box on the right.
  - \*  Type the specific number of those units in the box on the left.
11.  Type the number of notification items to be deleted by the server in one transaction in the **Deletion Notification Threshold** text box (required).
- \* The IBM default is “**100**.”
12.  Type the number of notification item requests to be sent from the Scheduling Server to the Execution Server in one transaction in the **Requests Notification Threshold** text box (required).
- \* The IBM default is “**100**.”

*Cleanup Server Setting*

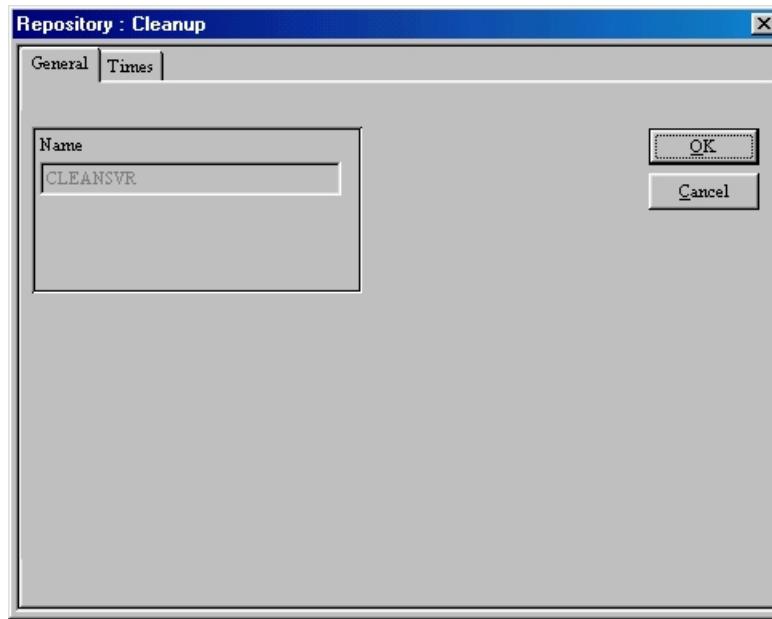
This dialog box gathers information about the Domain's Cleanup Server. There are two tabs in this dialog box: **General** and **Times**. These tabs are discussed in the sections below. The following table displays the MQ Workflow to Workflow•BPR conversions for Cleanup Servers.

<u>MQ Workflow</u>	<u>Workflow•BPR</u>	
<u>Cleanup Server</u>	<u>Cleanup Server</u>	<u>Location</u>
Check Interval	Check Interval	Cleanup Server Dialog Box in the Domain, System, Group, and System Dialog Box
Server Start/Stop Time	Server Start Server Stop Time Start Mode	Cleanup Server Dialog Box in the Domain, System, Group, and System Dialog Box
Cleanup Busy Time	Cleanup Busy Time	Cleanup Server Dialog Box in the Domain, System, Group, and System Dialog Box
Cleanup Idle Time	Cleanup Idle Time	Cleanup Server Dialog Box in the Domain, System, Group, and System Dialog Box
Name	Name	Cleanup Server Dialog Box in the System Dialog Box
System	System	General Tab, System Dialog Box
Description	Description	Cleanup Server Dialog Box in the System Dialog Box
Documentation	Documentation	Cleanup Server Dialog Box in the System Dialog Box

*General*

This tab displays general information about the Domain's Cleanup Server. To view this information:

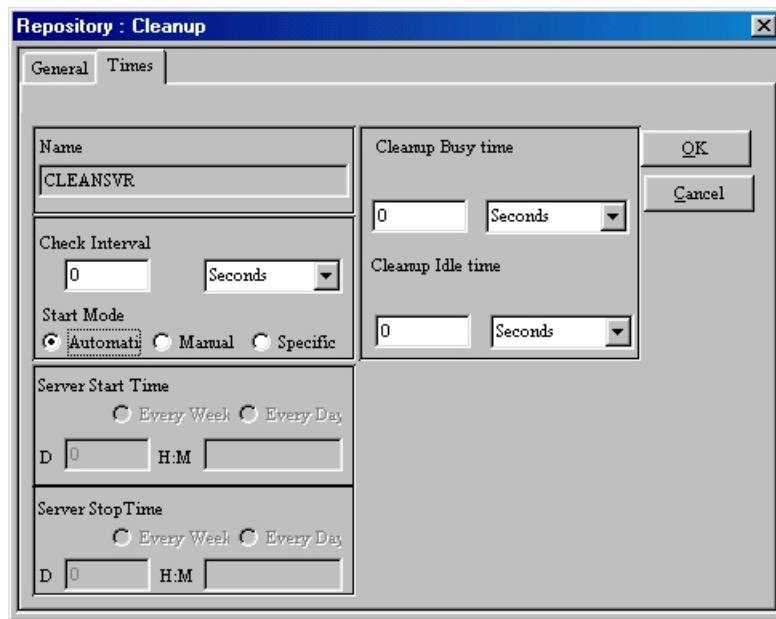
1.  Click on the **Cleanup Server Setting** button. The **Cleanup** dialog box will appear—open to the General tab (see the figure below).



### Times

This tab gathers times information about the Domain's Cleanup Server. To modify this information:

1. Select the **Times** tab in the **Cleanup** dialog box (see the figure below).



2. Enter the desired Cleanup Server check interval rate in the boxes below the **Check Interval** label.
  - \* Select the units of time from the drop-down list in the box on the right.
  - \* Type the specific number of those units in the box on the left.
3. Select the **Automatic** radio button below the **Start Mode** label to start and stop the Cleanup Server automatically with the start and stop of the corresponding IBM MQ Workflow system.
4. Select the **Manual** radio button below the **Start Mode** label to start and stop the Scheduling Server manually with the operation administration command.
5. Select the **Specific** radio button below the **Start Mode** label to start and stop the Cleanup Server as defined by the **Server Start Time** and the **Server Stop Time** (default).
6. Select the **Every Week** radio button in the **Server Start Time** box to start the Cleanup Server every week on a regular day and at a regular time.
  - \* Enter the day of the week in the **D** text box.
    - Type the number, **1...7**, corresponding to the desired day, **Sunday...Saturday**.

- \* Enter the time of day in the **H:M** text box.
    - Type the two digits of the hour, **00...23**, then a colon, then the two digits of the minute, **00...59**, i.e., **HH:MM**.
7. Select the **Every Day** radio button in the **Server Start Time** box to start the Cleanup Server every day at a regular time.
- \* Enter the time of day in the **H:M** text box.
    - Type the two digits of the hour, **00...23**, then a colon, then the two digits of the minute, **00...59**, i.e., **HH:MM**.
8. Select the **Every Week** radio button in the **Server Stop Time** box to stop the Cleanup Server every week on a regular day and at a regular time.
- \* Enter the day of the week in the **D** text box.
    - Type the number, **1...7**, corresponding to the desired day, **Sunday...Saturday**.
  - \* Enter the time of day in the **H:M** text box.
    - Type the two digits of the hour, **00...23**, then a colon, then the two digits of the minute, **00...59**, i.e., **HH:MM**.
9. Select the **Every Day** radio button in the **Server Stop Time** box to stop the Cleanup Server every day at a regular time.
- \* Enter the day of the week in the **D** text box.
    - Type the number, **1...7**, corresponding to the desired day, **Sunday...Saturday**.
  - \* Enter the time of day in the **H:M** text box.
    - Type the two digits of the hour, **00...23**, then a colon, then the two digits of the minute, **00...59**, i.e., **HH:MM**.
10. Enter the desired Cleanup Server busy time in the boxes below the **Cleanup Busy Time** label.
- \* Select the units of time from the drop-down list in the box on the right.
  - \* Type the specific number of those units in the box on the left.
11. Enter the desired Cleanup Server idle time in the boxes below the **Cleanup Idle Time** label.
- \* Select the units of time from the drop-down list in the box on the right.
  - \* Type the specific number of those units in the box on the left.

*Program Execution Server Setting*

This dialog box gathers information about the Domain's Program Execution Server.

There are two tabs in this dialog box: **General** and **Program Execution Server**.

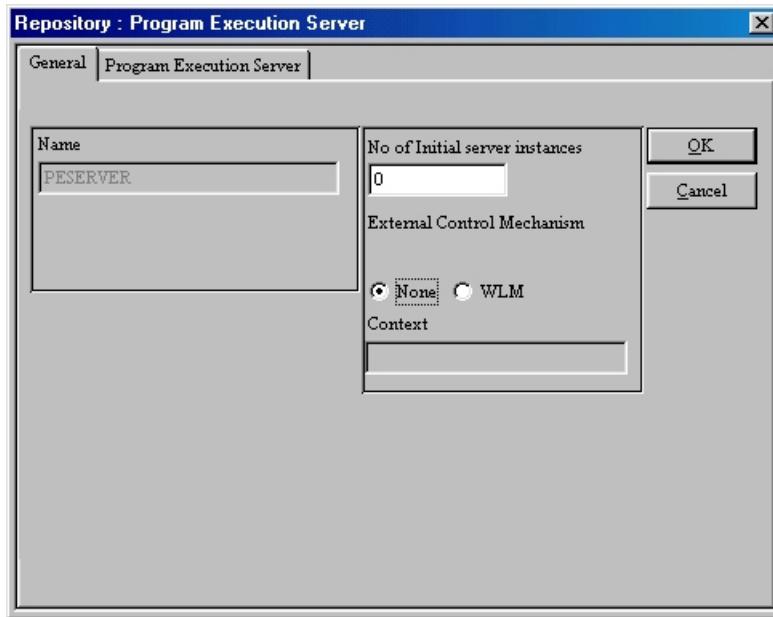
These tabs are discussed in the sections below. The following table displays the MQ Workflow to Workflow•BPR conversions for Program Execution Servers.

<u>MQ Workflow</u>	<u>Workflow•BPR</u>	
<u>Program Execution Server</u>	<u>Program Execution Server</u>	<u>Location</u>
Number of Initial Server Instances	No of Initial Server Instances	Program Execution Server Dialog Box in the Domain, System, Group, and System Dialog Box
External Control Mechanism	External Control Mechanism	Program Execution Server Dialog Box in the Domain, System, Group, and System Dialog Box
Context Information For External Control	Context	Program Execution Server Dialog Box in the Domain, System, Group, and System Dialog Box
Platform	Platform	Program Execution Server Dialog Box in the Domain, System, Group, and System Dialog Box
Implementation Type	Implementation Type	Program Execution Server Dialog Box in the Domain, System, Group, and System Dialog Box
User Support	User Support	Program Execution Server Dialog Box in the Domain, System, Group, and System Dialog Box
Support Mode	Support Mode	Program Execution Server Dialog Box in the Domain, System, Group, and System Dialog Box
Name	Name	Program Execution Server Dialog Box in the System Dialog Box
System	System	General Tab, System Dialog Box
Description	Description	Program Execution Server Dialog Box in the System Dialog Box
Documentation	Documentation	Program Execution Server Dialog Box in the System Dialog Box

*General*

This tab gathers general information about the Domain's Program Execution Server. To modify this information:

1. Click on the **Program Execution Server Setting** button. The **Program Execution Server** dialog box will appear—open to the **General** tab (see the figure below).

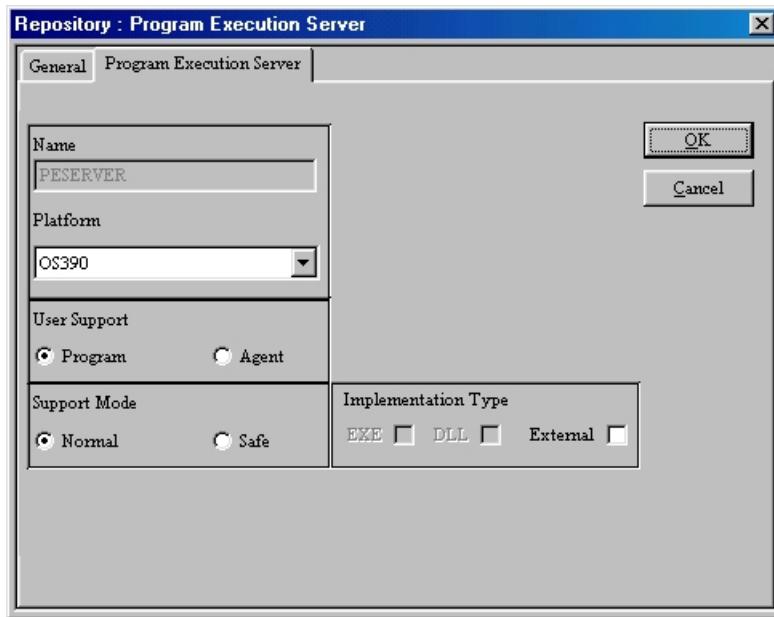


2. Type the number of multiple-instance Program Execution Server hotpool instances to be created when a Program Execution Server is started in the **No of Initial Server Instances** text box.
  - \* The IBM default is “5.”
3. Select the **None** radio button below the **External Control Mechanism** label to have the start and stop of the Program Execution Server and the number of hotpool instances not controlled externally (default).
4. Select the **WLM** radio button below the **External Control Mechanism** label to have the OS/390 workload manager control all servers.
  - \* If the **WLM** radio button is selected, then you must type the context string that is passed from the administration server to the control mechanism.

### Program Execution Server

This tab gathers times information about the Domain's Program Execution Server. To modify this information:

1. Select the **Program Execution Server** tab in the **Program Execution Server** dialog box (see the figure below).



2. Select the platform on which the Program Execution Server is to run from the drop-down list in the **Platform** selection box.
  - \* The IBM default is “OS390.”
  - \* If “OS390” is selected, the program execution server only supports external services (IMS and CICS), and is controlled by the local administration server.
3. Select the **Program** radio button in the **User Support** box to run the program under the operating system identifier of the user who started the work item associated with the activity.
  - \* The operating system identifier becomes the IBM MQ Workflow user ID.
  - \* This setting must be used for an EXE, a fenced DLL, or external services.
4. Select the **Agent** radio button in the **User Support** box to run the program under the operating system identifier of the Program Execution Agent or Server (default).
  - \* This setting must be used for unfenced DLL files.

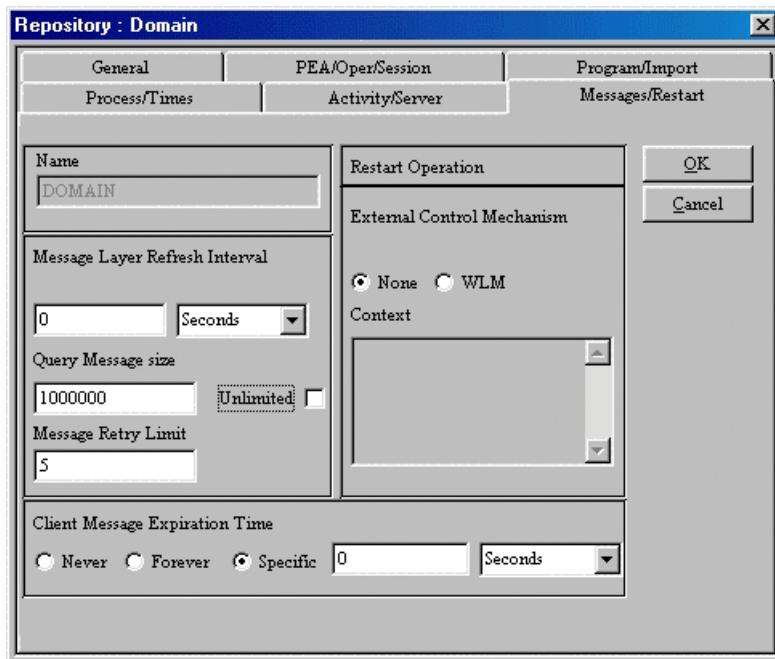
5.  Select the **Normal** radio button in the **Support Mode** box to prevent the program from running as a safe application—an activity implementation may be run more than once (default).
6.  Select the **Safe** radio button in the **Support Mode** box to enable the program to run as a safe application (an activity implementation runs exactly once).
  - \* If the **Safe** radio button is selected for both **Execution Mode** (see Program/Import on page 3-12) and **Support Mode**, the program runs as a safe application in the transaction context of the Program Execution Server.
7.  Select the **EXE** checkbox in the **Implementation Type** box to designate the selected operating system Implementation Type as EXE.
8.  Select the **DLL** checkbox in the **Implementation Type** box to designate the selected operating system Implementation Type as DLL.
9.  Select the **External** checkbox in the **Implementation Type** box to designate the selected operating system Implementation Type is External.
  - \* External is the only Implementation Type available for the OS390 Platform.

### 3.5.1.6 Messages/Restart

This tab gathers information about the Domain's Messages and Restart parameters.

To create or modify an IBM MQ Workflow Domain Messages/Restart item:

1. Select the **Messages/Restart** tab in the **Domain** dialog box (see the figure below).



2. Enter the message refresh rate in the boxes below the **Message Layer Refresh Interval** label.
  - \* Select the units of time from the drop-down list in the box on the right.
  - \* Type the specific number of those units in the box on the left.
3. Select the **Unlimited** checkbox to allow Domain messages of unlimited size in response to user queries.
  - \* This **Unlimited** checkbox may not be selected unless the **Unlimited Mess** checkbox in the **General** tab is also selected. (See General on page 3-8.)
  - \* If the **Unlimited** checkbox is not selected, then you must type the number, in bytes, of the maximum allowable query message size in the **Query Message Size** text box.
    - The number may not exceed the number given in the **Message Size** text box in the **General** tab, unless the **Unlimited Mess** checkbox in the **General** tab is also selected. (See General on page 3-8.)

4.  Type the maximum number of attempts to process a message before it is placed on the hold queue in the **Message Retry Limit** text box.
  - \* The IBM default for a domain is “**5**.”
5.  Select the **WLM** radio button below the **External Control Mechanism** label in the **Restart Operation** box to have the OS/390 workload manager control all servers upon restart.
  - \* If the **WLM** radio button is selected, then you must  type in the **Context** text box the context string that is passed from the administration server to the control mechanism.
6.  Select the **Never** radio button in the **Client Message Expiration Time** box to keep all messages from a server to a client.
7.  Select the **Forever** radio button in the **Client Message Expiration Time** box to keep no messages from a server to a client.
8.  Select the **Specific** radio button in the **Client Message Expiration Time** box to specify how long server-to-client messages are kept (default).
  - \*  Select the units of time from the drop-down list in the box on the right.
    - The IBM default is “**Minutes**.”
  - \*  Type the specific number of those units in the box on the left.
    - The IBM default is “**15**.”

### 3.5.2 System Group

 **The System Group dialog box is available only in the IBM MQ Workflow Editing Mode; it is not available in any other Editing Mode.**

There are three levels of hierarchy in the IBM MQ Workflow environment: Domain, System Group, and System. Workflow•BPR allows for the field-level description of each of these levels of hierarchy, so that a Workflow•BPR Process edited in the IBM MQ Workflow Editing Mode can be smoothly translated into an IBM MQ Workflow FDL file. (Please refer to the *Integration with Workflow Applications Guide* for more information.) This section deals with the System Group level of the hierarchy.

The information about the System Group is captured with the **System Group** dialog box. Each of the tabs in the System Group dialog box is described in the sections below. The following table displays the MQ Workflow to Workflow•BPR conversions for System Groups.

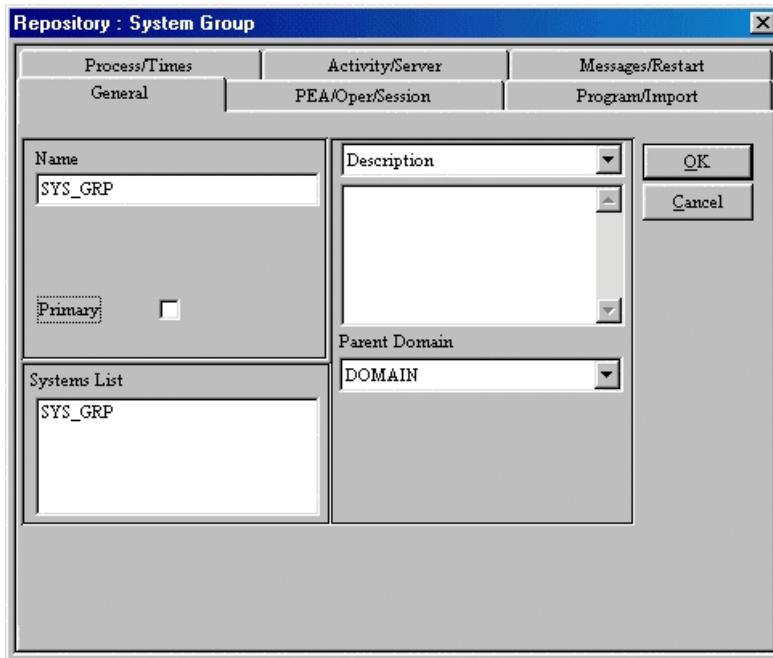
<b><u>MQ Workflow</u></b>	<b><u>Workflow•BPR</u></b>	
<b><u>System Group</u></b>	<b><u>System Group</u></b>	<b><u>Location</u></b>
This System Group Is The Primary System Group	Primary	General Tab
Name	Name	General Tab
Description	Description	General Tab
Documentation	Documentation	General Tab
Parent Domain	Parent System Group	General Tab

### 3.5.2.1 General

This tab gathers general information about the System Group.

To create or modify an IBM MQ Workflow System Group Repository item:

1. Select Organization **Data** from the **Repository** menu. A sub-menu will appear.
2. Select **System Group** from the sub-menu. The **System Group** dialog box will appear—open to the **General** tab (see the figure below).



3. Type the name of the System Group in the **Name** text box (required).
  - \* You can also select a name from the **Systems List** list box.
4. Select the **Primary** checkbox to designate this System Group as the primary System Group within the Domain.
  - \* The IBM default is the **Primary** checkbox not selected.
    - If only one System Group is defined, it becomes the primary System Group.
5. Select a Notes Header from the drop-down list in the Notes Header selection box.
  - \* There are two (2) independent types of Notes available for a System Group: **Description** (default) and **Documentation**.

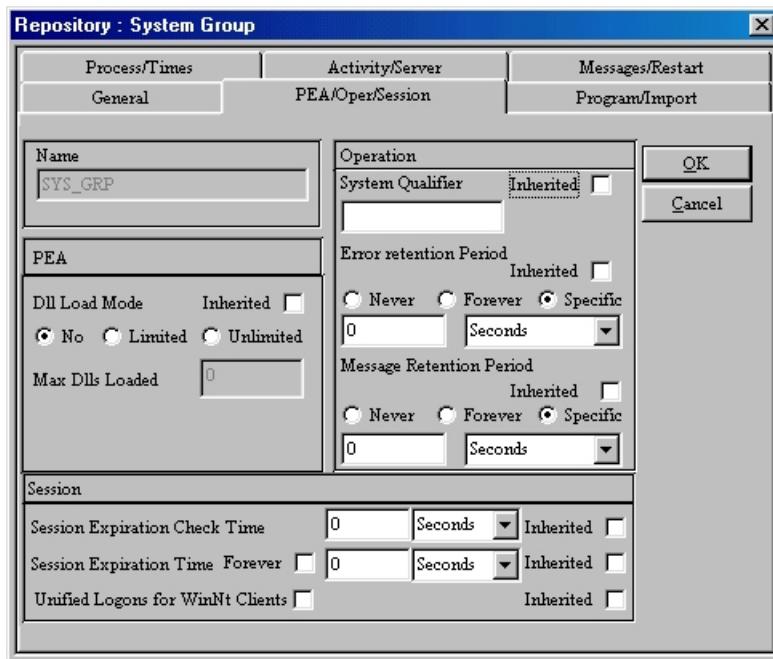
6.  Type the Notes appropriate to the Header you have selected in the text box below the Notes Header selection box.
  - \* The Notes pertaining to the **Description** Header will be exported in the FDL file.
  - \* If you want to add a **Carriage Return** to the text of your notes,  type **Ctrl+Enter**.
7.  Select a Domain from the drop-down list in the **Parent Domain** selection box to designate this System Group as belonging to that Domain (required).

### 3.5.2.2 PEA/Oper/Session

This tab gathers information about the System Group's Program Execution Agent, Operator, and Session.

To create or modify an IBM MQ Workflow System Group PEA/Oper/Session item:

1. Select the **PEA/Oper/Session** tab in the **System Group** dialog box (see the figure below).



- In any section having an Inherited checkbox displayed, select the Inherited checkbox to take the System Group settings for that section from the Domain settings for the equivalent section.**
- 2. Select the **No** radio button in the **DLL Load Mode** box to keep no inactive DLL files loaded.
- 3. Select the **Limited** radio button in the **DLL Load Mode** box to keep a specific number of inactive DLL files loaded.
  - \* Type the specific number of inactive DLL files to be kept loaded in the **Max Dlls Loaded** text box.
- 4. Select the **Unlimited** radio button in the **DLL Load Mode** box to keep all inactive DLL files loaded (default).
- 5. Type the name of the System Qualifier in the **System Qualifier** text box.
  - \* The IBM default is “FMC.”

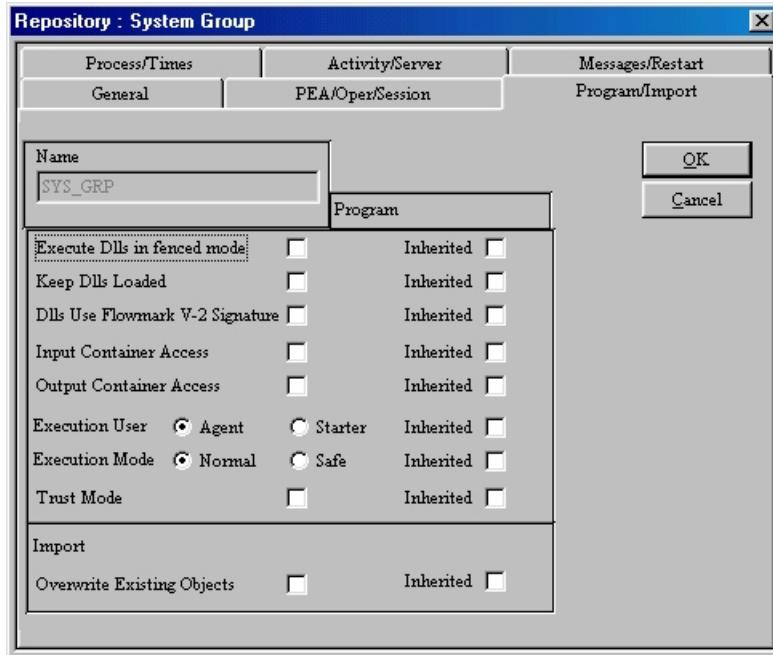
6.  Select the **Never** radio button below the **Error Retention Period** label to keep no error messages in the error database of the administration server.
7.  Select the **Forever** radio button below the **Error Retention Period** label to keep all error messages in the error database of the administration server.
8.  Select the **Specific** radio button below the **Error Retention Period** label to keep only those error messages that issued within a specific past time frame (default).
  - \*  Select the units of time from the drop-down list in the box on the right.
    - The IBM default is “**Days**.”
  - \*  Type the specific number of those units in the box on the left.
    - The IBM default is “7.”
9.  Select the **Never** radio button in the **Message Retention Period** box to keep no messages in the message database of the administration server.
10.  Select the **Forever** radio button in the **Message Retention Period** box to keep all messages in the message database of the administration server.
11.  Select the **Specific** radio button in the **Message Retention Period** box to specify how long messages are kept in the message database of the administration server (default).
  - \*  Select the units of time from the drop-down list in the box on the right.
    - The IBM default is “**Days**.”
  - \*  Type the specific number of those units in the box on the left.
    - The IBM default is “7.”
12. Enter the **Session Expiration Check Time**:
  - \*  Select the units of time from the drop-down list in the box on the right.
  - \*  Type the specific number of those units in the box on the left.
13.  Select the **Forever** checkbox to set no time limit for the session—i.e., the session is never terminated by the system (default).
  - \* If the **Forever** checkbox is not selected, then you must enter the **Session Expiration Time**:
    - Select the units of time from the drop-down list in the box on the right.
    - Type the specific number of those units in the box on the left.
14.  Select the **Unified Logons for WinNt Clients** check box to have MQ Workflow takes its user ID and password from the Windows NT logon. (Do not select the check box if the MQ Workflow user must enter a separate user ID and password.)

### 3.5.2.3 Program/Import

This tab gathers information about the System Group's Program and Import parameters.

To create or modify an IBM MQ Workflow System Group Program/Import item:

1. Select the **Program/Import** tab in the **System Group** dialog box (see the figure below).



- In any section having an Inherited checkbox displayed, select the Inherited checkbox to take the System Group settings for that section from the Domain settings for the equivalent section.**
- 2. Select the **Execute Dlls in Fenced Mode** checkbox to have the PEA and program Dll files run in separate processes (default).
- 3. Select the **Keep Dlls Loaded** checkbox to have the PEA keep program Dll files loaded (default).
- 4. Select the **Dlls Use Flowmark V-2 Signature** checkbox to use the Version 2 signature to invoke a Dll file.
  - \* The IBM default is the **Dlls Use Flowmark V-2 Signature** checkbox not selected (the Version 3 signature is used).

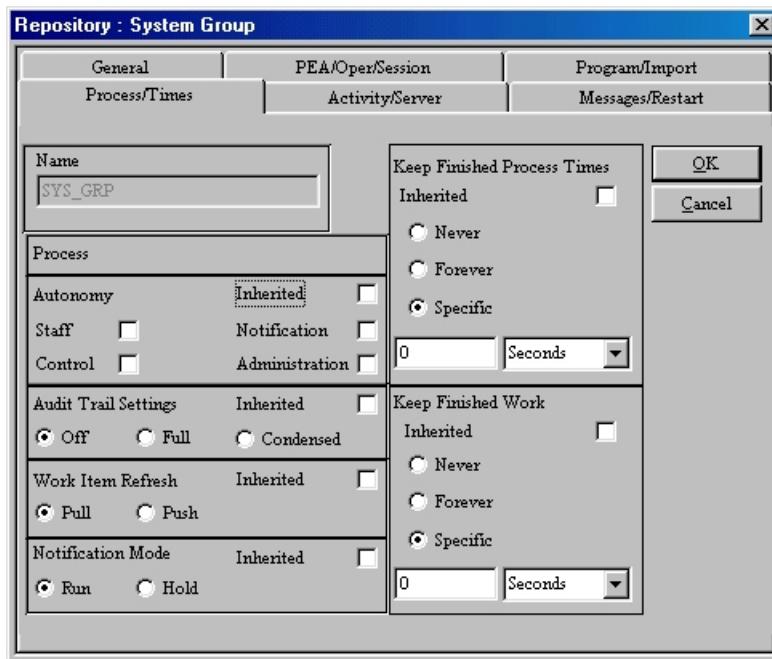
5.  Select the **Input Container Access** checkbox to have the program access the input container of the activity (default).
6.  Select the **Output Container Access** checkbox to have the program access the output container of the activity (default).
7.  Select the **Agent** radio button beside the **Execution User** label to run the program under the operating system identifier of the PEA or server (default).
  - \* If the **Execute DLLs in Fenced Mode** checkbox is not selected, then the **Agent** radio button must be selected.
8.  Select the **Starter** radio button beside the **Execution User** label to run the program under the operating system identifier of the user who started the work item associated with the activity.
  - \* The operating system identifier is set equal to the IBM MQ Workflow user ID.
  - \* The **Starter** radio button can only be selected for an EXE, a fenced DLL, or external services.
  - \* The **Starter** radio button cannot be selected unless the **Execute DLLs in Fenced Mode** checkbox is also selected.
9.  Select the **Normal** radio button beside the **Execution Mode** label to send non-persistent messages among IBM MQ Workflow components.
10.  Select the **Safe** radio button beside the **Execution Mode** label to send persistent messages IBM MQ Workflow components.
  - \* If the **Safe** radio button is selected for both **Execution Mode** and **Support Mode** (refer to the section entitled “Program Execution Server” on page 3-30), the program runs as a safe application in the transaction context of the Program Execution Server.
11.  Select the **Trust Mode** checkbox to have the executable program obtain a correlation ID.
  - \* The IBM default is the **Trust Mode** checkbox not selected.
12.  Select the **Overwrite Existing Objects** checkbox to overwrite the currently existing object in the database during import.

### 3.5.2.4 Process/Times

This tab gathers information about the System Group's Process and Times parameters.

To create or modify an IBM MQ Workflow System Group Process/Times item:

1. Select the **Process/Times** tab in the **System Group** dialog box (see the figure below).



- In any section having an **Inherited** checkbox displayed, select the **Inherited** checkbox to take the **System Group** settings for that section from the **Domain settings** for the equivalent section.
- 2. Select the **Staff** checkbox in the **Autonomy** box to disregard the organization and staff of the parent process.
- 3. Select the **Control** checkbox in the **Autonomy** box to disregard the terminate, suspend, and resume requests from the parent process (default).
- 4. Select the **Notification** checkbox in the **Autonomy** box to disregard the notification specifications of the parent process.
- 5. Select the **Administration** checkbox in the **Autonomy** box to disregard the process administrator of the parent process.
- 6. Select the **Off** radio button in the **Audit Trail Settings** box to keep no audit trail records (default).
- 7. Select the **Full** radio button in the **Audit Trail Settings** box to keep a full set of audit trail records.

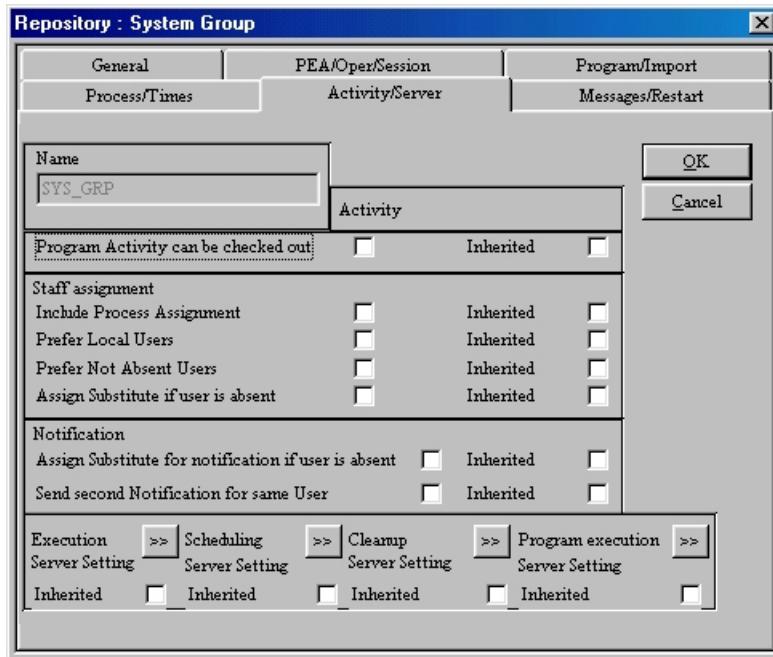
8.  Select the **Condensed** radio button in the **Audit Trail Settings** box to keep a limited set of audit trail records.
9.  Select the **Pull** radio button in the **Work Item Refresh** box to make the user explicitly request to receive new work items in the user's worklist (default).
10.  Select the **Push** radio button in the **Work Item Refresh** box to have the user automatically receive new work items in the user's worklist.
11.  Select the **Run** radio button in the **Notification Mode** box to have the notification timer continue running when the process instance is suspended (default).
12.  Select the **Hold** radio button in the **Notification Mode** box to have the notification timer pause when the process instance is suspended.
13.  Select the **Never** radio button in the **Keep Finished Process Times** box to keep no finished processes (default).
14.  Select the **Forever** radio button in the **Keep Finished Process Times** box to keep all finished processes.
15.  Select the **Specific** radio button in the **Keep Finished Process Times** box to specify how long finished processes are kept.
  - \*  Select the units of time from the drop-down list in the box on the right.
  - \*  Type the specific number of those units in the box on the left.
16.  Select the **Never** radio button in the **Keep Finished Work** box to keep no finished work items (default).
17.  Select the **Forever** radio button in the **Keep Finished Work** box to keep all finished work items.
18.  Select the **Specific** radio button in the **Keep Finished Work** box to specify how long finished work items are kept.
  - \*  Select the units of time from the drop-down list in the box on the right.
  - \*  Type the specific number of those units in the box on the left.

### 3.5.2.5 Activity/Server

This tab gathers information about the System Group's Activity and Server parameters.

To create or modify an IBM MQ Workflow System Group Activity/Server item:

1. Select the **Activity/Server** tab in the **System Group** dialog box (see the figure below).



- In any section having an **Inherited** checkbox displayed, select the **Inherited** checkbox to take the System Group settings for that section from the Domain settings for the equivalent section.
  - Each Inherited checkbox in the Server Settings box represents all of the settings in the corresponding button.
2. Select the **Program Activity Can Be Checked Out** checkbox to allow program activities to be checked out (default).
  3. Select the **Include Process Assignment** checkbox in the **Staff Assignment** box to use the role and organization settings of the process model as part of the final staff assignment of the activity (default).

4.  Select the **Prefer Local Users** checkbox in the **Staff Assignment** box to have staff resolution prefer local users to receive work items in a distributed environment (default).
5.  Select the **Prefer Not Absent Users** checkbox in the **Staff Assignment** box to have staff resolution prefer users who are not absent to receive work items (default).
6.  Select the **Assign Substitute if User is Absent** checkbox in the **Staff Assignment** box to have staff resolution select a substitute if the user is absent.
7.  Select the **Assign Substitute for Notification if User is Absent** checkbox in the **Notification** box to have the substitute for a user receive the notification (default).
8.  Select the **Send Second Notification for Same User** checkbox in the **Notification** box to have a second notification sent to the same person who received the first notification.

Each of the buttons in the **Server Settings** box – **Execution Server Setting**, **Scheduling Server Setting**, **Cleanup Server Setting**, and **Program Execution Server Setting** – opens a new dialog box. These are discussed in the following section.

### ***Execution, Scheduling, Cleanup, and Program Server Settings***

Please refer to sections Execution Server Setting, Scheduling Server Setting, Cleanup Server Setting, and Program Execution Server Setting in the Domain Activity/Server section, pages 3-17 to 3-32 for information on entering data into these dialog boxes.

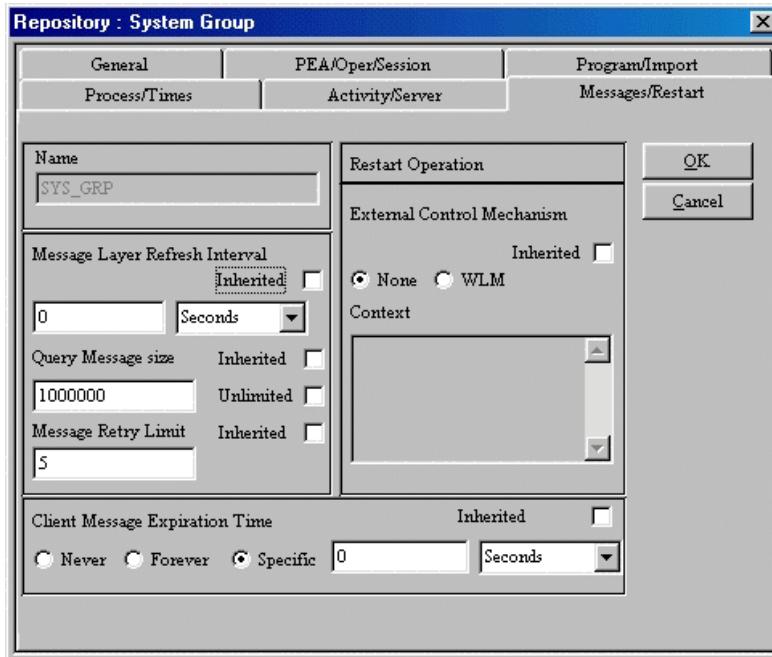
- In any section having an Inherited checkbox displayed,  select the Inherited checkbox to take the System Group settings for that section from the Domain settings for the equivalent section.**

### 3.5.2.6 Messages/Restart

This tab gathers information about the System Group's Messages and Restart parameters.

To create or modify an IBM MQ Workflow System Group Messages/Restart item:

1. Select the **Messages/Restart** tab in the **System Group** dialog box (see the figure below).



- In any section having an Inherited checkbox displayed, select the Inherited checkbox to take the System Group settings for that section from the Domain settings for the equivalent section.

2. Enter the message refresh rate in the boxes below the **Message Layer Refresh Interval** label.
  - \* Select the units of time from the drop-down list in the box on the right.
  - \* Type the specific number of those units in the box on the left.
3. Select the **Unlimited** checkbox to allow System Group messages of unlimited size in response to user queries.
  - \* This **Unlimited** checkbox may not be selected unless the **Unlimited** **Mess** checkbox in the **General** tab in the **Domain** dialog box is also selected. (See General on page 3-8.)

- \* If the **Unlimited** checkbox is not selected, then you must  type the number, in bytes, of the maximum allowable query message size in the **Query Message Size** text box.
    - The number may not exceed the number given in the **Message Size** text box in the **General** tab in the **Domain** dialog box, unless the **Unlimited Mess** checkbox in the **General** tab in the **Domain** dialog box is also selected. (See General on page 3-8.)
4.  Type the maximum number of attempts to process a message before it is placed on the hold queue in the **Message Retry Limit** text box.
    - \* The IBM default for a system group is “0.”
  5.  Select the **WLM** radio button below the **External Control Mechanism** label in the **Restart Operation** box to have the OS/390 workload manager control all servers upon restart.
    - \* If the **WLM** radio button is selected, then you must  type in the **Context** text box the context string that is passed from the administration server to the control mechanism.
  6.  Select the **Never** radio button in the **Client Message Expiration Time** box to keep all messages from a server to a client.
  7.  Select the **Forever** radio button in the **Client Message Expiration Time** box to keep no messages from a server to a client.
  8.  Select the **Specify** radio button in the **Client Message Expiration Time** box to specify how long server-to-client messages are kept (default).
    - \*  Select the units of time from the drop-down list in the box on the right.
      - The IBM default is “**Minutes**.”
    - \*  Type the specific number of those units in the box on the left.
      - The IBM default is “**15**.”

### 3.5.3 System

 **The System dialog box is available only in the IBM MQ Workflow Editing Mode; it is not available in any other Editing Mode.**

There are three levels of hierarchy in the IBM MQ Workflow environment: Domain, System Group, and System. Workflow•BPR allows for the field-level description of each of these levels of hierarchy, so that a Workflow•BPR Process edited in the IBM MQ Workflow Editing Mode can be smoothly translated into an IBM MQ Workflow FDL file. (Please refer to the *Integration with Workflow Applications Guide* for more information.) This section deals with the System level of the hierarchy.

The information about Systems is captured with the **System** dialog box. Each of the tabs in the System dialog box is described in the sections below. The following table displays the MQ Workflow to Workflow•BPR conversions for Systems.

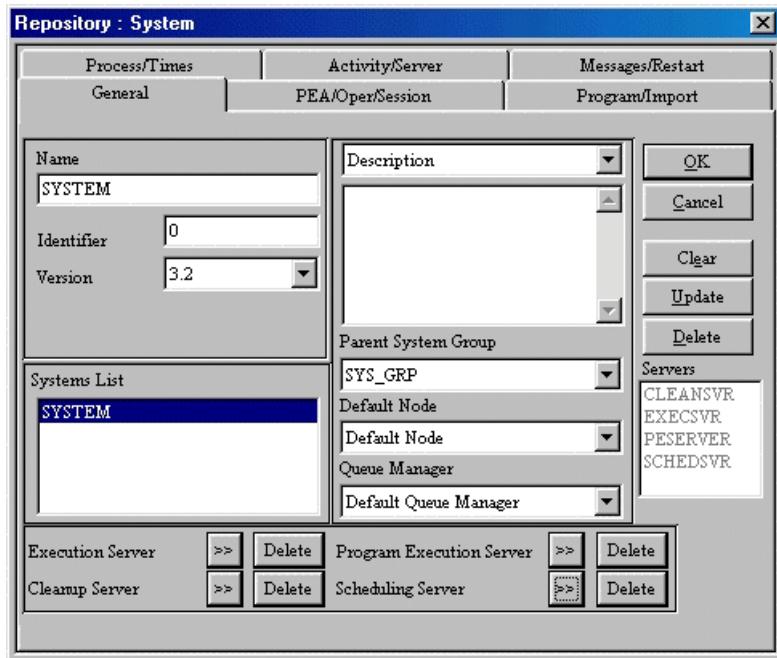
<b><u>MQ Workflow</u></b>	<b><u>Workflow•BPR</u></b>	
<b>System</b>	<b>System</b>	<b>Location</b>
Name	Name	General Tab
Version	Version	General Tab
Description	Description	General Tab
Parent System Group	Parent Domain	General Tab
Node	Default Node	General Tab
Queue Manager	Queue Manager	General Tab
System Identifier	Identifier	General Tab
Home User	Deduced From Employee Settings	
Documentation	Documentation	General Tab

### 3.5.3.1 General

This tab gathers general information about the System.

To create or modify an IBM MQ Workflow System Repository item:

1. Select **Organization Data** from the **Repository** menu. A sub-menu will appear.
2. Select **System** from the sub-menu. The **System** dialog box will appear—open to the **General** tab (see the figure below).



3. Type the name of the System in the **Name** text box (required).
  - \* You can also select a name from the **Systems List** list box.
4. Type the System Identifier Number in the **Identifier** text box (required).
  - \* This field is used by IBM MQ Workflow to generate object identifiers.
5. Select the IBM MQ Workflow version number from the drop-down list in the **Version** selection box.
6. Select a Notes Header from the drop-down list in the Notes Header selection box.
  - \* There are two (2) independent types of Notes available for a System: **Description** (default) and **Documentation**.
7. Type the Notes appropriate to the Header you have selected in the text box below the Notes Header selection box.

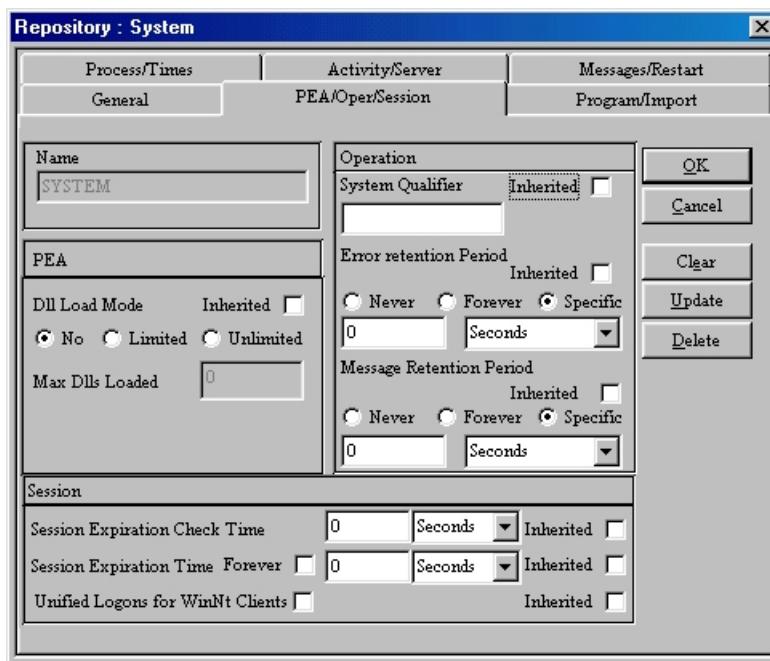
- \* The Notes pertaining to the **Description** Header will be exported in the FDL file.
  - \* If you want to add a **Carriage Return** to the text of your notes,  type **Ctrl+Enter**.
8.  Select a System Group from the drop-down list in the **Parent System Group** selection box to designate this System as belonging to that System Group (required).
  9.  Select a Node from the drop-down list in the **Default Node** selection box to designate this System as belonging to that Node (required).
  10.  Select the Queue Manager with which this System is associated from the drop-down list in the **Queue Manager** selection (required).
  11.  Click on the  button to the right of the **Execution Server, Cleanup Server, Program Execution Server, or Scheduling Server** label to add that Server to the list of associated Servers in the **Servers** list box.
    - \*  Clicking on the  button brings up the dialog box for that Server; you must  click on the **OK** button to add it to the list.
      -  Clicking on the **Cancel** button will not add that Server to the list.
      - All the Server dialog boxes contain the **General** tab, and the Program Execution Server adds the **Program Execution Server** tab, so you can change the settings for that Server from this dialog box (see Program Execution Server—for Domain—on page 3-30).
    - \* You cannot add a Cleanup or Scheduling Server to more than one System at a time within the same System Group.
  12.  Click on the **Delete** button to the right of the **Execution Server, Cleanup Server, Program Execution Server, or Scheduling Server** label to remove that Server from the list of associated Servers in the **Servers** list box.

### 3.5.3.2 PEA/Oper/Session

This tab gathers information about the System's Program Execution Agent, Operator, and Session.

To create or modify an IBM MQ Workflow System PEA/Oper/Session item:

1.  Select the **PEA/Oper/Session** tab in the **System** dialog box (see the figure below).



- In any section having an Inherited checkbox displayed,  select the Inherited checkbox to take the System settings for that section from the System Group settings for the equivalent section.
2.  Select the **No** radio button in the **DLL Load Mode** box to keep no inactive DLL files loaded.
  3.  Select the **Limited** radio button in the **DLL Load Mode** box to keep a specific number of inactive DLL files loaded.
    - \*  Type the specific number of inactive DLL files to be kept loaded in the **Max Dlls Loaded** text box.
  4.  Select the **Unlimited** radio button in the **DLL Load Mode** box to keep all inactive DLL files loaded.
  5.  Type the name of the System Qualifier in the **System Qualifier** text box.
    - \* The IBM default is “FMC.”

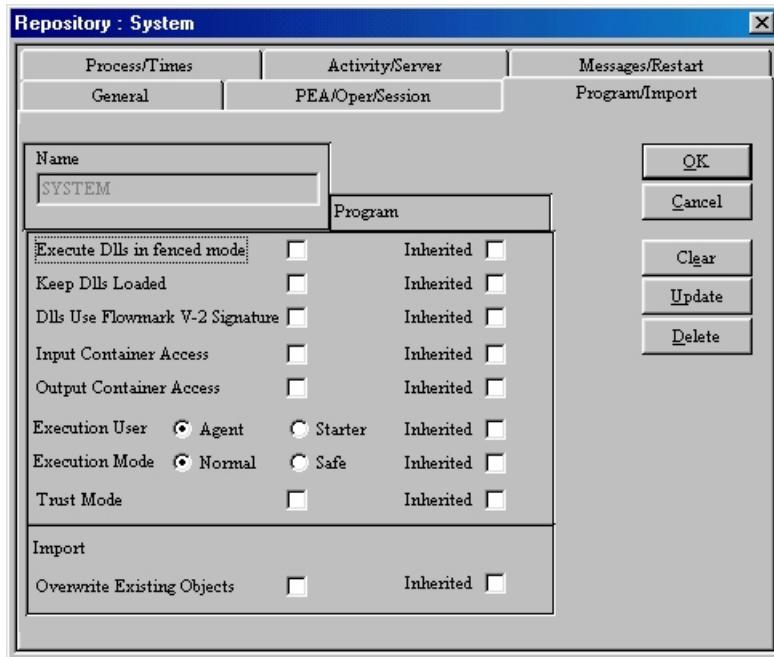
6.  Select the **Never** radio button below the **Error Retention Period** label to keep no error messages in the error database of the administration server.
7.  Select the **Forever** radio button below the **Error Retention Period** label to keep all error messages in the error database of the administration server.
8.  Select the **Specific** radio button below the **Error Retention Period** label to keep only those error messages that issued within a specific past time frame (default).
  - \*  Select the units of time from the drop-down list in the box on the right.
    - The IBM default is “**Days**.”
  - \*  Type the specific number of those units in the box on the left.
    - The IBM default is “7.”
9.  Select the **Never** radio button in the **Message Retention Period** box to keep no messages in the message database of the administration server.
10.  Select the **Forever** radio button in the **Message Retention Period** box to keep all messages in the message database of the administration server.
11.  Select the **Specific** radio button in the **Message Retention Period** box to specify how long messages are kept in the message database of the administration server (default).
  - \*  Select the units of time from the drop-down list in the box on the right.
    - The IBM default is “**Days**.”
  - \*  Type the specific number of those units in the box on the left.
    - The IBM default is “7.”
12. Enter the **Session Expiration Check Time**:
  - \*  Select the units of time from the drop-down list in the box on the right.
  - \*  Type the specific number of those units in the box on the left.
13.  Select the **Forever** checkbox to set no time limit for the session—i.e., the session is never terminated by the system (default).
  - \* If the **Forever** checkbox is not selected, then you must enter the **Session Expiration Time**:
    - Select the units of time from the drop-down list in the box on the right.
    - Type the specific number of those units in the box on the left.
14.  Select the **Unified Logons for WinNt Clients** check box to have MQ Workflow takes its user ID and password from the Windows NT logon. (Do not select the check box if the MQ Workflow user must enter a separate user ID and password.)

### 3.5.3.3 Program/Import

This tab gathers information about the System's Program and Import parameters.

To create or modify an IBM MQ Workflow System Program/Import item:

1.  Select the **Program/Import** tab in the **System** dialog box (see the figure below).



- In any section having an Inherited checkbox displayed,  select the Inherited checkbox to take the System settings for that section from the System Group settings for the equivalent section.
- 2.  Select the **Execute Dlls in Fenced Mode** checkbox to have the PEA and program Dll files run in separate processes (default).
- 3.  Select the **Keep Dlls Loaded** checkbox to have the PEA keep program Dll files loaded (default).
- 4.  Select the **Dlls Use Flowmark V-2 Signature** checkbox to use the Version 2 signature to invoke a Dll file.
  - \* The IBM default is the **Dlls Use Flowmark V-2 Signature** checkbox not selected (the Version 3 signature is used).

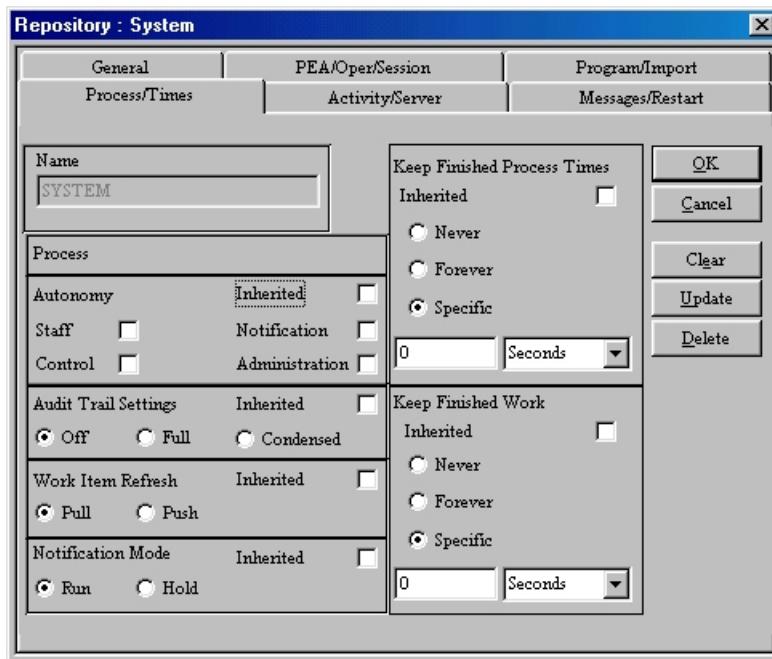
5.  Select the **Input Container Access** checkbox to have the program access the input container of the activity (default).
6.  Select the **Output Container Access** checkbox to have the program access the output container of the activity (default).
7.  Select the **Agent** radio button beside the **Execution User** label to run the program under the operating system identifier of the PEA or server (default).
  - \* If the **Execute DLLs in Fenced Mode** checkbox is not selected, then the **Agent** radio button must be selected.
8.  Select the **Starter** radio button beside the **Execution User** label to run the program under the operating system identifier of the user who started the work item associated with the activity.
  - \* The operating system identifier is set equal to the IBM MQ Workflow user ID.
  - \* The **Starter** radio button can only be selected for an EXE, a fenced DLL, or external services.
  - \* The **Starter** radio button cannot be selected unless the **Execute DLLs in Fenced Mode** checkbox is also selected.
9.  Select the **Normal** radio button beside the **Execution Mode** label to send non-persistent messages among IBM MQ Workflow components.
10.  Select the **Safe** radio button beside the **Execution Mode** label to send persistent messages IBM MQ Workflow components.
  - \* If the **Safe** radio button is selected for both **Execution Mode** and **Support Mode** (refer to the section—for Domain—entitled “Program Execution Server” on page 3-30), the program runs as a safe application in the transaction context of the Program Execution Server.
11.  Select the **Trust Mode** checkbox to have the executable program obtain a correlation ID.
  - \* The IBM default is the **Trust Mode** checkbox not selected.
12.  Select the **Overwrite Existing Objects** checkbox to overwrite the currently existing object in the database during import.

### 3.5.3.4 Process/Times

This tab gathers information about the System's Process and Times parameters.

To create or modify an IBM MQ Workflow System Process/Times item:

1.  Select the **Process/Times** tab in the **System** dialog box (see the figure below).



- In any section having an **Inherited** checkbox displayed,  select the **Inherited** checkbox to take the System settings for that section from the System Group settings for the equivalent section.
- 2.  Select the **Staff** checkbox in the **Autonomy** box to disregard the organization and staff of the parent process.
- 3.  Select the **Control** checkbox in the **Autonomy** box to disregard the terminate, suspend, and resume requests from the parent process (default).
- 4.  Select the **Notification** checkbox in the **Autonomy** box to disregard the notification specifications of the parent process.
- 5.  Select the **Administration** checkbox in the **Autonomy** box to disregard the process administrator of the parent process.
- 6.  Select the **Off** radio button in the **Audit Trail Settings** box to keep no audit trail records (default).
- 7.  Select the **Full** radio button in the **Audit Trail Settings** box to keep a full set of audit trail records.

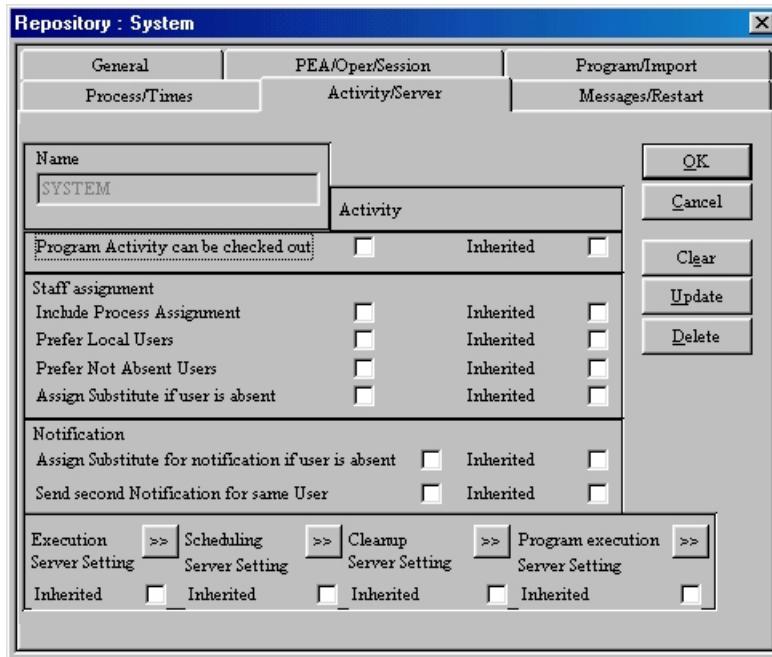
8.  Select the **Condensed** radio button in the **Audit Trail Settings** box to keep a limited set of audit trail records.
9.  Select the **Pull** radio button in the **Work Items Refresh** box to make the user explicitly request to receive new work items in the user's worklist (default).
10.  Select the **Push** radio button in the **Work Items Refresh** box to have the user automatically receive new work items in the user's worklist.
11.  Select the **Run** radio button in the **Notification Mode** box to have the notification timer continue running when the process instance is suspended (default).
12.  Select the **Hold** radio button in the **Notification Mode** box to have the notification timer pause when the process instance is suspended.
13.  Select the **Never** radio button in the **Keep Finished Process Times** box to keep no finished processes.
  - \* The IBM default is the **Never** radio button selected.
14.  Select the **Forever** radio button in the **Keep Finished Process Times** box to keep all finished processes.
15.  Select the **Specific** radio button in the **Keep Finished Process Times** box to specify how long finished processes are kept.
  - \*  Select the units of time from the drop-down list in the box on the right.
  - \*  Type the specific number of those units in the box on the left.
16.  Select the **Never** radio button in the **Keep Finished Work** box to keep no finished work items (default).
17.  Select the **Forever** radio button in the **Keep Finished Work** box to keep all finished work items.
18.  Select the **Specific** radio button in the **Keep Finished Work** box to specify how long finished work items are kept.
  - \*  Select the units of time from the drop-down list in the box on the right.
  - \*  Type the specific number of those units in the box on the left.

### 3.5.3.5 Activity/Server

This tab gathers information about the System's Activity and Server parameters.

To create or modify an IBM MQ Workflow System Activity/Server item:

1. Select the **Activity/Server** tab in the **System** dialog box (see the figure below).



- In any section having an **Inherited** checkbox displayed, select the **Inherited** checkbox to take the System settings for that section from the System Group settings for the equivalent section.
  - Each **Inherited** checkbox in the **Server Settings** box represents all of the settings in the corresponding button.
2. Select the **Program Activity Can Be Checked Out** checkbox to allow program activities to be checked out (default).
  3. Select the **Include Process Assignment** checkbox in the **Staff Assignment** box to use the role and organization settings of the process model as part of the final staff assignment of the activity (default).

4.  Select the **Prefer Local Users** checkbox in the **Staff Assignment** box to have staff resolution prefer local users to receive work items in a distributed environment (default).
5.  Select the **Prefer Not Absent Users** checkbox in the **Staff Assignment** box to have staff resolution prefer users who are not absent to receive work items (default).
6.  Select the **Assign Substitute if User is Absent** checkbox in the **Staff Assignment** box to have staff resolution select a substitute if the user is absent.
7.  Select the **Assign Substitute for Notification if User is Absent** checkbox in the **Notification** box to have the substitute for a user receive the notification (default).
8.  Select the **Send Second Notification for Same User** checkbox in the **Notification** box to have a second notification sent to the same person who received the first notification.

Each of the buttons in the **Server Settings** box – **Execution Server Setting**, **Scheduling Server Setting**, **Cleanup Server Setting**, and **Program Server Setting** – opens a new dialog box. These are discussed in the following sections.

### *Execution, Scheduling, Cleanup, and Program Server Settings*

Please refer to sections Execution Server Setting, Scheduling Server Setting, Cleanup Server Setting, and Program Execution Server Setting in the Domain Activity/Server section, pages 3-17 to 3-32 for information on entering data into these dialog boxes.

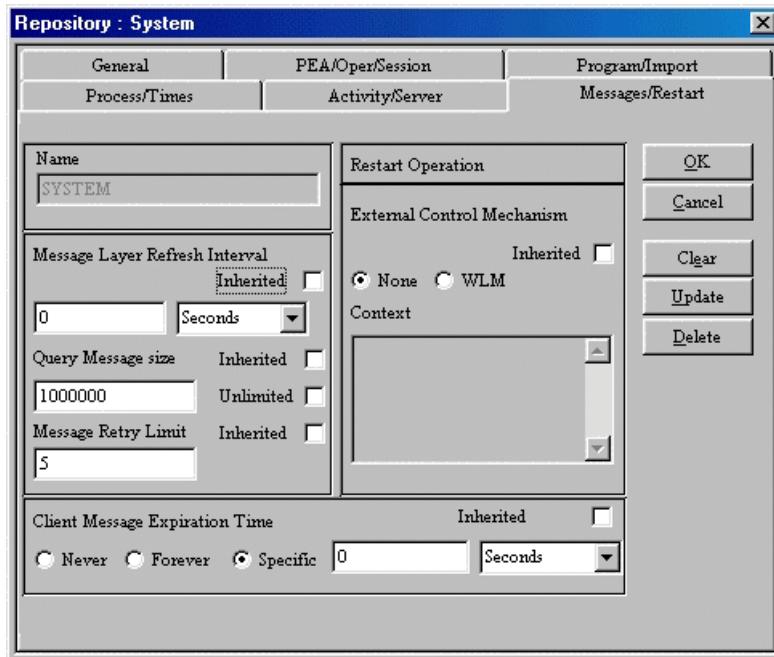
-  **In any section having an Inherited checkbox displayed,  select the Inherited checkbox to take the System settings for that section from the System Group settings for the equivalent section.**

### 3.5.3.6 Messages/Restart

This tab gathers information about the System's Messages and Restart parameters.

To create or modify an IBM MQ Workflow System Messages/Restart item:

1. Select the **Messages/Restart** tab in the **System** dialog box (see the figure below).



In any section having an **Inherited** checkbox displayed, select the **Inherited** checkbox to take the System settings for that section from the System Group settings for the equivalent section.

2. Enter the message refresh rate in the boxes below the **Message Layer Refresh Interval** label.
  - \* Select the units of time from the drop-down list in the box on the right.
  - \* Type the specific number of those units in the box on the left.
3. Select the **Unlimited** checkbox to allow System messages of unlimited size in response to user queries.
  - \* This **Unlimited** checkbox may not be selected unless the **Unlimited Mess** checkbox in the **General** tab in the **Domain** dialog box is also selected. (See General on page 3-8.)
  - \* If the **Unlimited** checkbox is not selected, then you must type the number, in bytes, of the maximum allowable query message size in the **Query Message Size** text box.

- The number may not exceed the number given in the **Message Size** text box in the **General** tab in the **Domain** dialog box, unless the **Unlimited Mess** checkbox in the **General** tab in the **Domain** dialog box is also selected. (See General on page 3-8.)
4.  Type the maximum number of attempts to process a message before it is placed on the hold queue in the **Message Retry Limit** text box.
    - \* The IBM default for a system is “0.”
  5.  Select the **WLM** radio button below the **External Control Mechanism** label in the **Restart Operation** box to have the OS/390 workload manager control all servers upon restart.
    - \* If the **WLM** radio button is selected, then you must  type in the **Context** text box the context string that is passed from the administration server to the control mechanism.
  6.  Select the **Never** radio button in the **Client Message Expiration Time** box to keep all messages from a server to a client.
  7.  Select the **Forever** radio button in the **Client Message Expiration Time** box to keep no messages from a server to a client.
  8.  Select the **Specifc** radio button in the **Client Message Expiration Time** box to specify how long server-to-client messages are kept (default).
    - \*  Select the units of time from the drop-down list in the box on the right.
      - The IBM default is “**Minutes**.”
    - \*  Type the specific number of those units in the box on the left.
      - The IBM default is “**15**.”

### 3.5.4 Node

 **The Node dialog box is available only in the IBM MQ Workflow Editing Mode; it is not available in any other Editing Mode.**

”Node” is the IBM MQ Workflow term for the operating system image that hosts the software. The information about the default Node is captured with the **Node** dialog box. The following table displays the MQ Workflow to Workflow•BPR conversions for Nodes.

<u>MQ Workflow</u>	<u>Workflow•BPR</u>	
<b>Node</b>	<b>Node</b>	<b>Location</b>
Name	Name	Node Dialog Box
Description	Description	Node Dialog Box
Operating System	Operating	Node Dialog Box
Documentation	Documentation	Node Dialog Box

To create or modify an IBM MQ Workflow Node Repository item:

1.  Select **Organization Data** from the **Repository** menu. A sub-menu will appear.
2.  Select **Node** from the sub-menu. The **Node** dialog box will appear (see the figure below ).



3.  Type the name of the Node in the **Name** text box (required).
4.  Select the radio button below the **Operating** label that best represents the operating system that is to host MQ Workflow.
5.  Select a Notes Header from the drop-down list in the Notes Header selection box.
  - \* There are two (2) independent types of Notes available for a System: **Description** (default) and **Documentation**.
6.  Type the Notes appropriate to the Header you have selected in the text box below the Notes Header selection box.
  - \* The Notes pertaining to the **Description** Header will be exported in the FDL file.
  - \* If you want to add a **Carriage Return** to the text of your notes,  type **Ctrl+Enter**.

### 3.5.5 Queue

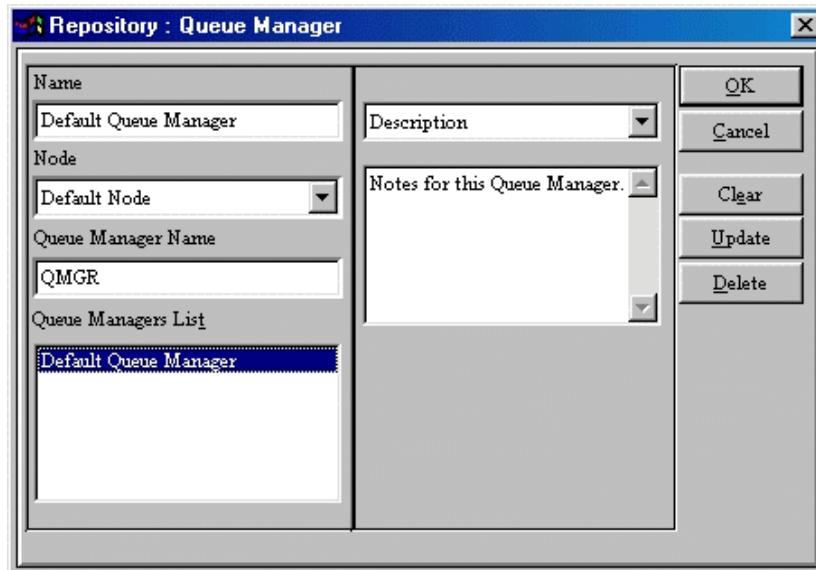
 **The Queue dialog box is available only in the IBM MQ Workflow Editing Mode; it is not available in any other Editing Mode.**

A “Queue Manager” is a named entity within an IBM MQ Workflow Domain. The information about the Queue Manager is captured with the **Queue Manager** dialog box. The following table displays the MQ Workflow to Workflow•BPR conversions for Queues.

<u>MQ Workflow</u>	<u>Workflow•BPR</u>	
<u>Queue</u>	<u>Queue</u>	<u>Location</u>
Name	Name	Queue Manager Dialog Box
Description	Description	Queue Manager Dialog Box
Queue Manager Name	Queue Manager Name	Queue Manager Dialog Box
Node	Node	Queue Manager Dialog Box
Documentation	Documentation	Queue Manager Dialog Box

To create or modify an IBM MQ Workflow Queue Manager Repository item:

1.  Select **Organization Data** from the **Repository** menu. A sub-menu will appear.
2.  Select **Queue** from the sub-menu. The **Queue Manager** dialog box will appear (see the figure below – the Queue Manager dialog box is not available in the Basic Editing Mode).



3.  Type the name of the Queue Manager in the **Name** text box.
  - \* You can also  select a name from the **Queue Managers List** list box.
  - \* This field is required.
4.  Select the Node on which this Queue Manager is to run from the drop-down list in the **Node** selection box.
5.  Type the name of the Queue Manager as it is to be known within the Queue Manager Network in the **Queue Manager Name** text box (required).
  - \* This name will typically be an abbreviation of the name you entered in the **Name** field.
6.  Select a Notes Header from the drop-down list in the Notes Header selection box.
  - \* There are two (2) independent types of Notes available for a System: **Description** (default) and **Documentation**.
7.  Type the Notes appropriate to the Header you have selected in the text box below the Notes Header selection box.
  - \* The Notes pertaining to the **Description** Header will be exported in the FDL file.
  - \* If you want to add a **Carriage Return** to the text of your notes,  type **Ctrl+Enter**.

## 3.6 Define the Level Settings

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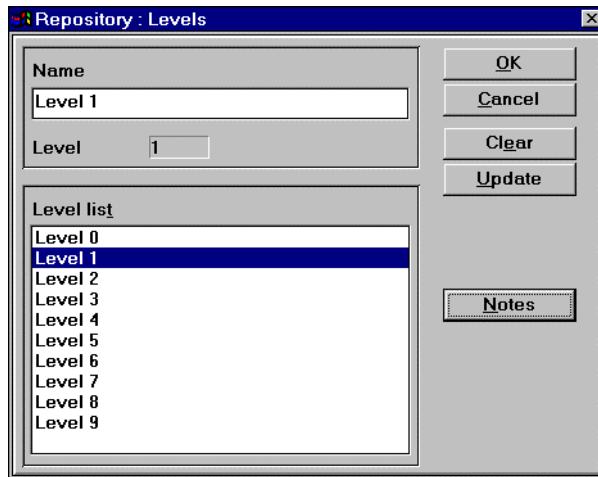
MQ Workflow maintains information about the organization in order to ensure that the work gets routed to the appropriate person. MQ Workflow uses levels from zero (0) to nine (9) to restrict the routing of activities to those Employees that meet the level criteria. The Levels are pre-defined in Workflow•BPR; however, you can add notes for each level to aid in the assigning of a Level to an Employee. This information is also presented in the section entitled “Roles” in Chapter 2 of the *User’s Guide*.

The information about Levels is captured with the **Levels** dialog box. The following table displays the MQ Workflow to Workflow•BPR conversions for Levels:

<b><u>MQ Workflow</u></b>	<b><u>Workflow•BPR</u></b>
<b><u>Level</u></b>	<b><u>Level</u></b>
Name	Name
Description	Notes
Level	Level

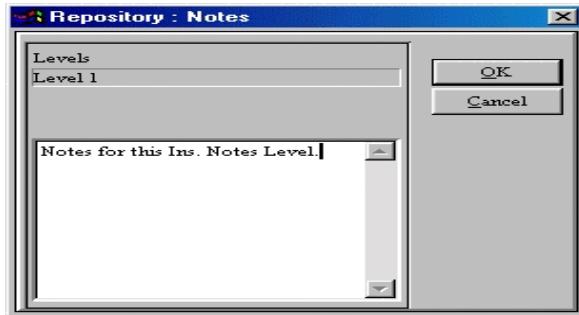
To add Notes to a Level:

1. Choose **Organization Data** from the **Repository** menu. A sub-menu appears.
2. Choose **Levels**. The **Levels** dialog box appears (see the figure below).



3. Select the level from the **Level list** box.

4.  Click **Notes** to open the **Notes** dialog box (see the figure below).



- \*  Type in the notes for the Level in the text box.
  - \* If you want to add a **Carriage Return** to the text of your Notes, then  type **Ctrl+Enter**.
  - \*  Click **OK** or  press **Enter** to return to the **Levels** dialog box.
5.  Click **OK** or  press **Enter** when defining one entry. If you are editing multiple entries,  click **Update**, and then  click **Close** after the last entry has been edited.

## 3.7 Define the Staff

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Staff or employees are the people that do the work (Tasks) for an organization. There are many ways to assign an employee to a Task—refer to the section entitled “Staff Assignment” on page 3-158. The following sections describe the information that is stored for the employees. This information is also available in the section entitled “Employees” in Chapter 2 of the *User’s Guide*.

The information about Employees is captured with the **Employees** dialog box and its five (5) tabs. The following table displays the MQ Workflow to Workflow•BPR conversions for Employees:

<u>MQ Workflow</u>	<u>Workflow•BPR</u>	
<b>Staff</b>	<b>Employee</b>	<b>Location</b>
User ID	User ID	General Tab
Password	Password	Details Tab
Confirm Password	Verify	Details Tab
Person ID	Person ID	General Tab
Associated System Group	System Group	PEA Tab
Preferred System	System	PEA Tab
First Name	First Name	General Tab
Middle Name	Middle Name	General Tab
Last Name	Last Name	General Tab
Phone	Phone Number	General Tab
2 <sup>nd</sup> Phone	Phone 2	General Tab
Level	Emp. Level	Details Tab
This Person is Currently Absent	Absent	Details Tab
Automatically Reset Absent When Person Starts Working	Automatically Reset Absent	Details Tab
Organization Name	Organization Unit	General Tab
Substitute User ID	Substitute	Details Tab
Member of Roles	Job Title and Roles	General Tab, Details Tab
Description	Notes	Notes Tab
This Person Substitutes For	Deduced from Substitute	General Tab, Details Tab
Coordinator of Roles	Deduced from Coordinator of Roles	General Tab, Roles dialog box
Process Definition	Process Definition	Authorization Tab
Staff Definition	Employee Definition	Authorization Tab
Staff Authorization Definition	Employee Authorization Definition	Authorization Tab
Topology Authorization	Topology Authorization	Authorization Tab
Operation Administration	Operation Authorization	Authorization Tab
Person: Workitem	Work Items Authorization	Authorization Tab
All Persons	All Employees	Authorization Tab
Selected Persons	Employee List	Authorization Tab
Categories	Control of Process Functions List	Authorization Tab
All Categories	Control of All Process Functions	Authorization Tab
Selected Categories	Functions List	Authorization Tab
Categories: Administration	Administration Authorization	Authorization Tab
All Categories	Control of All Process Functions	Authorization Tab
Selected Categories	Functions List	Authorization Tab

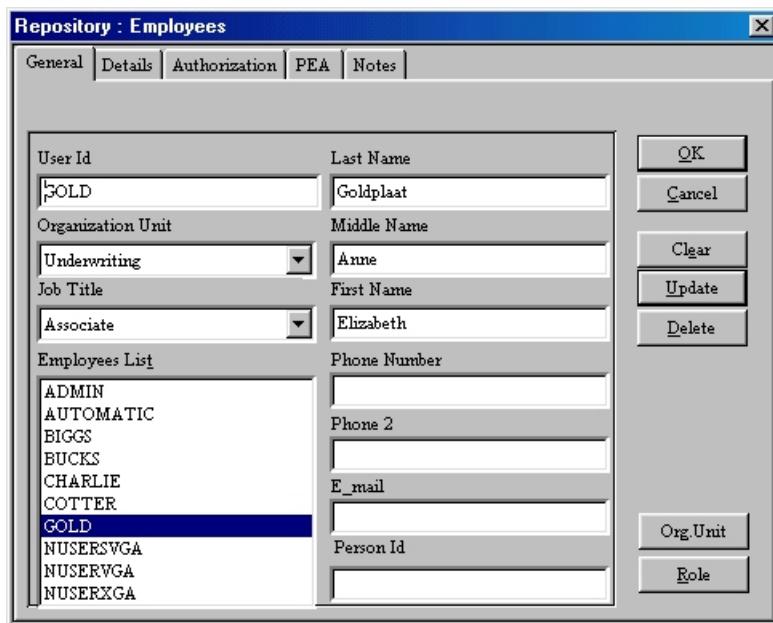
The following sections describe the procedures for entering data in the tabs of the Employees dialog box.

### 3.7.1 General

The General tab contains general information about the employees. Each employee must have a User ID, an Organization Unit, a Job Title, and a Full Name. Other information about the employee includes their Phone Number, a Phone Number 2, an E-Mail address, and a Person ID.

To define an Employee:

1. Select Organization **Data** from the **Repository** menu. A sub-menu will appear.
2. Select **Employee** from the sub-menu. The **Employees** dialog box will appear—open to the **General** tab (see the figure below).



3. Type the User ID of the employee in the **User ID** text box. This number will be used to select the employee in other dialog boxes.
  - \* You can also select a User ID from the **Employees List** box.
  - \* The User ID must be numeric or capitalized letters.
4. Select the employee's **Organization Unit** from the **Organization Unit** selection box.
  - \* If the Organization Unit you want is not included on the list, then it needs to be created. Click **Org. Unit** to access the **Repository Organization Units** dialog box to create the item (refer to the section entitled “Organization Units” in Chapter 2 of the *User’s Guide*). Upon returning to the **Employee** dialog box, the new item(s) will be included on the list.

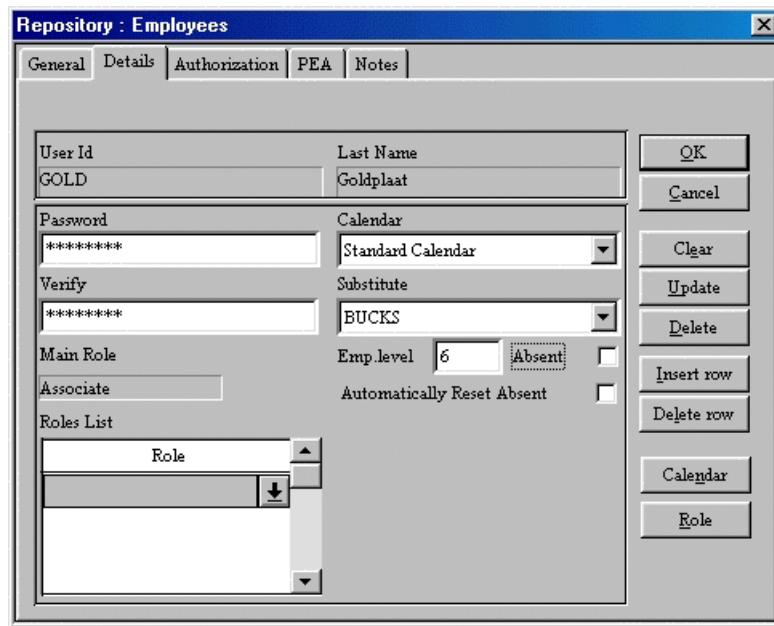
5. Select the employee's **Job Title** from the **Job Title** selection box. This will be the list of **Repository Roles**.
  - \* If the Role you want is not included on the list, then it needs to be created. You can  click the **Role Go To** button to access the **Repository Roles** dialog box to create the item (refer to the section entitled "Define the Roles" on page 3-5). Upon returning to the **Employee** dialog box, the new item(s) will be included on the list.
  - \* The Job Title will appear as the first Role in the **Roles** list box of the Details tab (refer to the next section).
6.  Type the following information in the appropriate text box:
  - \* Last Name
  - \* Middle Name
  - \* First Name
  - \* Phone Number
  - \* Phone 2
  - \* E-Mail
  - \* Person ID
7.  Click **Add** to create the item or you can continue to add more information about the Employees in the other tabs of the **Employees** dialog box.

### 3.7.2 Details

Additional and optional information about an employee is stored in the Details tab: User Password, Verification Of User Password, Person ID, Level, Absent Checkbox, Substitute, and Calendar. If the Absent checkbox is checked, then a workflow engine will route any work to the employee selected in the Substitute selection box. During the performance of the Process, Jobs are only routed to the employee if the employee is assigned to an activity and the Level of the employee is within the range defined in the activity.

To add more details about an Employee:

1. Select the **Details** tab in the **Employees** dialog box (see the figure below).



2. Type the Employee's password in the **Password** text box.
3. Type the Employee's password again in the **Verify** text box.
4. If you want to change the Employee's Level, edit the number in the **Emp. Level** text box.
  - \* The Level is used by MQ Workflow to filter out employees during dynamic assignment at run-time.
5. In the **Roles List** box, click on the Arrow button on the right side of the **Role** column. A list of Roles will appear. Add as many Roles as are appropriate.
  - \* If the Role you want is not included on the list, then it needs to be created. You can click the **Role Go To** button to access the **Repository Roles** dialog box to create the item (refer to the section entitled "Define the Roles" on page 3-5). Upon returning to the **Employee** dialog box, the new item(s) will be included on the list.

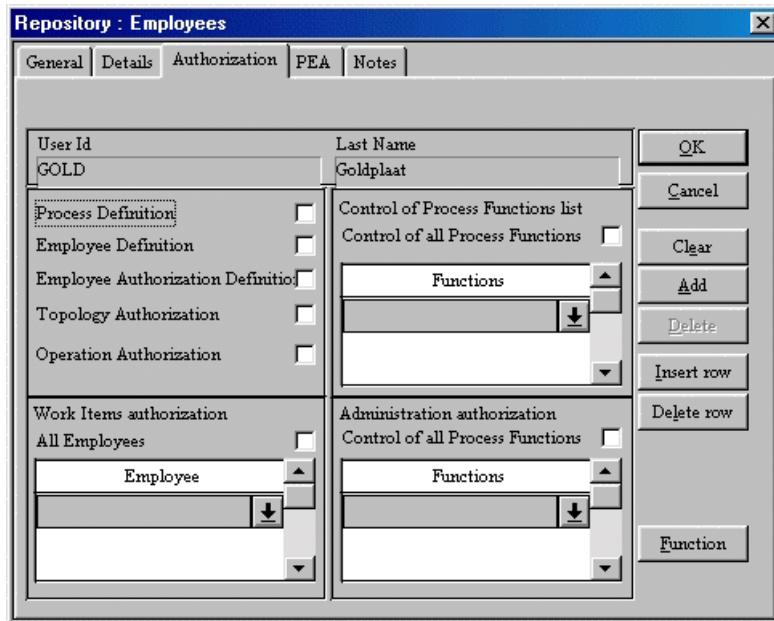
6. If you want to change the calendar for the employee, select the calendar from the **Calendar** selection box.
  - \* If the calendar you want is not included on the list, then it needs to be created. You can click the **Calendar Go To** button to access the **Repository Calendars** dialog box to create the item (refer to the section entitled “Calendars” in Chapter 2 of the *User’s Guide*). Upon returning to the **Employee** dialog box, the new item(s) will be included on the list.
7. Select the Employee who will substitute when the current employee is absent from the **Substitute** selection box.
8. Select the **Absent** checkbox if the employee is currently absent.
9. Select the **Automatically Reset Absent** checkbox if you want the Absent status of the Employee to be reset the next time they logon.
10. Click **Add** to create the item or you can continue to add more information about the Employees in the other tabs of the **Employees** dialog box.

### 3.7.3 Authorization

In the Authorization tab, you can give the employee control over parts of the Process or control over other employees. If the employee is given Process control, you can specify whether the control is for all Process functions or for selected functions. If the employee is given employee control, you can specify whether the control is for all employees or for selected employees.

To add authorization details about an Employee:

1. Select the Authorization tab in the **Employees** dialog box (see the figure below).



2.  Select the **Process Definition** check box if the Employee is to create, retrieve, update, delete, and translate process models and process templates.
3.  Select the **Employee Definition** check box if the Employee is to define staff, that is, create, retrieve, update, and delete staff data. This includes the ability to add people or to create worklists for users.
4.  Select the **Employee Authorization Definition** check box to create, retrieve, update, and delete authorization information.
5.  Select the **Topology Authorization** check box if the Employee is to define or change topology information, such as to define new IBM MQ Workflow systems.
6.  Select the **Operation Authorization** check box if the Employee is to manage the administration server and its related functions. This Employee can handle operation administrator tasks, such as block a user or unblock a blocked user.
7. In the **Work Items Authorization** box,  select the **All Employees** check box if this Employee is to access the activities of all Employees. This Employee can transfer, for example, work items and query worklists.
  - \* Employees who are authorized for a worklist can declare the owner absent and assign themselves as substitutes for the owner
8. You can select specific Employees whose worklists this Employee will have access to. In the **Work Items Authorizaton** list box,  click on the **Arrow** button on the right side of the **Employees** column. A list of Employees will appear. Add as many Employees as are appropriate.
  - \* If the Employee you want is not included on the list, he/she needs to be created. Refer to the beginning of this section on page 3-66.
9. In the **Control of Process Functions List** box,  Select the **Control of all Process Functions** check box if the Employee can, for example, create, start, and restart process instances, or set attributes.
  - \* You can select specific functions over which the Employee has control. In the **Control of Process Functions List** box,  click on the **Arrow** button on the right side of the **Functions** column. A list of functions will appear. Add as many functions as are appropriate.
    - If the function you want is not included on the list, it needs to be created. You can  click the **Function Go To** button to access the **Repository Functions** dialog box to create the item (refer to the section entitled “Functions” in Chapter 4 of the *User’s Guide*). Upon returning to the **Employee** dialog box, the new item(s) will be included on the list.
10. In the **Administration Authorization** box,  Select the **Control of all Process Functions** check box if the Employee is to have process administration authorization for this person for all process categories.

- \* If the Employee is to have process administration authorization for only some process categories,  click on the **Arrow** button on the right side of the **Functions** column. A list of functions will appear. Add as many functions as are appropriate.
  - \* Process administration authorization applies to Runtime processes only and enables a user to perform, for example, the following actions:
    - Delete process templates of the category for which the user is authorized.
    - Suspend, resume, restart, delete, and terminate process instances of the category for which the user is authorized.
  - \* You can select specific functions over which the employee has control. In the **Control of Process Functions List** list box,  click on the **Arrow** button on the right side of the **Functions** column. A list of functions will appear. Add as many functions as are appropriate.
11.  Click **Add** to create the item or you can continue to add more information about the Employees in the other tabs of the **Applications** dialog box.

### 3.7.4 PEA

 In the MQ Workflow Buildtime, the Program Execution Agent is defined as a sub-item of a System, not as a property of a Staff member.

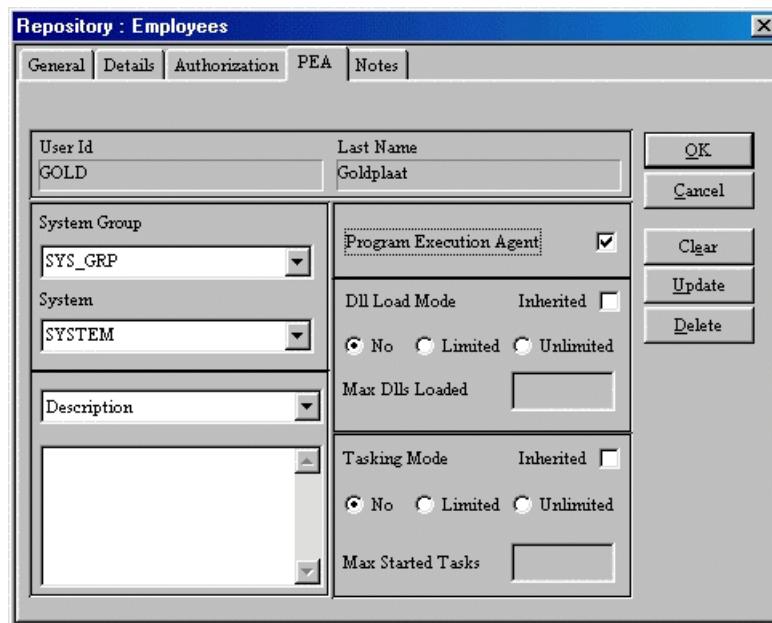
For the MQ Workflow Runtime, you can use one of the following to run programs:

- The program execution agent runs on the workstation of the user for whom the program is started.
- The program execution server runs on a server machine.

You can use the PEA tab of the Employees dialog box to define the settings for a program execution agent on a user's workstation.

To add program execution agent details about an employee:

1.  Select the PEA tab in the Employees dialog box (see the figure below).



2.  Select the **Program Execution Agent** check box if you want to associate a Program Execution Agent with the Employee.
  - \* The other attributes of the tab will become available.

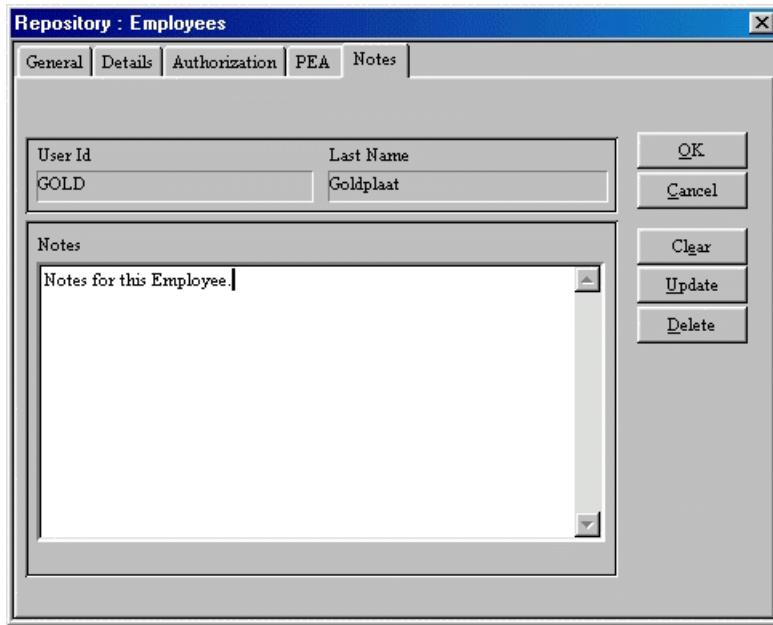
3.  Select the System Group that contains the Program Execution Agent from the **System Group** list box.
4.  Select the System that contains the Program Execution Agent from the **System** list box.
5.  Select the **No** radio button in the **DLL Load Mode** box to keep no inactive DLL files loaded (default).
6.  Select the **Limited** radio button in the **DLL Load Mode** box to keep a specific number of inactive DLL files loaded.
  - \*  Type the specific number of inactive DLL files to be kept loaded in the **Max Dlls Loaded** text box.
7.  Select the **Unlimited** radio button in the **DLL Load Mode** box to keep all inactive DLL files loaded.
8.  Select the **No** radio button in the **Tasking Mode** box to allow no multi-tasking.
9.  Select the **Limited** radio button in the **Tasking Mode** box to allow a specific number of tasks to run concurrently.
  - \*  Type the specific number of tasks allowed to run concurrently in the **Max Started Tasks** text box.
10.  Select the **Unlimited** radio button in the **Tasking Mode** box to allow unlimited multi-tasking (default).
11.  Select a Notes Header from the drop-down list in the Notes Header selection box.
  - \* Two (2) independent types of Notes are available for a Domain: **Description** (default) and **Documentation**.
12.  Type the Notes appropriate to the Header you have selected in the text box below the Notes Header selection box.
  - \* The Notes pertaining to the **Description** Header will be exported in the FDL file.
  - \* If you want to add a **Carriage Return** to the text of your notes,  type **Ctrl+Enter**.
13.  Click **Add** to create the item or you can continue to add more information about the Employees in the other tabs of the **Employees** dialog box.

### 3.7.5 Notes

In the Notes tab, you can store descriptive notes for each employee.

To add notes about an Employee:

1. Select the **Notes** tab in the Employees dialog box (see the figure below).



2. Type notes about the Employee in the **Notes** text box.
  - \* The notes will be exported as the Description of the Employee.
  - \* If you want to add a **Carriage Return** to the text of your Notes, then type **Ctrl+Enter**.
3. Click **Add** to create the item or you can continue to add more information about the Employees in the other tabs of the **Employees** dialog box.

## 3.8 Define the Data Structures

---

In MQ Workflow, data structures are used to define the data that is input and output to both programs and activities. A data structure is a special type of data field that contains a list of other data fields. Data fields are defined in the Workflow•BPR Repository. In general, you will define all the Data Fields and Data Structures, and then assign the Data Fields as elements of the Data Structures.

### 3.8.1 Data Fields

Data Fields can be assigned to five (5) types of objects: Processes, Tasks, Applications, Phis, and other Data Fields (Structures). Workflow•BPR supports the following types of Data Fields:

- Character
- Integer
- Boolean
- Variable Length Boolean
- Float
- Structure
- Time
- Date and Time
- Long

The information about Data Fields is captured with the **Data Fields** dialog box. The following table displays the MQ Workflow to Workflow•BPR data conversions for Data Fields:

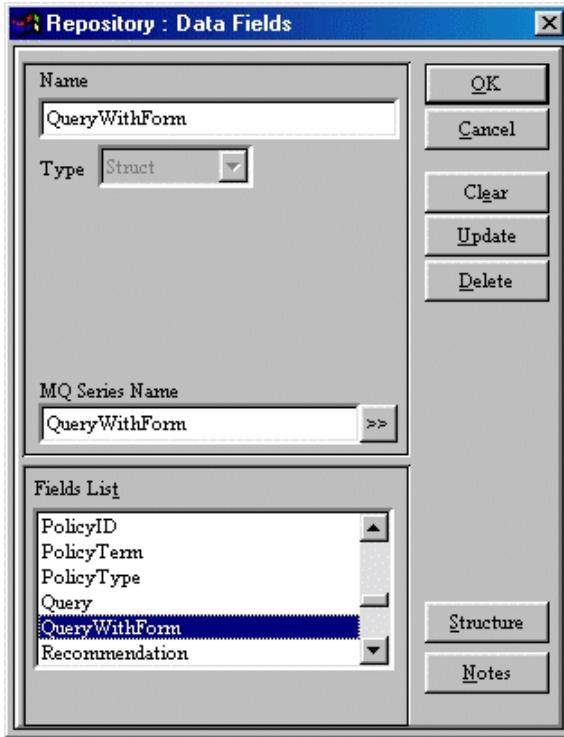
<u>MQ Workflow</u>	<u>Workflow•BPR</u>	
<u>Data Structure</u>	<u>Data Fields</u>	<u>Location</u>
Name	MQ Workflow Name	Data Fields dialog box
Variable Length String	Char	Data Fields dialog box
Variable Length Binary	Variable Length Boolean	Data Fields dialog box
Long	Integer, Boolean, Time	Data Fields dialog box
Float	Float	Data Fields dialog box
Data Structure	Structure	Data Fields dialog box

Data Fields can be an array of whatever size you can define. You can assign an alias and an initial value for the Data Fields. This information is also available in the section entitled “Data Fields” in Chapter 3 of the *User’s Guide*.

-  **MQ Workflow only supports String, Long, and Float types of Data Fields. Therefore, the Integer, Boolean, and Time types will be translated as Long.**

To create a data field:

1.  Select **Process** Data from the **Repository** menu. A sub-menu will appear.
2.  Select **Data Fields** from the sub-menu. The **Data Fields** dialog box will appear (see the figure below).



3.  Type the Name of the data field in the **Name** text box.
  4.  Select the Type of the data field (**Char** is default) from the **Type** list box.
-  **Warning: After you select a type and save the Data Field item, you cannot change the type at a later time. You will have to delete the item and then create it again.**
5. The **MQ Workflow Name** text box displays the name that will be exported to the FDL file. This name can be different from the name specified for the Data Field.
    - \* You can  type in the **MQ Workflow** text box to change the MQ Workflow name. This name has to be unique.
    - \* You can reset a modified MQ Workflow name by  clicking on the << button to the right of the **MQ Workflow** text box.

6. Click **Structure** to go to the **Data Structure Tree** dialog box to see where the Data Field you have selected resides in the Organization's Data Structure.
7. Click **Notes** to go to the **Notes** dialog box to record any additional information about the Data Field.
  - \* Click to position your cursor inside the text box and then type in the additional information.
  - \* If you want to add a **Carriage Return** to the text of your Notes, then type **Ctrl+Enter**.
  - \* Click **OK** to return to the **Data Fields** dialog box.
8. Click **OK** when defining one entry. Click **Add** if defining multiple entries, and then click **Close** after the last entry has been added.

### 3.8.1.1 Data Structures

Structures are a collection of other data fields and can include other Structures. Refer to the section entitled “Assign the Data Structures to the Application” on page 3-89 to see how data structures are applied to inputs and outputs of programs. This information is also available in the section entitled “Data Structures” in Chapter 3 of the *User’s Guide*.

The information about Data Structures is captured with the **Data Structure Tree** and **Data Fields** dialog boxes. The following table displays the MQ Workflow to Workflow•BPR data conversions for Data Structures:

<u>MQ Workflow</u>	<u>Workflow•BPR</u>	
<u>Data Structure</u>	<u>Data Fields</u>	<u>Location</u>
Name	Name	Data Fields dialog box
Member’s Name	Alias	Data Structure dialog box
Member’s Type	Type	Data Fields dialog box
Variable Length String	Char	Data Structure dialog box
Variable Length Binary	Variable Length Boolean	Data Structure dialog box
Long	Integer, Long, Time, Boolean	Data Structure dialog box
Float	Float	Data Structure dialog box
Data Structure	Structure	Data Structure dialog box
Array Size	Array	Data Structure Detail dialog box
Length	Length	Data Fields dialog box
Documentation	Notes	Notes dialog box from Data Fields dialog box

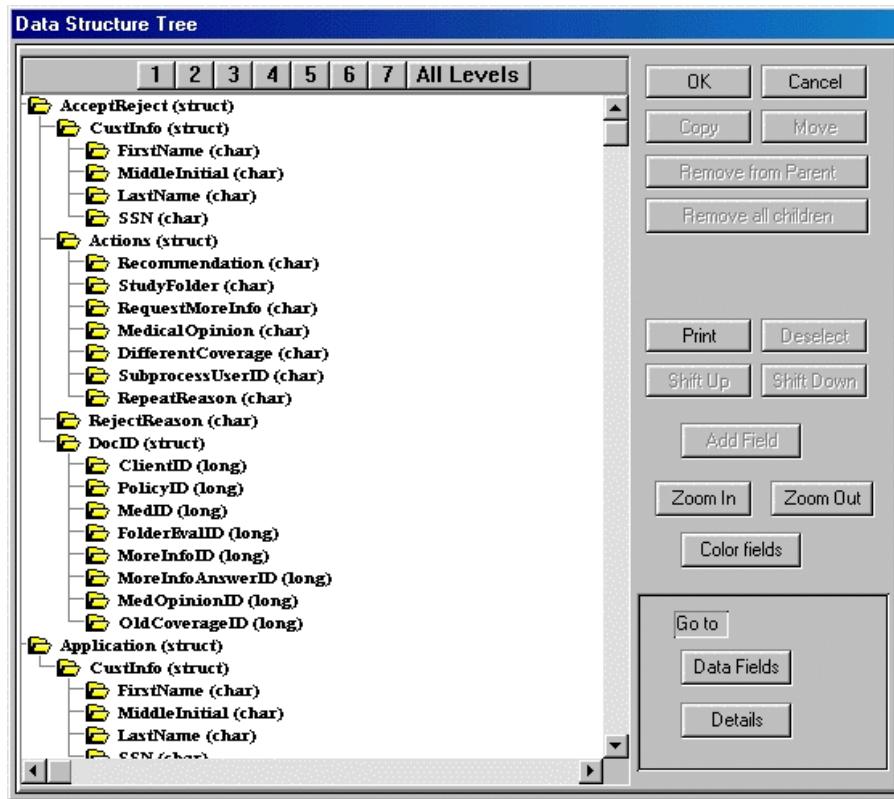
### 3.8.1.2 Creating a Data Structure

To create a Data Structure:

1. Select Process **Data** from the **Repository** menu. A sub-menu will appear.
2. Select **Data Fields** from the sub-menu. The **Data Fields** dialog box will appear.
3. Select **Structure** as the Data Field **Type**.
4. Click **Add**.
5. Define all the data fields that will be contained in the data structure (refer to the section entitled “Data Fields” on page 3-76).
6. Close the **Data Fields** dialog box.

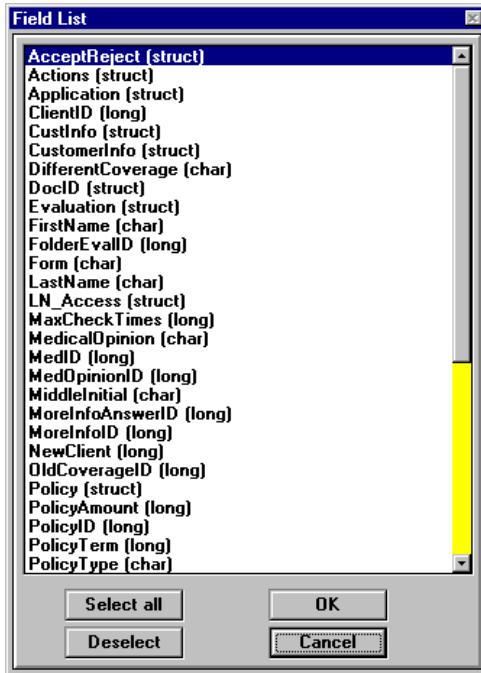
### 3.8.1.3 Adding Elements to a Data Structure

1. Select **Process Data** from the **Repository** menu. A sub-menu will appear.
2. Select **Data Structures** from the sub-menu. The **Data Structure Tree** dialog box will appear (see the figure below).
  - \* All defined Data Structures will appear in the dialog box.



3. Click on a Data Structure. It will be highlighted.

4. Click on the **Add Field Go To** Button. The **Field List** dialog box will appear (see the figure below).



- \* Click on an unselected item to select it. It will be highlighted.
  - \* Click on a selected item to deselect it. The highlighting will be removed.
  - \* Click **Select All** to select all (highlight) the items.
  - \* Click **Deselect** to deselect all (remove highlighting) the items.
- Select the elements in the order that the Application will use them.**
5. Click **OK** and the selected items will be added as children to the Data Structure and you will be returned to the **Data Structure Tree** dialog box.

### 3.8.1.4 *Removing Elements from a Data Structure*

Only Data Fields can be removed from the Data Structure Tree dialog box. All Repository Data Structure items will always be displayed in the dialog box. A Data Structure item will either be at the top level in the dialog box or will be a child of another Data Structure.

There are two methods of deleting Data Structure elements. The first method removes a child element from its association with the parent:

1. Select a Data Field of a Data Structure.
2. Click the **Remove from Parent** button. The Data Field will be removed from the Data Structure.

The second method removes all the children from a Data Structure:

1. Select a Data Structure (either a top-level or a lower-level Data Structure) that has one or more Data Fields as children.
2. Click the **Remove all Children** button. All the child Data Fields of the Data Structure will be removed.
  - \* Any Child Data Structure will be placed at the top level of the Data Structure Tree dialog box.

**Data Fields removed from the Data Structure Tree dialog box are NOT removed from the Repository.**

### 3.8.1.5 *Moving Elements in a Data Structure*

There are five (5) methods of moving Data Structure elements. The first method is as follows:

1. Select an element of a Data Structure (either a Data Field or a lower-level Data Structure).
2. Click the **Move** button. The mouse cursor will change to a document icon.
3. Click on a Data Structure (at any level). The Element will be moved to the bottom position of the Data Structure.
  - \* If you click on an element that is not a Data Structure, a message will appear that says, “Cannot perform this operation.”

**Rearrange the Data Fields in the order that the program will use them.**

The second method is as follows:

1. Select an element of a Data Structure (either a Data Field or a lower-level Data Structure).
2. Drag the cursor from the selected element. The cursor will change to a document icon.
3. Release the click on a Data Structure (at any level). The Element will be pasted to the bottom position of the Data Structure.
  - \* If you release the click on an element that is not a Data Structure, a message will appear that says, “Cannot perform this operation.”

The third method is as follows:

1. Select an element of a Data Structure (either a Data Field or a lower-level Data Structure).
2. Click the **Shift Up** button. The Data Structure element will move up one position.
  - \* If the element is in the top position within the Data Structure, a message will appear that says, “Cannot perform this operation.”
3. Click the **Shift Down** button. The Data Structure element will move down one position.
  - \* If the element is in the bottom position within the Data Structure, a message will appear that says, “Cannot perform this operation.”

The fourth method removes a child element from its association with the parent:

1. Select a lower-level Data Structure within the Data Structure Tree.
2. Click the **Remove from Parent** button. The Data Structure will be placed at the top level of the Data Structure Tree dialog box.

The fifth method removes all the children from the Data Structure Tree:

1. Select a Data Structure (either a top-level or a lower-level Policy) that has one or more Data Structure as children.
2. Click the **Remove all Children** button. All of the child Data Structures will be placed at the top level of the Data Structure Tree dialog box.

Any Child Data Fields of the Data Structure will be removed from the Data Structure Tree dialog box.

### 3.8.1.6 Copying and Pasting Elements

There are two methods of copying and pasting Data Structure elements. The first method is as follows:

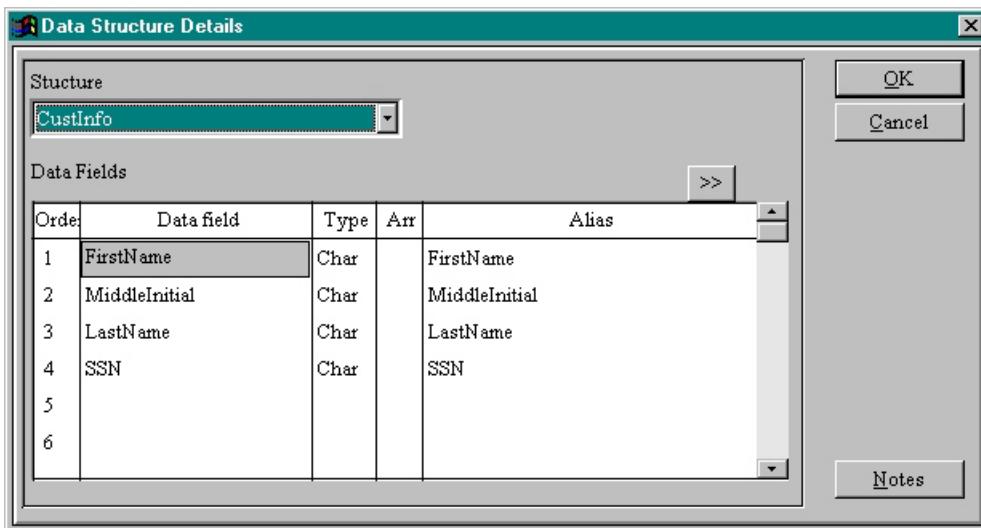
1. Select an element of a Data Structure (either a Data Field or a lower-level Data Structure).
2. Click the **Copy** button. The cursor will change to a document icon.
3. Click on a Data Structure (at any level). The Element will be pasted to the bottom position of the Data Structure.
  - \* If you click on an element that is not a Data Structure, a message will appear that says, "Cannot perform this operation."

The second method is as follows:

1. Ctrl+Select an element of a Data Structure (either a Data Field or a lower-level Data Structure).
2. Drag the cursor from the selected element. The cursor will change to a document icon.
3. Release the click on a Data Structure (at any level). The Element will be pasted to the bottom position of the Data Structure.
  - \* If you release the click on an element that is not a Data Structure, a message will appear that says, "Cannot perform this operation."

### 3.8.1.7 Adding Details to Elements

1. Click on the **Details** Go To Button. The **Data Structure Details** dialog box will appear (see the figure below).



2. Select the Structure you want to edit from the **Structure** selection box (if it is not already selected).
  - \* If the Structure you want is not included on the list, it needs to be created:
    - First, close the **Data Structure Details** dialog box and go to **Data Fields** dialog box (refer to the section entitled “Data Fields” on page 3-76). Create a new Data Structure item and close the **Data Fields** dialog box.
    - Next, open the **Data Structure Tree** dialog box and add the appropriate elements to the Data Structure (refer to the section entitled “Data Structures” on page 3-79).
    - Click the **Details** button to return to the **Data Structure Details** dialog box. The new item(s) will be included on the list.
3. If you want the element to exist as an array within the Data Structure, type the number of the size of the array in the **Arr column** of the **Data Fields** list box.
4. If you want the name of the Data Structure element to be different from the name that was used to define the element in the Repository, then type the name in the **Alias** column of the **Data Fields** list box.
  - \* To reset the Alias to be the same as the name of the Data Field, click the **>>** button above the Alias column.
5. If you want to add notes for the Data Structure element, then click on the **Notes** button. The **Notes** dialog box will appear.
  - \* Type in the notes for the Data Structure element in the text box.
  - \* If you want to add a Carriage Return to the text of your Notes, then type Ctrl+Enter.
  - \* Click OK or press Enter to return to the **Data Structure Details** dialog box.
  - \* Each Data Structure element can have separate Notes.
6. Repeat the selection for each line of the Data Fields list box until all Data Fields have been modified.
7. Click **OK** when defining one entry. To edit another Data Structure, select it from the **Structure** selection box (The changes you have made to the previous Data Structure will be automatically saved).

## 3.9 Define the Programs as Applications

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MQ Workflow controls the activation of software programs. These programs have specific data inputs and outputs (Parameters defined in a data structure). In Workflow•BPR, a program is represented by an Application object. The Application is linked to a specific Software Program that resides on the network of an organization. This information is also available in the section entitled “Applications” in Chapter 2 of the *User’s Guide*.

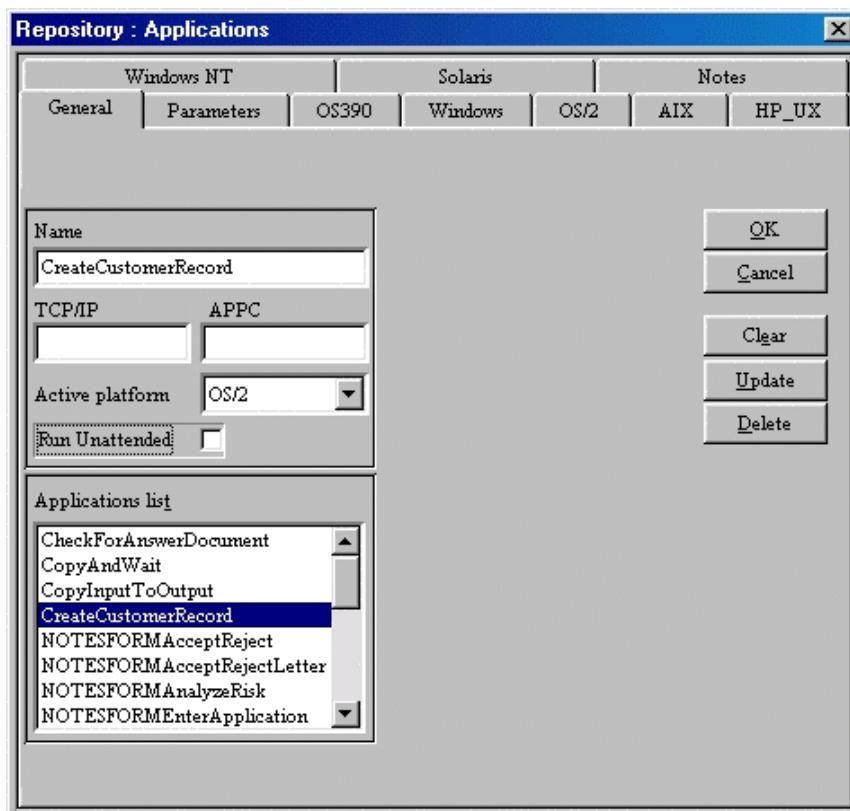
The information about Programs is captured with the **Applications** dialog box. The following table displays the MQ Workflow to Workflow•BPR conversions for Applications:

<b><u>MQ Workflow</u></b>	<b><u>Workflow•BPR</u></b>	
<b><u>Program (Program Setting)</u></b>	<b><u>Application</u></b>	<b><u>Location</u></b>
Name	Name	General Tab
Description	Notes (Description)	Notes Tab
Program Can Handle Any Data Structures	Deduced from Program Requires These Data Structures	Parameters Tab
Program Requires These Data Structures	Program Requires These Data Structures	Parameters Tab
Input	Input Structure	Parameters Tab
Output	Output Structure	Parameters Tab
Program Can Run Unattended	Run Unattended	General Tab
Input Container Access	Input Container Access	Parameters Tab
Output Container Access	Output Container Access	Parameters Tab
Execution User	Execution User	Parameters Tab
Execution Mode	Execution Mode	Parameters Tab
Trust Mode	Trust Mode	Parameters Tab
Service	Service	OS390 tab
Invocation Type	Invocation Type	OS390 tab
Executable	Executable	OS390 tab
Service Type	Service Type	OS390 tab
Executable Type	Executable Type	OS390 tab
Mapping Routine Call	Mapping Routine Call	OS390 tab
Mapping Type	Mapping Type	OS390 tab
Forward Mapping Format	Forward Mapping Format	OS390 tab
Backward Mapping Format	Backward Mapping Format	OS390 tab
Forward Mapping Parameters	Forward Mapping Parameters	OS390 tab
Backward Mapping Parameters	Backward Mapping Parameters	OS390 tab
Local User	Local User	OS390 tab
Security Checking	Security Checking	OS390 tab
Path and filename	Path	Windows, OS/2, AIX, HP/UX, Windows NT, Solaris Tab
Command Line Parameters	Command Line	Windows, OS/2, AIX, HP/UX, Windows NT, Solaris Tab
PC EXE	Deduced from Type	Windows, OS/2, Windows NT Tab

<u>Program (Program Set.), Cont.</u>	<u>Application</u>	<u>Location</u>
Start in foreground	Start in Foreground	Windows, OS/2, Windows NT Tab
No Automatic Close	No Automatic Close	OS/2 Tab
Entry Point	Entry Point	Windows, OS/2, AIX, HP/UX, Windows NT, Solaris Tab
Environment	Environment	Windows, OS/2, AIX, HP/UX, Windows NT, Solaris Tab
Inherit Environment	Inherit Environment	Windows, OS/2, AIX, HP/UX, Windows NT, Solaris Tab
Style	Visibility Style	Windows, OS/2, Windows NT Tab
PC DLL	Deduced from Type	Windows, OS/2, Windows NT Tab
Keep DLLs Loaded	Keep DLLs Loaded	Windows, OS/2, Windows NT Tab
DLLs Should Be Executed in Fenced Mode	Execute DLLs in Fenced Mode	Windows, OS/2, Windows NT Tab
DLLs Use FlowMark Version 2 Signature	DLLs Use FlowMark V-2 Signature	Windows, OS/2, Windows NT Tab
Executable	Deduced from Type	AIX, HP/UX, Solaris Tab
Run in XTerm	Run in XTerm	AIX, HP/UX, Solaris Tab
Shared Library	Entry Point	AIX, HP/UX, Solaris Tab
Keep Shared Libraries Loaded	Keep Dlls Loaded	AIX, HP/UX, Solaris Tab
Shared Libraries Should Be Executed in Fenced Mode	Execute Dlls in Fenced Mode	AIX, HP/UX, Solaris Tab
Shared Libraries Use FlowMark Version 2 Signature	Dlls Use FlowMark V-2 Signature	AIX, HP/UX, Solaris Tab

To define the Application General and Network settings:

1. Select Organization Data from the Repository menu. A sub-menu will appear.
2. Select **Applications** from the sub-menu. The **Applications** dialog box will appear—open to the **General** tab.



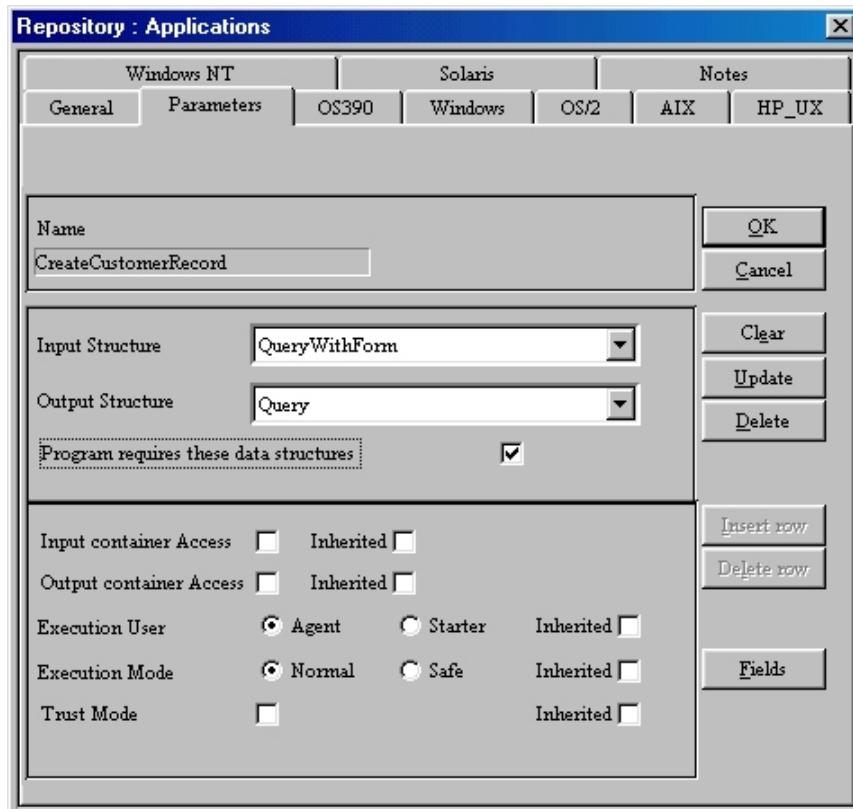
3. Type the **Name** of the Application in the **Name** text box.
4. Type the TCP/IP address of the Target machine in the **TCP/IP** text box.
  - \* This protocol is available for all platforms.
5. Type the APPC address of the Target machine in the **APPC** text box.
  - \* This protocol is available for the OS/2 platform only.
6. Select the active platform for the application from the Active Platform selection box.
  - \* You can select Windows (default), OS/2, AIX, HP/UX, or Windows NT.
7. Select the **Run Unattended** check box if the program is for an automatic Task and you want it to be started even if no eligible user is logged on.
  - \* You must also specify at least one target machine address.
8. Click **Add** to create the item or you can continue to add more information about the Applications in the other tabs of the **Applications** dialog box.

### 3.9.1 Assign the Data Structures to the Application

In Workflow•BPR, Data Structures are assigned to Applications to create the input and output structures for MQ Workflow programs. You can specify whether the data structures are inputs, outputs, or both.

To assign the Data Structures of an Application:

1. Select the Parameters tab in the **Applications** dialog box (see the figure below).



- In any section having an Inherited checkbox displayed, select the Inherited checkbox to take the MQ WorkFlow Program settings for that section from the MQ WorkFlow System settings for the equivalent section.
- 2. Select the **Program Requires these Data Structures** radio button to require the data to be taken from predefined Input and Output data structures.
  - \* Select a Data Structure from the **Input Structure** selection box.
    - If the Data Structure you want is not included in the list, it needs to be created. Click **Fields** to go to the **Data Fields** dialog box (refer to the section entitled “Define the Data Structures” on page 3-76). Upon returning to the **Applications** dialog box, the new item(s) will be included on the list.

- \*  Select a Data Structure from the Output Structure selection box.
3.  Click **Add** to create the item or you can continue to add more information about the Application in the other tabs of the **Applications** dialog box.
  4.  Select the **Input Container Access** checkbox to have the program access the input container of the activity (default).
  5.  Select the **Output Container Access** checkbox to have the program access the input container of the activity (default).
  6.  Select the **Agent** radio button beside the **Execution User** label to run the program under the operating system identifier of the PEA or server (default).
    - \* If the **Execute Dlls in Fenced Mode** checkbox is not selected, then the **Agent** radio button must be selected.
  7.  Select the **Starter** radio button beside the **Execution User** label to run the program under the operating system identifier of the user who started the work item associated with the activity.
    - \* The operating system identifier is set equal to the IBM MQ Workflow user ID.
    - \* The **Starter** radio button can only be selected for an EXE, a fenced DLL, or external services.
    - \* The **Starter** radio button cannot be selected unless the **Execute Dlls in Fenced Mode** checkbox is also selected.
  8.  Select the **Normal** radio button beside the **Execution Mode** label to send non-persistent messages among IBM MQ Workflow components.
  9.  Select the **Safe** radio button beside the **Execution Mode** label to send persistent messages IBM MQ Workflow components.
    - \* If the **Safe** radio button is selected for both **Execution Mode** and **Support Mode** (refer to the section entitled “Program Execution Server” on page 3-30), the program runs as a safe application in the transaction context of the Program Execution Server.
  10.  Select the **Trust Mode** checkbox to have the executable program obtain a correlation ID.
    - \* The IBM default is the **Trust Mode** checkbox not selected.
  11.  Click **Add** to create the item or you can continue to add more information about the Applications in the other tabs of the **Applications** dialog box.

### 3.9.2 Define the Details of the Program

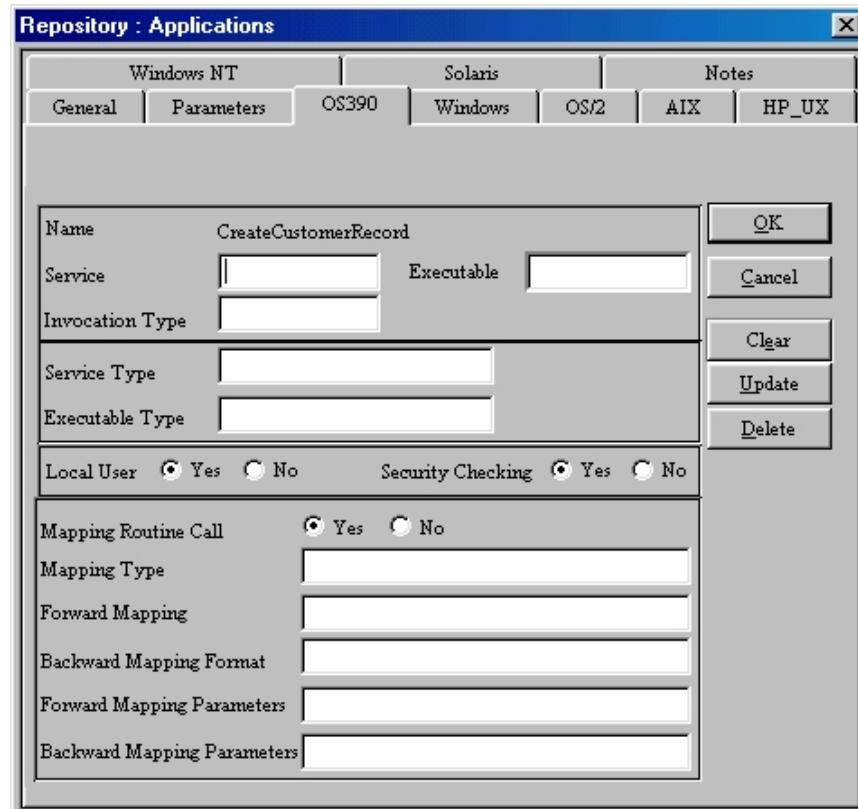
MQ Workflow can open programs on many platforms. In addition, a single program can reside on many platforms. Thus, for any single program, you can specify the information specific to more than one platform. There are seven (7) platforms that MQ Workflow will operate on: OS390, Windows, OS/2, AIX, HP/UX, Windows NT, and Solaris.

#### 3.9.2.1 OS390

This tab allows you to enter information about the program that will run on an OS390 platform.

To define the Application details for the OS390 platform:

1. Select the **OS390** tab of the **Programs** dialog box (see the figure below).



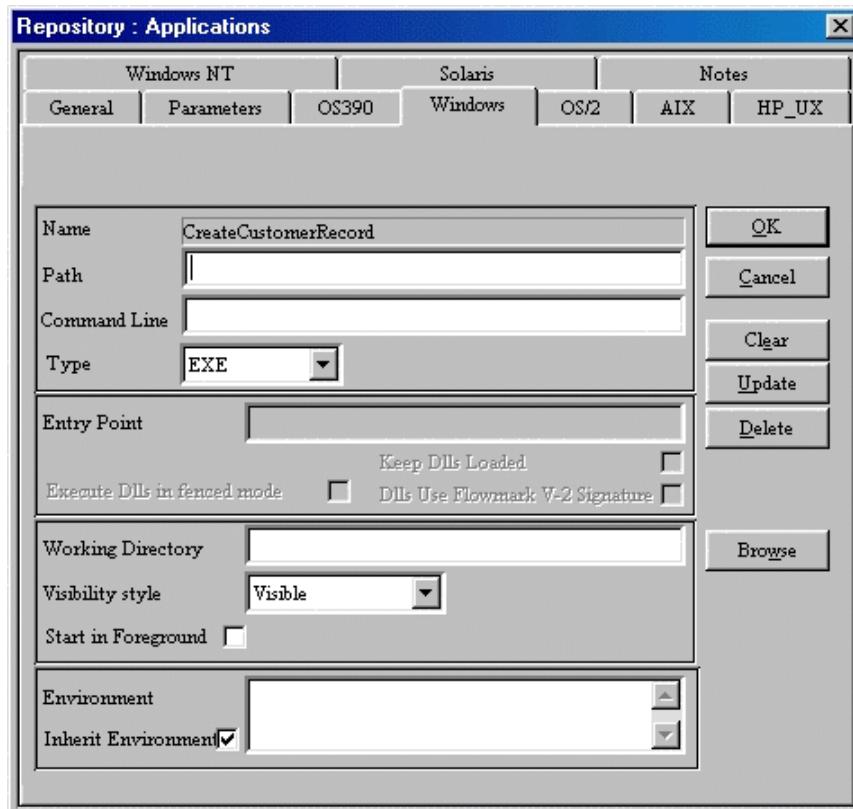
2.  Type the name of the service that will be called in the **Service** text box (Required).
3.  Type the invocation type that will be used by the specified service in the **Invocation Type** text box (Required).
4.  Type the name of the executable that will be called by the specified service in the **Executable** text box (Required).
5.  Type the service type in the **Service Type** text box (Required).
  - \* For example, you can specify: **CICS** or **IMS**.
6.  Type the execution type in the **Executable Type** text box (Required).
7.  Select the **Yes** radio button in the **Local User** box to specify that the Employee password should be used for the Application.
  - \* This radio button is selected by default.
8.  Select the **No** radio button in the **Local User** box to specify that the Employee password should *not* be used for the Application.
9.  Select the **Yes** radio button in the **Security Checking** box to specify that security checking will be invoked at the launch of the Application.
  - \* This radio button is selected by default.
10.  Select the **No** radio button in the **Security Checking** box to specify that security checking will *not* be invoked at the launch of the Application.
11.  Select the **No** radio button in the **Mapping Routine Call** line to specify that the mapping routine will *not* be invoked at the launch of the Application.
  - \* This radio button is selected by default.
12.  Select the **Yes** radio button in the **Mapping Routine Call** line to specify that the mapping routine will be invoked at the launch of the Application.
13. If the **Yes** radio button in the **Mapping Routine Call** line is selected then the following attributes are available:
  - \*  Type the mapping type in the **Mapping Type** text box (Optional).
  - \*  Type the format that should be used for forward mapping in the **Forward Mapping Format** text box (Optional).
  - \*  Type the format that should be used for backward mapping in the **Backward Mapping Format** text box (Optional).
  - \*  Type additional parameters that should be used for forward mapping in the **Forward Mapping Parameters** text box (Optional).
  - \*  Type additional parameters that should be used for backward mapping in the **Backward Mapping Parameters** text box (Optional).
14.  Click **Add** to create the item or you can continue to add more information about the Application in the other tabs of the **Applications** dialog box.

### 3.9.2.2 Windows

This tab allows you to enter information about the program that will run on a Windows platform.

To define the Application details for the Windows platform:

1. Select the Windows tab of the **Applications** dialog box (see the figure below).



2. Type the path and filename of the program.
  - \* The full file path is not required. The path can be specified in the CONFIG.SYS file of the client where the program will run.
  - \* If the filename does not have an extension of .EXE, .COM, .PIF, .CMD, and .BAT, then the program will be assumed to be a .DLL.
  - \* You can specify the MQ Workflow manual checklist program: **EXMCOMAN.EXE**.
3. Type any valid parameters for the executable program in the **Command Line** text box.
4. Select the type of program in the **Type** selection box.
  - \* The following types are possible: .EXE, .COM, .PIF, .BAT, .CMD and .DLL.

5. If you select **Type** as **.DLL**:

- \*  Type an Entry Point in the **Entry Point** text box.
- \*  Select the **Execute Dlls in Fenced Mode** checkbox to have the PEA and program Dll files run in separate processes (default).
- \*  Select the **Keep Dlls Loaded** checkbox to have the PEA keep program Dll files loaded (default).
- \*  Select the **Dlls Use Flowmark V-2 Signature** checkbox to use the Version 2 signature to invoke a Dll file.
  - The IBM default is the **Dlls Use Flowmark V-2 Signature** checkbox not selected (the Version 3 signature is used).

6. If you select **Type** as anything other than **.DLL**:

- \*  Type a working directory for the program in the **Working Directory** text box.
- \*  Select a visibility style of the Application from the **Visibility Style** selection box.
  - There are four (4) initial states for the program: **Visible** (default), **Invisible**, **Minimized**, or **Maximized**.
- \* To specify that the program starts in foreground,  select the **Start in Foreground** check box.
  - Do not select the check box for Presentation Manager programs. If you do, the Task list pops up when the program is started.
  - This setting will override the Visibility Style of Minimized.
  - If the Visibility Style is invisible, this check box has no effect.
- \*  Type any Environment Settings in the **Environment** text box.
  - These settings will be merged with the Windows environment settings if the **Inherit Environment** check box is selected.
- \* To use the Windows environment settings,  select the **Inherit Environment** check box.
  - These settings will be merged with any user defined environment settings.

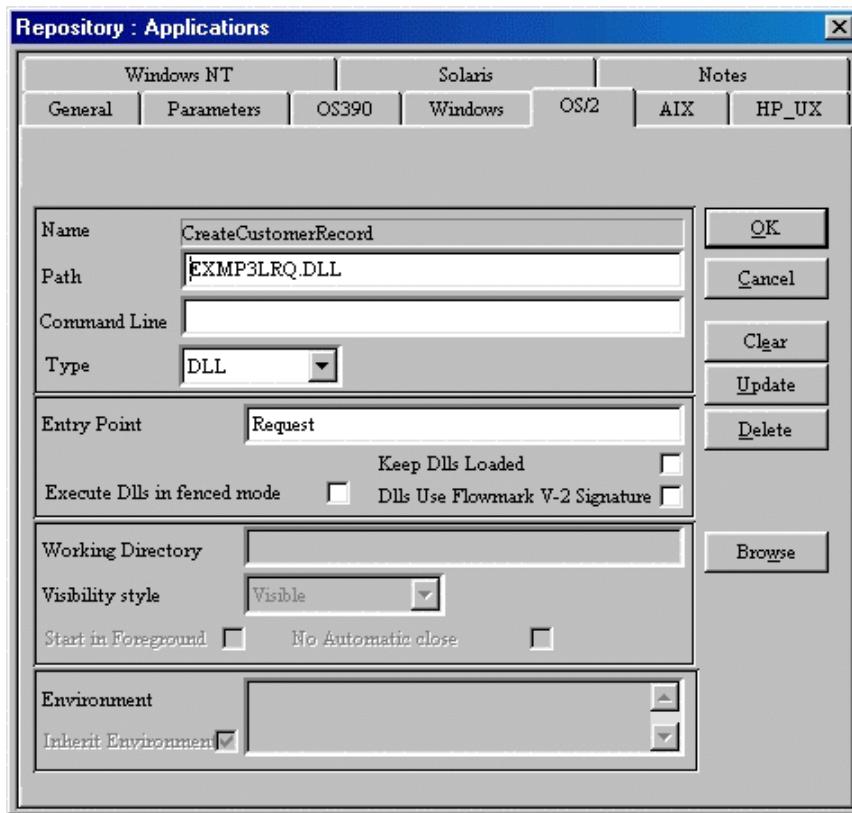
7.  Click **Add** to create the item or you can continue to add more information about the Application in the other tabs of the **Applications** dialog box.

### 3.9.2.3 OS/2

This tab allows you to enter information about the program that will run on an OS/2 platform.

To define the Application details for the OS/2 platform:

1. Select the **OS/2** tab of the **Programs** dialog box (see the figure below).



2. Type the path and filename of the program.
  - \* The full file path is not required. The path can be specified in the CONFIG.SYS file of the client where the program will run.
  - \* For .DLL files you can enter only the filename. You *cannot* specify the full file path. A LIBPATH statement and path must be added to the CONFIG.SYS file of the client where the program will run.
  - \* You can specify the MQ Workflow manual checklist program (optional): **EXMPOMAN.EXE**.
3. Type any valid parameters for the executable program in the **Command Line** text box.
4. Select the type of program in the Type selection box.
  - \* The following types are possible: **.EXE**, **.COM**, **.PIF**, **.BAT**, and **.DLL**.

5. If you select **Type** as **.DLL**:

- \*  Type an Entry Point in the **Entry Point** text box.
- \*  Select the **Execute Dlls in Fenced Mode** checkbox to have the PEA and program Dll files run in separate processes (default).
- \*  Select the **Keep Dlls Loaded** checkbox to have the PEA keep program Dll files loaded (default).
- \*  Select the **Dlls Use Flowmark V-2 Signature** checkbox to use the Version 2 signature to invoke a Dll file.
  - The IBM default is the **Dlls Use Flowmark V-2 Signature** checkbox not selected (the Version 3 signature is used).

6. If you select **Type** as anything other than **.DLL**:

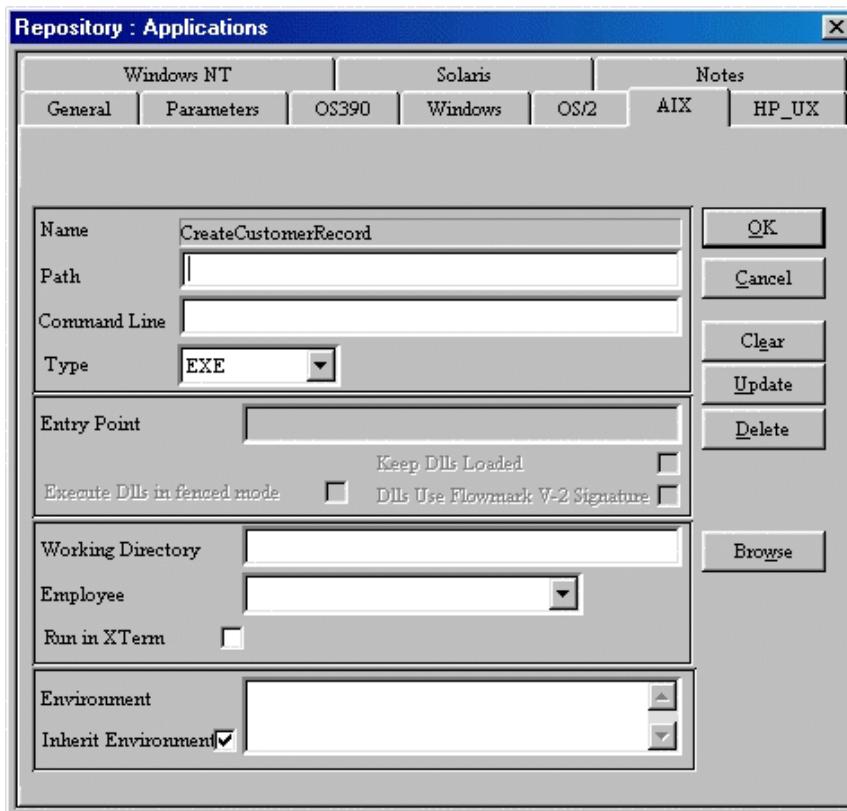
- \*  Type a working directory for the program in the **Working Directory** text box.
  - \*  Select the Visibility Style in the **Visibility Style** selection box.
    - There are four initial states for the program: **Visible** (default), **Invisible**, **Minimized**, or **Maximized**.
  - \* To specify that the program starts in foreground,  select the **Start in Foreground** check box.
    - Do not select the check box for Presentation Manager programs. If you do, the Task list pops up when the program is started.
    - This setting will override the Visibility Style of Minimized.
    - If the Visibility Style is invisible, this check box has no effect.
  - \* To specify that the program will not close automatically when the program finishes,  select the **No Automatic Close** check box.
  - \*  Type any Environment Settings in the **Environment** text box.
    - These settings will be merged with the OS/2 environment settings if the **Inherit Environment** check box is selected.
  - \* To use the OS/2 environment settings,  select the **Inherit Environment** check box.
    - These settings will be merged with any user defined environment settings.
7.  Click **Add** to create the item or you can continue to add more information about the Application in the other tabs of the **Applications** dialog box.

### 3.9.2.4 AIX

This tab allows you to enter information about the program that will run on an AIX platform.

To define the Application details for the AIX platform:

1. Select the **AIX** tab of the **Applications** dialog box (see the figure below).



2. Type the path and filename of any executable files or scripts.
  - \* You can specify the MQ Workflow manual checklist program: **exmpoman**.
3. Type any valid parameters for the executable program in the Command Line text box.
4. Select the type of program in the Type selection box.
  - \* The following types are possible: **.EXE**, **.COM**, **.PIF**, **.BAT**, and **.DLL**.
5. If you select **Type** as **.DLL**:
  - \* Type an Entry Point in the **Entry Point** text box.
  - \* Select the **Execute Dlls in Fenced Mode** checkbox to have the PEA and program Dll files run in separate processes (default).

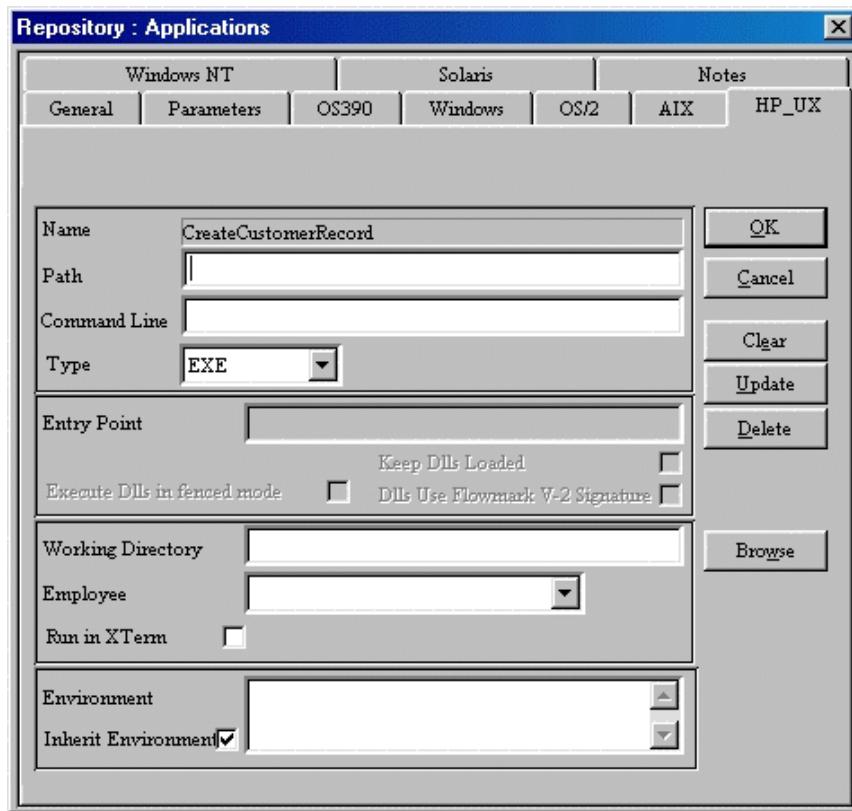
- \*  Select the **Keep Dlls Loaded** checkbox to have the PEA keep program Dll files loaded (default).
  - \*  Select the **Dlls Use Flowmark V-2 Signature** checkbox to use the Version 2 signature to invoke a Dll file.
    - The IBM default is the **Dlls Use Flowmark V-2 Signature** checkbox not selected (the Version 3 signature is used).
6. If you select **Type** as anything other than **.DLL**:
- \*  Type a working directory for the program in the **Working Directory** text box.
  - \* You can specify the User Account ID by  selecting an Employee in the **Employee** selection box.
  - \* To specify that the program is an X-Windows application,  select the **Run in XTerm** check box.
  - \* Type any Environment Settings in the **Environment** text box.
    - These settings will be merged with the AIX environment settings if the **Inherit Environment** check box is selected.
  - \* To use the AIX environment settings,  select the **Inherit Environment** check box.
    - These settings will be merged with any user defined environment settings.
7.  Click Add to create the item or you can continue to add more information about the Application in the other tabs of the **Applications** dialog box.

### 3.9.2.5 HP\_UX

This tab allows you to enter information about the program that will run on a HP\_UX platform.

To define the Application details for the HP\_UX platform:

1. Select the **HP\_UX** tab of the **Applications** dialog box (see the figure below).



2. Type the path and filename of any executable files or scripts.
  - \* You can specify the MQ Workflow manual checklist program: **exmpoman**.
3. Type any valid parameters for the executable program in the Command Line text box.
4. Select the type of program in the Type selection box.
  - \* The following types are possible: **.EXE**, **.COM**, **.PIF**, **.BAT**, and **.DLL**.
5. If you select **Type** as **.DLL**:
  - \* Type an Entry Point in the **Entry Point** text box.
  - \* Select the **Execute DLLs in Fenced Mode** checkbox to have the PEA and program Dll files run in separate processes (default).

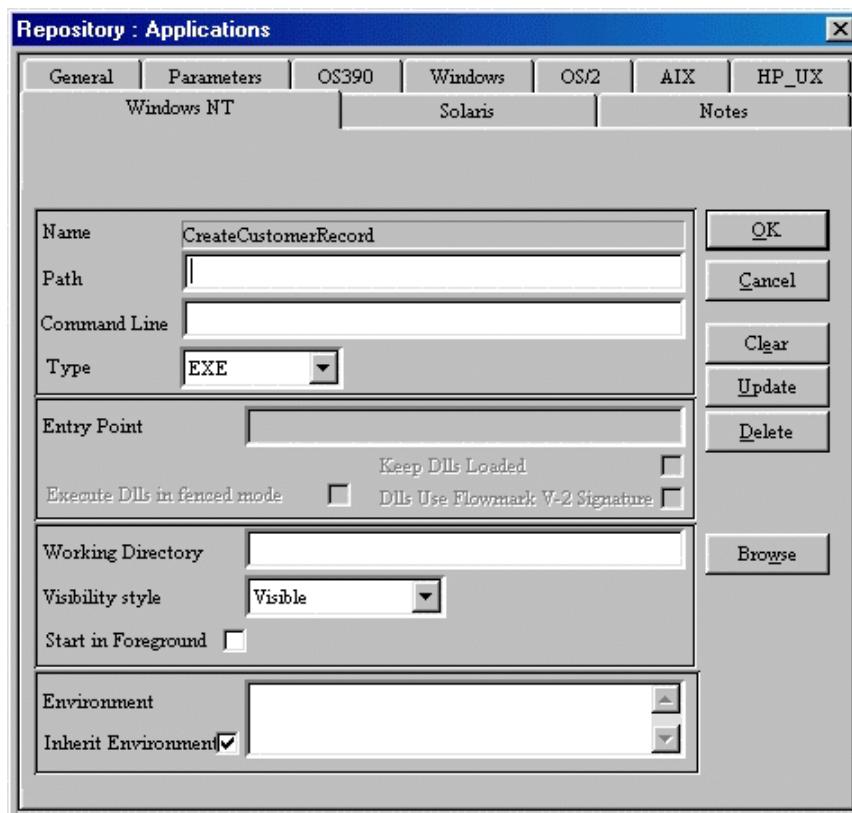
- \*  Select the **Keep Dlls Loaded** checkbox to have the PEA keep program Dll files loaded (default).
  - \*  Select the **Dlls Use Flowmark V-2 Signature** checkbox to use the Version 2 signature to invoke a Dll file.
    - The IBM default is the **Dlls Use Flowmark V-2 Signature** checkbox not selected (the Version 3 signature is used).
6. If you select **Type** as anything other than **.DLL**:
- \*  Type a working directory for the program in the **Working Directory** text box.
  - \* You can specify the User Account ID by  selecting an Employee in the **Employee** selection box.
  - \* To specify that the program is an X-Windows application,  select the **Run in XTerm** check box.
  - \* Type any Environment Settings in the **Environment** text box.
    - These settings will be merged with the HP\_UX environment settings if the **Inherit Environment** check box is selected.
  - \* To use the HP\_UX environment settings,  select the **Inherit Environment** check box.
    - These settings will be merged with any user defined environment settings.
7.  Click **Add** to create the item or you can continue to add more information about the Application in the other tabs of the **Applications** dialog box.

### 3.9.2.6 Windows NT

This tab allows you to enter information about the program that will run on a Windows NT platform.

To define the Application details for the Windows platform:

1. Select the Windows NT tab of the **Applications** dialog box (see the figure below).



2. Type the path and filename of the program.
  - \* The full file path is not required. The path can be specified in the CONFIG.SYS file of the client where the program will run.
  - \* If the filename does not have an extension of .EXE, .COM, .PIF, and .BAT, then the program will be assumed to be a .DLL.
  - \* You can specify the MQ Workflow manual checklist program: **EXMCOMAN.EXE**.
3. Type any valid parameters for the executable program in the Command Line text box.
4. Select the type of program in the Type selection box.
  - \* The following types are possible: .EXE, .COM, .PIF, .BAT, and .DLL.

5. If you select **Type** as **.DLL**:

- \*  Type an Entry Point in the **Entry Point** text box.
- \*  Select the **Execute Dlls in Fenced Mode** checkbox to have the PEA and program Dll files run in separate processes (default).
- \*  Select the **Keep Dlls Loaded** checkbox to have the PEA keep program Dll files loaded (default).
- \*  Select the **Dlls Use Flowmark V-2 Signature** checkbox to use the Version 2 signature to invoke a Dll file.
  - The IBM default is the **Dlls Use Flowmark V-2 Signature** checkbox not selected (the Version 3 signature is used).

6. If you select **Type** as anything other than **.DLL**:

- \*  Type a working directory for the program in the **Working Directory** text box.
- \*  Select the Visibility Style in the **Visibility Style** selection box.
  - There are four initial states for the program: **Visible** (default), **Invisible**, **Minimized**, or **Maximized**.
- \* To specify that the program starts in foreground,  select the **Start in Foreground** check box.
  - Do not select the check box for Presentation Manager programs. If you do, the Task list pops up when the program is started.
  - This setting will override the Visibility Style of Minimized.
  - If the Visibility Style is invisible, this check box has no effect.
- \*  Type any Environment Settings in the **Environment** text box.
  - These settings will be merged with the Windows NT environment settings if the **Inherit Environment** check box is selected.
- \* To use the Windows NT environment settings,  select the **Inherit Environment** check box.
  - These settings will be merged with any user defined environment settings.

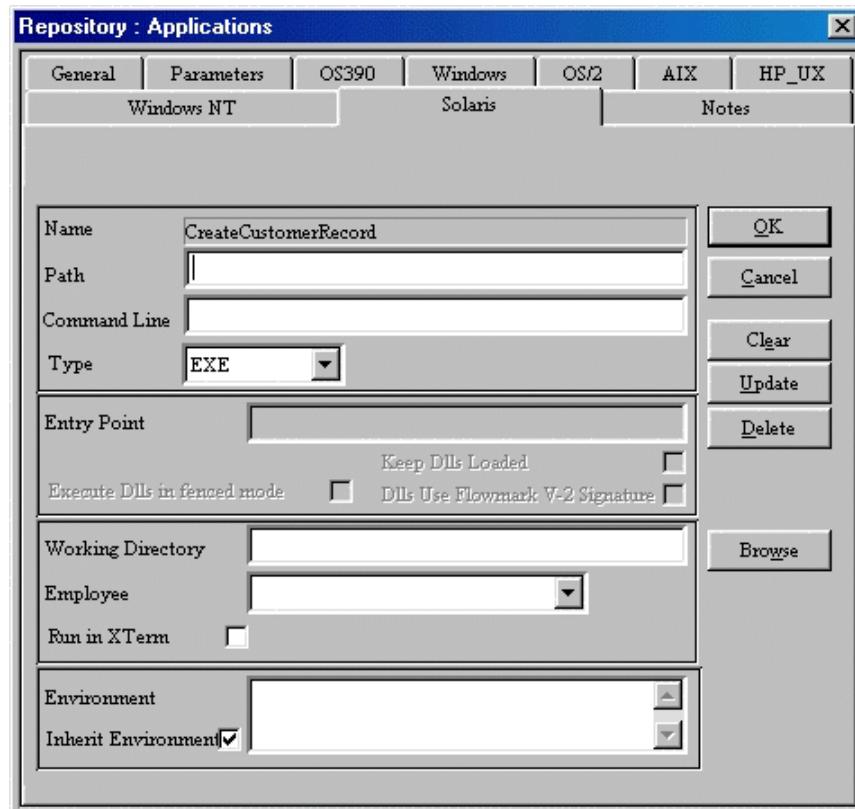
7.  Click **Add** to create the item or you can continue to add more information about the Application in the other tabs of the **Applications** dialog box.

### 3.9.2.7 Solaris

This tab allows you to enter information about the program that will run on a Solaris platform.

To define the Application details for the Solaris platform:

1. Select the **Solaris** tab of the **Applications** dialog box (see the figure below).



2. Type the path and filename of any executable files or scripts.
  - \* You can specify the MQ Workflow manual checklist program: **exmpoman**.
3. Type any valid parameters for the executable program in the Command Line text box.
4. Select the type of program in the Type selection box.
  - \* The following types are possible: **.EXE**, **.COM**, **.PIF**, **.BAT**, and **.DLL**.
5. If you select **Type** as **.DLL**:
  - \* Type an Entry Point in the **Entry Point** text box.
  - \* Select the **Execute DLLs in Fenced Mode** checkbox to have the PEA and program Dll files run in separate processes (default).

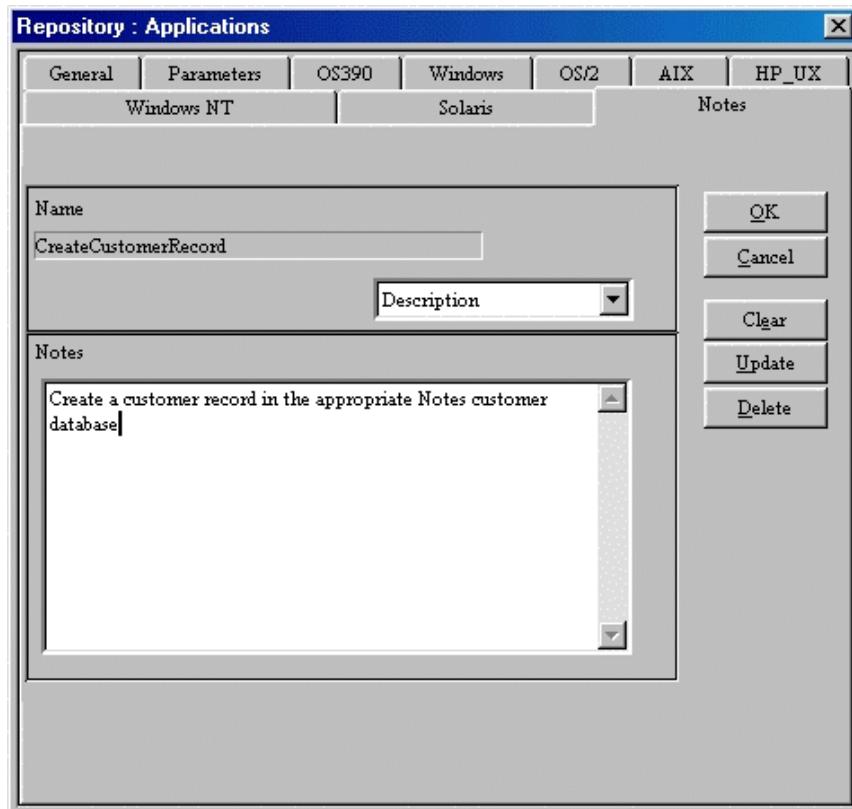
- \*  Select the **Keep Dlls Loaded** checkbox to have the PEA keep program Dll files loaded (default).
  - \*  Select the **Dlls Use Flowmark V-2 Signature** checkbox to use the Version 2 signature to invoke a Dll file.
    - The IBM default is the **Dlls Use Flowmark V-2 Signature** checkbox not selected (the Version 3 signature is used).
6. If you select **Type** as anything other than **.DLL**:
- \*  Type a working directory for the program in the **Working Directory** text box.
  - \* You can specify the User Account ID by  selecting an Employee in the **Employee** selection box.
  - \* To specify that the program is an X-Windows application,  select the **Run in XTerm** check box.
  - \* Type any Environment Settings in the **Environment** text box.
    - These settings will be merged with the Solaris environment settings if the **Inherit Environment** check box is selected.
  - \* To use the Solaris environment settings,  select the **Inherit Environment** check box.
    - These settings will be merged with any user defined environment settings.
7.  Click **Add** to create the item or you can continue to add more information about the Application in the other tabs of the **Applications** dialog box.

### 3.9.2.8 Notes

This tab allows you to enter notes about the Application.

To define the notes for the Application platform:

1. Select the **Notes** tab of the **Applications** dialog box (see the figure below).



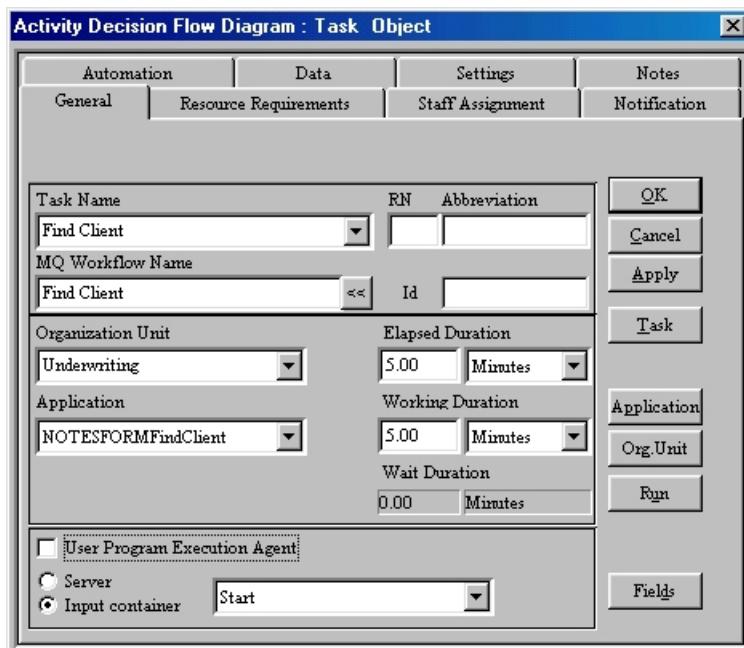
2. Select a Notes Header from the drop-down list in the Notes Header selection box.
  - \* There are two (2) independent types of Notes available for a Domain: **Description** (default) and **Documentation**.
3. Type the Notes appropriate to the Header you have selected in the **Notes** text box.
  - \* The Notes pertaining to the **Description** Header will be exported in the FDL file.
  - \* If you want to add a **Carriage Return** to the text of your notes, type **Ctrl+Enter**.
4. Click **Add** to create the item or you can continue to add more information about the Application in the other tabs of the **Applications** dialog box.

## 3.10 Assign the Applications to the Tasks

After the Applications and the Tasks have been created, the Applications need to be associated with one (or more) Tasks. The input and output structures of the Application will automatically be used as the structures for the Input and Output Containers of the Task.

To assign a program to the Task:

1. Double-click on the Task object. The **Task Object** dialog box will appear—open to the General tab (see the figure below).



2. Select the Application from the **Application** selection box.
  - \* If the Application you want is not included on the list, then you need to create it. Click the **Application** Go To button to access the Repository **Applications** dialog box in order to create the item (refer to the section entitled “Define the Programs as Applications” on page 3-86). Upon returning to the **Task Object** dialog box, the new item(s) will be included on the list.
3. Select the **User Program Execution Agent** checkbox to have program execution governed by the user-defined PEA.
4. Select the **Server** radio button to have program execution governed by the Program Execution Server (PES).
  - \* Select the System that contains the PES from the drop-down list in the box on the right.

- If the System you want is not included on the list, then either you must create it, or you must assign a PES to it. To create the System,  select the **System** dialog box from the **Organization Data** sub-menu of the **Repository** menu (refer to the section entitled “System” on page 3-47). To assign a PES to a System,  select the **System** dialog box from the **Organization Data** sub-menu of the **Repository** menu, and update the **Servers** list at the bottom of the **General** tab (refer to the section entitled “General” on page 3-48).
5.  Select the **Input Container** radio button to have program execution governed by information in a Data Field.
- \*  Select the Data Field from the drop-down list in the box on the right.
    - If the Data Field you want is not included on the list, then you need to create it.  Click the **Fields Go To** button to open the **Data Fields** dialog box (refer to the section entitled “Data Fields” on page 3-76). Upon returning to the **Task Object** dialog box, the new item(s) will be included on the list.

## **3.11 Define the Settings for Activities**

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MQ Workflow has three (3) basic types of activities: Process Activities, Blocks, and Program Activities.

A Workflow•BPR Process Object that is set to the type Process is equivalent to a MQ Workflow Process Activity. The Process Object itself is considered an activity that appears in an Employees queue, but the actual work performed is defined in the Sub-Process that the Process Object represents. When the Sub-Process is completed, if the end condition of the Process Object is evaluated to True, then the activity is completed. Otherwise the activity will start again.

A Workflow•BPR Process Object that is set to the type Block is equivalent to a MQ Workflow Block. The Block is a Process that begins and will be repeated until the end condition evaluates to True.

A Workflow•BPR Task is equivalent to a MQ Workflow Program Activity, which has an Application assigned to perform it. The program is started when the Task is started. When the Application ends, the end condition of the Task is evaluated. If the condition evaluates to True, then the Task is completed. Otherwise, the Task reset to the ready status.

A Workflow•BPR Process Object that is set to the type Activity is also equivalent to a MQ Workflow Program Activity. This will be discussed in greater detail in the section entitled “Exporting a Process Object as a Program Activity (Task)” on page 3-185.

### 3.11.1 The Process

The top-level Process is treated differently than a Process Activity in MQ Workflow. The settings necessary to initiate a Process are documented in this section. The settings necessary to initiate a Process Activity within a Process are documented in the next section.

The information about Processes is captured with the **Info** dialog box when accessed through the Info tool of the ADF toolbar or the Info command from the Process Menu. The Details and Costs tabs of the Info dialog box are not used for defining MQ Workflow information.

The following table displays the MQ Workflow to Workflow•BPR conversions for Processes:

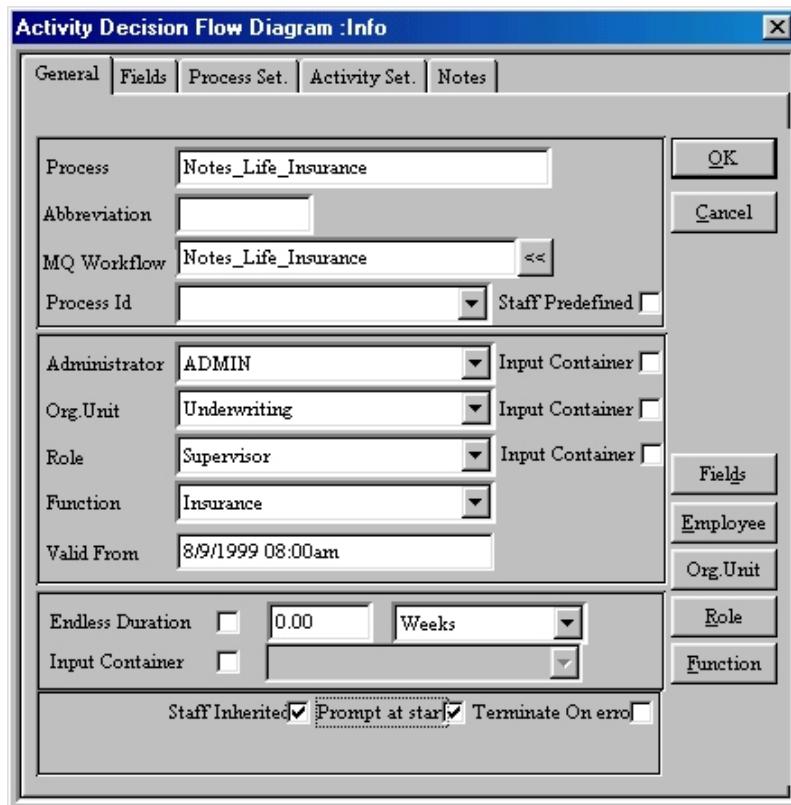
<b><u>MQ Workflow</u></b>	<b><u>Workflow•BPR</u></b>	
<b><u>Process Setting</u></b>	<b><u>Process</u></b>	<b><u>Location</u></b>
Name	Name	General Tab
Description	Description Header	Notes Tab
Category	Function	General Tab
Valid From	Valid From	General Tab
Input Data Structure	Input Data Structure	Fields Tab
Force Prompt For Data At Process Start	Prompt At Start	General Tab
Output Data Structure	Output Data Structure	Fields Tab
Documentation	Notes Header	Notes Tab
Staff From Predefined Members	Staff Predefined	General Tab
Process Administrator		
Organization	Organization Unit	General Tab
Role	Role	General Tab
Duration Of Process	Duration	General Tab
No Notification	Endless Duration	General Tab
From Container	Input Container	General Tab
Autonomy	Autonomy	Process Settings Tab
Audit Trail	Audit Trail Settings	Process Settings Tab
Workitem Refresh Policy	Work Item Refresh	Process Settings Tab
Notification Mode	Notification Mode	Process Settings Tab
Keep Finished Workitems	Keep Finished Work	Process Settings Tab
Keep Finished Processes	Keep Finished Process Times	Process Settings Tab
Program Activities Can Be Checked Out	Program Activities Can Be Checked Out	Activity Settings Tab
Include Process Assignment	Include Process Assignment	Activity Settings Tab
Prefer Local Users	Prefer Local Users	Activity Settings Tab
Prefer Not Absent Users	Prefer Not Absent Users	Activity Settings Tab
Assign Substitute If User Is Absent	Assign Substitute If User Is Absent	Activity Settings Tab
Assign Substitute For Notification If User Is Absent	Assign Substitute For Notification If User Is Absent	Activity Settings Tab

<u>Process Setting, Cont.</u>	<u>Process</u>	<u>Location</u>
Send Second Notification To Same User	Send Second Notification To Same User	Activity Settings Tab
Documentation	Documentation	Notes Tab
Name	MQ Workflow	General Tab
Description	MQ Workflow Description Header	Notes Tab
Valid From (Date)	Valid From	General Tab
Input Data Structure	Input Data Structure	Fields Tab
Output Data Structure	Output Data Structure	Fields Tab
Category	Function	General Tab
Audit	Audit Trail	Process Settings Tab
Force Prompt for Data at Process Start	Prompt at Start	General Tab
Terminate on Error	Terminate on Error	General Tab
Documentation	Documentation Header	Notes Tab
Organization	Organization Unit	General Tab
Role	Role	General Tab
Endless Duration	Endless Duration	General Tab
Notification Duration	Duration	General Tab
Inherited	Staff Inherited	General Tab
Process Administrator	Administrator	General Tab
Data from Input Container	Input Container	General Tab

### 3.11.1.1 General and Staff Information

To specify the MQ Workflow General and Staff settings:

- Choose **Info** from the **Process** menu, or click the **Info** tool button  on the **ADF Toolbar**. Workflow•BPR displays the **Info** dialog box—open to the General Tab (see the figure below).



- Edit the name of the Process in the **Process** text box.
- The **MQ Workflow** text box displays the name that will be exported to the FDL file. The MQ Workflow name is derived from a combination of the Process name and the RN and has a maximum of 35 characters (for a RN value of 00, the RN does not appear in the MQ Workflow name).
  - You can type in the **MQ Workflow** text box to change the MQ Workflow name. This name has to be unique.
  - You can reset a modified MQ Workflow name by clicking on the << button to the right of the **MQ Workflow** text box.
- Select the Data Field that contains the Process ID in the **Process ID** selection box.

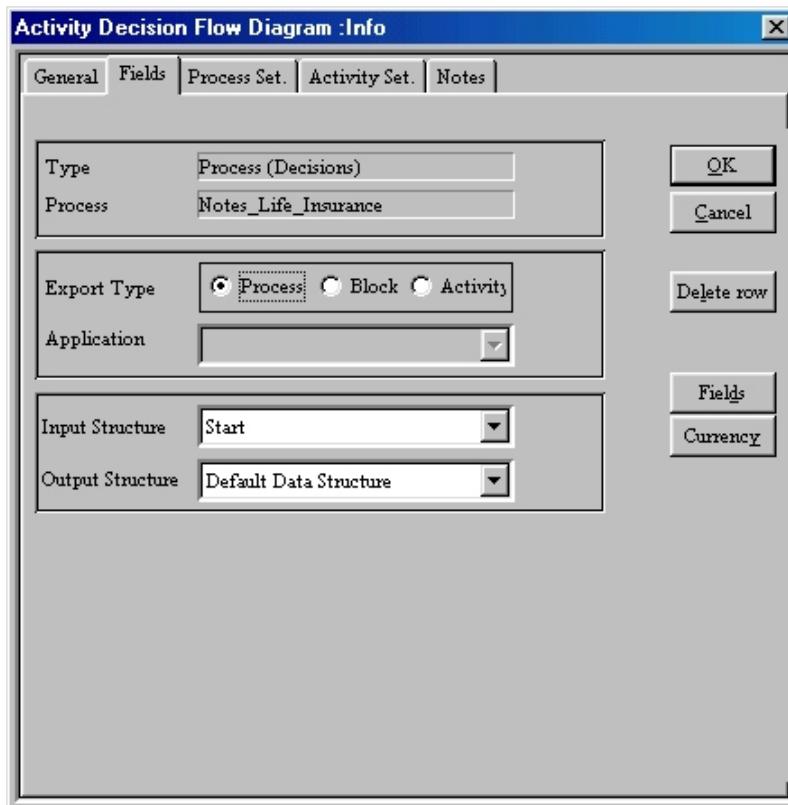
5. Select the **Staff Predefined** checkbox to determine which staff members are associated with the process by the values of the **\_PROCESS\_INFO** fields in the input container for that process.
6. Select the Employee that is the administrator of the Process from the **Administrator** selection box:
  - \* If the Employee you want is not included on the list, then you need to create it. Click the **Employee** Go To button to access the Repository **Employees** dialog box in order to create the item (refer to the section entitled “Define the Staff” on page 3-66). Upon returning to the **Info** dialog box, the new item(s) will be included on the list.
  - \* Select the **Input Container** checkbox to take the Administrator for the process from a specific Data Field in the input container for the process.
    - Select the name of the Data Field in the input container that contains the Administrator from the drop-down list in the **Administrator** selection box, which displays all the Data Fields in the input container when the **Input Container** checkbox is selected.
7. Select the Organization Unit responsible for the Process from the **Organization Unit** selection box.
  - \* Employees assigned to MQ Workflow activities must belong to this organization.
  - \* If the unit you want is not included on the list, then you need to create it. Click the **Org. Unit** Go To button to access the Repository **Organization Units** dialog box in order to create the item (refer to the section entitled “Define the Organization Setting” on page 3-5). Upon returning to the **Info** dialog box, the new item(s) will be included on the list.
  - \* Select the **Input Container** checkbox to take the Organization Unit for the process from a specific Data Field in the input container for the process.
    - Select the name of the Data Field in the input container that contains the Organization Unit from the drop-down list in the **Org. Unit** selection box, which displays all the Data Fields in the input container when the **Input Container** checkbox is selected.
8. Select the Role responsible for overseeing the Process from the **Role** selection box.
  - \* Employees that fill this Role can perform any individual Task in the Process (as well as those Roles specified in the individual Tasks).
  - \* If the Role you want is not included on the list, then you need to create it. Click the **Roles** Go To button to access the Repository **Roles** dialog box in order to create the item (refer to the section entitled “Define the Roles” on page 3-5). Upon returning to the **Info** dialog box, the new item(s) will be included on the list.

- \*  Select the **Input Container** checkbox to take the Role for the process from a specific Data Field in the input container for the process.
    - Select the name of the Data Field in the input container that contains the Role from the drop-down list in the **Role** selection box, which displays all the Data Fields in the input container when the **Input Container** checkbox is selected.
9. To add or change the Function associated with the Process,  choose a function name from the **Function** combo box.
    - \* The Function will be exported as the Process Category in the FDL file.
    - \* If the Function you want is not included on the list, then you need to create it.  Click the **Function** Go To button to access the Repository **Functions** dialog box in order to create the item (refer to the section entitled “Functions” in Chapter 2 of the *User’s Guide*). Upon returning to the **Info** dialog box, the new item(s) will be included on the list.
  10.  De-select the **Endless Duration** check box if you want to specify a duration for the Process.
    - \* To change the Duration of the Process,  type the appropriate value in the **Duration** text box and then  select the appropriate time unit from the **Duration** Unit selection box.
      - The Process Administrator will be notified if the duration of the Process exceeds the Duration setting.
    - \*  Select the **Input Container** checkbox to take the value for Endless Duration for the process from a specific Data Field in the input container for that process.
      - Select the name of the Data Field in the input container that contains the value for Endless Duration from the drop-down list in the selection box.
  11. If you want to specify the MQ Workflow Process Staff settings from the data that is contained in the Input Container of the Process, then  select the **Input Container** check box.
    - \* The **Administrator**, **Organization Unit**, **Role**, **Duration**, and **Inherited** fields will be disabled.
  12. If you want the Process Starter to be prompted to initialize the Input Container data items that are not set, then  select the **Prompt at Start** check box.
  13. If the Process is used as a MQ Workflow process activity by another Process and you want it to inherit the process administrator and other settings, then  select the **Staff Inherited** check box.
  14. If you want MQ Workflow to exit the Process if there is an error in an exit condition or transition condition, then  select the **Terminate on Error** check box.
  15. When finished with the **General** Tab,  click **OK** or  press **Enter** or continue in another tab.

### 3.11.1.2 Data Information

To specify the MQ Workflow Data settings of a Process:

1. Click the Fields tab at the top of the **Info** dialog box (see the figure below).



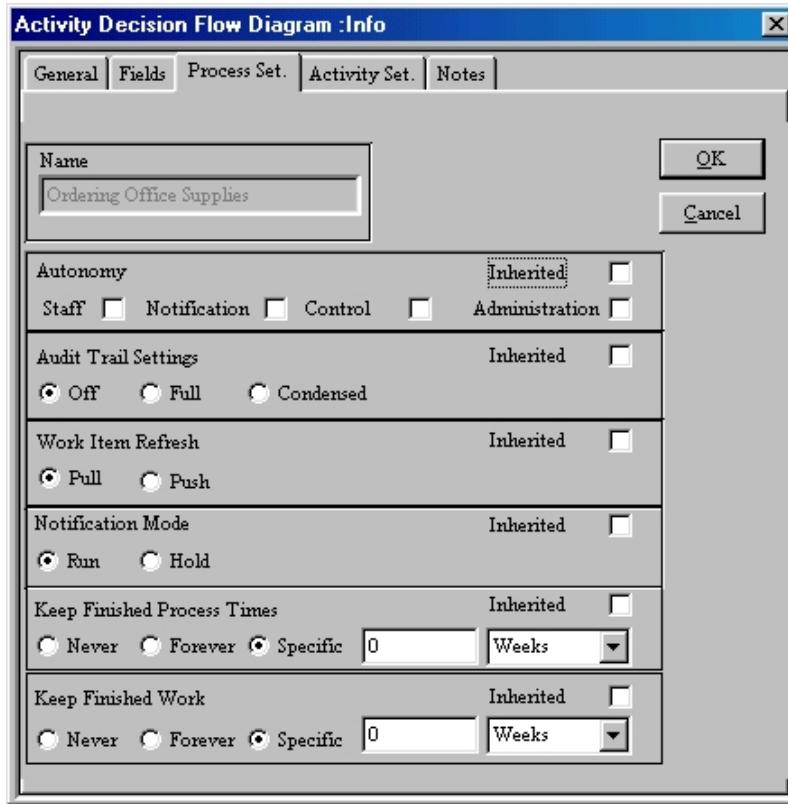
2. Select the Appropriate radio button from the **Export Type** box.
  - \* The **Process** radio button will specify that the Process will be exported to a MQ Workflow FDL file as a Process Activity.
  - \* The **Block** radio button will specify that the Process will be exported to a MQ Workflow FDL file as a Block.
  - \* The **Activity** radio button will specify that the Process will be exported to a MQ Workflow FDL file as a Program Activity.
    - All lower-level details of the Process Object will be ignored during export. Refer to the section entitled “Exporting a Process Object as a Program Activity (Task)” on page 3-185 for more details.

-  Select an Application from the **Application** selection box to define the MQ Workflow program that will be used for the Program Activity that is exported to the FDL file.
    - If the Application you want is not included on the list, then you need to create it.  Click the **Application** Go To button to access the Repository **Applications** dialog box in order to create the item (refer to the section entitled “Define the Programs as Applications” on page 3-86). Upon returning to the **Info** dialog box, the new item(s) will be included on the list.
3. To define the input structure of the Process,  select a Data Structure from the Input Structure selection box.
  4. To define the output structure of the Process,  select a Data Structure from the Output Structure selection box.
  5. When finished with the Fields Tab,  click OK or  press Enter or continue in another tab.

### 3.11.1.3 Process Control Settings

To specify the MQ Workflow Process Control Settings:

1.  Click the **Process Set.** tab at the top of the **Info** dialog box (see the figure below).



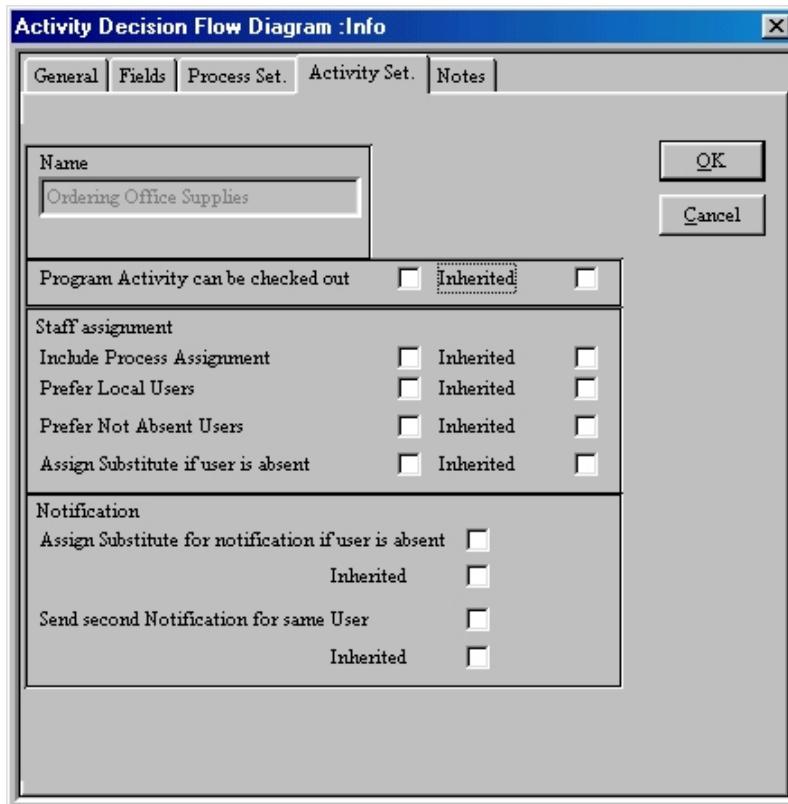
- In any section having an **Inherited** checkbox displayed,  select the **Inherited** checkbox to take the Process settings for that section from the settings in the corresponding section for the System of which this Process is a part.
- 2.  Select the **Staff** checkbox in the **Autonomy** box to have the staff assignments not taken from the parent process when this process runs as a Sub-Process.
- 3.  Select the **Notification** checkbox in the **Autonomy** box to have the notification settings not taken from the parent process when this process runs as a Sub-Process.
- 4.  Select the **Control** checkbox in the **Autonomy** box to ignore **terminate** and **suspend** requests when this process runs as a Sub-Process.
- 5.  Select the **Administration** checkbox in the **Autonomy** box to have the ID of the process administrator not taken from the parent process when this process runs as a Sub-Process.

6.  Select the **Off** radio button in the **Audit Trail Settings** box to keep no audit trail records.
7.  Select the **Full** radio button in the **Audit Trail Settings** box to keep a full set of audit trail records.
8.  Select the **Condensed** radio button in the **Audit Trail Settings** box to keep a limited set of audit trail records.
9.  Select the **Pull** radio button in the **Work Item Refresh** box to make the user explicitly request to receive new work items in the user's worklist.
10.  Select the **Push** radio button in the **Work Item Refresh** box to have the user automatically receive new work items in the user's worklist.
11.  Select the **Run** radio button in the **Notification Mode** box to have the notification timer continue running when the process instance is suspended.
12.  Select the **Hold** radio button in the **Notification Mode** box to have the notification timer pause when the process instance is suspended.
13.  Select the **Never** radio button in the **Keep Finished Process Times** box to keep no finished processes.
14.  Select the **Forever** radio button in the **Keep Finished Process Times** box to keep all finished processes.
15.  Select the **Specific** radio button in the **Keep Finished Process Times** box to specify how long finished processes are kept.
16.  Select the units of time from the drop-down list in the box on the right.
17.  Type the specific number of those units in the box on the left.
18.  Select the **Never** radio button in the **Keep Finished Work** box to keep no finished work items.
19.  Select the **Forever** radio button in the **Keep Finished Work** box to keep all finished work items.
20.  Select the **Specific** radio button in the **Keep Finished Work** box to specify how long finished work items are kept.
21.  Select the units of time from the drop-down list in the box on the right.
22.  Type the specific number of those units in the box on the left.

### 3.11.1.4 Activity Control Settings

To specify the MQ Workflow Activity Control Settings for a Process:

1. Click the **Activity Set** tab at the top of the **Info** dialog box (see the figure below).



- In any section having an **Inherited** checkbox displayed, select the **Inherited** checkbox to take the Activity settings for that section from the settings in the corresponding section for the System of which this Process Diagram is a part.

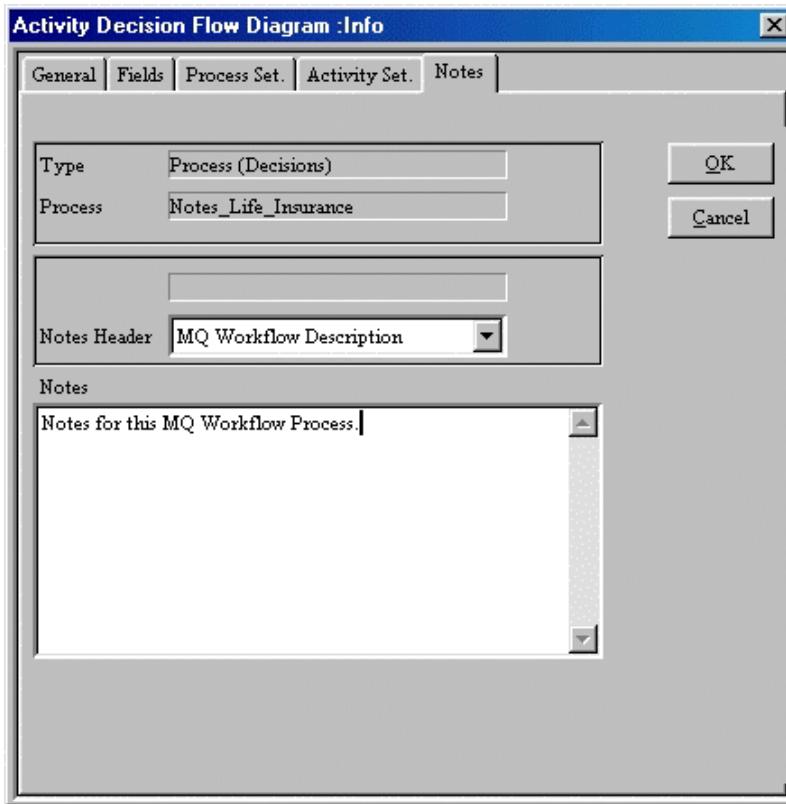
2. Select the **Program Activity Can Be Checked Out** checkbox to allow program activities to be checked out of the runtime database.
3. Select the **Include Process Assignment** checkbox in the **Staff Assignment** box to use the role and organization settings of the process model as part of the final staff assignment of the activity.

4.  Select the **Prefer Local Users** checkbox in the **Staff Assignment** box to have staff resolution prefer local—as opposed to remote—users to receive activities in a distributed environment.
5.  Select the **Prefer Not Absent Users** checkbox in the **Staff Assignment** box to have staff resolution prefer users who are not absent to receive the activity.
6.  Select the **Assign Substitute if User is Absent** checkbox in the **Staff Assignment** box to have staff resolution select a substitute to receive the activity if the user is absent.
7.  Select the **Assign Substitute for Notification if User is Absent** checkbox in the **Notification** box to have the substitute for a user receive the notification that the activity did not complete in the time allowed.
8.  Select the **Send Second Notification for Same User** checkbox in the **Notification** box to have a second notification sent to the same person who received the first notification instead of to the process administrator.

### 3.11.1.5 Documentation Information

To specify the MQ Workflow Documentation of a Process:

1. Click the Notes tab at the top of the **Info** dialog box (see the figure below).



- \* There are two independent types of Notes available for a Process: Description (default) and Documentation.
- 2. To add or update MQ Workflow Description Notes about the Process, select **MQ Workflow Description** from the **Notes Header** selection box. Then type in the **Notes** text box.
  - \* If you want to add a **Carriage Return** to the text of your Notes, then type **Ctrl+Enter**.
  - \* If a Data Field, bordered by % signs, is listed the Description Notes, then the actual value of this Data Field become available for display during MQ Workflow runtime. In this way, critical information can be passed from user to user very easily.
  - \* The Notes will be exported as Description in the FDL file.
    - If there are no single or double quotes in the Notes, then it will be exported with single quotes surrounding the text.

- If there are single quotes in the Notes, then it will be exported with double quotes surrounding the text and the single quotes inside.
  - If there are double quotes in the Notes, then it will be exported with single quotes surrounding the text and the double quotes inside.
  - If there are single quotes and double quotes in the Notes, then it will be exported with double quotes surrounding the text, the double quotes inside will be converted to single quotes, and the single quotes will remain inside.
3. To add or update Documentation Notes about the Process,  select **Documentation** from the **Notes Header** selection box. Then  type in the **Notes** text box.
    - \* The notes will be exported as the Documentation in the FDL file.
  4. When finished with the **Notes** Tab,  click **OK** or  press **Enter** or continue in another tab.

### 3.11.2 Sub-Processes and Blocks

A Workflow•BPR Process Object can be used to represent a MQ Workflow Process Activity, Block, or Program Activity. This section documents the settings for a Process Activity and Block. Refer to the section entitled “Exporting a Process Object as a Program Activity (Task)” on page 3-185 for information on using a Process Object as a Program Activity.

The procedures documented here are for the attributes that apply to the creation of a MQ Workflow FDL file. For information on attributes other than those documented here, refer to the section entitled “Modeling Process Objects (Within A Process)” in Chapter 4 of the *Modeling Guide*.

The information about Process Activities and Blocks is captured with the **Process Object** dialog box for a Process Object that has been set to export as a Process or a Block. The following table displays the MQ Workflow to Workflow•BPR conversions for Process Objects (Process Activities and Blocks):

<b><u>MQ Workflow</u></b>	<b><u>Workflow•BPR</u></b>	
<b><u>Block Activity</u></b>	<b><u>Process Object: Block</u></b>	<b><u>Location</u></b>
Name	Process Name + RN	General Tab
Description	Description Header	Notes Tab
Start Condition	Automatic Execution Wait For	Expressions Tab
Exit Condition	End Condition	Start Expressions Dialog Box
Documentation	Documentation Header	Notes Tab

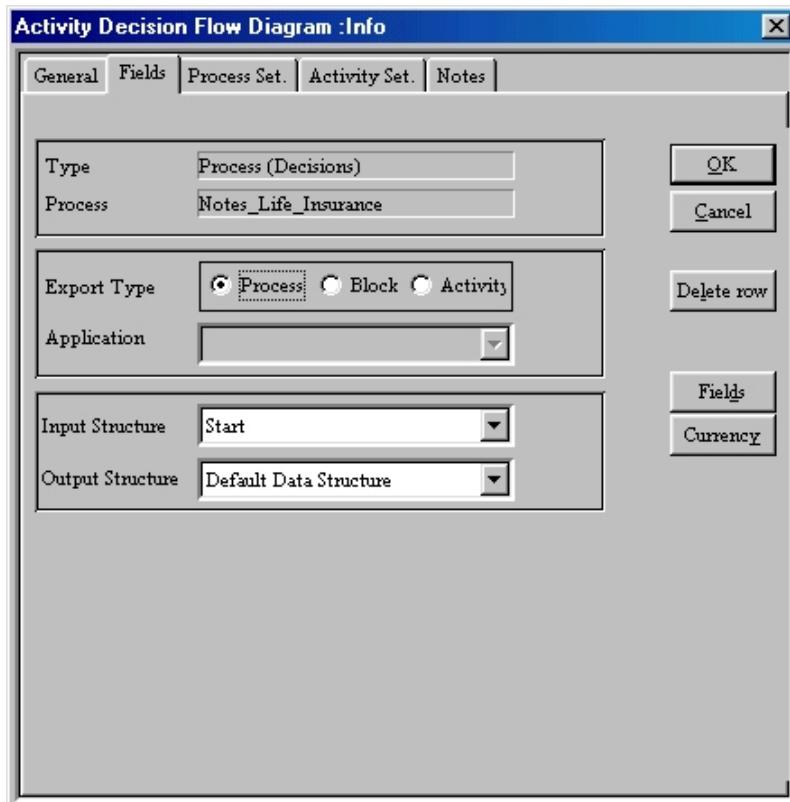
<b><u>MQ Workflow</u></b>	<b><u>Workflow•BPR</u></b>	
<b><u>Process Activity</u></b>	<b><u>Process Object: Activity</u></b>	<b><u>Location</u></b>
Name	MQ Workflow	General Tab
Description	MQ Workflow Description	Notes Tab
Process	Deduced from Location Within Model	
System		
Start	Start Execution	Expressions Tab
Condition	Automatic Execution Wait For	Expressions Tab
Exit	Exit Execution	Expressions Tab
Exit Condition	End Expression	Expressions Tab
Input	Input Structure	Data Tab
Output	Output Structure	Data Tab
Support Tools		
All People	All People	Staff Assignment
Staff from Predefined Members	Data from Predefined Members	Staff Assignment
Dynamic Assignment from Page 2	Dynamic Assignment	Staff Assignment
Coordinator of Role	Coordinator of Role	Staff Assignment
Coordinator of Role From Container	Coordinator of Role - Container	Staff Assignment
Manager of Organization	Manager of Organization	Staff Assignment
Manager of Organization From Container	Manager of Organization - Container	Staff Assignment
People	Assigned Employees	Staff Assignment Tab
People From Container	Input Container	Staff Assignment Tab

<b>Process Activity, Cont.</b>	<b>Process Object: Activity</b>	<b>Location</b>
Process Administrator	Process Administrator	Staff Assignment Tab
Process Starter	Process Starter	Staff Assignment Tab
Manager of Process Starter	Manager of Process Starter	Staff Assignment Tab
Starter of Activity	Starter of Activity	Staff Assignment Tab
Manager of Starter of Activity	Manager of Starter of Activity	Staff Assignment Tab
Exclude Starter of Activity	Not Starter of Activity	Staff Assignment Tab
Member of Roles	Role	Staff Assignment Tab
Member of Roles from Container	Input Container	Staff Assignment Tab
Organization	Organization Unit	General Tab
From Container	Input Container	General Tab
Members Only	Members Only	Dynamic Assignment Selected in Staff Assignment Drop Down, Staff Assignment Tab
Reporting Managers	Reporting Managers	Dynamic Assignment Selected in Staff Assignment Drop Down, Staff Assignment Tab
Child Organization	Child Organization	Dynamic Assignment Selected in Staff Assignment Drop Down, Staff Assignment Tab
Level From	Level Start	Dynamic Assignment Selected in Staff Assignment Drop Down, Staff Assignment Tab
Input Container	Input Container	Dynamic Assignment Selected in Staff Assignment Drop Down, Staff Assignment Tab
Level To	Level End	Dynamic Assignment Selected in Staff Assignment Drop Down, Staff Assignment Tab
Input Container	Input Container	Dynamic Assignment Selected in Staff Assignment Drop Down, Staff Assignment Tab
Notification from Predefined Members	Data from Predefined Members	Notification Tab
Person to Notify of Delay	Notification Employee	Notification Tab
Duration of Activity	Notification Duration	Notification Tab
Duration of Making A Decision	Decision Duration	Notification Tab
Program Activities Can Be Checked Out	Program Activities Can Be Checked Out	Settings Tab
Include Process Assignment	Include Process Assignment	Settings Tab
Prefer Local Users	Prefer Local Users	Settings Tab
Prefer Not Absent Users	Prefer Not Absent Users	Settings Tab
Assign Substitute If User Is Absent	Assign Substitute If User Is Absent	Settings Tab
Assign Substitute for Notification If User Is Absent	Assign Substitute for Notification If User Is Absent	Settings Tab
Send Second Notification to Same User	Send Second Notification to Same User	Settings Tab
Priority	Priority	Settings Tab
From Container	From Input Container	Settings Tab
From Predefined Members	From Predefined Members	Settings Tab
Documentation	Documentation	Notes Tab

### 3.11.2.1 Define the Process Object as a Process Activity

To define the Process as being a MQ Workflow Process Activity:

1. Click on the Process Object.
2. Click the Open Process tool button on the ADF Toolbar. Workflow•BPR opens the Activity Decision Flow Diagram for that Process.
3. Choose Info from the Process menu, or click the Info tool button on the ADF Toolbar. Workflow•BPR displays the Info dialog box—open to the General Tab.
4. Click the Fields tab at the top of the Info dialog box (see the figure below).

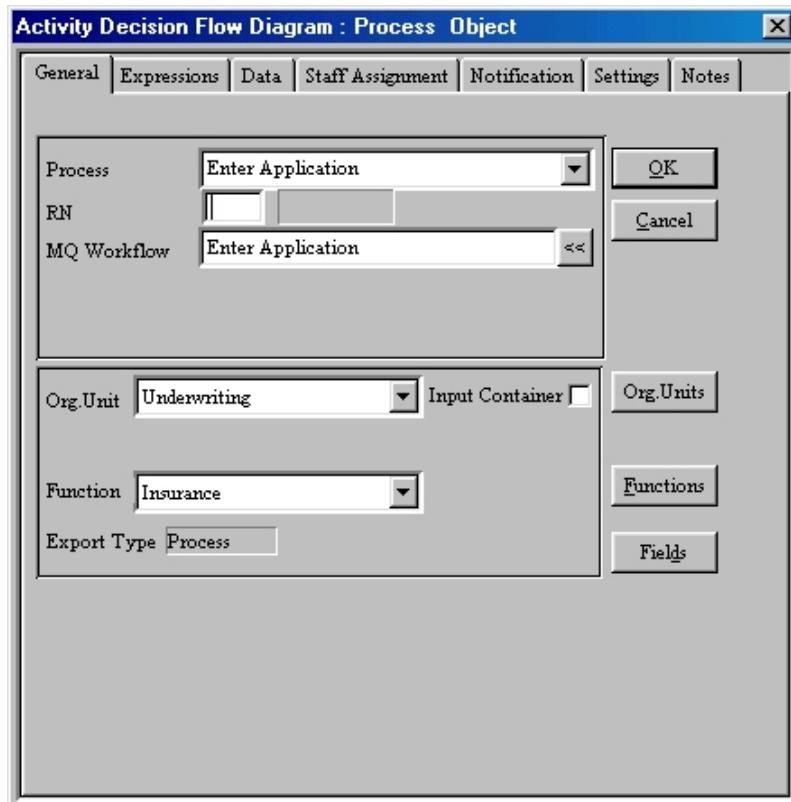


5. Select the Process radio button from the Export Type box.
  - \* The Process will be exported to a MQ Workflow FDL file as a Process Activity.
6. Click OK or press Enter or continue in another tab.

### *General Information*

To define general information about Process Object that is a type Process Activity:

1. Double-click on the Process Object. The **Process Object** dialog box will appear—open to the General tab (see the figure below).



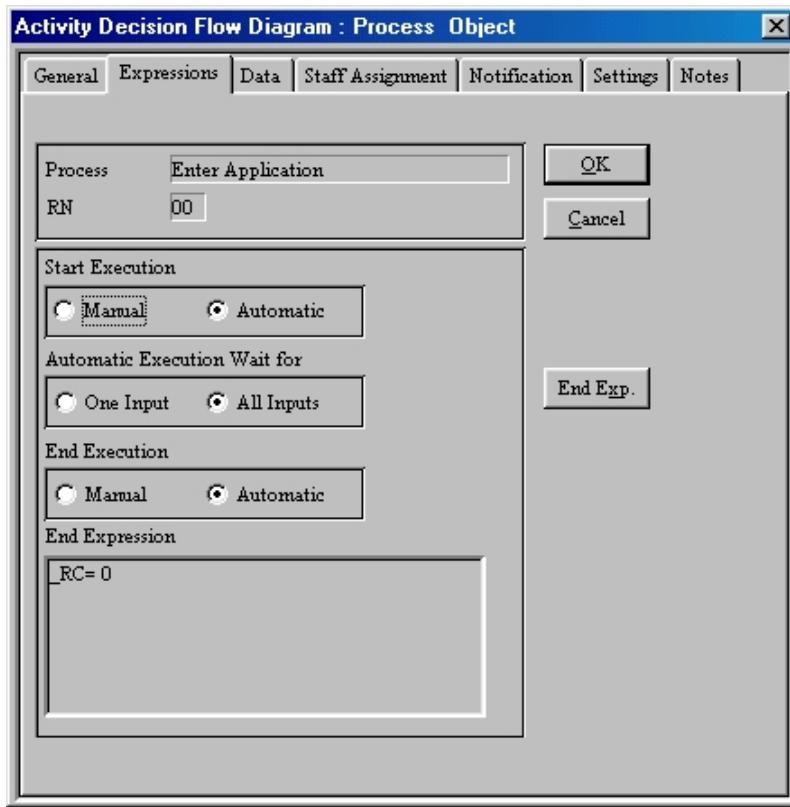
2. To select a Process from those already defined, select one from the **Name** list ( click on the arrow on the right end of the **Process** combo box to bring up the list).
  - \* If the Process you want is not included on the list, then you need to create it:
    - The Process name can be typed in the **Process** combo box. When you click **OK**, a new Process with that name will be created.
3. The **MQ Workflow Name** text box displays the name that will be exported to the FDL file. The MQ Workflow name is derived from a combination of the Process name and the RN and has a maximum of 35 characters (for a RN value of 00, the RN does not appear in the MQ Workflow name).
  - \* You can type in the **MQ Workflow** text box to change the MQ Workflow name. This name has to be unique.
  - \* You can reset a modified MQ Workflow name by clicking on the << button to the right of the **MQ Workflow** text box.

4. To add or change the Organization Unit assigned to the Process,  select a unit from the **Org. Unit** selection box.
  - \* If the unit you want is not included on the list, then you need to create it.  
 Click the **Org. Units** Go To button to access the Repository **Organization Units** dialog box in order to create the item (refer to the section entitled “Define the Organization Setting” on page 3-5). Upon returning to the **Process Object** dialog box, the new item(s) will be included on the list.
  - \*  Select the **Input Container** checkbox to take the Organization Unit for the activity from a specific Data Field in the input container for the activity.
    -  Select the name of the Data Field in the input container that contains the Organization Unit from the drop-down list in the **Org. Unit** selection box, which displays all the Data Fields in the input container when the **Input Container** checkbox is selected.
5. To add or change the Function associated with the Process,  Select a function name from the **Function** selection box.
  - \* If the function you want is not included on the list, then you need to create it.  Click the **Functions** Go To button to access the Repository **Functions** dialog box in order to create the item (refer to the section entitled “Functions” in Chapter 2 of the *User’s Guide*). Upon returning to the **Process Object** dialog box, the new item(s) will be included on the list.
6. When finished with the **Process Object** dialog box,  click **OK** or  press **Enter** or continue in another tab.

### *Start and End Execution*

To define the start and end conditions a Process Object that is a type Process Activity:

1. Double-click on the Process Object. The **Process Object** dialog box will appear—open to the General tab.
2. Click the **Expression** tab at the top of the **Process Object** dialog box (see the figure below).

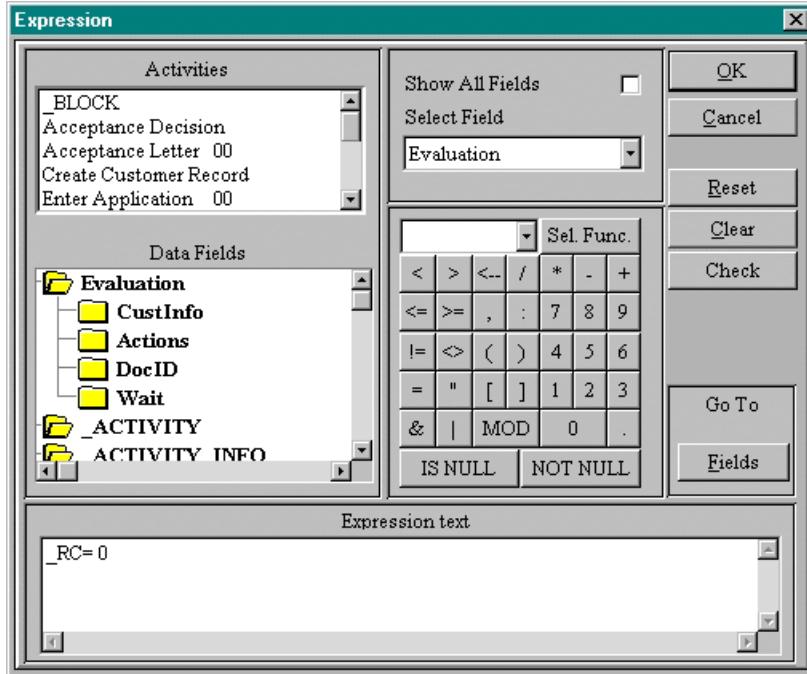


3. Select the appropriate radio button to specify whether the start of the Process will be **Manual** (Default) or **Automatic** in the **Start Execution** Box.
  4. Select the appropriate radio button to specify whether the start of the Process will wait for **One Input** (default) or **All Inputs** in the **Automatic Execution Wait for** box.
- If the Execution is set to wait for All Inputs, the conditions for all the control connectors must be True. In addition, all activities CONNECTED to the target activity must be COMPLETED before all the conditions are evaluated.

5. Select the appropriate radio button to specify whether the end of the Process will be **Manual** (Default) or **Automatic** in the **End Execution** Box.
6. If you want to add an expression that can be used by a Workflow Application to determine if the Process has been completed, click the **End Exp.** button to open the **Expression** dialog box. Refer to the next section for details on using the **Expression** dialog box.
7. When you have finished defining the object, click **OK** or press **Enter**.

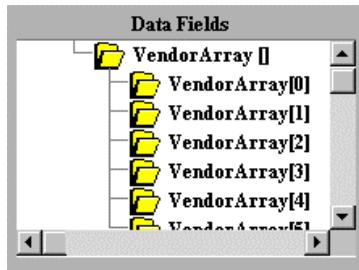
*Adding an Expression*

To add an Expression to the Expression dialog box (see the figure below):



1. Type the text of the Expression in the **Expression** text box. You can also:
  - \* Double-click on a **Task** that is listed in the **Activities** list box to include it in the Expression.
  - \* Only “upstream” Tasks are appropriate for including in an expression.
    - \* Click on a **Data Field** or **Data Structure** in the **Data Fields** list box to include it in the Expression.
      - If the Data Field or Data Structure you want is not on the list, then you need to create it. Click the **Fields** Go To button to open the **Data Fields** dialog box (refer to the section entitled “Define the Data Structures” on page 3-76).
    - \* To control the levels of Data Structures displayed in the **Data Fields** list box:
      - Select the **Show All Fields** check box to display all Data Fields, as well as Data Structures, in the **Data Fields** list box.
      - De-select the **Show All Fields** check box to display only Data Structures in the **Data Fields** list box.
      - Right-click on a collapsed **Data Structure** (denoted by a closed folder) to expand the Data Structure. This will reveal all of the lower-level Data Fields within the Data Structure.

- Right-click on an expanded **Data Structure** (denoted by an open folder) to collapse the Data Structure. This will hide all of the lower-level Data Fields within the Data Structure.
- \* If the **Data Field** you want to select is an array, a pair of brackets is displayed just after the name of the Data Field (see the figure below). You can select a specific element of the array:



- First, Right-click on the collapsed **Data Field**. This will expand the Data Field to reveal all of the array element numbers within it (see the figure on the right).
- Click on the array element number that you want to use. This will copy the array element into the **Expression** text box.
- \* Select a Function from the Function selection box, then click the **Sel. Func.** button to include those items in the expression.
- \* Click the **Clear** button to remove all text from the **Expression** text box.
- \* Click the **Reset** button to remove the text that has been added to the **Expression** text box since the **Expression** dialog box was opened.
- \* Click the **Check** button to validate the Expression. Any errors in the Expression will be identified.

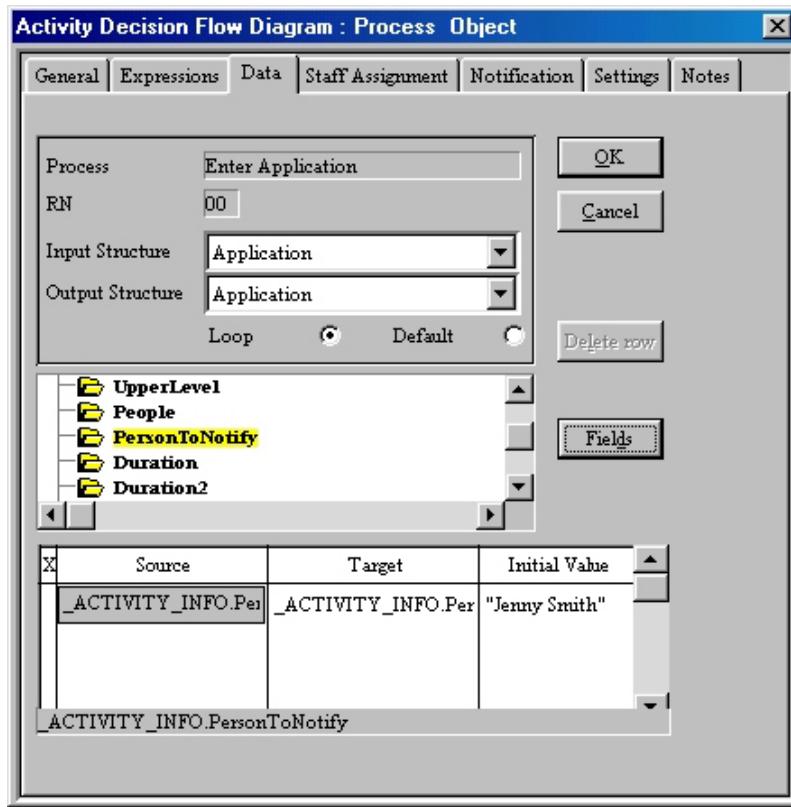
**The Expression must be evaluated as either being True or False.**

2. Click **OK** or press **Enter** to return to the previous dialog box.

### *Data Structures, Initial Values, and Loops*

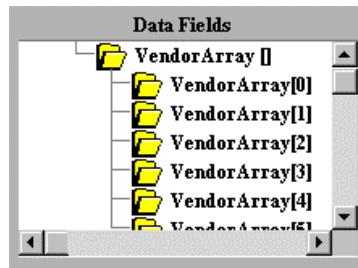
To define the Data Structures and Loops for a Process Object that is a type Process Activity:

1. Double-click on the Process Object. The **Process Object** dialog box will appear—open to the General tab.
2. Click the **Data** tab at the top of the **Process Object** dialog box (see the figure below).



3. To change the Input Container Data Structure of the Process, select a Data Structure from the **Input Structure** selection box.
  - \* If the Data Structure you want is not included on the list, then you need to create it. Click the **Fields** Go To button to access the Repository **Data Fields** dialog box in order to create the item (refer to the section entitled “Define the Data Structures” on page 3-76). Upon returning to the **Info** dialog box, the new item(s) will be included on the list.
4. To change the Output Container Data Structure of the Process, select a Data Structure from the **Output Structure** selection box.

5. Select the **Loop** or **Default** radio button to designate that the Task is connected by an IBM MQ Loop- or an IBM MQ Default-type connector. The arrangement of columns in the **Mapping** list box will change accordingly, though the function of each column will remain as described below.
6. In **Line 1** of the Mapping list box, click on the cell within the **Source** column. The Fields list in the center of the dialog box will be updated to show the Data Structure of the Input Container of the Process, in addition to the MQ Workflow default Data Structures and variables.
  - \* Click on the appropriate **Data Field** from the **Data Structure** tree list box to insert it into the mapping cell.
  - \* To control the levels of Data Structures displayed in the **Data Fields** list box:
    - Right-click on a collapsed **Data Structure** (denoted by a closed folder) to expand the Data Structure. This will reveal all of the lower-level Data Fields within the Data Structure.
    - Right-click on an expanded **Data Structure** (denoted by an open folder) to collapse the Data Structure. This will hide all of the lower-level Data Fields within the Data Structure.
  - \* If the **Data Field** you want to select is an array, a pair of brackets is displayed just after the name of the Data Field (see the figure below). You can select a specific element of the array:



- First, Right-click on the collapsed **Data Field**. This will expand the Data Field to reveal all of the array element numbers within it (see the figure on the right).
- Click on the array element number that you want to use. This will copy the array element into the **Expression** text box.

**You can use the Shift+Arrow keys to navigate the editing cursor through the Mapping table.**

7. Click on the cell within the **Target** column. The Fields list in the center of the dialog box will be updated to show the Data Structure of the Output Container of the Process in addition to the MQ Workflow default Data Structures and variables.

- \*  Select the appropriate Data Field from the Data Structure tree list box.
    - If the Data Field of the source does not have the same data type as the Data Field of the target, the cell in the **X** column will be marked with an “X.”
8.  Type an initial value for the Target Data Field in the cell of the **Initial Value** column.
  9. Repeat Steps 4 through 6 to add additional mappings for the looping of the Process.
  10. When finished with the **Process Object** dialog box,  click **OK** or  press **Enter** or continue in another tab.

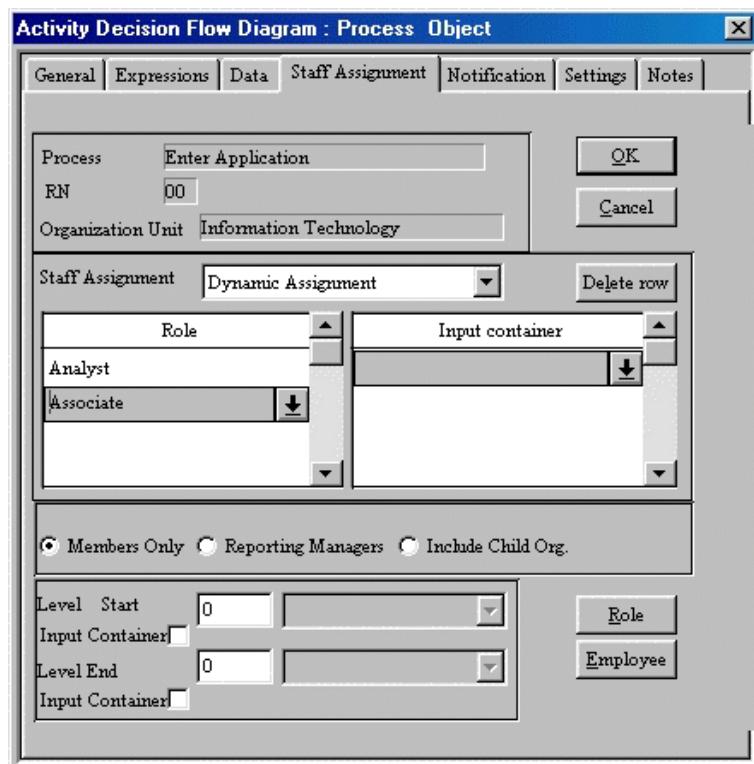
## Staff Assignment

An MQ Workflow Process Activity is treated as an item that will show on an Employee's work queue. This Employee will supervise the start and end of the Process and other Employees will perform the Tasks of the Process. Therefore, a staff assignment function is required for a Process Object.

- ☒ Staff Assignment is not available for Process Objects defined as the type Block.

To perform staff assignment for a Process Object that is a type Process Activity:

1. ✓ Double-click on the Process Object. The **Process Object** dialog box will appear—open to the General tab.
2. ✓ Select the **Staff Assignment** tab (see the figure below).



3. ✓ Select the type of assignment from the **Staff Assignment** selection box.
  - \* The following table displays the types of assignments and any additional user actions that may be required:

Type of Assignment	Additional User Action(s)
<b>Dynamic Assignment</b> (Default): An employee that is linked with the selected list of Roles can perform the Process.	<ul style="list-style-type: none"> <li>* In Line 1 of the <b>Role</b> list box,  click on the Arrow button that is on the right side of the <b>Role</b> column. A list of Roles will appear.  Select the Role.</li> <li>* Repeat the  selection for each line of the <b>Role</b> list box until all Roles have been selected.</li> </ul> <p> <b>If more than one Role is selected, Employees must be assigned to all the Roles on the list before they are eligible to perform the activity.</b></p> <ul style="list-style-type: none"> <li>* In Line 1 of the <b>Input Container</b> list box,  click on the Arrow button that is on the right side of the <b>Input Container</b> column. A list of Data Fields will appear.  Select the Data Field containing a Role.</li> <li>* Repeat the  selection for each line of the <b>Input Container</b> list box until all Data Fields containing Roles have been selected.</li> </ul> <p> <b>If more than one Data Field is selected, Employees must be assigned to all the Roles contained in the Data Fields on the list before they are eligible to perform the activity.</b></p> <ul style="list-style-type: none"> <li>*  Enter the lowest level of Employee that can perform the Process in the <b>Level Start</b> text box. <ul style="list-style-type: none"> <li>– If you want the Level to be defined in the data arriving in the Input Container, then: <ul style="list-style-type: none"> <li>·  Select the <b>Input Container</b> check box.</li> <li>· Then,  a Data Field from the list box.</li> </ul> </li> </ul> </li> <li>*  Enter the highest level of Employee that can perform the Process in the <b>Level End</b> text box. <ul style="list-style-type: none"> <li>– If you want the Level to be defined in the data arriving in the Input Container, then: <ul style="list-style-type: none"> <li>·  Select the <b>Input Container</b> check box.</li> <li>· Then,  a Data Field from the list box that becomes active.</li> </ul> </li> </ul> </li> <li>*  Select the <b>Members Only</b> radio button if you want only Employees of the specified Organization Unit to be available to perform the Process. Employees that are part of Organization Units that are children of the Organization Unit specified for the Process will not be available.</li> <li>*  Select the <b>Reporting Managers</b> radio button if you want the staff assignment set to the members of the named organization and the reporting managers of the child organizations eligible to start the activity.</li> <li>*  Select the <b>Include Child Organizations</b> radio button if you want Employees to perform the Process that are part of Organization Units that are children of the Organization Unit specified for the Process. If selected, all the staff members of the organization you specify and those of its child organizations down through the hierarchy are included (default). <ul style="list-style-type: none"> <li>– If not selected, only the Employees of the organization you specify and the managers of its first-level child organizations are included.</li> </ul> </li> </ul>

Type of Assignment	Additional User Action(s)
<b>Process Administrator:</b> The defined Process Administrator will perform the Process.	None
<b>Process Starter:</b> The starter of the Process will perform the Process.	None
<b>Manager of Process Starter:</b> The Manager of the Starter of the Process will perform the Process.	None
<b>Starter of Activity:</b> The Starter of a selected activity will perform the Process.	☛ Select an activity from the <b>Activity</b> selection box. You should only select Processes that proceed or are <i>Upstream</i> of the current Process.
<b>Manager of Starter of Activity:</b> The Manager of the Starter of a selected activity will perform the Process.	☛ Select an activity from the <b>Activity</b> selection box. You should only select Processes that proceed or are <i>Upstream</i> of the current Process.
<b>Not Starter of Activity:</b> An employee that was not the Starter of a selected activity will perform the Process	☛ Select an activity from the <b>Activity</b> selection box. You should only select Processes that proceed or are <i>Upstream</i> of the current Process.
<b>Assigned Employees:</b> The selected employee will perform the Process	☛ Select one or more Employees from the <b>Employee</b> selection box.
<b>All People:</b> The User Ids of the Employees defined in the ACTIVITY_INFO.People Data Field are authorized to perform the Process.	None
<b>Data From Predefined Members:</b> The User Ids of the Employees defined in the ACTIVITY_INFO.MembersOfRole Data Field are authorized to perform the Process.	None
<b>Coordinator of Role:</b> The Coordinator of the selected Role will perform the Process.	☛ Select a Role from the selection box.
<b>Coordinator of Role-Container:</b> The Coordinator of the selected Role will perform the Process. The Role will be defined by data arriving in the Input Container.	☛ Select a Data Field from the selection box. ☛ Select the Blank item to use the _ACTIVITY_INFO.CoordinatorOfRole Data Field.
<b>Manager of Organization:</b> The Manager of the selected Organization Unit will perform the Process.	☛ Select an Organization Unit from the selection box.
<b>Manager of Organization--Container:</b> The Manager of the selected Organization Unit will perform the Process. The Organization Unit will be defined by data arriving in the Input Container.	☛ Select a Data Field from the selection box. ☛ Select the Blank item to use the Manager of the Organization Unit defined in the _ACTIVITY_INFO.Organization Data Field.
Type of Assignment	Additional User Action(s)
<b>Data From Input Container:</b> The information about the employees that can start the Process is contained in the Input Container of the Process.	None

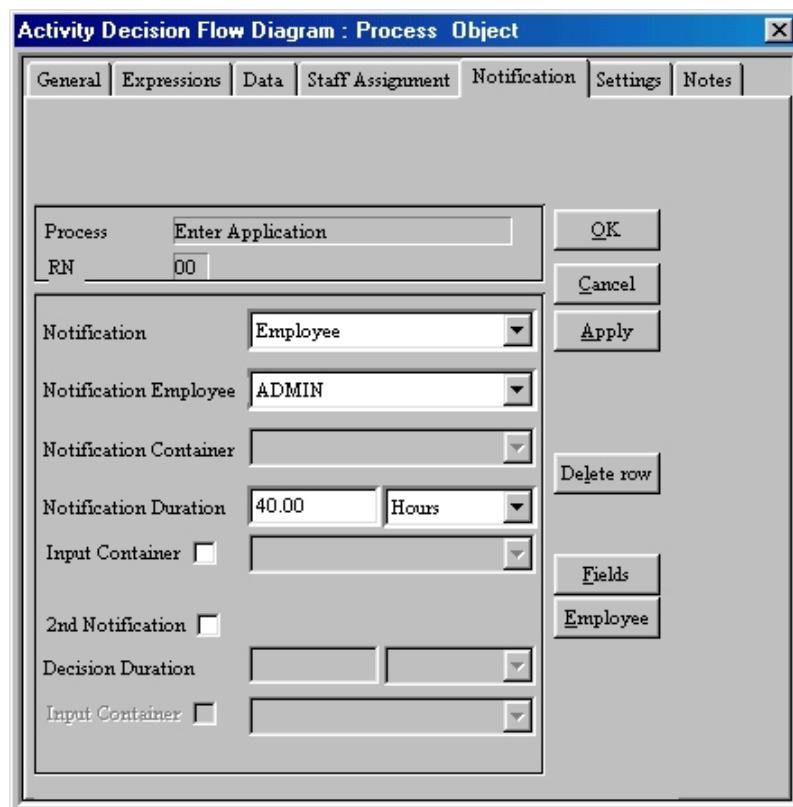
- When finished with the **Process Object** dialog box, ☛ click **OK** or ☎ press **Enter** or continue in another tab.

### *Notification*

If a Process takes longer than a specified duration, then an employee that gets notified can be specified. In addition, if the notified employee does not respond within a specified period, then the Process Administrator will be notified.

To define notification settings for a Process Object that is a type Process Activity:

1. Double-click on the Process Object. The **Process Object** dialog box will appear—open to the General tab.
2. Select the **Notification** tab (see the figure below).



3. Select the type of Notification from the **Notification** selection box.
  - \* The following table displays the types of Notifications and any additional user actions that may be required:

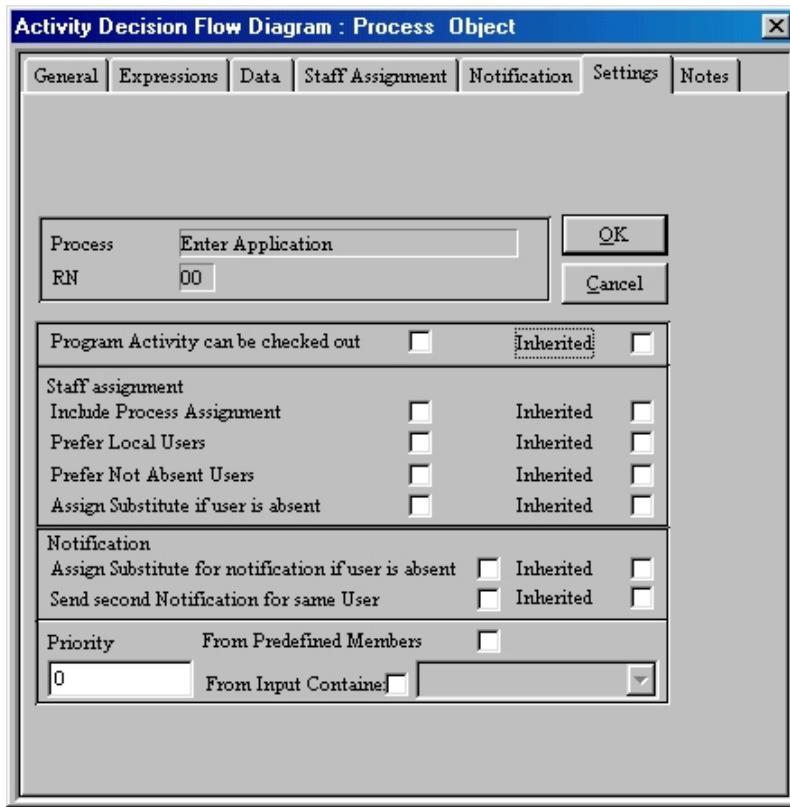
Type of Notification	Additional User Action(s)
<b>None</b> (Default): There will be no notification.	* None
<b>Process Administrator</b> : Then the Process Administrator will be notified.	* None
<b>Manager</b> : Then the Manager of the Employee performing the Task will be notified.	* None
<b>Coordinator</b> : Then the Coordinator of the Employee performing the Task will be notified.	* None
<b>Employee</b> : Then a Selected Employee will be notified.	<ul style="list-style-type: none"> <li>*  Select the Employee that will be notified from the <b>Notification Employee</b> selection box.           <ul style="list-style-type: none"> <li>– If the Employee you want is not included on the list, then you need to create it.  Click the <b>Employee Go To</b> button to access the Repository <b>Employees</b> dialog box in order to create the item (refer to the section entitled “Define the Staff” on page 3-66). Upon returning to the <b>Task Object</b> dialog box, the new item(s) will be included on the list.</li> </ul> </li> </ul>
<b>Data From Input Container</b> : The notification information will be taken from the data in the Input Container.	<ul style="list-style-type: none"> <li>*  Select a Data Field that will contain the User ID of the Employee that should be notified from the <b>Notification Container</b> list box.</li> </ul>
<b>Data From Predefined Members</b> : The notification information will be taken from the data in the Input Container.	* None

4. If a Notification was specified, then type the appropriate value in the **Notification Duration** text box, and then select the appropriate time unit from the **Notification Duration** selection box.
  - \* If you want the Duration to be defined in the data arriving in the Input Container, then:
    - Select the **Input Container** check box.
    - Then, select a Data Field from the list box that becomes active.
5. To specify a Duration between First and Second Notification, select the **2<sup>nd</sup> Notification** checkbox, type the appropriate value in the **Decision Duration** text box, and then select the appropriate time unit from the **Decision Duration** selection box.
  - \* If you want the Duration to be defined in the data arriving in the Input Container, then:
    - Select the **Input Container** check box.
    - Then, a Data Field from the list box that becomes active.
6. When finished with the **Process Object** dialog box, click **OK** or press **Enter** or continue in another tab.

## Activity Settings

To be absorbed into IBM MQ Workflow as an activity, the Workflow•BPR Process Object must have certain settings defined. To define the activity settings for a Process Object that is a type Process Activity:

1. Double-click on the Process Object. The **Process Object** dialog box will appear—open to the General tab.
2. Select the **Settings** tab (see the figure below).



- In any section having an Inherited checkbox displayed, select the Inherited checkbox to take the Process Object (Activity) settings for that section from the settings in the corresponding section for the entire Process of which this Process Object (Activity) is a part. (See section [Activity Control Settings](#) on page 3-118.)
- If both a checkbox and its corresponding Inherited box are not selected, the setting is taken from the System-level settings.
- 3. Select the **Program Activity Can Be Checked Out** checkbox to allow program activities to be checked out of the runtime database.

4.  Select the **Include Process Assignment** checkbox in the **Staff Assignment** box to use the role and organization settings of the process model as part of the final staff assignment of the activity.
5.  Select the **Prefer Local Users** checkbox in the **Staff Assignment** box to have staff resolution prefer local—as opposed to remote—users to receive activities in a distributed environment.
6.  Select the **Prefer Not Absent Users** checkbox in the **Staff Assignment** box to have staff resolution prefer users who are not absent to receive the activity.
7.  Select the **Assign Substitute if User is Absent** checkbox in the **Staff Assignment** box to have staff resolution select a substitute to receive the activity if the user is absent.
8.  Select the **Assign Substitute for Notification if User is Absent** checkbox in the **Notification** box to have the substitute for a user receive the notification that the activity did not complete in the time allowed.
9.  Select the **Send Second Notification for Same User** checkbox in the **Notification** box to have a second notification sent to the same person who received the first notification instead of to the process administrator.
10.  Type the priority value in the **Priority** text box,

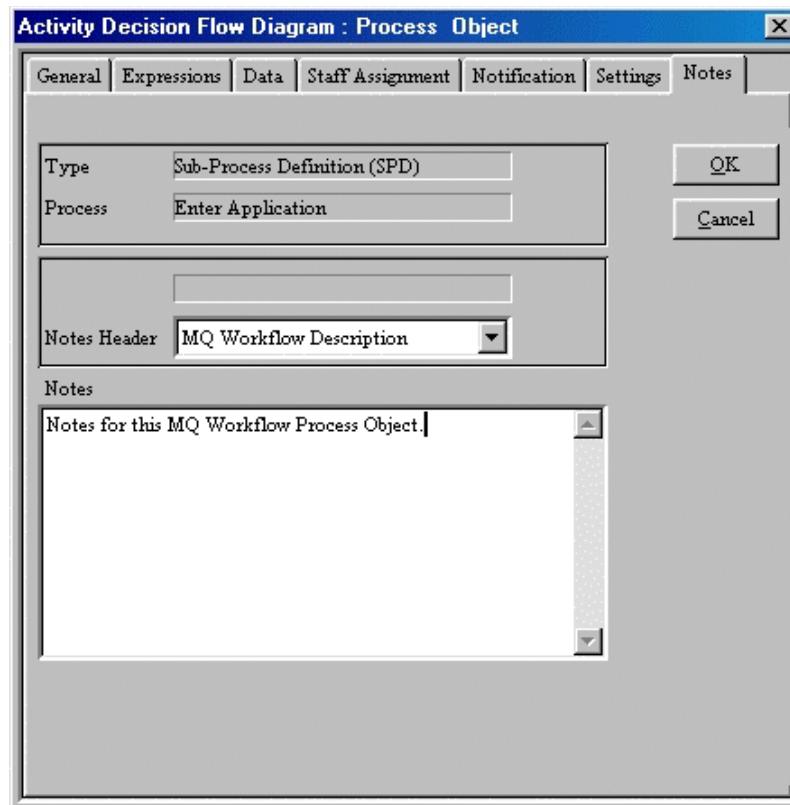
or
11.  Select the **From Predefined Members** checkbox to take the priority value for the activity from the values of the **\_ACTIVITY\_INFO** fields in the input container for the activity,

or
12.  Select the **From Input Container** checkbox to take the priority value for the activity from a specific data structure member in the input container.
  - \*  Select the name of the data structure member in the input container that contains the priority value from the drop-down list in the selection box.
    - The data structure member must be of type **LONG**.
13. When finished with the **Process Object** dialog box,  click **OK** or  press **Enter** or continue in another tab.

### *Documentation Information*

To define Notes for a Process Object that is a type Process Activity:

1. Double-click on the Process Object. The **Process Object** dialog box will appear—open to the General tab.
2. Click the **Notes** tab at the top of the **Process Object** dialog box (see the figure below).



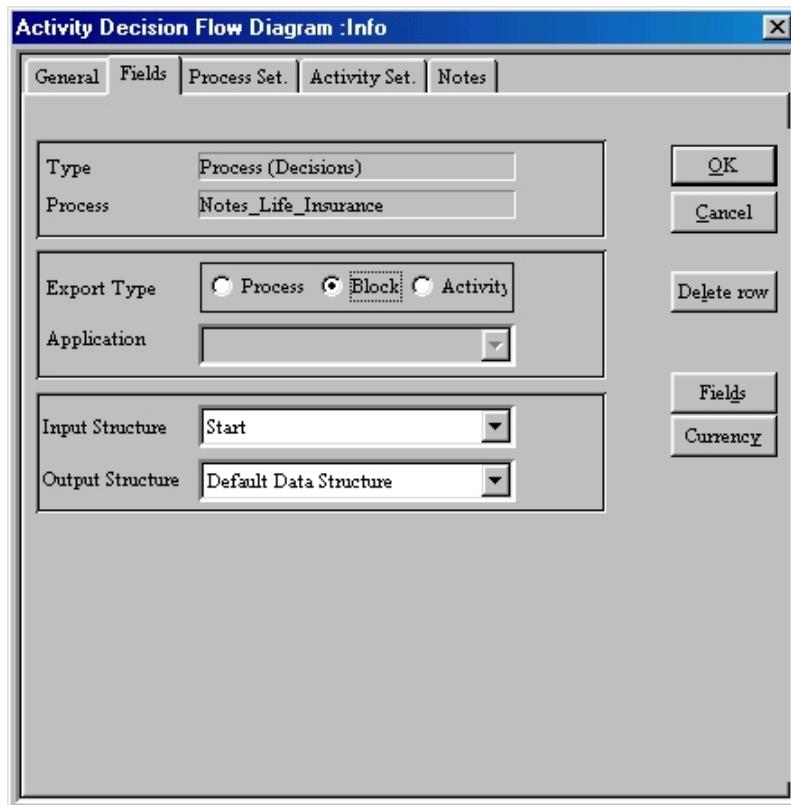
- \* There are two independent types of Notes available for a Process: MQ Workflow Description (default) and Documentation.
- 3. To add or update MQ Workflow Description Notes about the Process, select **MQ Workflow Description** from the **Notes Header** selection box. Then type in the **Notes** text box.
  - \* To add a **Carriage Return** in your Notes, type **Ctrl+Enter**.
  - \* If a Data Field, bordered by % signs, is listed the Description Notes, then the actual value of this Data Field become available for display during MQ Workflow runtime. In this way, critical information can be passed from user to user very easily.
  - \* The Notes will be exported as Description in the FDL file.
    - If there are no single or double quotes in the Notes, then it will be exported with single quotes surrounding the text.

- If there are single quotes in the Notes, then it will be exported with double quotes surrounding the text and the single quotes inside.
  - If there are double quotes in the Notes, then it will be exported with single quotes surrounding the text and the double quotes inside.
  - If there are single quotes and double quotes in the Notes, then it will be exported with double quotes surrounding the text, the double quotes inside will be converted to single quotes, and the single quotes will remain inside.
4. To add or update Documentation Notes about the Process,  select **Documentation** from the **Notes Header** selection box. Then  type in the **Notes** text box.
    - \* The notes will be exported as the Documentation in the FDL file.
  5. When finished with the **Process** Object dialog box,  click **OK** or  press **Enter**.

### 3.11.2.2 Define the Process Object as a Block

To define the Process as being a MQ Workflow Block:

1. Click on the Process Object.
2. Click the **Open Process** tool button on the **ADF Toolbar**. Workflow•BPR opens the Activity Decision Flow Diagram for that Process.
3. Choose **Info** from the **Process** menu, or click the **Info** tool button on the **ADF Toolbar**. Workflow•BPR displays the **Info** dialog box—open to the General Tab. Click the **Fields** tab at the top of the **Info** dialog box (see the figure below).

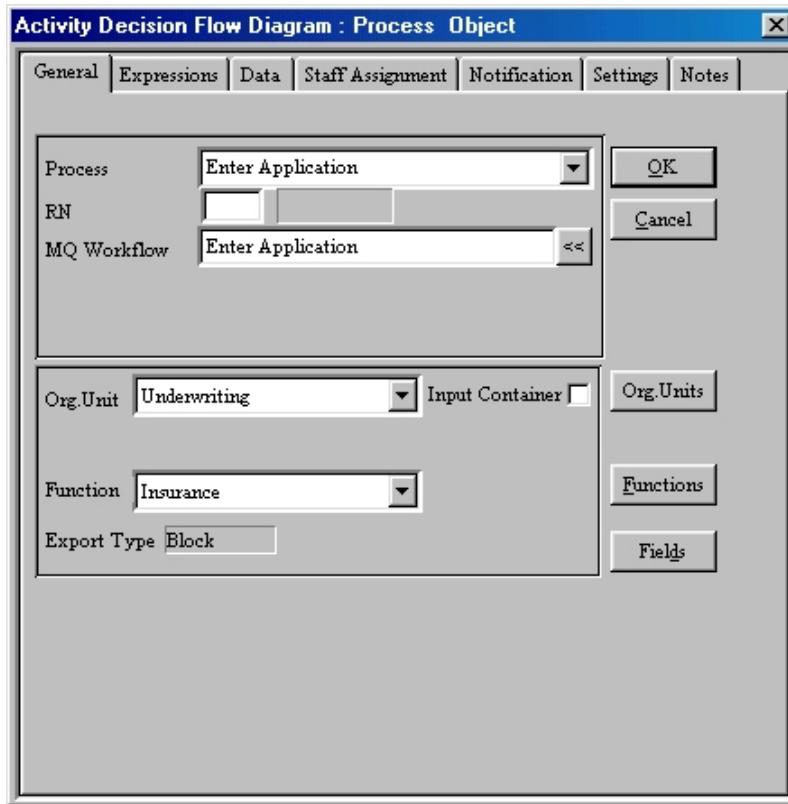


4. Select the **Block** radio button from the **Export Type** box.
  - \* The Process will be exported to a MQ Workflow FDL file as a Block.
5. Click **OK** or press **Enter** or continue in another tab.

### General Information

To define general information about Process Object that is a type Block:

1. Double-click on the Process Object. The **Process Object** dialog box will appear—open to the General tab (see the figure below).



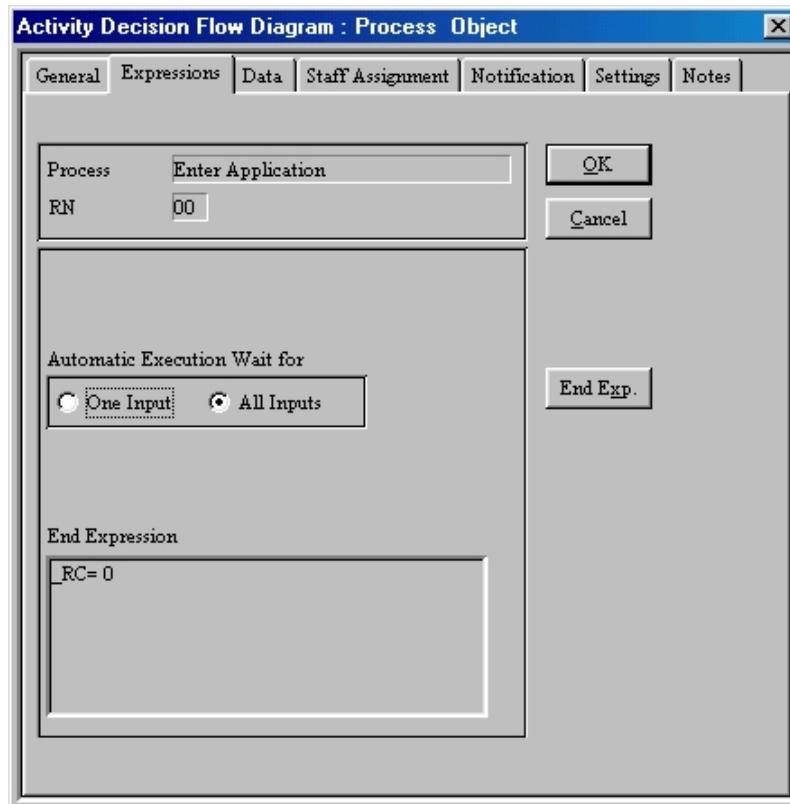
2. To select a Process from those already defined, select one from the **Name** list ( click on the arrow on the right end of the **Process** combo box to bring up the list).
  - \* If the Process you want is not included on the list, then you need to create it:
    - The Process name can be typed in the **Process** combo box. When you click **OK**, a new Process with that name will be created.
3. The **MQ Workflow Name** text box displays the name that will be exported to the FDL file. The MQ Workflow name is derived from a combination of the Process name and the RN and has a maximum of 35 characters (for a RN value of 00, the RN does not appear in the MQ Workflow name).
  - \* You can type in the **MQ Workflow** text box to change the MQ Workflow name. This name has to be unique.

- \* You can reset a modified MQ Workflow name by  clicking on the << button to the right of the **MQ Workflow** text box.
4. To add or change the Organization Unit assigned to the Process,  select a unit from the **Org. Unit** selection box.
- \* If the unit you want is not included on the list, then you need to create it.
    -  Click the **Org. Units Go To** button to access the Repository **Organization Units** dialog box in order to create the item (refer to the section entitled “Define the Organization Setting” on page 3-5). Upon returning to the **Process Object** dialog box, the new item(s) will be included on the list.
  - \*  Select the **Input Container** checkbox to take the Organization Unit for the activity from a specific Data Field in the input container for the activity.
    -  Select the name of the Data Field in the input container that contains the Organization Unit from the drop-down list in the **Org. Unit** selection box, which displays all the Data Fields in the input container when the **Input Container** checkbox is selected.
5. To add or change the Function associated with the Process,  choose a function name from the **Function** combo box.
- \* The Function will be exported as the Block Category in the FDL file.
  - \* If the Function you want is not included on the list, then you need to create it.  Click the **Function Go To** button to access the Repository **Functions** dialog box in order to create the item (refer to the section entitled “Functions” in Chapter 2 of the *User’s Guide*). Upon returning to the **Info** dialog box, the new item(s) will be included on the list.
6. When finished with the **Process Object** dialog box,  click **OK** or  press **Enter** or continue in another tab.

### Start and End Execution

To define the start and end conditions for a Process Object that is a type Block:

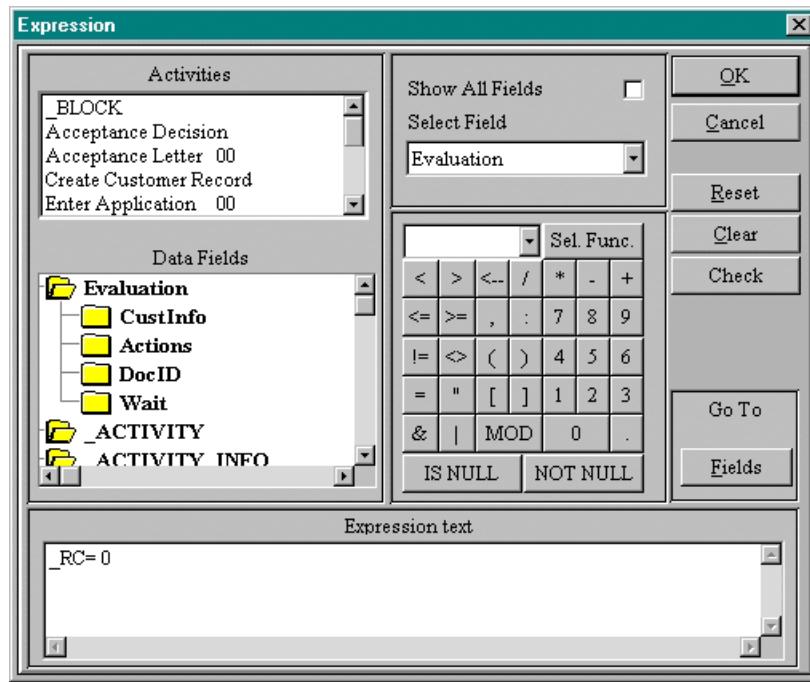
1. Double-click on the Process Object. The **Process Object** dialog box will appear—open to the General tab (see the figure below).



2. Click the **Expression** tab at the top of the **Process Object** dialog box.
3. Select the appropriate radio button to specify whether Automatic Execution waits for **One Input** or **All Inputs** (default) in the **Automatic Execution Wait For** box.
4. If you want to add an expression that can be used by a workflow application to determine if the Process has been completed, click the **End Exp.** button to open the **Expression** dialog box. Refer to the next section for details on using the **Expression** dialog box.
5. When you have finished defining the object, click **OK** or press **Enter**.

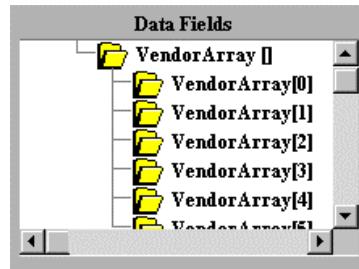
### *Adding an Expression*

To add an Expression to the Expression dialog box (see the figure below):



1. Type the text of the **Expression** in the **Expression** text box. You can also:
  - \* Double-click on a **Task** that is listed in the **Activities** list box to include it in the Expression.
  - \* Only “upstream” Tasks are appropriate for including in an expression.
    - \* Click on a **Data Field** or **Data Structure** in the **Data Fields** list box to include it in the Expression.
      - If the Data Field or Data Structure you want is not on the list, then you need to create it. Click the **Fields Go To** button to open the **Data Fields** dialog box (refer to the section entitled “Define the Data Structures” on page 3-76).
    - \* To control the levels of Data Structures displayed in the **Data Fields** list box:
      - Select the **Show All Fields** check box to display all Data Fields, as well as Data Structures, in the **Data Fields** list box.
      - De-select the **Show All Fields** check box to display only Data Structures in the **Data Fields** list box.

- Right-click on a collapsed **Data Structure** (denoted by a closed folder) to expand the Data Structure. This will reveal all of the lower-level Data Fields within the Data Structure.
- Right-click on an expanded **Data Structure** (denoted by an open folder) to collapse the Data Structure. This will hide all of the lower-level Data Fields within the Data Structure.
- \* If the **Data Field** you want to select is an array, a pair of brackets is displayed just after the name of the Data Field (see the figure below). You can select a specific element of the array:



- First, Right-click on the collapsed **Data Field**. This will expand the Data Field to reveal all of the array element numbers within it (see the figure on the right).
- Click on the array element number that you want to use. This will copy the array element into the **Expression** text box.
- \* Select a Function from the Function selection box, then click the **Sel. Func.** button to include those items in the expression.
- \* Click the **Clear** button to remove all text from the **Expression** text box.
- \* Click the **Reset** button to remove the text that has been added to the **Expression** text box since the **Expression** dialog box was opened.
- \* Click the **Check** button to validate the Expression. Any errors in the Expression will be identified.

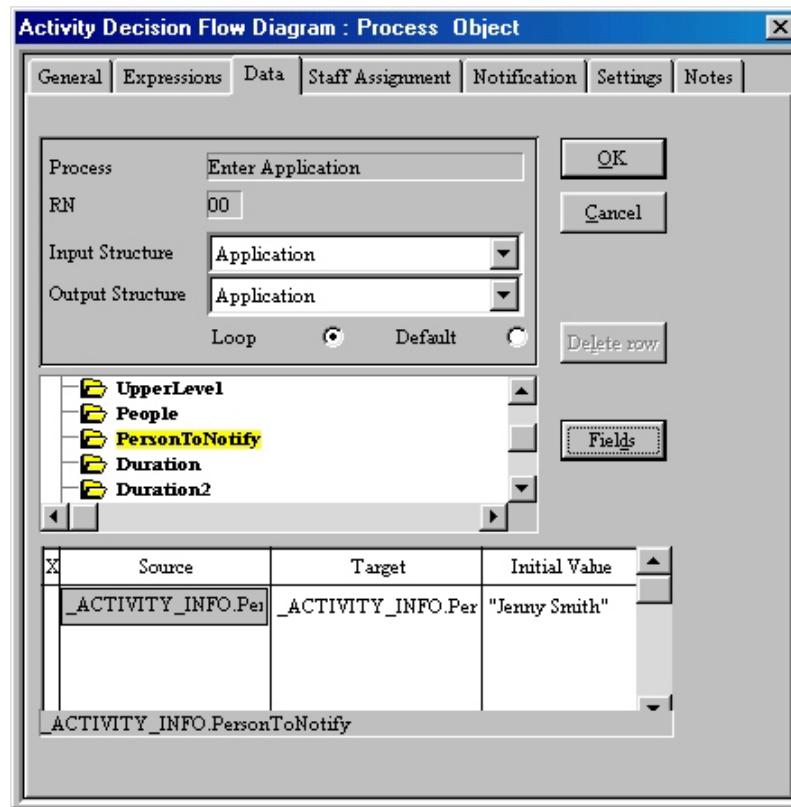
**The Expression must be evaluated as either being True or False.**

2. Click **OK** or press **Enter** to return to the previous dialog box.

## *Data Structures, Initial Values, and Loops*

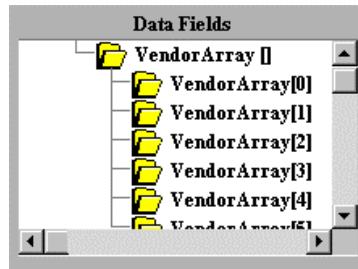
To define the Data Structures and Loops for a Process Object that is a type Block:

1. Double-click on the Process Object. The **Process Object** dialog box will appear, open to the General tab.
2. Click the **Data** tab at the top of the **Process Object** dialog box (see the figure below).



3. To change the Input Container Data Structure of the Process, select a Data Structure from the **Input Structure** selection box.
  - \* If the Data Structure you want is not included on the list, then you need to create it. Click the **Fields** Go To button to access the Repository **Data Fields** dialog box in order to create the item (refer to the section entitled “Define the Data Structures” on page 3-76). Upon returning to the **Info** dialog box, the new item(s) will be included on the list.
4. To change the Output Container Data Structure of the Process, select a Data Structure from the **Output Structure** selection box.

5. Select the **Loop** or **Default** radio button to designate that the Task is connected by an IBM MQ Loop- or an IBM MQ Default-type connector. The arrangement of columns in the **Mapping** list box will change accordingly, though the function of each column will remain as described below.
6. In **Line 1** of the Mapping list box, click on the cell within the **Source** column. The Fields list in the center of the dialog box will be updated to show the Data Structure of the Input Container of the Process, in addition to the MQ Workflow default Data Structures and variables.
  - \* Click on the appropriate **Data Field** from the **Data Structure** tree list box to insert it into the mapping cell.
  - \* To control the levels of Data Structures displayed in the **Data Fields** list box:
    - Right-click on a collapsed **Data Structure** (denoted by a closed folder) to expand the Data Structure. This will reveal all of the lower-level Data Fields within the Data Structure.
    - Right-click on an expanded **Data Structure** (denoted by an open folder) to collapse the Data Structure. This will hide all of the lower-level Data Fields within the Data Structure.
  - \* If the **Data Field** you want to select is an array, a pair of brackets is displayed just after the name of the Data Field (see the figure below). You can select a specific element of the array:



- First, Right-click on the collapsed **Data Field**. This will expand the Data Field to reveal all of the array element numbers within it (see the figure on the right).
- Click on the array element number that you want to use. This will copy the array element into the **Expression** text box.

**You can use the Shift+Arrow keys to navigate the editing cursor through the Mapping table.**

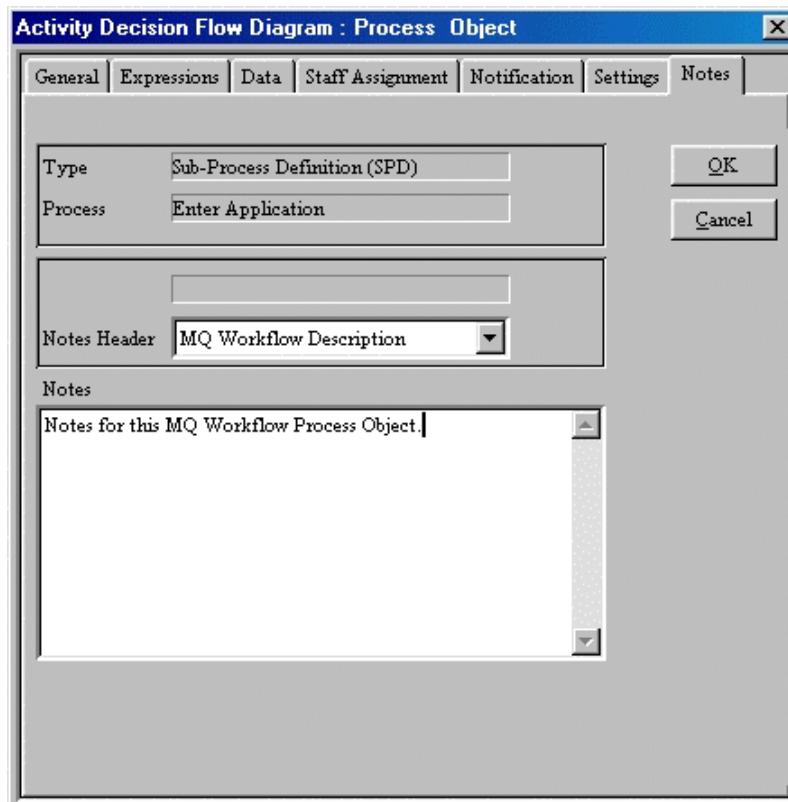
7. Click on the cell within the **Target** column. The Fields list in the center of the dialog box will be updated to show the Data Structure of the Output Container of the Process in addition to the MQ Workflow default Data Structures and variables.
  - \* Select the appropriate Data Field from the Data Structure tree list box.

- If the Data Field of the source does not have the same data type as the Data Field of the target, the cell in the X column will be marked with an “X.”
8. Type an initial value for the Target Data Field in the cell of the **Initial Value** column.
  9. Repeat Steps 4 through 6 to add additional mappings for the looping of the Process.
  10. When finished with the **Process Object** dialog box, click **OK** or press **Enter** or continue in another tab.

### *Documentation Information*

To define Notes for a Process Object that is a type Block:

1. Double-click on the Process Object. The **Process Object** dialog box will appear—open to the General tab.
2. Click the **Notes** tab at the top of the **Process Object** dialog box (see the figure below).



- \* There are two independent types of Notes available for a Process (Block): MQ Workflow Description (default) and Documentation.

3. To add or update MQ Workflow Description Notes about the Process,  select **MQ Workflow** Description from the **Notes Header** selection box. Then  type in the **Notes** text box.
  - \* To add a **Carriage Return** in your Notes,  type **Ctrl+Enter**.
  - \* If a Data Field, bordered by % signs, is listed the Description Notes, then the actual value of this Data Field become available for display during MQ Workflow runtime. In this way, critical information can be passed from user to user very easily.
  - \* The Notes will be exported as Description in the FDL file.
    - If there are no single or double quotes in the Notes, then it will be exported with single quotes surrounding the text.
    - If there are single quotes in the Notes, then it will be exported with double quotes surrounding the text and the single quotes inside.
    - If there are double quotes in the Notes, then it will be exported with single quotes surrounding the text and the double quotes inside.
    - If there are single quotes and double quotes in the Notes, then it will be exported with double quotes surrounding the text, the double quotes inside will be converted to single quotes, and the single quotes will remain inside.
4. To add or update Documentation Notes about the Process,  select **Documentation** from the **Notes Header** selection box. Then  type in the **Notes** text box.
  - \* The notes will be exported as the Documentation in the FDL file.
5. When finished with the **Process Object** dialog box,  click **OK** or  press **Enter**.

### 3.11.3 Tasks

The information about the settings of a Task is described in the following sections. The procedures documented here are for the attributes that apply to the creation of a MQ Workflow FDL file. For information on attributes other than those documented here, refer to the section entitled “Modeling Tasks” in Chapter 3 of the *Modeling Guide*.

The information about Program Activities is captured with the **Task Object** dialog box. The following table displays the MQ Workflow to Workflow•BPR conversions for Tasks:

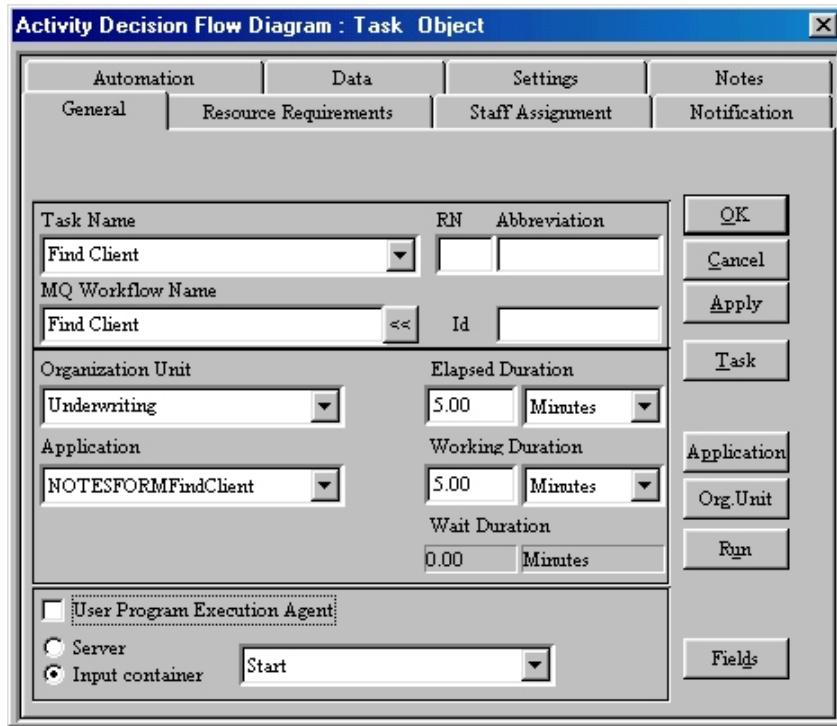
<u>MQ Workflow</u>	<u>Workflow•BPR</u>	
<u>Program Activity</u>	<u>Task</u>	<u>Location</u>
Name	MQ Workflow	General Tab
Description	Documentation	Notes Tab
Program	Application	General Tab
Program Execution		
Start	Start Execution	Automation Tab
Condition	Automatic Execution Wait For	Automation Tab
Exit	End Execution	Automation Tab
Exit Condition	Exit Condition	Automation Tab
Data Structures: Input	Input Structures	Data Tab
Data Structure: Output	Output Structures	Data Tab
Staff Assignment	Staff Assignment	Staff Assignment Tab
All People	All People	Staff Assignment Tab
Staff from Predefined Members	Data from Predefined Members	Staff Assignment Tab
Dynamic Assignment from Page 2	Dynamic Assignment	Staff Assignment Tab
Coordinator of Role	Coordinator of Role	Staff Assignment Tab
Coordinator of Role from Container	Coordinator of Role - Container	Staff Assignment Tab
Manager of Organization	Manager of Organization	Staff Assignment Tab
Manager of Organization from Container	Manager of Organization – Container	Staff Assignment Tab
People	Assigned Employees	Staff Assignment Tab
People from Container	Input Container	Staff Assignment Tab
Process Administrator	Process Administrator	Staff Assignment Tab
Manager of Process Starter	Manager of Process Starter	Staff Assignment Tab
Starter of Activity	Starter of Activity	Staff Assignment Tab
Manager of Starter of Activity	Manager of Starter of Activity	Staff Assignment Tab
Exclude Starter of Activity	Not Starter of Activity	Staff Assignment Tab
Member of Roles	Role	Staff Assignment Tab, Dynamic Assignment
Member of Roles from Container	Input Container	Staff Assignment Tab, Dynamic Assignment
Organization	Org. Unit	General Tab
From Container	Input Container	General Tab

<b>Program Activity, Cont.</b>	<b>Task</b>	<b>Location</b>
Members Only	Members Only	Staff Assignment Tab
Reporting Managers	Reporting Managers	Staff Assignment Tab
Child Organizations	Include Child Organizations	Staff Assignment Tab
Level: From	Level Start	Staff Assignment Tab, Dynamic Assignment
From Container	Input Container	Staff Assignment Tab, Dynamic Assignment
Level: To	Level End	Staff Assignment Tab, Dynamic Assignment
From Container	Input Container	Staff Assignment Tab, Dynamic Assignment
Notification from Predefined Members	Data from Predefined Members	Notification Tab, Notification Drop Down List
Person to Notify of Delay	Notification Employee	Notification Tab
Duration of Activity	Notification Duration	Notification Tab
Duration of Making Decision	Decision Duration	Notification Tab
Program Activities Can Be Checked Out	Program Activities Can Be Checked Out	Settings Tab
Include Process Assignment	Include Process Assignment	Settings Tab
Prefer Local Users	Prefer Local Users	Settings Tab
Prefer Not Absent Users	Prefer Not Absent Users	Settings Tab
Assign Substitute If User Is Absent	Assign Substitute If User Is Absent	Settings Tab
Assign Substitute for Notification If User Is Absent	Assign Substitute for Notification If User Is Absent	Settings Tab
Send Second Notification to Same User	Send Second Notification to Same User	Settings Tab
Priority	Priority	Settings Tab
Documentation	MQ Workflow Description	Notes Tab

### 3.11.3.1 General Information

To define general information about the Task:

1. Double-click on the Task object. The **Task Object** dialog box will appear—open to the General tab (see the figure below).



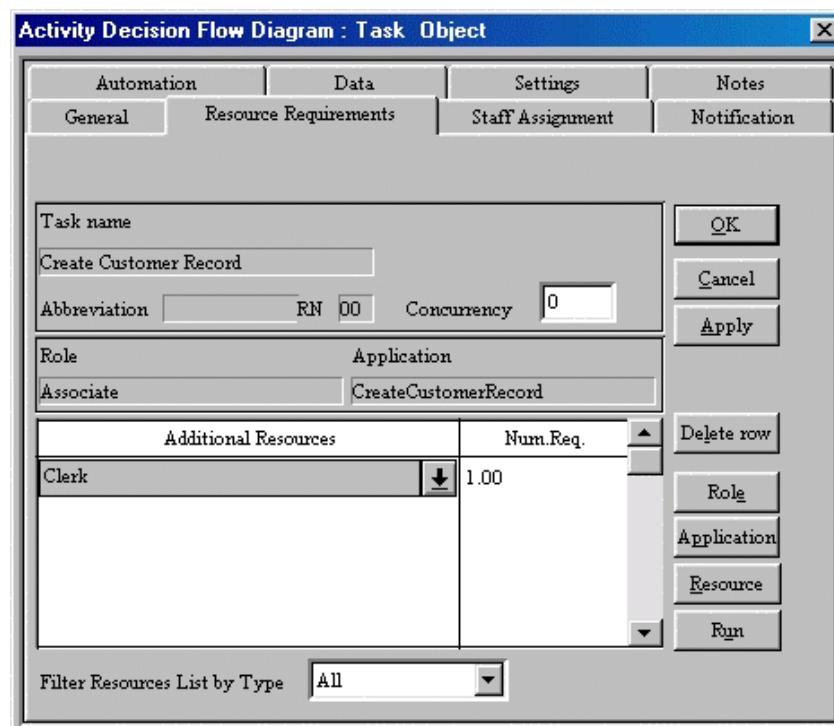
2. Edit the name of the Task in the **Task Name** text box.
3. The **MQ Workflow Activity Name** text box displays the name that will be exported to the FDL file. The MQ Workflow name is derived from a combination of the Process name and the RN and has a maximum of 35 characters (for an RN value of 00, the RN does not appear in the MQ Workflow name).
  - \* You can type in the **MQ Workflow Activity Name** text box to change the MQ Workflow name. This name has to be unique.
  - \* You can reset a modified MQ Workflow name by clicking on the << button to the right of the **MQ Workflow Activity Name** text box.
4. To add or change the organization unit assigned to the Task, choose a unit from the **Organization Unit** combo box.

- \* The Organization Unit will be used as the defined Organization for MQ Workflow Staff Assignment.
  - \* If the unit you want is not included on the list, then you need to create it. You have two (2) options.
    - You can type its name in the **Organization Unit** combo box. When **OK** or **Apply** is clicked a new item with that name will be recorded in the Repository.
    - Click the **Org. Unit Go To** button to access the Repository **Organization Units** dialog box in order to create the item (refer to the section entitled “Define the Organization Setting” on page 3-5). Upon returning to the **Task Object** dialog box, the new item(s) will be included on the list.
5. Select the Application from the **Application** selection box.
- \* If the Application you want is not included on the list, then you need to create it. Click the **Applications** Go To button to access the Repository **Applications** dialog box in order to create the item (refer to the section entitled “Define the Programs as Applications” on page 3-86). Upon returning to the **Task Object** dialog box, the new item(s) will be included on the list.
6. Select the **User Program Execution Agent** checkbox to have program execution governed by the user-defined PEA.
7. Select the **Server** radio button to have program execution governed by the Program Execution Server (PES).
- \* Select the System that contains the PES from the drop-down list in the box on the right.
    - If the System you want is not included on the list, then either you must create it, or you must assign a PES to it. To create the System, select the **System** dialog box from the **Organization Data** sub-menu of the **Repository** menu (refer to the section entitled “System” on page 3-47). To assign a PES to a System, select the **System** dialog box from the **Organization Data** sub-menu of the **Repository** menu, and update the **Servers** list at the bottom of the **General** tab (refer to the section entitled “General” on page 3-48).
8. Select the **Input Container** radio button to have program execution governed by information in a Data Field.
- \* Select the Data Field from the drop-down list in the box on the right.
    - If the Data Field you want is not included on the list, then you need to create it. Click the **Fields** Go To button to open the **Data Fields** dialog box (refer to the section entitled “Define the Data Structures” on page 3-76). Upon returning to the **Task Object** dialog box, the new item(s) will be included on the list.
9. When you have finished defining the object, click **OK** or press **Enter**. To save the current edits and continue with additional edits (e.g., in another tab), click **Apply**.

### 3.11.3.2 Support Tools

To define the Applications that will serve as Task support tools:

1. Double-click on the Task object. The **Task Object** dialog box will appear—open to the General tab.
2. Click the **Resource Requirements** tab at the top of the **Task Object** dialog box (see the figure below). This tab displays the Task name, abbreviation, RN, and the resource responsible for performing the Task. It also allows for the selection of additional assigned resource names and the required number.



3. To add an additional Role, Application, or other Resource that will participate in the Task, click on the first available row in the **Additional Resources** box, then click on the arrow at the end of the row and select a resource from the list.
  - \* To filter the resource list by Application, select an **Application** from the **Filter Resources List by Type** selection box.
  - \* If the Application you want is not included on the list, then you need to create it. Click the **Application** Go To button to access the Repository **Applications** dialog box in order to create the item (refer to the section entitled “Define the Programs as Applications” on page 3-86). Upon returning to the **Task Object** dialog box, the new item(s) will be included on the list.
  - \* To change the number required for a required resource, type the new value in the **Num. Req.** text box.

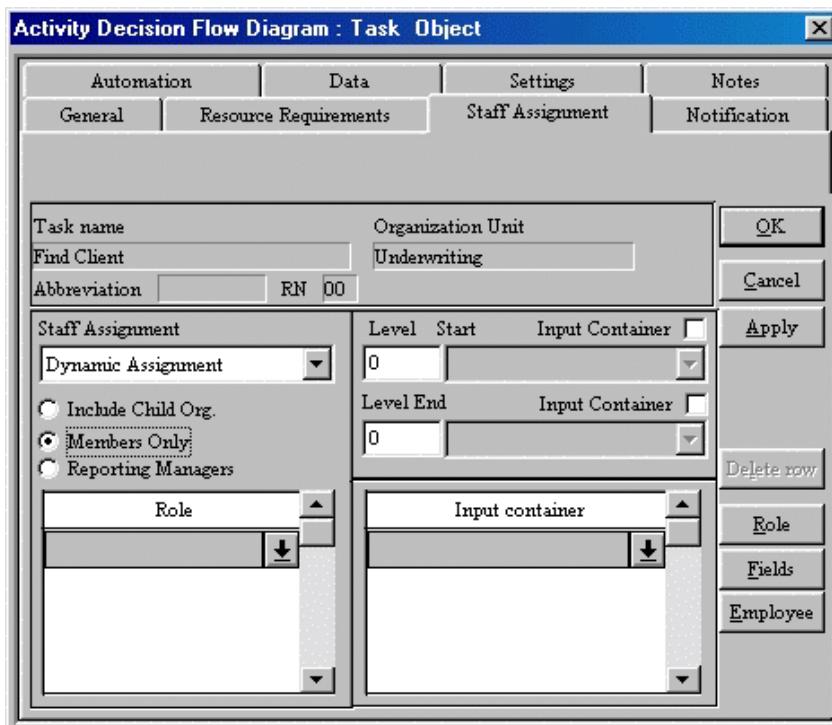
4. An assigned resource can be deleted by selecting the resource from the **Additional Resources** list box and then clicking **Delete Row**.
5. Click **Run** to open the Application assigned to the Task.
  - \* The path of the application must be defined in the Repository.
6. When you have finished defining the object, click **OK** or press **Enter**. To save the current edits and continue with additional edits (e.g., in another tab), click **Apply**.

### 3.11.3.3 Staff Assignment

The mechanism for defining the Staff Assignment for the MQ Workflow workflow engine is different than defining the responsible Role or other resource requirements for Workflow•BPR analysis.

To define the staff assignment for Tasks:

1. Double-click on the Task object. The **Task Object** dialog box will appear—open to the General tab.
2. Select the **Staff Assignment** tab (see the figure below).



3. Select the type of assignment from the lower left panel of the dialog box.
  - \* The following table displays the types of assignments and any additional user actions that may be required:

Type of Assignment	Additional User Action(s)
<b>Dynamic Assignment</b> (Default): An employee that is linked with the selected list of Roles can perform the Task.	<ul style="list-style-type: none"> <li>* In Line 1 of the <b>Role</b> list box,  click on the Arrow button that is on the right side of the <b>Role</b> column. A list of Roles will appear.  Select the Role.</li> <li>* Repeat the  selection for each line of the <b>Role</b> list box until all Roles have been selected.   <b> If more than one Role is selected, Employees must be assigned to all the Roles on the list before they are eligible to perform the activity.</b> </li> <li>* In Line 1 of the <b>Input Container</b> list box,  click on the Arrow button that is on the right side of the <b>Input Container</b> column. A list of Data Fields will appear.  Select the Data Field containing a Role.</li> <li>* Repeat the  selection for each line of the <b>Input Container</b> list box until all Data Fields containing Roles have been selected.   <b> If more than one Data Field is selected, Employees must be assigned to all the Roles contained in the Data Fields on the list before they are eligible to perform the activity.</b> </li> <li>*  Enter the lowest level of Employee that can perform the Process in the <b>Level Start</b> text box. –If you want the Level to be defined in the data arriving in the Input Container, then: <ul style="list-style-type: none"> <li>·  Select the <b>Input Container</b> check box.</li> <li>· Then,  a Data Field from the list box.</li> </ul> </li> <li>*  Enter the highest level of Employee that can perform the Process in the <b>Level End</b> text box. –If you want the Level to be defined in the data arriving in the Input Container, then: <ul style="list-style-type: none"> <li>·  Select the <b>Input Container</b> check box.</li> <li>· Then,  select a Data Field from the list box that becomes active.</li> </ul> </li> <li>*  Select the <b>Members Only</b> radio button if you want only Employees of the specified Organization Unit to be available to perform the Process. Employees that are part of Organization Units that are children of the Organization Unit specified for the Process will not be available.</li> <li>*  Select the <b>Reporting Managers</b> radio button if you want the staff assignment set to the members of the named organization and the reporting managers of the child organizations eligible to start the activity.</li> <li>*  Select the <b>Include Child Organizations</b> radio button if you want Employees to perform the Process that are part of Organization Units that are children of the Organization Unit specified for the Process. If selected, all staff members of the organization you specify and those of its child organizations down through the hierarchy are included (default).</li> <li>* If not selected, only the Employees of the organization you specify and the managers of its first-level child organizations are included.</li> </ul>
<b>Process Administrator:</b> The defined Process Administrator will perform the Process.	* None
<b>Process Starter:</b> The starter of the Process will perform the Process	* None

<b>Manager of Process Starter:</b> The Manager of the Starter of the Process will perform the Process	* None
<b>Starter of Activity:</b> The Starter of a selected activity will perform the Process.	☛ Select an activity from the <b>Activity</b> selection box. You should only select Processes that proceed or are <i>Upstream</i> of the current Process.
<b>Manager of Starter of Activity:</b> The Manager of the Starter of a selected activity will perform the Process.	☛ Select an activity from the <b>Activity</b> selection box. You should only select Processes that proceed or are <i>Upstream</i> of the current Process.
<b>Not Starter of Activity:</b> An employee that was not the Starter of a selected activity will perform the Process	☛ Select an activity from the <b>Activity</b> selection box. You should only select Processes that proceed or are <i>Upstream</i> of the current Process.
<b>Assigned Employees:</b> The selected employee will perform the Process	☛ Select one or more Employees from the <b>Employee</b> selection box.
<b>All People:</b> The User Ids of the Employees defined in the ACTIVITY_INFO.People Data Field are authorized to perform the Process.	None
<b>Data From Predefined Members:</b> The User Ids of the Employees defined in the ACTIVITY_INFO.MembersOfRole Data Field are authorized to perform the Process.	None
<b>Coordinator of Role:</b> The Coordinator of the selected Role will perform the Process.	☛ Select a Role from the selection box.
<b>Coordinator of Role-Container:</b> The Coordinator of the selected Role will perform the Process. The Role will be defined by data arriving in the Input Container.	☛ Select a Data Field from the selection box. ☛ Select the Blank item to use the _ACTIVITY_INFO.CoordinatorOfRole Data Field.
<b>Manager of Organization:</b> The Manager of the selected Organization Unit will perform the Process.	☛ Select an Organization Unit from the selection box.
<b>Manager of Organization--Container:</b> The Manager of the selected Organization Unit will perform the Process. The Organization Unit will be defined by data arriving in the Input Container.	☛ Select a Data Field from the selection box. ☛ Select the Blank item to use the Manager of the Organization Unit defined in the _ACTIVITY_INFO.Organization Data Field.
<b>Data From Input Container:</b> The information about the employee that can start the Process is contained in the Input Container of the Process.	None

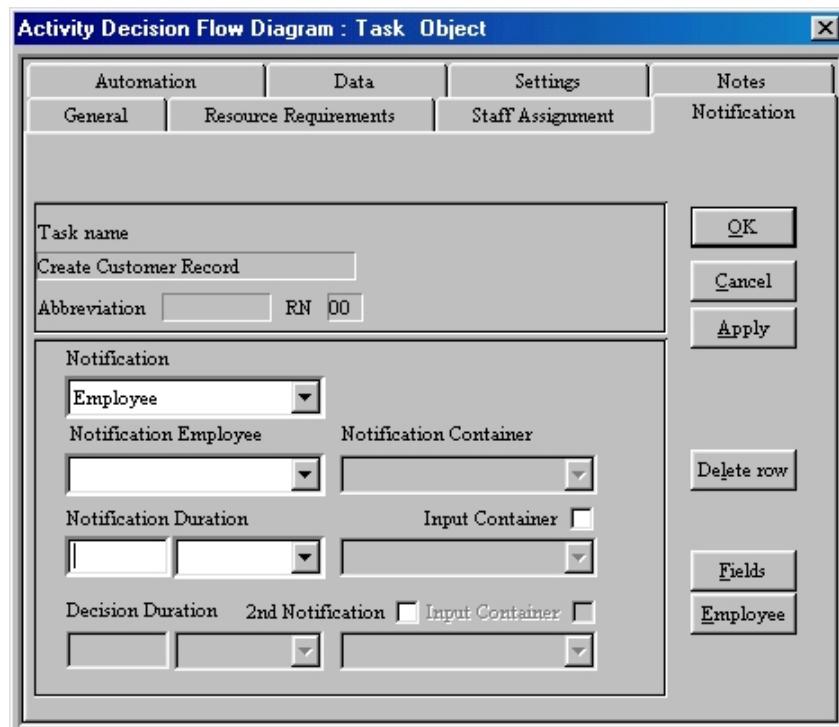
4. When finished with the **Task Object** dialog box, ☛ click **OK** or ☎ press **Enter** or continue in another tab.

### 3.11.3.4 Notification

If a Task takes longer than a specified duration, the employee that gets notified can be specified. In addition, if the notified employee does not respond within a specified period, then the Process Administrator will be notified.

To define notification settings for Tasks:

1. Double-click on the Task object. The **Task Object** dialog box will appear—open to the General tab.
2. Select the **Notification** tab (see the figure below).



3. Select the type of Notification from the **Notification** selection box.
  - \* The following table displays the types of Notifications and any additional user actions that may be required (some of the items are not available in the IBM FlowMark Editing Mode):

Type of Notification	Additional User Action(s)
<b>None (Default):</b> There will be no notification.	* None
<b>Process Administrator:</b> Then the Process Administrator will be notified.	* None
<b>Manager:</b> Then the Manager of the Employee performing the Task will be notified.	* None
<b>Coordinator:</b> Then the Coordinator of the Employee performing the Task will be notified.	* None
<b>Employee:</b> Then a Selected Employee will be notified.	*  Select the Employee that will be notified from the <b>Notification Employee</b> selection box. <ul style="list-style-type: none"> <li>– If the Employee you want is not included on the list, then you need to create it.  Click the <b>Employee</b> Go To button to access the Repository <b>Employees</b> dialog box in order to create the item (refer to the section entitled “Define the Staff” on page 3-66). Upon returning to the <b>Task Object</b> dialog box, the new item(s) will be included on the list.</li> </ul>
<b>Data From Input Container:</b> The notification information will be taken from the data in the Input Container.	*  Select a Data Field that will contain the User ID of the Employee that should be notified from the <b>Notification Container</b> list box.
<b>Data From Predefined Members:</b> The notification information will be taken from the data in the Input Container.	* None

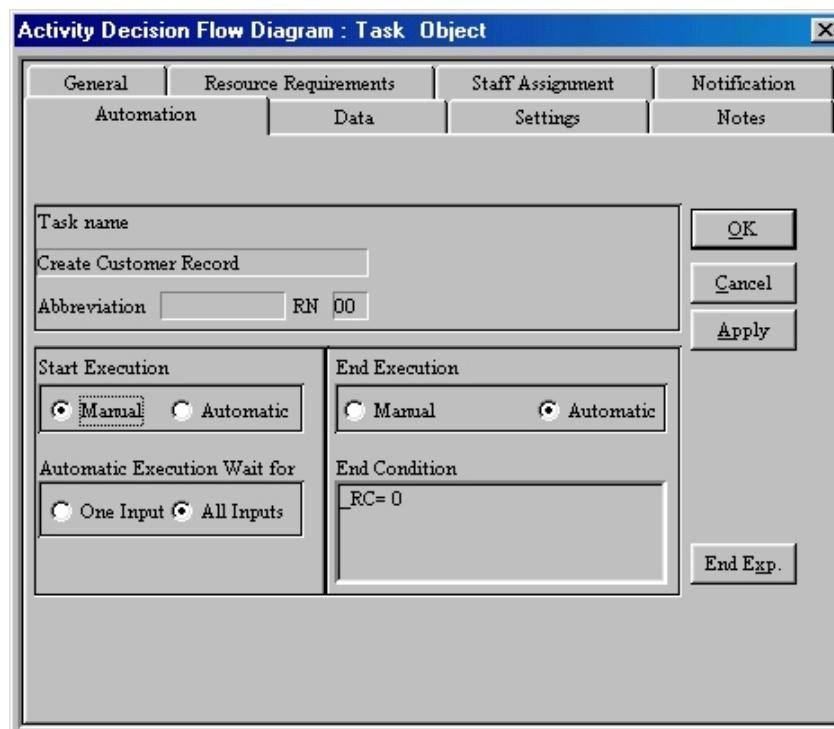
4. If a Notification was specified, then type the appropriate value in the **Notification Duration** text box, and then select the appropriate time unit from the **Notification Duration** selection box.
  - \* If you want the Duration to be defined in the data arriving in the Input Container, then:
    - Select the **Input Container** check box.
    - Then, a Data Field from the list box that becomes active.
5. To specify a Duration between First and Second Notification, select the **2<sup>nd</sup> Notification** checkbox, type the appropriate value in the **Decision Duration** text box, and then select the appropriate time unit from the **Decision Duration** selection box.
  - \* If you want the Duration to be defined in the data arriving in the Input Container, then:
    - Select the **Input Container** check box.
    - Then, a Data Field from the list box that becomes active.
6. When finished with the **Task Object** dialog box, click **OK** or press **Enter** or continue in another tab.

### 3.11.3.5 Start and End Execution

The following are the types of information that can be specified regarding the starting of a Task.

To modify the Start and End Execution options of a Task:

1. Double-click on the Task object. The **Task Object** dialog box will appear—open to the General tab.
2. Click the **Automation** tab at the top of the **Task Object** dialog box. The following Task attributes can be added and/or updated: Start and End execution (see the figure below).

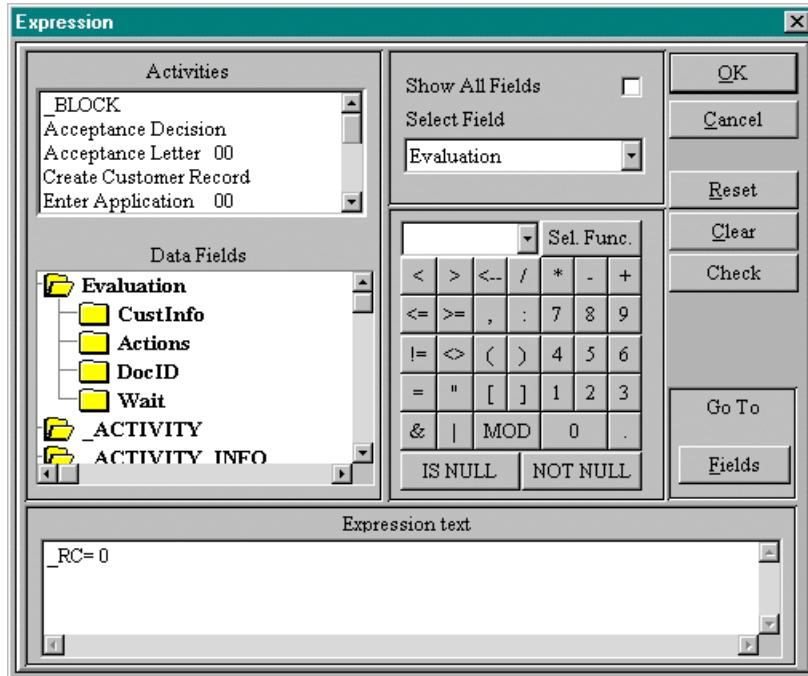


3. Select the appropriate radio button to specify whether the start of the Task will be **Manual** (Default) or **Automatic** in the **Start Execution** Box.
  4. Select the appropriate radio button to specify whether the start of the Task will wait for **One Input** (Default) or **All Inputs** in the **Automatic Execution Wait for** box.
- If the Execution is set to wait for All Inputs, the conditions for all the control connectors must be True. In addition, all activities prior to the target activity must be COMPLETED before all the conditions are evaluated.

5. Select the appropriate radio button to specify whether the end of the Task will be **Manual** (Default) or **Automatic** in the **End Execution** Box.
  - \* If the end of the Task is Manual, then the Employee must confirm that the Task is finished.
6. If you want to add an expression that can be used by a workflow application to determine if the Task has been completed, click the **End Exp.** button to open the **Expression** dialog box. Refer to the next section for details on using the **Expression** dialog box.
7. When you have finished defining the object, click **OK** or press **Enter**. To save the current edits and continue with additional edits (e.g., in another tab), click **Apply**.

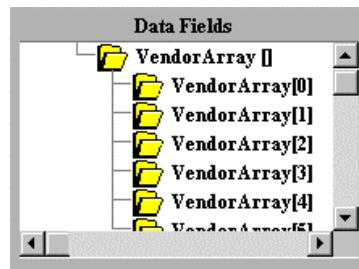
## Adding an Expression

To add an Expression to the Expression dialog box (see the figure below):



1. Type the text of the **Expression** in the **Expression** text box. You can also:
  - \* Double-click on a **Task** that is listed in the **Activities** list box to include it in the Expression.
  - Only “upstream” Tasks are appropriate for including in an expression.**
  - \* Click on a **Data Field** or **Data Structure** in the **Data Fields** list box to include it in the Expression.
    - If the Data Field or Data Structure you want is not on the list, then you need to create it. Click the **Fields Go To** button to open the **Data Fields** dialog box (refer to the section entitled “Define the Data Structures” on page 3-76).
    - To control the levels of Data Structures displayed in the **Data Fields** list box:
      - Select the **Show All Fields** check box to display all Data Fields, as well as Data Structures, in the **Data Fields** list box.
      - De-select the **Show All Fields** check box to display only Data Structures in the **Data Fields** list box.

- Right-click on a collapsed **Data Structure** (denoted by a closed folder) to expand the Data Structure. This will reveal all of the lower-level Data Fields within the Data Structure.
  - Right-click on an expanded **Data Structure** (denoted by an open folder) to collapse the Data Structure. This will hide all of the lower-level Data Fields within the Data Structure.
- \* If the **Data Field** you want to select is an array, a pair of brackets is displayed just after the name of the Data Field (see the figure below). You can select a specific element of the array:



- First, Right-click on the collapsed **Data Field**. This will expand the Data Field to reveal all of the array element numbers within it (see the figure on the right).
  - Click on the array element number that you want to use. This will copy the array element into the **Expression** text box.
- \* Select a Function from the Function selection box, then click the **Sel. Func.** button to include those items in the expression.
- \* Click the **Clear** button to remove all text from the **Expression** text box.
- \* Click the **Reset** button to remove the text that has been added to the **Expression** text box since the **Expression** dialog box was opened.
- \* Click the **Check** button to validate the Expression. Any errors in the Expression will be identified.

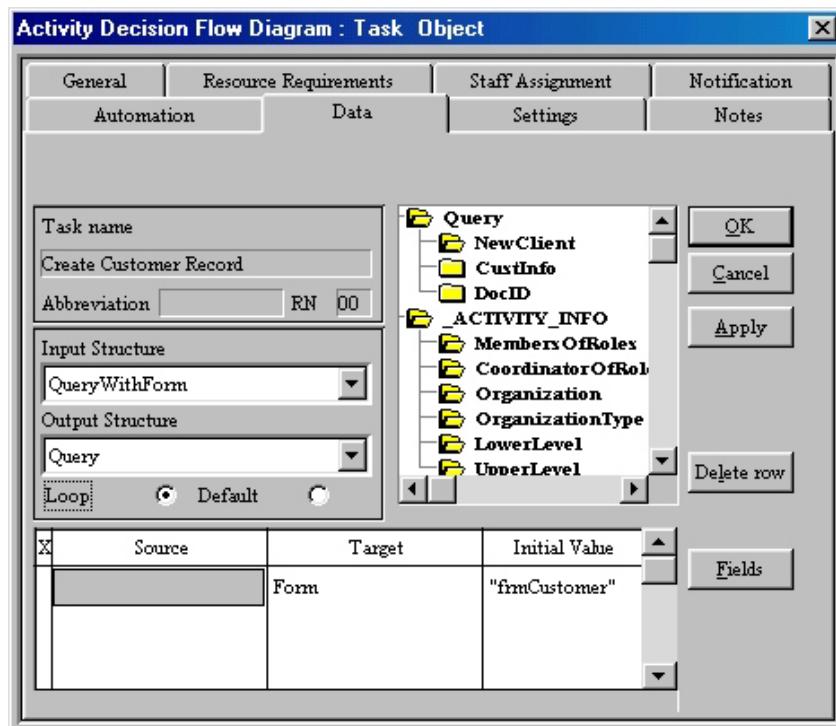
**The Expression must be evaluated as either being True or False.**

2. Click **OK** or press **Enter** to return to the previous dialog box.

### 3.11.3.6 Data Structures, Initial Values, and Loops

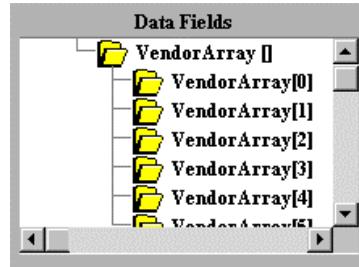
To modify the Data Structures or Loop Mapping of a Task:

1. Double-click on the Task object. The **Task Object** dialog box will appear—open to the General tab.
2. Click the **Data** tab at the top of the **Task Object** dialog box (see the figure below). This tab displays Input Container and Output Container of the Process. You can also specify the data flow mapping if the Process loops.



3. To change the Input Container Data Structure of the Task, select a Data Structure from the **Input Structure** selection box.
  - \* If the Data Structure you want is not included on the list, then you need to create it. Click the **Fields** Go To button to access the Repository **Data Fields** dialog box in order to create the item (refer to the section entitled “Define the Data Structures” on page 3-76). Upon returning to the **Task Object** dialog box, the new item(s) will be included on the list.
4. To change the Output Container Data Structure of the Process, select a Data Structure from the **Output Structure** selection box.

5. Select the **Loop** or **Default** radio button to designate that the Task is connected by an IBM MQ Loop- or an IBM MQ Default-type connector. The arrangement of columns in the **Mapping** list box will change accordingly, though the function of each column will remain as described below.
6. In **Line 1** of the Mapping list box, click on the cell within the **Source** column. The Fields list in the center of the dialog box will be updated to show the Data Structure of the Input Container of the Process, in addition to the MQ Workflow default Data Structures and variables.
  - \* Click on the appropriate **Data Field** from the **Data Structure** tree list box to insert it into the mapping cell.
  - \* To control the levels of Data Structures displayed in the **Data Fields** list box:
    - Right-click on a collapsed **Data Structure** (denoted by a closed folder) to expand the Data Structure. This will reveal all of the lower-level Data Fields within the Data Structure.
    - Right-click on an expanded **Data Structure** (denoted by an open folder) to collapse the Data Structure. This will hide all of the lower-level Data Fields within the Data Structure.
  - \* If the **Data Field** you want to select is an array, a pair of brackets is displayed just after the name of the Data Field (see the figure below). You can select a specific element of the array:



- First, Right-click on the collapsed **Data Field**. This will expand the Data Field to reveal all of the array element numbers within it (see the figure on the right).
- Click on the array element number that you want to use. This will copy the array element into the **Expression** text box.

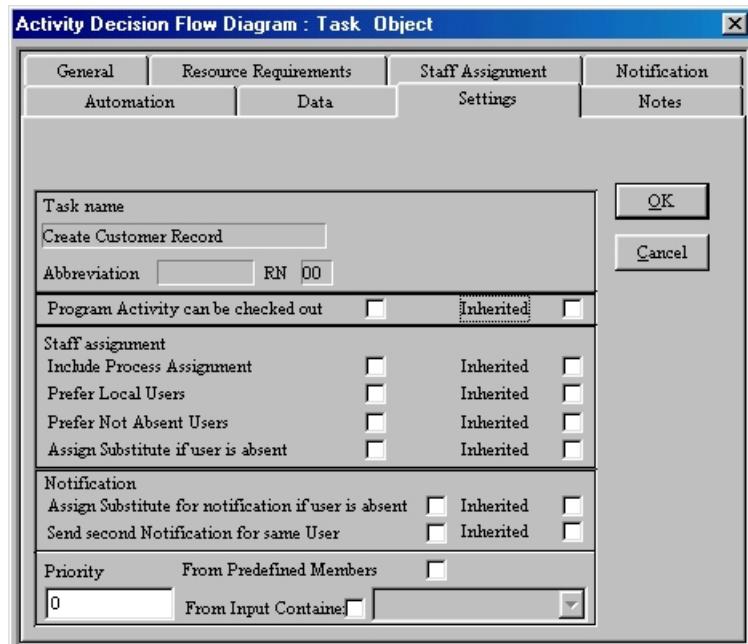
You can use the Shift+Arrow keys to navigate the editing cursor through the Mapping table.

7. Click on the cell within the **Target** column. The Fields list in the center of the dialog box will be updated to show the Data Structure of the Output Container of the Process in addition to the MQ Workflow default Data Structures and variables.
  - \* Select the appropriate Data Field from the Data Structure tree list box.
    - If the Data Field of the source does not have the same data type as the Data Field of the target, the cell in the **X** column will be marked with an “X.”
8. Type an initial value for the Target Data Field in the cell of the **Initial Value** column.
9. Repeat Steps 4 through 6 to add additional mappings for the looping of the Task.
10. When you have finished defining the object, click **OK** or press **Enter**. To save the current edits and continue with additional edits (e.g., in another tab), click **Apply**.

### 3.11.3.7 Activity Settings

To modify the Data Structures or Loop Mapping of a Task:

1. Double-click on the Task object. The **Task Object** dialog box will appear—open to the General tab.
2. Click the **Settings** tab at the top of the **Task Object** dialog box (see the figure below).



- In any section having an Inherited checkbox displayed, select the Inherited checkbox to take the Task Object (Activity) settings for that section from the settings in the corresponding section for the entire Process of which this Task Object (Activity) is a part. (See section **Activity Control Settings** on page 3-118.)
  - If neither a checkbox nor its corresponding Inherited box are selected, the setting is taken from the System-level settings.
3. Select the **Program Activity Can Be Checked Out** checkbox to allow program activities to be checked out of the runtime database.
  4. Select the **Include Process Assignment** checkbox in the **Staff Assignment** box to use the role and organization settings of the process model as part of the final staff assignment of the activity.
  5. Select the **Prefer Local Users** checkbox in the **Staff Assignment** box to have staff resolution prefer local—as opposed to remote—users to receive activities in a distributed environment.

6.  Select the **Prefer Not Absent Users** checkbox in the **Staff Assignment** box to have staff resolution prefer users who are not absent to receive the activity.
7.  Select the **Assign Substitute if User is Absent** checkbox in the **Staff Assignment** box to have staff resolution select a substitute to receive the activity if the user is absent.
8.  Select the **Assign Substitute for Notification if User is Absent** checkbox in the **Notification** box to have the substitute for a user receive the notification that the activity did not complete in the time allowed:
9.  Select the **Send Second Notification for Same User** checkbox in the **Notification** box to have a second notification sent to the same person who received the first notification instead of to the process administrator.
10.  Type the priority value in the **Priority** text box,

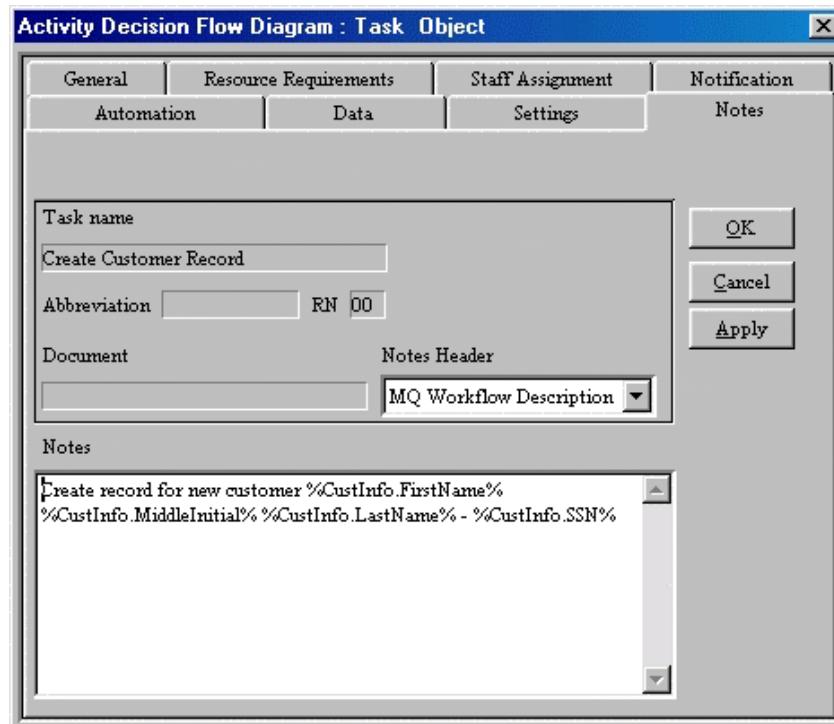
or
11.  Select the **From Predefined Members** checkbox to take the priority value for the activity from the values of the **\_ACTIVITY\_INFO** fields in the input container for the activity,

or
12.  Select the **From Input Container** checkbox to take the priority value for the activity from a specific data structure member in the input container.
  - \*  Select the name of the data structure member in the input container that contains the priority value from the drop-down list in the selection box.
    - The data structure member must be of type **LONG**.

### 3.11.3.8 Documentation Information

To define Notes for a Task:

1. Double-click on the Task object. The **Task Object** dialog box will appear—open to the General tab.
2. Click the **Notes** tab at the top of the **Task Object** dialog box (see the figure below).



- \* There are two independent types of Notes available for a Task: MQ Workflow Description (default) and Documentation.
- 3. To add or update MQ Workflow Description Notes about the Task, select **MQ Workflow Description** from the **Notes Header** selection box. Then type in the **Notes** text box.
  - \* To add a **Carriage Return** in your Notes, type **Ctrl+Enter**.
  - \* If a Data Field, bordered by % signs, is listed the Description Notes, then the actual value of this Data Field become available for display during MQ Workflow runtime. In this way, critical information can be passed from user to user very easily.
  - \* The Notes will be exported as Description in the FDL file.
    - If there are no single or double quotes in the Notes, then it will be exported with single quotes surrounding the text.

- If there are single quotes in the Notes, then it will be exported with double quotes surrounding the text and the single quotes inside.
  - If there are double quotes in the Notes, then it will be exported with single quotes surrounding the text and the double quotes inside.
  - If there are single quotes and double quotes in the Notes, then it will be exported with double quotes surrounding the text, the double quotes inside will be converted to single quotes, and the single quotes will remain inside.
4. To add or update Documentation Notes about the Task,  select **Documentation** from the **Notes Header** selection box. Then  type in the **Notes** text box.
  5. When you have finished defining the object,  click **OK** or  press **Enter**. To save the current edits and continue with additional edits (e.g., in another tab),  click **Apply**.

## 3.12 Map the Data Flow between Tasks

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For MQ Workflow, the data flow between activities has to be defined or mapped. The information about Data Flow Connectors is captured with the **Phi Object** dialog box in the Data Flow tab. The following table displays the MQ Workflow to Workflow•BPR conversions for Data Flow Mapping:

- ☞ All Data Connections should be explicitly mapped. Even if the Output Data Structure of the Source Task is the same as the Input Data Structure of the Target Task, you should map \_Struct to \_Struct.

<b><u>MQ Workflow</u></b>	<b><u>Workflow•BPR</u></b>
<b>Data Flow Connector</b>	<b>Phi Object</b>
Origin	Source Task, or Source of Process
Target	Target Task, or Sink of Process
Default	Default
Mapping Between Origin to Target	Mapping from Phi Flow Between Nodes

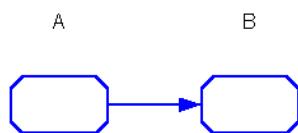
### 3.12.1 Types of Connections

An Activity Decision Flow Diagram represents the flow of Control (i.e., the sequence of activities) and the flow of Data (i.e., the Phis). There are three states of Flow:

- Control Flow Only
- Control Flow and Data Flow
- Data Flow Only

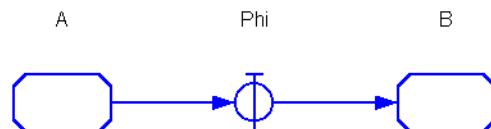
#### 3.12.1.1 Control Flow Only

The Connectors are used to determine the Control Flow. A Connector that is drawn with a solid line represents a flow of Control from the source activity, Task “A,” to the target activity, Task “B” (see the figure below).



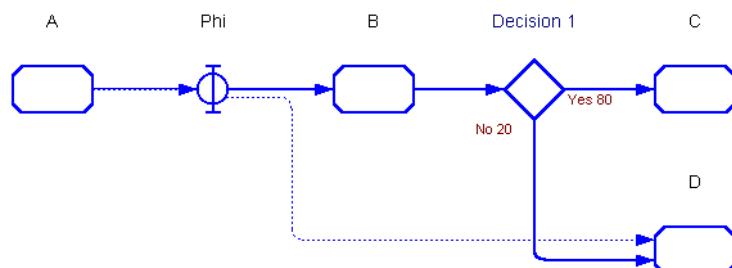
### 3.12.1.2 Control Flow and Data Flow

This are used to represent data or any other type of input and output of activities. For the purposes of this discussion, we will refer to all Phis, whether they are electronic documents or components of an automobile, as being the data that flows between activities. In the figure below, the Phi represents the data that flows from the source activity (Task “A”) to the target activity (Task “B”). The Connector drawn with a solid line indicates that there is also a flow of Control between the activities.



### 3.12.1.3 Data Flow Only

There are situations where you would want to create a connection between two activities that is only a flow of data. This will happen often for Processes intended for export to a workflow engine. In the figure below, the Phi represents data flow from the source activity (Task “A”) to two (2) target activities (Task “B” and Task “D”).



The Connector drawn with a solid line between the Phi and Task “B” indicates that there is also a flow of Control between the activities. However, the Connector drawn with a dotted line between the Phi and Task “D” indicates that there is *only* a flow of Data between the activities. Since there is no direct flow of Control between Task “A” and Task “D,” the dotted Connector is not included in the analyses that can be performed on the Process. During Expansion, all the Data Flow only Connectors will be ignored. Thus, these connections will not be considered during Case Analysis, Weighted Average Analysis, or Simulation.

- ☒ Data Flow Only Connectors are not included in Expansion, Case Analysis, Weighted Average Analysis, or Simulation.

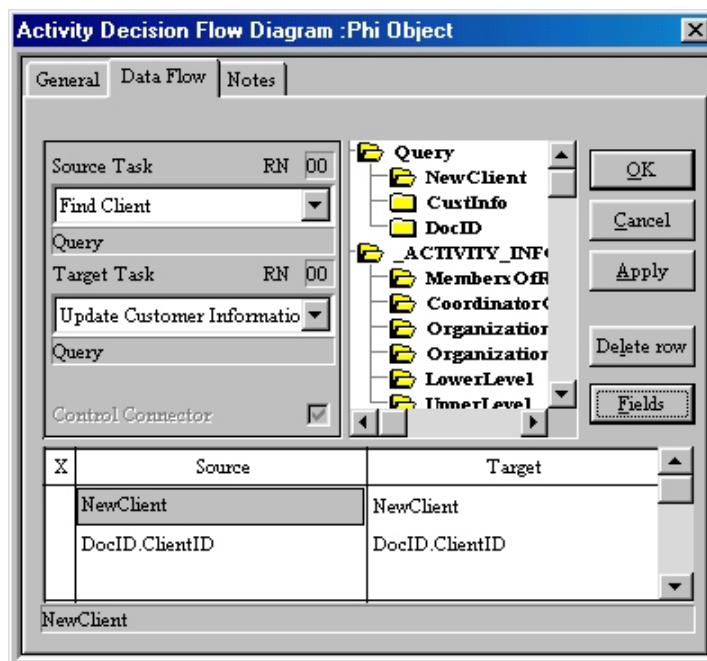
### 3.12.2 Data Flow Mapping

Data Flow occurs between activities and also from the Source of the Process and to the Sink of the Process. Mapping from the Source or to the Sink can occur wherever there is a Phi. Unless the Phi is the *first* Phi of the Process and you make a connection between the Phi and a target Task, there will be no graphical indication that there has been mapping from the Source of the Process to the target activity. Likewise, unless the Phi is the *last* Phi of the Process, there will be no graphical indication that there has been mapping from the source activity to the Sink of the Process.

- ☒ All Data Connections should be explicitly mapped. Even if the Output Data Structure of the Source Task is the same as the Input Data Structure of the Target Task, you should map \_Struct to \_Struct.

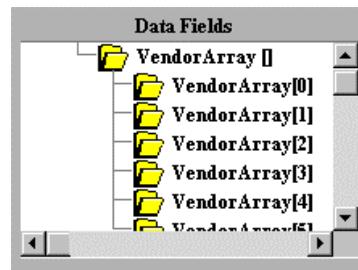
To map a data flow between two activities:

1. ✎ Double-click on the Phi object. The **Phi Object** dialog box will appear—open to the General tab.
2. ✎ Click the **Data Flow Mapping** tab at the top of the **Phi Object** dialog box (see the figure below). This tab allows you to create a data flow between two activities.



3. If the Phi is connected from more than one Task via a Decision, then ✎ select the source Task from the **Source Task** selection box
  - \* You can also ✎ select the Source of the Process as the source.

- \* For each possible source, you can create an independent data flow mapping.
4. If the Phi is connected to more than one Task, then select the target Task from the **Target Task** selection box.
    - \* You can also select the Sink of the Process as the target.
    - \* For each possible target, you can create an independent data flow mapping.
  5. If the Connector between the two Workflow•BPR Tasks should only represent data flow and not control flow, then de-select **Control Connector** check box.
  6. In **Line 1** of the Mapping list box, click on the cell within the **Source** column. The Fields list in the center of the dialog box will be updated to show the Data Structure of the Output Container of the source Task in addition to the MQ Workflow default Data Structures and variables.
  7. Select the appropriate Data Field from the Data Structure tree list box.
    - \* Click on the appropriate **Data Field** from the **Data Structure** tree list box to insert it into the mapping cell.
    - \* If the Data Field you want to select is an array, a pair of brackets is displayed just after the name of the Data Field (see the figure on the right). You can select a specific element of the array:
    - \* To control the levels of Data Structures displayed in the **Data Fields** list box:
      - Right-click on a collapsed **Data Structure** (denoted by a closed folder) to expand the Data Structure. This will reveal all of the lower-level Data Fields within the Data Structure.
      - Right-click on an expanded **Data Structure** (denoted by an open folder) to collapse the Data Structure. This will hide all of the lower-level Data Fields within the Data Structure.
    - \* If the **Data Field** you want to select is an array, a pair of brackets is displayed just after the name of the Data Field (see the figure below). You can select a specific element of the array:



- First, Right-click on the collapsed **Data Field**. This will expand the Data Field to reveal all of the array element numbers within it (see the figure on the right).

- Click on the array element number that you want to use. This will copy the array element into the mapping cell.
8. Click on the cell within the **Target** column. The Fields list in the center of the dialog box will be updated to show the Data Structure of the Input Container of the target Task in addition to the MQ Workflow default Data Structures and variables.
- \* Select the appropriate Data Field from the Data Structure tree list box.
  - \* If the Data Field of the source does not have the same data type as the Data Field of the target, the cell in the **X** column will be marked with an “X.”
  - \* Type a default value for the Target Data Field in the cell of the **Default** column.
9. Repeat Steps 3 through 5 to add additional mappings for the selected target Task.
10. Repeat Steps 2 through 6 to create mappings for another target Task or the Process Sink.
11. When you have finished defining the object, click **OK** or press **Enter**, or continue to edit the object in one of the other tabs.

## 3.13 Define the Transition Conditions

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Logical Expressions have been included in Workflow•BPR to provide information about how to route the Process at Branch points. In Workflow•BPR, Branches are represented by Decisions. The Choices of a Decision represent the alternative paths of the Branch point. To route the Process in the proper direction at a Branch point, MQ Workflow needs to know the conditions that define the path that should be taken. These conditions are determined by the evaluation of one or more Data Fields.

Workflow•BPR allows the user to define logical expressions to evaluate the Data Fields. For example, a path may be taken if the following expression is evaluated as True: *Contract = Small* or *Contract < \$20,000*. A Logical Expression is assigned to a Choice of a Decision. The expression will be part of the MQ Workflow FDL file.

The information about Transition Conditions is captured with the **Decision Object** dialog box or the Choice Object dialog box. The following table displays the MQ Workflow to Workflow•BPR conversions for Processes:

<b>MQ Workflow</b>	<b>Workflow•BPR</b>
<b>Control Flow Connector</b>	<b>Connector and Decision Choice</b>
Origin	Source
Target	Target
Name	Not Supported
Transition	Expression of Decision Choice
Description	Not Supported

During the MQ Workflow runtime, if a transition condition is determined to be True, then the process will *continue* along that path. If the transition condition is determined to be False, then the process will *stop* along that path. Thus, in the strictest sense, a MQ Workflow transition condition is equivalent to a single Workflow•BPR Binary Decision. Therefore, you should be careful in how the Workflow•BPR Decisions will be used to create MQ Workflow transition conditions. You should follow the following rules:

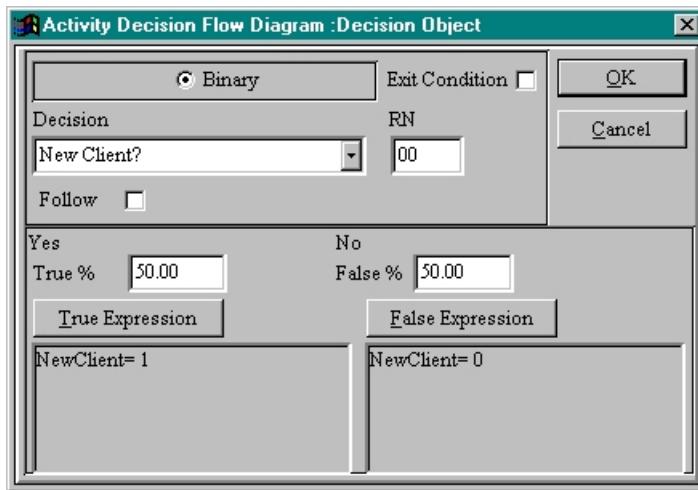
- If a MQ Workflow transition condition is independent of any other transition condition, then use a Binary Decision where one of the Choices (either Yes or No) contains an Expression and the other Choice does not contain an Expression. This means that a point in the process is reached where a transition condition may occur without regard to whether other transition conditions occur or not.
  - \* *Do not* connect the Choice without the Expression to another object.
- Only use a Multiple Decision or *both* Choices of a Binary Decision when the MQ Workflow transition conditions are dependent and create exclusive branches. This means that a point in the process is reached where there are more than one transition condition and the expressions are defined such that only one of the transitions can occur at runtime (to the exclusion of the other transitions).

The next two (2) sections describe how to define the expressions for the Transitions for both Binary Decision and Multiple Decision Choices.

### 3.13.1 Binary Decision Choices

To define the branch expression for Choices of a Binary Decision:

1. Double-click on a Decision. Workflow•BPR displays the **Decision Object** dialog box (see the figure below).



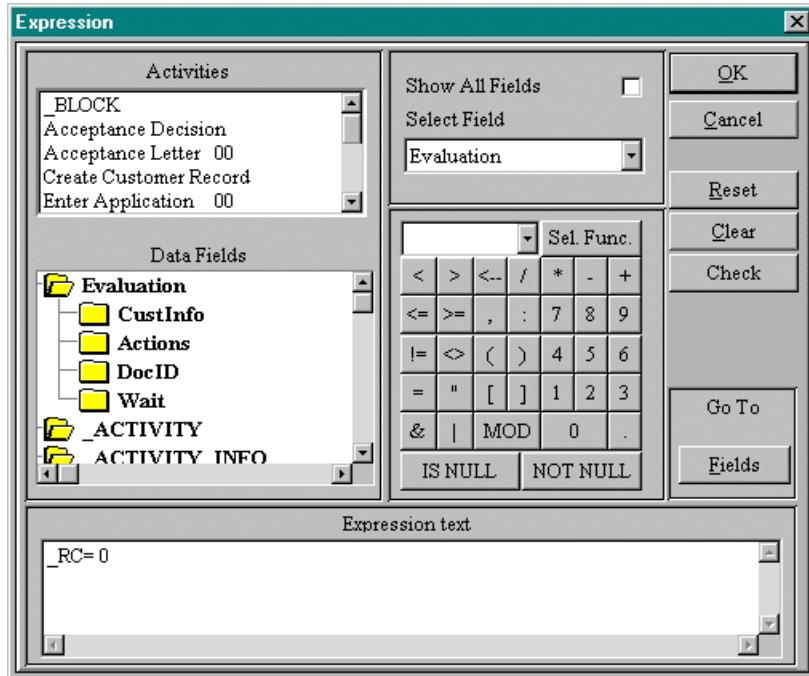
2. To define the Expression for the Yes Choice, click the **Yes Expression** button. The **Expression** dialog box will appear. Refer to the next section for details on using the **Expression** dialog box.
3. To define the Expression for the No Choice, click the **No Expression** button. The **Expression** dialog box will appear. Refer to the next section for details on using the **Expression** dialog box.
4. If the Decision is not used for MQ Workflow Transitions Conditions and is added to the end of the Process to compensate for the End Expression of the Process (see the section entitled “Loops” on page 3-206), the select the **End Condition** check box.

 This setting will enable the Workflow Monitor to track the Decision.

5. Click **OK** or press **Enter**.

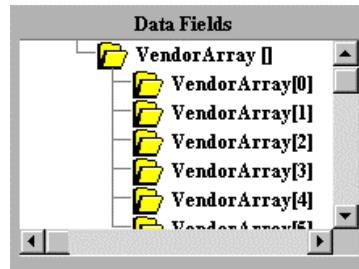
### 3.13.1.1 Adding an Expression

To add an Expression to the Expression dialog box (see the figure below):



1. Type the text of the **Expression** in the **Expression text** box. You can also:
  - \* Double-click on a **Task** that is listed in the **Activities** list box to include it in the Expression.
  - Only “upstream” Tasks are appropriate for including in an expression.**
  - \* Click on a **Data Field** or **Data Structure** in the **Data Fields** list box to include it in the Expression.
    - If the Data Field or Data Structure you want is not on the list, then you need to create it. Click the **Fields** Go To button to open the **Data Fields** dialog box (refer to the section entitled “Define the Data Structures” on page 3-76).
  - \* To control the levels of Data Structures displayed in the **Data Fields** list box:
    - Select the **Show All Fields** check box to display all Data Fields, as well as Data Structures, in the **Data Fields** list box.
    - De-select the **Show All Fields** check box to display only Data Structures in the **Data Fields** list box.

- Right-click on a collapsed **Data Structure** (denoted by a closed folder) to expand the Data Structure. This will reveal all of the lower-level Data Fields within the Data Structure.
- Right-click on an expanded **Data Structure** (denoted by an open folder) to collapse the Data Structure. This will hide all of the lower-level Data Fields within the Data Structure.
- \* If the **Data Field** you want to select is an array, a pair of brackets is displayed just after the name of the Data Field (see the figure below). You can select a specific element of the array:



- First, Right-click on the collapsed **Data Field**. This will expand the Data Field to reveal all of the array element numbers within it (see the figure on the right).
- Click on the array element number that you want to use. This will copy the array element into the **Expression** text box.
- \* Select a Function from the Function selection box, then click the **Sel. Func.** button to include those items in the expression.
- \* Click the **Clear** button to remove all text from the **Expression** text box.
- \* Click the **Reset** button to remove the text that has been added to the **Expression** text box since the **Expression** dialog box was opened.
- \* Click the **Check** button to validate the Expression. Any errors in the Expression will be identified.

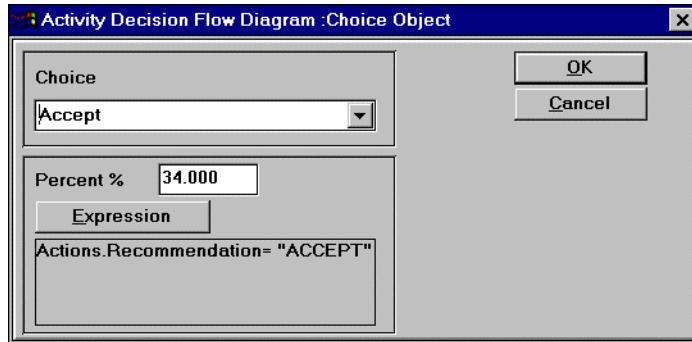
**The Expression must be evaluated as either being True or False.**

2. Click **OK** or press **Enter** to return to the previous dialog box.

### 3.13.2 Multiple Decision Choices

To define the branch expression for Choices of a Binary Decision:

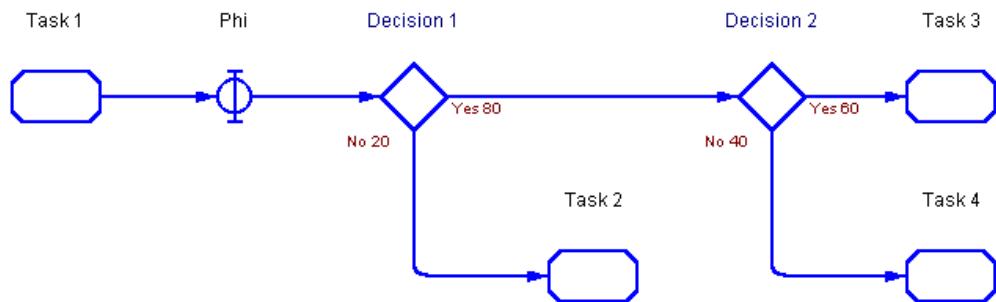
1. Double-click on the Choice. Workflow•BPR displays the **Choice Object** dialog box (see the figure below).



2. To define the Expression for the Choice, click the **Expression** button. The **Expression** dialog box will appear. Refer to the *previous* section for details on using the **Expression** dialog box.
3. Click **OK** or press **Enter**.

### 3.13.3 Combining Decisions

If two Decisions are used back-to-back (i.e., they are connected) and the Choices in both Decisions have expressions, then for each unique path created by the combination of Decisions a single MQ Workflow control connector will be exported with the transition condition equal to the *combination* of the expressions in the Choices. As an example, refer to the figure below.



### Chapter 3: Integration with IBM MQ Workflow

The figure displays two (2) Decisions that are directly connected. The following table displays the Expressions that are contained in the Yes and No Choices of Decision 1 and Decision 2.

	Decision 1	Decision 2
Yes	“RC = 0”	“Errors = 0”
No	Undefined	“OTHERWISE”

The following table displays the three (3) MQ Workflow control connectors, and their transition conditions, that would be created based on this model. Note that the connection from Task 1 to Task 3 and the connection from Task 1 to Task 4 are generated through the navigation of both Decisions in the Model. Furthermore, the MQ Workflow transition conditions are created from the combination of the Expressions in the Choices of both of the Decisions. The transition condition from Task 1 to Task 3 is created from the Yes Choice of Decision 1 and the Yes Choice of Decision 2. The transition condition from Task 1 to Task 4 is created from the Yes Choice of Decision 1 and the No Choice of Decision 2.

	MQ Workflow Transition Condition
From Task 1 to Task 2	Undefined
From Task 1 to Task 3	“RC = 0 AND Errors = 0”
From Task 1 to Task 4	“RC = 0 AND OTHERWISE”

In this simple example, there are actually two errors in the modeling of the transition conditions. First, the No Choice for Decision 1 does not have an Expression. This means that this connection will be exported as a control connector with no transition condition in the FDL file. Thus, the process will always proceed from Task 1 to Task 2, despite the Decision that was created for the Workflow•BPR model. To fix this error, an Expression should be added to the No Choice of Decision 1. The Expression could be “RC != 0.”

The second error is in the No choice of Decision 2, where the Expression is “OTHERWISE.” As part of a compound expression where AND is used, OTHERWISE is illegal in MQ Workflow syntax. This error might occur if the user does not understand the relationship between back-to-back Decisions. To correct this error, the Expression should be changed to “Errors != 0.”

## 3.14 Modeling Conventions for Compatibility with MQ Workflow

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Workflow•BPR is intended to be a comprehensive modeling tool that can represent almost all business situations, automated or not. MQ Workflow, as a tool to automate the flow of work in an organization, requires that the Process be structured in a specific format. To use Workflow•BPR to create a Process that will be exported to MQ Workflow, you must follow the modeling conventions documented in the following sections.

### 3.14.1 Exporting a Process Object as a Program Activity (Task)

MQ Workflow and other Workflow Applications route work from one Employee to another and open Applications. Therefore, a Process Model designed to support a Process that will be run by a Workflow Application must be at a level of detail that specifies what Applications will be run, when they will run, and who will run them. This type of Process Model can be referred to as a Workflow Process Model.

However, a Process Model that is designed for the purposes of Analysis and Simulation, must define a lower-level of detail than a Workflow Process Model. When an Employee is working, that Employee makes many Decisions. These Decisions are the Business Rules by which the organization operates. It is important for an organization to understand the Business Rules in order to maintain and improve their Processes. In addition, understanding the Business Rules also allows the organization to ensure that the Applications that they use and develop will meet their requirements. A Process Model that contains all the Business Rules can be referred to as a Business Process Model.

It is not practical for an organization to maintain two (2) versions of a Process Model for their Processes. For this reason, Workflow•BPR allows you to develop a Business Process Model and export that model as a Workflow Process Model. Given the low level of detail in a Business Process Model, it is possible that there are many Tasks and Decisions that are performed within the context of a single Application. All of these Tasks and Decisions can be grouped and then exported as a single Task for the Workflow Process Model. A Sub-Process in the Business Process Model can perform this grouping. The Sub-Process would contain the Tasks and Decisions relevant to the Application. For MQ Workflow purposes, however, the Sub-Process would be seen as a Task and exported as a MQ Workflow Program Activity.

The information about the settings of a Process Object is described in the following sections. The procedures documented here are for the attributes that apply to the creation of a MQ Workflow FDL file. For information on attributes other than those documented here, refer to the section entitled “Modeling Process Objects (Within A Process)” in Chapter 4 of the *Modeling Guide*.

The information about Program Activities is captured with the **Process Object** dialog box. The following table displays the MQ Workflow to Workflow•BPR conversions for Process Objects (to Program Activities):

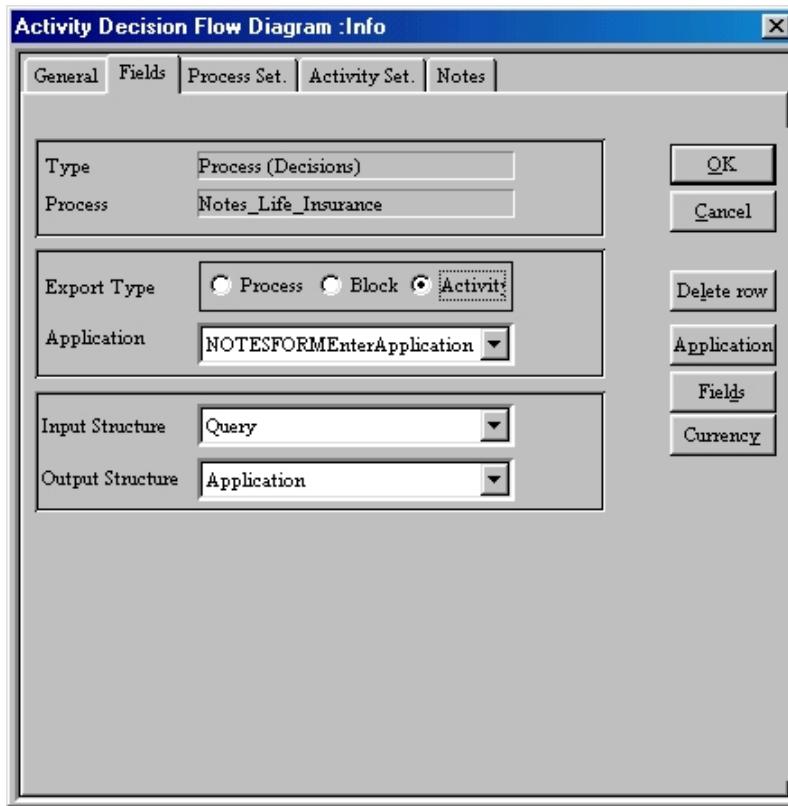
<b><u>MQ Workflow</u></b>	<b><u>Workflow•BPR</u></b>	
<b>Program Activity</b>	<b><u>Process Object: Process</u></b>	<b><u>Location</u></b>
Name	MQ Workflow	General Tab
Description	Documentation	Notes Tab
Program	Application	General Tab
Program Execution		
Start	Start Execution	Expressions Tab
Condition	Automatic Execution Wait For	Expressions Tab
Exit	End Execution	Expressions Tab
Exit Condition	End Expression	Expressions Tab
Data Structures: Input	Input Structure	Data Tab
Data Structure: Output	Output Structure	Data Tab
Staff Assignment	Staff Assignment	Staff Assignment Tab
All People	All People	Staff Assignment Tab
Staff from Predefined Members	Data from Predefined Members	Staff Assignment Tab
Dynamic Assignment from Page 2	Dynamic Assignment	Staff Assignment Tab
Coordinator of Role	Coordinator of Role	Staff Assignment Tab
Coordinator of Role from Container	Coordinator of Role - Container	Staff Assignment Tab
Manager of Organization	Manager of Organization	Staff Assignment Tab
Manager of Organization from Container	Manager of Organization – Container	Staff Assignment Tab
People	Assigned Employees	Staff Assignment Tab
People from Container	Input Container	Staff Assignment Tab
Process Administrator	Process Administrator	Staff Assignment Tab
Manager of Process Starter	Manager of Process Starter	Staff Assignment Tab
Starter of Activity	Starter of Activity	Staff Assignment Tab
Manager of Starter of Activity	Manager of Starter of Activity	Staff Assignment Tab
Exclude Starter of Activity	Not Starter of Activity	Staff Assignment Tab
Member of Roles	Role	Staff Assignment Tab, Dynamic Assignment
Member of Roles from Container	Input Container	Staff Assignment Tab, Dynamic Assignment
Organization	Org. Unit	General Tab
From Container	Input Container	General Tab
Members Only	Members Only	Staff Assignment Tab
Reporting Managers	Reporting Managers	Staff Assignment Tab
Child Organizations	Include Child Organizations	Staff Assignment Tab
Level: From	Level Start	Staff Assignment Tab, Dynamic Assignment
From Container	Input Container	Staff Assignment Tab, Dynamic Assignment
Level: To	Level End	Staff Assignment Tab, Dynamic Assignment

<b>Program Activity</b>	<b>Process Object: Process</b>	<b>Location</b>
From Container	Input Container	Staff Assignment Tab, Dynamic Assignment
Notification from Predefined Members	Data from Predefined Members	Notification Tab, Notification Drop Down List
Person to Notify of Delay	Notification Employee	Notification Tab
Duration of Activity	Notification Duration	Notification Tab
Duration of Making Decision	Decision Duration	Notification Tab
Program Activities Can Be Checked Out	Program Activities Can Be Checked Out	Settings Tab
Include Process Assignment	Include Process Assignment	Settings Tab
Prefer Local Users	Prefer Local Users	Settings Tab
Prefer Not Absent Users	Prefer Not Absent Users	Settings Tab
Assign Substitute If User Is Absent	Assign Substitute If User Is Absent	Settings Tab
Assign Substitute for Notification If User Is Absent	Assign Substitute for Notification If User Is Absent	Settings Tab
Send Second Notification to Same User	Send Second Notification to Same User	Settings Tab
Priority	Priority	Settings Tab
Documentation	MQ Workflow Description	Notes Tab

### 3.14.1.1 Define the Process Object as a Program Activity

To define the Process as being a MQ Workflow Program Activity:

1. Click on the Process Object.
2. Click the **Open Process** tool button on the **ADF Toolbar**. Workflow•BPR opens the Activity Decision Flow Diagram for that Process.
3. Choose **Info** from the **Process** menu, or click the **Info** tool button on the **ADF Toolbar**. Workflow•BPR displays the **Info** dialog box—open to the General Tab.
4. Click the **Fields** tab at the top of the **Info** dialog box (see the figure below).



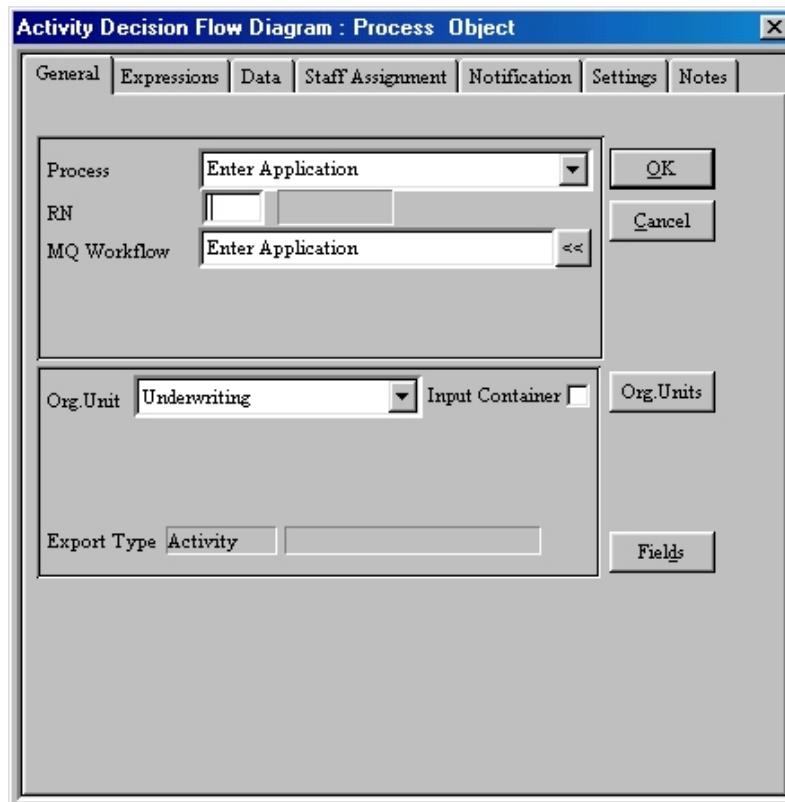
5. Select the **Activity** radio button from the **Export Type** box.
  - \* The Process will be exported to a MQ Workflow FDL file as a Program Activity.
    - All lower-level details of the Process Object will be ignored during export.

6. Select an Application from the **Application** selection box to define the MQ Workflow program that will be used for the Program Activity that is exported.
7. Click **OK** or press **Enter** or continue in another tab.

### *General Information*

To define general information about Process Object that is a type Program Activity:

1. Double-click on the Process Object. The **Process Object** dialog box will appear—open to the General tab (see the figure below).



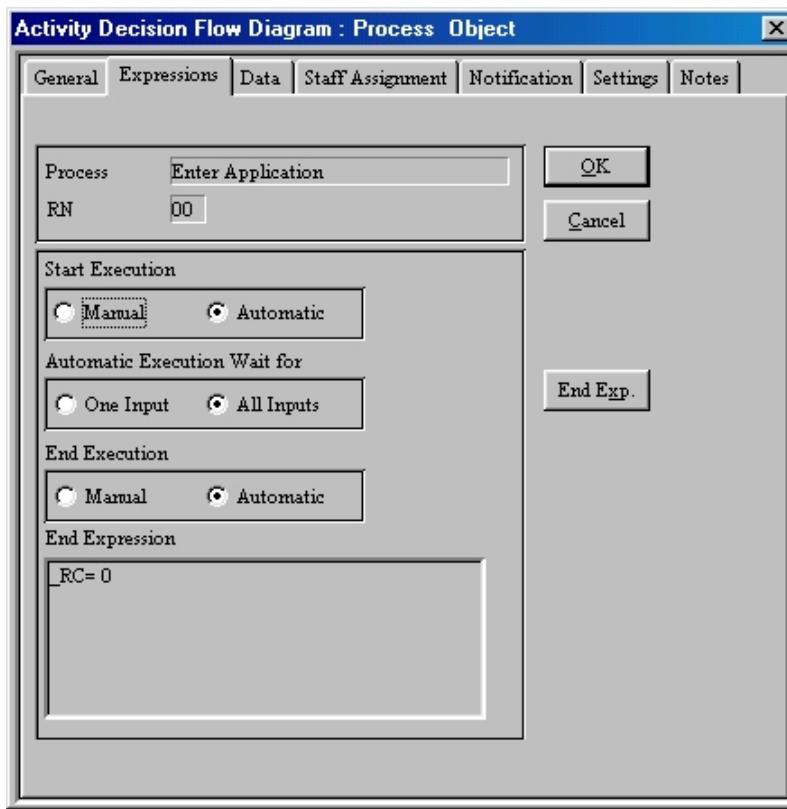
2. To select a Process from those already defined, select one from the **Name** list ( click on the arrow on the right end of the **Process** combo box to bring up the list).
  - \* If the Process you want is not included on the list, then you need to create it:
    - The Process name can be typed in the **Process** combo box. When you click **OK**, a new Process with that name will be created.

3. The **MQ Workflow** text box displays the name that will be exported to the FDL file. The MQ Workflow name is derived from a combination of the Process name and the RN and has a maximum of 35 characters (for an RN value of 00, the RN does not appear in the MQ Workflow name).
  - \* You can  type in the **MQ Workflow** text box to change the MQ Workflow name. This name has to be unique.
  - \* You can reset a modified MQ Workflow name by  clicking on the << button to the right of the **MQ Workflow** text box.
4. To add or change the organization unit assigned to the Process,  select a unit from the **Org. Unit** selection box.
  - \* If the unit you want is not included on the list, then you need to create it.  
 Click the **Org. Units** Go To button to access the Repository **Organization Units** dialog box in order to create the item (refer to the section entitled “Define the Organization Setting” on page 3-5). Upon returning to the **Info** dialog box, the new item(s) will be included on the list.
  - \*  Select the **Input Container** checkbox to take the Organization Unit for the activity from a specific Data Field in the input container for the activity.
    -  Select the name of the Data Field in the input container that contains the Organization Unit from the drop-down list in the **Org. Unit** selection box, which displays all the Data Fields in the input container when the **Input Container** checkbox is selected.
5. When finished with the **Process Object** dialog box,  click **OK** or  press **Enter** or continue in another tab.

### *Start and End Execution*

To define the start and end conditions a Process Object that is a type Program Activity:

1. Double-click on the Process Object. The **Process Object** dialog box will appear—open to the General tab.
2. Click the **Expression** tab at the top of the **Process Object** dialog box (see the figure below).

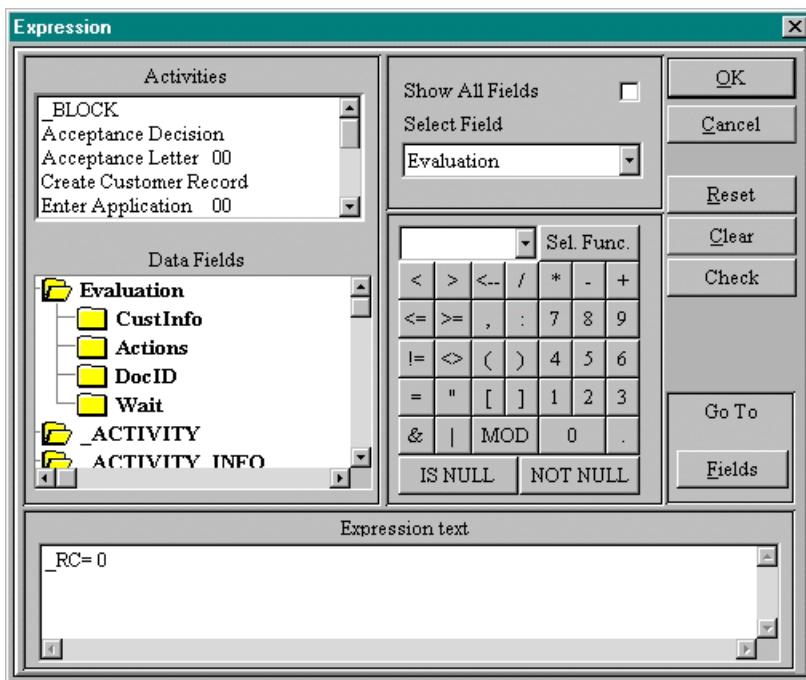


3. Select the appropriate radio button to specify whether the start of the Process will be **Manual** (Default) or **Automatic** in the **Start Execution** Box.
  4. Select the appropriate radio button to specify whether the start of the Process will wait for **One Input** (default) or **All Inputs** in the **Automatic Execution Wait for** box.
- If the Execution is set to wait for All Inputs, the conditions for all the control connectors must be True. In addition, all activities CONNECTED to the target activity must be COMPLETED before all the conditions are evaluated.

5. Select the appropriate radio button to specify whether the end of the Process will be **Manual** (Default) or **Automatic** in the **End Execution** Box.
6. If you want to add an expression that can be used by a Workflow Application to determine if the Process has been completed, click the **End Exp.** button to open the **Expression** dialog box. Refer to the next section for details on using the **Expression** dialog box.
7. When you have finished defining the object, click **OK** or press **Enter**.

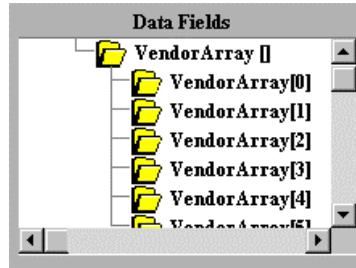
#### *Adding an Expression*

To add an Expression to the Expression dialog box (see the figure below):



1. Type the text of the **Expression** in the **Expression** text box. You can also:
  - \* Double-click on a **Task** that is listed in the **Activities** list box to include it in the Expression.
  - \* Only “upstream” Tasks are appropriate for including in an expression.
    - \* Click on a **Data Field** or **Data Structure** in the **Data Fields** list box to include it in the Expression.
      - If the Data Field or Data Structure you want is not on the list, then you need to create it. Click the **Fields** Go To button to open the **Data Fields** dialog box (refer to the section entitled “Define the Data Structures” on page 3-76).

- \* To control the levels of Data Structures displayed in the **Data Fields** list box:
  - Select the **Show All Fields** check box to display all Data Fields, as well as Data Structures, in the **Data Fields** list box.
  - De-select the **Show All Fields** check box to display only Data Structures in the **Data Fields** list box.
  - Right-click on a collapsed **Data Structure** (denoted by a closed folder) to expand the Data Structure. This will reveal all of the lower-level Data Fields within the Data Structure.
  - Right-click on an expanded **Data Structure** (denoted by an open folder) to collapse the Data Structure. This will hide all of the lower-level Data Fields within the Data Structure.
- \* If the **Data Field** you want to select is an array, a pair of brackets is displayed just after the name of the Data Field (see the figure below). You can select a specific element of the array:



- First, Right-click on the collapsed **Data Field**. This will expand the Data Field to reveal all of the array element numbers within it (see the figure on the right).
- Click on the array element number that you want to use. This will copy the array element into the **Expression** text box.
- \* Select a Function from the Function selection box, then click the **Sel. Func.** button to include those items in the expression.
- \* Click the **Clear** button to remove all text from the **Expression** text box.
- \* Click the **Reset** button to remove the text that has been added to the **Expression** text box since the **Expression** dialog box was opened.
- \* Click the **Check** button to validate the Expression. Any errors in the Expression will be identified.

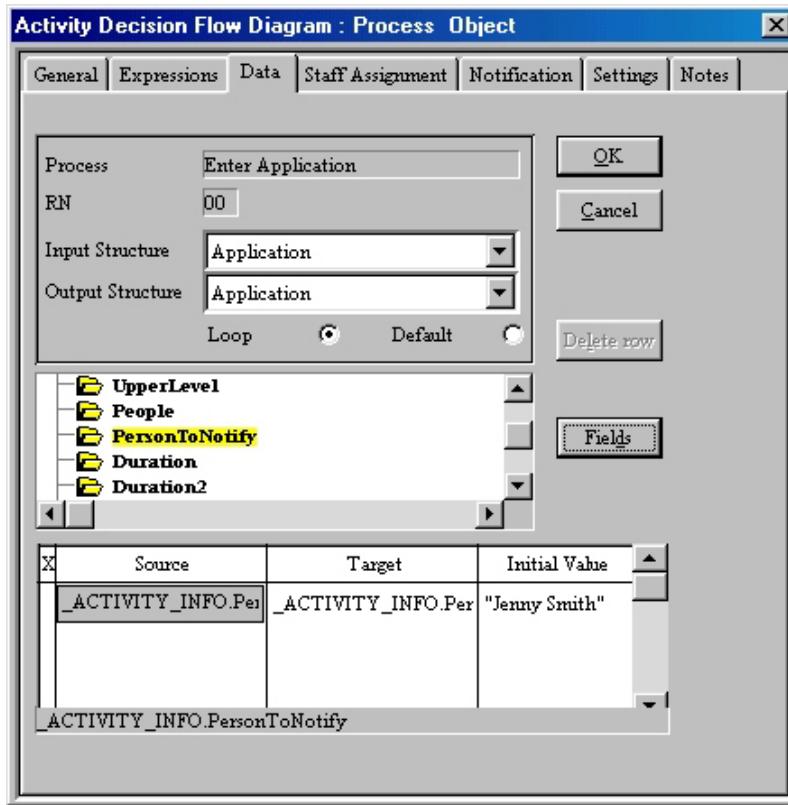
**The Expression must be evaluated as either being True or False.**

2. Click **OK** or press Enter to return to the previous dialog box.

### *Data Structures, Initial Values, and Loops*

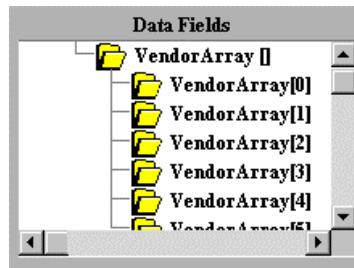
To define the Data Structures and Loops for a Process Object that is a type Program Activity:

1. Double-click on the Process Object. The **Process Object** dialog box will appear—open to the General tab.
2. Click the **Data** tab at the top of the **Process Object** dialog box (see the figure below).



3. To change the Input Container Data Structure of the Process, select a Data Structure from the **Input Structure** selection box.
  - \* If the Data Structure you want is not included on the list, then you need to create it. Click the **Fields Go To** button to access the Repository **Data Fields** dialog box in order to create the item (refer to the section entitled “Define the Data Structures” on page 3-76). Upon returning to the **Info** dialog box, the new item(s) will be included on the list.
4. To change the Output Container Data Structure of the Process, select a Data Structure from the **Output Structure** selection box.

5. Select the **Loop** or **Default** radio button to designate that the Task is connected by an IBM MQ Loop- or an IBM MQ Default-type connector. The arrangement of columns in the **Mapping** list box will change accordingly, though the function of each column will remain as described below.
6. In **Line 1** of the Mapping list box, click on the cell within the **Source** column. The Fields list in the center of the dialog box will be updated to show the Data Structure of the Input Container of the Process, in addition to the MQ Workflow default Data Structures and variables.
  - \* Click on the appropriate **Data Field** from the **Data Structure** tree list box to insert it into the mapping cell.
  - \* To control the levels of Data Structures displayed in the **Data Fields** list box:
    - Right-click on a collapsed **Data Structure** (denoted by a closed folder) to expand the Data Structure. This will reveal all of the lower-level Data Fields within the Data Structure.
    - Right-click on an expanded **Data Structure** (denoted by an open folder) to collapse the Data Structure. This will hide all of the lower-level Data Fields within the Data Structure.
  - \* If the **Data Field** you want to select is an array, a pair of brackets is displayed just after the name of the Data Field (see the figure below). You can select a specific element of the array:



- First, Right-click on the collapsed **Data Field**. This will expand the Data Field to reveal all of the array element numbers within it (see the figure on the right).
- Click on the array element number that you want to use. This will copy the array element into the **Expression** text box.

**You can use the Shift+Arrow keys to navigate the editing cursor through the Mapping table.**

7. Click on the cell within the **Target** column. The Fields list in the center of the dialog box will be updated to show the Data Structure of the Output Container of the Process in addition to the MQ Workflow default Data Structures and variables.
  - \* Select the appropriate Data Field from the Data Structure tree list box.

- If the Data Field of the source does not have the same data type as the Data Field of the target, the cell in the **X** column will be marked with an “X.”
8. Type an initial value for the Target Data Field in the cell of the **Initial Value** column.
  9. Repeat Steps 4 through 6 to add additional mappings for the looping of the Process.
  10. When finished with the **Process Object** dialog box, click **OK** or press **Enter** or continue in another tab.

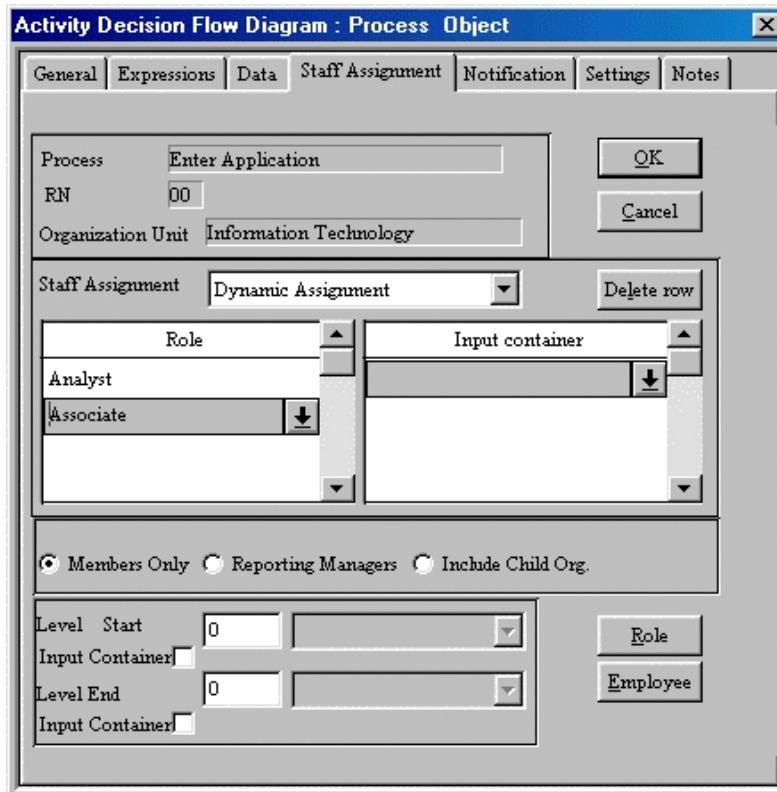
## *Staff Assignment*

An MQ Workflow Program Activity is treated as an item that will show on an Employee's work queue. This Employee will supervise the start and end of the Process and other Employees will perform the Tasks of the Process. Therefore, a staff assignment function is required for a Process Object.

- ☒ **Staff Assignment is not available for Process Objects defined as the type Block.**

To perform staff assignment for a Process Object that is a type Program Activity:

1. ↵ Double-click on the Process Object. The **Process Object** dialog box will appear—open to the General tab.
2. ↵ Select the **Staff Assignment** tab (see the figure below).



3. ↵ Select the type of assignment from the **Staff Assignment** selection box.
  - \* The following table displays the types of assignments and any additional user actions that may be required:

Type of Assignment	Additional User Action(s)
<b>Dynamic Assignment</b> (Default): An employee that is linked with the selected list of Roles can perform the Process.	<ul style="list-style-type: none"> <li>* In Line 1 of the <b>Role</b> list box,  click on the Arrow button that is on the right side of the Roles column. A list of Roles will appear.  Select the Role.</li> <li>* Repeat the  selection for each line of the <b>Role</b> list box until all Roles have been selected.           <ul style="list-style-type: none"> <li> <b>If more than one Role is selected, Employees must be assigned to all the Roles on the list before they are eligible to perform the activity.</b></li> </ul> </li> <li>*  Enter the lowest level of Employee that can perform the Process in the <b>Level Start</b> text box.           <ul style="list-style-type: none"> <li>-If you want the Level to be defined in the data arriving in the Input Container, then:               <ul style="list-style-type: none"> <li>•  Select the <b>Input Container</b> check box.</li> <li>• Then,  a Data Field from the list box.</li> </ul> </li> </ul> </li> <li>*  Enter the highest level of Employee that can perform the Process in the <b>Level End</b> text box.           <ul style="list-style-type: none"> <li>-If you want the Level to be defined in the data arriving in the Input Container, then:               <ul style="list-style-type: none"> <li>•  Select the <b>Input Container</b> check box.</li> <li>• Then,  a Data Field from the list box that becomes active.</li> </ul> </li> </ul> </li> <li>*  Select the <b>Members Only</b> radio button if you want only Employees of the specified Organization Unit to be available to perform the Process. Employees that are part of Organization Units that are children of the Organization Unit specified for the Process will not be available.</li> <li>*  Select the <b>Reporting Managers</b> radio button if you want the staff assignment set to the members of the named organization and the reporting managers of the child organizations eligible to start the activity.</li> <li>*  Select the <b>Include Child Organizations</b> radio button if you want Employees to perform the Process that are part of Organization Units that are children of the Organization Unit specified for the Process. If selected, all the staff members of the organization you specify and those of its child organizations down through the hierarchy are included (default).           <ul style="list-style-type: none"> <li>-If not selected, only the Employees of the organization you specify and the managers of its first-level child organizations are included.</li> </ul> </li> </ul>
<b>Process Administrator:</b> The defined Process Administrator will perform the Process.	* None
<b>Process Starter:</b> The starter of the Process will perform the Process.	* None
<b>Manager of Process Starter:</b> The Manager of the Starter of the Process will perform the Process.	* None

Type of Assignment	Additional User Action(s)
<b>Starter of Activity:</b> The Starter of a selected activity will perform the Process.	>Select an activity from the <b>Activity</b> selection box. You should only select Processes that proceed or are <i>Upstream</i> of the current Process.
<b>Manager of Starter of Activity:</b> The Manager of the Starter of a selected activity will perform the Process.	>Select an activity from the <b>Activity</b> selection box. You should only select Processes that proceed or are <i>Upstream</i> of the current Process.
<b>Not Starter of Activity:</b> An employee that was not the Starter of a selected activity will perform the Process	>Select an activity from the <b>Activity</b> selection box. You should only select Processes that proceed or are <i>Upstream</i> of the current Process.
<b>Assigned Employees:</b> The selected employee will perform the Process	>Select one or more Employees from the <b>Employee</b> selection box.
<b>All People:</b> The User Ids of the Employees defined in the ACTIVITY_INFO.People Data Field are authorized to perform the Process.	None
<b>Data From Predefined Members:</b> The User Ids of the Employees defined in the ACTIVITY_INFO.MembersOfRole Data Field are authorized to perform the Process.	None
<b>Coordinator of Role:</b> The Coordinator of the selected Role will perform the Process.	>Select a Role from the selection box.
<b>Coordinator of Role-Container:</b> The Coordinator of the selected Role will perform the Process. The Role will be defined by data arriving in the Input Container.	>Select a Data Field from the selection box. Select the Blank item to use the _ACTIVITY_INFO.CoordinatorOfRole Data Field.
<b>Manager of Organization:</b> The Manager of the selected Organization Unit will perform the Process.	>Select an Organization Unit from the selection box.
<b>Manager of Organization--Container:</b> The Manager of the selected Organization Unit will perform the Process. The Organization Unit will be defined by data arriving in the Input Container.	>Select a Data Field from the selection box. Select the Blank item to use the Manager of the Organization Unit defined in the _ACTIVITY_INFO.Organization Data Field.
Type of Assignment	Additional User Action(s)
<b>Data From Input Container:</b> The information about the employees that can start the Process is contained in the Input Container of the Process.	None

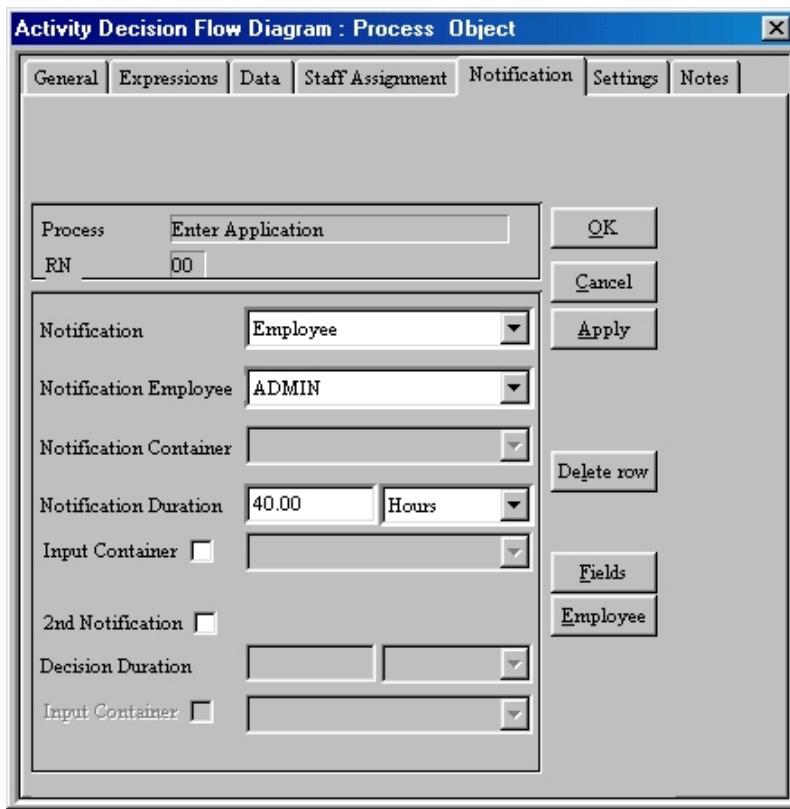
4. When finished with the **Process Object** dialog box, click **OK** or press **Enter** or continue in another tab.

### Notification

If an activity takes longer than a specified duration, then an employee that gets notified can be specified. In addition, if the notified employee does not respond within a specified period, then the Process Administrator will be notified.

To define notification settings for a Process Object that is a type Program Activity:

1. Double-click on the Process Object. The **Process Object** dialog box will appear—open to the General tab.
2. Select the **Notification** tab (see the figure below).



3. Select the type of Notification from the **Notification** selection box.
  - \* The following table displays the types of Notifications and any additional user actions that may be required:

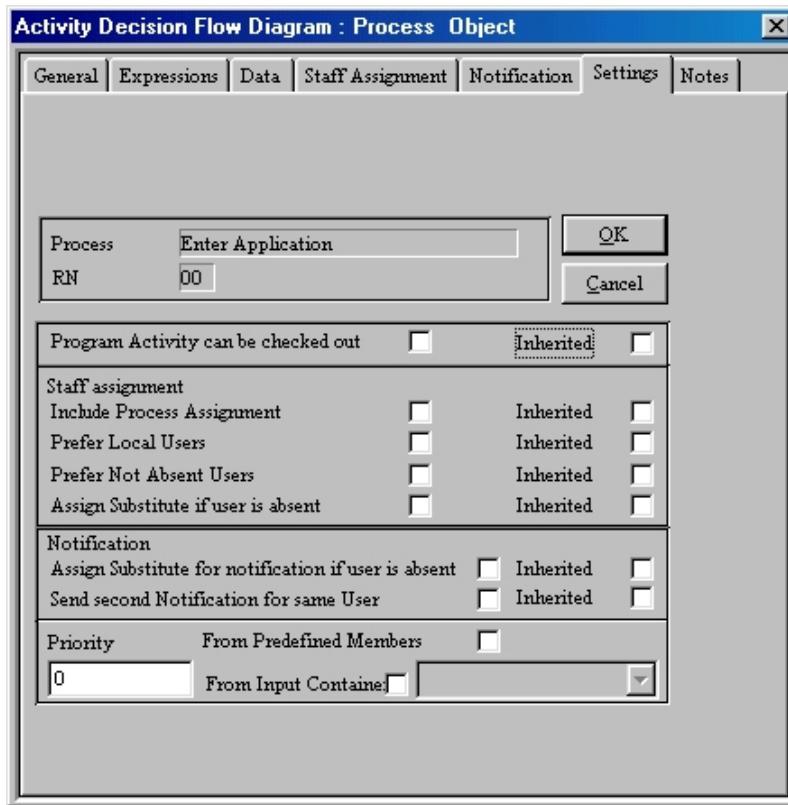
Type of Notification	Additional User Action(s)
<b>None</b> (Default): There will be no notification.	* None
<b>Process Administrator</b> : Then the Process Administrator will be notified.	* None
<b>Manager</b> : Then the Manager of the Employee performing the Task will be notified.	* None
<b>Coordinator</b> : Then the Coordinator of the Employee performing the Task will be notified.	* None
<b>Employee</b> : Then a Selected Employee will be notified.	<ul style="list-style-type: none"> <li>*  Select the Employee that will be notified from the <b>Notification Employee</b> selection box. <ul style="list-style-type: none"> <li>– If the Employee you want is not included on the list, then you need to create it.  Click the <b>Employee Go To</b> button to access the Repository <b>Employees</b> dialog box in order to create the item (refer to the section entitled “Define the Staff” on page 3-66). Upon returning to the <b>Task Object</b> dialog box, the new item(s) will be included on the list.</li> </ul> </li> </ul>
<b>Data From Input Container</b> : The notification information will be taken from the data in the Input Container.	<ul style="list-style-type: none"> <li>*  Select a Data Field that will contain the User ID of the Employee that should be notified from the <b>Notification Container</b> list box.</li> </ul>
<b>Data From Predefined Members</b> : The notification information will be taken from the data in the Input Container.	* None

4. If a Notification was specified, then type the appropriate value in the **Notification Duration** text box, and then select the appropriate time unit from the **Notification Duration** selection box.
  - \* If you want the Duration to be defined in the data arriving in the Input Container, then:
    - Select the **Input Container** check box.
    - Then, a Data Field from the list box that becomes active.
5. To specify a Duration between First and Second Notification, select the **2<sup>nd</sup> Notification** checkbox, type the appropriate value in the **Decision Duration** text box, and then select the appropriate time unit from the **Decision Duration** selection box.
  - \* If you want the Duration to be defined in the data arriving in the Input Container, then:
    - Select the **Input Container** check box.
    - Then, a Data Field from the list box that becomes active.
6. When finished with the **Process Object** dialog box, click **OK** or press **Enter** or continue in another tab.

## Activity Settings

To be absorbed into IBM MQ Workflow as an activity, the Workflow•BPR Process Object must have certain settings defined. To define the activity settings for a Process Object that is a type Process Activity:

1. Double-click on the Process Object. The **Process Object** dialog box will appear—open to the General tab.
2. Select the **Settings** tab (see the figure below).



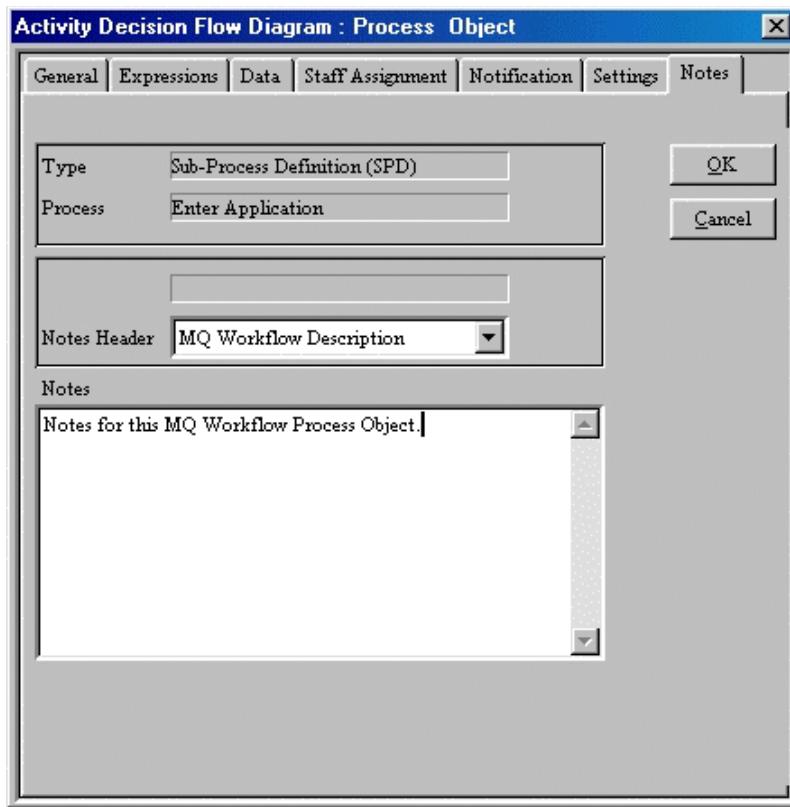
- In any section having an Inherited checkbox displayed, select the Inherited checkbox to take the Process Object (Activity) settings for that section from the settings in the corresponding section for the entire Process of which this Process Object (Activity) is a part. (See section **Activity Control Settings** on page 3-118.)
  - If both a checkbox and its corresponding Inherited box are not selected, the setting is taken from the System-level settings.
3. Select the **Program Activity Can Be Checked Out** checkbox to allow program activities to be checked out of the runtime database.
  4. Select the **Include Process Assignment** checkbox in the **Staff Assignment** box to use the role and organization settings of the process model as part of the final staff assignment of the activity.

5.  Select the **Prefer Local Users** checkbox in the **Staff Assignment** box to have staff resolution prefer local—as opposed to remote—users to receive activities in a distributed environment.
6.  Select the **Prefer Not Absent Users** checkbox in the **Staff Assignment** box to have staff resolution prefer users who are not absent to receive the activity.
7.  Select the **Assign Substitute if User is Absent** checkbox in the **Staff Assignment** box to have staff resolution select a substitute to receive the activity if the user is absent.
8.  Select the **Assign Substitute for Notification if User is Absent** checkbox in the **Notification** box to have the substitute for a user receive the notification that the activity did not complete in the time allowed.
9.  Select the **Send Second Notification for Same User** checkbox in the **Notification** box to have a second notification sent to the same person who received the first notification instead of to the process administrator.
10.  Type the priority value in the **Priority** text box,  
or  
11.  Select the **From Predefined Members** checkbox to take the priority value for the activity from the values of the **\_ACTIVITY\_INFO** fields in the input container for the activity,  
or  
12.  Select the **From Input Container** checkbox to take the priority value for the activity from a specific data structure member in the input container.
  - \*  Select the name of the data structure member in the input container that contains the priority value from the drop-down list in the selection box.
    - The data structure member must be of type **LONG**.
13. When finished with the **Process Object** dialog box,  click **OK** or  press **Enter** or continue in another tab.

### Documentation Information

To define Notes for a Process Object that is a type Program Activity:

1. Double-click on the Process Object. The **Process Object** dialog box will appear—open to the General tab.
2. Click the **Notes** tab at the top of the **Process Object** dialog box (see the figure below).



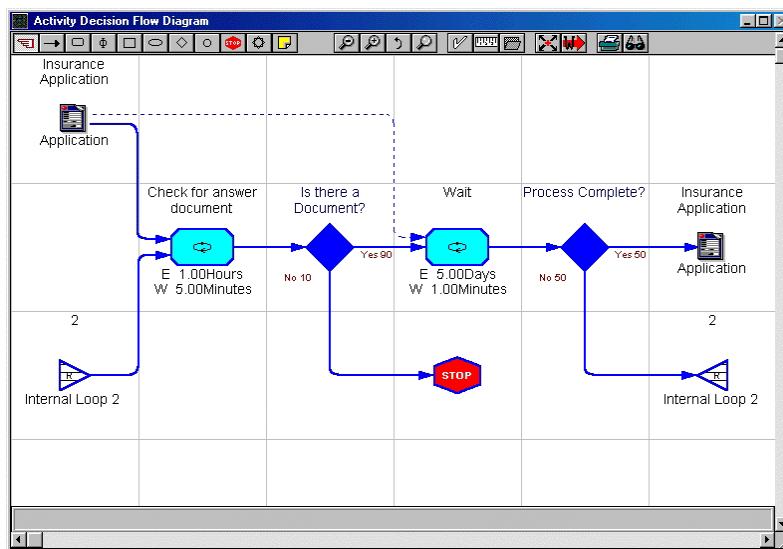
- \* There are two independent types of Notes available for a Process (Program Activity): MQ Workflow Description (default) and Documentation.
3. To add or update MQ Workflow Description Notes about the Process, select **MQ Workflow Description** from the **Notes Header** selection box. Then type in the **Notes** text box.
    - \* To add a **Carriage Return** in your Notes, type **Ctrl+Enter**.
    - \* If a Data Field, bordered by % signs, is listed the Description Notes, then the actual value of this Data Field become available for display during MQ Workflow runtime. In this way, critical information can be passed from user to user very easily.
    - \* The Notes will be exported as Description in the FDL file.

- If there are no single or double quotes in the Notes, then it will be exported with single quotes surrounding the text.
  - If there are single quotes in the Notes, then it will be exported with double quotes surrounding the text and the single quotes inside.
  - If there are double quotes in the Notes, then it will be exported with single quotes surrounding the text and the double quotes inside.
  - If there are single quotes and double quotes in the Notes, then it will be exported with double quotes surrounding the text, the double quotes inside will be converted to single quotes, and the single quotes will remain inside.
4. To add or update Documentation Notes about the Process,  select **Documentation** from the **Notes Header** selection box. Then  type in the **Notes** text box.
    - \* The notes will be exported as the Documentation in the FDL file.
  5. When finished with the **Process** Object dialog box,  click **OK** or  press **Enter**.

### 3.14.2 Loops

In MQ Workflow, loops are restricted to loop from the end of an activity (either Task or Process) to the beginning of the same activity. You can create the loops for the MQ Workflow model by defining End Expression for Process Activities or Blocks that end automatically. This can be done in the **Expressions** tab of the **Process Object** dialog box (refer to the section entitled “Adding an Expression” on page 3-129). The End Expressions set in Tasks (Program Activities) are not considered loops in Workflow•BPR. The Task is considered open until the End Expression is True.

Workflow•BPR does not use the End Expression of a Process Activity or Block. Thus, it is necessary to create an equivalent Workflow•BPR modeling situation to correspond to the loop that MQ Workflow will perform. This will ensure that the Process Model that is analyzed by Workflow•BPR corresponds to the Process Model that is run by MQ Workflow. To do this, create a loop structure that will loop from the end of the Process to the beginning of the Process (see the figure below).



The loop structure will have a Decision that follows the last activity. The “Yes” path from the Decision will be connected to the Phi that ends the Process and is used for connection to the higher-level Process. The “Yes” path represents the End Expression that is True. The “No” path is connected to a Source Go To Object. The “No” path represents the End Expression that is False. The Target Go To Object is connected to the first Task of the Process and, thus, completes the loop.

The Go To Objects and the Connectors to the Go To Objects will not be exported in the FDL file. In addition, do not add an expression to the Decision that ends the Process (“Internal Loop” in the example). This Decision is not intended for a branch in the MQ Workflow model. In the MQ Workflow FDL, there is no Control Connector from the last Program Activity to the Sink. Therefore, any expression intended for a Transition Condition will not be used.

- ☞ This use of Go To Objects for the loop within a Process is the only situation where Go To Objects can be used in Workflow•BPR for models intended for export to MQ Workflow. Any other use of Go To Objects within a Workflow•BPR model will not have a corresponding structure in the FDL model that is run by MQ Workflow.

### 3.14.3 Starting a Process

A Process in Workflow•BPR can start with a Decision that occurs before there are any activities. A Process in MQ Workflow must start with an activity. Therefore, you should create a Task that precedes any Decisions if the Process is intended for export to an FDL file.

### 3.14.4 Non-Automated Activities

Many Business Processes are a mix of automated and non-automated activities. The hand-off between automated and non-automated activities is not directly handled by MQ Workflow. MQ Workflow requires an Application for all activities. Therefore, non-automated activities need to be assigned an Application in order for MQ Workflow to maintain the flow of the Process. Custom Applications are often built to track the status of non-automated activities. E-mail is often used for notification of starting and completing an activity. MQ Workflow also provides a default Application (**EXMCOMAN.EXE**) that has a simple check box interface for notification of starting and completing an activity.

- ☞ All Tasks in a Workflow•BPR must have an Application if the model is intended for export to MQ Workflow.

### 3.14.5 External Activities

Many Business Processes contain interactions with outside organizations and customers. The hand-off between external and internal activities is not directly handled by MQ Workflow. MQ Workflow requires an Application for all activities. Therefore, external activities need to be assigned an Application in order for MQ Workflow to maintain the flow of the Process. Custom Applications are often built to track the status of external activities. E-mail is often used for notification of starting and completing an activity. MQ Workflow also provides a default Application (**EXMCOMAN.EXE**) that has a simple check box interface for notification of starting and completing an activity.

- ☞ All Tasks in a Workflow•BPR must have an Application if the model is intended for export to MQ Workflow.

### 3.14.6 Activity Names

Workflow•BPR allows Tasks and Processes to have the same name. However, if a Task has the same name as an included Sub-Processes then the two names will be confused by MQ Workflow. Therefore, you should ensure that Tasks and Processes have unique names.

## 3.15 Validating the MQ Workflow Data

---

A Process Model in Workflow•BPR can be developed for many purposes, one of which is to export to MQ Workflow. The modeling conventions of Workflow•BPR do not necessarily coincide with the modeling conventions of MQ Workflow. All the necessary data that MQ Workflow requires can be generated from Workflow•BPR. However, it is necessary to ensure that the data is in the proper format.

Workflow•BPR provides a validation feature that will check the data of the Process Model for compatibility with MQ Workflow. A MQ Workflow Validation Report will be created to itemize the errors in the Process Model.

- ☞ **Each Sub-Process of the Process hierarchy that is to be exported must be validated individually.**

### 3.15.1 The MQ Workflow Validation Report

To access the MQ Workflow Validation Report:

1. ☞ Choose the MQ Workflow Validation from the Report menu. The MQ Workflow Validation window will be opened.

The MQ Workflow Validation Report identifies four (4) different types of errors. The following sections will document these types of errors.

#### 3.15.1.1 Names

The names of objects in MQ Workflow are 32 characters while the names in Workflow•BPR are 35 characters. In addition, MQ Workflow does not allow the duplication of names within a Process Model. The MQ Workflow Validation report will identify names that are duplicated at input or due to the truncation from 35 to 32 characters. Object names are also checked for illegal characters. The following Process Model objects are checked:

- Tasks
- Data Fields
- Processes
- Organization Units

- Functions
- Resources
- Servers
- Employees

### ***3.15.1.2 Mapping***

The Data Flow Mapping is verified in the MQ Workflow Validation Report. The two (2) items that are checked are:

- The Input and Output Containers defined properly.
- The Data Fields that are specified have the appropriate child-parent relationships.

### ***3.15.1.3 Expressions***

The format of expressions used for Control Connectors and Exit Conditions are checked for the following characteristics:

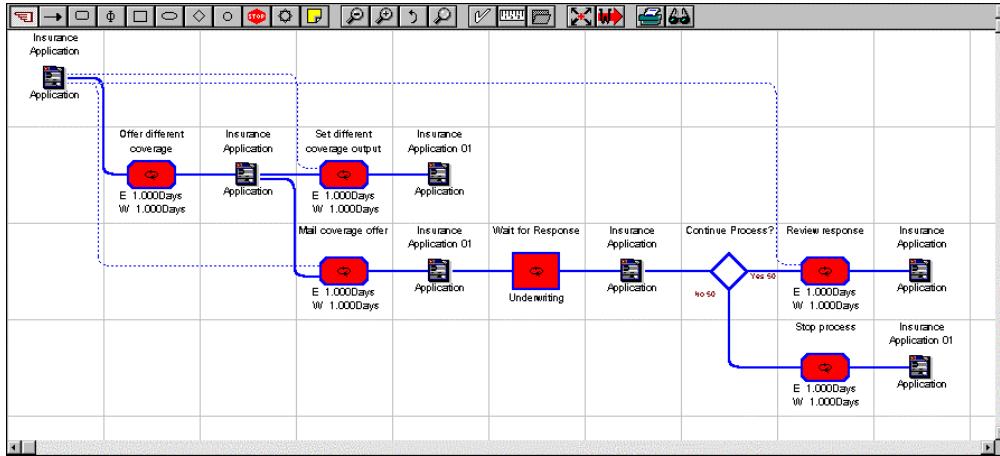
- All Data Fields and Activity names used are still valid in the repository (i.e., they have not been deleted).
- The Data Fields that are specified have the appropriate child-parent relationships.
- Any Activity that is specified must be from an upstream position in the Process.
- Source Data Fields must be a child of the Output Container of the source Activity.

### ***3.15.1.4 Organization Unit Managers***

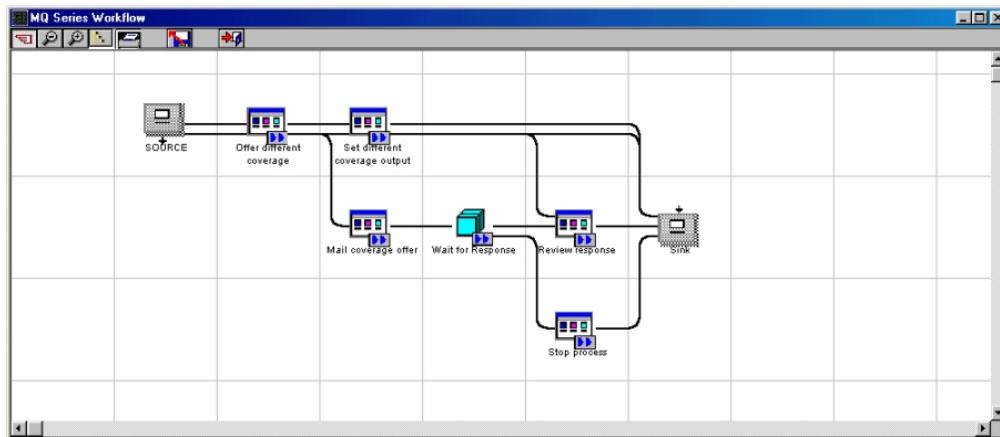
The MQ Workflow Validation will check to make sure that all Organization Units have Managers specified.

## 3.16 The IBM MQ Workflow Window

The MQ Workflow View window provides a graphical depiction of a Process as it would appear in the MQ Workflow Builder. The objects of a Process in an Activity Decision Flow Diagram (see the figure below) are translated into the appropriate objects of a MQ Workflow builder diagram.



Tasks are converted to Program Activities. Process Objects are converted into Process Activities, Blocks, or Program Activities, depending on the settings. The result of the translation is a diagram similar to that in the figure below. Program Activities, Process Activities, and Blocks are shown connected by Control Connectors. Data Connectors are not shown in the MQ Workflow view.



To access the IBM MQ Workflow View window:

1.  Click on the Workflow tool button of your **Process ADF Toolbar**.  
The **IBM MQ Workflow** window appears.

### 3.16.1 The MQ Workflow View Toolbar

The following tools are available on the MQ Workflow View toolbar:

- **Pointer Tool:**  Looks like a pointing hand. When the tool is selected, the cursor will also look like a pointing hand. Use the Pointer tool to select or move single objects in the MQ Workflow View. When you double-click on an object, Workflow-BPRWorkflow-BPR *will not* open the dialog box for that particular object in this window. Use the Pointer tool to also insert and delete columns or rows.
- **Zoom-Out Tool:**  This button looks like a magnifying glass with a minus sign within it (see the figure on the right). Use this tool to reduce the scale of your diagram. Each time the Zoom-Out tool is  clicked, the scale of your diagram is reduced by one increment.
- **Zoom-In Tool:**  This button looks like a magnifying glass with a plus sign within it (see the figure on the right). Use this tool to increase the scale of your diagram. Each time the Zoom-In tool is  clicked, the scale of your diagram is increased by one increment.
- **Process Tree Tool:**  Allows you to view the Process hierarchical structure.
- **Print Tool:**  Opens the Print Preview window from which you can print a copy of the Instruction Sheet.
- **Export Tool:**  Has the image of a floppy disk with a red arrow (see the figure on the right). The Export tool is utilized to export the MQ Workflow FDL file in a text file format.
- **Exit Tool:**  Has a picture of an arrow pointing to an open door. This tool is used to close the window and to return to the Activity Decision Flow Diagram window.

The Process Tree view is also a specialized view that will show all the levels of Processes to help the user understand the methods of decomposition.

### 3.16.2 MQ Workflow View Objects

As you saw in the figure on page 3-210, the MQ Workflow View translates an ADF diagram into a MQ Workflow Process Diagram as would be seen in the MQ Workflow Builder. The following is a list of the icons supported for the MQ Workflow Process Diagram:



**Source:** The source of the data that is used to initiate the Process. The input data structure of the Process is the Source.



**Program Activity:** Has a program assigned to perform it. This program is invoked when the activity is started. When the program ends, the program activity's exit condition is evaluated. Depending on the evaluation of the exit condition, the activity either reaches finished status or returns to ready status. If a manual exit is specified for the activity, the person who starts the activity must confirm that it is finished.



**Process Activity:** Has a process assigned to perform it. The process is invoked when the activity is started. When the invoked process ends, the process activity's exit condition is evaluated. Depending on the evaluation, the process activity either ends or starts again.



**Block:** Contains a set of activities and blocks to be performed repeatedly until an exit condition for the whole set evaluates to true.



**Sink:** The sink is where the data that is outputs of the Process is stored. The output data structure of the Process is the Sink.

### 3.16.3 The Yellow Tag Feature

When you  right-click on an object in the MQ Workflow View window, a Yellow Tag appears that provides information about the object. The Yellow Tag displays messages that serve two (2) main purposes:

1. The Yellow Tag displays the name of the activity in blue text.



2. If there is no program assigned to the Program Activity, then the Program Activity icon will display an  and the Yellow Tag will inform the user of the nature of the error in red text.



#### 3.16.3.1 Yellow Tag Messages

Each type of icon in the Visual WorkFlo View has different Yellow Tag messages. The following sections list the messages.

##### *Program Activities*

If there are no errors, then the message displays the name of the activity. If there are any errors, the system will export the Task as No Operation.

There is one (1) type of error message:

1. There is no program assigned.

##### *Process Activities and Blocks*

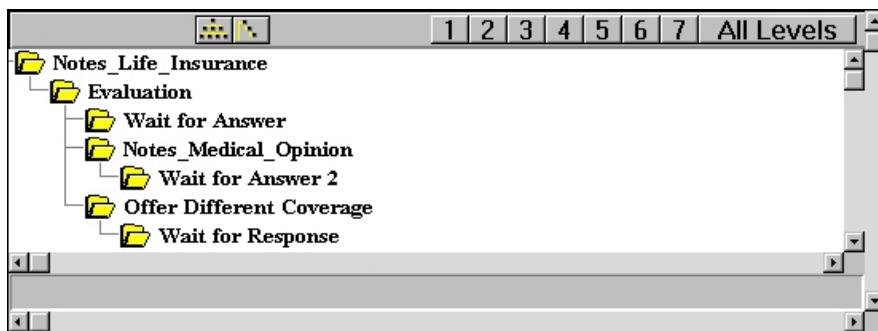
The message displays the name of the activity.

### 3.16.4 Navigating the Process Hierarchy

Workflow•BPR and MQ Workflow allow for a hierarchical decomposition of a Process. In MQ Workflow, each Process and Sub-Process is represented by a Process Diagram. Workflow•BPR generates the Diagrams of the Process Hierarchy and allows you to navigate between them. In the MQ Workflow View of Workflow•BPR, you can display a Tree structure of the Process Hierarchy and then click on any Process Object to access the Instruction Sheet for that Process.

To navigate through the Process Hierarchy in the MQ Workflow View:

1.  Click on the Process **Tree** tool button  on the **MQ Workflow View** toolbar. A Process Tree window will appear that displays the structure of the Process with its Sub-Processes (see the figure below).



2.  Click on any of the Process Icons to open the Instruction Sheet for that Process.

## 3.17 Creating and Exporting FDL Files

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From the MQ Workflow View window, you can export the Process information as a FDL file. This file will conform to the MQ Workflow syntax.

To export MQ Workflow FDL files:

1. Click on the **Export** tool button  on the **IBM MQ Workflow** view toolbar. The **Export FDL Options** dialog box appears (see the figure below).



2. If you do not want to export information about the organization, deselect the **Export Organization** check box.
3. If you do not want to export information about the Processes, deselect the **Export Process** check box.
4. If you only want to export the information about a specific Process within the Process hierarchy, select the Process from the selection box.
  - \* The selection box will be disabled if you have deselected the **Export Process** check box.
5. If you want the FDL to be created in the format of FlowMark v2.3, then select the **IBM FlowMark (2-3)** radio button.
6. If you want the FDL to be created in the format of MQ Workflow v3.2, then select the **IBM MQ Workflow (3-2)** radio button.

7. Click OK or press Enter. The **Note Pad** application is opened with the FDL file as the text document (see the figure below).

```

CS2WFaa.FDL - Notepad
File Edit Search Help

UPDATE LEVEL 4
END 4

UPDATE LEVEL 5
END 5

UPDATE LEVEL 6
END 6

UPDATE LEVEL 7
END 7

UPDATE LEVEL 8
END 8

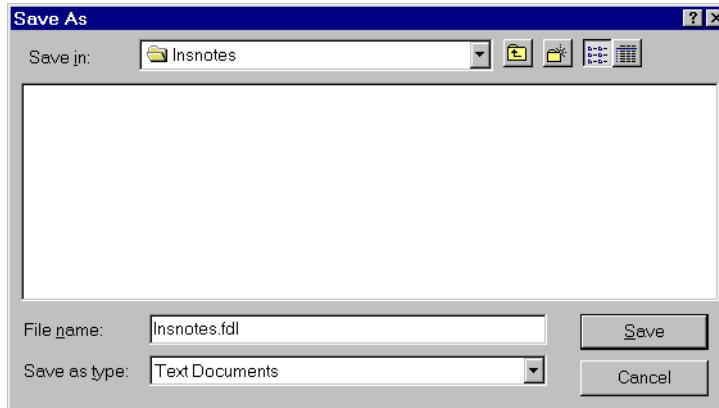
UPDATE LEVEL 9
END 9

=====
      Structures
=====

STRUCTURE 'Actions'
  DESCRIPTION 'Actions'
    'DifferentCoverage' : STRING ;
    'MedicalOpinion' : STRING ;
    'Recommendation' : STRING ;
    'RepeatReason' : STRING ;
    'RequestMoreInfo' : STRING ;
    'StudyFolder' : STRING ;
    'SubprocessUserID' : STRING ;
END 'Actions'
STRUCTURE 'AcceptReject'
  DESCRIPTION 'AcceptReject'
    'Actions' : 'Actions';
    'CustomerInfo' : 'CustInfo';
    'DocID' : 'DocID';
    'RejectReason' : STRING

```

8. If you created the FDL only and are in the Note Pad application, Choose **Save As** from the **File** menu. The **Save As** dialog box appears (see the figure below).



9. Navigate through the tree chart in the **Save in** selection box and select a directory in which to place the FDL text file.
  10. Type the name of the text file where you want to save your FDL data in the **File Name** text box.
  11. Click **OK** or press **Enter**.
- The file that is created will have an extra “.txt” extension. Go to the Windows Explorer or File Manager to remove the extension.**



# Chapter 4: Integration with FileNet Visual WorkFlo

**V**isual WorkFlo is an information management architecture that provides tools to efficiently define, manage, track, control, administer, modify, and perform the work required by an organization. This work can be best defined and understood as a Process, or a series of Processes. Visual WorkFlo controls the Processes of an organization.

In addition to preparing the structure of the Processes so that the organization can take full advantage of the capabilities of Visual WorkFlo, Workflow•BPR provides direct linkage to Visual WorkFlo. The Processes developed in Workflow•BPR can be exported as workable files, which can be used by Visual WorkFlo.

- ☞ This chapter has been written based on the assumption that you are familiar with the FileNet Composer and Runtime applications. For details not covered in this chapter, refer to the FileNet Visual WorkFlo documentation. In addition, this chapter has been written based on the assumption that you are familiar with Workflow•BPR and have created Process Models that you want to prepare for export as a CDL file. For details about Workflow•BPR modeling procedures not covered in this chapter, refer to the *Workflow•BPR User's Guide*.

## **4.1 Introduction**

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Workflow•BPR is a software tool that allows organizations to model, analyze, and optimize their Processes. In addition to preparing the structure of the Processes so that the organization can take full advantage of the capabilities of Visual WorkFlo, Workflow•BPR provides direct linkage to Visual WorkFlo. The Processes developed in Workflow•BPR can be exported as workable files, which can be used by Visual WorkFlo. The following sections will cover these points:

1. Preparing a Process for Export into the Visual WorkFlo Environment
2. Modeling Conventions for Compatibility with Visual WorkFlo
3. The FileNet Visual WorkFlo Window
4. Creating and Exporting CDL Files

Workflow•BPR currently supports 60%-70% of the data required by Visual WorkFlo to automate a Process. Additional work in the Visual WorkFlo Composer is required before a Process is ready for the Visual WorkFlo Runtime (Refer to the Visual WorkFlo user documentation for information on the Visual WorkFlo Composer).

## **4.2 Preparing a Process for Export into the Visual WorkFlo Environment**

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After a To-Be Process has been defined, then the Process can be integrated into a Visual WorkFlo environment. Another advantage for using Workflow•BPR is that the model of the To-Be Process can be exported for use by Visual WorkFlo. There is no duplication of effort.

To prepare a Process Model for export to Visual WorkFlo:

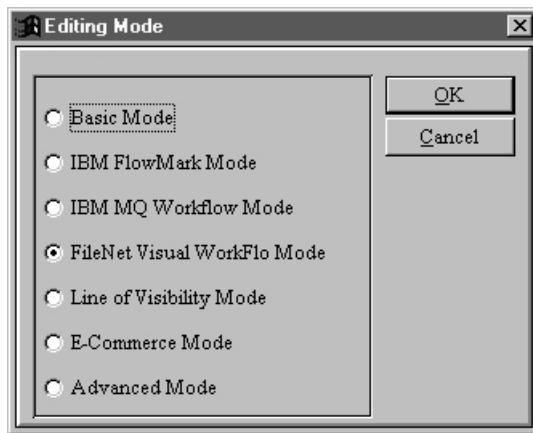
1. Define the Data Fields that are required for the Work Objects and Work Performers and add them to the Repository.
2. Define the Work Performer Classes that represent the Programs or Functions that are controlled by the workflow engine.
3. Define the Operations that represent the Functions of the Programs that are controlled by the workflow engine.
4. Assign the Data Fields of a Work Object (the Process and its Phis).
5. Assign the Parameters of Work Performer Operations.
6. Assign the Work Performer Classes and Operations to the Tasks in the Process.
7. Map the Work Object (Phi) Data Fields to Operation Data Fields.
8. Add Expressions to Decision Choices to serve as the rules for Branches.
9. Select the Process and go to the Visual WorkFlo view to export the Process information.

## 4.2.1 Setting Workflow•BPR for the Visual WorkFlo Editing Mode

The process modeling capabilities of Workflow•BPR can be used for many purposes. The data required for modeling in preparation for integration with one Workflow application can be different than the data required for another Workflow application. To avoid confusion of what data is applied for which purpose, Workflow•BPR will configure the Activity Decision Flow Diagram dialog boxes and menus so that the data will be applied towards one purpose, and all data not relevant for Visual WorkFlo integration will be hidden from view.

To set Workflow•BPR for the Visual WorkFlo Editing Mode:

1. Select **Editing Mode** from the **Format** menu. The **Editing Mode** dialog box will appear (see the figure below).



2. Select the **FileNet Visual WorkFlo Mode** radio button.
3. Click **OK** or press **Enter**. The ADF object dialog boxes will be configured to support process modeling for the purpose of integrating with Visual WorkFlo.

You can also type Alt+4 to set the Editing Mode to the FileNet Visual WorkFlo Editing Mode.

The current Editing Mode will be displayed in the status bar at the bottom of the Workflow•BPR application. If the Editing Mode is not displayed then click on the main menu bar (away from a menu item).

## **4.2.2 Define the Data Fields**

Data Fields can be assigned to five (5) types of objects: Processes, Tasks, Operations, Phis, and other Data Fields (Structures). For Visual WorkFlo, you will assign Data Fields to Processes, Phis, and Operations.

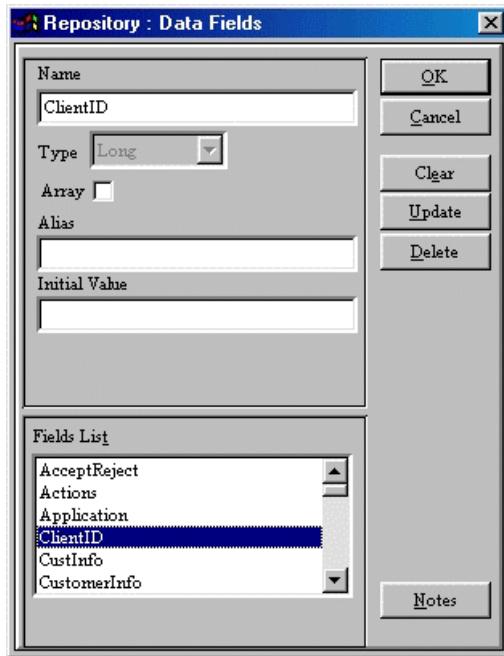
The information about Data Structures is captured with the Data Fields dialog box. Workflow•BPR supports the following types of Data Fields:

- Character
- Integer
- Boolean
- Float
- Structure
- Time
- Date and Time
- Long

Data Fields can be an array of whatever size you can define. You can assign an alias and an initial value for the Data Fields. Refer to the section entitled “Data Fields” of Chapter 3 of the *User’s Guide*.

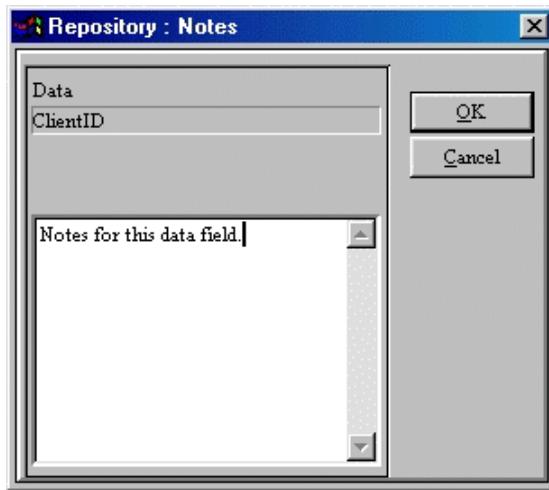
To create a data field:

1. Select **Process Data** from the **Repository** menu. A sub-menu will appear.
2. Select **Data Fields** from the sub-menu. The **Data Fields** dialog box will appear (see the figure below).



3. Type the **Name** of the data field.
4. Select the **Type** of the data field (**Char** is default).
  - \* If the type is Char a **Length** text box will appear.
  - \* Type the length of the Char Data Field in the text box.
5. If you want the Data Field to be an array, select the **Array** check box. An **Array Of** text box will appear.
  - \* Type the size of the array in the text box.
6. (Optional) Enter the **Alias** of the data field.
7. (Optional) Enter the **Initial Value** of the data field.

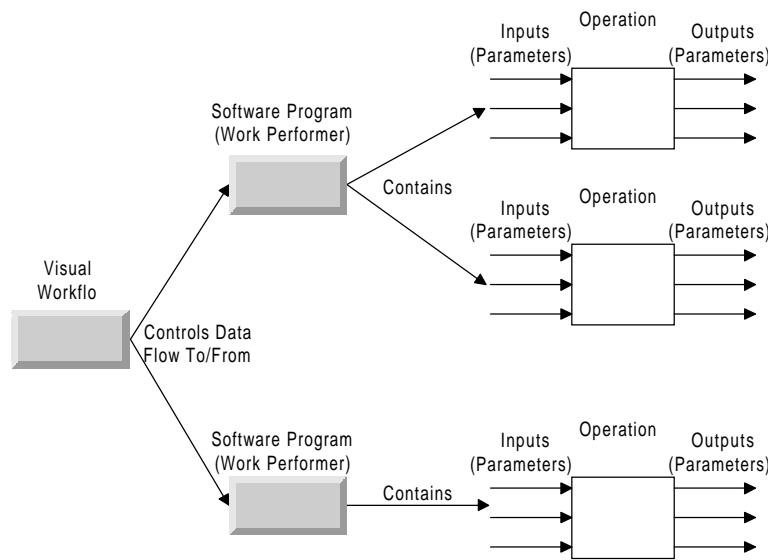
8. Click **Notes** to go to the **Notes** dialog box to record any additional information about this Data Field (see the figure below).



- \* Click to position your cursor inside the text box and then type in the additional information.
  - \* If you want to add a **Carriage Return** to the text of your Notes, then type **Ctrl+Enter**.
  - \* Click **OK** to return to the **Data Fields** dialog box.
9. Click **OK** when defining one entry. Click **Add** if defining multiple entries, and then click **Close** after the last entry has been added.

### **4.2.3 Define the Work Performer Classes**

Visual WorkFlo controls the activation of Software Operations. These Operations have specific data inputs and outputs (Parameters). The figure below shows the relationships between Visual WorkFlo and the Programs it controls and the Operations, which are components of the Programs.

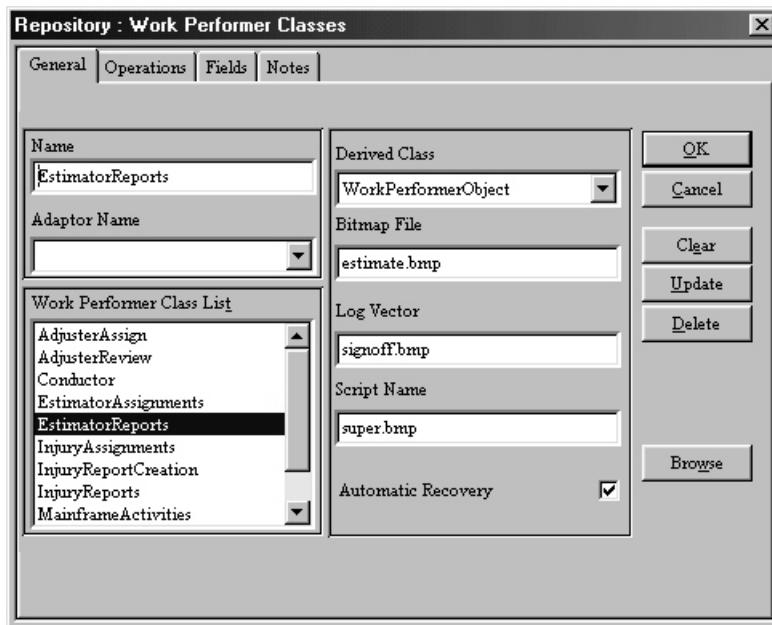


Workflow•BPR allows you to define the Work Performer Classes and associate the appropriate Operations with the Work Performer Classes.

#### 4.2.3.1 General Information

To define the Work Performer Class General settings:

1. Select **Organization Data** from the **Repository** menu. A sub-menu will appear.
2. Select **Work Performer Classes** from the sub-menu. The **Work Performer Classes** dialog box will appear—open to the **General** tab (see the figure below).



3. Type the **Name** of the Work Performer Class in the **Name** text box.
4. Select an Adaptor from the **Adaptor Name** selection box.
  - \* The list of Adaptors is consistent with what is supported by Visual WorkFlo.
5. Select a Work Performer Class as the parent class from the Derived Class selection box.
  - \* Previously defined Work Performer Classes and the default “WorkPerformerObject” are available on the list.
6. Type the file name of the bitmap in the **Bitmap File** text box.
  - \* You can use the Browse button to locate the bitmap within the Folder structure of your disk drives.

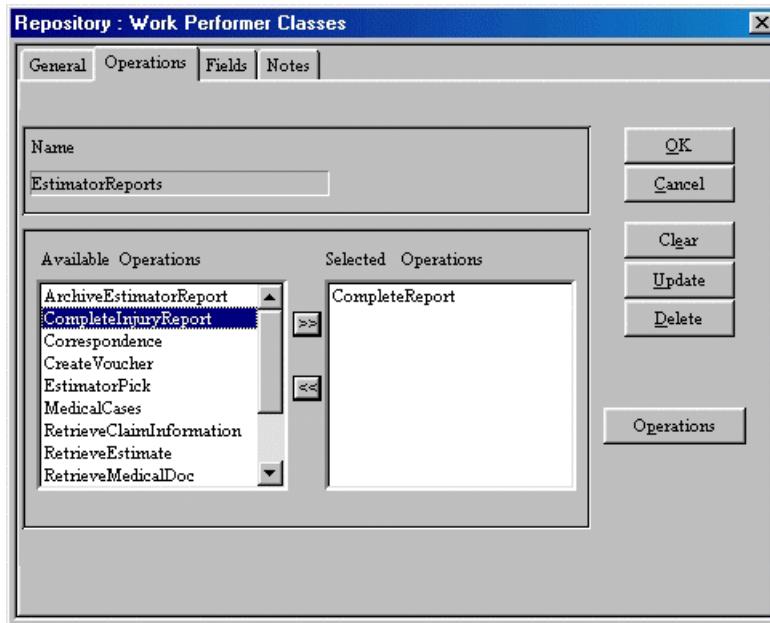
## Chapter 4: Integration with FileNet Visual WorkFlo

7.  Type the log vector in the Log Vector text box.
8.  Type the script name in the **Script Name** text box.
9.  Click on the **Automatic Recovery** check box to select or deselect that Visual WorkFlo option.
  - \* The default setting for the check box is Checked.
10.  Click **Add** to create the item or you can continue to add more information about the Work Performer Class in the other tabs of the **Work Performer Classes** dialog box.

#### 4.2.3.2 Operations

To associate one or more Operations with a Work Performer Class:

1. Select the **Operations** tab in the **Work Performer Classes** dialog box (see the figure below).

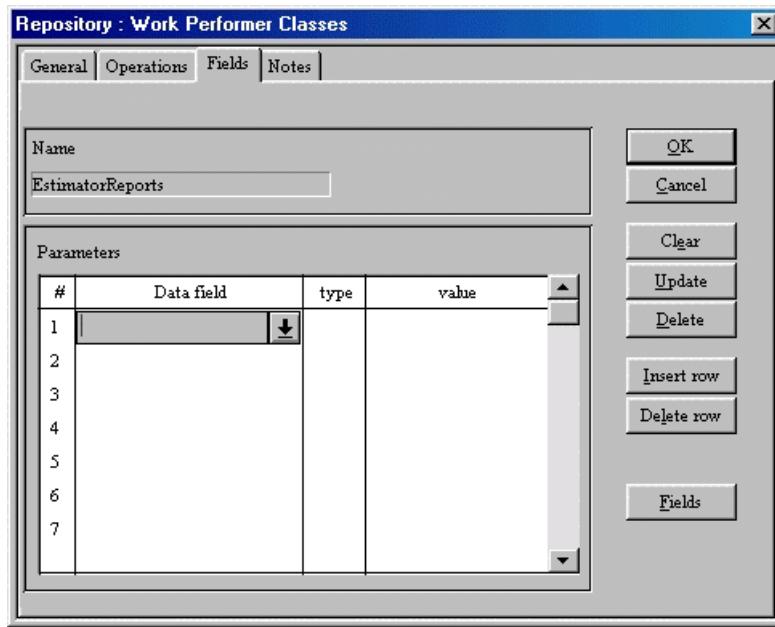


2. To associate an Operation with a Work Performer Class:
  - \* Select the Operation from the **Available Operations** list box.
  - \* Click on >> next to the **Selected Operations** text box to complete the selection.
  - \* Repeat to add more Operations to the association.
3. To remove the association of an Operations with a Work Performer Class:
  - \* Select the Operation from the **Selected Operations** list box.
  - \* Click on << next to the **Selected Operations** text box to remove the association of the selection
  - \* Repeat to remove more Operations from the association.
4. Continue editing in the other tab or Click **OK** when defining one entry.  
 Click **Add** if you are defining multiple entries, and then click **Close** after the last entry has been added.

#### 4.2.3.3 Fields

To define the **Parameters** details for an Operation:

1. Select the **Fields** tab of the **Work Performer Classes** dialog box (see the figure below).

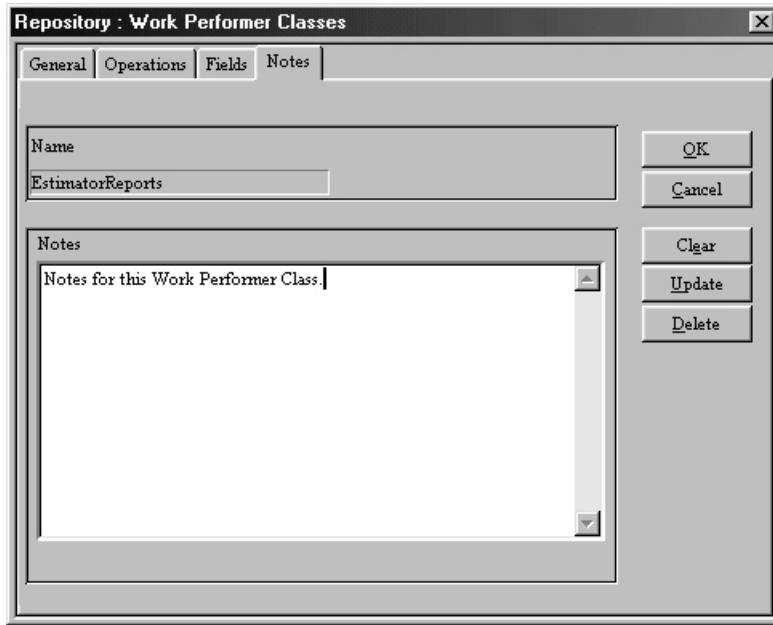


2. In Line 1 of the **Parameters** list box, click on the **Arrow** button that is on the right side of the **Data Field** column. A list of Data Fields will appear.
  - \* Select the **Data Field**.
3. Type an initial value of the Data Field in the **Value** column of the **Parameters** list box.
4. Repeat Steps 2 and 3 for each line of the **Data Field** column until all Data Fields have been selected.
  - \* If a Data Field you want is not on the list, then you need to create it:
    - Click the **Fields Go To** button to open the **Data Field** dialog box (refer to the section entitled “Data Fields” in Chapter 3 of the *User’s Guide*). Upon returning to the **Operations** dialog box, the new item(s) will be included on the list.
  - \* Use the **Delete Row** button to delete Data Field items.
  - \* Use the **Insert Row** button to insert a Data Field row.
5. When you have finished defining the parameters, click **OK** or press **Enter**, or you can continue to edit the Work Performer Classes in one of the other tabs.

#### 4.2.3.4 Notes

To add **Notes** to the chosen or created operation:

1. Select the **Notes** tab of the **Work Performer Classes** dialog box (see the figure below).



2. Type notes in the **Notes** text box.
  - \* If you want to add a **Carriage Return** to the text of your Notes, then type **Ctrl+Enter**.
3. When you have finished defining the **Notes**, click **OK** or press **Enter**, or you can continue to edit the Work Performer Classes in one of the other tabs.

#### 4.2.4 Define the Operations (for Applications)

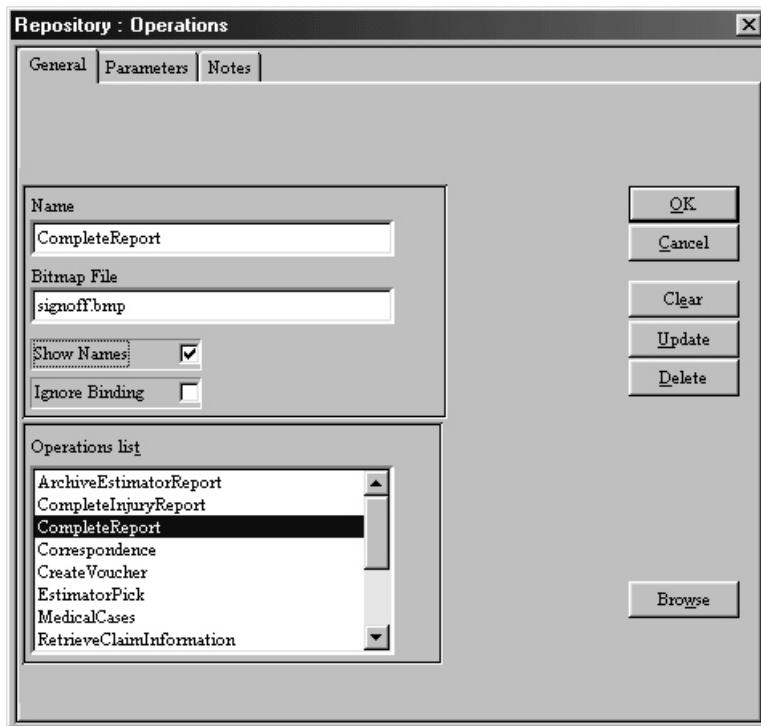
Visual WorkFlo controls the activation of software programs. These programs have specific data inputs and outputs (Parameters defined in a data structure).

The information about Operations is captured with the Operations dialog box. You enter information in three (3) tabs in the dialog box. The following three (3) sections describe the information for the General, Parameters, and Notes tabs. In Workflow•BPR, Data Fields are assigned to Operations to create the Visual WorkFlo Parameters of the Operations. You can also specify whether the Data Fields are inputs, outputs, or both.

#### 4.2.4.1 General Information

To define the Operation General settings:

1. Select **Organization Data** from the **Repository** menu. A sub-menu will appear.
2. Select Operations from the sub-menu. The **Operations** dialog box will appear—open to the **General** tab (see the figure below).

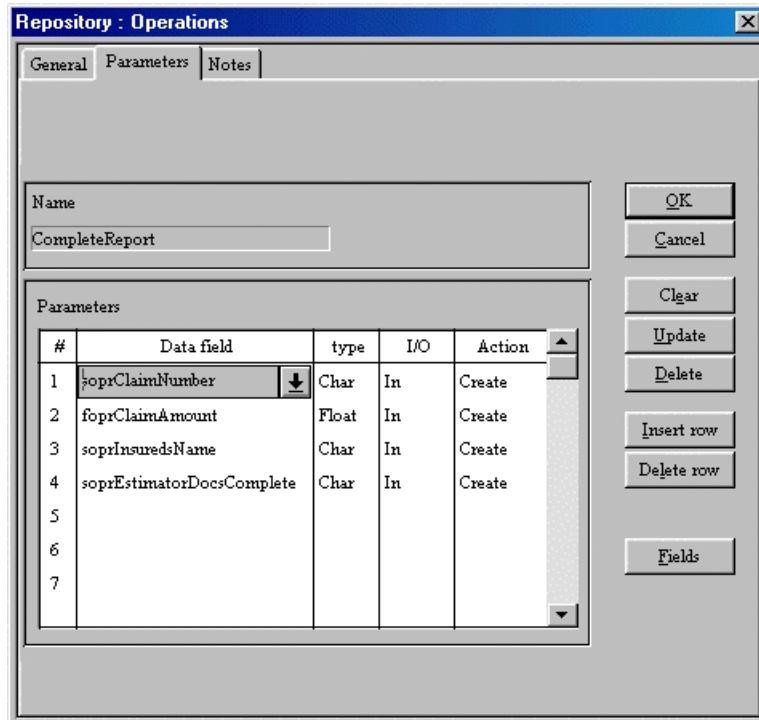


3. Type the **Name** of the Operation in the **Name** text box.
4. Type the file name of the bitmap that you want associated with the Operation.
  - \* You can use the Browse button to locate the bitmap within the Folder structure of your disk drives.
5. Click on the **Show Names** check box to select or deselect that Visual WorkFlo option.
  - \* The default setting for the check box is Checked.
6. Click on the **Ignore Bindings** check box to select or deselect that Visual WorkFlo option.
  - \* The default setting for the check box is Unchecked.
7. Click **Add** to create the item or you can continue to add more information about the Operations in the other tabs of the **Operations** dialog box.

#### 4.2.4.2 Parameters

To define the **Parameters** details for an Operation:

1. Select the **Parameters** tab of the **Operations** dialog box (see the figure below).



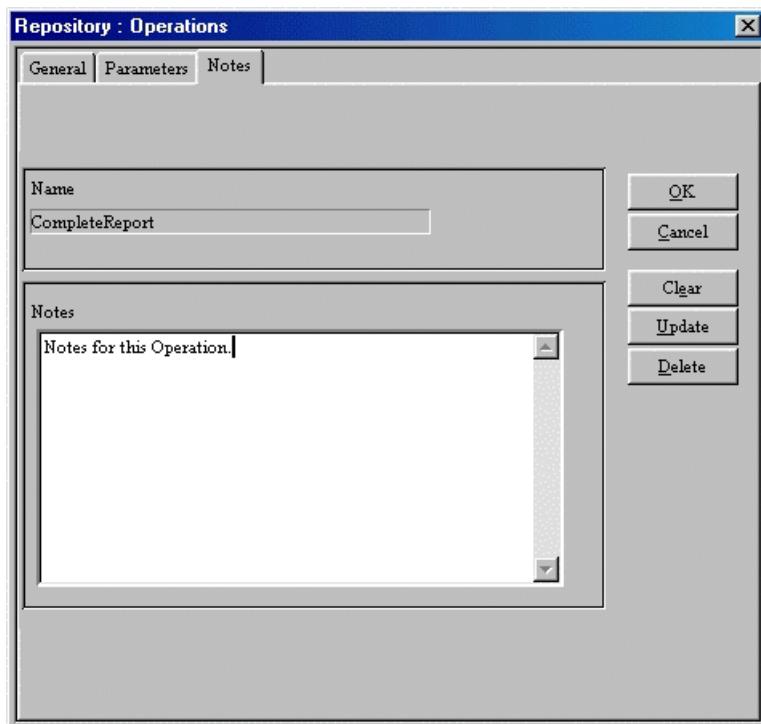
2. In **Line 1** of the **Fields** list box, click on the **Arrow** button that is on the right side of the **Data Field** column. A list of Data Fields will appear.  
\* Select the **Data Field**.
3. Click on the **Arrow** button that is on the right side of the **In/Out** column of the **Parameters** list box. A list will appear.  
\* Select **In** (default), **Out**, or **In/Out**.
4. Click on the **Arrow** button that is on the right side of the **Action** column of the **Parameters** list box. A list will appear.  
\* Select **Create** (default), **Read**, **Update**, or **Delete**.
5. Repeat steps 5 through 7 to add other Data Fields until all Data Fields have been selected.  
\* If a Data Field you want is not on the list, then you need to create it:
  - Click the **Fields Go To** button to open the **Data Field** dialog box (refer to the section entitled “Data Fields” in Chapter 3 of the *User’s Guide*). Upon returning to the **Operations** dialog box, the new item(s) will be included on the list.

- \* Use the Delete Row button to delete Data Field items.
  - \* Use the Insert Row button to insert a Data Field row.
6. When you have finished defining the parameters, click **OK** or press **Enter**, or you can continue to edit the Operations in one of the other tabs.

### 4.2.4.3 Notes

To add **Notes** to the chosen or created operation:

1. Select the **Notes** tab of the **Operations** dialog box (see the figure below).



2. Type notes in the **Notes** text box.
  - \* If you want to add a **Carriage Return** to the text of your Notes, then type **Ctrl+Enter**.
3. When you have finished defining the **Notes**, click **OK** or press **Enter**, or you can continue to edit the Operations in one of the other tabs.

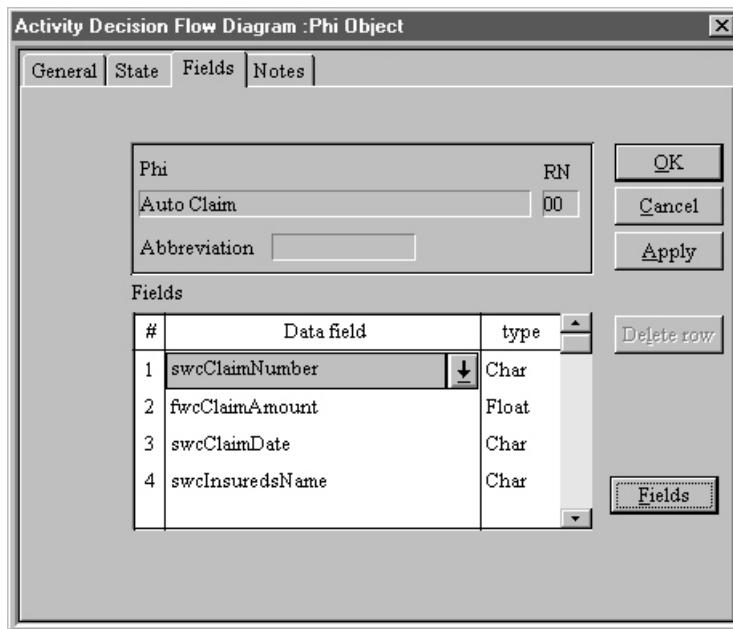
## 4.2.5 Define the Data Fields of a Work Object

In Workflow•BPR, Phis represent documents or other objects that are worked on during the performance of a Process. Each individual Phi within the Process will have the Data Fields that are appropriate for the object (i.e., a specific document or form). Many different Phis can be a part of the same Process. In addition, Data Fields can be assigned directly to the Process. These Data Fields are part of the Data Fields of the Work Object in Visual WorkFlo.

### 4.2.5.1 Assignment of Data Fields to Phis (Input/Output Objects)

To define a list of Data Fields to a Phi Object:

1. Click the **Fields Tab** at the top of the **Phi Object** dialog box (see the figure below). This tab displays the Phi Name, its Abbreviation, and its RN. It also allows for creating a list of Data Fields associated with the Phi.



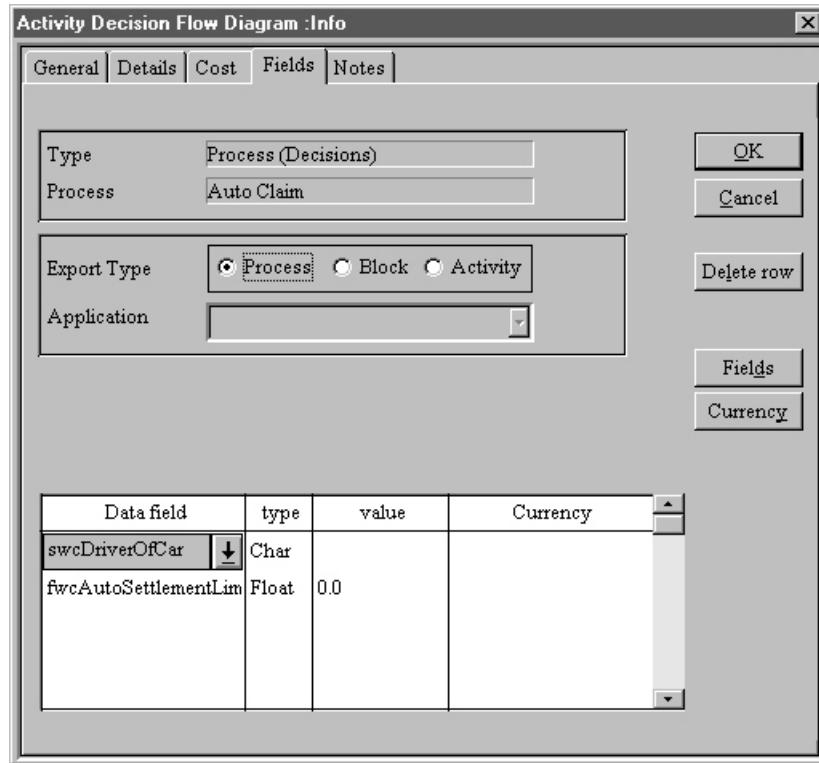
2. In **Line 1** of the **Fields** list box, click on the **Arrow** button that is on the right side of the **Data Field** column. A list of Data Fields will appear.  
\* Select the **Data Field**.

3. Repeat the selection for each line of the **Data Field** column until all Data Fields have been selected.
  - \* If a Data Field you want is not on the list, then you need to create it:
    -  Click the **Fields Go To** button to open the **Data Field** dialog box (refer to the section entitled “Data Fields” in Chapter 3 of the *User’s Guide*). Upon returning to the **Phi Object** dialog box, the new item(s) will be included on the list.
  - \*  Use the Delete Row button to delete Data Field items.
4. When you have finished defining the object,  click **OK** or  press **Enter**, or you can continue to edit the object in one of the other tabs.

#### 4.2.5.2 Assignment of Data Fields to a Process

a To add Data Fields to a Process:

1.  Choose **Info** from the **Process** menu, or  click the **Info** tool button  on the **ADF Toolbar**. Workflow·BPR displays the **Info** dialog box—open to the **General Tab** (see the figure below).



2.  Click the **Fields Tab** at the top of the **Info** dialog box.
3. In **Line 1** of the **Data Field** box,  click on the **Arrow** button that is on the right side of the **Data Field** column. A list of Data Fields and Structures will appear.
  - \*  Select the appropriate Data Field.
  - \* If the Data Field you want is not included in the list, it needs to be created.  Click **Fields** to go to the **Data Fields** dialog box (refer to the section entitled “Data Fields” in Chapter 3 of the *User’s Guide*). Upon returning to the **Info** dialog box, the new item(s) will be included on the list.
  - \*  Type in an initial value for the Data Field in the Value column.

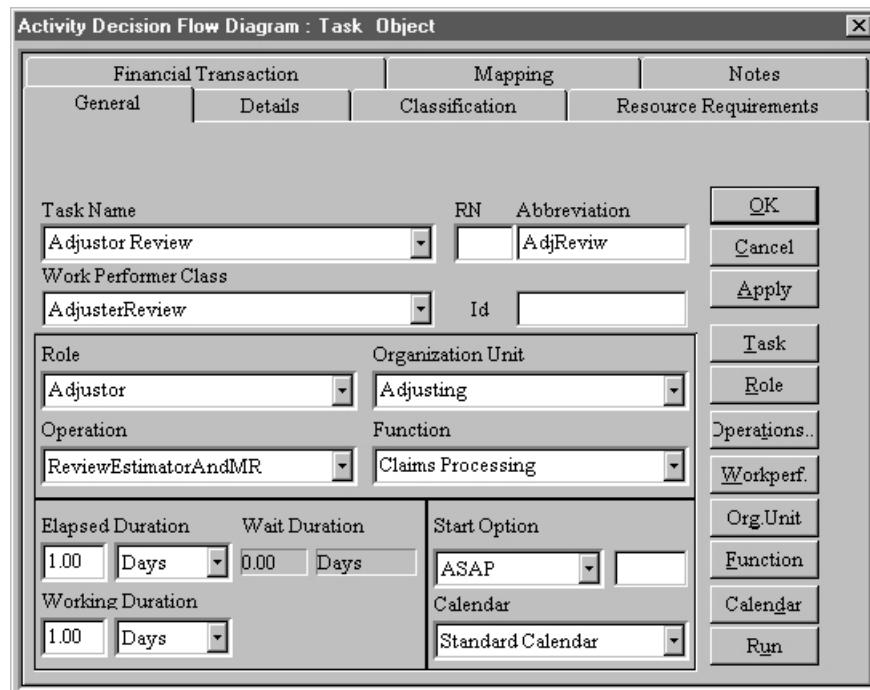
4.  Repeat step 4 to add other Data Fields to the list.
  - \* Use the **Delete Row** button to delete Data Field entries.
5. When finished with the **Info** dialog box,  click **OK** or  press **Enter**, or you can continue in another tab.

## 4.2.6 Assign the Work Performer Classes and Operations to Tasks

After the Operations and the Tasks have been created, the Operations needs to be associated with one (or more) Tasks. The Tasks will be exported as Operation Instructions in the Visual WorkFlo Instruction Sheet. Any Task that does not have an Operation will be exported as a NOP Instruction.

To assign an Operation to the Task:

1. Double-click on the Task object. The **Task Object** dialog box will appear—open to the General tab (see the figure below).

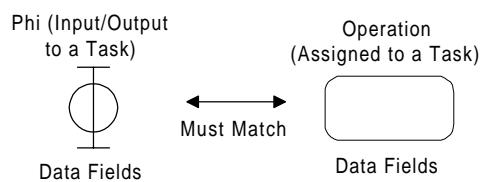
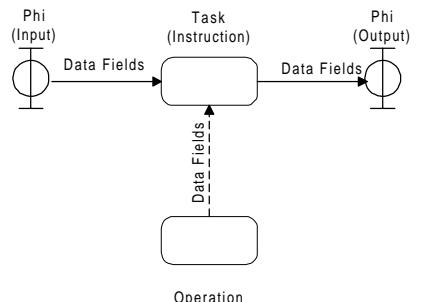


2. Select the Work Performer Class from the **Work Performer Class** selection box.
  - \* If the Work Performer Class you want is not included on the list, then you need to create it. Click the **Workperf.** Go To button to access the Repository **Work Performer Classes** dialog box in order to create the item (refer to the section entitled “Define the Work Performer Classes” on page 4-8). Upon returning to the **Task Object** dialog box, the new item(s) will be included on the list.

3.  Select the Operation from the **Operation** selection box.
  - \* If the Operation you want is not included on the list, then you need to create it.  Click the **Operations Go To** button to access the Repository **Operations** dialog box in order to create the item (refer to the section entitled “Define the Operations (for Applications)” on page 4-13). Upon returning to the **Task Object** dialog box, the new item(s) will be included on the list.
4.  Click **OK** or  press **Enter**.

#### 4.2.7 Map the Work Object Data Fields to Operation Parameters

Visual WorkFlo provides the flexibility of using an Operation in many situations. In Workflow•BPR, the Data Fields of Work Object are defined in Data Fields of Phis. This means that the Data Fields from many Phis can be processed by the same Operation. Workflow•BPR provides a mechanism for mapping Phi Data Fields to Operation Data Fields. This mapping is performed on a Task object. Data Fields assigned to the Phi(s) which are connected to a Task are mapped to the Data Fields assigned to the Operation that is required for the Task.



If the Phi Data Field mapped to an Operation Data Field is of a different type, then that mapping is marked as Bad in the tab.

To define Data attributes in the Mapping Tab of the Task Object dialog box:

1. Click the **Mapping Tab** at the top of the **Task Object** dialog box (see the figure below). This tab allows you to map the Data Fields of a Phi connected to the Task to the parameters of the Operation assigned to the Task.

Application parameter	Type	Data field	Type	Bad
soprPhysicianDocsComp	Char	swcPhysicianDocsComp	Char	
soprEstimatorDocsComp	Char	swcEstimatorDocsComp	Char	
soprInjury	Char	swcInjury	Char	
soprStatus	Char	swcStatus	Char	
soprlBusinessPhone	Char	swclBusinessPhone	Char	

2. The parameters of the Operation are automatically displayed in the **Operation Parameter** column of the **Fields Mapping** box.
3. Select a **Data Field** for Mapping to the **Operation Parameter** from the **Data Field** column of the **Fields Mapping** box.
  - \* If the Data Field you want is not on the list, then it needs to be assigned to a Phi that is connected to the Task Object. Close the Task Object dialog box and open the dialog box of a Phi connected to the Task (refer to the section entitled “Assignment of Data Fields to Phis (Input/Output Objects)” on page 4-17).
4. Click **OK** or press **Enter**.

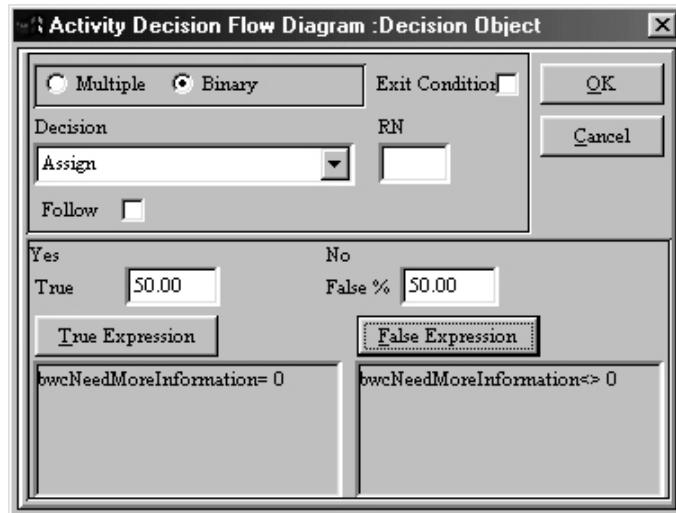
## **4.2.8 Define the Logical Expressions**

In Workflow•BPR, Branches are represented by Decisions. The Choices of a Decision represent the alternative paths of the Branch point. To route the Process in the proper direction at a Branch point, Visual WorkFlo needs to know the conditions that define the path that should be taken. These conditions are determined by the evaluation of one or more Data Fields. For example, a path may be taken if the following expression is evaluated as True: *Contract = Small* or *Contract < \$20,000*. A Logical Expression is assigned to a Choice of a Decision. The expression will be part of the Visual WorkFlo Instruction Sheet.

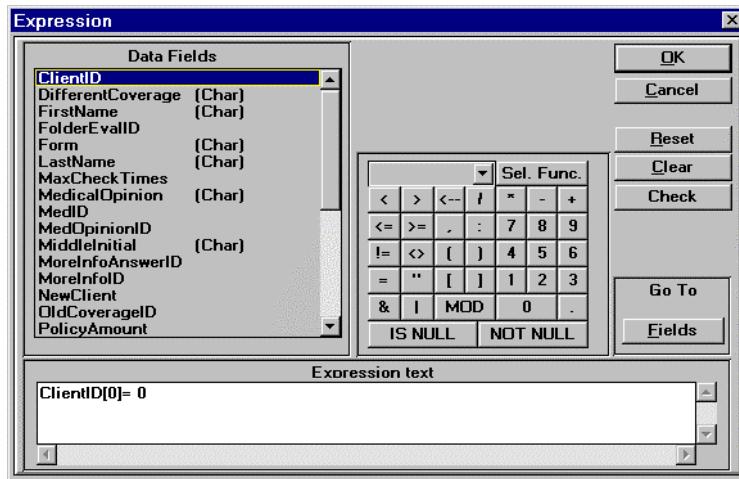
### **4.2.8.1 Binary Decision Choices**

To define the branch expression for Choices of a Binary Decision:

1. Double-click on a Decision. Workflow•BPR displays the **Decision Object** dialog box (see the figure below).



2. To define the Expression for the Yes Choice, click the **True Expression** button. The **Expression** dialog box will appear (see the figure below).



3. Type the text of the expression in the **Expression text** text box. You can also:
  - \* Double-click on a Task that is listed in the **Activities** list box to include it in the expression.

**Only “upstream” Tasks are appropriate for including in an expression.**

- \* Click on a Data Field in the **Data Fields** list box to include it in the expression.
    - If the Data Field or Data Structure you want is not on the list, then you need to create it. Click the **Fields Go To** Button to open the **Data Fields** dialog box (refer to the section entitled “Data Fields” in Chapter 3 of the *User’s Guide*).
  - \* Select a Function from the Function selection box, then click the **Sel. Func.** button to include those items in the expression.
4. Click the **Clear** button to remove all text from the **Expression text** text box.
  5. Click the **Reset** button to remove the text that has been added to the **Expression text** text box since the **Expression** dialog box was opened.
  6. Click the **Check** button to validate the Expression. Any errors in the Expression will be identified.

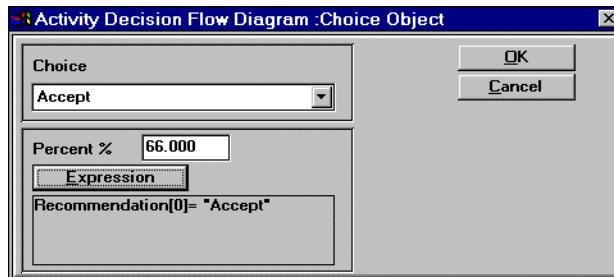
**The Expression must evaluate as True or False.**

7. Click **OK** or press **Enter** to return to the **Decisions** dialog box.
8. Click **OK** or press **Enter**.

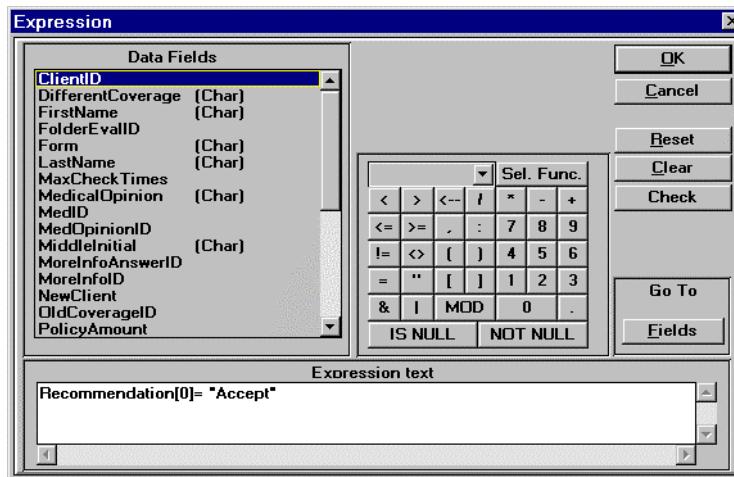
#### 4.2.8.2 Multiple Decision Choices

To define the branch expression for Choices of a Binary Decision:

- Double-click on the Choice. Workflow•BPR displays the **Choice Object** dialog box (see the figure below).



- To define the Expression for the Choice, click the **Expression** button. The **Expression** dialog box will appear (see the figure below).



- Type the text of the expression in the **Expression text** text box. You can also:

- \* Double-click on a Task that is listed in the **Activities** list box to include it in the expression.

**Only “upstream” Tasks are appropriate for including in an expression.**

- \* Click on a Data Field in the **Data Fields** list box to include it in the expression.
  - If the Data Field or Data Structure you want is not on the list, then you need to create it. Click the **Fields** Go To Button to open the **Data Fields** dialog box (refer to the section entitled “Data Fields” in Chapter 3 of the *User’s Guide*).
- \* Select a Function from the Function selection box, then click the **Sel. Func.** button to include those items in the expression.

4. Click the **Clear** button to remove all text from the **Expression text** text box.
  5. Click the **Reset** button to remove the text that has been added to the **Expression text** text box since the **Expression** dialog box was opened.
  6. Click the **Check** button to validate the Expression. Any errors in the Expression will be identified.
- The Expression must evaluate as True or False.**
7. Click **OK** or press **Enter** to return to the **Choice** dialog box.
  8. Click **OK** or press **Enter**.

## 4.3 Translation of Workflow•BPR Process Objects into Visual WorkFlo

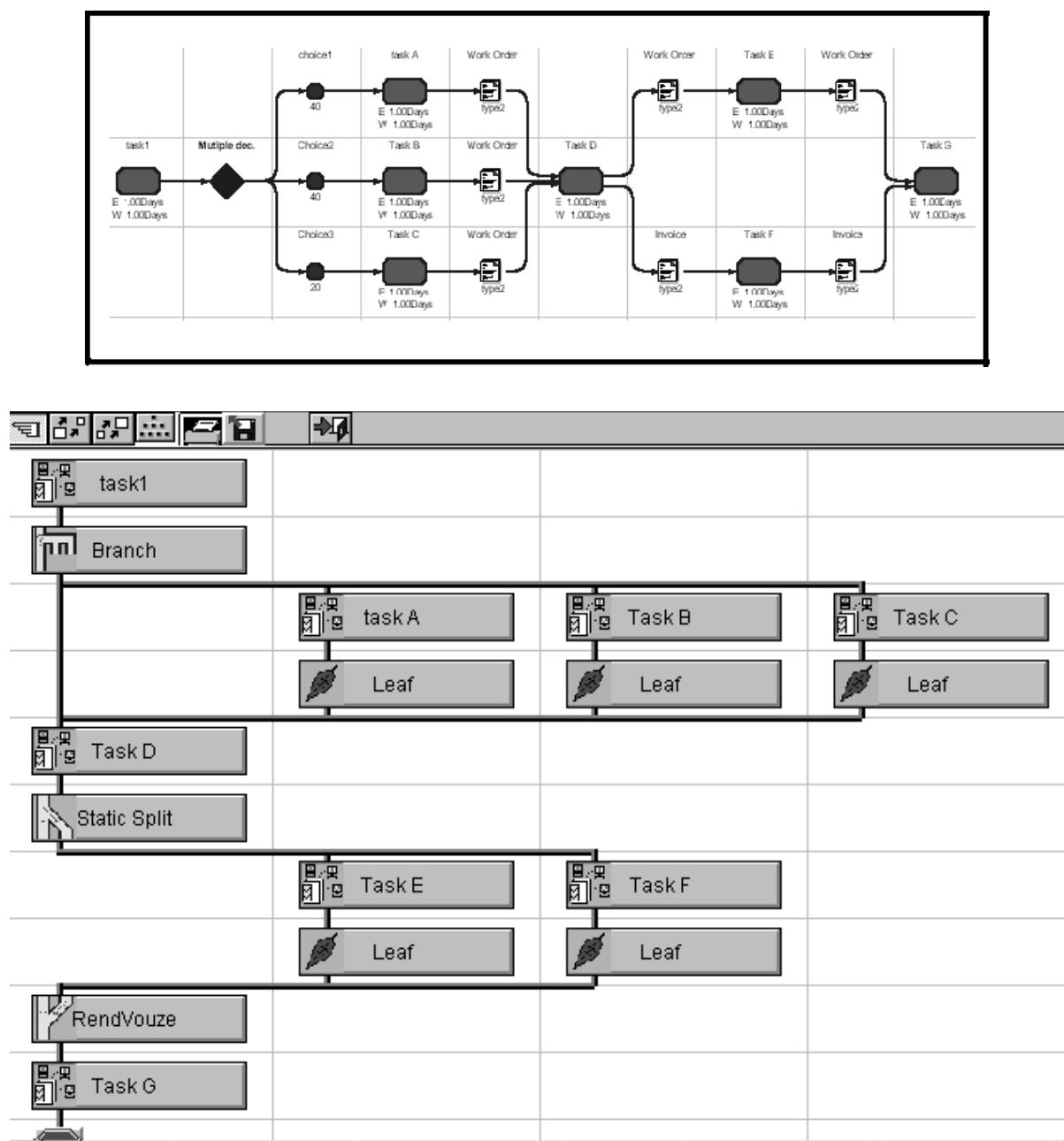
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In Workflow•BPR Activity Decision Flow (ADF) Diagrams, the user has access to objects necessary to define any Process, whether it is “manual” or “automated”. It also allows the business user the flexibility needed to map the Process realistically. On the other hand, Visual WorkFlo is focused on automated Processes and needs detailed information concerning Work Class and Work Performer Objects.

When a Process is exported from the business environment (ADF in Workflow•BPR) to the Visual WorkFlo environment, Workflow•BPR selects the appropriate objects and translates them into Visual WorkFlo objects. The following table shows how this translation occurs:

<b>Workflow•BPR Object</b>	<b>Visual WorkFlo Object</b>
Main Processes	Work Classes
Sub-Processes	Instruction Sheets
Tasks—with assigned Operations	Steps (Operations) in an Instruction Sheet
Tasks—without assigned Operations	NOP
Decision Objects	System Instructions (Branch)
Decision Choices with Logical Expressions	Branches with Branch Instructions
Go To Objects	Goto
Parallel Paths that split	Static Splits
Parallel Paths that merge	Rendezvous
Connections to Process Object (Sub-Process)	Calls
The end of an Alternative Path	Leafs
Go To Object Descriptions	Labels
Tasks with two or more Inputs, not from the same Static Split	WaitForEvent
Tasks with two or more Inputs, not from the same Static Split	Create
Operation	Operation
Work Performer Class	Work Performer Class
Data Fields of Operations	Data Fields of Operations
Data Fields of Phis	Data Fields of Work Objects
Data Fields of Processes	Data Fields of Work Objects
Stop	Terminate

The Visual WorkFlo View window provides a graphical depiction of a Process exactly as it would appear in Visual WorkFlo Composer. An Activity Decision Flow Diagram is translated to the Instruction Sheet objects that are in Visual WorkFlo Composer.



To access the FileNet Visual WorkFlo window:

1.  Click the **Workflow** tool button  on the **Process ADF Toolbar**. The **FileNet Visual WorkFlo** window appears.
-  If you are in the **FileNet Visual WorkFlo Editing Mode**, clicking the **Workflow** tool button will open the **FileNet Visual WorkFlo** window.
-  If you are in the **IBM FlowMark Editing Mode**, clicking the **Workflow** tool button will open the **IBM FlowMark** window.
-  If you are in the **IBM MQ Workflow Editing Mode**, clicking the **Workflow** tool button open the **IBM MQ Workflow** window.
-  If you are in any other **Editing Modes**, clicking the **Workflow** tool button will open a dialog box for you to choose the workflow view you want .

### 4.3.1 The Visual WorkFlo View Toolbar

The following tools are available on the Visual WorkFlo View toolbar:

- **Pointer Tool:**  Looks like a pointing hand. When the tool is selected, the cursor will also look like a pointing hand. Use the Pointer tool to select or move single objects in the Visual WorkFlo View. When you double- click on an object, **Workflow** **BPRWorkflow** **BPR** will not open the dialog box for that particular object in this window. Use the Pointer tool to also insert and delete columns or rows.
- **Zoom-Out Tool:**  This button looks like a magnifying glass with a minus sign within it (see the figure on the right). Use this tool to reduce the scale of your diagram. Each time the Zoom-Out tool is  clicked, the scale of your diagram is reduced by one increment.
- **Zoom-In Tool:**  This button looks like a magnifying glass with a plus sign within it (see the figure on the right). Use this tool to increase the scale of your diagram. Each time the Zoom-In tool is  clicked, the scale of your diagram is increased by one increment.
- **Process Tree Tool:**  Allows you to view the Process hierarchical structure.
- **Operation Tree Tool:**  Allows you to view the Software Applications (Work Performers) with their component Operations.

- **Print Tool:** Opens the Print Preview window from which you can print a copy of the Instruction Sheet.
- **Export Tool:** Has the image of a floppy disk with a red arrow. The Export tool is utilized to export the Visual WorkFlo CDL file in a text file format.
- **Exit Tool:** Has a picture of an arrow pointing to an open door. This tool is used to close the window and to return to the Activity Decision Flow Diagram window.

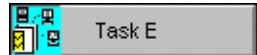
### 4.3.2 Visual WorkFlo View Objects

The Visual WorkFlo View translates an ADF diagram into a Work Class Instruction Sheet as would be seen in Visual WorkFlo Composer. The following is a list of the icons supported for a Work Class Instruction Sheet (the icons used are actually Visual WorkFlo icons):

**Branch**



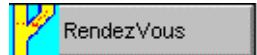
**Operation**



**Static split**



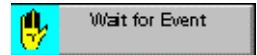
**Rendezvous**



**Leaf**



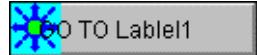
**Wait for Event**



**Create Work Class**



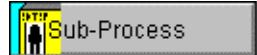
**Go To**



**Label**



**Call**

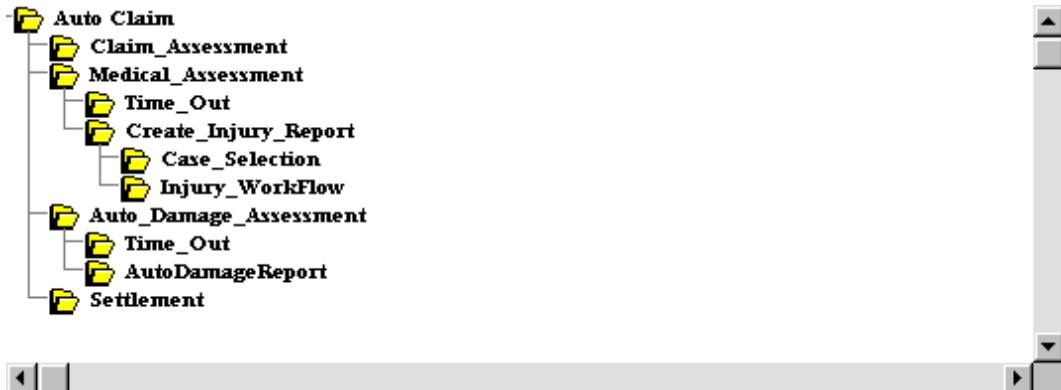


### 4.3.3 Navigating the Process Hierarchy

Workflow•BPR and Visual WorkFlo allow for a hierarchical decomposition of a Process. In Visual WorkFlo, each Process and Sub-Process is represented by an Instruction Sheet. A Call Instruction is used by Visual WorkFlo to move from one Instruction Sheet to another in the hierarchy. Workflow•BPR will generate the Instruction Sheets of the Process Hierarchy and allows you to navigate between them. In the Visual WorkFlo View of Workflow•BPR, you can display a Tree structure of the Process Hierarchy and then click on any Process Object to access the Instruction Sheet for that Process.

To navigate through the Process Hierarchy in the Visual WorkFlo View:

1.  Click on the **Tree** tool button  on the **Visual WorkFlo View** toolbar. A Process Tree window will appear that displays the structure of the Process with its Sub-Processes.

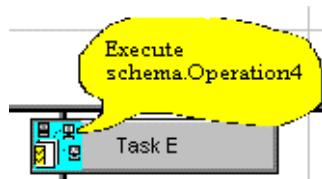


2.  Click on any of the Process Icons to open the Instruction Sheet for that Process.

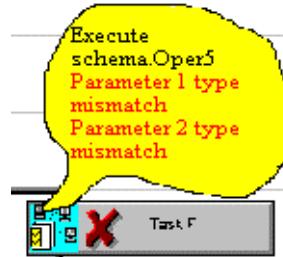
#### 4.3.4 The Yellow Tag Feature

When you  right-click on an object in the Visual WorkFlo View window, a Yellow Tag appears that provides information about the object. The Yellow Tag displays messages that serve three (3) main purposes:

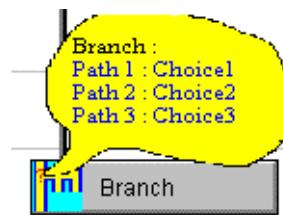
- The Yellow Tag displays the function of the Instruction in black text.



- If there is an error in the mapping of Phi Data Fields to Operation Data Fields in a Task, then the Operation Icon will display an  and the Yellow Tag will inform the user of the nature of the error in red text.



- If an Instruction is related to another Instruction, then the related Instruction will be displayed in blue text. In addition, if the user clicks on the blue text the cursor will be automatically moved to that Instruction and the window will scroll, if necessary.



#### **4.3.4.1 Yellow Tag Messages**

Each type of icon in the Visual WorkFlo View has different Yellow Tag messages. The following sections list the messages.

##### *The Operation Instruction*

If there are no errors, then the message displays what operation will be performed; then the task will be executed. If there are any errors, the system will export the Task as No Operation. The user can then add the Operation in Visual WorkFlo Composer.

There are four types of error messages:

1. There is no Operation required for the Task.
2. There is no program related to the Work Performer Class.
3. There is a mismatch in the number of elements in the mapping between the Operation Data Fields and the Phi Data Fields.
4. There is a mismatch in the type of Data Fields in the mapping between the Operation Data Fields and the Phi Data Fields.

##### *The Static Split*

The Static Split Instruction object message notifies the user that it will perform a NORMAL Static Split. If the user clicks on the message, the cursor will be moved to the related Rendezvous. There are no error messages for the Static Split.

##### *Rendezvous*

If there are no errors, the user can click on the Rendezvous message, which will move the cursor to the originating Static Split. A warning is given to the user in case of two or more Tasks in parallel paths are updating the same data.

##### *Branch*

The Branch message lists the individual Branches. If the user clicks on the name of one of the Branches, then the cursor is moved to start of that Branch.

##### *Leaf*

If the user clicks on the Leaf message, the cursor will move to the start of that path.

##### *Go To*

The Go-To message will display the abbreviation of the Task and, if the user clicks on the message, the cursor will be moved to the Destination Label.

### *Label*

The Label message displays the name of the Label.

### *Call to Sub-Process*

The Call message permits the user to open the appropriate Instruction Sheet (Sub-Process).

### *Wait For Event*

The Wait For Event is used when:

- A Task is dependent on two Tasks; in that case, the message informs the user the name of the specific Phi the Task is waiting for.
- A Task is dependent on the output of an external event (External Process); in that case, the message displayed informs the user of the name of the specific Phi the task is waiting for.

### *Create*

The Create Instruction is used when:

- A Task is dependent on the output Phi of another Task, then the message enables the user to navigate to the Task that waits for the Phi.
- A Task needs to acknowledge receipt of a Phi from another Task. This Create is needed to guarantee that the Phi will remain in Visual WorkFlo. The message will enable the user to navigate to the originating Task.
- A Task is waiting for a Phi that will not be arriving because of a selection in Decisions

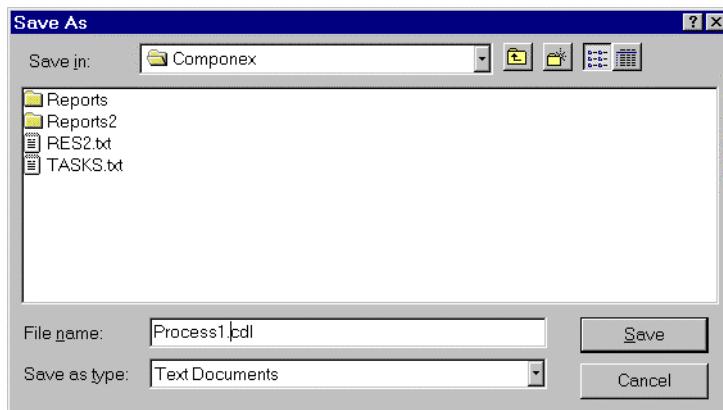
## 4.4 Creating and Exporting CDL Files

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From the Visual WorkFlo View window, you can export the Process information as a CDL file. This file will conform to the Visual WorkFlo syntax.

To export Visual WorkFlo CDL files:

1.  Click on the **Export** tool button  on the **Visual WorkFlo View** toolbar. A CDL document is created and then opened with the **Word Pad** or **Note Pad** application. You can view and edit the file.
2. In Word Pad, or Note Pad you can save the file under any name for use in Visual WorkFlo (see the figure below).



# Chapter 5: Integration with Other Workflow Applications

**O**ne of the main objectives of BPR tools is to function as a universal builder and monitor for workflow engines. The reason that BPR tools, such as Workflow•BPR, should be used as a front-end to workflow engines is that BPR provide the modeling flexibility and Simulation and analysis capability to refine a process model that will behave the way the organization will expect. That is, the process model can be tested before it is implemented.

In Workflow•BPR, integration with workflow engines is accomplished by selecting and filtering the appropriate workflow components from a Process Model and translating them into a format acceptable for use by other systems. Chapters 2, 3, and 4 of this Guide described the translation of Workflow•BPR Process Models into formats for FlowMark, MQ Workflow, and Visual WorkFlo, respectively. This chapter describes two (2) additional formats that can be exported:

- Open Image by SNS
- Workflow Coalition Standard 1B (draft)

 **This chapter has been written based on the assumption that you are familiar with the SNS Open Image application. For details not covered in this chapter, refer to the SNS Open Image documentation. In addition, this chapter has been written based on the assumption that you are familiar with Workflow•BPR and have created Process Models that you want to prepare for export as a SQL file. For details about Workflow•BPR modeling procedures not covered in this chapter, refer to the *Workflow•BPR User's Guide*.**

## **5.1 Integration with SNS Open Image**

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Open Image, from Shared Network Systems, Inc. (a Toronto-based supplier of software and network services), is a software application that:

- Captures images of documents at the source
- Stores these documents for later retrieval
- Moves the document to appropriate locations for processing (which may be done automatically or by the user)

To configure an Open Image system, you must populate Sybase database tables. The table entries are used by the Open Image software to control the movement of the documents in the system. A Process Model contains the information needed to fill the Open Image tables. Workflow•BPR provides the facility to convert Process Model data into the following Open Image tables:

- The Station Table
- The Docket Table
- The Route Table
- The Routing Table

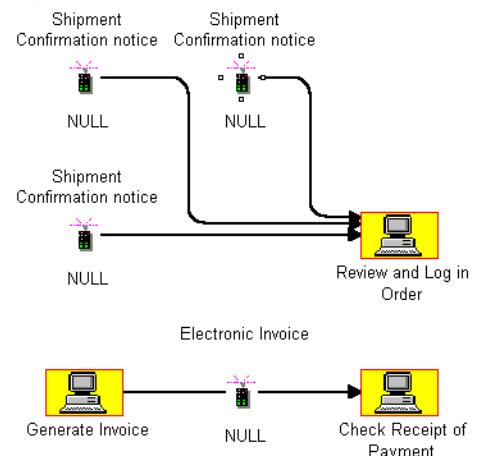
The data exported from Workflow•BPR are saved as text files with SQL statements. These statements are then imported into Open Image. To export the data, first you move to the SNS Open Image Window, which will display a view of the model as it will appear in the Open Image application and a table that contains the data that will be exported.

### 5.1.1 The SNS Open Image Window

The SNS Open Image window is designed for users familiar with Open Image products. It is necessary for you to represent the portions of the Process Model that are applicable to Open Image applications. This must be accomplished during modeling of the Process by specifying the relevant Phis in the model to be of the Electronic Document category.

-  **Only the portions of the Activity Decision Flow Diagram that are linked to Electronic Documents are displayed in the SNS Open Image window and will be exported.**

All the automated portions of a Process Model that apply to Open Image applications can be visually examined in the SNS Open Image view window. This window is divided into two parts. The upper part of the window is a Docket-Station diagram view. This is a passive view, in which you can move and rearrange icons, but you can not edit or perform analysis on its contents.



	curstn	state	dckcls	nxtstn
1	NULL	NULL	Shipment Confirmation	Review and Log in Order
2	NULL	NULL	Shipment Confirmation	Review and Log in Order
3	NULL	NULL	Shipment Confirmation	Review and Log in Order
4	Generate Invoice	NULL	Electronic Invoice	Check Receipt of Payment

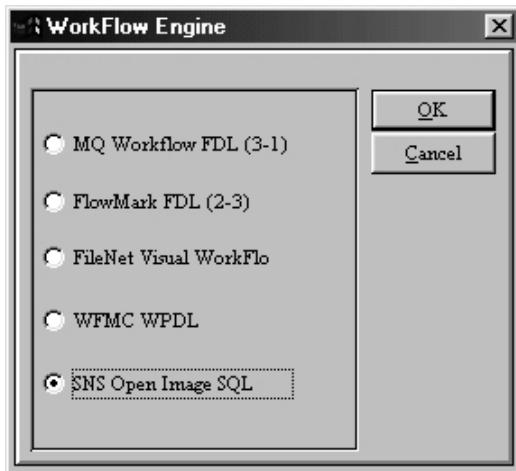
The lower part of the window displays a table where the columns of the table represent curstn, state, dckcls, and nxtstn. The table rows shows possible routes.

The Export tool can be utilized to create an SQL text file, which contains four tables of routing information relevant to the creation of an **Open Image** workflow solution.

## Chapter 5: Integration with Other Workflow Applications

To access the SNS Open Image window:

1.  Click on the **Workflow** tool button  of your **Process ADF Toolbar**.  
The **Workflow Engine** dialog box appears (see the figure below as shown in the Advanced Editing Mode).



2.  Select the **SNS Open Image SQL** radio button.
3.  Click **OK** or  press **Enter**. The **SNS Open Image** window appears.

### 5.1.1.1 The SNS Open Image Window Toolbar

The Open Image toolbar contains the Pointer, Zoom-Out, Zoom-In, Export, and Exit tools.



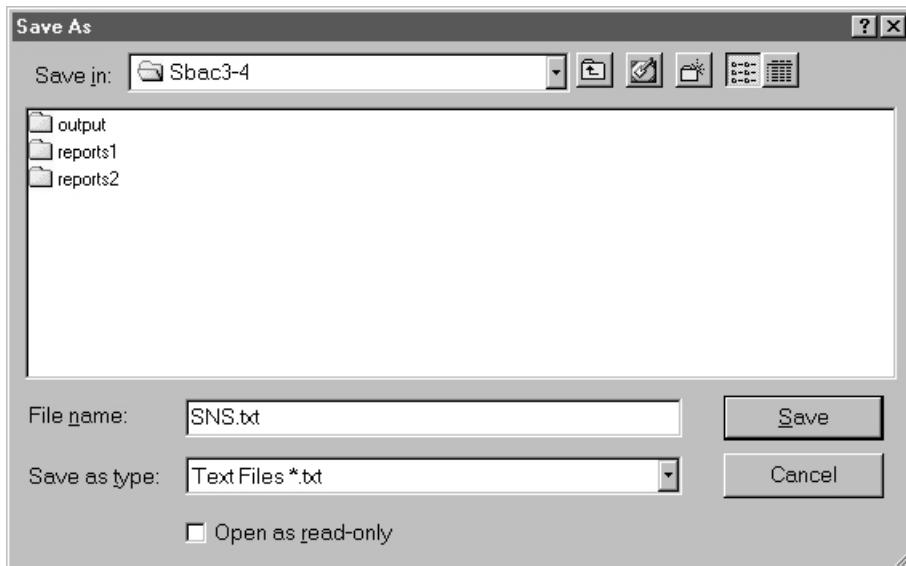
A list of the tool definitions includes:

- **Pointer Tool:** Looks like a pointing hand. When the tool is selected, the cursor will also look like a pointing hand. Use the Pointer tool to select or move single objects in the Docket-Station Diagram View. When you double-click on an object, Workflow- BPRWorkflow•BPR will not open the dialog box for that particular object in this window. Use the Pointer tool to also insert and delete columns or rows in your diagrams.
- **Zoom-Out Tool:** This button looks like a magnifying glass with a minus sign within it (see the figure on the right). Use this tool to reduce the scale of your diagram. Each time the Zoom-Out tool is clicked, the scale of your diagram is reduced by one increment.
- **Zoom-In Tool:** This button looks like a magnifying glass with a plus sign within it (see the figure on the right). Use this tool to increase the scale of your diagram. Each time the Zoom-In tool is clicked, the scale of your diagram is increased by one increment.
- **Export Tool:** Has the image of a floppy disk with a red arrow (see the figure on the right). The Export tool is utilized to export the Open Image SQL file in a text file format.
- **Exit Tool:** Has a picture of an arrow pointing to an open door. This tool is used to close the window and to return to the Activity Decision Flow Diagram window.

## 5.1.2 Exporting Open Image SQL Files

To export Open Image SQL files:

1.  Click on the **Export** tool button  on the SNS Open Image View toolbar. The **Save As** dialog box appears (see the figure below).



2. Navigate through the tree chart that extends from the **Save in** list box and  select a directory in which to place the SQL file.
3.  Type the name of the text file where you want to save your SQL data in the **File Name** text box.
4.  Click **OK** or  press **Enter**.

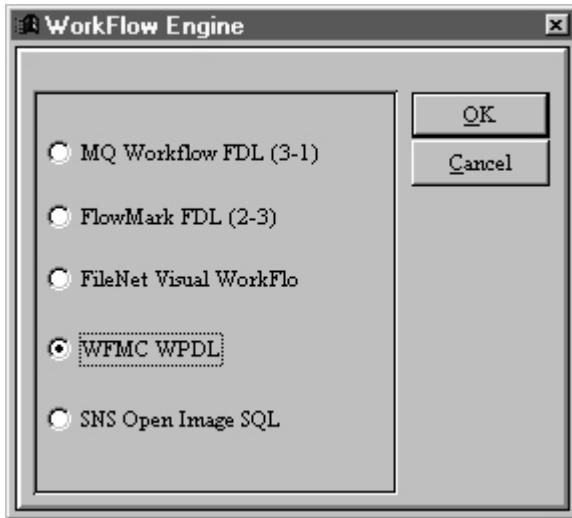
## 5.2 Integration with the Workflow Management Coalition Standards

The Workflow Management Coalition (WFMC) has a standard set of definitions for the data that is used by workflow applications. The WFMC standard specifies process data with their relationships, but does not specify the graphical layout or shapes of the process model. Because of this, text files that follow the standard can be imported by any workflow or process modeling application.

### 5.2.1 Exporting a WPDL file

To export Workflow Management Coalition WPDL files:

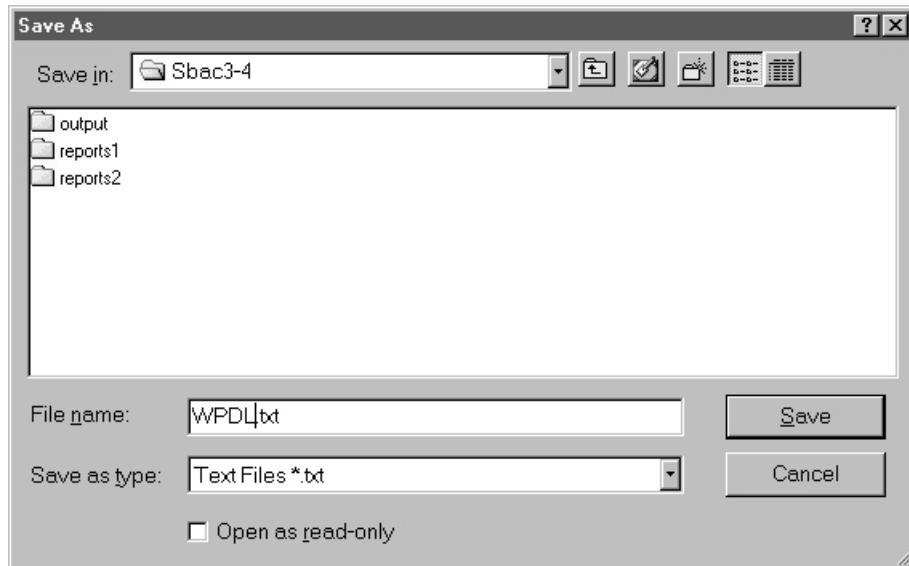
1.  Click on the **Workflow** tool button  of your **Process ADF Toolbar**.  
The Workflow Engine dialog box appears (see the figure below).



2.  Click the WFMC WPDL radio button.

## Chapter 5: Integration with Other Workflow Applications

3. Click **OK** or press **Enter**. The **Save As** dialog box appears (see the figure below).



4. Navigate through the tree chart that extends from the **Save in** list box and select a directory in which to place the WPDL text file.
5. Type the name of the text file where you want to save your WPDL data in the **File Name** text box.
6. Click **OK** or press **Enter**.

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