

## Chapter 5: Package Diagram

### The Package Diagram

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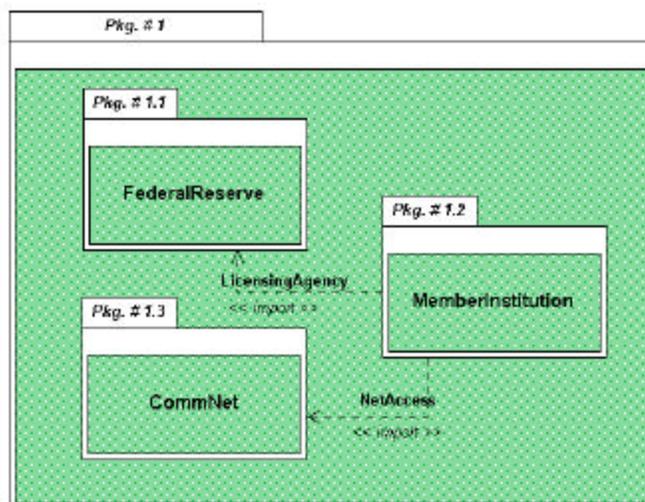
#### What is a Package Diagram

- This diagram is just a form of the class diagram
- Shows how classes can be divided into modules and high-level relationships between packages
- Can be a high level view of a system or a specific subsection of the overall model

#### When to use a Package Diagram

- Used strictly for logical modularization
- When the application is very large
- Usually done in the design phase of a project

After you have completed the step-by-step procedure outlined in the tutorial, your package diagram should look similar to the following example.



**Note:** The diagram shown above is for reference only. Use the instructions beginning on the next page to draw your Package diagram.

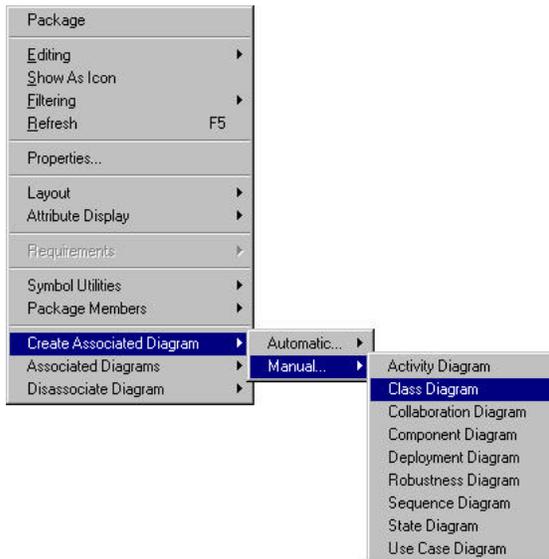
### Creating a Package Diagram from the Use Case Diagram

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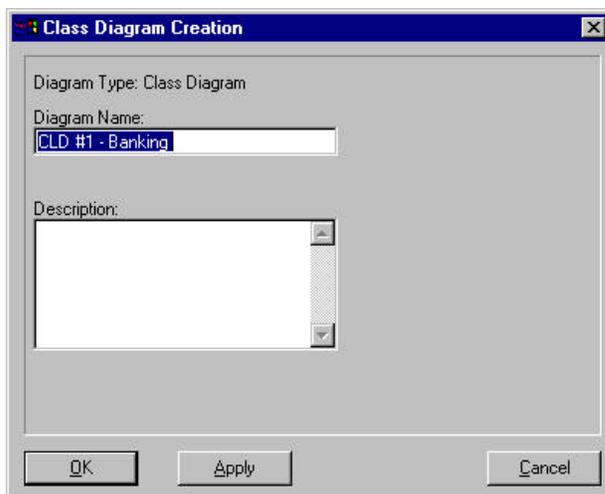
The package diagram is a type of class diagram and can be created from a use case diagram.

1. Make sure the Use Case diagram called "Diagram One" is the current view.

- Right-click in the background of the package (do not right-click on a use case symbol, a link, or the background of the diagram) and the Package background menu opens.



- Choose CREATE ASSOCIATED DIAGRAM->MANUAL->CLASS DIAGRAM. The Class Diagram Creation dialog box opens. This dialog box shows the diagram type (class), and the default diagram name (CLD #1 - Banking). You can edit the diagram name but for purposes of the tutorial we will leave it CLD #1 - Banking. You can also edit the Description of the diagram.



- Click . The Class Diagram Name dialog box closes and Diagram Window opens with a Class Diagram labeled Banking. The Diagram Window is empty. However, please note that the diagram is labeled "CLD\_1 - Banking" in the title bar.

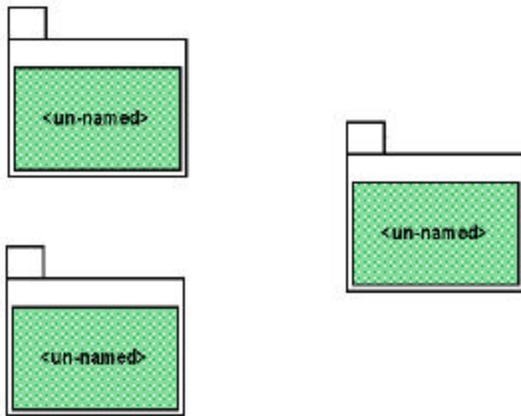


**Note:** The diagram you just created is now the active design model. When the Class diagram is active, the icons representing its entire symbol set are displayed in the Diagram Window. Refer to topic "The Class Diagram Palette" for a full explanation of each icon.

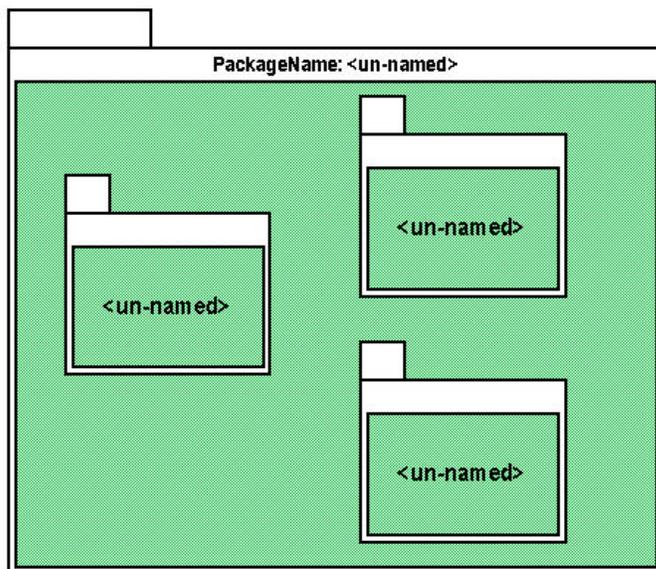


## Placing the Package Symbols

1. Double-click the  symbol in the Class Diagram palette to place multiple package symbols. The icon is grayed out.
2. Place three packages in the design area as illustrated below.



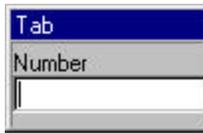
3. The fourth package is drawn so that it includes the three other package symbols. Place the cursor in the upper left corner of the design area. Click and drag the cursor to the lower right corner of the diagram and release the mouse button. A package is drawn and includes the three previously drawn packages.



4. Deselect the Package icon by clicking the cursor icon  located by the Use Case Diagram palette or by pressing the ESC key.

## Labeling the Package Symbol

1. Click on the package symbol containing the other three package symbols to select it.
2. Click in the Tab portion of the package and the Tab pop-up editor opens.



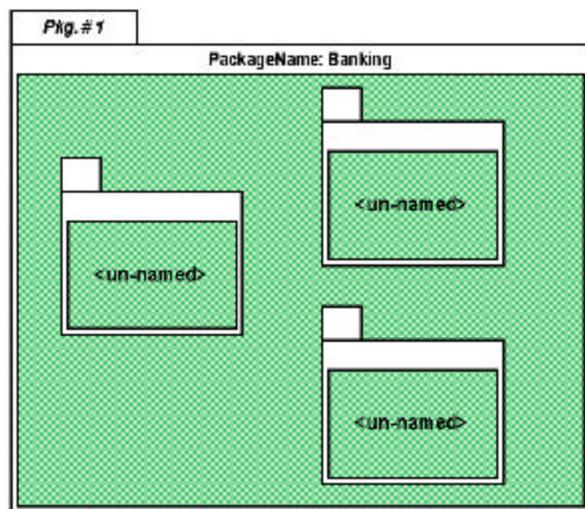
3. Enter "1" in the text box and press Enter. The pop-up editor closes and "Pkg. #1" appears in the Tab portion of the package.
4. Click once inside the same package and the PackageIdentifier pop-up editor opens.



5. Enter "Banking" in the PackageName text box and click anywhere outside the pop-up editor. A GDPro warning box opens telling you that a package with the name "Banking" already exists in another diagram. This warning box asks if you want to reference the package in the other diagram.



6. Click . The warning box closes and the package is labeled "Banking".

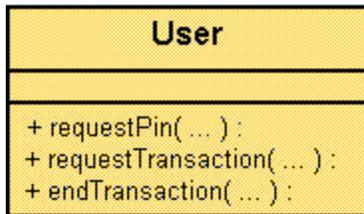


## Displaying Classes in Packages

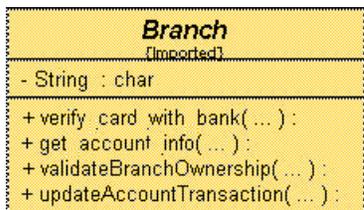
 **Key:** GDPro has a very specific and defined way of displaying classes in packages. Although it is not applicable in this tutorial, important information is shown in this topic.

### Characteristics

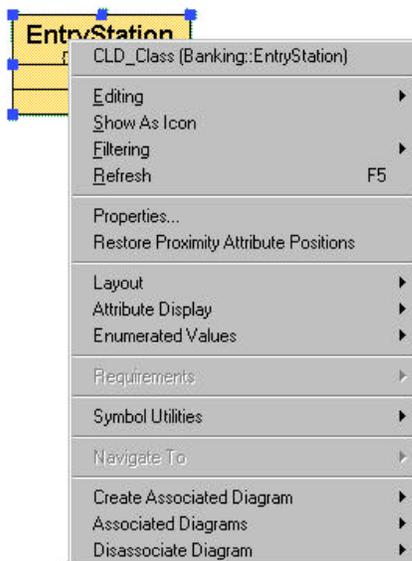
- ◆ If the class is in a diagram that is itself a member of a package, only the class name is displayed.



- ◆ If the class is a member of a package that is NOT the parent of the diagram, the class name and the word "{Imported}" is displayed.



- ◆ When you right-click on a class, the background menu now shows the package: class in the background menu header.

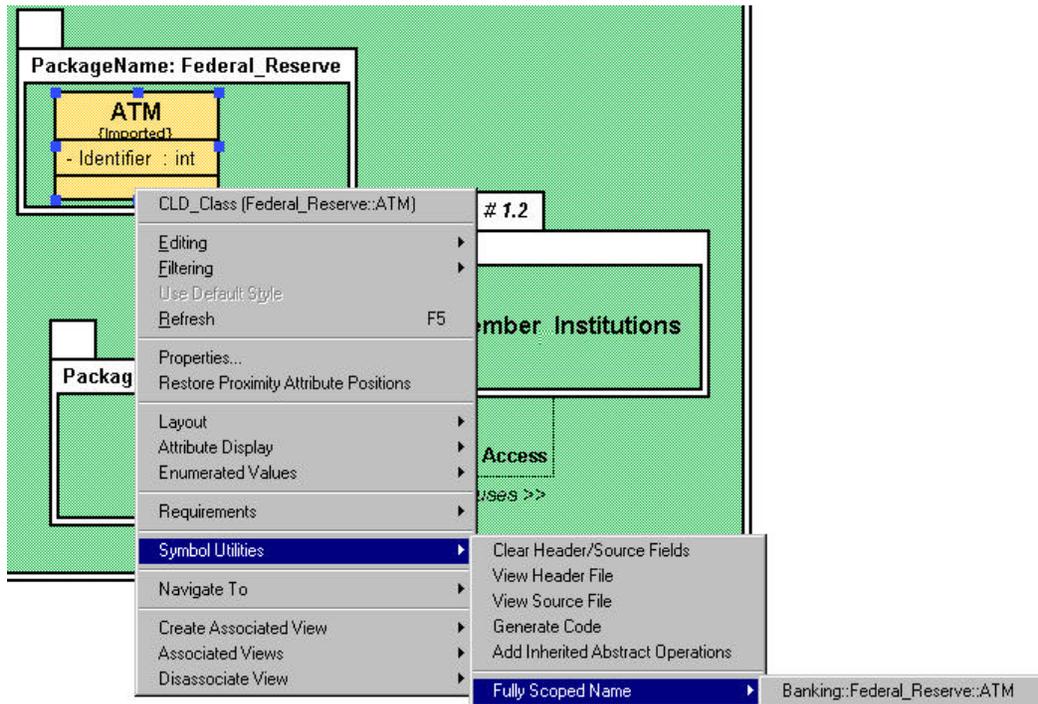


### Fully Scoped Names

When you right-click a symbol and select SYMBOL UTILITIES->FULLY SCOPED NAME, the pull-right menu shows the fully qualified name of the symbol type. The qualified name is the name used for

implementation. This includes only the <<Namespace>> packages.

For example the pull-right menu for the following package is as follows:



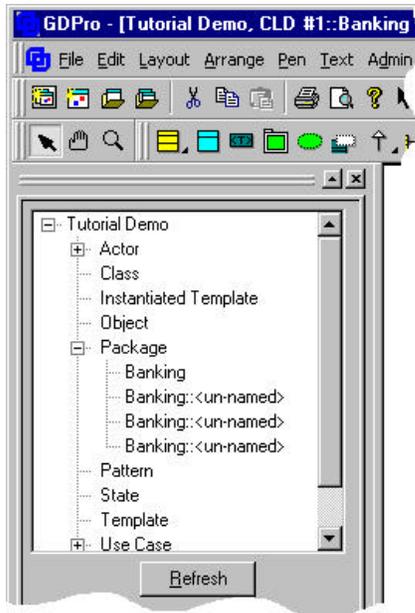
## Paste by Reference

When you paste a symbol by reference the copy or "pasted" graphic shares the underlying symbol definition with the first symbol drawn. Any changes or additions you make in a symbol are also reflected in all the symbols pasted by reference.

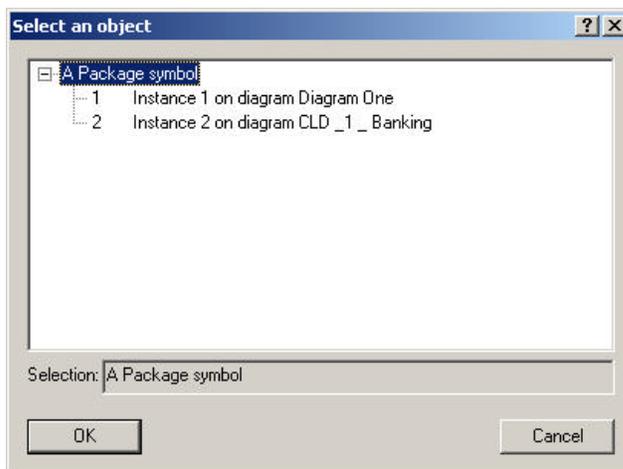
When you paste by reference there is not an "original" or "referenced" symbol. There is only the symbol, with 0 or more instances (graphics) displayed in the diagrams.

The symbol created by paste by reference now appears on the Navigator tree.

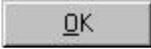
1. Click the Navigator tab located at the bottom of the System Hierarchy Window. The Navigator window opens with the system "Tutorial Demo" showing.
2. Click the  located to the left of the system name Tutorial Demo. All the system symbols are listed below the system name.
3. Click the  located to the left of the Package label. The tree expands showing the package named "Banking".



- Double-click the Banking label located under "Package" and an additional dialog box opens listing each instance of the symbol and its location.



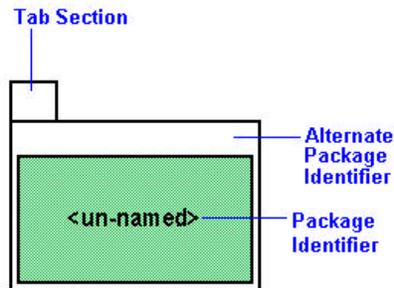
-  **Note:** You can select an instance of the symbol name in the list box and click . The diagram where the selected symbol is located opens and the symbol appears in the center of the design area. The symbol is also selected.

- Click  to close the Select an Object dialog box.
- Click the Systems and Diagrams tab to return to the Systems and Diagrams System Hierarchy Window.



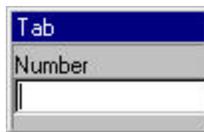
## Label the Remaining Packages

We will use pop-up editors to label the remaining packages in the Package diagram.



### Tab Labels

1. Select the package located in the top left corner that will be labeled "FederalReserve".
2. Click the tab section of the package. The tab pop-up editor window opens.



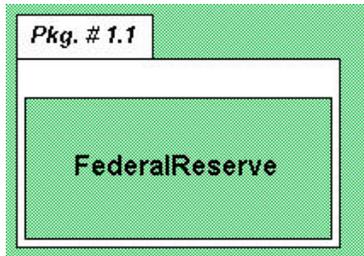
3. Enter the text "1.1" and press Enter. The Tab pop-up editor closes and the text "Pkg. #1.1" is entered in the tab portion of the package.
4. Using the same procedure, label the "MemberInstitutions" tab as "1.2" and the "CommNet" tab as "1.3".

### Package Identifier

1. Select the package located in the upper left corner that will be labeled "FederalReserve".
2. Click <unnamed> in the center portion of the package. The PackageIdentifier pop-up editor opens.



3. Enter the text "FederalReserve" and click anywhere outside the window. The PackageIdentifier pop-up editor closes and the text "FederalReserve" is entered in the center portion of the package.

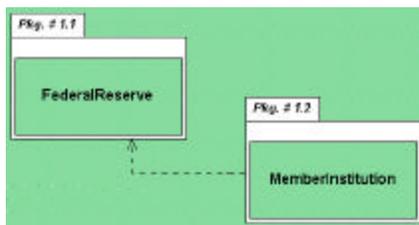


- Using the same procedure outlined in steps 1-3, label the "MemberInstitutions" and "CommNet" packages.

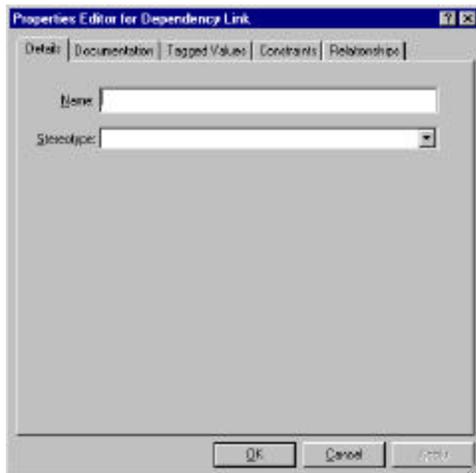
## The Dependency Links

The dependency link is a semantic relation between the source and target elements. It indicates that when there is a change to the target element there may be a change necessary to the source element. You can label the dependency link and set the stereotype.

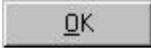
- Click the Dependency Link  in the Class Diagram palette.
- Click inside the Member Institutions class symbol. Drag the cursor until it connects with the bottom of the FederalReserve package, and click again. A valid link represented by a dotted line is drawn from the MemberInstitutions package to the FederalReserve package. Note that the link is automatically squared because Orthogonal Links is set as the default.

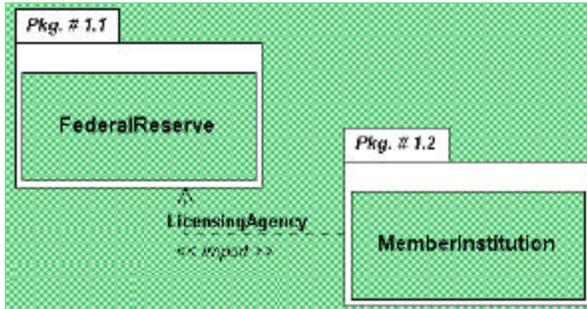


- Double-click the Dependency link. The Properties Editor for Dependency Link dialog box opens.



- Enter the text "Licensing Agency" in the Name text box.

5. Select "import" from the Stereotype drop-down menu and click . The dialog box closes and the link is labeled.



6. Repeat steps 1-5 to draw and label the link between MemberInstitutions and CommNet. The link label is "NetAccess" and the stereotype is "import".

This completes the package diagram. In the next portion of the tutorial we will create a class diagram from the package diagram.