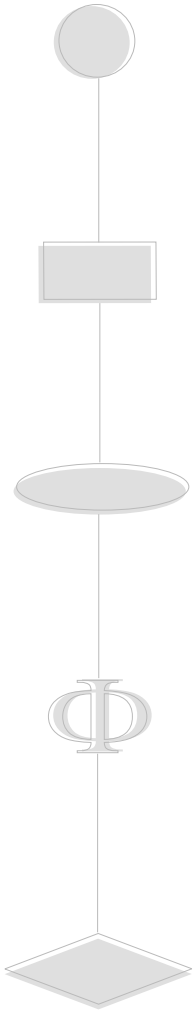
E-iProcess Suite



WORKFLOW · BPR

Modeling Guide

Version 3.4

HOLOSOFX

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1. About This Modeling Guide

This document provides information required to use Workflow•BPR in the context of Business Process Representation.

The chapters in this Modeling Guide are functionally organized, focusing on the main functions of process modeling and the use of Workflow•BPR.

Chapter 1: *Modeling Processes* describes the actions that are necessary for an organization to embark on a project that involves process modeling.

Chapter 2: *Activity Decision Flow Diagram Features* describes and explains how to use the features of an Activity Decision Flow.

Chapter 3: *Modeling Tasks* describes how to model and define Tasks within a Process.

Chapter 4: *Modeling Process Objects (Within A Process)* describes how to model and define Process Objects ((Sub)Processes) within a Process.

Chapter 5: *Modeling Entities and External Processes* describes how to model and define External Entities and External Processes within a Process.

Chapter 6: *Modeling Inputs and Outputs* describes how to model and define Phis within a Process.

Chapter 7: *Modeling Decisions and Their Choices* describes how to model and define Decisions and Decision Choices within a Process.

Chapter 8: *Modeling Loops and Stops* describes how to model and define Go To Objects and Stops within a Process.

Chapter 9: *Modeling Connectors* describes how to model and define Connectors within a Process.

Chapter 10: *Modeling Line of Visibility Objects* describes how to model and define Role Objects, Multi-Instance Objects, and Activity Groups within a Process.

Chapter 11: *Modeling Specific Situations within a Process* describes how to model specific situations within a Process.

Chapter 12: *Verifying and Validating Processes* describes how to ensure that your Process data will provide accurate analysis results.

Index: Provides an index of key words that are used throughout the User's Guide.

1.1 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.

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.

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

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

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

Integration with Workflow Applications Guide provides documentation for capturing and exporting additional modeling data that can be used by the workflow products that Workflow•BPR supports.

1.2 Document Conventions

This User's 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 **bold**.
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 **Ctrl** key while pressing the **V** 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 are highlighted and marked with a hand holding a pen icon.
Pointer:	Throughout the document, tips or pointers are highlighted and marked with hand and index finger pointing icon.

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Chapter 1: Modeling Processes

In order to understand how a Process works, it is necessary to create a model of the Process. A model of the Process will provide the data necessary for a detailed analysis of the time and costs associated with the Process. A graphical model will make it easier to understand and communicate the Process. Workflow•BPR graphically captures the complexity of a Process in an easy and straightforward manner.

Modeling your Process will enable you to:

- View and analyze all the variations of a Process.
- Analyze and simulate the Process.
- Generate Analysis Reports.
- Interface portions of the Process with Workflow Enactment tools (such as FlowMark or Visual WorkFlo).

Workflow•BPR provides an Activity Decision Flow Diagram window for you to model a network of connected activities, decisions, and inputs/outputs. The environment inside the Activity Decision Flow Diagram window resembles a drawing board. Workflow•BPR automatically formats the drawing area of the Activity Decision Flow Diagram window with a grid, dividing your drawing area into columns, rows, and cells. It allows you to insert one object inside each grid cell.

Modeling your Process involves the following four steps:

1. Organizing for Modeling
2. Creating A Process Model
3. Verifying A Process Model
4. Validating A Process Model (Reality Check)

1.1 Organizing for Modeling

Before beginning the modeling Process, it is best to develop a strategy for modeling your Processes. State the reason for modeling your Processes and how the model will be used. Determine the scope of the Process to be modeled—where it begins and where it ends. Familiarize yourself with the Process flow and establish access to those who know the Process. Know the activities, the inputs/outputs of activities, the business conditions, and how they affect your Process. Identifying these key elements before beginning to document your Process will save time and eliminate duplication.

Business Process Reengineering (BPR) can be an individual or group effort. It is often helpful to form a BPR Team to steer and guide the Reengineering efforts.

✍ **Discussion regarding the structure of the BPR Team is beyond the scope of this document. The "References" section of this User's Guide lists the titles of materials that describe high-level Reengineering Methodologies.**

In general, Organizing for Modeling involves:

- Identifying your organization's Processes
- Selecting the Processes to be considered for modeling
- Prioritizing and selecting Processes for Reengineering
- Specifying goals to be achieved

1.1.1 Gathering Data

After a Process has been selected for modeling, the next step is to collect the information about this Process. The selected Process can be simple or elaborate. The data gathering process includes:

- Identifying and briefing the Process participants
- Defining the Process boundaries (e.g., the beginning and ending points)
- Documenting the details associated with each part of the Process:
  - Organization Information:
    - Roles, Applications, and other Resources, and their cost rates
    - Organization Units
    - Functions
  - Process Information:
    - Tasks and their Durations
    - Inputs/Outputs
    - Resource Requirements -- Decisions, their Choices, and the probability of these Choices.

Chapter 2: Activity Decision Flow Diagram Features

A Process that is performed by your organization can be modeled by one or more separate but interrelated diagrams called Activity Decision Flow Diagrams (ADFs). Activity Decision Flow Diagrams are used to model the main elements of a Process visually and show how these elements are interrelated. This chapter will describe the use of Repository data, ADF tools, moving and copying diagram objects, expanding a hierarchical structure of Process, and defining information about the Process.

2.1 Re-Using Repository Data

For every organization file, Workflow•BPR maintains a **Repository** of data. The Data Repository allows you to store and manage different types of data relevant to your Processes, independent of Process Model construction, and is divided into two categories: **Organization Data** and **Process Data**. *The purpose of the Repository is to allow you to reuse Data Records among your Process Models*. Once a Data Record (such as a Task with time values) has been created either in the Repository or in a Process Model, it is stored in the Repository. This record will be available should it be required to define an object (such as a Task with time values) in another Process Model.

When a Data Repository record is reused in the drawing of a Process Model, you are actually creating an independent copy of that Data Record. To continue with the example of the Task and its time values, if a change is made to the time values in the Process Model, the time values *will not* change in the Repository. Each copy of the Task in various diagrams can have different time values from each other and from the Repository. Should a change be made to the time values of the Task in the Repository, the time values *will not* change in the various Process Model copies of that Task. You can, however, *Broadcast* the time values of the Task that exist in the Repository to overwrite the time values that exist in all the copies of the Task throughout the Process Models of that organization file (refer to the section entitled "Broadcasting Task Data" in Chapter 3 of the *User's Guide*).

When you begin to edit the data that exists in your Process Models, it is very important to understand the distinction between the data in the Process Models and the data in the Repository.

- ✍ **All of the Analysis Reports for a Process Model are based on the Data Records within the Process Model, not the Data Records in the Repository.**

2.2 Activity Decision Flow Diagram Windows

A Process that is performed by your organization can be modeled by one or more separate but interrelated diagrams, called Activity Decision Flow Diagrams. Activity Decision Flow Diagrams are used to model the main elements of a Process visually and show how these elements are interrelated.

2.2.1 Activity Decision Flow (ADF) Toolbar

An Activity Decision Flow Diagram contains a toolbar below the title bar. This toolbar is called the **ADF Toolbar** and contains the tools required to build diagrams of your Process. Workflow•BPR allows for positioning the ADR toolbar along the sides of the drawing area, or anywhere inside the drawing area. Use the **Drawing** command from the **Format** menu to position the toolbar or to change other display characteristics of the drawing (refer to the section entitled "Customizing Activity Diagrams Using Drawing Options" in Chapter 5 of the *User's Guide*).

The Standard ADF Toolbar for a Process window contains the following tool buttons: Pointer, Connector, Task, Phi, Process, External (Entity), Decision, Decision Choice, Stop, Go To, Annotation, Zoom-Out, Zoom-In, Undo, Mini-View, Validate, Info, Open Process, Expand Process, Workflow, Print, and Print Preview. The Line of Visibility ADF Toolbar adds three other tool buttons: Role, Multi-Instance, and Activity Group. The E-Commerce Editing Mode adds one more tool button to both of these ADF toolbars: Partner Interaction. These tools are used to construct and modify an Activity Decision Flow Diagram that models a Process.

The figure below displays the Standard ADF toolbar.

The figure below displays the Line of Visibility ADF toolbar.

In the **E-Commerce** Editing Mode, there is an additional button on the toolbars, the **Partner Interaction** button  , so the E-Commerce Standard ADF toolbar looks like this:

And the E-Commerce Line of Visibility ADF toolbar looks like this:

The following are the tools appearing in the ADF Toolbars:

- **Pointer Tool**: This button resembles 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 or multiple objects in a diagram. When you double-click on an object using the Pointer tool, Workflow•BPR opens the dialog box for that particular object. The object dialog box is where definition objects are connected with the information in the Repository. You can also use the Pointer tool to insert and delete columns or rows in your diagrams (refer to the section entitled "Adding and Deleting Columns and Rows" on Page 2-14).

✍ **If any other Drawing Object tool is selected, you can switch to the Pointer tool by performing a right mouse click on the drawing.**

- **Connector Tool**: This button resembles an arrow  . When the tool is selected, the cursor will resemble a plus sign with an arrow in the upper right-hand quadrant. Use the Connector tool to link objects sequentially in your Activity Decision Flow Diagrams. Objects can be connected only from left to right in a diagram.

- **Task Tool**: This button resembles a rounded rectangle  . When the tool is selected, the cursor will look like a plus sign with a rounded rectangle in the upper right-hand quadrant. Use the Task tool to insert a Task into your Activity Decision Flow Diagrams.

- **Phi Tool**: This button resembles the Greek letter Phi (ϕ)  . When the tool is selected, the cursor will resemble a plus sign with the Greek letter Phi (ϕ) in the upper right-hand quadrant. Use the Phi tool to insert a Phi—the input/output between activities—in your Activity Decision Flow Diagrams.

- **Process Tool**: This button resembles a square  . When the tool is selected, the cursor will look like a plus sign with a square in the upper right-hand quadrant. Use the Process tool to insert a Process into your Activity Decision Flow Diagrams.

- **External Entity Tool**: This button resembles an oval  . When the tool is selected, the cursor will resemble a plus sign with an oval in the upper right-hand quadrant. Use the External Entity tool to insert External Entities and External Processes into your Activity Decision Flow Diagrams.

- **Decision Tool**: This button resembles a diamond  . When the tool is selected, the cursor will look like a plus sign with a diamond in the upper right-hand quadrant. Use the Decision tool to insert Decisions into your Activity Decision Flow Diagrams.

- **Decision Choice Tool**: This button resembles a small octagon  . When the tool is selected, the cursor will resemble a plus sign with an octagon in the upper right-hand quadrant. Use the Decision Choice tool to insert Choices into your Activity Decision Flow Diagrams.
- **Stop Tool**: This button resembles a traffic stop sign  . When the tool is selected, the cursor will look like a plus sign with a stop sign symbol in the upper right-hand quadrant. Use the Stop tool to insert Stops into your Activity Decision Flow Diagrams.
- **Go To Tool**: This button resembles a star  . When the tool is selected, the cursor will resemble a plus sign with a star in the upper right-hand quadrant. Use the Go To tool to insert Go To Objects into your Activity Decision Flow Diagrams.
- **Annotation Tool**: This button resembles a yellow sticky-note pad  . When the tool is selected, the cursor will resemble a plus sign with a sticky-note pad in the upper right-hand quadrant. Use the Annotation tool to insert Text Objects into your Activity Decision Flow Diagrams. Only the text that will fit within an ADF cell will be seen.
- **Role Tool**: *This button is only available in the Line of Visibility ADF* and resembles a rectangle  . When the tool is selected, the cursor will resemble a plus sign with a rectangle in the upper right-hand quadrant. Use the Role Object tool to insert Role Objects into the first column of your Line of Visibility Activity Decision Flow Diagrams.
- **Multi-Instance Tool**: *This button is available only in the Line of Visibility ADF* and resembles a series of overlapping squares  . When the tool is selected, the cursor will resemble a plus sign with a series of overlapping squares in the upper right-hand quadrant. Use the Multi-Instance tool to insert Multi-Instance Objects into your Activity Decision Flow Diagrams.
- **Activity Group Tool**: *This button is only available in the Line of Visibility ADF* (or the Line of Visibility ADF) and resembles a rectangle drawn with a dashed line  . A marquis-selection must be made before you can use this tool. Then, the marquis-selection will be converted to an Activity Group Object.
- **Partner Interaction Tool**: *This button is only available in the E-Commerce Editing Mode* and resembles the outline of an eye – an ellipse circumscribing a circle  . Use the Partner Interaction tool to insert Partner Interaction Objects into your Activity Decision Flow Diagrams.
- **Zoom-Out Tool:** This button resembles a magnifying glass with a minus sign within it  . Use the Zoom-Out tool to reduce the scale of your Activity Decision Flow Diagram. Each time the Zoom-Out tool is clicked, the scale of your diagram is reduced by one increment.

- **Zoom-In Tool**: This button resembles a magnifying glass with a plus sign within it  . Use the Zoom-In tool to increase the scale of your Activity Decision Flow Diagram. Each time the Zoom-In tool is clicked, the scale of your diagram is increased by one increment.
- **Undo Tool**: This button resembles a curving arrow  . Use the Undo tool to cancel your last action. Workflow•BPR has one level of Undo, except in the case of certain functions, such as Zoom or Adding Columns/Rows, where all levels of Undo are maintained.
- **Mini-View Tool**: This button resembles a magnifying glass  . Use the Mini-View tool to open a window containing a miniature view of your open Activity Decision Flow Diagram.
- **Validate Tool**: This button resembles a checkmark  . Use the Validate tool to validate whether or not you have constructed an Activity Decision Flow Diagram.
- **Info Tool**: This button resembles a ruler  . Use the Info tool to obtain information about the selected Process Diagram.
- **Open Process Tool**: This button resembles an opened folder  . Use the Open Process tool to open the Activity Decision Flow Diagram associated with a selected Process Object.
- **Expand Process Tool:** This button resembles a plus sign with arrows extending diagonally  . Use the Expand Process tool to open the **Expand Process** window which will expand your Process Model to include the lowest level (refer to the section entitled "Case Analysis" in Chapter 4 or section entitled "Expanding Activity Decision Flow Diagrams" on Page 2-14).
- **Workflow Tool**: This button resembles a W with a red arrow going through it  . Use the Workflow tool to access the **Select Workflow** dialog box, in order to select a particular Workflow View of a Process Model (refer to the *Integration with Workflow Applications Guide*).
- **Print Tool**: This button resembles a printer  . Use the Print tool to access the Windows **Print** dialog box, in which printer settings can be changed and print jobs sent to a printer.
- **Print Preview Tool**: This button resembles sunglasses  . Use the Print Preview tool to access the **Print Preview** window. The toolbar on the Print Preview screen is described in section 6.7.3 of the User's Guide.

2.2.2 Placing Objects in Activity Decision Flow Diagrams

In Workflow•BPR, the Process is modeled with a connected diagram. All the objects in a diagram have to be connected. To model a Process, it is necessary to become familiar with key modeling concepts, such as how to model a Task with its inputs and outputs, the sequence of activities, and Decisions with their Choices. These key concepts are discussed in detail in this section.

To place an object in an Activity Decision Flow Diagram:

1. Select a Drawing tool from the **ADF Toolbar**; the cursor will change shape to reflect the selected object.
2. Click inside a free grid cell to insert the object inside that cell. Only one object can be inserted in a cell.

The following table shows the objects that you can draw in an Activity Decision Flow Diagram with their corresponding shapes:

Object	Shape
Connector	An arrow 
Task	A rounded rectangle 
Phi	A Phi symbol 
Process	A square 
External Entity	An oval 
External Process	An oval within an oval 
Decision	A diamond 
Decision Choice	A small octagon 
Stop	A traffic stop sign 
Go To	A star 
Annotation	Text 
Role	Rectangle *only available in the Line of Visibility ADF* 
Multi-Instance	Overlapping Squares *only available in the Line of Visibility ADF* 
Activity Group	Rectangle with Dashed Line *only available in the Line of Visibility ADF* 
Partner Interaction	Overlapping Ovals *only available in the E-Commerce Editing Mode* 

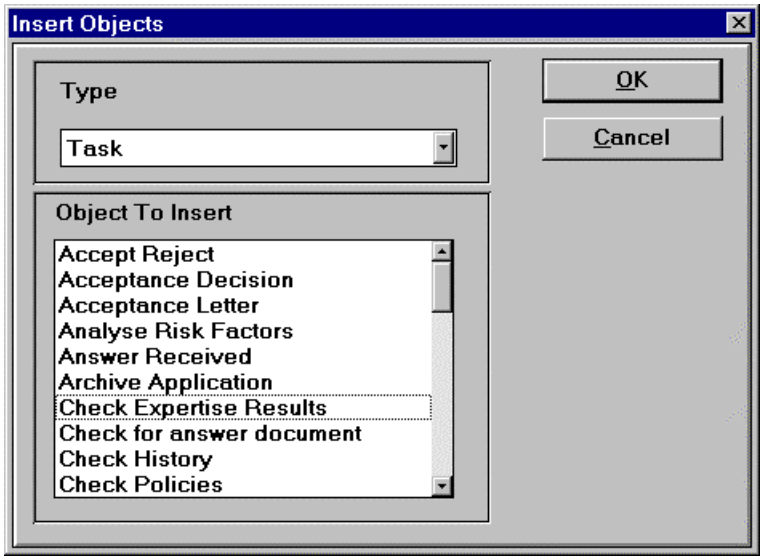
2.2.2.1 Using the Insert Objects Feature

Workflow•BPR provides a feature that allows you to insert Process Objects that have been defined in the Repository directly into an Activity Decision Flow Diagram. The objects you insert will have the proper shape and will be defined with the attributes that were entered into the Repository for those objects. This feature will reduce the time it takes to create a Process Model.

To use the Insert Objects feature:

3. Open a **Process**.
4. 🖱 Choose the **Insert Objects** command from the **Process** menu. The **Insert Objects** dialog box appears (see the figure below).

   ☞ **You can access this command by ⌨ typing Ctrl+L.**



5. 🖱 Select a type of object from the **Type of Object** list. The **Objects to Insert** list will display all the objects of that type that exist in the Repository.
6. 🖱 Select an object from the **Objects to Insert** list.

   * You can select more than one object to insert. Each 🖱 click on a Process name in the list will select or deselect that Process.

7. 🖱 Click **OK**. The selected objects will be inserted in the first available cells in the Activity Decision Flow Diagram (starting with the upper left cell).

2.2.3 Defining Diagram Objects in Activity Decision Flow Diagrams

When an object is drawn, it is necessary to assign attributes or information to it so that it can be identified within the context of your Process. In Workflow•BPR, this is accomplished by defining the object. When an object such as a Task is defined, it is connected to data entries from the Repository. As described in the section entitled "Re-Using Repository Data" on Page 2-1; the Repository is a storehouse of previously defined Data Records that can be copied to define a Diagram Object.

An object is defined through its dialog box, which is obtained by double-clicking on the object in the Activity Decision Flow Diagram window. There are two methods to associate data information to that object—by making selections from lists of previously created items that are stored in the Repository, or by entering new information in the edit boxes. The new information that is created will be copied into the Repository. The two methods are accomplished through the combo boxes that are in the object dialog boxes. When a data combo box has no value, you can either type in new information to create a new record, or select from a list of the current records. If a record is selected and typed over or edited in any way, you will be prompted with a dialog box asking whether you want to update the originally selected record or add a new record to your current list.

To define an object in an Activity Decision Flow Diagram:

1. Select the **Pointer** tool, either by clicking the **Pointer** tool button  on the **ADF Toolbar** or by clicking the right mouse button on the diagram.
2. Double-click on an object. Workflow•BPR displays the dialog box for that object.
3. Add or update the name and other attributes of the objects.

Refer to Chapter 3 through Chapter 8 for the details of defining each type of Diagram Object.

2.2.4 Connecting Objects in an Activity Decision Flow Diagram

To connect two Diagram Objects, draw an arrow between them. Select the Connector tool from the ADF Toolbar and click and drag from the *center* of one Diagram Object to the *center* of another. A Connector can also be defined so that it contains information about the transport Medium used to carry the Phi from one Task to the next.

Not all Diagram Objects can be connected to each other. There are rules that define which connections are allowed and which are not; most of these rules are intuitive. The following table defines the connections that are allowed between the Activity Decision Flow Diagram Objects. The checkmark ( ) indicates that the connection *from* the object listed in the row to the object listed in the column (from left to right) is valid. The Role, Multi-Instance, and Activity Group objects are only available in a Line of Visibility. The Partner Interaction object is only available in the E-Commerce Editing Mode.

From\To	Task	Process	External Process	External Entity	Phi	Binary Decision	Multiple Decision	Choice	Go To-Source	Go To-Target	Stop	Role	Multi-Instance	Partner Interact.
Task	✓	✓	✓	✓	✓	✓	✓		✓		✓		✓	✓
Process	✓	✓	✓	✓	✓	✓	✓				✓		✓	✓
External Process	✓	✓	✓	✓	✓	✓	✓				✓		✓	✓
External Entity	✓	✓	✓	✓	✓	✓	✓				✓		✓	✓
Phi	✓	✓	✓	✓		✓	✓		✓		✓		✓	
Binary Decision	✓	✓	✓	✓	✓	✓	✓		✓		✓		✓	✓
Multiple Decision								✓						
Decision Choice	✓	✓	✓	✓	✓	✓	✓		✓		✓		✓	✓
Go To-Source														
Go To-Target	✓		✓			✓	✓							
Stop														
Role														
Multi-Instance	✓	✓	✓	✓	✓	✓	✓				✓		✓	
Partner Interact.	✓	✓	✓	✓		✓	✓		✓		✓			

2.2.5 Selecting and Moving Diagram Objects

To change the appearance of your diagram, or to create new objects in the middle of a crowded area, it is necessary to move objects around.

2.2.5.1 Moving a Single Object

To select and move a Diagram Object:

1. Select the **Pointer** tool, either by clicking the **Pointer** tool button  on the **ADF Toolbar** or by clicking the right mouse button on the diagram.
2. Click and drag an object to an empty cell. The move can take place only when the input and output Connector Objects to the selected object will still flow from left to right in the destination cell.

2.2.5.2 Moving a Group of Objects

To select and move a group of Diagram Objects:

1. Select the **Pointer** tool, either by clicking the **Pointer** tool button  on the **ADF Toolbar** or by clicking the right mouse button on the diagram.
2. Click and drag a marquee box around the objects you want to select. Make sure that the box completely surrounds all the objects.
3. Click inside the marquee box and drag. The marquee box will move with the pointer. Release the mouse button in an empty area that has enough free cells to hold all the objects. Workflow•BPR will move the objects inside the marquee box as it moves to the new area. Objects within the marquee box **will not** be moved if the input and output Connector Objects to the selected objects do not flow from left to right in the destination cells.

2.2.6 Copying and Pasting a Group of Diagram Objects

Using The editing commands (**Copy, Paste**, and **Paste Special**) can save time when creating multiple or complex activity diagrams. All three of these commands are located on The Edit menu. They are active only when an Activity Decision Flow Diagram is the active window.

Copy allows for the copying of selected objects and their associated information from a diagram to the Windows' Clipboard. In Workflow•BPR, specific objects in the diagram are selected by using the Pointer tool to drag a marquee box around all the objects. **Paste** lets you insert only the shape of the selected objects inside any diagram. **Paste Special** permits placing both the shape and its associated information, such as Data Attributes or Resource Requirements, inside any diagram.

✍ **You cannot paste objects that are copied from a Standard ADF to a Line of Visibility ADF or vice versa.**

To copy and paste Diagram Objects:

1. Select the **Pointer** tool, either by clicking the **Pointer** tool button  on the **ADF Toolbar**, or by clicking the right mouse button on the diagram.
2. Click and drag a marquee box completely around all the objects you want to select.
3. Choose **Copy** from the **Edit** menu. A copy of the Diagram Objects with their attributes is put on the Clipboard.

   ☞ **You can access this command by typing Ctrl+C.**
4. To switch diagrams, choose the name of the window from the **Window** menu.
5. To paste only the shapes of the copied objects, select Paste from the Edit menu. Notice that your cursor changes from an arrow to a glue pot.

   ☞ **You can access this command by typing Ctrl+V.**
6. To paste the copied objects with their Data attributes (e.g., name), choose Paste Special from the Edit menu. Notice that the cursor changes from an arrow to a glue pot.

   ☞ **You can access this command by typing Ctrl+T.**
7. Click inside the cell where you want your objects to appear.

   * Workflow•BPR inserts the top-left cell from the clipboard inside the selected cell (there does not have to be an object in the top-left cell). The remaining objects are inserted in order as they flow to the right and down from the selected cell.
   * The Paste or Paste Special will not be performed if there are not enough free cells to hold the copied objects.

2.2.7 Deleting Diagram Objects

To delete Diagram Objects:

1. Select the **Pointer** tool, either by clicking the **Pointer** tool button  on the **ADF Toolbar**, or by clicking the right mouse button on the diagram.
2. To delete a single object, click on the object. Workflow•BPR will highlight the object.
3. To delete a group of objects, click and drag a marquee box around the objects. Make sure that the box completely surrounds all the objects.
4. Choose **Delete** from the **Edit** menu. Workflow•BPR will delete the selected objects.

   ☞ **You can access this command by pressing the Delete key.**

2.2.8 Undoing Actions in an Activity Decision Flow Diagram

If you make a mistake during the creation or manipulation of Drawing Objects, you can undo your last action either by using the Workflow•BPR Undo command from the Edit menu, or the Undo tool from the ADF Toolbar. Workflow•BPR supports one level of Undo.

To undo your last action, choose **Undo** from the **Edit** menu or click the **Undo** tool button on the ADF Toolbar. Workflow•BPR erases the last Function you have performed and returns to the previous state prior to your last action.

2.2.9 Resizing an Activity Decision Flow Diagram

The viewing size of the Activity Decision Flow Diagram can be changed by using the Zoom-In and Zoom-Out tools.

To change the viewing size of an Activity Decision Flow Diagram:

1. Click the **Zoom-Out** tool button on the **ADF Toolbar**  . The diagram cells are reduced, thereby **increasing** the number of objects that can be seen at one time.
2. Click the **Zoom-In** tool button on the **ADF Toolbar**  . The diagram cells will be enlarged, thereby **reducing** the number of objects that can be seen at one time.

2.2.10 Adding and Deleting Columns and Rows

To change, add or delete columns and rows:

1. Select the **Pointer** tool, either by clicking the **Pointer** tool button  on the **ADF Toolbar** or by clicking the right mouse button on the diagram.
2. Move the cursor over a vertical grid line, a horizontal grid line, or an intersection between a vertical and a horizontal grid line. The cursor will change to a vertical line, a horizontal line, or a cross (respectively).
3. To **Add** a row, a column, or both, click with the *left* mouse button.
4. To **Delete** a row, a column, or both, click with the *right* mouse button.

✍ **Workflow•BPR will not delete Diagram Objects that were in the deleted column or row. In addition, when a column or row is deleted, Diagram Objects will not be moved if their connections (in left to right order) will be altered.**

2.3 Expanding Activity Decision Flow Diagrams

If your Process contains Process Objects, Workflow•BPR will expand the Process with all its nested Process Diagrams into one diagram. During the expansion, Workflow•BPR drills down into each Process Object, extracts the objects that exist in the diagram modeled by the Process Object, and then inserts and connects all the objects into the top-level drawing. This drilling down continues until there are no more Process Objects and the Tasks are the lowest level of work modeled in the drawing.

The Expanded Diagram is generated in the Expanded Process window where you can manipulate the drawing by moving objects and adding or deleting rows and columns. The Expanded Diagram can also be printed. This window has its own toolbar, which contains the Pointer, Zoom-Out, Zoom-In, Print Preview, Cases, Simulate, and Exit tools. From the Expanded Process Window, you can navigate to the Process Cases window (refer to the section entitled "Expanded Process Window" in Chapter 1 of the *Analysis Guide*) or the Simulation window (refer to the section entitled "The Process Simulation Window" in Chapter 3 of the *Analysis Guide*).

2.3.1 Accessing the Expanded Process Window

To access the Expanded Process Window:

1. Open a **Process** file.
2. Click the **Expanded Process** tool button on the **ADF Toolbar**  . The **Expanded Process** window appears.

2.3.2 The Expanded Process Window Toolbar

The following is a list of tools from the Expanded Process window toolbar:

- **Pointer Tool**: This button resembles a pointing hand  . Use the Pointer tool to select or move single or multiple objects within a diagram. Use the Pointer tool also to insert and delete columns or rows in your diagrams (refer to the section entitled "Adding and Deleting Columns and Rows" on Page 2-14).
- **Zoom-Out Tool**: This button resembles a magnifying glass with a minus sign within it  . Use this tool to reduce the scale of your Activity Decision Flow Diagram. Each time the Zoom-Out tool is clicked, the scale of your diagram is reduced by one increment.
- **Zoom-In Tool**: This button resembles a magnifying glass with a plus sign inside it  . Use this tool to increase the scale of your Activity Decision Flow Diagram. Each time the Zoom-In tool is clicked, the scale of your diagram increases by one increment.
- **Print Preview Tool**: This button resembles sunglasses  . Use the Print Preview tool to access the **Print Preview** window. The toolbar on the Print Preview screen is described in section 6.7.3 of the User's Guide.
- **Cases Tool**: This button resembles an open briefcase  . Use this tool to open the Generated Cases window that will display the individual paths for all of the cases that can be generated from the Expanded Process (refer to the section entitled "The Process Cases Window" in Chapter 1 of the *Analysis Guide*).
- **Simulate Tool**: This button resembles a small Process Model  . Use this tool to open the Process Simulation window where you can run a Process Simulation (refer to the section entitled "The Process Simulation Window" in Chapter 3 of the *Analysis Guide*).
- **Down Tool**: This button resembles an arrow pointing down  . Use this tool to display the Expanded Process at the bottom level (the lowest level which is displayed by default when the Expanded Process window is opened).
- **Up Tool**: This button resembles an arrow pointing up  . Use this tool to display the Expanded Process at the top level (the same level that was used to generate the Expanded Process drawing).
- **Exit Tool**: This button resembles a picture of an arrow pointing to an open door  . You use the Exit tool to close the Expanded Process window.

2.4 Defining Information About a Process

Once an Activity Decision Flow Diagram is created, you can see a quick summary of its general and statistical information by choosing the **Info** command from the Process menu. Many of the attributes that are gathered for a Process are for the purpose of providing the information to workflow engines rather than for Workflow•BPR analysis or Simulation.

Defining information about a Process is associating a set of related information with the **Info** dialog box. The attributes used to define a Process are divided into five (5) categories. These five (5) categories are separated into separate tabs in the dialog box used to define a Process. The five (5) tabs are:

- **General**: Allows for selecting general information about a Process. You can also add or update the Locked Process attribute.
- **Details**: Displays statistics about object frequency in the Process, allows you to assign a Procedure to the Process, allows you to define the frequency that the Process is performed by the organization (Process Volume), and displays the Roles that are used in the Process and in (Sub)Processes. For each Role in the table you can specify:
  - The percentage of allocated Employees to work on the Process, and
  - The number of Hours per Year that the Role is available for work.
- **Cost**: Displays Weighted Average cost information and allows you to enter new data. The items that are displayed:
  - **Process Cost**: This is the Weighted Average Process Cost of the Process. A calculation of the averages must be performed before this field displays data. Refer to Chapter 2 of the *Analysis Guide* for more information about Weighted Averages.
  - **Indirect Cost**: This displays the Indirect Cost associated with the Process. This is calculated from the itemized list of Additional Costs that can be entered in this tab (see below). The Additional Cost Items of Type Indirect are factored by the Number Required and the Burden Percentage assigned to them. The total amount is then divided by the Process Volume—as entered in the Details tab of the Info dialog box.
  - **Total Cost**: This is the total of Process Cost plus Indirect Cost.
  - **One-Time Cost**: This displays the One-Time Cost associated with the Process. This is calculated from the itemized list of Additional Costs that can be entered in this tab (see below). The Additional Cost Items of Type One-Time are factored by the Number Required and the Burden Percentage assigned to them. The total amount is then displayed.

- **Burden Percentage**: This value is calculated by factoring the amount of Resource time required vs. the amount of Resource time available. Refer to the Glossary of the *User's Guide* for the exact formula for the Burden Percentage. This number can be used as a reference for the Burden Percentage assigned to One-Time and Indirect Cost items in the Additional Costs table.
- **Discount Rate**: This value is used for calculating the Net Present Value and Internal Rate of Return for the Process. These two calculations appear in the Process Redesign Report (refer to Chapter 6 of the *Reporting Guide* for more information on the Process Redesign Report).
- **Payback Duration**: This value is used for calculating the Net Present Value and Internal Rate of Return for the Process. These two calculations appear in the Process Redesign Report (refer to Chapter 6 of the *Reporting Guide* for more information on the Process Redesign Report).
- **Additional Costs**: This table allows you to enter an itemized list of additional costs that should be applied to the Process.
  - **Number Required**: Specifies the number of the Resource that should be assigned to the Process. The cost of the Resource will be multiplied by the Number Required.
  - **Burden (%)**: Specifies the percentage that the Process uses the Resource (in relation to other Processes) and therefore should be burdened with the cost of the resource. The Cost of the resource will be multiplied by this percentage.
  - **Type**: There are two types of Additional Costs: One-Time and Indirect. These two types of items will be separated for display in One-Time Cost and Indirect Cost sections of this dialog box.

- **Schedule**: (available only for Generated Cases) Displays the Process type, the Process name, and the schedule information about the Critical Path. In addition, it allows you to change both the Start Date of the Process and the basis for calculating the schedule (Elapsed Duration or Working Duration).
- **Notes**: Displays the Process type and the Process name. It also contains a text box for adding Notes about the Process. The different Editing Modes accept different types of Notes (Notes Headers):
  - Basic Mode, FileNet Visual Workflo Mode – Description
  - IBM FlowMark Mode – FlowMark Description, Documentation
    - The FlowMark Description and Documentation Notes have specific uses for models intended for export to FlowMark (refer to the *Integration with Workflow Applications Guide* for more information).

- IBM MQ Workflow Mode – MQ Workflow Description, Documentation
  - The MQ Workflow Description and Documentation Notes have specific uses for models intended for export to MQ Workflow (refer to the *Integration with Workflow Applications Guide* for more information).
- Line of Visibility Mode – Description, Process Participant View, System Design View
- E-Commerce Mode – Description, Purpose Description, Preconditions Description
- Advanced Mode – Description, Documentation, Process Participant View, System Design View

In addition to these five tabs, a sixth tab, for the **Fields** category, appears for use in all Modes except the Basic Mode:

- **Fields**: Allows you to define the Input Container and Output Container Data Structures for IBM FlowMark or IBM MQ Workflow, and also allows you to define a list of Data Fields for the Process that can be used for application development or workflow engines such as FileNet's Visual WorkFlo.

Two other tabs, **Process Settings** and **Activity Settings**, are available for use only in the IBM FlowMark Mode and the IBM MQ Workflow Mode:

- **Process Set.**: Allows you to define the Process Control Settings for IBM FlowMark or IBM MQ Workflow.
- **Activity Set.**: Allows you to define the Activity Control Settings for IBM FlowMark or IBM MQ Workflow.

2.4.1 The Information Dialog Box

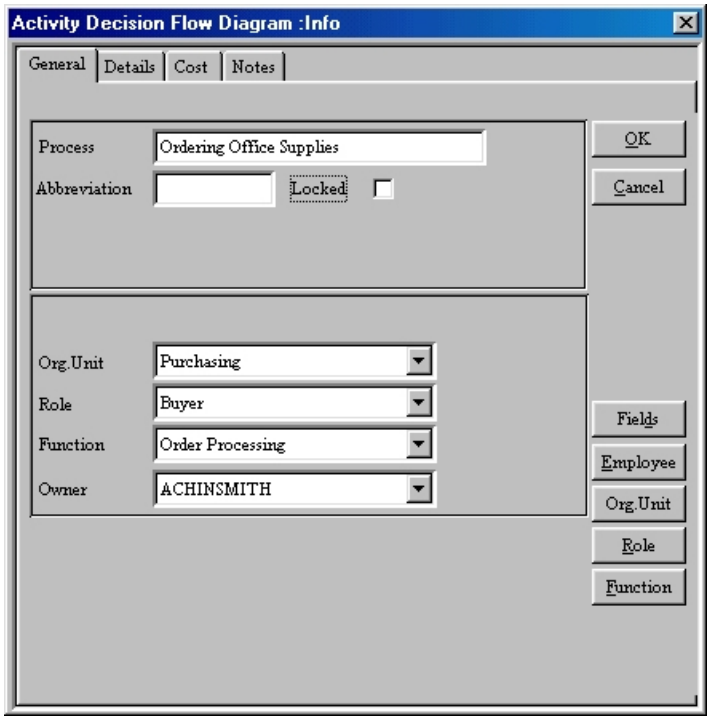
To access the Info dialog box of an active diagram:

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**.
2. Continue in one of the four (4) tabs, which are described in the next four (4) sections.

2.4.1.1 General

To access the General Tab of the Information dialog box of an active diagram:

1. Click the **General Tab** at the top of the **Info** dialog box (see the figure below, from the BasicEditing Mode). This tab displays the Process name, the responsible Organization Unit, and the responsible Resource, along with other information.



2. To rename a Process, ⌨ edit the Process name in the **Process** text box.
3. To lock-out the Process from accepting Repository data during a broadcast, 🖱 click on the **Locked** check box.
4. To add or change the **Abbreviation** of the Process, ⌨ type the information in the Abbreviation text box. The Abbreviation can include a maximum of eight (8) characters.
5. 🖱 Select the **Organization Unit** responsible for the Process from the **Organization Unit** selection box.
   * 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 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 in the list.
6. 🖱 Select the **Role** responsible for overseeing the Process from the Role selection box.
   * 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 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.
7. To add or change the Function associated with the Process, 🖱 choose a Function name from the **Function** combo box.
   * 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 to create the item (refer to the section entitled "Functions" in Chapter 4 of the *User's Guide*). Upon returning to the **Info** dialog box, the new item(s) will be included on the list.
8. In Modes other than Basic, there are additional fields to be entered:
   * 🖱 Select the **Data Field** that contains the Process ID in the **Process ID** 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" Chapter 3 of the *User's Guide*). Upon returning to the **Info** dialog box, the new item(s) will be included on the list.
   * 🖱 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 to create the item (refer to the section entitled "Employees" in Chapter 2 of the *User's Guide*). Upon returning to the **Info** dialog box, the new item(s) will be included in the list.

- The settings for **Endless Duration**, **Input Container**, **Audit Trail**, **Staff Inherited, Prompt at Start**, **Terminate on Error**, **Return Code Setting**, **Staff Predefined**, and **Input Container** are used only for workflow engines. Refer to the *Integration with Workflow Applications Guide* for more information.

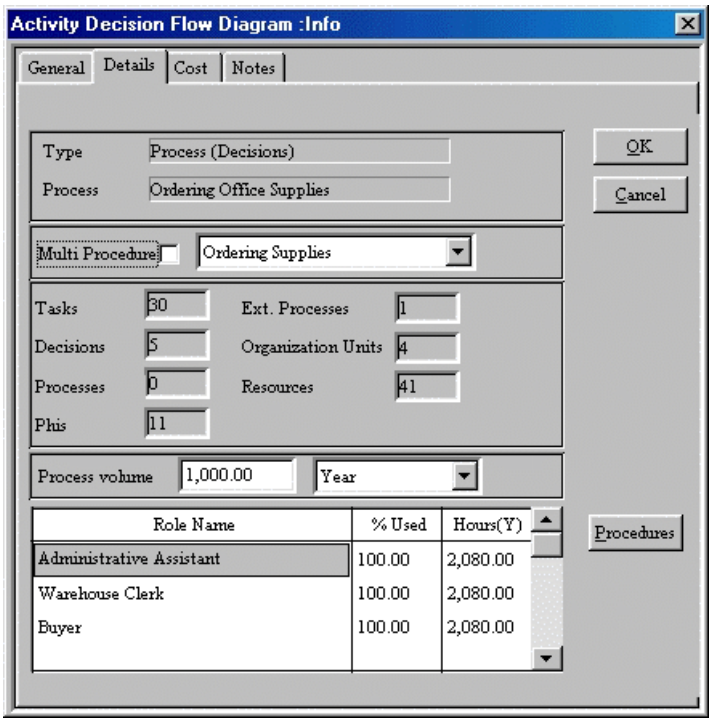
9. When finished with the **Info** dialog box, click **OK** or press **Enter**, or you can continue in another tab.

2.4.1.2 Details

✍ **The Details Tab is not available in the IBM FlowMark and IBM MQ Workflow Modes.**

To access the Details Tab of the Information dialog box of an active diagram:

1. Click the **Details Tab** at the top of the **Info** dialog box (see the figure below*, from the Basic Mode*). This tab displays statistics about the Process (e.g., the number of Tasks within the Process).



2. If the Process contains Tasks that appear in more than one (1) Procedure, then select the **Multi-Procedure** check box.
3. If the Process is designed to document the activities of a single Procedure, then select the Procedure from the selection box next to the Multi-Procedure check box.
   * If the Procedure you want is not included on the list, then you need to create it. Click the **Procedures** Go To button to access the Repository **Procedures** dialog box to create the item (refer to the section entitled "Procedures" in Chapter 4 of the *User's Guide*). Upon returning to the Info dialog box, the new item(s) will be included in the list.

4. To change the Process Volume of the Process, ⌨ type the appropriate value in the **Process Volume** text box, and then 🖱 select the appropriate time unit from the **Process Volume** selection box.
5. To modify data for the Roles listed in the Role Table, which appear automatically and do not have to be entered:
   * In **Line 1** of the **Role** table, 🖱 click on the cell within the **% Used** column. ⌨ Modify the % Used value if some of Employees allocated to the Organization Unit do not work on the Process. This basically creates the number of Full-Time Equivalents Employees working on the Process.
     – The default value is 100%.
   * 🖱 Click on the cell within the **Hours(Y)** column. ⌨ Modify the Hours per Year value if the Role works more or less than 2080 hours per year.
     – The default value is 2080 hours per Year.

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

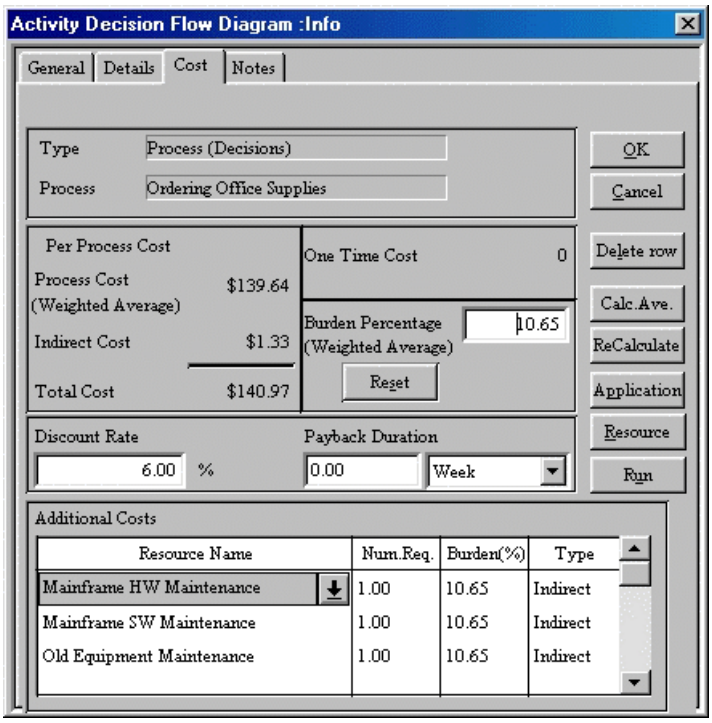
6. Repeat Step 5 to modify the data associated with other Roles in the Roles table.
7. When finished with the **Info** dialog box, 🖱 click **OK** or ⌨ press **Enter**, or you can continue in another tab.

2.4.1.3 Cost

✍ **The Cost Tab is not available in the IBM FlowMark and IBM MQ Workflow Editing Modes.**

To access the Cost Tab of the Information dialog box of an active diagram:

1. Click the **Cost Tab** at the top of the **Info** dialog box (see the figure below, *from the Basic Mode*). This tab displays information about the Process and allows you to enter Indirect and One-Time costs.



   * A calculation of the Weighted Averages must be performed. Click the **Calc.Ave.** button to bring up the **Calculate Averages** dialog box. Refer to Chapter 2 of the *Analysis Guide* for more information about calculating averages.
   * If the Weighted Averages have not been calculated, the letters "N.A." will appear in the **Process Cost**, **Indirect Cost**, **Total Cost**, and **Burden Percentage** sections of the dialog box.

2. If you want to enter a Burden Percentage other than the one calculated through the Weighted Averages, then type the Burden Percentage in the **Burden Percentage (Weighted Average)** text box.
   * To reset the Burden Percentage back to the one calculated through the Weighted Averages, click the **Reset** button.

3. To change the Discount Rate of the Organization, ⌨ type the new value in the **Discount Rate** text box.
   * This value can also be entered in the Organization Info dialog box (refer to the section entitled "Organization Info" in Chapter 2 of the *User's Guide*).
4. To change the Payback Duration of the Process, ⌨ type the appropriate value in the **Payback Duration** text box, and then 🖱 select the appropriate time unit from the **Payback Duration** selection box.
5. To add Additional Cost Items for the Process:
   * In **Line 1** of the **Additional Costs** table, 🖱 click on the **Arrow** button that is on the right side of the **Resource Name** column. A list of Resources and Applications will appear.
   * 🖱 Select the appropriate **Resource** or **Application**.
     – If the Resource you want is not included in the list, it needs to be created. 🖱 Click **Resource** to go to the **Resources** dialog box (refer to the section entitled "Resources" 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.
     – If the Application you want is not included in the list, it needs to be created. 🖱 Click **Application** to go to the **Applications** dialog box (refer to the section entitled "Resources" 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.
   * ⌨ Type in a number of the Resource or Application used by the Process in the **Num.Req.** column.
     – The default value is 1.
   * ⌨ Type a Burden Percentage for the Resource or Application in the **Burden(%)** column.
     – The default value is 100%.
   * 🖱 Click on the cell within the **Type** column. A list selection box will appear in the cell.
   * 🖱 Click on the **Arrow** button on the right side of the **Type** column. A list of the Additional Cost types will appear.
   * 🖱 Select either Indirect or One-Time for the type of the Additional Cost.

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

6. Repeat step 5 to add other Resources or Applications to the list.
7. After making changes to elements of this tab, such as adding Additional Cost items, click the **Recalculate** button to update the Indirect and One-Time cost sections of the tab.
8. When finished with the **Info** dialog box, click **OK** or press **Enter**, or you can continue in another tab.

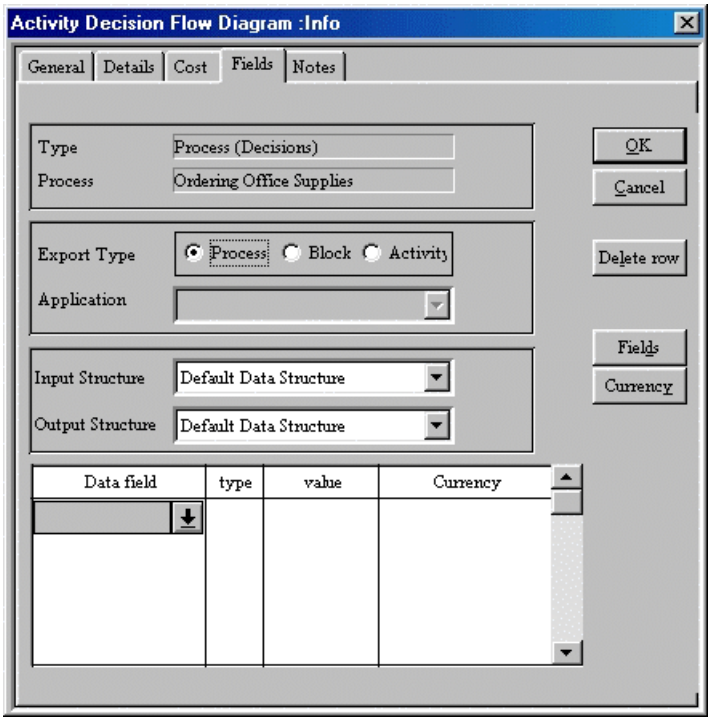
2.4.1.4 Fields

✍ **The Fields Tab is not available in the Basic Editing Mode.**

This tab allows you to associate Data Fields with a Process. For workflow engines such as IBM FlowMark, you can assign Data Structures that define the inputs and outputs of the Process. For other workflow engines or for general application development you can assign a list of Data Fields and Data Structures that might be used by applications within the Process. Refer to the *Integration with Workflow Applications Guide* for more details about how Data Fields and Data Structures are used in a Process.

To access the Fields Tab of the Information dialog box of an active diagram:

1. Click the **Fields Tab** at the top of the **Info** dialog box (see the figure below, *from the Advanced Mode – The Fields Tab is not available in the Basic Mode*).



   * You can also define Data Structures and Data Fields within the Process for purposes such as Workflow Application integration.

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 Workflow Application file as a Process.

   * The **Block** radio button will specify that the Process will be exported to a FlowMark FDL file as a Block.

- This item is used specifically for IBM FlowMark.

* The **Activity** radio button will specify that the Process will be exported to a Workflow Application file as a Task.
  - All lower-level details of the Process Object will be ignored during export. Refer to Chapter 2 and Chapter 3 of the *Integration with Workflow Applications Guide* for more details.
  - Select an Application from the **Application** selection box to define the FlowMark program that will be used for the Task that is exported.

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. To add Data Fields or Data Structures to the list assigned to the Process, do the following:
   * In **Line 1** of the **Data Field** box, click on the **Arrow** button on the right side of the **Data Field** column. A list of Data Fields and Structures will appear.
   * Select the appropriate **Data Field** or **Data Structure**.
     - 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.
     - If the Data Field is of type Integer, then the Data Field can be used as a Variable for a Repetition in one of the Tasks or Process Objects of the Process.
     - If the Data Field is of type Float, then the Data Field can be used as a Financial Variable for a Financial Transaction in one of the Tasks of the Generated Case.
       - Select a Currency from the selection box in the **Currency** column.

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

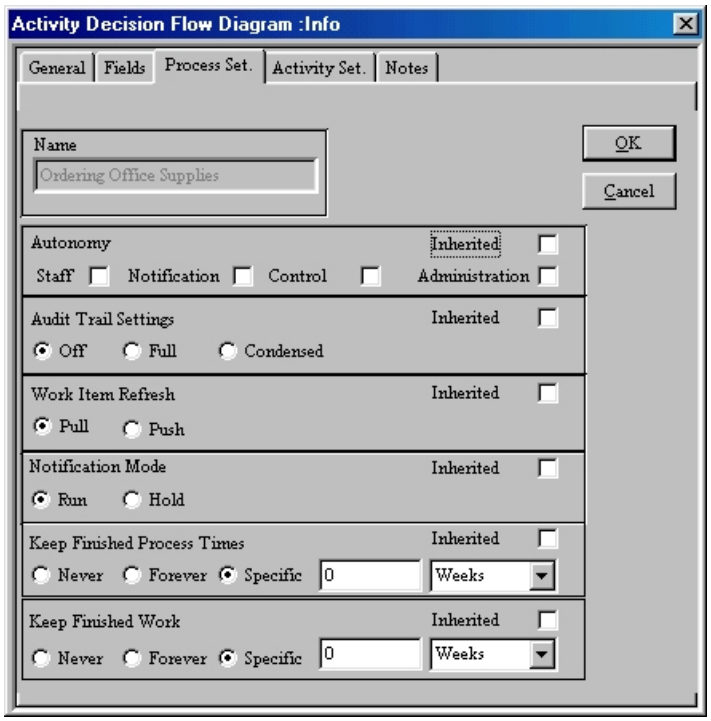
6. Repeat step 4 to add other Data Fields or Data Structures to the list.
   * Use the **Delete Row** button to delete Data Field entries.
7. When finished with the **Info** dialog box, click **OK** or press **Enter**, or you can continue in another tab.

2.4.1.5 Process Settings

✍ **The Process Settings tab is available only in the IBM MQ Workflow Editing Mode.**

This tab allows you to define the Process Control Settings for IBM MQ Workflow. To access the Process Settings Tab of the Information dialog box of an active diagram:

1. 🖱 Click the **Process Set.** tab at the top of the **Info** dialog box (see the figure below, from the IBM MQ Workflow Mode).



✍ **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.

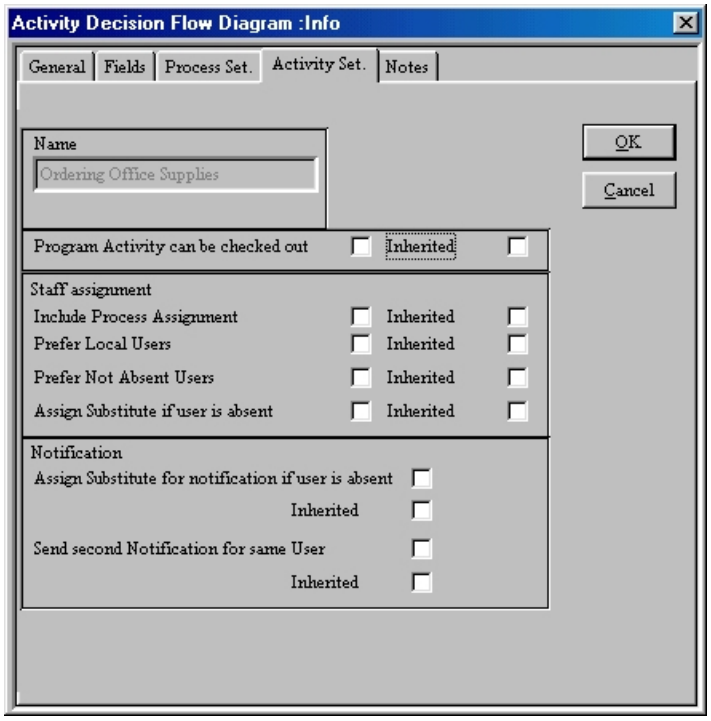
5. Select the **Administration** checkbox in the **Autonomy** box to have the ID of the process administrator not taken from the parent process when this process runs as a Sub-Process.
6. Select the **Off** radio button in the **Audit Trail Settings** box to keep no audit trail records.
7. Select the **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.

2.4.1.6 Activity Settings

✍ **The Activity Settings tab is available only in the IBM MQ Workflow Editing Mode.**

This tab allows you to define the Activity Control Settings for IBM MQ Workflow. To access the Activity Settings Tab of the Information dialog box of an active diagram:

1. 🖱 Click the **Activity Set.** tab at the top of the **Info** dialog box (see the figure below, from the IBM MQ Workflow Mode).



✍ **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.**

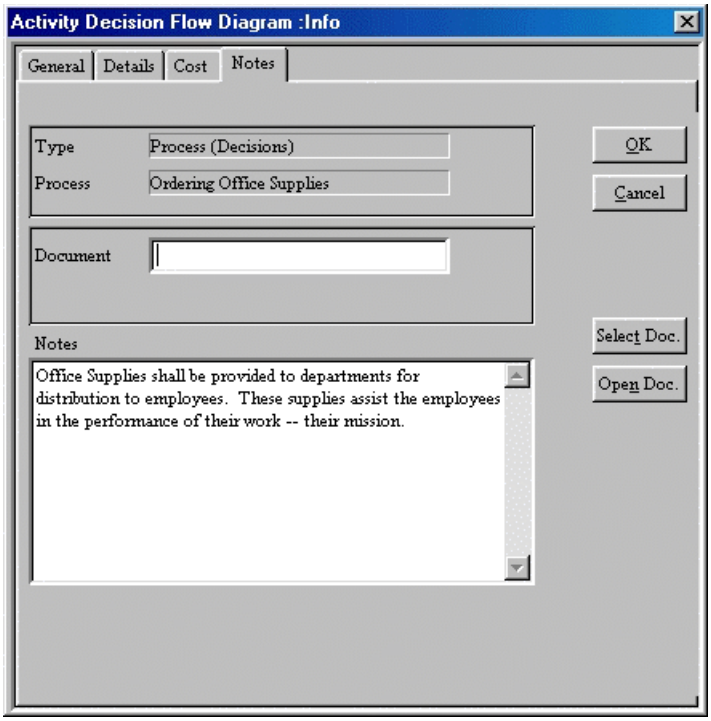
2. 🖱 Select the **Program Activity Can Be Checked Out** checkbox to allow program activities to be checked out of the runtime database.
3. 🖱 Select the **Include Process Assignment** checkbox in the **Staff Assignment** box to use the role and organization settings of the process model as part of the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

2.4.1.7 Notes

To access the Notes Tab of the Information dialog box of an active diagram:

1. Click the **Notes Tab** at the top of the **Info** dialog box (see the figure below, *from the Basic Mode*). This tab displays the Process type and the Process name.

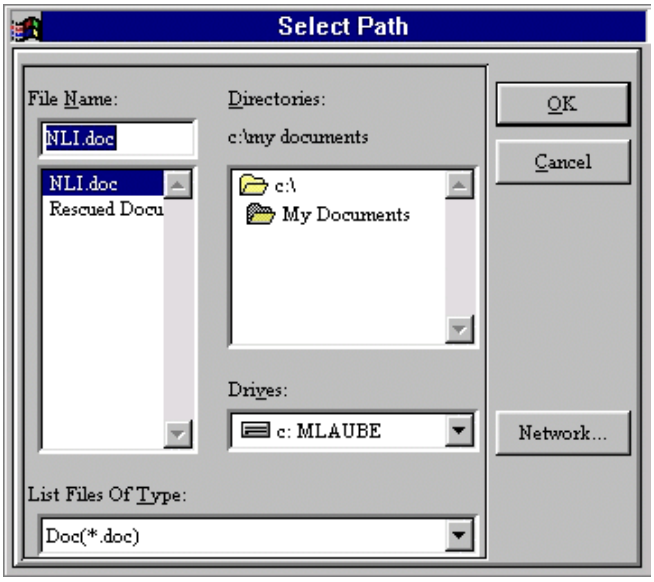


2. *In the Basic Mode and the FileNet Visual WorkFlo Mode*, there is only one generic type of Note available, which is equivalent to the Description type (Notes Header) in other modes. Other modes offer other types of **Notes Headers**:

   * *In the IBM FlowMark Mode*, there are two types of Notes Headers: FlowMark Description (default) and Documentation.
   * *In the IBM MQ Workflow Mode*, there are two types of Notes Headers: MQ Workflow Description (default) and Documentation.
   * *In the Line of Visibility Mode*, there are three (3) types of Notes Headers: Description (default), Process Participant View, and System Design View.
   * *In the E-Commerce Mode*, there are three (3) types of Notes Headers: Description, Purpose Description, and Preconditions Description.

- *In the Advanced Mode*, there are four (4) types of Notes Headers: Description (default), Documentation, Process Participant View, and System Design View.
- Select the type of Note from the **Notes Header** selection box.

3. To add or update Notes about the Process, type in the **Notes** text box.
   - If you want to add a **Carriage Return** to the text of your **Notes**, then type **Ctrl+Enter**.
4. To identify a Word Processing document that you want associated with the Process, click the **Select Doc**. button. The **Select Path** dialog box is opened (see the figure below).



   - Click **OK** after you locate the document. When you return to the **Info** dialog box, the selected filename will be placed in the **Document** text box.
5. To open the document associated with the Process, click the **Open Doc**. button.
   - The document will be opened with your default word processing application.
6. When finished with the **Info** dialog box, click **OK** or press **Enter**, or you can continue in another tab.

Chapter 3: Modeling Tasks

A Task is the lowest level of work in the Process Modeling of Workflow•BPR. If you **do not** want to break down an activity into a lower-level of detail, then model that activity as a **Task** in an Activity Decision Flow Diagram. If you **do** want to break down an activity into a lower-level of detail, then model that activity as a Process in an Activity Decision Flow Diagram. A Process in an Activity Decision Flow Diagram is a representation of another Activity Decision Flow Diagram that contains Tasks and, perhaps, other Processes. By including Processes within other Processes, a hierarchical tree structure of Processes is created.

To model a Task, it is necessary to draw and define it. In an Activity Decision Flow Diagram, a Task is a rounded rectangle (see the figure below).

Defining a Task is associating a set of related information with a specific Task within the Task Object dialog box. The attributes used to define a Task are divided into four (4) categories. These 4 categories are divided into separate tabs in the dialog box used to define a Task. The 4 tabs (categories) are:

- **General**: After a name is assigned to a Task, other general information can be specified:
    - **RN**: A Reference Number (RN) is used to distinguish one or more Tasks that have the same name in a diagram. Although the Tasks have the same name, they are actually separate items that individually affect the Process. The RN distinguishes them.
    - **Abbreviation**: An Abbreviation is associated with the Task as part of its definition in the Repository.
    - **FlowMark Name**: *In the IBM FlowMark Editing Mode only*, 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). This name has to be unique within a Process.

* **MQ Workflow Name**: *In the IBM MQ Workflow Editing Mode only*, 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). This name has to be unique within a Process.
* **Priority**: *In the IBM MQ Workflow Editing Mode only*, sets the priority of the Task. Workflow applications will use the priority to determine the order that Tasks will be performed.
* **From Input Container**: *In the IBM FlowMark Editing Mode only*, specifies that the priority of the Task will be set in the Input Container.
* **Role**: A Role is assigned as being responsible for performing the Task. The cost rate of this Role, along with additional assigned Roles, is multiplied by the Working Duration of the Task to generate cost information about the Process.
* **Organization Unit**: An Organization Unit can be assigned as being responsible for the Task. This assignment can be used to determine the time and costs associated with the Process for each Organization Unit that participates. During Simulation, the Roles assigned to the Task must be allocated to the Organization Unit in order for the Roles to be available to perform the Task (refer to the section entitled "Resource Allocation" in Chapter 3 of the *Analysis Guide* for more information about Simulation, and the section entitled "Resource Allocation" in Chapter 2 of the *User's Guide* for more information about Resource Allocation).
* **Application**: An Application can be assigned as being utilized for the performance of the Task. The Application can be a stand-alone application, such as a Word Processing application, or it can be a component of an automated Workflow Application.
* **Function**: A Function represents various management functions performed in your organization. Examples of these Functions are Production, Sales, Marketing, and so forth. Associating a Function with Tasks allows for the sorting of the time and costs that each Function contributes to the Process.
* **Elapsed Duration**: Elapsed Duration is the total length of working time that the Task takes from the time the Task begins to when it actually ends. A Task begins when the Phi(s) arrive and the Start Option is satisfied. A Task ends when the Phi(s) leaves. An example would be a document that arrives on a desk on Monday morning and then leaves the desk on Tuesday morning. The Elapsed Duration would be eight (8) hours. Elapsed Duration has to be greater than or equal to the Working Duration.
* **Working Duration**: Working Duration is the total length of time that the Resources actually spend performing the Task. Continuing the example from the Elapsed Duration above, the Working Duration would be the five minutes that the employee spends reading and signing the document

that arrives on his/her desk. Working Duration is used for calculating the costs of a Process (based on the assigned Resources).

* **Start Option**: The Start Option specifies additional conditions for the start of the Task. If the Phi has arrived and it is during Working Hours (as specified by the Calendar), then the Start Option must be satisfied. *The start of the Task will be delayed until the Start Option is satisfied*. The default Start Option is ASAP, which means that the Task can begin as soon as possible, given that the other conditions are true. Other Start Options are:
  - The **ASAP** Start Option means that the Task can begin as soon as possible, given that the other conditions are true.
  - The **Date** Start Option must be in the format of Month/Day. This specifies that the Task can only begin on a specific date of the month (e.g., April 15). The Task will be delayed until the next occurrence of that day.
  - The **Day** Start Option must be a number from 1 to 31. This specifies that the Task can only begin on a specific day of the month (e.g., the 1st of the month). The Task will be delayed until the next occurrence of that day for any month of the year.
  - The **Time** Start Option has a format of HH:MM. This specifies that the Task can only begin after a specific time during the day (e.g., at 9:00 a.m.). The Task will be delayed until the next occurrence of that time during the day. If the time does not fall within the Calendar Working Hours, the Task is delayed until Working Hours begin again.
  - The **Day of Week** Start Option must be a number from 1 to 7. The value of 1 represents Sunday. This specifies that the Task can only begin on a specific day of the week (e.g., Monday). The Task will be delayed until the next occurrence of that day for any month of the year. If the day does not fall within the Calendar Working Days (i.e., there is a holiday), the Task is delayed until the next available working day.
* **Calendar**: The Calendar assigned to a Task defines the Working Hours during which a Task can be completed (e.g., from 9:00 a.m. to 5:00 p.m.).
* **User Program Execution Agent:** *In the IBM MQ Workflow Editing Mode only*, specifies that program execution is governed by the user-defined PEA.
* **Server**: *In the IBM MQ Workflow Editing Mode only*, specifies that program execution is governed by the Program Execution Server (PES).
* **Input Container**: *In the IBM MQ Workflow Editing Mode only*, specifies that program execution is governed by information in a Data Field.
* **Work Performer Class**: *In the FileNet Visual WorkFlo Editing Mode only*, sets the Work Performer Class.

    - **Operation**: *In the FileNet Visual WorkFlo Editing Mode only*, sets the Operation.

- **Classification**: A Task can be classified into different categories for additional analysis or decision-making. For example, you might be interested in extracting Business Value Added Tasks to make a decision concerning their importance—or their necessity—to your organization. Workflow•BPR allows you to apply simultaneously up to five kinds of classifications for each Task. Three categories of classifications are pre-defined. Classification 1 is Value Added with three classification items: Real Value Added, Business Value Added, and No Value Added. Classification 2 is Quality Control with two classification items: Quality Control and Not Quality Control. Classification 3 is Workflow with three classification items: Potential Workflow, Not Workflow, and Current Workflow. *You are allowed to add to or update items only in Classifications 4 and 5*. As many as 10 items can be assigned to Classifications 4 and 5.
- **Resource Requirements**: The Resource responsible for the Task (in the General category) is always assigned to perform the Task. However, additional Resources that would be required for the Task to be performed (e.g., Consumables, Machines, other Roles, etc.) can be assigned. The quantity of these additional Resources can be specified. The costs of the Process are built-up through the cost rate of the Resources (e.g., 10 per hour) multiplied by the Working Duration of the Tasks (e.g., one (1) hour). During Simulation, the assigned Resources must be available before a scheduled Task can begin.
- **Notes**: Any information about the Task can be documented in the Notes text box. In the Basic Editing Mode and the FileNet Visual WorkFlo Editing Mode, there is only one type of note available, which is equivalent to the Description type in other Modes. In the IBM FlowMark Editing Mode and IBM MQ Workflow Editing Mode, you can enter two (2) types of Notes under the **Notes Headers** of FlowMark (or MQ Workflow) Description (the default) and Documentation. These two separate pages have specific uses for models intended for export to FlowMark or MQ Workflow (refer to the *Integration with Workflow Applications Guide* for more information). If you are in the Line of Visibility Editing Mode, then there are five (5) types of Notes Headers: Description (default), Process Participant View, System Design View, Input Conditions, and Exit Conditions. In the E-Commerce Editing Mode and Advanced Editing Mode, there are six (6) types: Description (default), Documentation, Process Participant View, System Design View, Input Conditions, and Exit Conditions.
- In addition to these four tabs just described, 11 more tabs are present for use in Editing Modes other than the Basic Editing Mode:

    - **Details**: *This tab is not available in the Basic, IBM FlowMark, and the IBM MQ Workflow Editing Modes*. The items within this tab are as follows:

        - **Primary Inputs**: A Primary Input is important for the start of a Task. If you have more than one Primary Input into a Task, you can specify the number of Primary Inputs that are required before the

Task can begin. The default is one (1). If more than one (1) is specified, then the number is displayed in a small circle at the right-hand border inside the Task icon.

- **Secondary Inputs**: A Secondary Input is important for the completion of a Task. If you have more than one Secondary Input into a Task, you can specify the number of Primary Inputs that are required before the Task can end. The default is zero (0). If more than zero (0) is specified, then the number is displayed in a small circle at the left-hand border inside the Task icon.
- **Automatic**: This check box specifies that a Task will be completely automated. At this point, the attribute is not used in Simulation or workflow integration. It is used for the DesignFlow methodology.
- **Type**: *In the Line of Visibility Editing Mode only*, there are four types of Tasks:
  - **Standard** (default): A standard Task. Most Tasks will be of type Standard. No special characteristics are defined for the Task.
  - **Start Multi-Thread**: This specifies that the Task marks the start of a DesignFlow Multi-Thread. The Stop objects that end the threads of the Multi-Thread will point back to this Task.
  - **Start Choice Box**: This specifies that the Task marks the start of a DesignFlow Choice Box. The Stop objects that end the threads of the Choice Box will point back to this Task.
  - **Finish**: This specifies that the Task marks the end of a DesignFlow Multi-Thread or Choice Box. After the requirements of the Multi-Thread or Choice Box have been completed, then the Process will continue with the Finish Task.
- **Borders**: You can specify that a dashed line border be displayed on the left, right, top, bottom, or all sides of the cell in which the Task is placed.
- **Repetition**: You can specify a Variable that contains the number of times that you want the Task to be repeated. Only Integer Data Fields can be used as Variables for the Task. For example, there may be a Task where a document needs to be signed but, for a given performance of the Process, you may have a variable number of documents that need to be signed. Sometimes there would be one document, sometimes ten documents. Instead of creating ten sequential copies of the Task, a variable that has a value equal to the number of copies of the Task to be performed can be assigned. The times associated with the Tasks will be multiplied by the value of the variable.
- **Delay**: Delay is a documentation of a reason why a Task may be delayed.

* **Financial Transaction**: *This tab is not available in the Basic, IBM FlowMark, and the IBM MQ Workflow Editing Modes*. The transfer of funds from one account to another that might result during the performance of the Task can be documented. A percentage of the value of a Financial Variable is linked to the debit of one account and the credit of another account. The total credits and debits to the accounts listed in the transaction must equal 100%. For each transaction, there are three reporting options: **External** (the default), which means that the transaction is reported to External Entities (e.g., the Government); **Internal**, which means that the transaction will be reported only for the internal purposes of the organization; and **Int/Ext**, which means that the transaction is reported to External Entities and also for the internal purposes of the organization.
* **Staff Assignment** *This tab is not available in the Basic and the FileNet Visual WorkFlo Editing Modes*. This tab allows you to specify the Staff Assignment for FlowMark. Refer to the *Integration with Workflow Applications Guide* for more information.
* **Automation**: *This tab is not available in the Basic and the FileNet Visual WorkFlo Editing Modes*. This tab allows you to specify both the start conditions and the end conditions, including an End Expression. Refer to the *Integration with Workflow Applications Guide* for more information.
* **Notification**: *This tab is not available in the Basic and the FileNet Visual WorkFlo Editing Modes*. This tab allows you to specify notifications if the Task is not performed within a certain time period. Refer to the *Integration with Workflow Applications Guide* for more information.
* **Data**: *This tab is not available in the Basic and the FileNet Visual WorkFlo Editing Modes*. This tab allows you to change both the Input Container and the Output Container of the Task for FlowMark (although this should rarely be done). You can also specify if the Task will potentially Loop. If the Task will Loop, then you can specify the data flow for the Loop. Refer to the *Integration with Workflow Applications Guide* for more information.
* **Settings**: *This tab is not available in the Basic, IBM FlowMark, and the FileNet Visual WorkFlo Editing Modes*. It allows you to define the IBM MQ Workflow Activity Control Settings for the Task.
* **Mapping**: *This tab is not available in the Basic, IBM FlowMark, and the IBM MQ Workflow Editing Modes*. This tab allows you to map the Data Fields of the Phis that input or output the Task to the parameters of the application assigned to the Task. This Mapping is set for Visual WorkFlo. Refer to the *Integration with Workflow Applications Guide* for more information.

The requirements for Tasks will vary depending on the purpose for modeling them. For example, if you are defining a model for a specific Workflow Application, then the activity requirements will be very specific and will be different from if you are modeling for other purposes. The Editing Modes feature was designed because Process Modeling can be performed for many purposes. Therefore, the selected Editing Mode will affect the appearance of the Task Object dialog box. Both the tabs that are available and the contents within the tabs will change from one Editing Mode to another. The following table shows the tabs of the Task Object dialog box and in which Editing Modes the tabs will appear.

Editing Mode: / Tab:	Basic	IBM Flow-Mark	IBM MQ Work-flow	FileNet Visual Work-Flo	Line of Visibility	E Comm.	Advanced
General	✓	✓	✓	✓	✓	✓	✓
Details				✓	✓	✓	✓
Classification	✓			✓	✓	✓	✓
Resource Requirements	✓			✓	✓	✓	✓
Financial Transaction				✓	✓	✓	✓
Staff Assignment		✓	✓		✓	✓	✓
Automation		✓	✓		✓	✓	✓
Notification		✓	✓		✓	✓	✓
Data		✓	✓		✓	✓	✓
Settings			✓		✓	✓	✓
Mapping				✓	✓	✓	✓
Notes	✓	✓	✓	✓	✓	✓	✓

3.1 Drawing a Task Object

To draw a Task Object:

1. Click the **Task** tool button  on the **ADF Toolbar**. Notice that the cursor changes to a plus sign with a Task symbol in the upper right quadrant.
2. Click inside a free grid cell to insert a Task Object inside that cell (see the figure below).

3.2 Defining a Task Object

To define a Task Object:

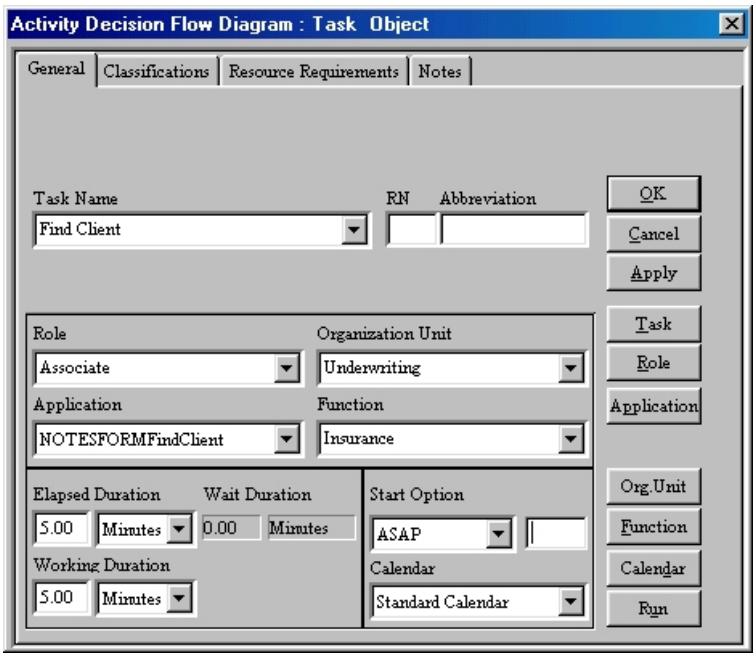
1. Select the **Pointer** tool, either by clicking the **Pointer** tool button  on the **ADF Toolbar** or by clicking the right mouse button on the diagram.
2. Double-click on a **Task**. Workflow•BPR displays the **Task Object** dialog box; open to the General tab.
3. Continue editing in one of the four tabs, which are described in the next four sections (in Modes other than Basic, the next 12 tabs in the next 12 sections).

✍ **Warning: If any of the attributes (e.g., Working Duration) of a Task in the Task Object dialog box are changed, the changes will only affect that object. The changes will not be updated in the Repository or in other instances of the Task in any Activity Decision Flow Diagram. To change all instances of an object throughout the Process, Update the object in the repository, and click on the Broadcast button.**

3.2.1 General

To define Data attributes in the General tab of the Task Object dialog box:

1. Click the **General** tab at the top of the **Task Object** dialog box (see the figure below*, from the Basic Editing Mode*). This tab allows for the selection of a Task from the Repository or for the creation of a new Task. The following Task Attributes can be added and/or updated: Abbreviation, RN, Organization Unit, Role, Application, Function, Elapsed Duration, Working Duration, Start Option, and Calendar.



2. To select a **Task** from those defined in the Repository, choose one from the **Task Name** list (click on the arrow at the right end of the **Task Name** combo box to bring up the list). Workflow•BPR will fill in the **Task Object** dialog box items with any pre-defined data associated with the selected name.

   * After a Task is selected, Workflow•BPR displays the Name, Abbreviation, Organization Unit, Role, Function, and Duration for that Task based on the information contained in the Repository.

   * If the Task you want is not included on the list, it needs to be created. You have two (2) options:

     – The Task can be typed in the **Task Name** combo box and its Abbreviation can be typed in the **Abbreviation** text box. When **OK** or **Apply** is clicked, a new item with that name will be recorded in the Repository.

- – Click on the **Tasks** Go To button to open the Repository **Tasks** dialog box (refer to the section entitled "Tasks" 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.

3. To change the **Reference Number** of the Task, type the number in the **RN** text box. The default number is zero (0).

   * If the name of the selected Task has already been used by one or more Task Objects in the diagram, the selected object must be given a unique RN. Workflow•BPR will automatically increment the RN to the next highest number if there is a duplicate RN number.

4. To add or change the **Abbreviation** of the Task, type the information in the **Abbreviation** text box. The Abbreviation can include a maximum of eight (8) characters.

5. To add or change the **Role** responsible for performing the Task, choose a **Role** from the **Role** combo box.

   * If the Role you want is not included on the list, then you need to create it. You have two (2) options:

     – The **Role** name can be typed in the **Role** combo box. When **OK** or **Apply** is clicked, a new item with that name will be recorded in the Repository.

     – Click the **Roles** Go To button to access the Repository **Roles** dialog box to create the item (refer to the section entitled "Roles" 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.

6. To add or change the **Application** to be used in the Task, choose an **Application** from the **Application** combo box.

   * If the Application you want is not included on the list, then you need to create it. You have two (2) options:

     – The **Application** name can be typed in the **Application** combo box. When **OK** or **Apply** is clicked, a new item with that name will be recorded in the Repository.

     – Click the **Applications** Go To button to access the Repository **Applications** dialog box 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.

   * If the Organization 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 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. To add or change the **Function** associated with the Task, choose a **Function** name from the **Function** combo box.

   * If the Function you want is not included on the list, then you need to create it. You have two (2) options:

     - – Type the **Function** name in the **Function** combo box. When **OK** or **Apply** is clicked, a new item with that name will be recorded in the Repository.

     - – Click the **Function** Go To button to access the Repository Function dialog box in order to create the item (refer to the section entitled "Functions" in Chapter 4 of the *User's Guide*).

9. To change the **Elapsed Duration** of the Task, type the appropriate value in the **Elapsed Duration** text box, and then select the appropriate time unit from the **Elapsed Duration** selection box.

10. To change the **Working Duration** of the Task, type the appropriate value in the **Working Duration** text box, and then select the appropriate time unit from the **Working Duration** selection box. The Working Duration must be equal to or less than the Elapsed Duration.

11. To change the **Start Option** of the Task, select a Start Date format from the **Start Option** selection box. If you select a Start Option other than ASAP, type in the appropriate Start Date or time in the **Start Option** text box.

12. To change the **Default Calendar** associated with the Task, select a **Calendar** name from the **Calendar** selection box.

    * If the Calendar you want is not included on the list, it needs to be created. Click the **Calendar** Go To button to access the Repository **Calendar** dialog box to create the item (refer to the section entitled "Calendars" 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.

13. Click **Run** to open the Application assigned to the Task. The path of the application must be defined in the Repository.

In addition to the fields described above, other fields may be found in the General tab when editing in other Modes:

14. **FlowMark Name**: *In the IBM FlowMark Editing Mode only*. You can type in the **FlowMark Name** text box to change the FlowMark name. This name has to be unique within the Process.

    * You can reset a modified FlowMark name by clicking on the **<<** button to the right of the **FlowMark Name** text box.

15. **Priority**: *In the IBM FlowMark Editing Mode only*. The Priority of a Task can be set directly or through the Input Container of the Task:
    * ⌨ Edit the Priority of the Task in the **Priority** text box.
    * 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.
16. **MQ Workflow Name**: *In the IBM MQ Workflow Editing Mode only*. You can ⌨ type in the **MQ Workflow Name** text box to change the MQ Workflow Name name. This name has to be unique within the Process.
    * You can reset a modified MQ Workflow Name by 🖱 clicking on the **<<** button to the right of the **MQ Workflow Name** text box.
17. **User Program Execution Agent**: *In the IBM MQ Workflow Editing Mode only*. 🖱 Select the **User Program Execution Agent** checkbox to have program execution governed by the user-defined PEA.
18. **Server**: *In the IBM MQ Workflow Editing Mode only*. 🖱 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 "**Error! Reference source not found.**" on page **Error! Bookmark not defined.**). 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 "**Error! Reference source not found.**" on page **Error! Bookmark not defined.**).
19. **Input Container**: *In the IBM MQ Workflow Editing Mode only*. 🖱 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 **Error! Bookmark not defined.**). Upon returning to the **Task Object** dialog box, the new item(s) will be included on the list.

20. **Work Performer Class**: *In the FileNet Visual WorkFlo Editing Mode only*. 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 to create the item (refer to the section entitled "Define the Work Performer Classes" in Chapter 4 of the *Integration with Workflow Applications Guide*). Upon returning to the **Task Object** dialog box, the new item(s) will be included on the list.

21. **Operation**: *In the FileNet Visual WorkFlo Editing Mode only*. Select the Operation from the **Operation** selection box.

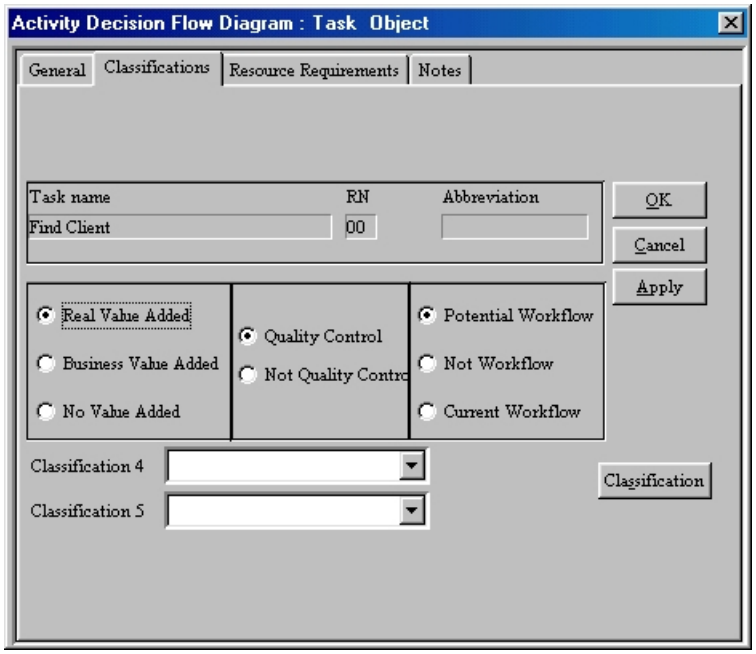
    * If the Operation you want is not included on the list, then you need to create it. Click the **Operations** Go To button to access the Repository **Operations** dialog box to create the item (refer to the section entitled "Define the Operations (for Applications)" in Chapter 4 of the *Integration with Workflow Applications Guide*). Upon returning to the **Task Object** dialog box, the new item(s) will be included on the list.

22. 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**.

3.2.2 Classification

To define Data attributes in the Classification tab of the Task Object dialog box:

1. Click the **Classification** tab at the top of the **Task Object** dialog box (see the figure below, from the Basic Editing Mode). This tab displays the Task name, its Abbreviation, and its RN. It also allows for the selection of Classification settings.



2. To change the **Value Added** (Classification 1) item associated with the Task, click the appropriate radio button.
3. To change the **Quality Control** (Classification 2) item associated with the Task, click the appropriate radio button.
4. To change the **Workflow** (Classification 3) item associated with the Task, click the appropriate radio button.
5. To add or change the **Classification 4** item associated with the Task, select the item from the **Classification 4** selection box.

   * If the Classification 4 item you want is not included on the list, it needs to be created. Click the **Classification** Go To button to access the Repository **Classification** dialog box to create the item (refer to the section entitled "Classifications" 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.

6. To add or change the **Classification 5** item associated with the Task, click select the item from the **Classification 5** selection box.

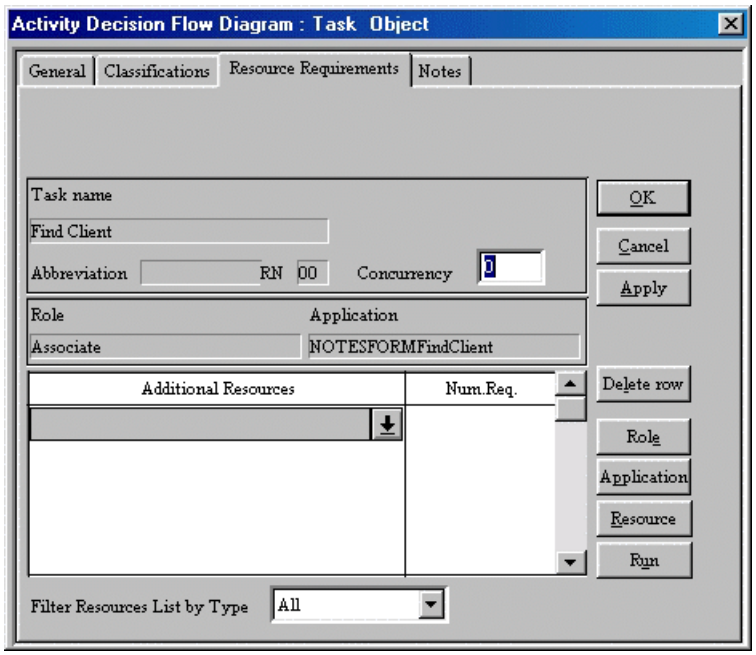
   * If the Classification 5 item you want is not included on the list, it needs to be created. Click the **Classification** Go To button to access the Repository **Classification** dialog box to create the item (refer to the section entitled "Classifications" in Chapter 3 of the *User's Guide*). Upon returning to the **Task Object** dialog box, the new item(s) will be included on the list.

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**.

3.2.3 Resource Requirements

To define data attributes in the Resource Requirements tab of the Task Object dialog box:

1. Click the **Resource Requirements** tab at the top of the **Task Object** dialog box (see the figure below, from the Basic Editing Mode). This tab displays the Task name, its Abbreviation, its RN, and the Resource responsible for performing the Task. It also allows for the selection of additional assigned Resources and their required number.



2. To change the maximum number of Resources that can be used concurrently for different jobs, type the new value in the **Concurrency** text box. The default value is zero (0), which means that all of the allocated Resources can be used. For more information on how concurrency affects Simulation, refer to the section entitled "Resource Requirements" in Chapter 3 of the Analysis Guide.
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 **Resource Type**, select **a Resource Type** from the **Filter Resources List by Type** selection box.
   * If the Role you want is not included on the list, then you need to create it. Click the **Role** Go To button to access the Repository **Roles** dialog box to create the item (refer to the section entitled "Roles" 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.

* 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 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.
* If the Resource you want is not included on the list, then you need to create it. Click the **Resource** Go To button to access the Repository **Resources** dialog box to create the item (refer to the section entitled "Resources" 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 of required Resources, type the new value in the **Num. Req.** column of the **Additional Resources** list box.
  - The Number Required can be less than one (1). This would mean that the Resource would be used for less time than is specified for the Working Duration. For example, if the Working Duration is one (1) hour and the Resource Number is 0.5, then the Resource would be used for ½ hour (from the beginning of the Task).

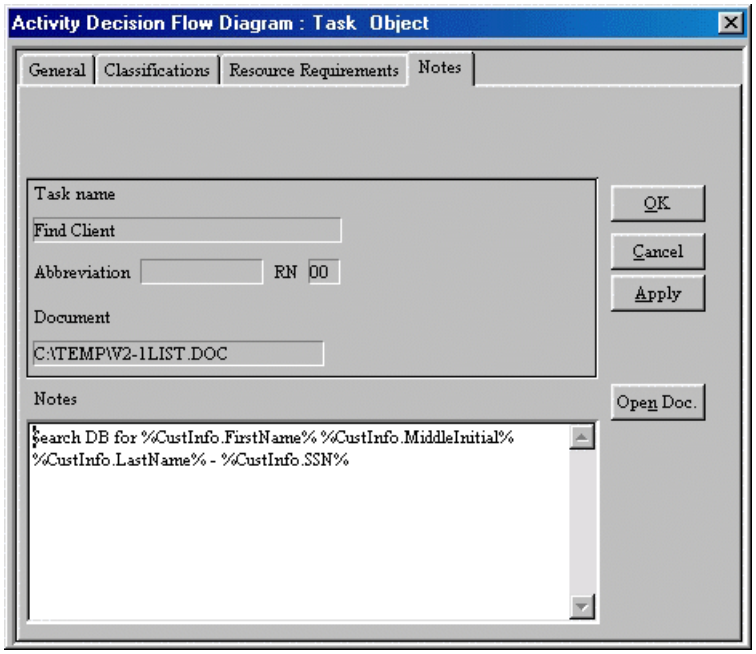
✍ **You can use the Shift+Arrow keys to navigate the editing cursor through the Additional Resources table.**

4. An assigned Resource can be deleted by selecting the Resource from the **Additional Resources** selection 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**.

3.2.4 Notes

To define Data attributes in the Notes tab of the Task Object dialog box:

1. Click the **Notes** tab at the top of the **Task Object** dialog box (see the figure below, from the Basic Editing Mode). This tab displays the Task name, its Abbreviation, and its RN. It also contains a text box for adding Notes about the selected Task.



* *In the Basic Editing Mode and the FileNet Visual Workflo Editing Mode*, there is only one type of note available, which is equivalent to the Description type in other Editing Modes.
* *In the IBM FlowMark Editing Mode,* you can enter two (2) types of notes under the **Notes Headers** of FlowMark Description (the default) and Documentation. These two separate pages have specific uses for models intended for export to FlowMark (refer to the *Integration with Workflow Applications Guide* for more information).
* *In the IBM MQ Workflow Editing Mode,* you can enter two (2) types of notes under the **Notes Headers** of MQ Workflow Description (the default) and Documentation. These two separate pages have specific uses for models intended for export to MQ Workflow (refer to the *Integration with Workflow Applications Guide* for more information).
* *In the Line of Visibility Editing Mode*, five (5) types of **Notes Headers** are available for a Process: Description (default), Process Participant View, System Design View, Input Conditions, and Exit Conditions.

- *In the E-Commerce Editing Mode and the Advanced Editing Mode*, there are six (6) types of **Notes Headers**: Description (default), Documentation, Process Participant View, System Design View, Input Conditions, and Exit Conditions.

2. To add or update Notes about the Task, ⌨ type in the **Notes** text box.
   - If you want to add a **Carriage Return** to the text of your Notes, then ⌨ type **Ctrl+Enter**.
3. To open the document associated with the Task, 🖱 click the **Open Doc**. button.
   - If there is no document associated with the Task, you can add one. 🖱 Click on General tab and then 🖱 click the **Task** Go To button to open the Repository **Tasks** dialog box (refer to the section entitled "Tasks" in Chapter 3 of the *User's Guide*). Upon returning to the **Task Object** dialog box, 🖱 click the Notes tab and the path of the document will be displayed in the **Document** text box.
   - The document will be opened with your default word processing application.
4. 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**.

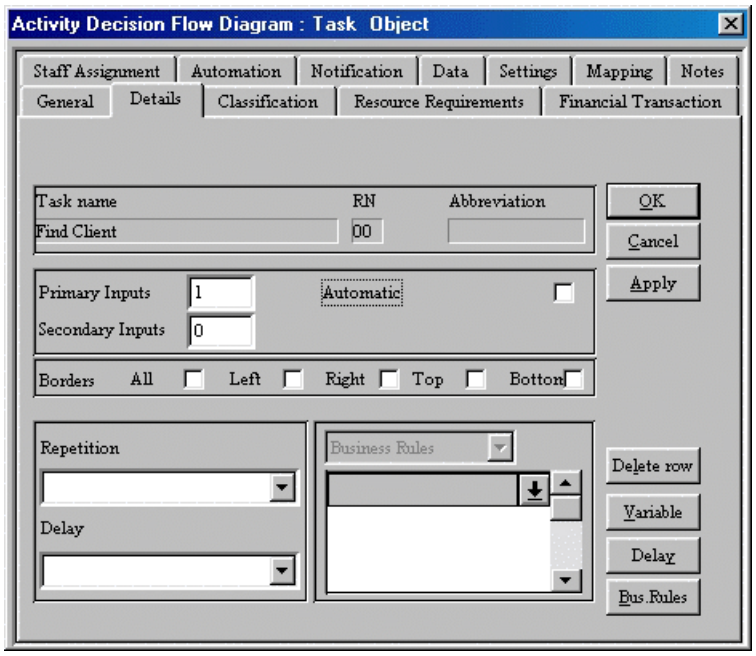
In addition to the four tabs described above, eight (8) more tabs are present for use in Editing Modes other than the Basic Editing Mode:

3.2.5 Details

✍ **The Details tab is not available in the Basic, IBM FlowMark, or IBM MQ Workflow Editing Modes; it is available in all other Editing Modes.**

To define data attributes in the Details tab of the Task Object dialog box:

1. Click the **Details** tab at the top of the **Task Object** dialog box (see the figure below, from the Advanced Editing Mode). The following Task attributes can be added and/or updated: Primary Inputs, Secondary Inputs, Borders, Repetition, and Delay Reason.



2. Type in the number of Primary Inputs required for the Task to start in the **Primary Inputs** text box.
   - The default value is one (1).
   - If the number of Primary Inputs is greater (>) than one (1), then the number will be displayed in a small circle inside the Task object icon on the *left*-hand side.
   - A letter can also be specified for the Primary Inputs (e.g., V for variable input conditions).
3. Type in the number of Secondary Inputs required for the Task to start in the **Secondary Inputs** text box.
   - If the number of Secondary Inputs is greater (>) than zero (0), the number will be displayed in a small circle inside the Task object icon on the *right*-hand side.

- A letter can also be specified for the Secondary Inputs (e.g., V for variable input conditions).

4. Select the **Automatic** check box if the task is completely automated.
   - This attribute is used mainly for the DesignFlow process modeling methodology.
5. *In the Line of Visibility Editing Mode* only, you can select one of three types in the **Type** selection box.
   - **Standard** (default): A standard Task. Most Tasks will be of type Standard. No special characteristics are defined for the Task.
   - **Start MultiThread**: This specifies that the Task marks the start of a DesignFlow Multi-Thread. The Stop objects that end the threads of the Multi-Thread will point back to this Task.
   - **Start Choice Box**: This specifies that the Task marks the start of a DesignFlow Choice Box. The Stop objects that end the threads of the Choice Box will point back to this Task.
6. To specify that a dashed line will border the cell where the Task object icon is placed:
   - Select the **All** check box to place a border on all four sides of the cell.
   - Select the **Left, Right, Top**, and/or **Bottom** check boxes to place a border on the side of the cell that was selected.
7. To define the number of times that the Task will be repeated:
   - Click the **Variable** Go To button to access the **Info** dialog box of the Process. A Data Field can be used as a Variable and given a value (the number of times the Task will be repeated). Refer to the section entitled "Defining Information About a Process" in Chapter 2 for more information about assigning Data Fields to the Process.
     - Select a Data Field from the **Data Field** column of the **Data Fields** list box.

   ☞ **A Variable used for a Task Repetition must be a Data Field of type *Integer*.**

     - Type the number of times the Task will be repeated in the Value column of the **Data Field** list box.
     - Click **OK** or press **Enter** to return to the **Task Object** dialog box; the new item(s) will be included on the list.
   - Select the Variable (Data Field) from the **Repetition** selection box (click on the arrow on the right end of the box to bring up the list).

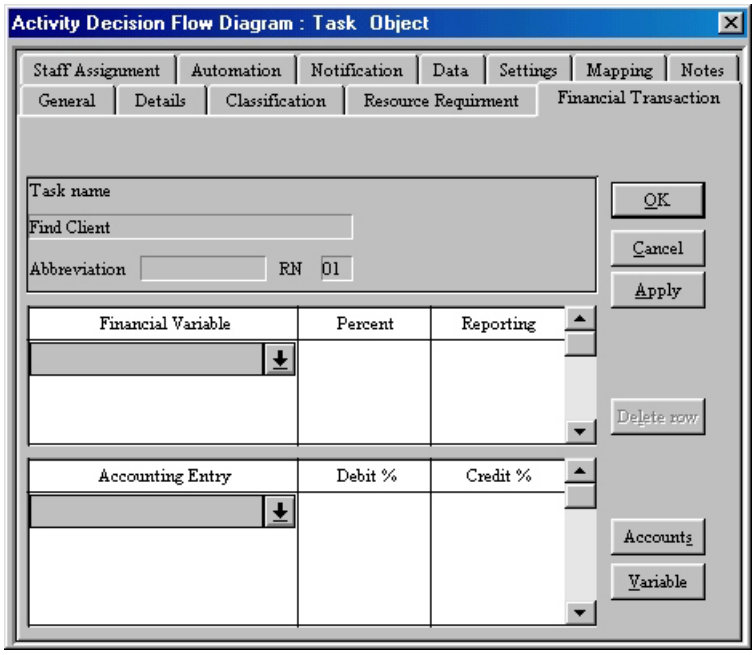
8. To add a delay reason associated with the Task, click to select an option from the **Delay Reason** selection box.
   * If the delay reason you want is not included on the list, it needs to be created. Click the **Delay** Go To button to access the Repository **Delay Reason** dialog box to create the item (refer to the section entitled "Delay Reasons" 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.
9. You may also associate Business Rules with the Process:
   * In **Line 1** of the **Business Rules** table, click on the **Arrow** button that is on the right side of the column. A list of Business Rules and will appear.
   * Select the appropriate **Business Rule**.
     – If the Resource you want is not included in the list, it needs to be created. Click **Business Rules** to go to the **Business Rules** dialog box (refer to the section entitled "Resources" in Chapter 4 of the *User's Guide*). Upon returning to the **Info** dialog box, the new item(s) will be included on the list.
   * Repeat to add other Business Rules to the list.
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**.

3.2.6 Financial Transaction

✍ **The Financial Transaction tab is not available in the Basic, IBM FlowMark, or IBM MQ Workflow Editing Modes; it is available in all other Editing Modes.**

To define data attributes in the Financial Transaction tab of the Task Object dialog box:

1. Click the **Financial Transaction** tab at the top of the **Task Object** dialog box (see the figure below, from the Advanced Editing Mode). This tab displays the Task name, its Abbreviation, and its RN. It also allows for the selection of financial values and the credits and debits that will be applied to selected accounts.



2. To add a Financial Variable to the financial transaction associated with the Task, click on the first available row in the **Financial Variable** list box, then click on the arrow at the end of the row and select a variable from the list. Only Financial Variables are included on the list.

   * If the Financial Variable you want is not included on the list, it needs to be added to the list of Variables assigned to the Process. Click the **Variable** Go To button to access the **Info** dialog box of the Process in order to add the item. A Data Field can be used as a Financial Variable and given a value (the amount of the Transaction) and a Currency. Refer to the section entitled "Defining Information About a Process" in Chapter 2 for more information about assigning Data Fields to the Process.

- – Select a Data Field from the **Data Field** column of the **Data Fields** list box.

☞ **A Variable used for a Financial Transaction must be a Data Field of type *Float*.**

- – Type the amount of the Transaction in the **Value** column of the **Data Field** list box.
- – Select a Currency from the **Currency** column of the **Data Field** list box.
- – Click **OK** or press **Enter** to return to the **Task Object** dialog box; the new item(s) will be included on the list.

* To change the percentage applied to the value of the Financial Variable, type the new value in the **Percent** text box of the row for the variable. The default value is 100%.
* To change the reporting type of the Financial Variable, select the type from the **Reporting Type** selection box of the row for the variable. The default reporting type is **External**.

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

3. To add an account to the financial transaction associated with the Task, click on the first available row in the **Accounting Entry** list box, then click on the arrow at the end of the row and select a variable from the list. Only Financial Variables are included on the list.
   * Each Financial Variable listed will have a separate set of accounts entered in the **Accounting Entry** list box.
   * If the account you want is not included on the list, it needs to be created. Click the **Account** Go To button to access the Repository **Chart of Accounts** dialog box to create the item (refer to the section entitled "Chart of Accounts" 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.
   * Two accounts or more must be selected for a financial transaction. The total debits and credits should each equal 100% (refer to the next two instructions).
   * Accounts are associated with a Financial Variable that is selected in the **Financial Variable** box.
   * To change a Debit Percentage that will be applied to an account, type the percent value in the **Debit** % text box of the row for that account.
   * To add/change a Credit Percentage that will be applied to an account, type the percent value in the **Credit** % text box of the row for that account.

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

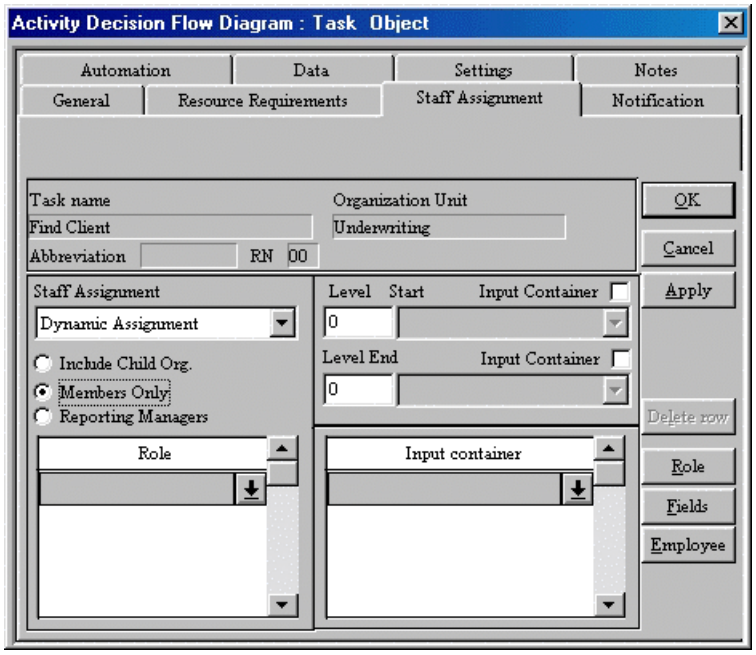
4. To delete a Financial Variable or an accounting entry, select the row for that item from the **Financial Variable** or the **Accounting Entry** box, then click **Delete Row**.
5. When you have finished defining the object, click **OK** or press **Enter**. To save the current edits and continue with additional edits (e.g., in another tab), click **Apply**.

3.2.7 Staff Assignment

✍ **The Staff Assignment tab is not available in the Basic Editing Mode or the FileNet Visual Workflo Editing Mode; it is available in all other Editing Modes.**

To define Data attributes in the Staff Assignment tab of the Task Object dialog box:

1. Click the **Staff Assignment** tab at the top of the **Task Object** dialog box (see the figure below, from the IBM MQ Workflow Editing Mode).



2. Select the type of assignment from the **Staff Assignment** selection box.
   - Refer to the *Integration with Workflow Applications Guide* for more information on Staff Assignment.
   - The following table displays the types of assignments and any additional user actions that may be required (some items are not available in the IBM FlowMark Editing Mode):

Type of Assignment	Additional User Action(s)
Dynamic Assignment (Default): An employee that is linked with the selected list of Roles can perform the Task.	* In Line 1 of the **Role** list box, click on the Arrow button that is on the right side of the **Role** column. A list of Roles will appear. Select the Role. * Repeat the selection for each line of the **Role** list box until all Roles have been selected. ✍ **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.** * In Line 1 of the **Input Container** list box, click on the Arrow button that is on the right side of the **Input Container** column. A list of Data Fields will appear. Select the Data Field containing a Role. * Repeat the selection for each line of the **Input Container** list box until all Data Fields containing Roles have been selected. ✍ **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.** * Enter the lowest level of Employee that can perform the Process in the **Level Start** text box. –If you want the Level 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. * Enter the highest level of Employee that can perform the Process in the **Level End** text box. –If you want the Level 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. * Select the **Members Only** 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. * Select the **Reporting Managers** 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. * Select the **Include Child Organizations** 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). * If not selected, only the Employees of the organization you specify and the managers of its first-level child organizations are included.
Process Administrator: The defined Process Administrator will perform the Process.	* None

Process Starter: The starter of the Process will perform the Process	* None
Manager of Process Starter: The Manager of the Starter of the Process will perform the Process	* None
Starter of Activity: The Starter of a selected activity will perform the Process.	Select an activity from the **Activity** selection box. You should only select Processes that proceed or are *Upstream* of the current Process.
Manager of Starter of Activity: The Manager of the Starter of a selected activity will perform the Process.	Select an activity from the **Activity** selection box. You should only select Processes that proceed or are *Upstream* of the current Process.
Not Starter of Activity: An employee that was not the Starter of a selected activity will perform the Process	Select an activity from the **Activity** selection box. You should only select Processes that proceed or are *Upstream* of the current Process.
Assigned Employees: The selected employee will perform the Process	Select one or more Employees from the **Employee** selection box.
All People: The User Ids of the Employees defined in the ACTIVITY_INFO.People Data Field are authorized to perform the Process.	None
Data From Predefined Members: The User Ids of the Employees defined in the ACTIVITY_INFO.MembersOfRole Data Field are authorized to perform the Process.	None
Coordinator of Role: The Coordinator of the selected Role will perform the Process.	Select a Role from the selection box.
Coordinator of Role-Container: 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.
Manager of Organization: The Manager of the selected Organization Unit will perform the Process.	Select an Organization Unit from the selection box.
Manager of Organization--Container: 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.
Data From Input Container: The information about the employee that can start the Process is contained in the Input Container of the Process.	None

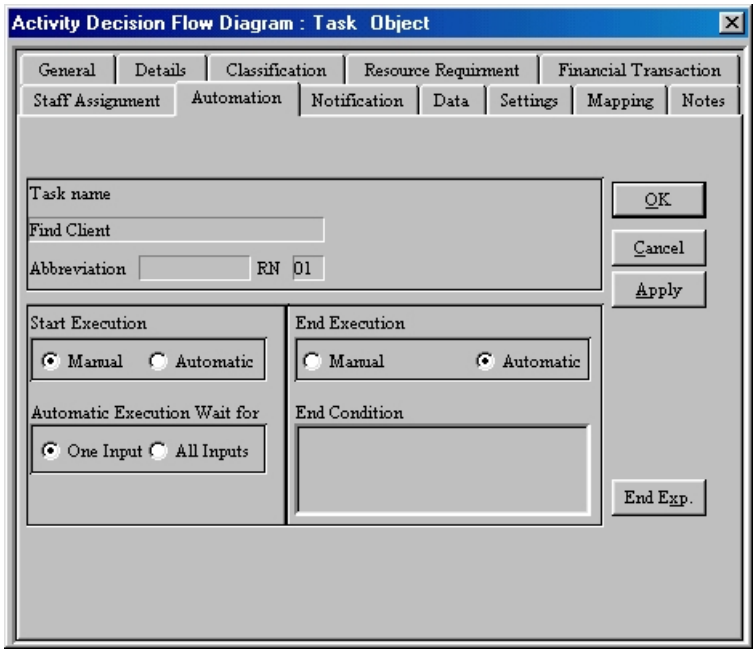
3. When you have finished defining the object, click **OK** or press **Enter**. To save the current edits and continue with additional edits (e.g., in another tab), click **Apply**.

3.2.8 Automation

✍ **The Automation tab is not available in the Basic Editing Mode or the FileNet Visual Workflo Editing Mode; it is available in all other Editing Modes.**

To define data attributes in the Automation tab of the Task Object dialog box:

1. Click the **Automation** tab at the top of the **Task Object** dialog box (see the figure below, from the Advanced Editing Mode). The following Task Attributes can be added and/or updated: Start Execution and End Execution.



2. Select the appropriate radio button to specify whether the start of the Task will be **Manual** (Default) or **Automatic** in the **Start Execution** box.
3. 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.
4. Select the appropriate radio button to specify whether the end of the Task will be **Manual** (Default) or **Automatic** in the **End Execution** box.

5. If you want to add an expression that can be used by a Workflow Application to determine if the Task has be completed, then select the **End Exp**. Go To button. The **Expression** dialog box will appear. Refer to the section that follows for information about the functions of the **Expression** dialog box.

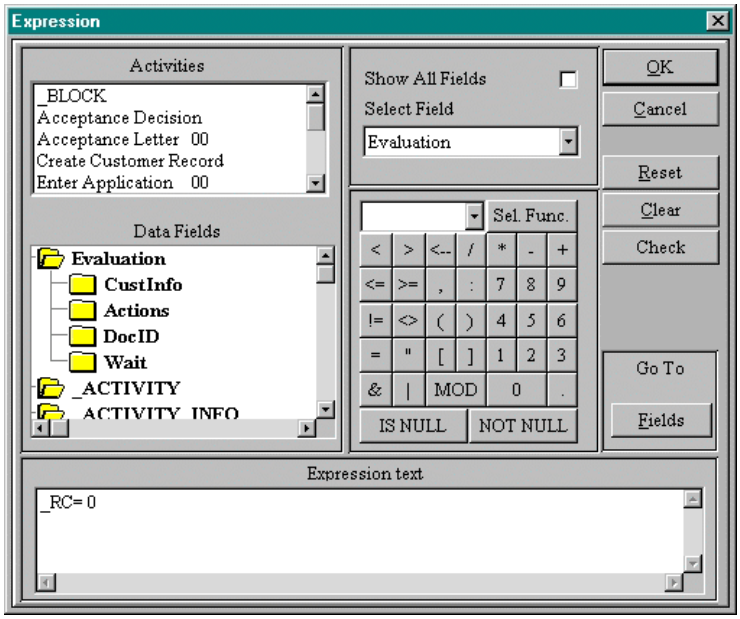
   * A small loop symbol will be placed in the center of the Task Object icon when an End Expression is added.

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**.

3.2.8.1 Adding an Expression

To add an Expression to the Expression dialog box:

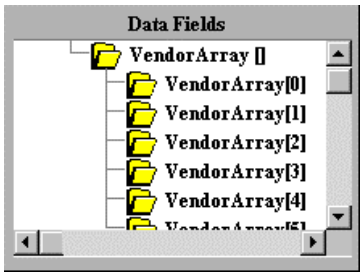
1. ⌨ Type the text of the **Expression** in the **Expression** text box (see figure below). You can also:



- 🖱🖱 Double-click on a **Task** that is listed in the **Activities** list box to include it in the 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 below).
- Click on the array element number that you want to use. This will move 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 being either True or False.**

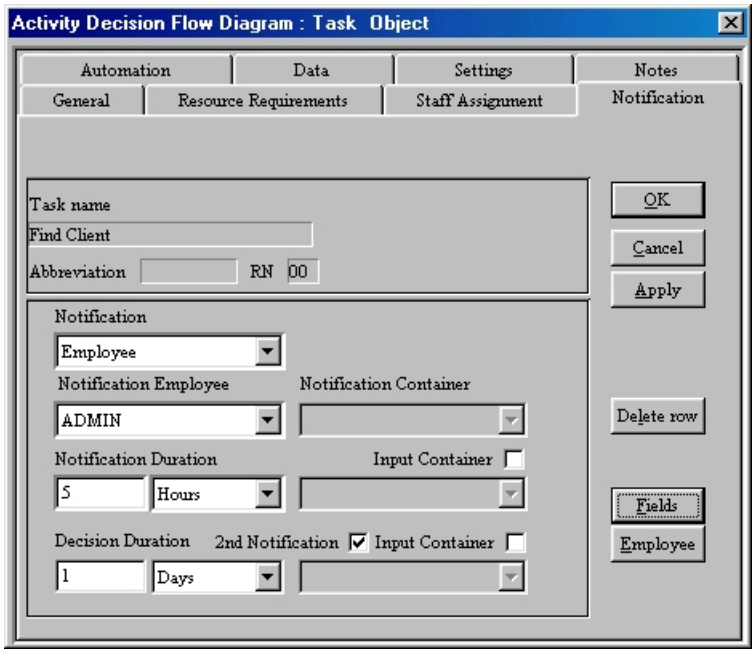
2. Click **OK** or press **Enter** to return to the **Task Object** dialog box.

3.2.9 Notification

✍ **The Notification tab is not available in the Basic Editing Mode or the FileNet Visual Workflo Editing Mode; it is available in all other Editing Modes.**

To define data attributes in the Notification tab of the Task Object dialog box:

1. Click the **Notification** tab at the top of the **Task Object** dialog box (see the figure below, *from the IBM MQ Workflow Editing Mode – The Notification tab is not available in the Basic Editing Mode or the FileNet Visual Workflo Editing Mode*). The following Task Attributes can be added and/or updated: Notification: Type of Notification, Employee to be Notified, Duration before Notification, Duration after Notification (for further Notification).



2. Select the type of Notification from the **Notification** selection box.
   * Refer to the *Integration with Workflow Applications Guide* for more information about Notification.
   * 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)
None (Default): There will be no notification.	* None
Process Administrator: Then the Process Administrator will be notified.	* None
Manager: Then the Manager of the Employee performing the Task will be notified.	* None
Coordinator: Then the Coordinator of the Employee performing the Task will be notified.	* None
Employee: Then a Selected Employee will be notified.	* Select the Employee who will be notified from the **Notification Employee** 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 to create the item (refer to the section entitled "Employees" 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.
Data From Input Container: 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 who should be notified from the **Notification Container** list box.
Data From Predefined Members: The notification information will be taken from the data in the Input Container.	* None

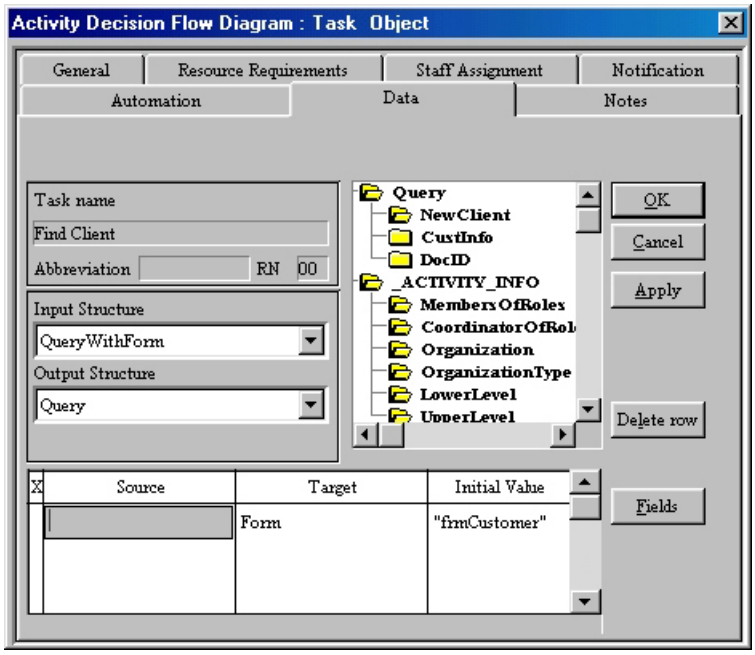
3. If a Notification was specified, then type the appropriate value in the **Notification Duration** text box, and then select the appropriate time unit from the **Notification Duration** selection box.
   * If you want the Duration to be defined in the data arriving in the Input Container, then:
     – Select the **Input Container** check box.
     – Then, a Data Field from the list box that becomes active.
4. To specify a Duration between First and Second Notification, select the **2nd 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.
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**.

3.2.10 Data

✍ **The Data tab is not available in the Basic Editing Mode or the FileNet Visual Workflo Editing Mode; it is available in all other Editing Modes.**

To define Data attributes in the Data tab of the Task Object dialog box:

1. Click the **Data** tab at the top of the **Task Object** dialog box (see the figure below, *from the IBM FlowMark Editing Mode– the Data tab is not available in the Basic Editing Mode or the FileNet Visual Workflo Editing Mode*). This tab displays the **Input Structure** selection box and the **Output Structure** selection box of the Process. You can also specify the Data Flow Mapping if the Process Loops.



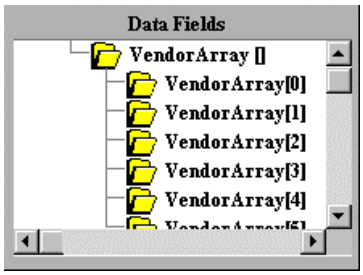
2. To change the **Input Container Data Structure** of the Process, select a **Data Structure** from the **Input Structure** selection box.

   * 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 **Task Object** dialog box, the new item(s) will be included on the list.

3. To change the **Output Container Data Structure** of the Process, select a **Data Structure** from the **Output Structure** selection box.

✍ **The Input and Output Containers of the Task are set by the Data Structures of the application that is assigned to the Task. Very rarely should they be changed.**

4. *In the IBM MQ Workflow Editing Mode only*, 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.
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 Task, 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 below).
     – Click on the array element number that you want to use. This will move the array element into the **Expression** text box.

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

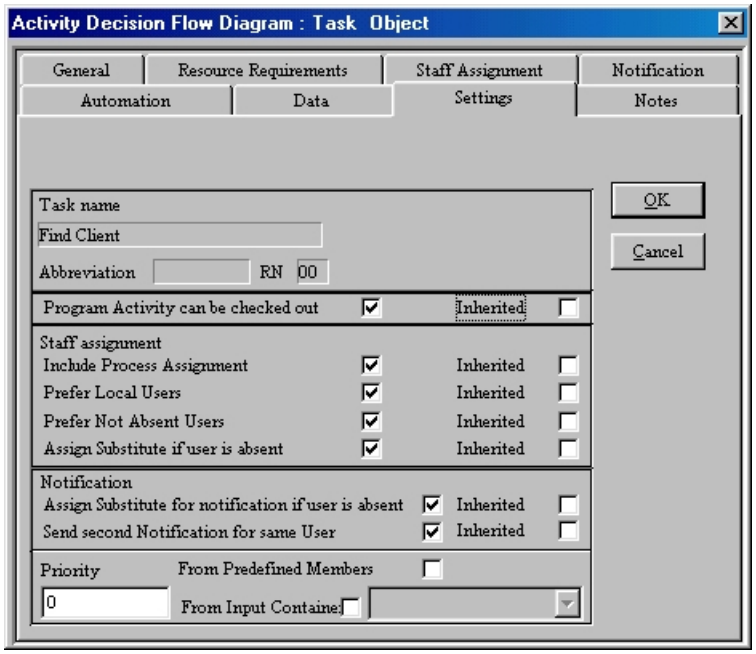
6. Click on the cell within the **Target** column. The **Fields** list in the center of the dialog box will be updated to show the Data Structure of the Output Container of the Task, in addition to the FlowMark default Data Structures and variables.
   * Select the appropriate **Data Field** from the **Data Structure** tree list box to insert it into the mapping cell.
     – 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 an initial value for the target **Data Field** in the cell of the **Initial Value** 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**.

3.2.11 Settings

✍ **The Settings tab is not available in the Basic, IBM FlowMark, and the FileNet Visual Workflo Editing Modes; it is available in all other Editing Modes.**

To define data attributes in the Settings tab of the Task Object dialog box:

1. Click the **Settings** tab at the top of the **Task Object** dialog box (see the figure below, *from the IBM MQ Workflow Editing Mode – The Settings tab is not available in the Basic, IBM FlowMark, and the FileNet Visual WorkFlo Editing Modes*).



✍ **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. (Refer to the section entitled "Activity Settings" in Chapter 1 of the *Analysis Guide*.)**

✍ **If neither a checkbox nor its corresponding Inherited box are selected, the setting is taken from the System-level settings.**

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.
9. Type the priority value in the **Priority** text box,

   or

10. 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

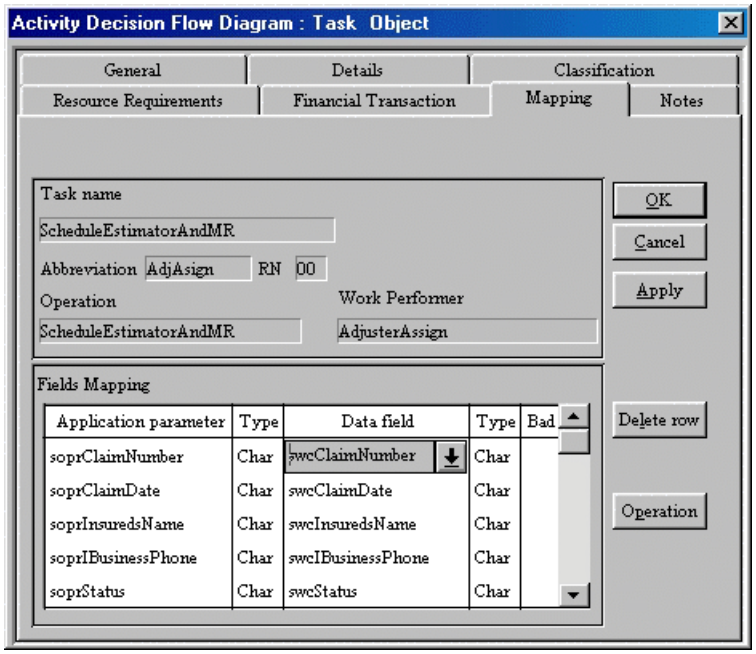
11. Select the **From Input Container** checkbox to take the priority value for the activity from a specific data structure member in the input container.
    * Select the name of the data structure member in the input container that contains the priority value from the drop-down list in the selection box.
      - The data structure member must be of type **LONG**.
12. 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**.

3.2.12 Mapping

✍ **The Mapping tab is not available in the Basic Editing Mode, the IBM FlowMark Editing Mode, or the IBM MQ Workflow Editing Mode; it is available in all other Editing Modes.**

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, from the FileNet Visual WorkFlo Editing Mode). This tab allows you to map the Data Fields of a Phi connected to the Task to the parameters of the application assigned to the Task.



   * The parameters of the application are automatically displayed in the **Application Parameter** column of the **Fields Mapping** box.

2. Select a **Data Field** for Mapping to the **Application 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 "Fields" in Chapter 6 for more information about assigning Data Fields to Phis).

3. Repeat Step 2 to add additional Data Fields to map to the Application Parameters.
4. 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**.

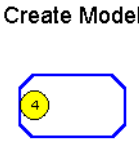
3.3 Task Attribute Markers

Some attributes of a Task will change the way that the Task icon will look on the ADF. An Attribute Marker provides visual queues as to certain characteristics of the Task. By viewing these characteristics on the ADF, you gain a better understanding of the workings of the Process. All of the following Attribute Markers can be used in combination with one another.

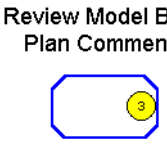
- **No Markers**: This is the default state of a Task after it has been defined and none of the special attributes (listed below) have been set (see the figure below).

- **Loop Marker**: The loop maker is an oval with arrows to represent a loop and appears when an Expression is created for the Exit Condition in the Automation tab of the Task Object dialog box (see the figure below). (Refer to the section entitled "Automation" on page 3-29).

- **Primary Inputs Marker**: The Primary Inputs attribute is intended to show the number of inputs (Connectors) that must arrive before the Task can begin (see the figure below). The default is 1 (for the DesignFlow Methodology) and any number different from 1 will be displayed on the Task icon. The number will be displayed in a circle on the left border of the Task icon. The number of Primary Inputs is entered in the Details tab of the Task Object dialog box (refer to the section entitled "Details" on page 3-20).



- **Secondary Inputs Marker**: The Secondary Inputs attribute is intended to show the number of inputs (Connectors) that must arrive before the Task can end (see the figure below). The default is 0 (for the DesignFlow Methodology) and any number different from 0 will be displayed on the Task icon. The number will be displayed in a circle on the right border of the Task icon. The number of Secondary Inputs is entered in the Details tab of the Task Object dialog box (refer to the section entitled "Details" on page 3-20). A Task can have Primary and Secondary Inputs defined at the same time.



- **Automatic Marker**: Some Tasks are performed automatically by applications. An Attribute Marker is available to distinguish automatic Tasks from non-automatic Tasks (the default). The word "Auto" is displayed at the upper border of the Task Icon (see the figure below). The Automatic attribute can be set in the Details tab of the Task Object dialog box (refer to the section entitled "Details" on page 3-20) and is not currently related to the attributes in the Automation tab.

Chapter 4: Modeling Process Objects (Within A Process)

A Task is the lowest level of work in the Process Modeling of Workflow•BPR. If you *do not* want to break down an activity into a lower-level of detail, then model that activity as a **Task** in an Activity Decision Flow Diagram. If you *do* want to break down an activity into a lower-level of detail, then model that activity as a **Process** in an Activity Decision Flow Diagram.

A Process in an Activity Decision Flow Diagram is a representation of another Activity Decision Flow Diagram that contains Tasks and, perhaps, other Process Objects. By including Process Objects within other Processes, you create a hierarchical tree structure with Processes as the branches and Tasks as the leaves.

It is not required to use Process Objects within a drawing. That is, the work of the organization can all be modeled at the Task level within one drawing, even if this drawing is very complex. In this way, one can easily keep track of and update all the Tasks, and also print the entire Process for viewing.

Should it be decided to use Process Objects, higher-level drawings can be created for printing without the clutter of Task details. You can also expand the Process so that it is printed entirely at the Task level. As a result, it is possible to isolate a part of a large Process Diagram and hide or encapsulate it in another Process Diagram, reducing the size and the complexity of it. This feature is extremely useful in managing an ever-growing Process Diagram. The only drawback is that Process nesting can result in a loss of where the relative locations of the nested Processes exist in respect to each other. Workflow•BPR offers a powerful view to overcome this obstacle. This view is called the Process Tree view, which can be accessed from the menu.

To model a Process Object in an Activity Decision Flow Diagram, it is necessary to draw it, define it, and connect it with one or more input and output Phis. Then you can open the diagram for the Process Object and use the same input and output Phis to start and end the model. Workflow•BPR will match the Phis at both levels (refer

to the section entitled "Connecting A Process Object in an Activity Decision Flow Diagram" on Page 4-28). With the matching Phis, Workflow•BPR can properly insert the lower-level Process into the higher-level Process during Process expansion. In an Activity Decision Flow Diagram, a Process Object is represented by a square (see the figure below).

Defining a Process includes associating a set of related information with a specific Process Object within the Process Object dialog box. The attributes used to define a Process Object in the Basic Editing Mode are divided into three (3) categories. These three (3) categories are separated into tabs in the dialog box used to define a Process. The three (3) categories (tabs) are:

- **General**: Allows for selecting general information about a Process.
  - **Process**: A Name is associated with the Process.
  - **RN**: A Reference Number (RN) is used to distinguish one or more Process Objects that have the same name in a diagram. Although the Process Objects have the same name, they are actually separate items that have an individual effect on the Process. The RN distinguishes them.
  - **Organization Unit**: An Organization Unit is assigned as being responsible for the Process.
  - **Role**: A Role is assigned as being responsible for overseeing the Process. The responsible Resource can be an employee or software.
  - **Function**: Functions represents various management functions performed in your organization. Examples of these Functions are Production, Sales, Marketing, and so forth.
  - In addition to these five (5) fields just described, five (5) more fields are present for use in Editing Modes other than the Basic Editing Mode:
    - **FlowMark Name**: *This is available in the IBM FlowMark Editing Mode only*. This field shows the Process name as it will be exported to FlowMark. You may modify this name, but this name must be unique.
    - **MQ Workflow Name**: *This is available in the IBM MQ Workflow Editing Mode only*. This field shows the Process name as it will be exported to MQ Workflow. You may modify this name, but this name must be unique.

  - **Repetition**: *This is available in the FileNet Visual WorkFlo, Line of Visibility, and E-Commerce Editing Modes only*. A Numeric Variable can be assigned to the Process that will define the number of times that the Process should be repeated (how many times it will occur). You can use this variable instead of creating physical copies of the Process in the Process Model.
  - **Employee**: *This is available in the IBM FlowMark Editing Mode only*. You may define an Employee as a Remote Starter of the Process for a Workflow Application.
  - **Server**: *This is available in the IBM Flowmark Editing Mode only*. You may define a Server of the Process for a Workflow Application.

- **Details**: Displays basic statistics that include the number of Tasks, Decisions, Process Objects, Phis, External Processes, Organization Units, and Resources. You can also specify the Elapsed Duration and Working Duration of the Process.
  - The Details tab is not available in the IBM FlowMark Editing Mode or IBM MQ Workflow Editing Mode.
  - In all Editing Modes other than the Basic Editing Mode, you can also specify **Business Rules**.
- **Notes**: Any information about the Process Object that is preferred can be documented in the Notes text box.
  - Some of the Modes allow separate pages of Notes to be associated with a single Process Object by the use of various **Notes Headers**:
    - *In the IBM FlowMark Editing Mode*, the Notes Headers are: FlowMark Description (default) and Documentation.
    - *In the IBM MQ Workflow Editing Mode*: MQ Workflow Description (default) and Documentation.
    - *In the Line of Visibility Editing Mode*: Description (default), Process Participant View, and System Design View.
    - *In the E-Commerce and Advanced Modes*: Description (default), Documentation, Process Participant View, and System Design View.

- In addition to these three tabs just described, five (5) more tabs, for five more categories of information, are present for use in Editing Modes other than the Basic Editing Mode:
  - **Expressions**: Allows you to define workflow application Start Conditions and End Expressions.
    - The Expressions tab is not available in the Basic Editing Mode.
  - **Data**: Displays the Data Structures that are the Input Container and Output Container of the Process (for FlowMark and MQ Workflow). If the Process Loops, then you can define the Data Flow Mapping for the Loop.

  - The Data tab is not available in the Basic Editing Mode or FileNet Visual WorkFlo Editing Mode.

* **Staff Assignment** This tab allows you to specify the Staff Assignment for FlowMark and MQ Workflow. Refer to the *Integration with Workflow Applications Guide* for more information.
  - The Staff Assignment tab is not available in the Basic Editing Mode or FileNet Visual WorkFlo Editing Mode.
* **Notification**: This tab allows you to specify the Activity Notification Settings for FlowMark and MQ Workflow. Refer to the *Integration with Workflow Applications Guide* for more information.
  - The Notification tab is not available in the Basic Editing Mode or FileNet Visual WorkFlo Editing Mode.
* **Settings**: This tab allows you to specify the Activity Control Settings for MQ Workflow. Refer to the *Integration with Workflow Applications Guide* for more information.
  - The Settings tab is not available in the Basic Editing Mode, IBM FlowMark Editing Mode, or FileNet Visual WorkFlo Editing Mode.

The requirements for Processes will vary depending on the purpose for modeling them. For example, if you are defining a model for a specific Workflow Application, then the activity requirements will be very specific and will be different than if you are modeling for other purposes. The Editing Modes feature was designed because Process Modeling can be performed for many purposes. Therefore, Editing Mode will affect the appearance of the Process Object dialog box. The following table shows the tabs of the Process Object dialog box and in which Editing Modes the tabs will appear.

Editing Mode: / Tab:	Basic	IBM Flow-Mark	IBM MQ Work-flow	FileNet Visual Work-Flo	Line of Visibility	E-Comm.	Advanced
General	✓	✓	✓	✓	✓	✓	✓
Details	✓			✓	✓	✓	✓
Expressions		✓	✓	✓	✓	✓	✓
Data		✓	✓		✓	✓	✓
Staff Assignment		✓	✓		✓	✓	✓
Notification		✓	✓		✓	✓	✓
Settings			✓		✓	✓	✓
Notes	✓	✓	✓	✓	✓	✓	✓

4.1 Drawing a Process Object

To draw a Process Object:

1. Click the **Process** tool button  on the **ADF Toolbar**. Notice that the cursor changes to a plus sign with a Process symbol in the upper right quadrant.
2. Click inside a free grid cell to insert a Process Object inside that cell:

4.2 Defining a Process Object

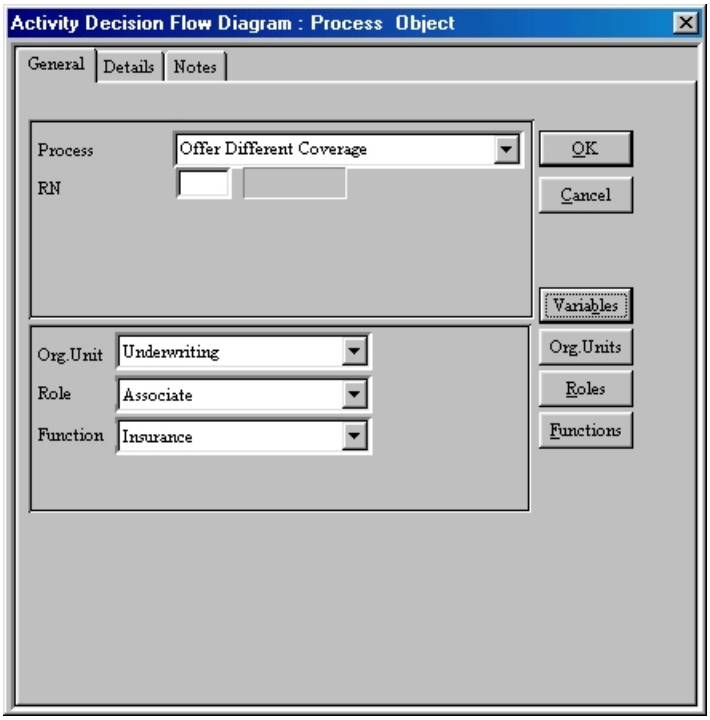
To define a Process Object:

1. Select the **Pointer** tool, either by clicking the **Pointer** tool button on the **ADF Toolbar** or by clicking the right mouse button on the diagram.
2. Double-click on a **Process Object**. Workflow•BPR then displays the **Activity Decision Flow Diagram: Process Object** dialog box, open to the **General** tab.
3. Continue in one of the following three (3) tabs, which are described in the next three (3) sections (in Editing Modes other than Basic, the next eight (8) tabs in the next eight (8) sections).

4.2.1 General

To edit the General tab a Process Object:

1. Click the **General** tab at the top of the **Process Object** dialog box (see the figure below, *from the Basic Editing Mode*). This tab displays general information about the Process.



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. To change the Reference Number of the Process object, type the number in the **RN** text box. The default number is 0.
   * If the name of the selected Process has already been used by one or more other Process objects, the selected Process object must be given a unique RN. Workflow•BPR will automatically increment the RN to the next highest number if there is a duplicate RN number.
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 **Process Object** dialog box, the new item(s) will be included on the list.
5. To add or change the Role responsible for the Process, select a Role from the **Role** selection box.
   * 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 **Process Object** dialog box, the new item(s) will be included on the list.
6. 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.
7. *If you are in an Editing Mode other than the Basic Editing Mode*, there are six (6) other fields that may be entered: **Employee**, **Server**, **Locked**, **FlowMark**, **MQ Workflow**, and **Repetition**.
   * 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 in the **Remote Starter** 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 "Employees" 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.
- 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.

* 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 "Servers" in Chapter 2). Upon returning to the **Process Object** dialog box, the new item(s) will be included on the list.
  - 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.
* *Only if you are editing in the IBM FlowMark Editing Mode*, you may type in the FlowMark field to update the FlowMark name.
  - Click on the << button to automatically generate the FlowMark name.
* *Only if you are editing in the IBM MQ Workflow Editing Mode*, you may type in the MQ Workflow field to update the MQ Workflow name.
  - Click on the << button to automatically generate the MQ Workflow name.
* To define the number of times that the Process Object will be repeated:
  - Click the **Variable** Go To button to access the **Process Object** dialog box of the higher-level Process. A Data Field can be used as a Variable and given a value (the number of times the Process Object will be repeated). Refer to the section entitled "Defining Information About a Process" in Chapter 2 for more information about assigning Data Fields to the Process.
    - Select a Data Field from the **Data Field** column of the **Data Fields** list box.

☞ **A Variable used for a Process Repetition must be a Data Field of type Integer.**

- ⌨ Type the number of times the Process Object will be repeated in the **Value** column of the **Data Field** list box.
- 🖱 Click **OK** or ⌨ press **Enter** to return to the **Process Object** dialog box; the new item(s) will be included on the list.

– 🖱 Select the Variable (Data Field) from the **Repetition** selection box (🖱 click on the arrow on the right end of the box to bring up the list).

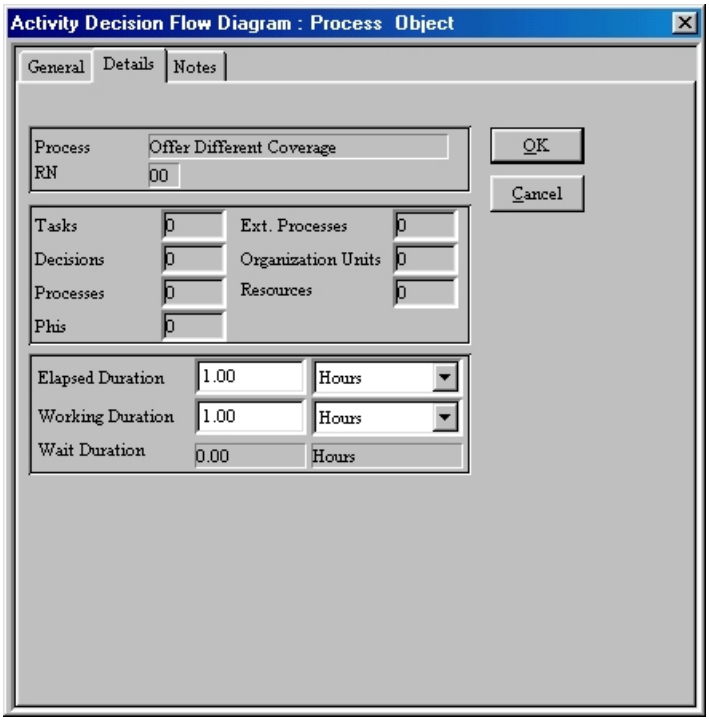
8. When finished with the **Process Object** dialog box, 🖱click **OK** or ⌨ press **Enter**.

4.2.2 Details

✍ **The Details tab is not available in the IBM FlowMark Editing Mode or the IBM MQ Workflow Editing Mode.**

To edit the Details tab a Process Object:

1. 🖱 Click the **Details** tab at the top of the **Process Object** dialog box (see the figure below*, from the Basic Editing Mode*). This tab displays statistics about the Process (e.g., the number of Tasks within the Process).



2. To change the Elapsed Duration of the Process, ⌨ type the appropriate value in the **Elapsed Duration** text box and then 🖱 select the appropriate time unit from the **Elapsed Duration** Unit selection box.
3. To change the Working Duration of the Process, ⌨ type the appropriate value in the **Working Duration** text box and then 🖱 select the appropriate time unit from the **Working Duration** Unit selection box. The Working Duration has to be equal to or less than the Elapsed Duration.
4. In Editing Modes other than the Basic Editing Mode, there are two more fields that may be entered: **Priority**, and **From Input Container**.
   * ⌨ Type the Priority number in the **Priority** text box.
     – The range is from zero (0) to nine (9), where zero (0) is the lowest priority.

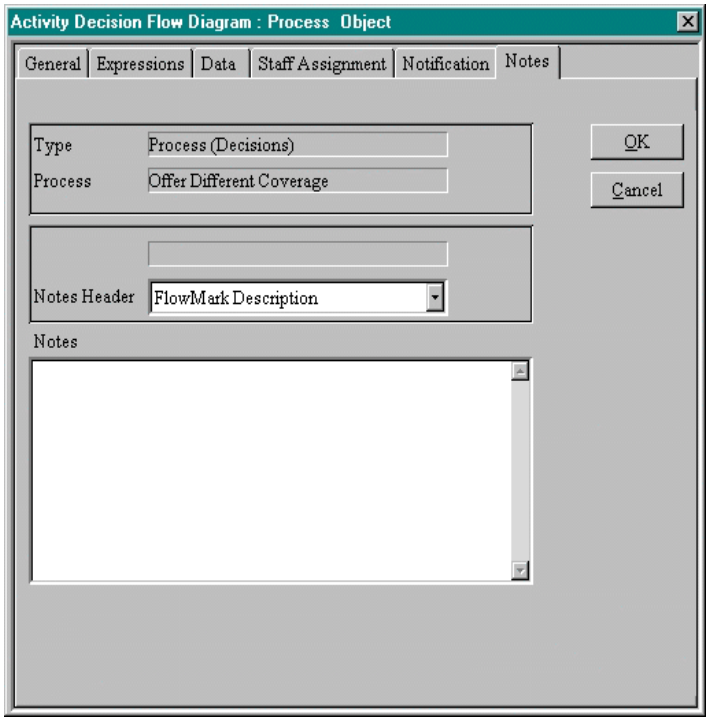
- If you select the **From Input Container** check box, then the Priority value will be grayed out and the priority of the Task will be specified in the Input Container of the Task (for FlowMark only).

5. In Editing Modes other than the Basic Editing Mode, you may also associate Business Rules with the Process:
   - In **Line 1** of the **Business Rules** table, click on the **Arrow** button that is on the right side of the column. A list of Business Rules and will appear.
   - Select the appropriate **Business Rule**.
     - If the Resource you want is not included in the list, it needs to be created. Click **Business Rules** to go to the **Business Rules** dialog box (refer to the section entitled "Resources" in Chapter 4 of the *User's Guide*). Upon returning to the **Process Object** dialog box, the new item(s) will be included on the list.
   - Repeat to add other Business Rules to the list.
6. When finished with the **Process Object** dialog box, click **OK** or press **Enter** or continue in another tab.

4.2.3 Notes

To edit the Notes tab of a Process Object:

1. Click the **Notes** tab at the top of the **Process Object** dialog box (see the figure below*, from the Basic Editing Mode*). This tab displays the Process type and Process name. It also contains a text box for adding notes about the Process.



* *In the Basic Editing Mode and the FileNet Visual Workflo Editing Mode*, there is only one type of note available, which is equivalent to the Description type in other Modes.
* *In the IBM FlowMark Editing Mode,* there are two (2) types of notes that you can enter, under the **Notes Headers** of FlowMark Description (the default) and Documentation. These two separate pages have specific uses for models intended for export to FlowMark (refer to the *Integration with Workflow Applications Guide* for more information).
* *In the IBM MQ Workflow Editing Mode,* there are two (2) types of notes that you can enter, under the **Notes Headers** of MQ Workflow Description (the default) and Documentation. These two separate pages have specific uses for models intended for export to MQ Workflow (refer to the *Integration with Workflow Applications Guide* for more information).

- *In the Line of Visibility Editing Mode and the DesignFlow Editing Mode*, there are three (3) types of **Notes Headers** available for a Process: Description (default), Process Participant View, and System Design View. The text typed for the Process Participant View Notes will be the same as the Documentation Notes in the other Modes.
- *In the E-Commerce Editing Mode and the Advanced Editing Mode*, there are four (4) types of **Notes Headers**: Description (default), Documentation, Process Participant View, and System Design View.

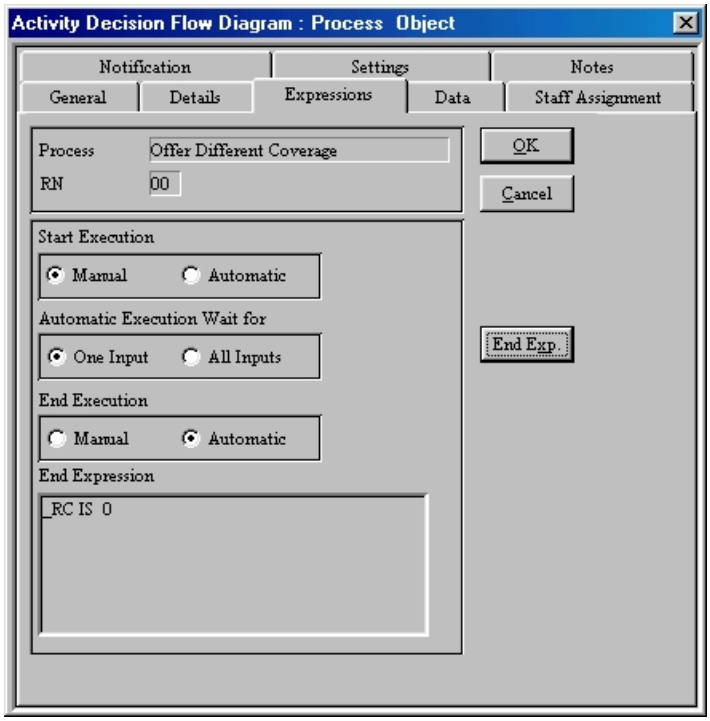
2. To add or update Notes about the Process, type in the **Notes** text box.
   - If you want to add a **Carriage Return** to the text of your Notes, then type **Ctrl+Enter**.
3. To open the document associated with the Process, click the **Open Doc**. button.
   - If there is no document associated with the Process, you can add one. The document is linked to the Process with the **Process Object** dialog box of the Process. Thus, you can close the **Process Object** dialog box of the Process Object, the **Open Process** button on the ADF toolbar to open the Process, then the **Info** tool on the ADF toolbar to open the Process Info dialog box. Refer to the section entitled "Defining Information About a Process" in Chapter 2 for information about how to link the document. When you return to the Process Object Info dialog box, you can open the document.
   - The document will be opened with your default word processing application.
4. When finished with the **Process Object** dialog box, click **OK** or press **Enter**.

4.2.4 Expressions

✍ **The Expressions tab is not available in the Basic Editing Mode.**

To edit the Expressions tab of a Process Object:

1. Click the **Expressions** tab at the top of the **Process Object** dialog box (see the figure below, *from the Advanced Editing Mode*). This tab displays the Process type and Process name. It also allows you to specify the start and end conditions of the Process.



2. Select the appropriate radio button to specify whether the start of the Task will be **Manual** (Default) or **Automatic** in the **Start Execution** Box.
3. 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.
4. Select the appropriate radio button to specify whether the end of the Task will be **Manual** (Default) or **Automatic** in the **Start Execution** Box.

5. If you want to add an expression that can be used by a Workflow Application to determine if the Process has be completed, click the **End Exp**. button to open the **Expression** dialog box. Refer to the section that follows for information about the functions of the **Expression** dialog box.

✍ **The Expression must evaluate as either being True or False.**

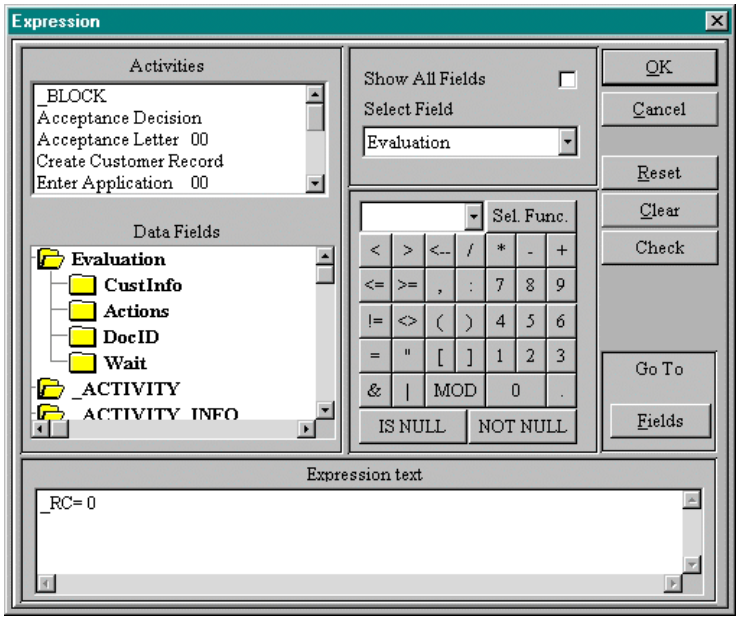
* A small loop symbol will be placed in the center of the Process Object icon when an End Expression is added.

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

4.2.4.1 Adding an Expression

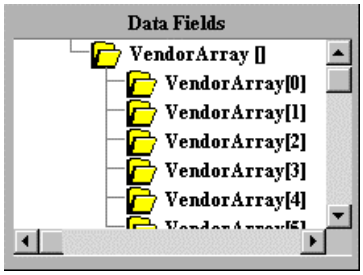
To add an Expression to the Expression dialog box:

1. ⌨ Type the text of the **Expression** in the **Expression** text box (see the figure below). You can also:



* 🖱🖱 Double-click on a **Task** that is listed in the **Activities** list box to include it in the 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 below).

  – 🖱 Click on the array element number that you want to use. This will move the array element into the **Expression** text box.

* 🖱 Select a Function from the Function selection box, and 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.**

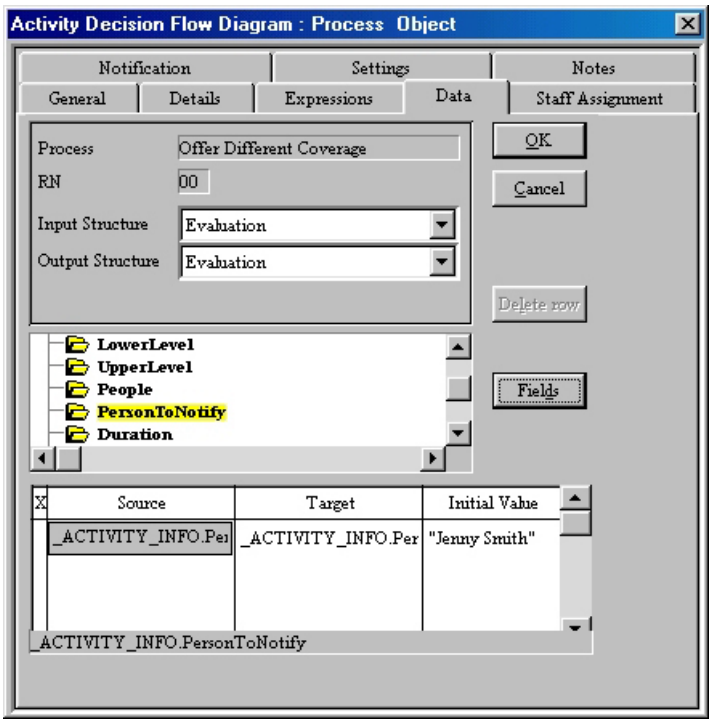
2. 🖱 Click **OK** or ⌨ press **Enter** to return to the **Process Object** dialog box.

4.2.5 Data

✍ **The Data tab is not available in the Basic Editing Mode or the FileNet Visual WorkFlo Editing Mode.**

To edit the Data tab of a Process Object:

1. Click the **Data** tab at the top of the **Process Object** dialog box (see the figure below, from the Advanced Editing Mode). This tab displays Input Container and Output Container of the Process. You can also specify the data flow mapping if the Process loops.

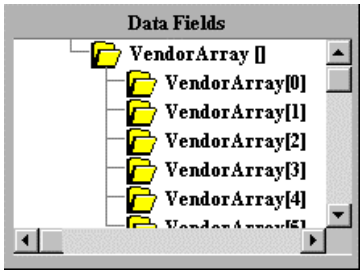


2. To change the Input Container Data Structure of the Process, select a Data Structure from the **Input Structure** selection box.

   * 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 **Process Object** dialog box, the new item(s) will be included on the list.

3. To change the Output Container Data Structure of the Process, select a Data Structure from the **Output Structure** selection box.

4. *In the IBM MQ Workflow Editing Mode only*, 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.
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 below).



     – Click on the array element number that you want to use. This will move 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 an initial value for the Target Data Field in the cell of the **Initial Value** 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.

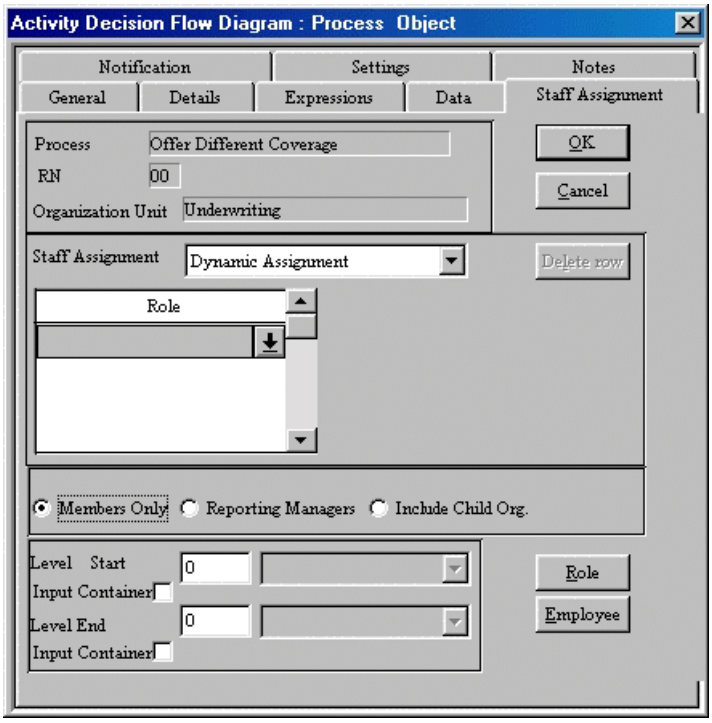
4.2.6 Staff Assignment

✍ **The Staff Assignment tab is not available in the Basic Editing Mode or the FileNet Visual WorkFlo Editing Mode.**

For Workflow Applications such as FlowMark, a Process can be assigned a "performer" the same way as a Task. The Employee assigned to the Process is responsible to oversee the Process and is usually not assigned to the Tasks within the Process.

To define data attributes in the Staff Assignment tab of the **Process Object** dialog box:

1. Click the **Staff Assignment** tab at the top of the **Process Object** dialog box (see the figure below, from the Advanced Editing Mode). The following Task attributes can be added and/or updated: Staff Assignment, Notification, Notification Duration, and Notification Response Duration.



2. Select the type of assignment from the **Staff Assignment** selection box.
   - Refer to the *Integration with Workflow Applications Guide* for more information on Staff Assignment.
   - The following table displays the types of assignments and any additional user actions that may be required (some items are not available in the IBM FlowMark Editing Mode):

Type of Assignment	Additional User Action(s)
Dynamic Assignment (Default): An employee that is linked with the selected list of Roles can perform the Process.	* Enter the lowest level of Employee that can perform the Process in the **Level Start** text box. – If you want the Level 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. * Enter the highest level of Employee that can perform the Process in the **Level End** text box. – If you want the Level 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. * Select the **Include Child Organizations** 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). – If not selected, only the Employees of the organization you specify and the managers of its first-level child organizations are included * Select the **Members Only** 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. * Select the **Reporting Managers** 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. * 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. * Repeat the selection for each line of the **Roles** list box until all Roles have been selected. ✍ **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.**

Type of Assignment	Additional User Action(s)
Process Administrator: The defined Process Administrator will perform the Process.	None
Process Starter: The starter of the Process will perform the Process.	None
Manager of Process Starter: The Manager of the Starter of the Process will perform the Process.	None
Starter of Activity: The Starter of a selected activity will perform the Process.	Select an activity from the **Activity** selection box. You should only select Processes that proceed or are *Upstream* of the current Process.
Manager of Starter of Activity: The Manager of the Starter of a selected activity will perform the Process.	Select an activity from the **Activity** selection box. You should only select Processes that proceed or are *Upstream* of the current Process.
Not Starter of Activity: An employee that was not the Starter of a selected activity will perform the Process	Select an activity from the **Activity** selection box. You should only select Processes that proceed or are *Upstream* of the current Process.
Assigned Employees: The selected employee will perform the Process	Select one or more Employees from the **Employee** selection box.
All People: The User Ids of the Employees defined in the ACTIVITY_INFO.People Data Field are authorized to perform the Process.	None
Data From Predefined Members: The User Ids of the Employees defined in the ACTIVITY_INFO.MembersOfRole Data Field are authorized to perform the Process.	None
Coordinator of Role: The Coordinator of the selected Role will perform the Process.	Select a Role from the selection box.
Coordinator of Role-Container: 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.
Manager of Organization: The Manager of the selected Organization Unit will perform the Process.	Select an Organization Unit from the selection box.
Manager of Organization--Container: 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.
Data From Input Container: The information about the employees that can start the Process is contained in the Input Container of the Process.	None

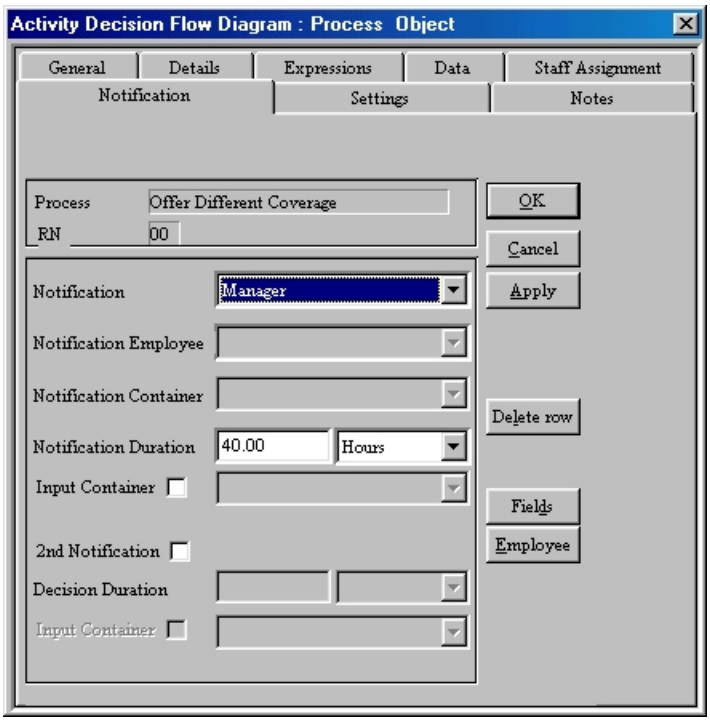
3. When you have finished defining the object, click **OK** or press **Enter**. To save the current edits and continue with additional edits (e.g., in another tab), click **Apply**.

4.2.7 Notification

✍ **The Notification tab is not available in the Basic Editing Mode or the FileNet Visual WorkFlo Editing Mode.**

To edit the Notification tab of a Process Object:

1. 🖱 Click the **Notification** tab at the top of the **Process Object** dialog box (see the figure below, from the Advanced Editing Mode). This tab allows you to specify the Activity Notification Settings for FlowMark and MQ Workflow.



2. 🖱 Select the type of Notification from the **Notification** selection box.
   - Refer to the *Integration with Workflow Applications Guide* for more information about Notification.
   - 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)
None (Default): There will be no notification.	* None
Process Administrator: Then the Process Administrator will be notified.	* None
Manager: Then the Manager of the Employee performing the Task will be notified.	* None
Coordinator: Then the Coordinator of the Employee performing the Task will be notified.	* None
Employee: Then a Selected Employee will be notified.	* Select the Employee that will be notified from the **Notification Employee** 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 "Employees" 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.
Data From Input Container: 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 **Notification Container** list box.
Data From Predefined Members: The notification information will be taken from the data in the Input Container.	* None

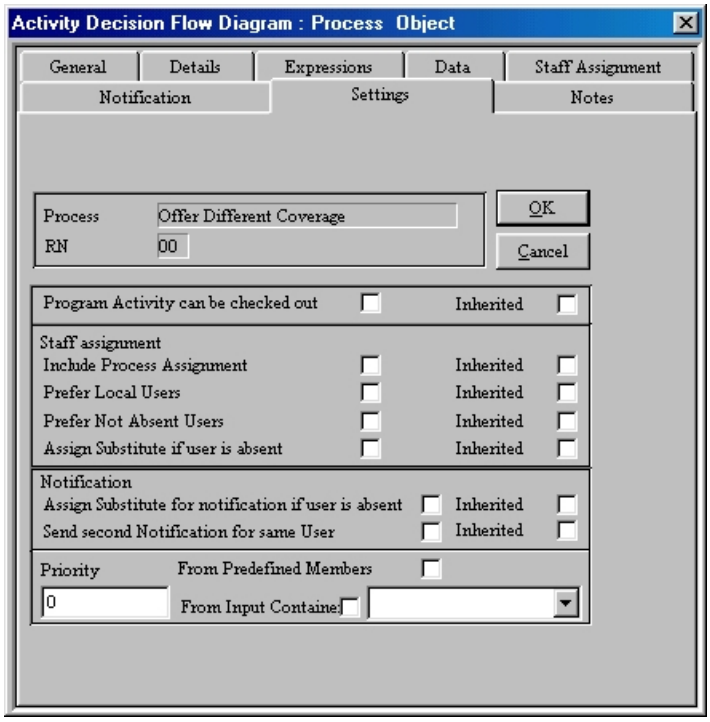
3. If a Notification was specified, then type the appropriate value in the **Notification Duration** text box, and then select the appropriate time unit from the **Notification Duration** selection box.
   * If you want the Duration to be defined in the data arriving in the Input Container, then:
     – Select the **Input Container** check box.
     – Then, a Data Field from the list box that becomes active.
4. To specify a Duration between First and Second Notification, select the **2nd 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.
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**.

4.2.8 Settings

✍ **The Settings tab is not available in the Basic Editing Mode, the IBM FlowMark Editing Mode, or the FileNet Visual WorkFlo Editing Mode.**

To edit the Settings tab of a Process Object:

1. 🖱 Click the **Settings** tab at the top of the **Process Object** dialog box (see the figure below, from the Advanced Editing Mode). This tab allows you to specify the Activity Control Settings for MQ Workflow.



✍ **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 2.4.1.6 Activity Settings.)**

✍ **If both a checkbox and its corresponding Inherited box are not selected, the setting is taken from the System-level settings.**

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.
9. Type the priority value in the **Priority** text box,

   or

10. 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

11. 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**.

4.3 Connecting A Process Object in an Activity Decision Flow Diagram

A Process that is modeled as a Process Object within another Process can be complex, with multiple entry and exit points. To properly connect the objects of the main Process with the objects that are "inside" the Process Object, you must use input and output Phis connected to the Process Object and matching input and output Phis "inside" the Process Object. This is described in more detail below. With the matching Phis, Workflow•BPR can properly insert the lower-level Process into the higher-level Process during Process expansion.

The following sections outline an example of the procedure for connecting a Process Object in an Activity Decision Flow Diagram:

✍ **We will call the Process that you are creating "Process Level 1." The Process Object that you will create will be called "Process Level 2" (a lower-level Process).**

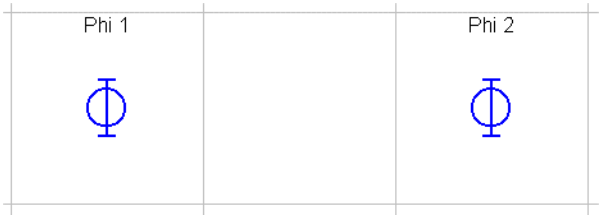
4.3.1 Setting the Inputs and Outputs at the high level

To create the Phis that are inputs and outputs to the (Sub)Process:

1. Select the **Pointer** tool, either by clicking the **Pointer** tool button on the **ADF Toolbar** or by clicking the right mouse button on the diagram.
2. Click the **Phi** tool button on the **ADF Toolbar**. Notice that the cursor changes to a plus sign with a Phi symbol in the upper right quadrant.
3. Click inside a free grid cell to insert a **Phi Object** inside that cell.
4. Define the **Phi Object** and call it "**Phi 1**" (see the figure below). (Refer to the section entitled "Defining a Process Object" on page 4-6 for more information about defining a Phi Object).

5. Insert another **Phi Object** inside another free grid cell that is two columns to the right of "**Phi 1**" (refer to steps 2 and 3). Be certain that there is a free cell in the column between the two Phi Objects. The Process Object will be inserted in that free cell.

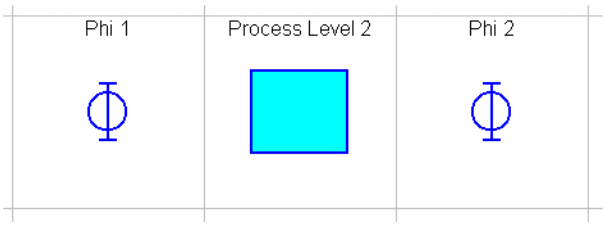
6. Define the **Phi Object** and call it "**Phi 2**" (see the figure below).



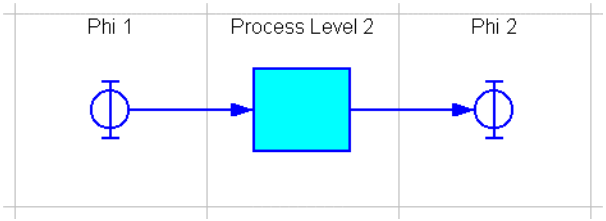
4.3.2 Creating the (Sub)Process

To create the Process Object:

1. Click the **Process** tool button on the **ADF Toolbar**. Notice that the cursor changes to a plus sign with a Process symbol in the upper right quadrant.
2. Click inside of the grid cell between the two Phi Objects to insert a **Process Object** inside that cell.
3. Define the Process Object and call it "**Process Level 2**" (see the figure below). (Refer to the section entitled "Defining a Process Object" on page 4-6 for more information about defining a Process Object).



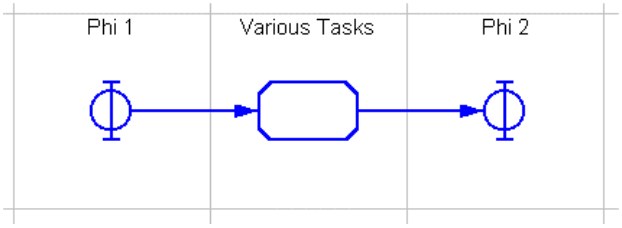
4. Click the **Connector** tool button on the **ADF Toolbar**. Notice that the cursor changes to a plus sign with a Connector symbol in the upper right quadrant.
5. Click on the center of "**Phi 1**" and drag and release it in the center of "**Process Level 2**" to connect the two objects.
6. Click on the center of "**Process Level 2**" and drag and release it in the center of "**Phi 2**" to connect the two objects (see the figure below).



4.3.3 Setting the details of the lower level

To create the matching inputs and outputs of the (Sub)Process details:

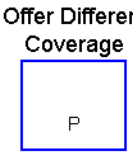
1. Select the **Pointer** tool, either by clicking the **Pointer** tool button on the **ADF Toolbar** or by clicking the right mouse button on the diagram.
2. Click on the "**Process Level 2**" object.
3. Click the **Open Process** tool button  on the **ADF Toolbar**. Workflow•BPR will open the **Activity Decision Flow Diagram** for "**Process Level 2**".
4. Insert a Phi Object inside another free grid cell.
5. Define that Phi Object as "**Phi 1**," which matches "Phi 1" in the "**Process Level 1**" (higher-level) drawing.
   * This will be the entry point for "Process Level 2". All other Process Objects will be connected from this starting point. If there is more than one entry point, it will be necessary to create a Phi for each entry point within "Process Level 1" and connect it to the "Process Level 2" Process Object, then insert the same Phi(s) within the "Process Level 2" drawing.
6. Insert another Phi Object inside another free grid cell in a column that is to the right of "Phi 1" (refer to instructions 2 and 3).
7. Define that Phi Object as "**Phi 2**," which matches "Phi 2" in the "**Process Level 1**" (higher-level) drawing.
   * This will be the exit point for "Process Level 2". All other Process Objects will lead to this exit point. If there is more than one exit point, it will be necessary to create a Phi for each exit point within "Process Level 1" and connect it to the "Process Level 2" Process Object, then insert the same Phi(s) within the "Process Level 2" drawing.
8. Connect the entry point ("**Phi 1**") for "**Process Level 2**" to the various tasks and other objects that might be part of that Process, then connect the last object to the exit point ("**Phi 2**"). The lower-level Process ("**Process Level 2**") is now properly connected to the higher-level Process ("**Process Level 1**"). (See the figure below.)



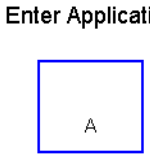
4.4 Process Object Attribute Markers

Some attributes of a Process will change the way that the Process icon will look on the ADF. An Attribute Marker provides visual queues as to certain characteristics of the Process Object. By viewing these characteristics on the ADF, a better understanding of the workings of the Process is gained.

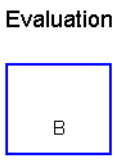
- **Process Marker**: This is the default display of any Process Object that is defined and does not have any of the attributes defined below (see the figure below). This indicates that the Process Object represents a (Sub)Process that is defined as a Process—as opposed to an Activity or Block. The Activity and Block settings are generally used for defining Processes intended for export to a Workflow Application.



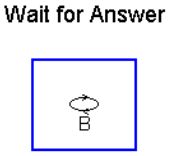
- **Activity Marker**: The Activity Marker shows that a (Sub)Process will be exported to FlowMark as a FlowMark Activity (see the figure below). A Process is defined as an Activity by selecting the Process, clicking on the **Open process** button on the toolbar, and then selecting the **Activity** radial button in the **Export Type** field on the **Fields** tab (not available in the Basic Editing Mode) of the **Info** dialog box (refer to the section Defining Information About a Process" in Chapter 2).



- **Block Marker**: The Block Marker shows that a (Sub)Process will be exported to FlowMark as a FlowMark Block (see the figure below). A Process is defined as a Block by selecting the Process, clicking on the **Open process** button on the toolbar, and then selecting the **Block** radial button in the **Export Type** field on the **Fields** tab (not available in the Basic Editing Mode) of the **Info** dialog box (refer to the section Defining Information About a Process" in Chapter 2).



- **Loop Marker**: The loop maker is an oval with arrows to represent a loop and appears when an Expression is created for the Exit Condition in the Expression tab in the Process Object dialog box for that Process (see the figure below).



Chapter 5: Modeling Entities and External Processes

External Entities model either individuals or organizations outside the company that play a part in your Process. External Processes model the activities those entities perform and occur within the main flow of the Process. The Functional difference between External Processes and External Entities is that External Processes can both send and receive Phis in the same diagram, and External Entities can only send or receive Phis in the same diagram. Because there are situations where an External Entity is a part of your Process but performs no activity—for example, if the External Entity is a customer and starts the Process with an order or receives the product with a purchase—Workflow•BPR allows you to define just the External Entity. Since External Processes are connected in your Repository with the External Entities that perform them, defining an External Process automatically defines an External Entity. Workflow•BPR differentiates between External Processes and External Entities in a diagram by placing an ellipse inside of the External Process Object. Defining an External Process and/or External Entity object links it with information from your organization's Repository. The following are the procedures for drawing and defining External Entities or External Processes.

To model an External Process/Entity, it is necessary to draw and define it. In an Activity Decision Flow Diagram, an External Entity is an oval, while an External Process is an oval within an oval.

The attributes used to define an External Process/Entity are:

- **Type of Entity Object**: There are two types of Decisions:
  - **Entity**: If the type of object is Entity, then the shape of the object is an oval (see the figure below) and the only attribute is External Entity. These objects are the starting or stopping points of the Process. They can either connect to an object or be connected from an object, but not both.

  - **Process**: If the type of object is Process, then the shape of the object is an oval within an oval (see the figure below) and all the attributes listed below are available. These objects are activities that are performed by outside organizations. They can be connected in both directions (to and from).

- **External Entity**: The External Entity is the outside organization that interacts with your Process. These are chosen from a list in the Repository.
- **External Process**: The External Process is the activity that is performed by an outside organization within your Process. These are chosen from a list in the Repository.
- **Abbreviation**: *This is available only for External Process Objects*. An Abbreviation is associated with a Task as part of its definition in the Repository.
- **RN**: *This is available only for External Process Objects*. A Reference Number (RN) is used to distinguish one or more Decisions that have the same name in a diagram. Although the Tasks have the same name, they are actually separate items that can have an individual effect on the Process. The RN distinguishes them. The Choice selected for a Decision can be linked to the result of another Decision (with the same name) in the diagram through their RN numbers.
- **Elapsed Duration**: This is available only for External Process Objects. Elapsed Duration is the total length of working time that the External Process requires.
- **Calendar**: This is available only for External Process Objects. The Calendar assigned to an External Process defines the Working Hours during which an External Process can begin (e.g., from 9:00 a.m. to 5:00 p.m.).

- **Start Option**: This is available only for External Process Objects. The Start Option specifies additional conditions for the start of the External Process. If the Phi has arrived and it is during Working Hours (as specified by the Calendar), then the Start Option must be satisfied. The start of the External Process will be delayed until the Start Option is satisfied. The default Start Option is ASAP, which means that the External Process can begin as soon as possible, given that the other conditions are true. Other Start Options are:
  - The **Date Start Option** has to be in the format of Month/Day. This specifies that the External Process can only begin on a specific day of the month (e.g., April 15th). The External Process will be delayed until the next occurrence of that day.
  - The **Day Start Option** has to be a number from 1 to 31. This specifies that the External Process can only begin on a specific day of the month (e.g., the first of the month). The External Process will be delayed until the next occurrence of that day for any month of the year.
  - The **Time Start Option** has a format of HH:MM. This specifies that the External Process can only begin at a specific time during the day (e.g., at 9:00 a.m.). The External Process will be delayed until the next occurrence of that time during the day. If the time does not fall within the Calendar Working Hours, the External Process is delayed until working hours begin again.
  - The **Day of Week Start Option** has to be a number from 1 to 7. This specifies that the External Process can only begin on a specific day of the week (e.g., Monday). The External Process will be delayed until the next occurrence of that day for any week of the year. If the day does not fall within the Calendar Working Days (i.e., there is a holiday), the External Process is delayed until the next available working day.

5.1 Drawing an External Entity Or External Process Object

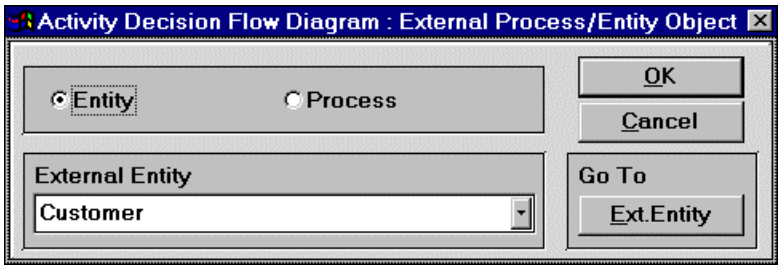
To draw an External Object:

1. Click the **External** tool button  on the **ADF Toolbar**. Notice that the cursor changes to a plus sign with an External Entity/Process symbol in the upper right quadrant.
2. Click inside a free grid cell to insert an External Entity/Process Object inside that cell (see the figure below).

5.2 Defining an External Entity Object

To define an External Entity object in all Editing Modes except for the E-Commerce Editing Mode:

1. Select the **Pointer** tool, either by clicking the **Pointer** tool button  on the **ADF Toolbar** or by clicking the right mouse button on the diagram.
2. Double-click an External Entity or an External Process. The **External Process/Entity Object** dialog box appears (see the figure below).

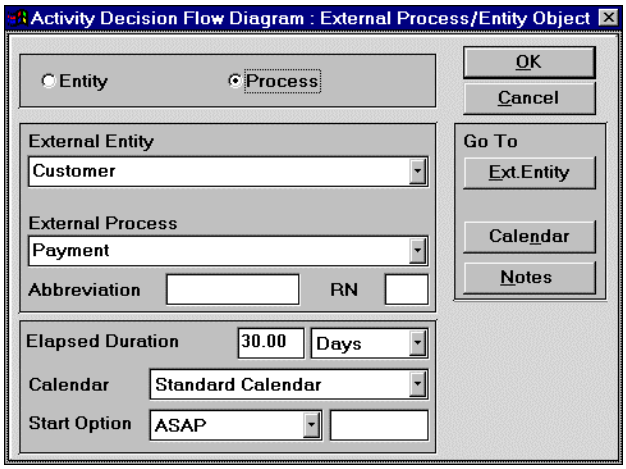


3. To identify your object as **External Entity** only, click the **Entity** radio button. The dialog box will be modified to include only the name of the External Entity.
4. To select an External Entity from those defined in the Repository, select one from the **External Entity** list (click on the arrow on the right end of the **External Entity** combo box to bring up the list).
   * To rename an **External Entity** in the Repository, select the **External Entity** from the **External Entities** combo box, then type the changes to the selected name. When you click **OK**, Workflow•BPR will ask if you want to *update* the item in the Repository or *add* it to the Repository. Click **Update** to rename the External Entity (and use it to define the External Entity object).
   * If the External Entity you want is not included on the list, it needs to be created. You have two (2) options:
     – Type its name in the **External Entity** combo box. When you click **OK**, a new item with that name will be recorded in the Repository.
     – Click the **Ext. Entity** Go To button to access the Repository **External Entity** dialog box (refer to the section entitled "External Entities" in Chapter 2 of the *User's Guide*). Upon returning to the **External Entity/Process Object** dialog box, the new item(s) will be included on the list.
5. Click **OK** or press **Enter**.

5.3 Defining an External Process Object

To define an External Process object in all Editing Modes except for the E-Commerce Editing Mode:

1. Select the **Pointer** tool, either by clicking the **Pointer** tool button on the **ADF Toolbar** or by clicking the right mouse button on the diagram.
2. Double-click an **External Entity** or an **External Process**. The **External Process/Entity Object** dialog box appears (see the figure below).



3. To identify your object as an External Process, click the **Process** radio button. The dialog box will be modified to include the name of the External Entity and the attributes of the External Process: Name, Abbreviation, RN, Elapsed Duration, Calendar, and Start Option.
4. To select an **External Process** from those defined in the Repository, select one from the **External Process** list (click on the arrow on the right end of the **External Process** combo box to bring up the list). Workflow•BPR will fill in the **External Entity/Process Object** dialog box items with any pre-defined data associated with the selected name.
   * To rename an **External Process** in the Repository, select the **External Process** from the **External Process** combo box, then type the changes to the selected name. When you click **OK**, Workflow•BPR will ask if you want to update the item in the Repository or add it to the Repository. Click **Update** to rename the External Process (and use it to define the External Entity object).
   * If the External Process you want is not included on the list, it needs to be created. Type its name in the **External Process** combo box. When you click **OK**, a new item with that name will be recorded in the Repository.

5. To add or change the External Entity associated with the External Process, select a name from the **External Entity** combo box.

   * If the External Entity you want is not included on the list, it needs to be created. Click the **Ext. Entity** Go To button to access the Repository **External Entities** dialog box in order to create the item (refer to the section entitled "External Entities" in Chapter 2 of the *User's Guide*). When you return to the **External Entity/Process Object** dialog box, the new item(s) will be included on the list.

6. To add or change the **Abbreviation** of the External Process, type the information in the **Abbreviation** text box. The Abbreviation can be a maximum of eight characters.

7. To change the **Reference Number** of the External Process, type the number in the **RN** text box. The default number is 0.

   * If the name of the selected External Process has already been used by one or more other External Process Objects in the diagram, the selected object must be given a unique RN. Workflow•BPR will automatically increment the RN to the next highest number if there is a duplicate RN number.

8. To change the **Elapsed Duration** of the External Process, type the appropriate value in the **Elapsed Duration** text box, then select a time unit from the **Elapsed Duration** selection box.

9. To change the **Default Calendar** associated with the External Process, select a **Calendar** name from the **Calendar** selection box.

   * If the Calendar you want is not included on the list, it needs to be created. Click the **Calendar** Go To button to access the Repository **Calendar** dialog box in order to create the item (refer to the section entitled "Calendars" in Chapter 2 of the *User's Guide*). When you return to the **External Entity/Process Object** dialog box, the new item(s) will be included on the list.

10. To change the **Start Option** of the External Process, select a **Start Date** format from the **Start Option** selection box. If a Start Option other than ASAP is selected, type in the appropriate Start Date in the **Start Option** text box.

11. To add or review **Notes** about the External Process, click the **Notes** Go To button; the **Notes** dialog box appears. Type in the **Notes** text box, then click **Close**.

    * If you want to add a **Carriage Return** to the text of your Notes, then type **Ctrl+Enter**.

12. Click **OK** or press **Enter**.

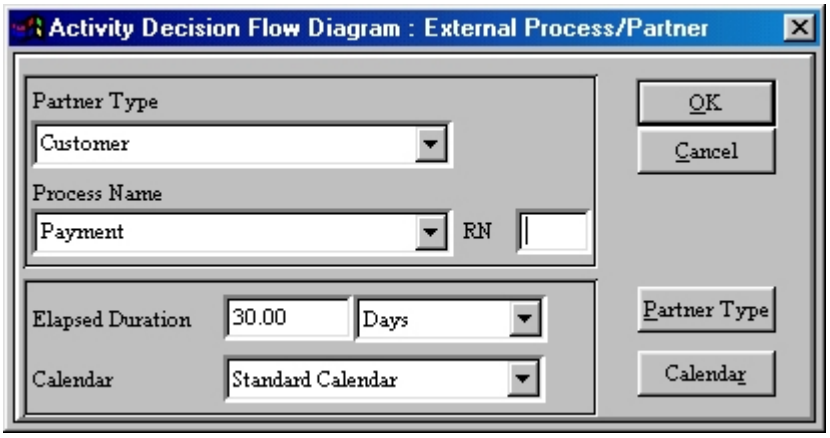
✍ **Warning: If you change any of the attributes (e.g., Elapsed Duration) of an Expanded Process in the External Process Object dialog box, the changes will affect only that object. The changes will not be updated in the Repository or in other instances of the External Process in any Activity Decision Flow Diagram.**

5.4 Defining Externals in the E-Commerce Mode

The E-Commerce Editing Mode is included in Workflow•BPR to assist companies in modeling Processes that involve electronic business transactions between companies. Additional modeling objects and attributes are available in the E-Commerce Editing Mode, to support the detailed definition of Interface Processes between business partners.

In the E-Commerce Editing Mode, External Entities are referred as Partners (i.e., trading partners). There is not much difference between an External Process in the other Editing Modes and the External Partner Process in the E-Commerce Editing Mode, other than the name of the object. To define an External Process/Partner object in the E-Commerce Editing Mode:

1. Select the **Pointer** tool, either by clicking the **Pointer** tool button on the **ADF Toolbar** or by clicking the right mouse button on the diagram.
2. Double-click on a **Partner** or an **External Process**. The **External Process/Partner** dialog box appears (see the figure below).



3. To add or change the Partner Type (External Entity) associated with the External Process, select a name from the **Partner Type** combo box (follow the previous procedure for creating this entry).
   * If the Partner Type you want is not included on the list, it needs to be created. You have two (2) options:
     – Type its name in the **Partner Type** combo box. When you click **OK**, a new item with that name will be recorded in the Repository.
     – Click the **Partner Type** Go To button to access the Repository **Partner Types** dialog box (refer to the section entitled "External Entities" in Chapter 2 of the *User's Guide*). Upon returning to the **External Process/Partner** dialog box, the new item(s) will be included on the list.

4. To select a **Process** from those previously defined, select one from the **Process Name** list (click on the arrow on the right end of the **External Process** combo box to bring up the list). Workflow•BPR will fill in the **External Entity/Process Object** dialog box items with any pre-defined data associated with the selected name.

   * If the External Process you want is not included on the list, it needs to be created. Type its name in the **External Process** combo box. When you click **OK**, a new Process with that name will be created.

✍ **Do not select a Process if you want the object to represent the Partner only as an Entity.**

5. To change the **Reference Number** of the External Process, type the number in the **RN** text box. The default number is 0.

   * If the name of the selected External Process has already been used by one or more other External Process Objects in the diagram, the selected object must be given a unique RN. Workflow•BPR will automatically increment the RN to the next highest number if there is a duplicate RN number.

6. To change the **Elapsed Duration** of the External Process, type the appropriate value in the **Elapsed Duration** text box, then select a time unit from the **Elapsed Duration** selection box.

7. To change the **Default Calendar** associated with the External Process, select a **Calendar** name from the **Calendar** selection box.

   * If the Calendar you want is not included on the list, it needs to be created. Click the **Calendar** Go To button to access the Repository **Calendar** dialog box in order to create the item (refer to the section entitled "Calendars" in Chapter 2 of the *User's Guide*). When you return to the **External Entity/Process Object** dialog box, the new item(s) will be included on the list.

8. Click **OK** or press **Enter**.

Chapter 6: Modeling Inputs and Outputs

Workflow•BPR supports two (2) different types of Input and Output objects within Activity Decision Flow Diagrams. Partner Interactions now compliment Phis for graphical modeling of inputs and outputs. Specifically, Partner Interactions are intended to model the data that is transmitted between two (2) companies during and electronic commerce interaction. This chapter describes both types of input/output objects.

6.1 Phis

Phis model input/output objects to activities in a Process Model. A Task may or may not transform a Phi during the performance of the Task. The modeling of the inputs and outputs (Phis) between activities is important for capturing the work items and their flow through the Process. Often, in the interest of speed, input and output activities are neglected. By tracking the progression of Phis throughout the Process, important components of the Process are revealed, which would have otherwise been ignored.

A Phi can be defined as an original or as a copy. A copy Phi is a duplicate of an original Phi and derives its information from the original. The number of copies an original Phi can have is determined when the Phi Object is created in the Repository. To model a Phi, it is necessary to draw and define it. In an Activity Decision Flow Diagram, a Phi is a Phi symbol (see the figure below).

More commonly (and by default), you will use a Bitmap to display the type of Phi. The mode of display for a Phi can be set using the Drawing Options window (refer to the section entitled “Customizing Activity Diagrams Using Drawing Options” in Chapter 6 of the *User’s Guide*).

To define a Phi, you must associate a set of related information with a specific Phi within the Phi Object dialog box. The attributes used to define a Phi are divided into two (2) categories. These two (2) categories are separated into tabs in the dialog box used to define a Phi. The tabs are:

- **General**: After assigning a name to a Phi, other general information can be specified:
  - **RN**: A Reference Number (RN) is used to distinguish one or more Phis that have the same name in a diagram. Although other graphical objects cannot share an RN number, many Phis with the same name can have the same RN. For a Phi, the RN distinguishes actual physical instances of the same Phi. For example, you might have a Phi named "Work Order" in your Process. If there are two separate Work Orders within the Process—each containing different information—they would have different RN numbers.
  - **Abbreviation**: An Abbreviation is associated with the Phi as part of its definition in the Repository.
  - **Make Copy**: This is a check box to specify if the Phi will be a copy that will be tracked through the Process separately from the original Phi.
  - **Access**: This attribute defines whether one or more activities can process the Phi simultaneously. There are two access types: Single, which means that only one activity can process a Phi at one time, and Multiple, which means that more than one activity can process a Phi at one time.
  - **Type**: A Phi Type is a class or a group of Phis sharing a common factor. For example, a Phi Type could be an internal form, and a Phi of that type could be a Purchase Request Form. Phi Types are separate items that have been defined in the Repository.
  - **Category**: There are three (3) Phi Type categories: Paper Document, Electronic Document, and Other. Phi Types are assigned a category.
  - **Image**: An Image Bitmap is associated with the Phi as part of its definition in the Repository.
  - **Color**: A Color is associated with the Phi as part of its definition in the Repository. The Phi symbol icon can be displayed with its Color or with the Bitmap of the associated Phi Type.
  - **Bitmap**: A Bitmap is associated with the Phi Type as part of its definition in the Repository. The Phi symbol icon can be displayed with its Color or with the Bitmap of the associated Phi Type.
- **Notes**: All desired information concerning the Phi can be documented in the Notes text box.
- In addition to these three tabs just described, two (2) more tabs, for two more categories of information, are present for use in Editing Modes other than the Basic Mode:
  - **State**: A Phi can be assigned different states, but can hold only one state at a time at any location in the diagram. For example, you can define the

states of a document to be Approved, Not Approved, or Pending. Defining Phi States aids in modeling the status quo of the Phi and in analyzing its life cycle through the Process.

* **Fields**: A list of Data Fields can be associated with the Phi. These Data Fields can be used for the purposes of application development or Workflow Integration.
* **Data Flow**: You can select the Data Fields of the Source Task and create a Mapping to the Data Fields of the Target Task. If a Phi is connected to more than one Task, you can create a separate Mapping for each target Task. Refer to the *Integration with Workflow Applications Guide* for more information about FlowMark Mapping.

The requirements for Data and Data Mapping will vary depending on the purpose for modeling them. For example, if you are defining a model for a specific Workflow Application, then the Data Mapping requirements will be very specific and will be different than if you are modeling for other purposes. The Editing Modes feature was designed because Process Modeling can be performed for many purposes. Therefore, Editing Mode will affect the appearance of the Phi Object dialog box. The following table shows the tabs of the Phi Object dialog box and in which Editing Modes the tabs will appear.

Editing Mode: / Tab:	Basic	IBM Flow-Mark	IBM MQ Work-flow	FileNet Visual WorkFlo	Line of Visibility	E-Comm.	Advanced
General	✓	✓	✓	✓	✓	✓	✓
State				✓	✓	✓	✓
Fields				✓	✓	✓	✓
Data Flow		✓	✓		✓	✓	✓
Notes	✓	✓	✓	✓	✓	✓	✓

6.1.1 Drawing a Phi Object

To draw a Phi Object:

1. Click the **Phi** tool button  on the **ADF Toolbar**. Notice that the cursor changes to a plus sign with a Phi symbol in the upper right quadrant.
2. Click inside a free cell to insert a Phi Object inside that cell.

6.1.2 Defining a Phi Object

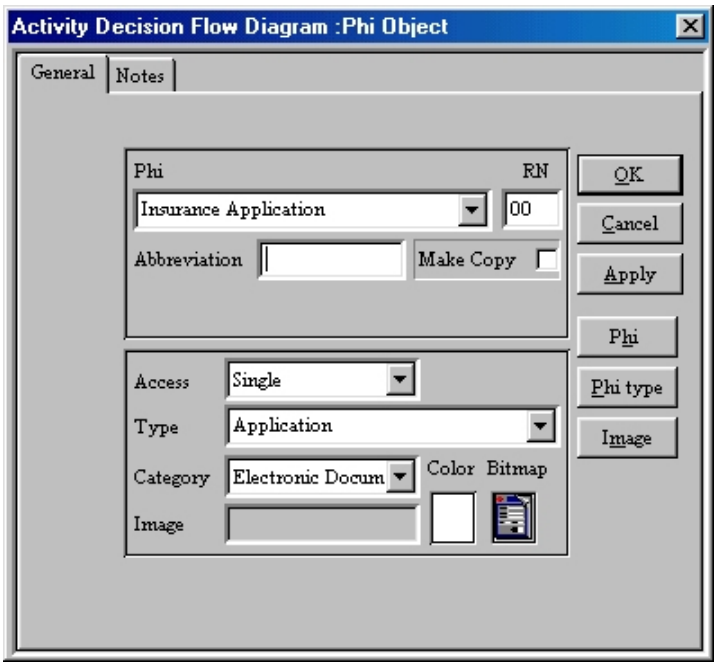
To define a Phi Object:

1. Select the **Pointer** tool, either by clicking the **Pointer** tool button  on the ADF Toolbar, or by clicking the right mouse button on the diagram.
2. Double-click on a Phi. The **Phi Object** dialog box appears, open to the **General** tab.
3. Continue in one of the following three (3) tabs, which are described in the next three (3) sections (in Editing Modes other than Basic, the next five (5) tabs in the next five (5) sections).

6.1.2.1 General

To define Data attributes in the General tab of the Phi Object dialog box:

1. Click the **General** tab at the top of the **Phi Object** dialog box (see the figure below*, from the Basic Mode*). This tab allows for the selection of a Phi from the Repository or for the creation of a new Phi. The following Phi attributes can also be added or updated: Abbreviation, RN, Access, Type, Category, and Image.



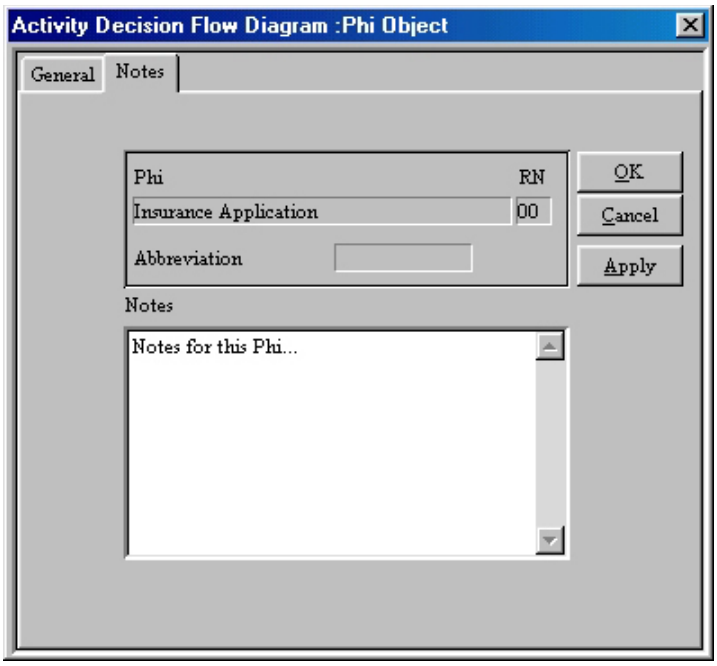
2. To select a Phi from those defined in the Repository, choose one from the **Phi** list (🖱 click on the arrow at the right end of the **Phi** combo box to bring up the list). Workflow•BPR will fill in the **Phi Object** dialog box items with any pre-defined data associated with the selected name.
   * After a Phi is selected, Workflow•BPR fills in the Name, Abbreviation, Access, Type, Category, and Image information for that Phi, based on the information contained in the Repository.
   * If the Phi you want is not included on the list, then you need to create it. You have two (2) options:
     – The Phi name can be ⌨ typed in the **Phi** combo box and its Abbreviation in the **Abbreviation** text box. When you 🖱 click **OK**, a new item with that name will be recorded in the Repository.
     – 🖱 Click on the **Phi** Go To button to open the Repository **Phis** dialog box (refer to the section entitled "Phis" 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.
3. To change the **Reference Number** of a Phi, ⌨ type the number in the **RN** text box. The default number is 0.
4. To add or change the **Abbreviation** of a Phi, ⌨ type the information in the **Abbreviation** text box. The Abbreviation can be a maximum of eight characters.
5. To make a selected **Phi Object** a copy of another **Phi Object**, 🖱 click the **Make Copy** check box. Workflow•BPR displays two (2) additional boxes: Copy Number and Copy Color.
   * ⌨ Type its Copy Number in the Copy Number text box.
   * The Copy Color will automatically be updated to the color that was defined for the Copy Number in the Repository.
6. To change the access method for the Phi, 🖱 select a method from the **Access** selection box.
7. To add or change the type of the Phi, 🖱 select a **Phi Type** from the **Type** combo box.
   * If the Phi Type you want is not included on the list, then you need to create it. You have two (2) options:
     – The Phi Type name can be ⌨ typed in the **Phi Type** combo box. When you 🖱 click **OK**, a new item with that name will be recorded in the Repository.
     – To create the item, 🖱 click the **Type** Go To button to access the Repository **Phi Type** dialog box (refer to the section entitled "Phi Types" 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.

8. To change the category of the **Phi Type**, select a category from the **Category** selection box.
9. To view the image that has been associated with a Phi, click the **Image** Go To button. Workflow•BPR displays the Bitmapped image assigned to this Phi in a separate window. Choose **Close** from the window's control box to return to the **Phi Object** dialog box.
    * If there is no image associated with the Phi, you can add one. Click on the **Phi** Go To button to open the Repository **Phis** dialog box (refer to the section entitled "Phis" in Chapter 3 of the *User's Guide*). Upon returning to the **Phi Object** dialog box, the path of the image will be displayed in the **Image** text box.
10. 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.

6.1.2.2 Notes

To define Data attributes in the Notes tab of the Phi Object dialog box:

1. Click the **Notes** tab at the top of the **Phi Object** dialog box (see the figure below*, from the Basic Mode*). This tab displays the Phi name, its Abbreviation, and its RN. It also contains a text box for adding Notes about the selected Task.

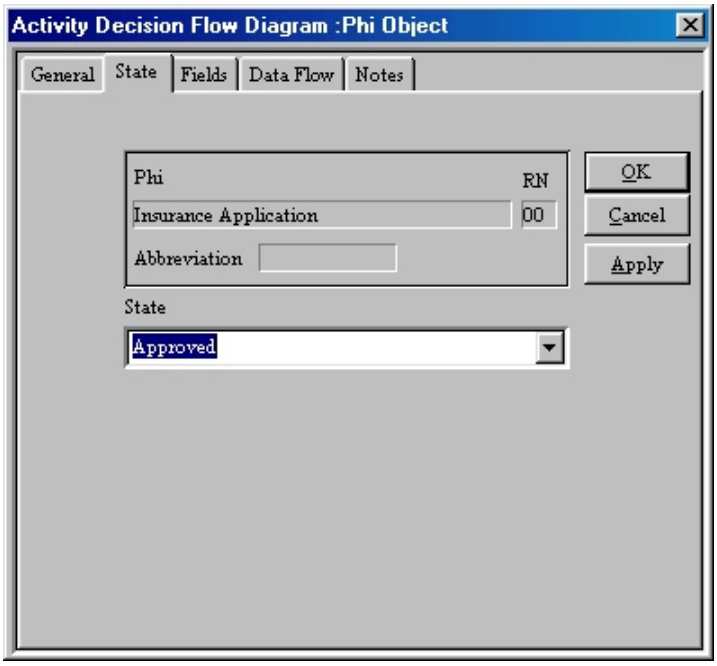


2. To add or update Notes about the selected Phi, type in the **Notes** text box.
   * If you want to add a **Carriage Return** to the text of your Notes, then type **Ctrl+Enter**.
3. When you have finished defining the object, click **OK** or press **Enter**, or you can continue to edit the object in one of the other tabs.

6.1.2.3 State

To define Data attributes in the State tab of the Phi Object dialog box:

1. Click the **State** tab at the top of the **Phi Object** dialog box (see the figure below*, from the Advanced Mode*). This tab displays the Phi Name, its Abbreviation, and its RN. It also allows you to add or change the Phi State associated with the Phi.



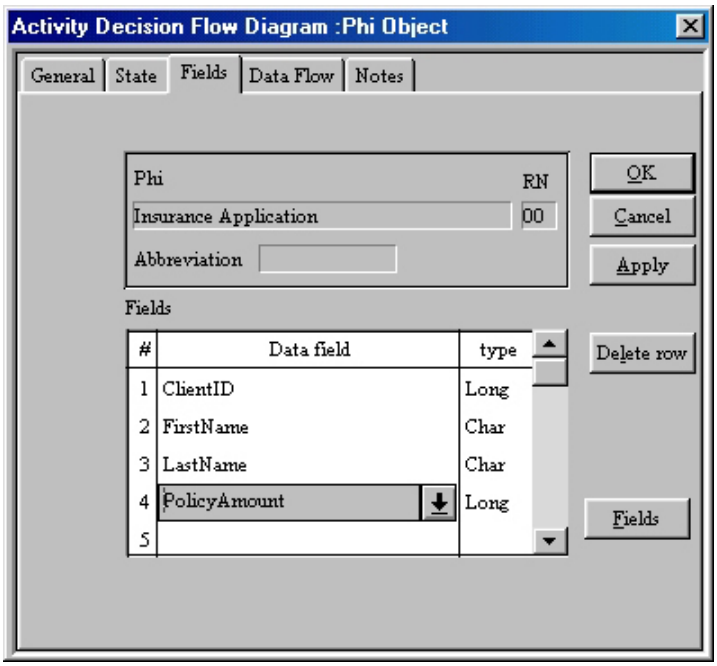
2. To add or change the **State** of a Phi, select the appropriate **State** from the **State** combo box.
   * If the Phi State you want is not included on the list, then you need to create it.
     – The **Phi State** name can be typed in the **State** combo box. When you click **OK**, a new item with that name will be recorded in the Repository.
3. 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.

6.1.2.4 Fields

✍ **The Fields tab is not available in the Basic Mode, the IBM FlowMark Mode, or the IBM MQ Workflow Mode.**

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, *from the Advanced Mode – The Fields tab is not available in the Basic Mode, the IBM FlowMark Mode, or the IBM MQ Workflow Mode*). 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.

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

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.

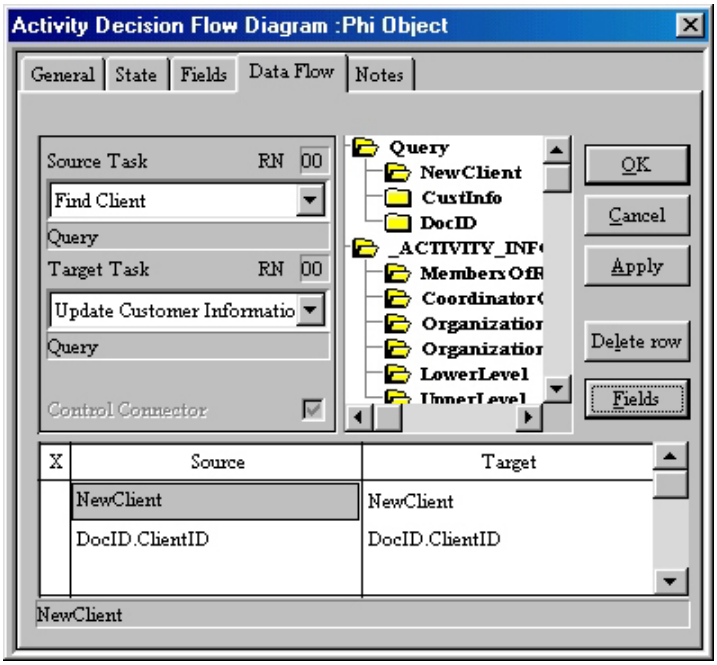
6.1.2.5 Data Flow

✍ **The Data Flow tab is not available in the Basic Mode or the FileNet Visual Workflo Mode.**

For FlowMark, the data flow between activities has to be defined, or mapped. If the Data Structure of the Output Container of a source Task is the same Data Structure of the Input Container of a target Task, then FlowMark automatically does the Mapping. However, if the two Data Structures are different or there is more than one source flowing into a target, then the data has to be mapped manually. In Workflow•BPR, a Phi that is connected between two Tasks represents the Data Flow between the two Tasks. Refer to the *Integration with Workflow Applications Guide* for more information about FlowMark Data Flow Mapping.

To map a data flow between two Tasks:

1. Click the **Data Flow** tab at the top of the **Phi Object** dialog box (see the figure below*, from the Advanced Mode – The Data Flow tab is not available in the Basic Mode or the FileNet Visual WorkFlo Mode*). This tab allows you to create a data flow between two activities.

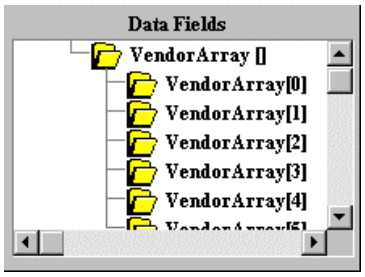


2. If the Phi is connected to more than one Task, then select the target **Task** from the **Target Task** selection box.
   * You can also select the Sink of the Process as the target.
   * For each possible target, you can create an independent Data Flow Mapping.
3. If the Connector between the two Workflow•BPR Tasks should only represent data flow and not control flow, then de-select the **Control Connector** check box.
   * If the **Control Connector** check box is not selected, then a control connector will not be exported to FlowMark.

✍ **If the Control Connector check box is de-selected, then the Connector becomes a Data Flow Only Connector and is drawn with a dotted line.**

4. 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.
   * 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. 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 below).



– Click on the array element number that you want to use. This will move the array element into the **Mapping** text box.

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

5. 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 to insert it into the mapping cell.
     – 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."
6. Repeat Steps 3 through 5 to add additional Mappings for the selected target Task.
7. Repeat Steps 2 through 6 to create Mappings for another target Task or for the Process Sink.
8. 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.

6.2 Partner Interactions

✍ **The Partner Interaction Object is only available in the E-Commerce Editing Mode.**

Partner Interactions can be considered to be Phis of a very specific purpose. They represent electronic data that is transferred between one company and another for the purpose of a business transaction. Partner Interactions contain additional transaction attributes (documented below) to help companies design the infrastructure that will carry out the business transactions.

To model a Partner Interaction, it is necessary to draw and define it. In an Activity Decision Flow Diagram, a Partner Interaction is represented by a Partner Interaction symbol (see the figure below).

To define a Partner Interaction, you must associate a set of related information with a specific Partner Interaction within the Partner Interaction Object dialog box. The attributes used to define a Partner Interaction are divided into four (4) categories. These four (4) categories are separated into tabs in the dialog box used to define a Partner Interaction. The tabs are:

- **General**: After assigning a name to a Partner Interaction, you can specify other general information:
  - **RN**: A Reference Number (RN) is used to distinguish one or more Partner Interactions that have the same name in a diagram. Although other graphical objects cannot share a RN number, many Partner Interactions with the same name can have the same RN. For a Partner Interaction, the RN distinguishes actual physical instances of the same Partner Interaction. For example, you might have a Partner Interaction named "Work Order" in your Process. If there are two separate Work Orders within the Process—each containing different information—they would have different RN numbers.
  - **Abbreviation**: An Abbreviation is associated with the Partner Interaction as part of its definition in the Repository.
  - **Volume**: This attribute defines the expected number of transactions between business partners for a given period of time.
  - **Time Out**: This attribute defines the amount of time you would expect the Receiving Partner to respond to the message—if a response is required. When the Time Out has been exceeded, the message can be sent again the number of times as specified in the **Times to Retry** attribute.

    - **Times to Retry**: This attribute defines the number of times the transaction will be sent to the receiving Partner if the **Time Out** is exceeded.

- **Attributes**: This tab contains settings and information about Auditing Requirements, Security, and Exceptions.
    - **Audit Requirements**:
        - **Non-Repudiation**:
        - **Acknowledge Message Receipt**:
        - **Acknowledge Message Acceptance**:
    - **Security and Exceptions**:
        - **Encryption**: This check box is selected if the transaction needs to be encrypted.
        - **Authentication**: You can enter descriptive notes about the requirements for Authentication.
        - **Exception Handling/No Response**: You can enter descriptive notes about how to handle no response from the Receiving Partner.
        - **Exception Handling/No Response Now**: You can enter descriptive notes about how to handle a response from the Receiving Partner that indicates that they cannot respond in full at the moment.
        - **Exception Handling/Ignore**: You can enter descriptive notes about how to handle the situation if the Receiving Partner continues to ignore all messages.
- **Fields**: A list of Data Fields can be associated with the Partner Interaction. These Data Fields define the data that is transmitted during the transaction.
    - **Type**: This specifies the type of the Data Field—Character, Integer, Float, Boolean, Structure, Time, Date & Time, or Long.
    - **New/Existing**: This defines if the Data Field is a new Data Field or a previously existing Data Field (with respect to how the business transaction has been done in the past).
    - **Header/Detail**: This defines whether the Data Field will appear only once in the transaction (header) or may appear more than once (detail).
    - **Mandatory/Conditional/Optional**: This defines if the Data Field is required (mandatory) in the transaction, is dependent on the presence or value of another Data Field (conditional), or is optional.
- **Notes**: All of the information concerning the Partner Interaction that is wanted can be documented in the Notes text box.

6.2.1 Drawing a Partner Interaction Object

✍ **The Partner Interaction Object is only available in the E-Commerce Editing Mode.**

To draw a Partner Interaction Object:

1. Click the **Partner Interaction** tool button  on the **ADF Toolbar**. Notice that the cursor changes to a plus sign with a Partner Interaction symbol in the upper right quadrant.
2. Click inside a free cell to insert a Partner Interaction Object inside that cell.

6.2.2 Defining a Partner Interaction Object

✍ **The Partner Interaction Object is only available in the E-Commerce Editing Mode.**

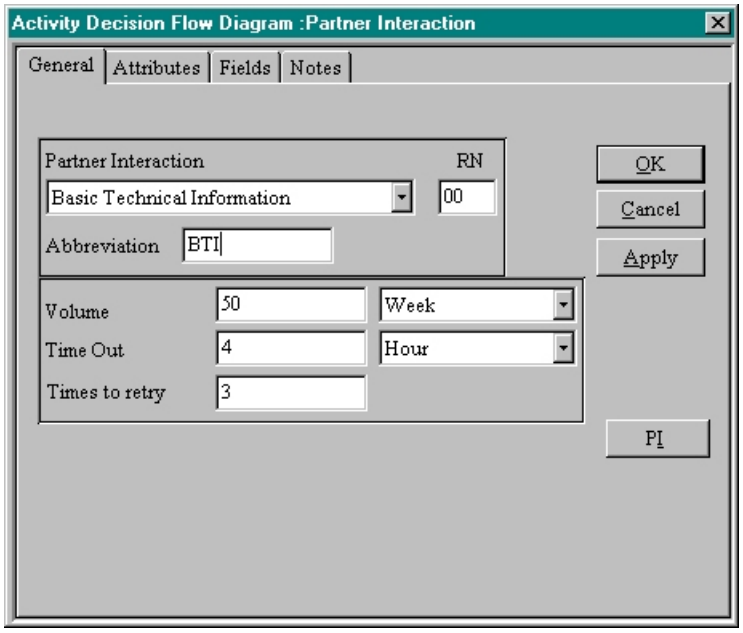
To define a Partner Interaction Object:

1. Select the **Pointer** tool, either by clicking the **Pointer** tool button  on the ADF Toolbar, or by clicking the right mouse button on the diagram.
2. Double-click on a Partner Interaction. The **Partner Interaction Object** dialog box appears, open to the **General** tab.
3. Continue in one of the following four (4) tabs, which are described in the next four (4) sections.

6.2.2.1 General

To define Data attributes in the General tab of the Partner Interaction Object dialog box:

1. Click the **General** tab at the top of the **Partner Interaction Object** dialog box (see the figure below). This tab allows for the selection of a Partner Interaction from the Repository or for the creation of a new Partner Interaction. You can also add or update the following Partner Interaction attributes: Abbreviation, RN, Volume, Time Out, and Times to Retry.



2. To select a Partner Interaction from those defined in the Repository, choose one from the **Partner Interaction** list (click on the arrow at the right end of the **Partner Interaction** combo box to bring up the list). Workflow•BPR will fill in the **Partner Interaction Object** dialog box items with any pre-defined data associated with the selected name.

   * If the Partner Interaction you want is not included on the list, then you need to create it. Click on the **PI** Go To button to open the Repository **Partner Interactions** dialog box (refer to the section entitled "Partner Interactions" in Chapter 3 of the *User's Guide*). Upon returning to the **Partner Interaction Object** dialog box, the new item(s) will be included on the list.

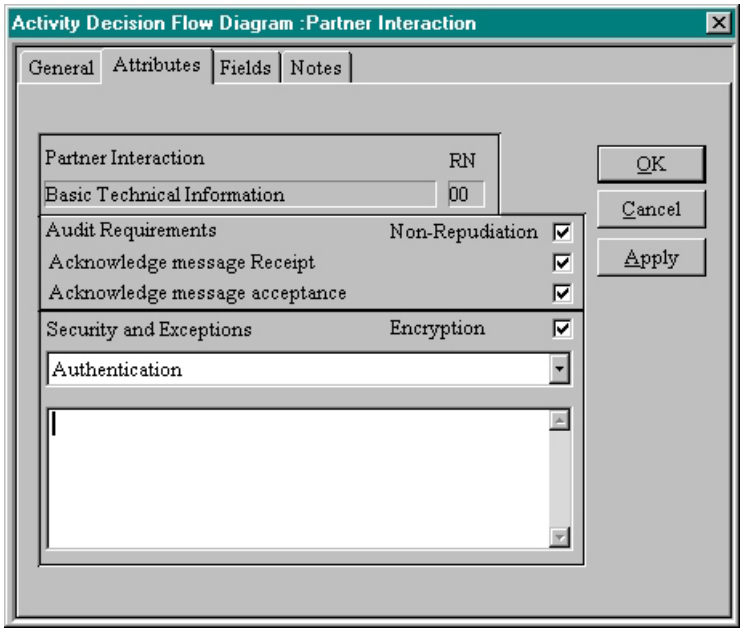
3. To change the **Reference Number** of a Partner Interaction, type the number in the **RN** text box. The default number is 0.

4. To add or change the **Abbreviation** of a Partner Interaction, ⌨ type the information in the **Abbreviation** text box. The Abbreviation can be a maximum of eight characters.
5. To change the volume of the Partner Interaction, ⌨ type the appropriate value in the **Volume** text box, and then 🖱 select the appropriate time unit from the **Volume** selection box.
6. To change the time out value of the Partner Interaction, ⌨ type the appropriate value in the **Time Out** text box, and then 🖱 select the appropriate time unit from the **Time Out** selection box.
7. ⌨ type the number of retries in the **Times to Retry** text box.
8. 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.

6.2.2.2 Attributes

To define Data attributes in the State tab of the Partner Interaction Object dialog box:

1. 🖱 Click the **Attributes** tab at the top of the **Partner Interaction Object** dialog box (see the figure below). This tab contains settings and information about Auditing Requirements, Security, and Exceptions.



2. If Non-Repudiation is required, 🖱 click on the **Non-Repudiation** check box.
3. If Non-Repudiation is required, 🖱 click on the **Acknowledge message Receipt** check box.

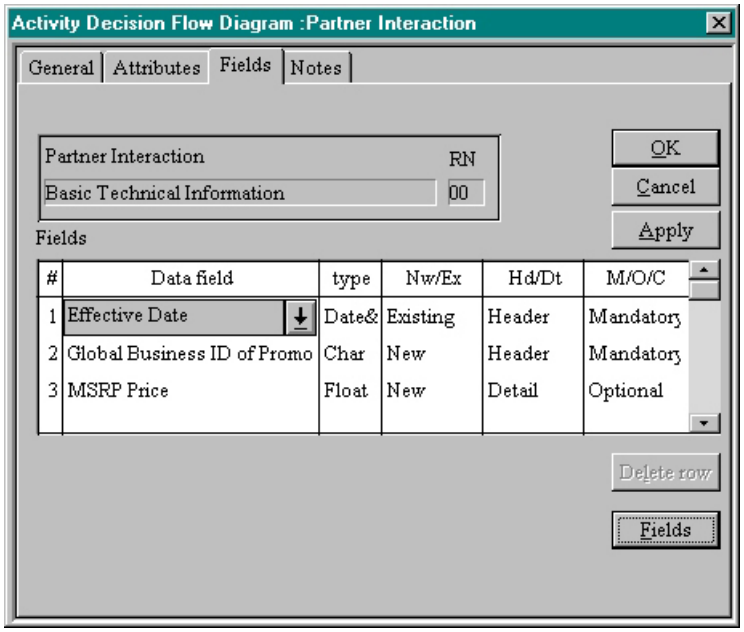
4. If Non-Repudiation is required, click on the **Acknowledge message acceptance** check box.
5. If message encryption is required, click on the **Encryption** check box.
6. To add descriptive notes about authentication of the message, select "Authentication" from the Security and Exceptions list box. Then type the notes in the text box below.
   * If you want to add a **Carriage Return** to the text of your Notes, then type **Ctrl+Enter**.
7. To add descriptive notes about exception handling if there no response from the receiving Partner, select "Exception Handling/No Response" from the Security and Exceptions list box. Then type the notes in the text box below.
8. To add descriptive notes about exception handling if the receiving Partner cannot respond now, select "Exception Handling/No Response now" from the Security and Exceptions list box. Then type the notes in the text box below.
9. To add descriptive notes about exception handling if the receiving Partner ignores all attempts at the transaction and its follow-ups, select "Exception Handling/Ignore" from the Security and Exceptions list box. Then type the notes in the text box below.
10. 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.

6.2.2.3 *Fields*

✍ **The Fields tab is not available in the Basic Mode, the IBM FlowMark Mode, or the IBM MQ Workflow Mode.**

To define a list of Data Fields to a Partner Interaction Object:

1. 🖱 Click the **Fields** tab at the top of the **Partner Interaction Object** dialog box (see the figure below). This tab displays the Partner Interaction Name, its Abbreviation, and its RN. It also allows for creating a list of Data Fields associated with the Partner Interaction.



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**.
   - If the 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.
3. 🖱 Click on the cell below the **Nw/Ex** column, then 🖱 click on the **Arrow** button that is on the right side of the column.
   - 🖱 Select either "New" or "Existing" from the list.

4. Click on the cell below the **Hd/Dt** column, then click on the **Arrow** button that is on the right side of the column.
   * Select either "Header" or "Detail" from the list.
5. Click on the cell below the **M/O/C** column, then click on the **Arrow** button that is on the right side of the column.
   * Select "Mandatory," "Optional," or "Conditional" from the list.
6. Repeat the Steps 2 through 5 for each line of the **Data Field** column until all Data Fields have been selected.

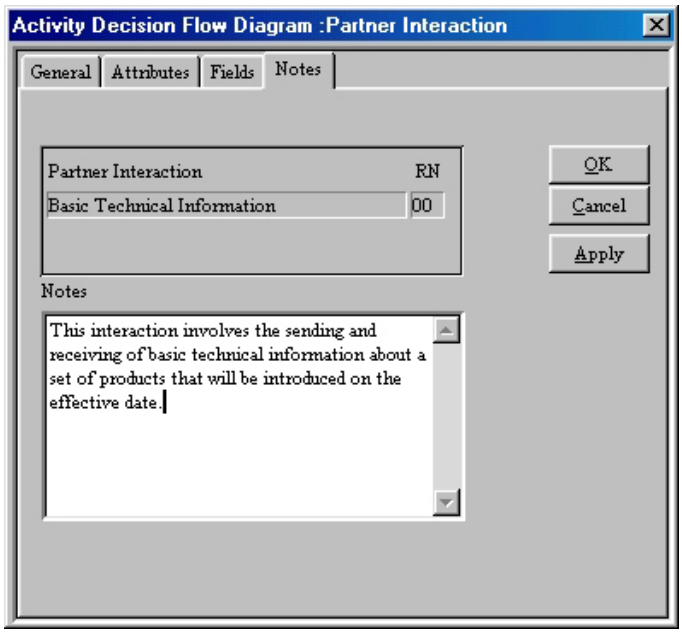
✍ **You can use the Shift+Arrow keys to navigate the editing cursor through the Fields table.**

7. 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.

6.2.2.4 Notes

To define Data attributes in the Notes tab of the Partner Interaction Object dialog box:

1. Click the **Notes** tab at the top of the **Partner Interaction Object** dialog box (see the figure below*, from the Basic Mode*). This tab displays the Partner Interaction name, its Abbreviation, and its RN. It also contains a text box for adding Notes about the selected Task.



2. To add or update Notes about the selected Partner Interaction, type 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 object, click **OK** or press **Enter**, or you can continue to edit the object in one of the other tabs.

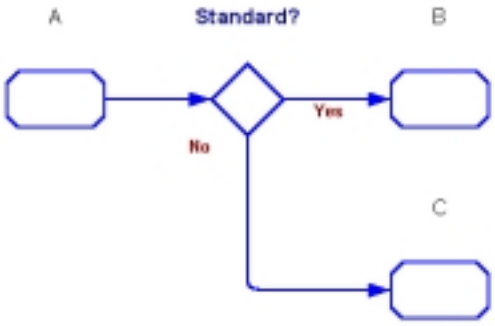
Chapter 7: Modeling Decisions and Their Choices

In Workflow•BPR, a Decision is a situation with multiple Choices. During the Process, you may encounter situations that result in conditions that influence the routing of work. A selection must be made in these situations to define the subsequent Tasks (for example, the question, "*Is a review required?*" requires a Decision). If a review is required, review Tasks should be performed. Otherwise, no review Tasks need to be considered. Decisions are an essential part of modeling the alternative nature of a Process. Decisions can be thought of as a gateway to possible paths within a Process. The Decision can have many outcomes, which are called Choices. The Choice determines which path the Process takes. Choices have a probability attribute that is used to calculate the full probability of a given path through the Process.

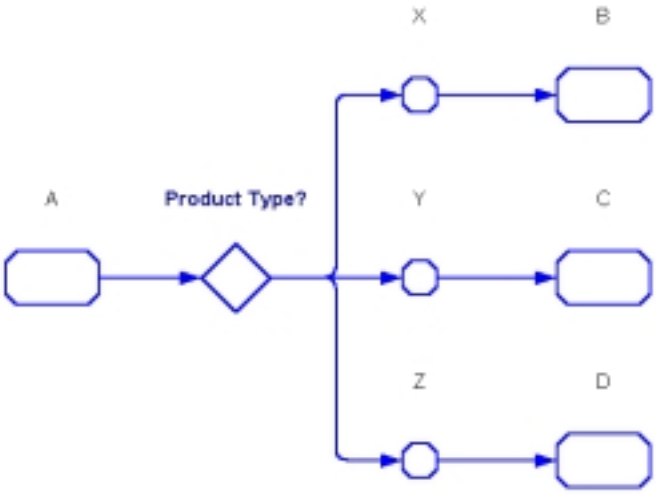
In Workflow•BPR, there are two forms of a Decision: Binary and Multiple. Binary Decisions have two Choices: Yes and No. *These two Choices cannot be modified.* Multiple Decisions have no default Choices; therefore, your Choices for the Decision can be created and/or updated. The Choices for these Decisions are exclusive. That is, during the performance of a Process, you can select only one of the choices at a time. Weighted Average Analysis and Simulation is based on this assumption. However, you can now define Multiple Decisions as being Inclusive or Complex.

When modeling alternative activities, it is necessary to precede the activities with a Decision and its connected Choices. Each Choice leads to an alternative Task. In an Activity Decision Flow Diagram, a Decision Object is modeled by a diamond shape (see the figure below, on the left), while a Choice Object is modeled by a small octagon (see the figure below on the right):

A Binary Decision does not use Choice Objects. The position of the exit point of the two (and only two) Connectors determines the Choice. The "Yes" Choice exits from the right point of the Decision diamond. The "No" Choice exits from the bottom point of the Decision diamond. These Connectors lead to the next object in the Process (not a Choice Object).



Multiple Decisions use Choice Objects to model the two or more Choices that are part of the Decision. All Connectors exit from the right point of the Decision diamond and lead to a Choice Object. The next objects in the Process are connected from the Choice Objects. Defining a Decision is associating a set of related information with a specific Decision within the Decision Object dialog box. The attributes used to define a Decision are the following:



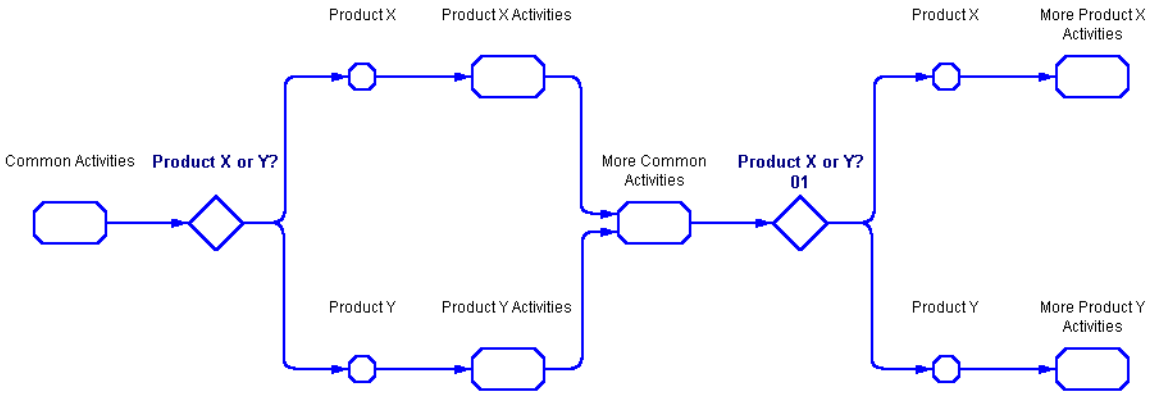
- **Type of Decision**: There are two types of Decisions:
  - **Binary**: Binary Decisions have two default Choices: Yes and No. You can modify the name and percentage of occurrence, but you cannot add another Choice.

  - **Multiple**: Multiple Decisions have no default Choices; therefore, the Choices can be created and named as you prefer. The Choices and their percentages are modeled in Choice Objects, which are connected to the Decision Object in the drawing.

- **Name (Decision)**: A name is associated with a Decision item in the Repository.
- **Exit Condition**: the Exit Condition check box is used if the Decision represents the Business Model equivalent of the End Expression for a FlowMark or MQ Workflow Process Activity or Block. If the check box is selected, the Workflow Monitor can highlight the Decision either Yes or No, depending on the result of the Exit Condition equation. Only one decision in a Process can be selected as an Exit Condition.
- **RN**: A Reference Number (RN) is used to distinguish one or more Decisions that have the same name in a diagram. Although the Tasks have the same name, they are actually separate items that can have individual effect on the Process. The RN distinguishes the Tasks. The Choice selected for a Decision can be linked to the result of another Decision (with the same name) in the diagram through their RN numbers (refer to the Follow attribute below).
- **Follow**: A Decision that is a Follow will be treated as a copy that behaves exactly the same as the Source Decision to which it is linked. For a given path through the Process, either in Case Generation or in Simulation, the Choice that was selected for the Source Decision will be automatically selected for the Follow Decision. For example, if your Process dealt with two products (X and Y), some of the activities will be exclusively for Product X and others exclusively for Product Y. The Process might be modeled as follows:

  - There are some common activities that are performed for both products. A Decision splits the Process between Products X and Y, then later the Process merges because the activities are common for both products (see the figure on the following page). Still later, the second (Follow) Decision splits the Process again to deal with the differences between Products X and Y. In this Process, the second Decision has to keep track of the results of the first Decision (either Product X or Y) to make sure that Product Y activities are never performed on Product X. That is, if the Choice for the Source Decision is Product X, then the Choice for the Follow Decision, with a probability of 100%, must also be Product X (see the figure below).

- **Yes %**: This is available for Binary Decisions only. The probability that a Yes Choice is selected during normal operation of the Process can be set. The combined probability for the Yes and No Choices must equal 1 (100%).
- **No %**: This is available for Binary Decisions only. The probability that a No Choice is selected during normal operation of the Process can be set. The combined probability for the Yes and No Choices must equal 1 (100%).



In all Editing Modes other than the Basic Editing Mode, there are additional fields to be entered:

* **Type of Multiple Decision**:
  - **Exclusive (default)**: Only one (1) Choice of an Exclusive Decision can be selected during the performance of the Process. This is how the Multiple Decision has traditionally behaved in Workflow•BPR. Weighted Average analysis and Simulation will still treat a Multiple Decision as Exclusive, even if they are defined as being Inclusive or Complex.
  - **Inclusive**: This is equivalent to a string of Binary Decisions. Any of the Choices can be selected during the performance of the Process (from 0 to All). A specific Choice can be marked as being the "Choice" that occurs when all the other Choices do not occur.
  - **Complex**: This type of Multiple Decision is designed to handle more complex behavior within a Process. Specifically, they can be used to define the DesignFlow constructs of Choice Box and Multi-Thread.
    - **Number**: This attribute specifies the number of Choices that must be performed. The minimum number of Choices is two (2)—otherwise, it would be an Exclusive Decision.
    - **Start Option**: There are two (2) Start Options: **Sequential** (default) and **Simultaneous**.
      - These are used to define the DesignFlow Choice Box. Sequential Complex Decisions require that the Choices that are selected must be done in sequence. All Tasks that follow the Choice must be completed until a Stop object is reached that points back to the Task that starts the Choice Box.
      - These are used to define the DesignFlow Multi-Thread. Simultaneous Complex Decisions require that the Choices selected
      - begin at the same time.

☞ **For Weighted Average analysis and Simulation, all Multiple Decisions will behave as Exclusive Decisions.**

* **Yes Expression**: An expression can be entered for a Yes Choice that can be used by a Workflow Application to determine the path that should be followed during the performance of a Process.
* **No Expression**: An expression can be entered for a No Choice that can be used by a Workflow Application to determine the path that should be followed during the performance of a Process.

7.1 Drawing a Decision Object

To draw a Decision Object:

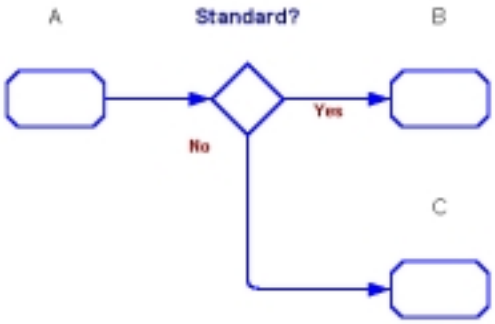
1. Click the **Decision** tool  on the **ADF Toolbar**. Notice that the cursor changes to a plus sign with a Decision symbol in the upper right quadrant.
2. Click inside a free grid cell to insert a Decision Object inside that cell (see the figure below).

7.2 Defining a Decision Object

There are two (2) variations of the Decision Object: Binary and Multiple. The following sections describe how to define them.

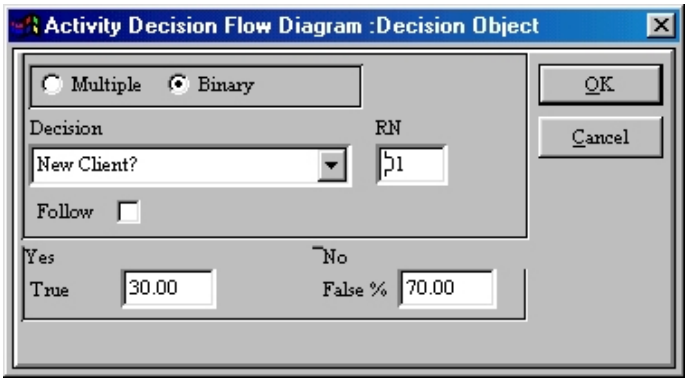
7.2.1 Defining a Binary Decision Object

Binary Decisions have two default Choices: Yes and No. You can modify the name and percentage of occurrence, but you cannot add another Choice. The Yes Choice is represented by a Connector that is attached to the right point of the Decision diamond. The No Choice is represented by a Connector that is attached to the bottom point of the Decision diamond.



To define a Binary Decision Object:

1. Select the **Pointer** tool, either by clicking the **Pointer** tool button  (see the figure below) on the **ADF Toolbar** or by clicking the right mouse button on the diagram.
2. Double-click on a Decision. Workflow•BPR displays the **Decision Object** dialog box (see the figure below, *from the Basic Editing Mode*).



3. If the Decision is to be a Binary Decision, then click on the **Binary** radio button. Workflow•BPR filters the Decision list in the Name combo box to include only Binary Decisions.
4. If the Decision is to be a Multiple Decision, then click on the **Multiple** radio button. Workflow•BPR filters the Decision list in the Name combo box to include only Multiple Decisions.

    * In all Editing Modes other than Basic, IBM FlowMark, and IBM MQ Workflow, you can also select a Multiple Decision **Type** – Exclusive, Inclusive, or Complex -- from the **Type** list (click on the arrow at the right end of the **Type** combo box to bring up the list).

        – If you select a **Complex** Multiple Decision Type, you will have two more fields to enter, **Start Option**, and **Number**:

            · Select a **Start Option** from the list (click on the arrow at the right end of the **Start Option** combo box to bring up the list).

            · Type in a **Number**.

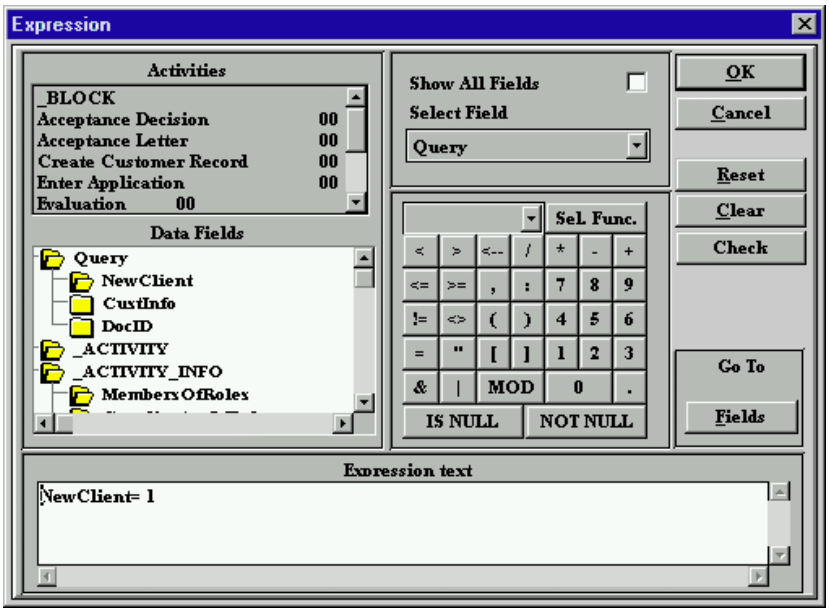
5. To select a **Decision** from those defined in the Repository, choose one from the **Decision** list (🖱 click on the arrow at the right end of the **Decision** combo box to bring up the list).
   * If the Decision you want is not included on the list, then you need to create it. The Decision Name can be ⌨ typed in the Decision combo box. When you 🖱 click **OK**, a new Binary Decision with that name will be recorded in the Repository.
6. To change the Reference Number of the Decision, ⌨ type the number in the **RN** text box. The default number is 0.
   * If the name of the selected Decision has already been used by one or more other Decisions, the selected Decision Object must be given a unique RN. Workflow•BPR will automatically increment the RN to the next highest number if there is a duplicate RN number.
7. If a Decision is to follow the same Choice as a previously defined Decision Object with the same name (i.e., during Case Generation or Simulation), 🖱 click the **Follow** check box.
   * Workflow•BPR displays another RN selection box, from which you may select the RN of the Decision you want.
8. Assign a percentage for a "yes" occurrence of the Decision by ⌨ typing a value from 0 to 100 in the **Yes** % text box.
9. Assign a percentage for a "no" occurrence of the Decision by ⌨ typing a value in the **No** % text box.
   * If the two values do not total one hundred (100%), Workflow•BPR normalizes these values.
10. *In any Editing Mode other than the Basic Editing Mode*:
    * 🖱 Select the **Exit Condition** check box if the Decision is used to create the Business Model equivalent of the End Expression for a FlowMark or MQ Workflow Process Activity or Block.
      – This will provide the information needed so that the Workflow Monitor can highlight the Decision either Yes or No, depending on the result of the Exit Condition equation.
      – Only one decision in a Process can be selected as an Exit Condition.
    * To add an **Expression** that can be used by a workflow application to branch the Process in the "Yes" or "No" direction, 🖱 click the **Yes Expression** button or the **No Expression** button to open the **Expression** dialog box. Refer to the section that follows for information about the functions of the **Expression** dialog box.
11. 🖱 Click **OK** or ⌨ press **Enter**.

7.2.1.1 *Adding an Expression*

✍ **The Expression dialog box is available for use with Decision Objects only in Editing Modes other than the Basic Editing Mode.**

To add an Expression to the Expression dialog box:

1. ⌨ Type the text of the **Expression** in the **Expression** text box (see the figure below, from the Advanced Editing Mode – the Expression dialog box is not available for use with Decision Objects or Choice Objects in the Basic Editing Mode). 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.

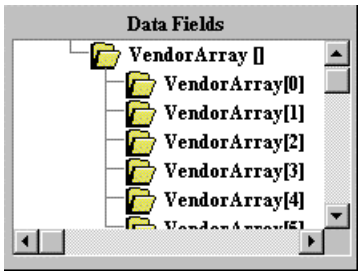
  – If the Data Field or Data Structure you want is not on the list, then you must to create it. 🖱 Click the **Fields** Go To button to open the **Data Fields** dialog box (refer to the section entitled "Data Fields" in Chapter 3 of the *User's Guide*).

* 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 will be 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 below).
- – Click on the array element number that you want to use. This will move the array element into the **Expression** text box.

* Select a Function from the Function selection box, and 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 **Decision Object** or **Choice Object** dialog box.

✍ **Warning: If you change any of the attributes (e.g., Yes %) of a Decision in the Decision Object dialog box, the changes will affect only that object. The changes will not be updated in the Repository or in other instances of the Decision in any Activity Decision Flow Diagram.**

7.2.2 Drawing a Yes Choice Connector

To draw a Yes Connector for a Binary Decision:

1. Click the **Connector** tool button on the **ADF Toolbar**. Notice that the cursor changes to a plus sign with a Connector symbol in the upper right quadrant.
2. Click and drag from an area *near the right point or center* of the Decision diamond icon to the center of another object. Workflow•BPR draws a Connector from the right point of the diamond to the other object.

7.2.3 Drawing a No Choice Connector

To draw a No Connector for a Binary Decision:

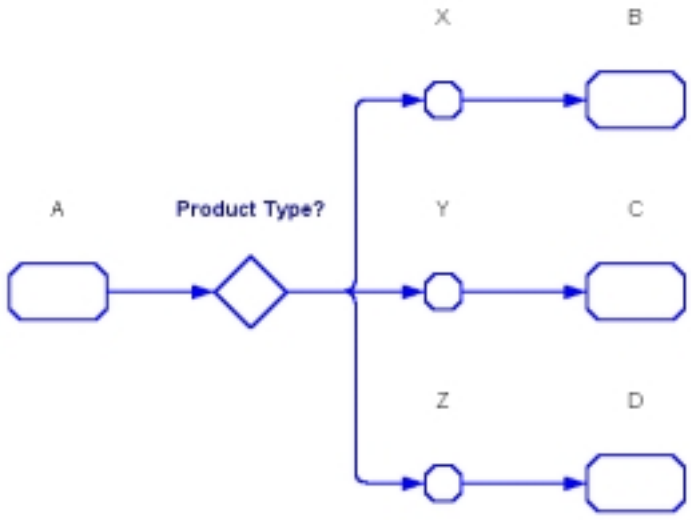
1. Click the **Connector** tool button on the **ADF Toolbar**. Notice that the cursor changes to a plus sign with a Connector symbol in the upper right quadrant.
2. Click and drag from an area *near the bottom point* of the Decision diamond icon (see the figure below) to the *center* of another object. Workflow•BPR draws a Connector from the bottom point of the diamond to the other object.

✍ **The object that you are connecting to the No Connector must be at least one column to the right of the Decision (i.e., you cannot connect to an object that is directly below or to the left of the Decision).**

✍ **The "Yes" and "No" Connector labels will not appear unless the Decision Object has been defined.**

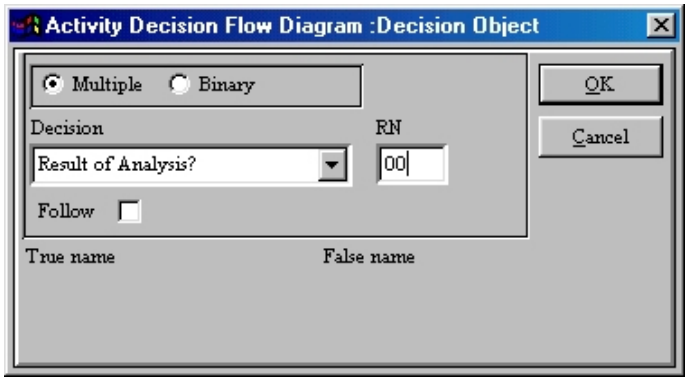
7.2.4 Defining a Multiple Decision Object

Multiple Decisions have no default Choices, therefore, the Choices can be created and named as you prefer. The Choices and their percentages are modeled in Choice Objects, which are connected to the Decision Object in the drawing.



To define a Multiple Decision Object:

1. Select the **Pointer** tool, either by clicking the **Pointer** tool button on the **ADF Toolbar** or by clicking the right mouse button on the diagram.
2. Double-click on a Decision. Workflow•BPR displays the **Decision Object** dialog box (see the figure below, *from the Basic Editing Mode*).



3. If the Decision is to be a Multiple Decision, then click on the **Multiple** radio button. Workflow•BPR filters the Decision list in the Name combo box to include only Multiple Decisions.
4. To select a Decision from those defined in the Repository, choose one from the **Decision** list (click on the arrow at the right end of the Name combo box to bring up the list). For Binary Decisions, Workflow•BPR will fill in the Yes and No percentages that have been pre-defined for the selected name.
    * If the Decision you want is not included on the list, then you need to create it. The Decision Name can be typed in the Decision combo box. When you click **OK**, a new Binary Decision with that name will be recorded in the Repository.
5. To change the Reference Number of the Decision, type the number in the **RN** text box. The default number is 0.
    * If the name of the selected Decision has already been used by one or more other Decisions, the selected Decision Object must be given a unique RN. Workflow•BPR will automatically increment the RN to the next highest number if there is a duplicate RN number.
6. If a Decision is to follow the same Choice as a previously defined Decision Object with the same name (i.e., during Case Generation or Simulation), click the **Follow** check box. Workflow•BPR displays another RN selection box, from which the RN of the Decision you want can be selected.
7. *In any Editing Mode other than the Basic Editing Mode*:
    * Select the **Exit Condition** check box if the Decision is used to create the Business Model equivalent of the End Expression for a FlowMark or MQ Workflow Process Activity or Block.
        – This will provide the information needed so that the Workflow Monitor can highlight the Decision either Yes or No, depending on the result of the Exit Condition equation.
        – Only one decision in a Process can be selected as an Exit Condition.
    * Select the type of Multiple Decision from the **Type** selection box.
        – There are three types of Multiple Decisions: **Exclusive** (default), **Inclusive**, and **Complex**.
            · Complex Multiple Decisions are used for defining the DesignFlow constructs of Multi-Thread and Choice Box (refer to the IBM *DesignFlow™ Analysis Diagram Handbook* for more information on the behavior of Multi-Threads and Choice Boxes).

✍ **For the purpose of Weighted Average analysis and Simulation, all Multiple Decisions will behave as Exclusive. Future updates of Workflow•BPR will allow the analysis behavior of Multiple Decisions to be determined by the Type.**

- If the Multiple Decision Type is Complex, ⌨ type the number of Choices that need to be completed for this Decision in the **Number** text box.
- If the Multiple Decision Type is Complex, 🖱 select the start option that will sequence the Choices of this Decision in the **Start Option** selection box.
  - There are two Start Options: **Sequential** (default), and **Simultaneous**.
    - Sequential is used to define a DesignFlow Choice Box.
    - Simultaneous is used to define a DesignFlow Multi-Thread.

8. 🖱 Click **OK** or ⌨ press **Enter**.

7.2.5 Drawing a Choice Object

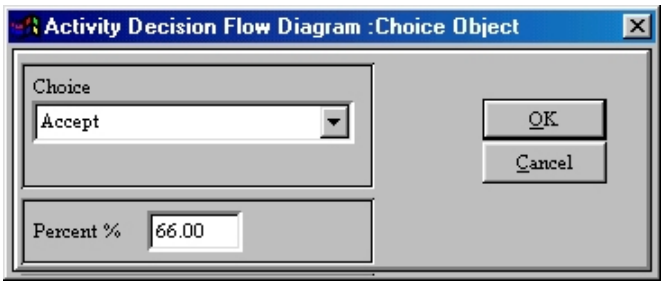
To draw a Choice Object:

1. 🖱 Click the **Choice** tool button  on the **ADF Toolbar**. Notice that the cursor changes to a cross with a Choice symbol in the upper right quadrant.
2. 🖱 Click inside a free grid cell to insert a Choice Object inside that cell. The Choice must be in a column that is to the right of the Decision associated with the Choice.

7.3 Defining a Choice Object

To define a Choice Object:

1. Select the **Pointer** tool, either by clicking the **Pointer** tool button on the **ADF Toolbar** or by clicking the right mouse button on the diagram.
2. Double-click on the **Choice**. Workflow•BPR displays the **Choice Object** dialog box (see the figure below, *from the Basic Editing Mode*).



✍ **A Defined Decision Object must be connected to the Choice Object before the Choice Object dialog box will open.**

3. To select a Choice from those defined in the Repository, choose one from the **Choice Name** list (click on the arrow on the right end of the **Choice** combo box to bring up the list). Workflow•BPR will fill in the percentage that has been pre-defined for the selected name.
   - If the Choice you want is not included on the list, then you need to create it. Type the name in the **Choice** combo box. When you click **OK**, a new item with that name will be recorded in the Repository.
4. To change the percentage associated with the Choice, type the new value in the **Percent %** text box.
5. *In any Editing Mode other than the Basic Editing Mode*:
   - If the Decision is type **Inclusive** and you want the Choice to represent the condition where all the other Choices of that Decision do not occur, then select the **None** check box.
     - The None check box is only available when the Decision is of type **Inclusive**.
   - If the Decision is type **Complex** and you want the Choice to represent the finish of the Decision's behavior (such as a DesignFlow Choice Box), then select the **Finish** check box.
     - The Finish check box is only available when the Decision is type **Complex**.
   - To add an **Expression** that can be used by a workflow application to branch the Process in the direction of the selected Choice, click the

Expression button to open the **Expression** dialog box. Refer to the section entitled "Adding an Expression" on page 7-8 for information about the functions of the **Expression** dialog box.

6. Click **OK** or press **Enter**.

✍ **Warning: If you change any of the attributes (e.g., Percent %) of a Choice in the Choice Object dialog box, the changes will only affect that object. The changes will not be updated in the Repository or in other instances of the Choice in any Activity Decision Flow Diagram.**

Chapter 8: Modeling Loops and Stops

This chapter describes how to model Loops and Stops. Many Processes have situations in which a Decision is reached about the status of a product. The product is acceptable and can move on in the Process, or the product is not acceptable and some of the work that had already been performed on the product will have to be redone. This rework is called a Loop within the Process. We recommend that you limit the use of Go To objects, but they are necessary in some situations.

A complex Process will have many paths because of the Decisions that occur throughout the Process. Sometimes it is useful to identify visually the end points of paths or trails through a Process.

8.1 Modeling Loops Or Go To Objects

When you want a Task (source Task) appearing in one location of an Activity Decision Flow Diagram to be followed by another Task (target Task) appearing in another location of the same Activity Decision Flow Diagram, Go To Objects can be used to create the link. Go To Objects can only be connected to objects in one direction and are used in pairs; the pair of Go To Objects consist of a *Source* Go To Object and a *Target* Go To Object. Source Go To Objects can only be connected from an object that is behind it (to the left) in the drawing. Target Go To Objects can only be connected from an object that is in front of it (to the right) in the drawing.

> ✍ **A Go To Object should not be connected to the first object in an Activity Decision Flow Diagram. There must be at least one other object connected to the Activity, in addition to the Go To Object.**

It is possible to have many source Go To Objects but only one target Go To Object. A Loop is a subset of the Go To feature in which the target Go To Object lies in the same "downstream" Process path as the source Go To Object.

✍ **Go To Objects can only be paired within a single Activity Decision Flow Diagram. They cannot be used to loop between Processes.**

To model a Go To Object, it is necessary to draw and define it. In an Activity Decision Flow Diagram, a Go To Object is a star (see the figure below).

The attributes used to define a Go To Object are:

- **Go To Identifier**: This is the unique Identifier for the Go To Object. The source and target Go To Objects will have the same Go To Identifier.
  - The Identifier can be up to three (3) characters.
- **Description**: It is possible to describe the nature of the connection in the description. In general, it is useful to identify the target location of the Go To Object pairs.
  - The Description can be up to thirty-five (35) characters.
- **Rework**: This defines the Go To Object as being specifically a Rework Loop. When this is specified, the shape of the Go To Object will change.
  - If the Go To Object is the source of the Loop, then the shape of the Go To Object will be a triangle with the point directed towards the left (see the figure below).

  - If the Go To Object is the target of the Loop, then the shape of the Go To Object will be a triangle with the point directed towards the right (see the figure below).

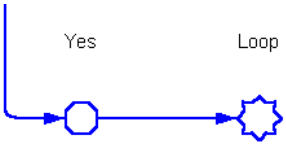
  - If the Go To Object is unconnected, then the shape of the Go To Object will be a star with an "R" in it (see the figure below).

8.1.1 Drawing a Go To Object

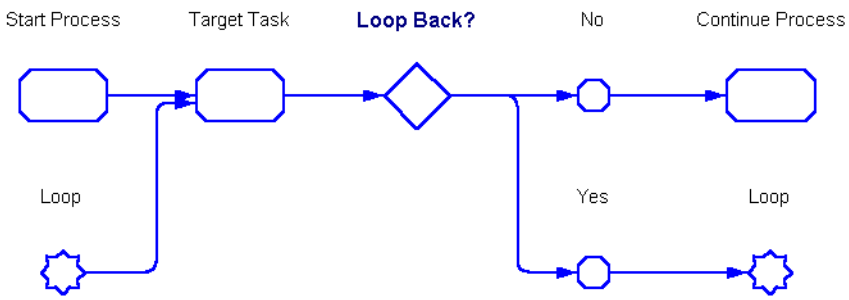
To draw and connect Go To Objects:

1. Click the **Go To** tool button  on the **ADF Toolbar**. Notice that the cursor changes to a plus sign with a Go To symbol in the upper right quadrant.
2. Click inside a free grid cell to insert a Go To Object inside that cell (see the figure below).

3. Click the **Connector** tool button  on the **ADF Toolbar**. Notice that the cursor changes to a plus sign with a Connector symbol in the upper right quadrant.
4. To create a *source* **Go To Object**, connect (from left to right) a valid object to the Go To Object (see the figure below). For a list of valid objects, refer to the table in the section entitled "Connecting Objects in an Activity Decision Flow Diagram" in Chapter 2.



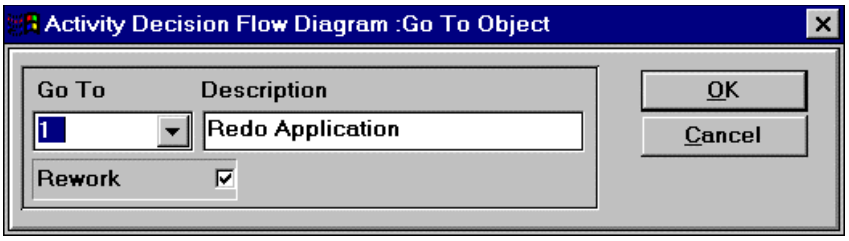
5. To create a *target* **Go To Object**, connect (from left to right) a valid object *from* the Go To Object (see the figure below). For a list of valid objects, refer to the table in the section entitled "Connecting Objects in an Activity Decision Flow Diagram" in Chapter 2.



8.1.2 Defining a Go To Object

To define a Go To Object:

1. Select the **Pointer** tool, either by clicking the **Pointer** tool button  on the **ADF Toolbar** or by clicking the right mouse button on the diagram.
2. Double-click on a **Go To Object**. Workflow•BPR displays the **Go To Object** dialog box (see the figure below).



3. Select a Go To Identifier from the **Go To** combo box. Workflow•BPR then displays its description.
   * If the Identifier you want is not included on the Go To list, type a new Identifier in the **Go To** combo box.
   * The Identifier can be up to three (3) characters.
4. To add or change the description of the **Go To Object**, type in the **Description** text box. The description will change in all Go To Objects in the diagram with the selected Identifier. It is recommended that you describe the Go To Object by a name representing the object to which it is being forwarded (e.g., “Loop to Task 25”).
   * The Description can be up to thirty-five (35) characters.
5. If the Go To Object is part of a Loop and you want to use the alternative triangle shape, then select the **Rework** check box.
   * If the Go To Object has an Identifier and it is connected to a Source Object or a Target Object, then the shape of the Go To Object will change to the appropriate triangle (facing left for Source and right for Target).
6. Click **OK** or press **Enter**.

8.2 Modeling Stops

A Stop object is not required, but it provides a graphic indication that a path within a Process is completed. Workflow•BPR provides an object that resembles a stop sign that can be connected to the last object on a path (see the figure below). Note that Stop Objects are objects that don't require Data Attributes.

8.2.1 Drawing a Stop Object

To draw and connect a Stop Object:

1. Click the **Stop** tool button  on the **ADF Toolbar**. Notice that the cursor changes to a plus sign with a Stop symbol in the upper right quadrant.
2. Click inside a free grid cell to insert a **Stop Object** inside that cell.
3. Click the **Connector** tool button  on the **ADF Toolbar**. Notice that the cursor changes to a plus sign with a Connector symbol in the upper right quadrant.
4. Connect (from left to right) the **Diagram Object** that you want to indicate as the End Object to the **Stop Object**.

8.2.2 Defining a Stop Object

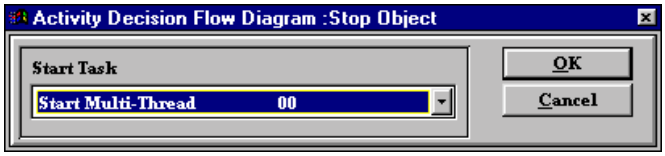
✍ **This section refers to features of Workflow•BPR that are only available within Line of Visibility ADFs. In particular, they apply to the DesignFlow methodology.**

Stop Objects do not typically have any attributes. However, they are used for defining the behavior of the specialized modeling objects of the Multi-Thread and Choice Box for the DesignFlow methodology. The Stops represent the termination of the path of Activities for a particular Thread or Choice. The Stop will "point" back to the start of a particular Multi-Thread or Choice Box (see the figure below). Since there may be more than one Multi-Thread or Choice Box within a Process Model, the appropriate object must be selected in the Stop Object. Only Tasks that are set to a Type of Start Multi-Thread or Start Choice Box Start (in the Details tab of the Task object dialog box) will be available for selection.

These specialized Stop Objects are used for the definition of Multi-Threads and Choice Boxes for the DesignFlow methodology. Currently, they do not affect how Simulation or Case Analysis is performed. In a future update, of Workflow•BPR, the Stop Objects will be used to control how these types of analyses are performed.

To define a Stop Object:

1. Select the **Pointer** tool, either by 🖱 clicking the **Pointer** tool button  on the **ADF Toolbar** or by 🖱 clicking the right mouse button on the diagram.
2. 🖱🖱 Double-click on a **Stop Object**. Workflow•BPR displays the **Stop Object** dialog box.



3. 🖱 Select a Task that has been selected as a Start of a Multi-Thread or Choice Box in the **Task** selection box.
4. 🖱 Click **OK** or ⌨ press **Enter**. An arrow pointing backwards will be added to the Stop Object icon (see the figure on previous page).

Chapter 9: Modeling Connectors

In Workflow•BPR, Connectors are used to model both the sequence in which activities occur and the Medium by which a Phi progresses from one activity to the next. When a Connector Object is defined in a diagram, it can be connected with information from the Media category in your Repository and can identify Transfer Time that may be associated with the Phi transfer from one activity to the next. Certain rules must be followed when drawing a Connector. Because a Connector represents the forward progression in the Process Diagram, a Connector can only be drawn going from left to right.

To model a Connector Object, it is necessary to draw and define it. In an Activity Decision Flow Diagram, a Connector Object is an arrow (see the figure below):

The attributes that are used to define a Connector Object are:

- **Source**: *This attribute is available in all Connectors*. This is the name of the preceding Object, unless that Object is a Phi, in which case it is the name of the Object preceding the Phi.
- **Target**: *Not available in Connectors where the following Object is a Phi*. This is the name of the following Object.
- **Phi***: Available only in Connectors where one of the connected Objects is a Phi*. The name of the relevant Phi.
- The following Connector attributes are available only if at least one of the connected Objects represents some kind of activity, e.g., Tasks, Processes, or Externals.
    - **Start/Finish Flag**: Select a flag from the **S/F Flag** selection box:
        - **F/S**: When this flag is set, the source Task must finish before the target Task can start. The Connector is considered a Primary Connector.
        - **F/F**: If this flag is set, the source Task must finish before the target Task can finish. The Connector is considered a Secondary Connector.

  - **S/F**: When this flag is set, the source Task must start before the target Task can finish. The Connector is considered a Secondary Connector.
  - **S/S**: If this flag is set, the source Task must start before the target Task can start. The Connector is considered a Primary Connector.

* **Medium**: This is the method of transferring the Phi (e.g., a courier or a fax). These methods are selected from a list in the Repository.
* **Transfer Duration**: Transfer Duration is the total length of time that it takes to transfer the Phi with the Medium.
* **Calendar**: The Calendar assigned to a Medium defines the Working Hours during which a Medium can transfer the Phi (e.g., from 9:00 a.m. to 5:00 p.m.).

9.1 Drawing A Connector

To draw a Connector:

1. Click the **Connector** tool button  on the **ADF Toolbar**. Notice that the cursor changes to a plus sign with a Connector symbol in the upper right quadrant.
2. Click and drag from the center of one object to the center of another. Workflow•BPR draws a Connector connecting the two objects (see the figure below).

There are two different shapes you can use for the Connectors that cross rows in a diagram: curved and straight. Use a right mouse click on the Connector to switch between Connector formats.

9.1.1 Drawing A Connector for a Binary Decision

Binary Decisions are unique Diagram Objects in that they have two different types of Connectors that are drawn out of two locations on the object. There is the Yes Connector, which defines the path to the Decision for a Yes Choice, and there is the No Connector, which defines the path to the Decision for a No Choice. Yes Connectors are drawn from the right point of the Decision diamond icon. No Connectors are drawn from the bottom point of the Decision diamond icon.

9.1.1.1 Drawing a Yes Connector

To draw a Yes Connector for a Binary Decision:

1. Click the **Connector** tool button  on the **ADF Toolbar**. Notice that the cursor changes to a plus sign with a Connector symbol in the upper right quadrant.
2. Click and drag from an area near the *right point or center* of the Decision diamond icon to the *center* of another object. Workflow•BPR draws a Connector from the right point of the diamond to the other object.

9.1.1.2 Drawing a No Connector

To draw a No Connector for a Binary Decision:

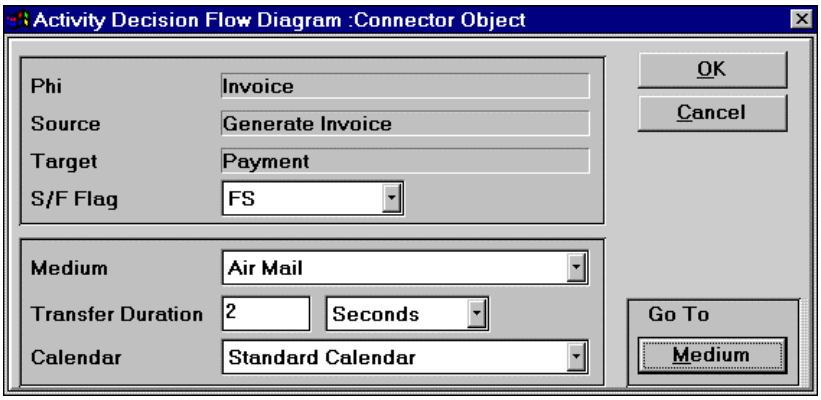
1. Click the **Connector** tool button  on the **ADF Toolbar**. Notice that the cursor changes to a plus sign with a Connector symbol in the upper right quadrant.
2. Click and drag from an area near the bottom point of the Decision diamond icon (see the figure below) to the center of another object. Workflow•BPR draws a Connector from the bottom point of the diamond to the other object.

9.2 Defining a Connector

When a Connector Object in a diagram is defined, it is connected with information from the Media category in your Repository. The Transfer Time that may be associated with the Phi transfer from one activity to the next is identified. Note that the Connectors to and from Decision Objects do not contain Media.

To define a Connector:

1. Select the **Pointer** tool, either by clicking the **Pointer** tool button on the **ADF Toolbar** or by clicking the right mouse button on the diagram.
2. Double-click on a **Connector**. The **Connector Object** dialog box appears (see the figure below). This dialog box displays the connected Phi (if any), the source activity, the target activity, the Medium, the Transfer Duration, and the Calendar associated with the Connector.



3. The following fields appear only if at least one of the connected Objects represents an activity, e.g., Task, Process, or External.
   * To change the **Start/Finish Flag** of the Task, select a flag from the **S/F Flag** selection box.
     - **F/S**: When this flag is set, the source Task must finish before the target Task can start.
     - **F/F**: If this flag is set, the source Task must finish before the target Task can finish.
     - **S/F**: When this flag is set, the source Task must start before the target Task can finish.

   ☞ **If the Start/Finish Flag is set to S/F or F/F and the Connector is *not* a Data Flow Only, then the Connector will be defined as a Secondary Connector and drawn with a dashed line.**

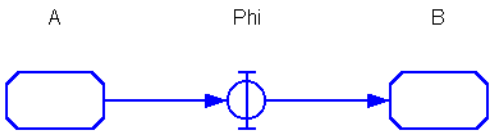
- **S/S**: If this flag is set, the source Task must start before the target Task can start.

* To add or change the **Medium**, select a **Medium** from the **Medium** list.
  - If the Medium you want is not included on the list, it needs to be created. Click the **Medium** Go To button to access the Repository **Medium** dialog box (refer to the section entitled "Media" in Chapter 3 of the *User's Guide*).
* To change the **Transfer Duration** of the Medium, type the appropriate value in the **Transfer Duration** text box, and then select the appropriate time unit from the **Transfer Duration** selection box.
* To add or change the **Calendar** associated with the Medium, select a **Calendar Name** from the **Calendar** selection box.
  - If the Calendar you want is not included on the list, it needs to be created. Click the **Calendar** Go To button to access the Repository **Calendar** dialog box in order to create the item (refer to the section entitled "Calendars" in Chapter 2 of the *User's Guide*). Upon returning to the **Connector Object** dialog box, the new item(s) will be included in the list.

4. Click **OK** or press **Enter**.

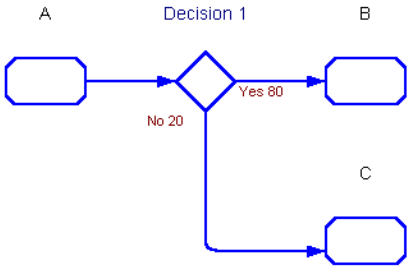
9.2.1 Connectors that Pass through a Phi

The main purpose of Connectors is to direct the flow from a source activity to a target activity. Phis can be part of the flow between activities (see the figure below). Because the Phi is placed between two activities, the Connector that represents the flow is divided into two Connector objects. This means that the Connector from source (Task A) to the Phi functions as the same Connector that goes from the Phi to the Target (Task B). If you add a Medium to the first Connector, then that Medium is applied to the second Connector. For analysis purposes, the two (2) Connectors are treated as one (1) Connector.



9.2.2 Connectors that Pass through a Decision

In some situations, the flow from a source activity is dependent on the circumstances within the Process. That is, there is a decision that needs to be made as to which activity will be the target. Therefore, a Decision object should be placed between the source and possible target activities (see the figure below). There is a separate functioning Connector from the source activity (Task A) to all of the possible target activities (Task B and Task C). *The Connector from the source activity to the Decision is not used for capturing Media information. Only the Connector from the Decision Choices to the target activities is used for Media.*



9.2.3 Primary and Secondary Connectors

Connectors can be defined as effecting the start of the target Task or the end of the target Task. The Start/Finish Flag in the Connector dialog box determines the relationship between the source and target Tasks. If the Start/Finish Flag is set to F/S (Finish/Start) or S/S (Start/Start), then the connection effects the *start* of the target Task and the Connector is defined as a *Primary Connector*. These Connectors are the typical Connector used in Workflow•BPR and are drawn with a solid line (see the

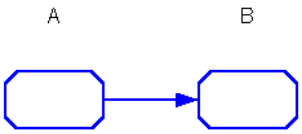
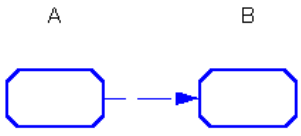


figure below).

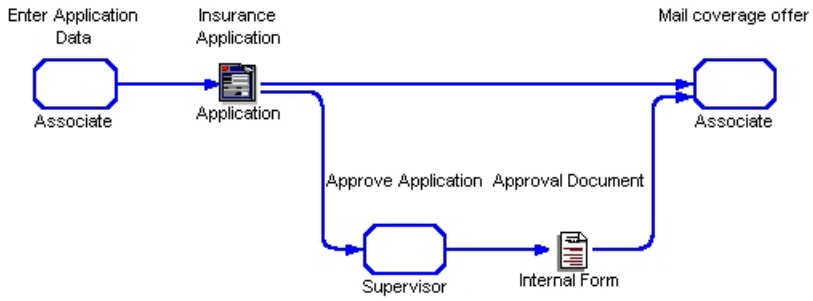
If the Start/Finish Flag is set to F/F (Finish/Finish) or S/F (Start/Finish), then the connection effects the end of the target Task and the Connector is defined as a *Secondary Connector*. These Connectors are drawn with a dashed line (see the figure below). However, if there is a Phi in between the source and target Tasks and the connection has been defined as Data Flow Only, then the Connector will be drawn with the dotted line of the Data Flow Only Connector.



In the DesignFlow methodology, Secondary Connectors will be used to identify signals that are necessary for the *completion* of the activity, rather than the start of the activity.

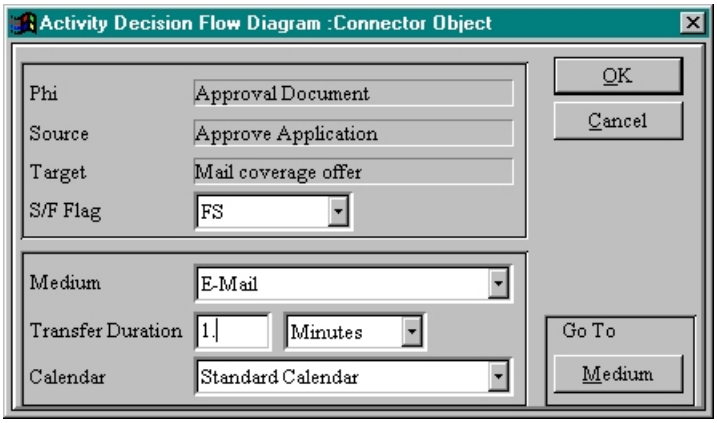
Defining a Connector as a Secondary Connector

The following example shows how to create a Secondary Connector. In the example, an Insurance Application is being processed (see the figure below). After the data is entered, the letter offering coverage can be prepared. But the letter cannot be completed until the application is approved by a Supervisor. Thus, the Supervisor's approval is necessary for the completion of the Task that creates the coverage offer letter.

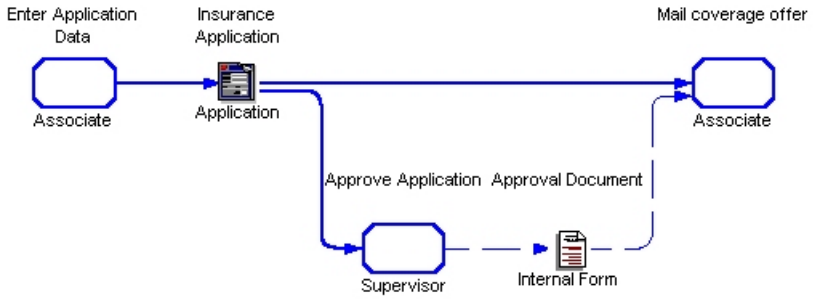


To create a Secondary Connector

1. Select the **Pointer** tool, either by clicking the **Pointer** tool button  on the **ADF Toolbar** or by clicking the right mouse button on the diagram.
2. Double-click on the Connector between two (2) activities (Tasks, Process Objects, or External Processes). The Connector Object dialog box appears (see the figure below).
   * If there is a Phi between the two (2) activities, you must double-click on the Connector that follows the Phi and connects to the *Target* activity.



3. Select either "FF" or "SF" from the **S/F Flag** list box.
4. Click **OK** or press **Enter**. The Connector between the two (2) activities will be drawn with a dashed line (see the figure below).



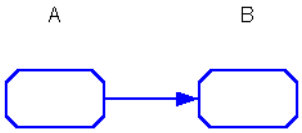
9.2.4 Control Flow and Data Flow

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

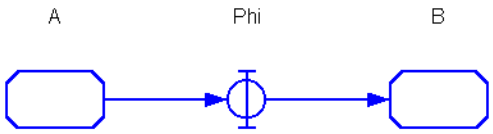
9.2.4.1 Control Flow Only

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



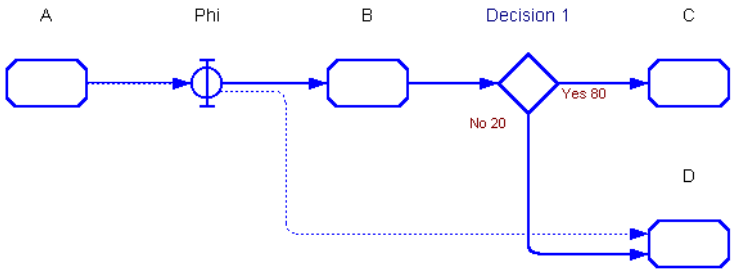
9.2.4.2 Control Flow and Data Flow

Phis 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 (see the figure below). In the figure on the left, 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.



9.2.4.3 Data Flow Only

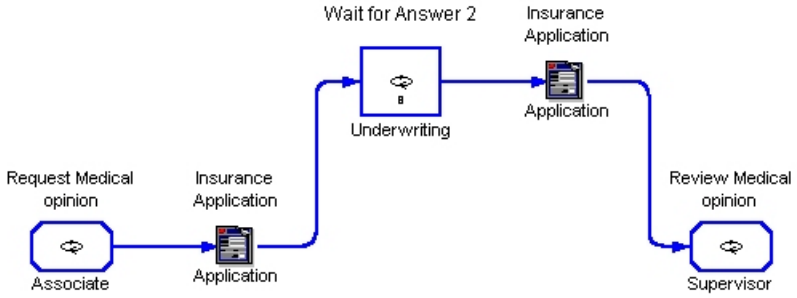
There are situations where you would want to create a connection between two activities that is only a flow of data. This will happen often for Processes intended for export to a workflow engine. In the figure below, the Phi represents data flow from the source activity (Task "A") to two (2) target activities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

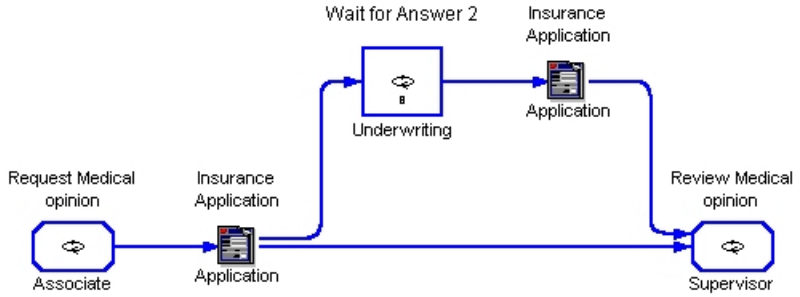
Defining a Connector as Data Flow Only

The following example shows how to create a Data Flow Only Connector. In the example, an Insurance Application is being processed (see the figure below). In the model, after the medical opinion is requested, some data is passed ahead to the "Review Medial Opinion" Task, which waits for the response to the request. Thus, a Data Flow Only Connector is required between the "Request Medial Opinion" Task and the "Review Medial Opinion" Task.



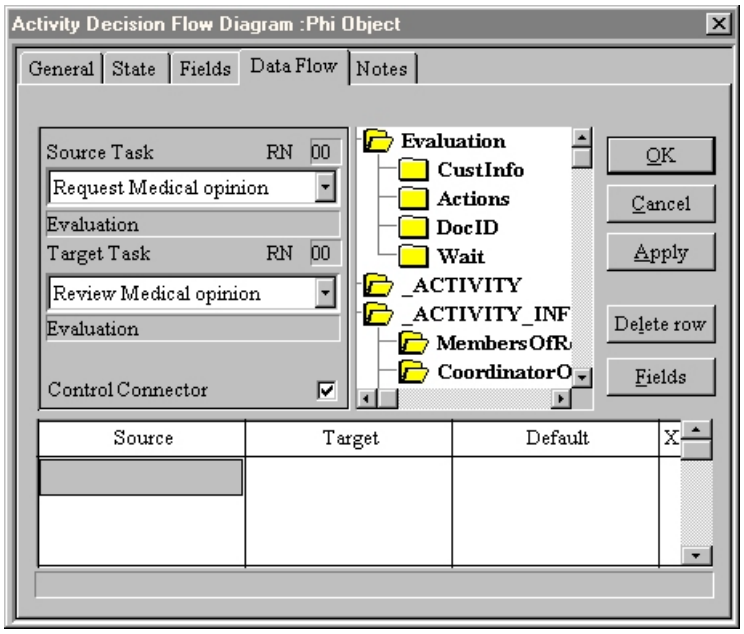
To add a Connector for Data Flow Only, signified by a dotted line, from this Phi to some Task:

1. Click the **Connector** tool button  on the **ADF Toolbar**. Notice that the cursor changes to a plus sign with a Connector symbol in the upper right quadrant.
2. Click and drag from a Phi object to the *center* of an activity (Task, Process Object, or External Process). A Connector is drawn between the two (2) objects (see the figure below).

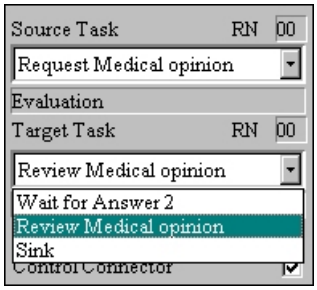


3. Double-click on the Phi object that was just connected. The **Phi Object** dialog box will appear—open to the General tab.

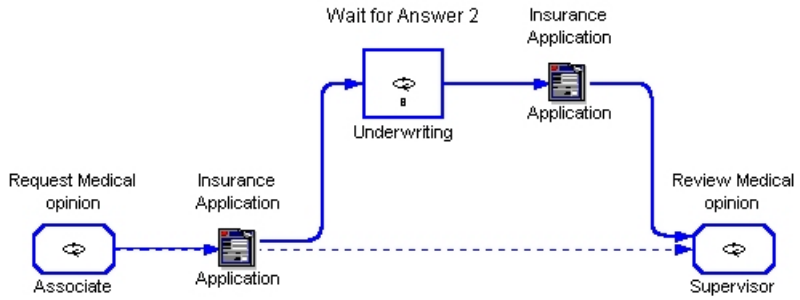
4. Click the **Data Flow** tab (see the figure below).



5. In the **Target Task** list box, select the name of the Task that is to receive the Data-Flow-Only transmission (see the figure below).



6. Deselect the **Control Connector** checkbox.
7. Click **OK** or press **Enter**. The Connector between the two (2) activities will be drawn with a dotted line (see the figure below).



Chapter 10: Modeling Line of Visibility Objects

Using a Line of Visibility (LOV) methodology for modeling Processes will assist you in understanding the workings of a large complex Process. A LOV model will make it easy to distinguish the activities that are performed by each Role involved in the Process. By using a special LOV ADF and Role objects, a LOV Process can be developed. The LOV ADFs are only available in the Line of Visibility Editing Mode.

10.1 Setting Workflow•BPR for the Line of Visibility Editing Mode

You can use the process modeling capabilities of Workflow•BPR for many purposes. The data required for modeling in preparation for integration with one Workflow application can be different from the data required for another Workflow application. To avoid confusion of over which 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. The Line of Visibility Editing Mode allows you to access Line of Visibility Activity Decision Flow Diagrams as well as Standard Activity Decision Flow Diagrams. There are also some specialized modeling objects that are available in a Line of Visibility Activity Decision Flow Diagram. These objects (Role, Multi-Instance, and Activity Group Objects) are documented in this chapter.

To set Workflow•BPR for the Line of Visibility Editing Mode:

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

2. Select the **Line of Visibility 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+5 to set the Editing Mode to the Line of Visibility 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, click on the main menu bar (away from a menu item).**

10.2 Modeling Role Objects

Role Objects are special objects in a Line of Visibility ADF. They do not exist in a Standard ADF. These objects are not part of the Process modeled in the ADF, but they do affect how the Process is laid out and the attributes of the objects in the Process. These objects are used to create Process Models that use a Line of Visibility methodology. There are many methodologies that use a Line of Visibility format, including the LOVeM methodology and the DesignFlow Methodology (which is supported through a special installation of Workflow•BPR). This kind of methodology makes it easy to identify and focus on the activities of specific Roles within a large Process.

Role objects are restricted to the first column of the ADF and they cannot be connected to any other objects (i.e., via a Connector). In addition, no other object can be placed in the first column. However, Role Objects do affect the attributes of the objects. Basically, the Role Object creates "swim lanes" designed to represent all the activities for a specific Role. For example, if a Role Object is defined as the type Repository Role and, specifically, the Role "Analyst," then all Tasks and Process Objects that are in the ADF rows controlled by the Role Object will automatically be assigned the Role of "Analyst." This assignment is mandatory and cannot be overridden.

✍ **The Role Object controls the row where it is placed and all rows below until another Role Object is found.**

To model a Role Object, it is necessary to draw and define it. In an Activity Decision Flow Diagram, a Role Object is a rectangle (see the figure below).

Defining a Role Object is associating a type of Repository Object and then a specific item of that type. There are five (5) types of Repository Objects that a Role Object can be: Role, Organization Unit, Application, Function, and External Entity.

The Role, Organization Unit, and Function types of Role Objects will control the appropriate attributes of Tasks and Process Objects. The Application type of Role Objects will control the Application attribute of Tasks. The External Entity type of Role Objects will control the External Entity attribute of External Entities and External Processes.

The basic rules of the Role Object attribute controls are as follows (A Role Object of type Role controlling a Task Object will be assumed):

- A Task placed within a "swim lane" will automatically be assigned the Role defined by the Role Object.
- A Task that is moved from one "swim lane" to another will be updated to the Role defined by the Role Object controlling the new "swim lane."

- If you add a new Role Object such that it now controls a Task previously defined, the Task will be updated to the Role defined by the new Role Object.
- If you open the Task Object dialog box and try to change the Role to one that is different from defined by the Role Object, you will not be allowed.

10.2.1 Drawing a Role Object

✍ **The Role Object button is available only in the Line of Visibility ADFs that can only be accessed from the Line of Visibility Editing Mode.**

To draw a Role Object:

1. Click the **Role** tool button  on the **ADF Toolbar**. Notice that the cursor changes to a plus sign with a Role symbol in the upper right quadrant.
2. Click inside a free grid cell in the far left column of the ADF to insert a **Role** inside that cell.

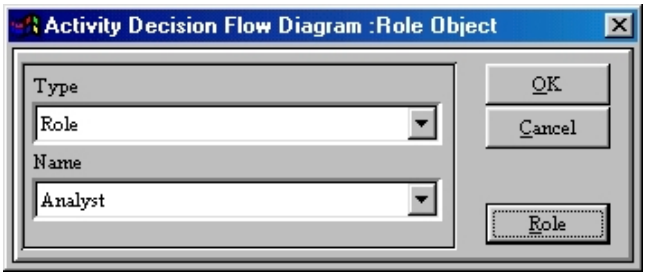
✍ **The first column of the Line of Visibility ADF is reserved for the Role Object. No other types of objects can be inserted in that column and the Role Object cannot be inserted in any other column.**

10.2.2 Defining a Role Object

✍ **The Role Object dialog box is available only in the Line of Visibility ADFs that can only be accessed from the Line of Visibility Editing Mode.**

To define a Role Object:

1. Select the **Pointer** tool, either by clicking the **Pointer** tool button  on the **ADF Toolbar** or by clicking the right mouse button on the diagram.
2. Double-click on a Role Object. The **Role Object** dialog box appears (see the figure below, *from the Line of Visibility Editing Mode – Role Objects are not available in any other Editing Mode*).

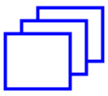


3. To add or change the type of the Role, select a Type from the **Type** selection box.
   - There are seven (7) types of objects that can serve as a Role object: Any, Role, Organization Unit, Application, Function, External Entity, and Partner Role.
4. To select an object from those defined in the Repository, select one from the **Name** list (click on the arrow on the right end of the **Name** selection box to bring up the list).
   - If the **Type** Any is selected, the **Name** field will not be displayed.
   - If the object you want is not included on the list, it needs to be created. Click the Go To button to access the appropriate Repository dialog box (refer to the section entitled "External Entities" in Chapter 2 of the *User's Guide*). Upon returning to the **Role Object** dialog box, the new item(s) will be included on the list.
     - The Go To Button will change based on the **Type** that has been selected for the Role Object. The Go To Button will be labeled Role, Org. Unit, Application, Function, or Ext. Entity.
       - If the **Type** Any is selected, the Go To button will not be displayed.
5. Click **OK** or press **Enter**.

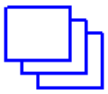
10.3 Modeling Multi-Instances

Multi-Instances are special objects in a DesignFlow ADF. They do not exist in a Standard ADF. Multi-Instances are used primarily in the DesignFlow methodology. A matching pair of Multi-Instances will represent the start and end of a group of activities that will be repeated.

To model a Multi-Instance, it is necessary to draw and define it. In an Activity Decision Flow Diagram, a Multi-Instance is a set of overlapping squares (see the figure below).



A Multi-Instance is pre-defined, but you can change the status of the Multi-Instance from a Start Multi-Instance to an End Multi-Instance. The End Multi-Instance will be displayed with the icon reversed from the Start Multi-Instance (see the figure below). For the DesignFlow Methodology, a group that is being repeated can have a name and then a number to specify the number of replications.



10.3.1 Drawing a Multi-Instance

To draw a Multi-Instance Object:

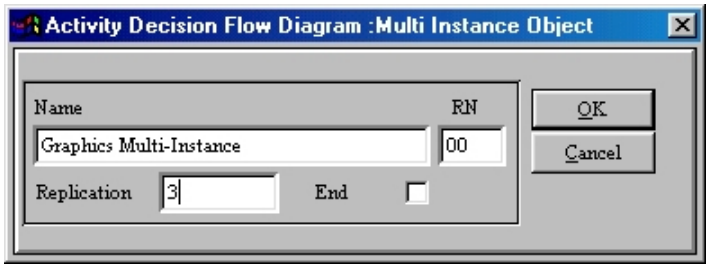
1. Click the **Multi-Instance** tool button  on the **ADF Toolbar** (see the figure on the right). Notice that the cursor changes to a plus sign with a Multi-Instance symbol in the upper right quadrant.
2. Click inside a free grid cell in the ADF to insert a **Multi-Instance** Object inside that cell.

✍ **The first column of the Line of Visibility ADF is reserved for the Role Object. No other types of objects can be inserted in that column and the Role Object cannot be inserted in any other column.**

10.3.2 Defining a Multi-Instance

To define a Multi-Instance Object:

1. Select the **Pointer** tool, either by 🖱 clicking the **Pointer** tool button  on the **ADF Toolbar** or by 🖱 clicking the right mouse button on the diagram.
2. 🖱🖱 Double-click on a Multi-Instance. The **Multi-Instance** dialog box appears (see the figure below).



3. ⌨ Type a Name in the **Name** text box.
4. To change the **Reference Number** of the Multi-Instance, ⌨ type the number in the **RN** text box. The default number is zero (0).
   * If the name of the Multi-Instance has already been used by one or more other Multi-Instance Objects in the diagram, the selected object must be given a unique RN. Workflow•BPR will automatically increment the RN to the next highest number if there is a duplicate RN number.
5. ⌨ Type the number of replications for the Multi-Instance in the **Replication** text box.
   * The number can be an integer or a single character.
6. If the Multi-Instance represents an End, then 🖱 select the **End** check box. The **Name** text box will be converted to a selection box and the **Replication** text box will no longer be editable.
   * 🖱 Select the appropriate Start Multi-Instance (including RN) in the **Name** selection box.
7. 🖱 Click **OK** or ⌨ press **Enter**.

10.4 Modeling Activity Groups

Activity Group Objects are special objects in a Line of Visibility ADF. They do not exist in a Standard ADF. They allow you to place a graphical box around a group of objects—they do not have a direct connection to any other object (i.e., via a Connector). This provides a visual queue that the objects surrounded by the Activity Group are related. You can think of an Activity Group as a (Sub)Process displayed on the main level. The DesignFlow Methodology uses Activity Group to provide a detailed report on a group of activities without reporting on each activity individually.

To model an Activity Group, it is necessary to draw and define it. In an Activity Decision Flow Diagram, an Activity Group is a rounded rectangle drawn with a dashed line (see the figure on the right).

The attributes used to define an Activity Group are:

- **Automatic**: This is a check box that specifies that the Activity Group will be performed automatically. The word "Auto" will appear in the upper left-hand corner of the Activity Group icon if this attribute is selected.
- **Notes**: Any information about the Activity Group can be documented in the Notes text box. There are three (3) separate pages of Notes that you can enter: Description, Process Participant View, and System Design View. The pages have specific uses for models intended for DesignFlow reporting.

10.4.1 Drawing an Activity Group

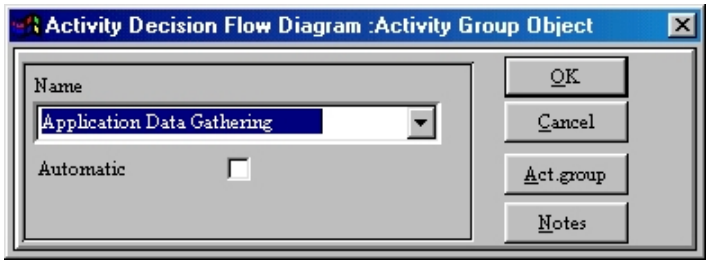
To draw an Activity Group:

1. Select the **Pointer** tool, either by clicking the **Pointer** tool button  on the **ADF Toolbar** or by clicking the right mouse button on the diagram.
2. Marquis-select a group of objects that you want to include within the Activity Group.
3. Click the **Activity Group** tool  on the **ADF Toolbar**. The selected area will be surrounded by the dashed box of the Activity Group.

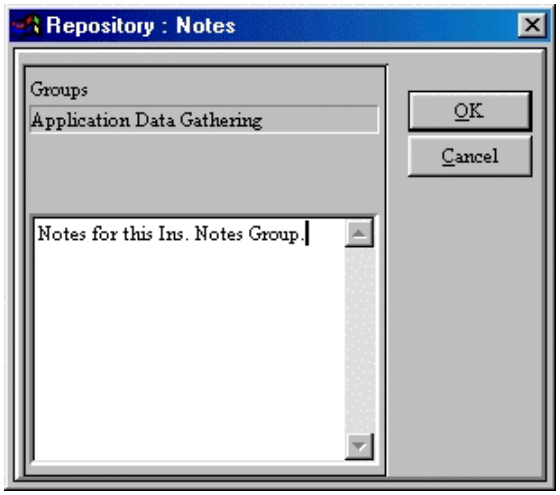
10.4.2 Defining an Activity Group

To draw an Activity Group:

1. Select the **Pointer** tool, either by clicking the **Pointer** tool button on the **ADF Toolbar** or by clicking the right mouse button on the diagram.



2. Double-click on the border of the Activity Group. The **Activity Group Object** dialog box appears (see the figure below).
   - If the Activity Group you want is not included on the list, then you need to create it. You have two (2) options:
     - The Activity Group name can be typed in the **Name** combo box. When you click **OK**, a new item with that name will be recorded in the Repository.
     - Click on the **Act. Group** Go To button to open the Repository **Groups** dialog box (refer to the section entitled "Groups" in Chapter 3 of the *User's Guide*). Upon returning to the **Activity Group Object** dialog box, the new item(s) will be included on the list.
3. If the Activity Group is performed automatically, then select the **Automatic** check box.
4. If you want to add notes about the Group, click the **Notes** button. The **Notes** dialog box will appear (see the figure below).



- To add or update Description Notes about the Task, ⌨ type in the **Notes** text box.
  - If you want to add a **Carriage Return** to the text of your Notes, then ⌨ type **Ctrl+Enter**.
- To add or update Process Participant View Notes about the Task, 🖱 select **Process Participant View** from the Notes Header selection box. Then ⌨ type in the Notes text box.
- To add or update System Design View Notes about the Task, 🖱 select **System Design View** from the Notes Header selection box. Then ⌨ type in the Notes text box.
- 🖱 Click **OK** or ⌨ press **Enter** to return to the **Activity Group Object** dialog box.

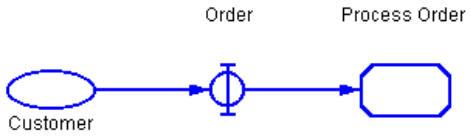
5. 🖱 Click **OK** or ⌨ press **Enter**.

Chapter 11: Modeling Specific Situations within a Process

In Workflow•BPR, Drawing Objects and Connectors (which were described in previous sections) are used to model Processes. They reflect both the sequence in which activities occur and the Medium by which an input/output (Phi) progresses from one activity to the next. The activities and other objects model what happens and how it happens; the Connectors model when the activities happen. In a diagram, a Connector models the forward progression; therefore, you can only draw a Connector going from left to right. The Connectors allow for modeling different situations that might occur in your Process. The following sections describe typical types of situations.

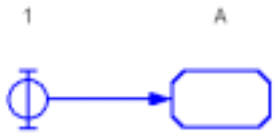
11.1 Starting a Process

A Process can have only one entry point. A Process will begin with the first object. That is, the first object is the object that has no connection to its left on the Activity Decision Flow Diagram. For example, an External Entity ("Customer") begins a Process and places an order (see the figure below). If your Process has more than one entry point, then refer to the section entitled "Multiple Entry Points into a Process" on page 11-8.

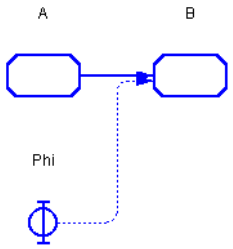


11.2 Inputs and Outputs

Inputs and outputs are modeled with an object called a Phi. For example (see the figure below), when a Phi (Phi "1") is connected to an activity (Task "A"), you are designating that the Phi (Phi "1") is an input to the activity (Task "A"). Activities can have multiple inputs.



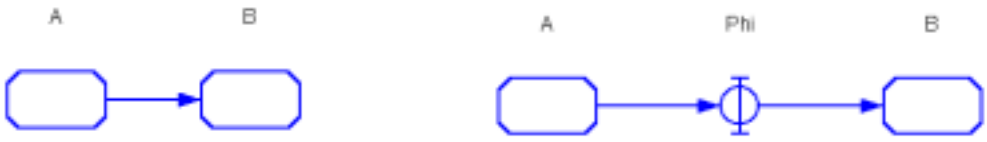
There are situations where you might want to show a Phi that is an input into an activity (Task "B") without the Phi being a part of the flow of the Process. In a sense, the Phi is "pulled in" by the Task when it is needed. Usually a Phi is an output of an activity or an input into the whole Process. When a Phi is an input into the whole Process, the results of Simulation and Weighted Average analysis are affected. However, if you want to show the Phi (as in the figure below) and not have it affect an analyses, you can set the Phi as being a Data Flow only and not a Control Flow (refer to the section entitled "Control Flow and Data Flow" in Chapter 9 for more information about Control and Data Flow).



When an activity (Task "A") is connected to a Phi (Phi "1"), you are designating that the Phi (Phi "1") is an output for the activity (Task "A"). Activities can have multiple outputs.

11.3 Consecutive Activities

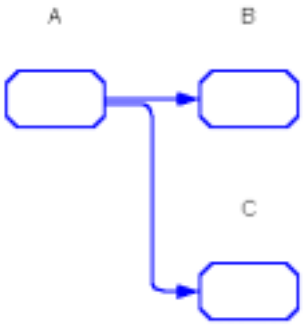
For example when two activities (Tasks “A” and “B”) are joined by a Connector, you are designating that the activity on the left (Task “A”) will precede the activity on the right (Task “B”). You may also insert one or more Phis between the two activities.



OR

11.4 Parallel Activities

If you have an activity (Task “A”) that has two separate connections to two other activities (Tasks “B” and “C”), then you are designating that the second two activities (Tasks “B” and “C”) are performed in parallel. In this situation, one path of the Process is divided into two paths. Both paths are part of the same Case of the Process.

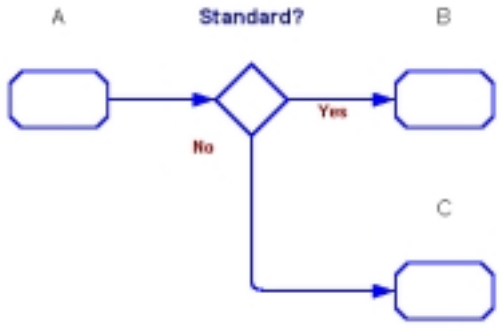


11.5 Variation in Process Performance Based on Conditions

A Process performed by an organization is rarely performed in exactly the same way every single time. The Process will have variations that are determined by the conditions that apply to the input to the Process, the organization and its Resources, or external factors. In Workflow•BPR, these conditions are modeled with Decisions that have a set of Choices. Each Choice that exists for a Process creates a variation of that Process (a variation is called a Case). The activities that are connected to a Choice will only occur when the conditions specify that the Choice is correct. Consequently, activities that are connected to other Choices of a Decision will not occur when the conditions specify that the first Choice is correct. There are two versions of the Decision Object in Workflow•BPR: Binary and Multiple. The following sections provide brief examples of using Decisions to create variations in a Process.

11.5.1 Binary Decisions

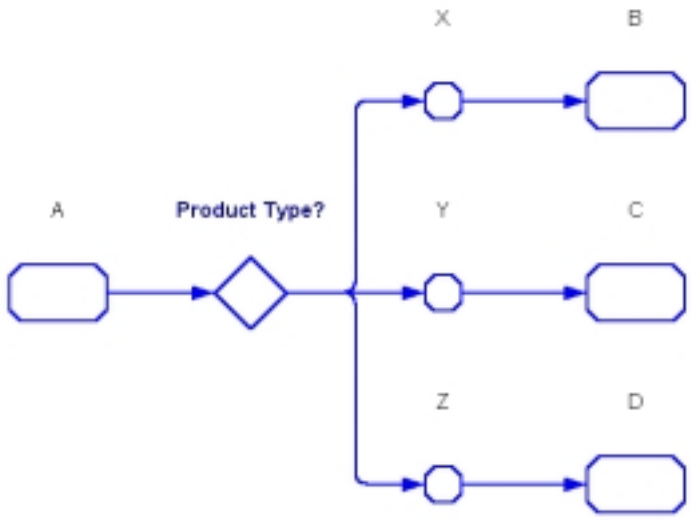
Binary Decisions have only two Choices: "Yes" and "No." For example, if an activity (Task "A") is followed by a Decision (Decision "Standard?"), and the two Choices ("Yes" and "No") of the Decisions each lead to activities (Tasks "B" and "C"), then you are designating that only one of these two activities (Tasks "B" and "C") will be performed. The activity that is performed (Task "B" or "C") is determined by the Choice ("Yes" or "No") that is selected when the Process is performed. In this situation, one path of the Process is divided into two paths. The two paths are then part of separate Cases of the Process. Task "A" is performed in both Cases, Task "B" in one Case, and Task "C" in the other.



11.5.2 Multiple Decisions

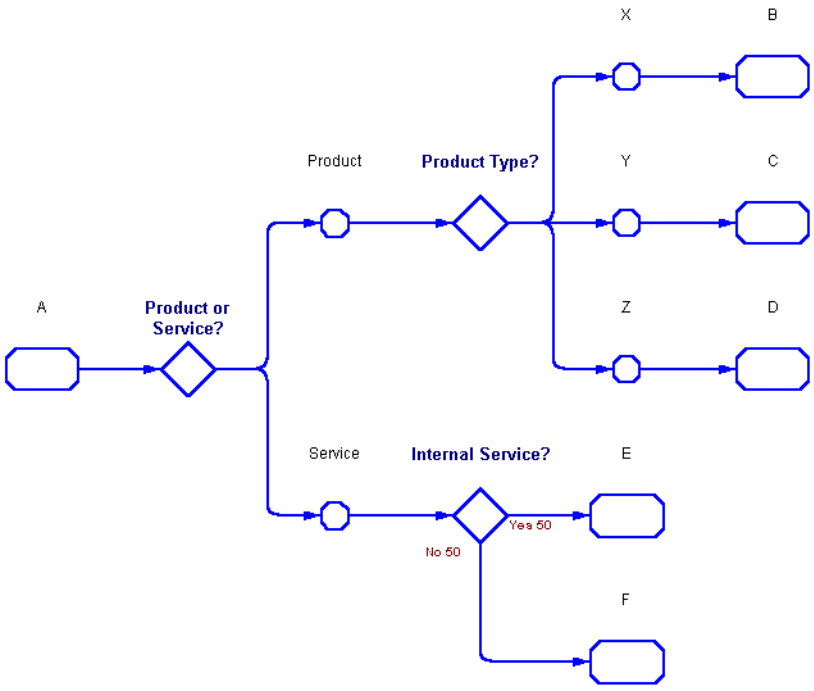
Multiple Decisions can have two or more Choices. The names of the Choices are user-defined. For example, if an activity (Task "A") is followed by a Decision (Decision "Product Type?") and there are three Choices (X, Y, and Z), each type of product leads to unique activities (Tasks "B," "C," and "D"). You are designating that only one of these three following activities (Tasks "B," "C," and "D") will be performed. The activity that is performed (Tasks "B," "C," and "D") is determined by the Choice ("X," "Y," or "Z") that is selected when the Process is performed. In this situation, the one path of the Process is divided into three paths. The three paths are then part of separate Cases of the Process. Task "A" is performed in all three Cases, Task "B" in one Case, Task "C" in another Case, and Task "D" in the last Case.

✍ **Multiple Decisions also can be used to model two explicit Choices other than Yes and No.**



11.5.3 Using a Complex Set of Decisions

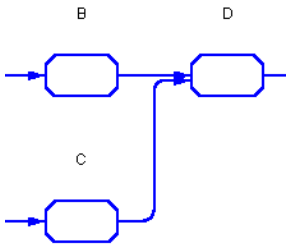
Sometimes a situation is more complex than can be handled by a single Binary Decision or a single Multiple Decision. In this situation, you can use a series of Decision Objects. For example, an activity (Task "A") is followed by a Decision (Decision "Product or Service?") and there are two Choices ("Product" or "Service"). The first Choice ("Product") leads to another Decision (Decision "Type of Product?") which has three Choices ("X," "Y," and "Z"), and each type of product leads to unique activities (Tasks "B," "C," and "D"). The second Choice ("Service") also leads to another Decision ("Internal Service") that is a Binary Decision and its Choices lead to another set of activities (Tasks "E" and "F"). With this combination of Decisions, you are designating that only one of the five following activities (Tasks "B," "C," "D," "E," and "F") will be performed. The activity that is performed (Tasks "B," "C," "D," "E," and "F") is determined by the combination of Choices ("Product" or "Service," "X," "Y," or "Z," and "Yes" or "No") that is selected when the Process is performed. In this situation, one path of the Process is divided into five paths. The five paths are then part of separate Cases of the Process. Task "A" is performed in all five Cases, Task "B" in one Case, Task "C" in another Case, Task "D" in another Case, Task "E" in another Case, and Task "F" in the last Case.



11.6 Merging Paths

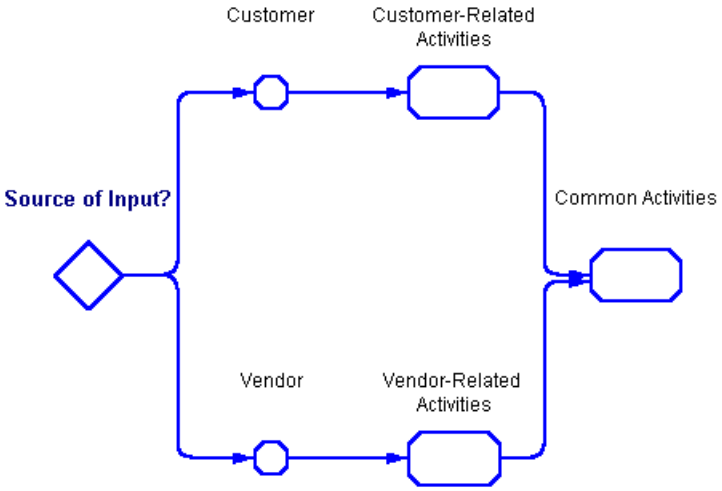
Two or more separate paths in a Process can be merged back into one path. If the paths were created because of parallel activities, then the paths truly become one path again. If the paths were created by Decisions and, thus, separate Cases were created, then the paths are only sharing the same part of the flow (the activities and Connectors). That is, separate Cases are always separate even though some of the objects are used by more than one Case.

Paths can only be merged at an Activity (Task, Process Object, or External Process) or a Decision. For example, if you have two paths (for Tasks “B” and “C”) that are both connected to a single activity (Task “D”), then you are designating that the two paths (for Tasks “B” and “C”) are being merged.



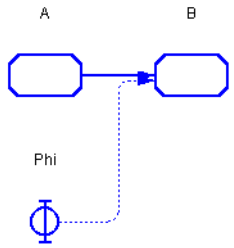
11.7 Multiple Entry Points into a Process

For many Processes, it may appear as though there is more than one entry point. That is, the Process may receive inputs from different sources at different times and the differences in the inputs may cause variations (Cases) in the Process. However, only one entry point into a Process should exist in the Process Model. If there is more than one possible way to enter the Process, the entry points should be preceded with a Decision to create a separate path (Case) for each entry point. If more than one entry point exists in the Process Model, then the number of variations (Cases) may not be determined correctly.



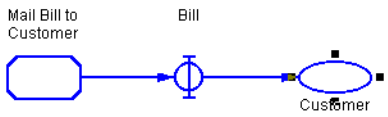
An exception to this rule occurs when a Process is only used as a Sub-Process (a Process Object) for another Process. In this situation, it is possible for the Sub-Process to have multiple entry points based on connections from the higher-level Process. That is, the Decision that would be at the beginning of the Process was defined in the higher-level Process. However, if you are developing a Process for export to a workflow engine, bear in mind that most workflow engines only allow a single input into the Process (refer to the *Integration with Workflow Applications Guide* for more information on modeling conventions for compatibility with workflow engines).

If you want to display a Phi as an input into an activity without the Phi acting as an input into the Process, you can set the connection from the Phi to the activity as a Data Flow Only Connector. In this situation, the Phi and Connector will be ignored during expansion and the subsequent Case Analysis, Weighted Average Analysis, and Simulation. Refer to the section entitled "Control Flow and Data Flow" in Chapter 9 for more information on how to set a Data Flow only Connector.



11.8 Ending a Process

A Process can have multiple exit points; i.e., one exit point for each path that is created within the Process. The paths are created through parallel activities or through Decisions. A path within a Process will end with the last object in that path. That is, the last object is the object that has no connection to its right in the Activity Decision Flow Diagram. For example, an External Entity ("Customer") ends a Process by receiving a bill from the organization.



Chapter 12: Verifying and Validating Processes

When making modeling and Process improvement efforts, it is important to know that your Process Model accurately reflects how the Process is actually applied in the real world. That is, does the model produce time and cost outputs that match the actual time and costs as experienced by the organization? When your As-Is Process Model passes this reality check, then you can be more confident that your To-Be Process Model will also be accurate.

12.1 Verifying A Process Model

Creating a complex Process Model involves an indefinite number of steps that have been documented in this chapter. It is necessary for several of the steps to be repeated many times. This type of repetition creates a broad margin for error. After the Process Model has been created, it will be necessary to verify accuracy so that the output results reflect what you are trying to model. Workflow•BPR includes facilities to assist in finding and correcting potential errors. There are two main types of errors that can occur in building a Process Model: model structure errors and model data errors.

12.1.1 Verifying Model Structure

The Activity Decision Flow Diagram window is designed to eliminate some of the potential model structure errors by disallowing improper connections between objects. There is also a facility, the **Validate** tool, which checks all of the elements in your diagrams to ensure that they are consistent, complete, and logically correct. The Validate tool ensures that every object has been defined and is logically connected to another object with a Connector.

12.1.1.1 Using the Validate Tool

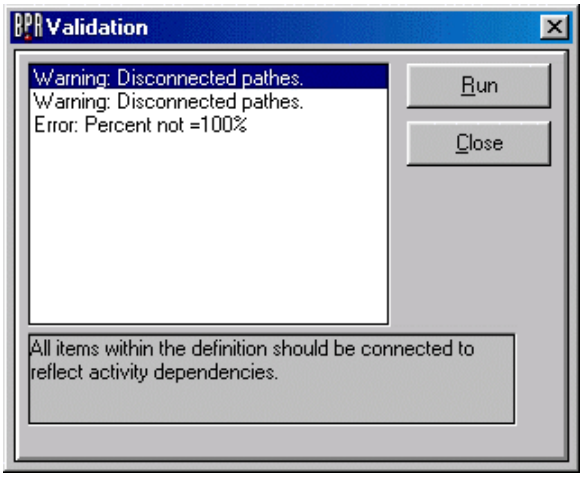
The Validate feature automatically checks the validity of your diagram when the Validate tool is first selected. Once opened, it is possible to leave the Validate feature resident while additional objects are drawn, defined, and connected. By

clicking **Run**, the validation sequence can be reinitiated. The following table lists the types of modeling errors that the Validate tool detects and their descriptions.

Type of Error/Warning	Description
Error: External Entity	An External Entity cannot be in the middle of a Process. It can be changed to an External Process.
Error: External Process	An External Process should be in the middle of a Process. It can be changed to an External Entity.
Error: Undefined Item	All items in the diagram should be defined. Double-click on the item and fill in the displayed dialog box.
Error: Percent not = 100%	The percentages of the Choices of a Multiple Decision do not add up to 100%.
Warning: Disconnected Paths	All items within the diagram should be connected to reflect activity dependencies.

To use the Validate tool:

1. Click the **Validate** tool button on the **ADF Toolbar**. Workflow•BPR displays the **Validation** dialog box (see the figure below).



   * The **Validation** dialog box automatically gives an error message and a description of that error for every discrepancy that is discovered.
      – If there are no errors in the diagram, the following message will appear: “There are no Formalism Errors in this Diagram.”

2. Click on the error message to view its description in the box at the bottom of the dialog box. Workflow•BPR will locate and highlight the source of the error.
3. It is possible to leave the **Validation** dialog box open while making corrections and/or additions to your diagram. Click **Run** to restart the Validation sequence.
4. Click **Close**.

12.1.2 Verifying Model Data

Verifying your Process Data is a natural step to take right after you have completed a Process Model. You can arrange meetings with the participants and the BPR team to verify the data and the flow of the model. To facilitate the meeting, distribute copies of the Process Models, along with three tables for each model. The purpose is to review the data that has been entered into a Process to verify its accuracy.

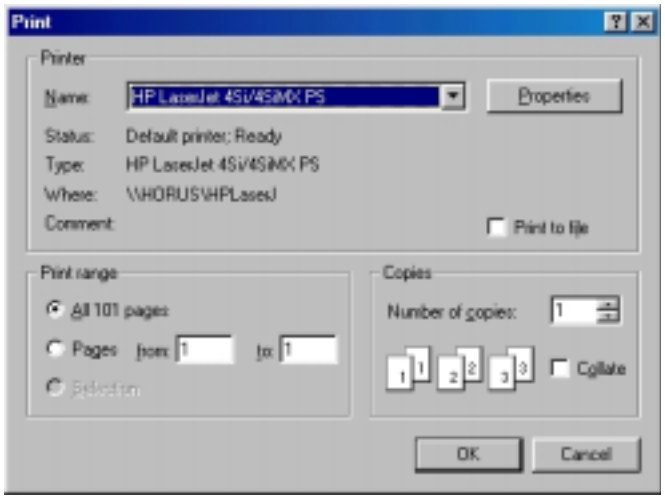
The following sections describe the steps you should take (at a minimum) to verify the model data. In general, you will:

- Print a copy of the Process Model.
- Print a copy of three key Tables (the Resource Requirements Table, the Process Decision/Choices Table, and the Connectors Table).
- Review the contents of the printed copies.
- Update the Process Model through the Find or Edit feature.

12.1.2.1 Printing Your Process Model

To print a Process Model:

1. Open a **Process**.
2. Choose **Print Preview** from the **File** menu or click the **Print Preview** button on the **ADF Toolbar**. The **Print Preview** window appears.
   - Click << to move left, >> to move right, **Up** to move up, and **Down** to move down if the Process is spread across more than one page.
   - To change your document's page setup, click **Setup**. The **Page Setup** dialog box appears (refer to the section entitled "Page Setup" in Chapter 6 of the *User's Guide*).
   - To adjust the size of the printed diagram, exit the **Print Preview** window and adjust the size of the diagram with the **Zoom In** and **Zoom Out** tools of the **Activity Decision Flow Diagram**, then return to the **Print Preview** window.
3. Click **Print**. The **Print** dialog box appears (see the figure below).



4. Click **OK** or press **Enter**. The Process Model will be printed.

12.1.2.2 Opening and Printing Tables

The **Table** menu offers many tables of data, under the sub-menus of Repository Organization Data, Repository Process Data, and Process Data, which you can view and print. The following are three tables that can be printed to verify the most important data of your Process Model:

- **Resource Requirements Table**: Contains information about the Tasks: the Organization Unit, the assigned Resources, the cost of the Resources, the Elapsed Duration, the Working Duration, the Function, and the Classifications.
- **Process Decision Choices Table**: Contains the Decisions, their Choices, and the probability of the Choices.
- **Connectors Table**: Contains the Media information that was used to define the Connectors.

To open and print tables:

1. Open a **Process**.
2. Choose **Process Data** from the **Table** menu. A sub-menu appears.
3. Choose **Resource Requirements** from the **Process Data** sub-menu. The **Resource Requirements Table** appears.
   * You can adjust the width of the columns and rows and change other formatting within the table (refer to the section entitled "Modifying Tables" in Chapter 4 of the *Reporting Guide*).
4. Choose **Print** from the **File** menu. The **Print** dialog box appears.
   * To view how the table will print, first choose **Print Preview** from the **File** menu.
5. Click **OK** or press **Enter**. The **Resource Requirements Table** will be printed.
6. Repeat steps 2 through 5 for the **Process Decision Choices Table, Connectors Table**, or any other table on the Process Data sub-menu, Repository Organization Data sub-menu, or Repository Process Data sub-menu (from the Table menu).

12.1.2.3 Reviewing the Process Data

After you have printed out the material that you consider most important, review and compare the data that has been entered into the Process with the source of that information (e.g., the participants of the Process, accounting information, etc.). Make your corrections on the printed copies and then update the data in the Process.

12.1.2.4 Using the Edit Process Feature

The Edit command can be used to update some of the Process information without opening the dialog boxes of the individual objects. You can update the Elapsed Duration, Working Duration, and Classifications of Tasks, and the percentages of the Choices of Binary Decisions and Multiple Decisions.

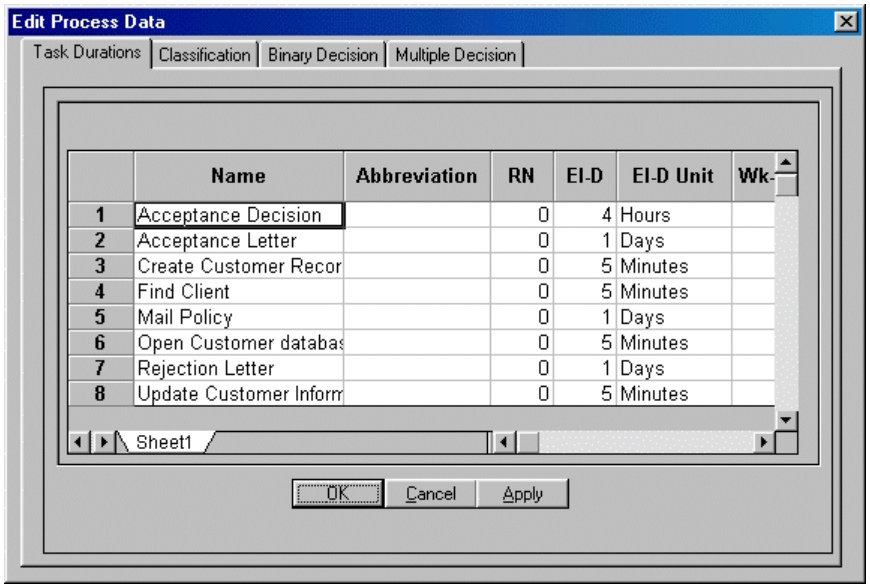
To use the Edit Process feature:

1. Open a **Process**.
2. Choose the **Edit** command from the **Process** menu. The **Edit** dialog box appears; open to the **Task Durations Tab**.
   - There are four tabs in the **Edit** dialog box: **Task Durations** (default), **Classification**, **Binary Decision**, and **Multiple Decision**.
3. Continue to edit in one of the tabs.

Task Durations and Roles

To edit Task Durations and Roles:

1. Click on the **Task Durations Tab** of the **Edit** dialog box (see the figure below).



   * This tab displays the Task Names, Abbreviations, RNs, Elapsed Durations and Units, and Working Durations and Units. You can edit the Elapsed Duration and Working Duration of any Task.

2. Click on a cell in the **EL-D** (Elapsed Duration) column for a Task. A **Duration** text box appears at the top of the dialog box.

   * Type a new value in the **Duration** text box, or type the new value in the cell itself.

3. Click on a cell in the **EL-D** Unit column for a Task. A **Duration Unit** selection box appears at the top of the dialog box.

   * Select a unit from the **Duration Unit** selection box.

4. Click on a cell in the **Wk-D** (Working Duration) column for a Task. A **Duration** text box appears at the top of the dialog box.

   * Type a new value in the **Duration** text box, or type the new value in the cell itself.

5. Click on a cell in the **WK-D Unit** column for a Task. A **Duration Unit** selection box appears at the top of the dialog box.

   * Select a unit from the **Duration Unit** selection box.

6. Click on a cell in the **Roles** column for a Task. A **Roles** selection box appears at the top of the dialog box.

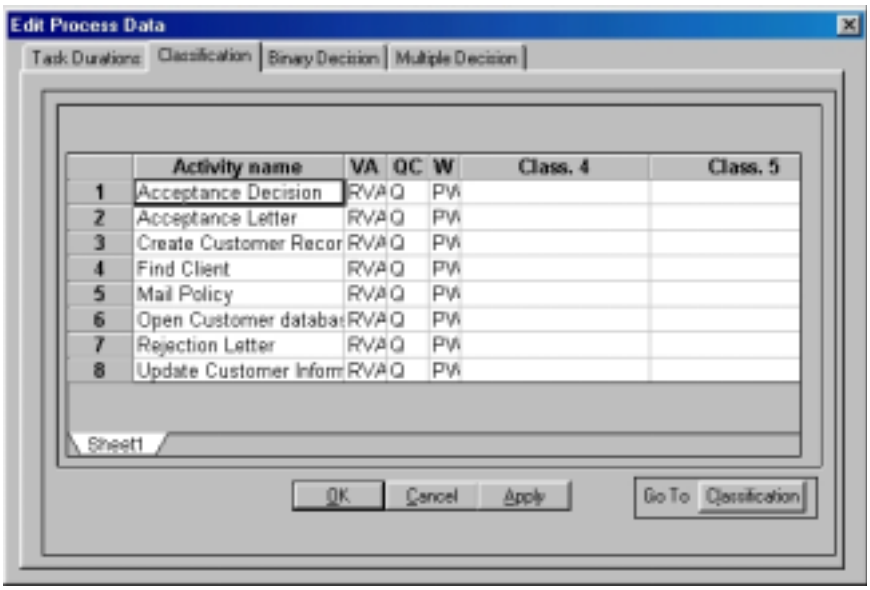
   * Select a **Role** from the **Roles** selection box.

7. Click **Apply** at any time to save the data you have entered and leave the **Edit** window open for more editing. Click **OK** or press **Enter** when you are done.

Task Classifications

To edit Task Classifications:

1. Click the Classifications Tab (see the figure below). This tab displays the following columns: Activity Name, Value Added (VA), Quality Control (QC), Workflow Classifications (W), Classification 4 (Class. 4), and Classification 5 (Class. 5).

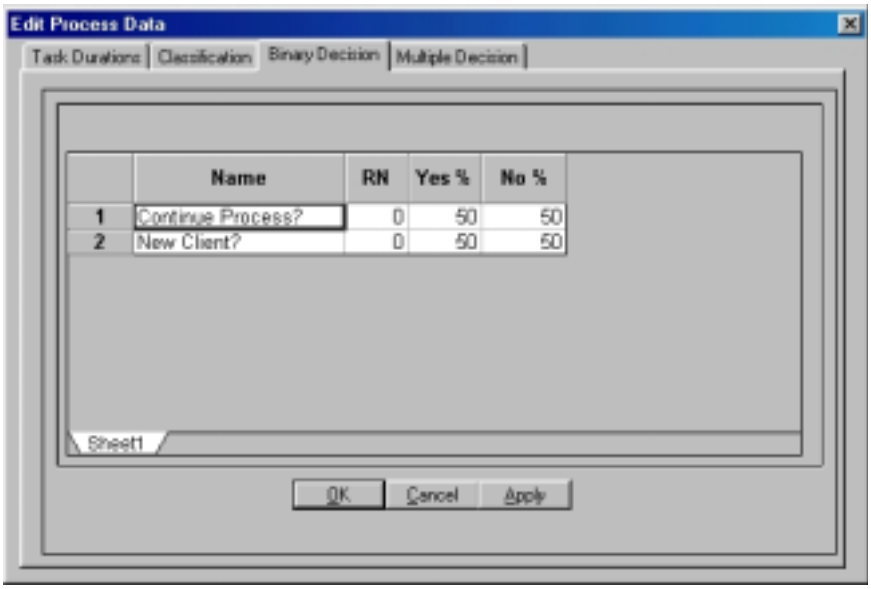


2. Click on a cell in one of the **Classification** columns for a Task. A selection box labeled with that Classification appears at the top of the dialog box.
3. Select a new **Classification** value for the Task from the **Classification** selection box.
   * If the Classification 4 or 5 item you want is not included on the list, you can easily create it. Click the **Classification** Go To button to access the Repository **Classification** dialog box in order to create the item (refer to the section entitled "Classifications" in Chapter 3 of the *User's Guide*). Upon returning to the **Edit** dialog box, the new item(s) will be included on the list.
4. Click **Apply** at any time to save the data you have entered and leave the **Edit** window open for more editing. Click **OK** or press **Enter** when you are done.

Binary Decisions

To edit Binary Decisions:

1. Click the **Binary Decisions Tab** (see the figure below). This tab displays the following columns: **Decision Name**, **RN**, **Yes %**, and **No %**.

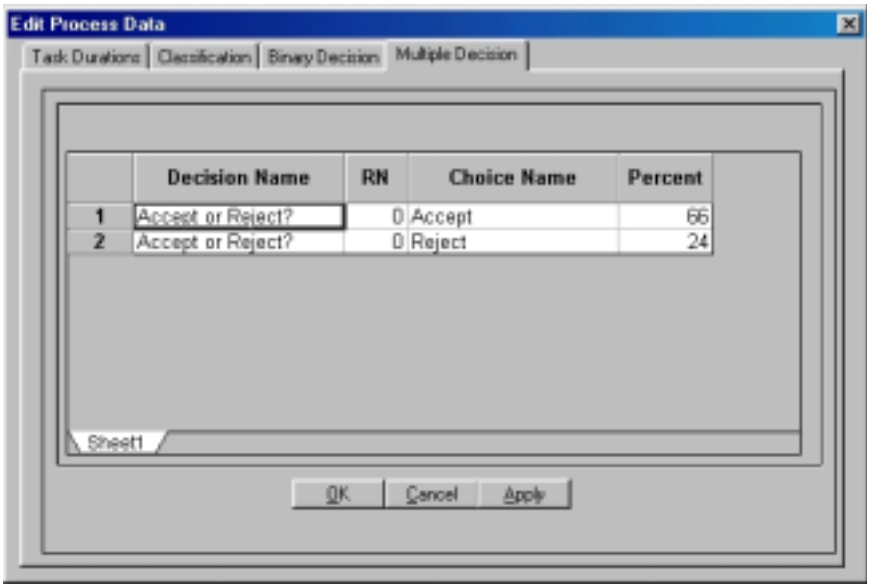


2. Click on the cell in the **Yes %** column for a Decision. A **Percent** text box appears at the top of the dialog box.
   * Type a new value in the **Percent** text box.
3. Click on the cell in the **No %** column for a Decision. A **Percent** text box appears at the top of the dialog box.
   * Type a new value in the **Percent** text box.
4. Click **Apply** at any time to save the data you have entered and leave the **Edit** window open for more editing. Click **OK** or press **Enter** when you are done.

Multiple Decisions

To edit Multiple Decisions:

1. To edit the **Choices** for Multiple Decisions, click the **Multiple Decisions Tab** (see the figure below). This tab displays the following columns: **Decision Name**, **RN**, **Choice Names**, and **Percentages**.



2. Click on a cell in the **Percent** column for a Choice. A **Percent** text box appears at the top of the dialog box.

   * Type a new value in the **Percent** text box.

3. Click **Apply** at any time to save the data you have entered and leave the **Edit** window open for more editing. Click **OK** or press **Enter** when you are done.

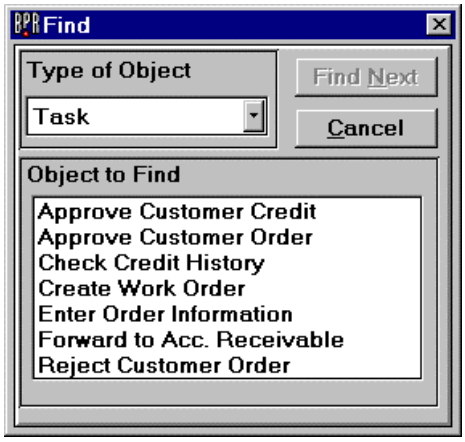
12.1.2.5 Using the Find Navigation Feature

In a large, complex diagram, it can be difficult to find objects that you want to edit. Workflow•BPR provides a Find feature that is useful for locating objects. You can leave the Find dialog box open while making edits to the diagram, including opening object dialog boxes.

To use the Find feature:

1. Open a **Process**.
2. 🖱 Choose the **Find** command from the **Edit** menu. The **Find** dialog box appears (see the figure below).

   ☞ **You can access this command by ⌨typing Ctrl+F.**



3. 🖱 Select a type of object from the **Type of Object** selection box. The **Object to Find** selection box will display all the objects of that type that exist in the Process.
4. 🖱 Select an object from the **Object to Fin**d selection box. Workflow•BPR will highlight this object and move the drawing so that it is visible.

   * If there is more than one object of that type and name in the diagram, the **Find Next** button becomes active, allowing you to find all of them sequentially.

5. You can leave the **Find** dialog box resident while you make corrections or additions to your diagram by 🖱🖱 double-clicking on the selected object. The dialog box for that object will appear.
6. 🖱 Click **Cancel** to exit the **Find** dialog box.

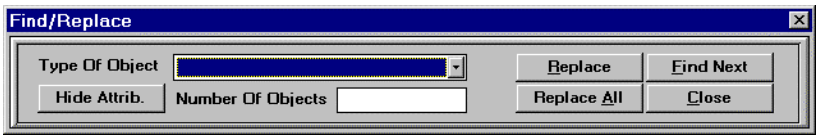
12.1.2.6 Using the Replace Feature

The Replace feature allows you to find objects within Activity Decision Flow Diagrams and replace the Data Attributes of that object. For example, you could find a Role that is assigned to a particular Task and then replace that Role with another one.

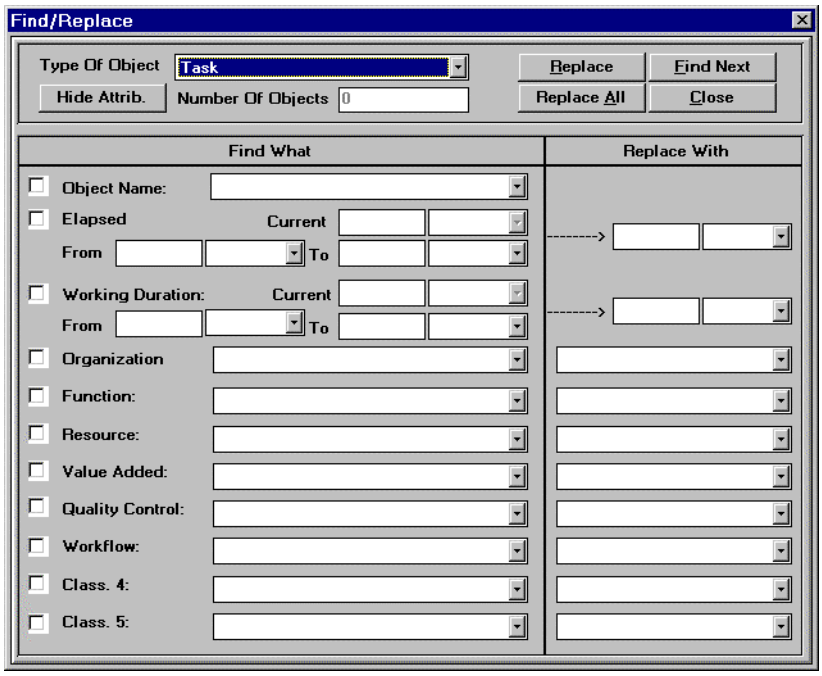
To use the Find and Replace feature:

1. Choose **Replace** from the **Edit** menu; the **Find/Replace** dialog box appears (see the figure below).

   ☞ **You can access this command by typing Ctrl+R.**



2. Select the type of object you want to find from the **Type of Object** selection box. The dialog box will be extended to display the Data Attributes of that object (see the figure below, *which is set for the **Task** object*).

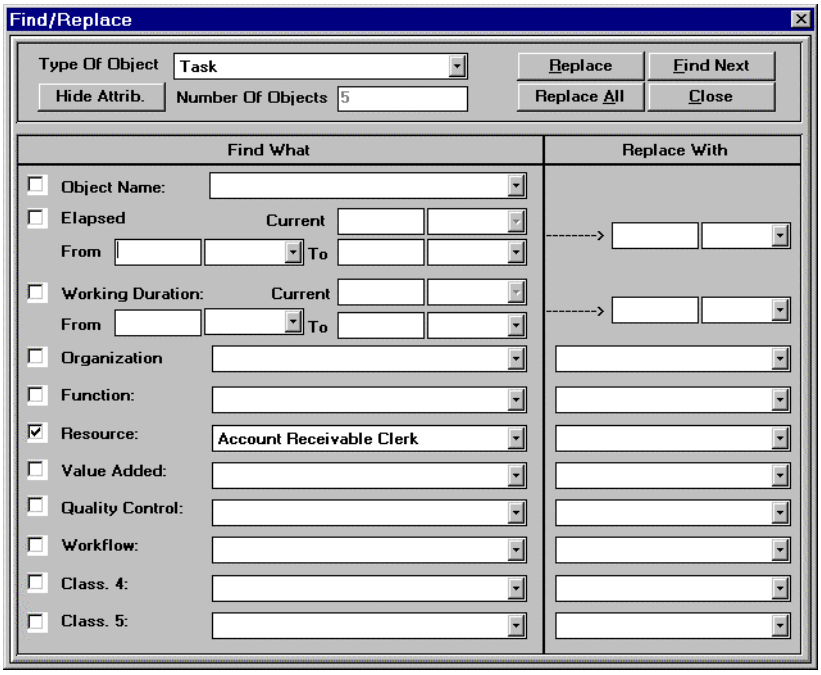


   * The Data Attributes displayed in the dialog box will vary depending on which **Type of Object** is selected.

3. Click on the check box next to the attribute you want to find.

   * You can check more than one attribute. If you check more than one, Workflow•BPR will search for objects with the exact combination of the checked attributes.

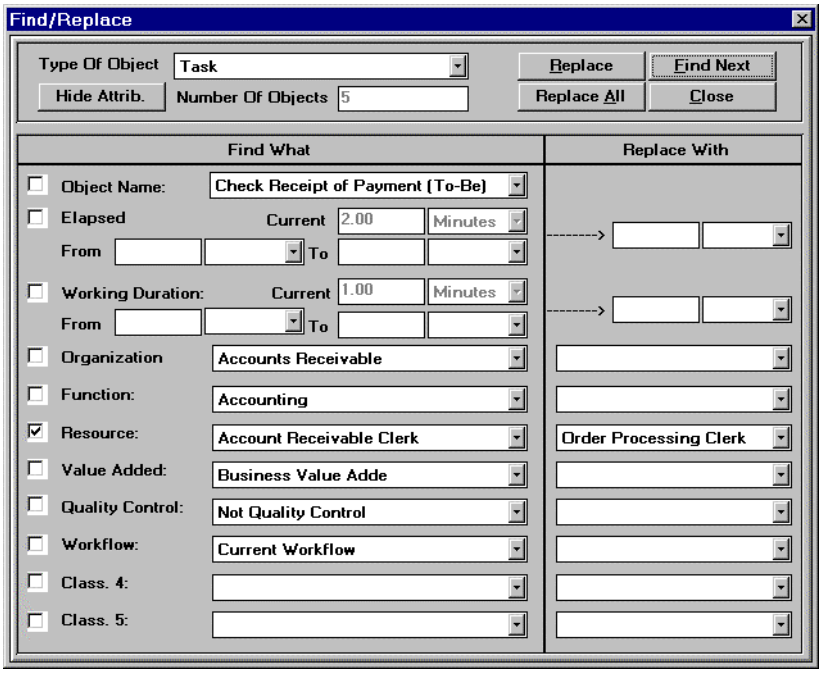
4. Select the attribute value that you want to find in the selection box to the right of the attribute item in the **Find What** half of the dialog box. The number of objects in the drawing with that attribute value will be displayed in the **Number of Objects** box (see the figure below).



   * For attributes that are numeric, such as Elapsed Durations, you can select a range of values to search for. All objects that fall within the range will be located.

5. Select the attribute value that you want to replace within the selection box to the right of the attribute item in the **Replace With** half of the dialog box.

6. Click the **Find Next** button to locate the next item in the drawing with the selected attribute value. The object in the drawing will be highlighted and the attributes of the object will be displayed in the **Find/Replace** dialog box (see the figure next page).



7. Click the **Replace** button to replace the **Find What** attribute with the **Replace With** attribute for the object listed in the **Object Name** selection box.

   * You must click the **Find Next** button at least once before you can replace any item.

8. Click the **Replace All** button to replace all instances of the **Find What** attribute with the **Replace With** attribute.
9. Click the **Hide Attrib**. button if you do not want to display the attributes of the Drawing Objects. Click the **Show Attrib**. button to display the attributes again.
10. Click the **Close** button to close the dialog box.

12.2 Validating A Process Model (Reality Check)

Workflow•BPR models process information in much greater detail than most organizations can produce through accounting practices. Therefore, you will need to view the Summary Reports that Workflow•BPR provides and compare them to the information provided by the organization. Examples of management information that an organization can utilize in order to perform a reality check include:

- Cost of Employee Resources
- Number of Resources assigned to the Process (full-time equivalent)
- Number of Jobs per year
- Cost per Job (total cost divided by the number of jobs)

- Average Cycle Time per Job
- Average Cycle Time of a Specific Case

You can use these examples alongwith any additional information obtained from the organization to perform a reality check of the Process. You perform the types of analysis that are described in this chapter and view the reports that are described in the *Reporting Guide* to compare the measurements of the Process Model with the measurements of the organization. If the model does not produce outputs that match reality, then it will be necessary to identify the source of the errors and update the model so that the outputs do match. The types of reports you would want to view include:

- Total Costs Report
- Cases Total Costs Report
- Resources Report
- Cycle Time Report

If the output of the Process Model does not match the actual data, we recommend that you:

- Review the Elapsed Duration and Working Duration of the Tasks in the Process with the employees that actually perform the Process.
    - Make sure that the times are accurate, perhaps by performing two or more walk-throughs of the Process and timing (via a stopwatch) the Tasks.
    - Make sure that no Tasks are missing and that no extra Tasks have been added.
- Review the probabilities associated with the Decision Choices. These Choices determine the weight of the Cases. Changing a probability can have a large effect on the time and cost of your Process Model.
- Investigate the Cases that have the highest probability of occurrence because these will have the greatest effect on the Process cost and time.
- Make sure that the cost reports from the organization include the same assumptions and cost basis as those used for the Resource cost rate entered into Workflow•BPR. For example, are the cost reports based on salaries and overhead or just salaries, and do the cost rates in Workflow•BPR use the same basis?

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