

Visual Paradigm for UML Tutorial

Software Design — Theodore Norvell

Conventions: When I say “click” I mean with the left mouse button, unless otherwise indicated. “Drag” means hold down the left mouse button and move the mouse; “drop” means release the mouse button. “Select” means click on the indicated item.

1 Installing Visual Paradigm

It’s a good idea to install Eclipse first. I recommend ‘IDE for Java Developers’. I downloaded version 3.4.1 (the Ganymede version). Take note of Eclipse’s installation directory.

You can download an installation file from <http://www.visual-paradigm.com/product/vpuml/communityedition.jsp>. Click on “Get a free copy” and follow the instructions.

Scan the downloaded file installation file for viruses. Then run it. Install Visual Paradigm for UML and SDE for Eclipse. Be sure to select the Community Edition. Be sure to

2 Class diagrams and basics.

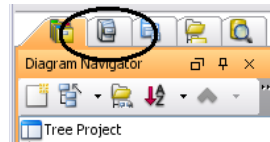
On the start menu, find Visual Paradigm for UML and select it.

The workspace launcher should appear. Select a workspace on the C: Drive. (When you are done, back up to the M: drive.)

Create a New Project. Name it ‘Tree Project’.

Create a New Class Diagram. Set the Diagram name to Tree Diagram

On the upper left you will see the Diagram Navigator. The next tab is the Model Explorer. Select the Model Explorer.



Click on the Package tool then on the diagram. Name the package TreePkg. Note the change to the Model Explorer

Changes to diagrams result in changes to the model.

In the Model Explorer, right-click on TreePkg and rename it to Tree Package. Note the change to the diagram.

Changes to the model can result in changes to diagrams.

So you see that Visual Paradigm is not just a UML diagramming application. It is a database with diagramming capabilities. The diagrams are kept consistent with the database and hence with each other.

Select the diagram of the package and drag one corner to make the package bigger.

Click Class tool and click within the diagram of the package. Name the class ‘Tree’.

Create two new packages in the diagram below the “Tree Package” package. Call them “Window Package” and “File Package”.

Draw dependencies from Tree Package to Window Package and File Package.

Find the “Window Package” in the Model Explorer. Right-click on it and select Model Element/Class. Name the class ‘Window’.

Select the Window class in the Model Explorer and drag it on top of the Window Package.

Similarly create a FileSystem class in the File Package and place it on the diagram.

Right-click on the Tree class in the diagram. Select “Add / Operation” and type the following three lines — don’t press Enter after the third line:+

```
+Tree( fileSystem : FileSystem, window : Window )
+paint()
+leftMouseClicked( x : Int, y : Int )
```

Add classes FileHandle, DirectoryHandle, and Handle to File Package and to the diagram.

Select the Generalization tool. Make FileHandle and DirectoryHandle generalize Handle

Your diagram should now look something like Figure 1.

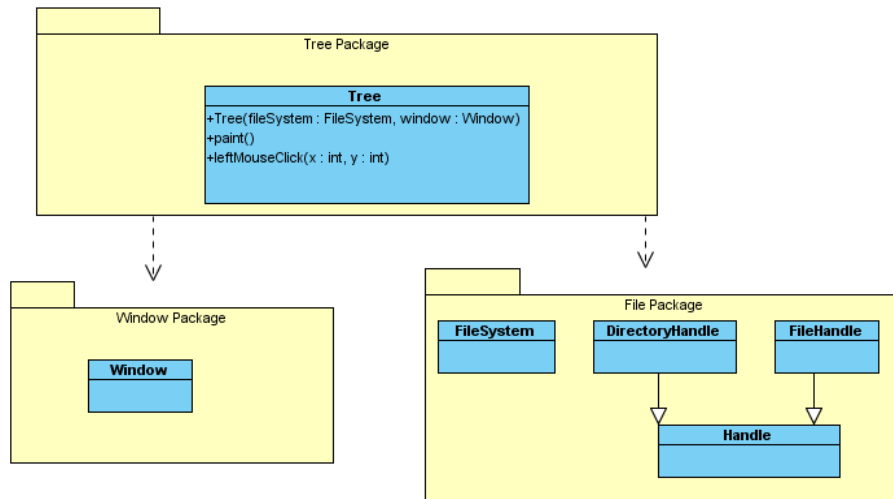


Figure 1:

Suppose we don’t want to show the Tree constructor on this diagram. Select the operation on the diagram, right click and select Hide.

Select Tree class in the diagram. There should be a little \boxplus box in the corner of the operations compartment. Click on this to show

Select the Tree class in the diagram and press the Enter key.

3 A New Diagram

In the browser, right-click on File Package, and select New / Class Diagram. Type “Main” and Enter.

Double click on the word Main that you just typed.

A new Diagram should appear in the class Diagram Window.

Drag all four File Package classes onto the new diagram.

Select the FileSystem in the Diagram and press the “Delete” key. What happened in the browser? Nothing! Check the other diagram, what happened there? Nothing.

Deleting with the delete key does not delete from the model.

Drag the FileSystem class back to the diagram and select it again.

This time press the Ctrl-d key.

What happened in the browser? What happened in your other diagram?

Deleting with Ctrl-d deletes things from the model.

Tip. *If you ever draw a generalization relation the wrong way, be sure to delete it with Ctrl-d, not Delete. Otherwise it will stay in the model and prevent you from adding the correct generalization. If you accidentally delete a generalization only from the diagram, simply redraw the generalization and use Ctrl-d.*

Recreate your File System class and drag it back to your File Package / Main diagram.

Draw an association from FileSystem to DirectoryHandle. Right-click on the association near the DirectoryHandle end. Give this end a multiplicity of 1 and a role name of “root”.

Draw an association from DirectoryHandle to FileSysObjectHandle. Right click on the association and select Open Specification. Using this dialog add a name to the association, and appropriate role names and multiplicities to the roles (i.e., the ends).

After tidying, your diagram should look something like Figure 2

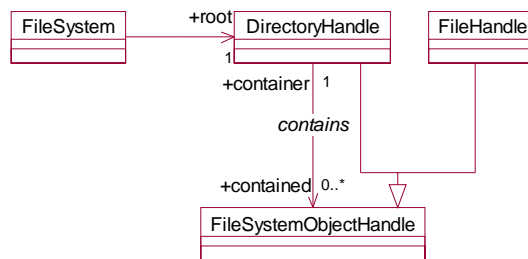


Figure 2:

4 A sequence diagram

In the browser, right-click on Tree Package, and select New / Sequence Diagram.

Type “Tree Usage” and Enter. Now double click on the words “Tree Usage”. A new diagram should appear in the diagram window.

Drag each of the classes “Tree”, “Window”, and “FileSystem” from the browser window to the diagram. Give the three objects names “t”, “w” and “f”, by right clicking on the object’s rectangle and selection Open Specification, or by left-clicking in the rectangle. Use the Object Tool to create a fourth object in the diagram. Name the object “client”.

Use the Object Message tool to drag from the line under “client” to the line under “:Tree”. Right click in this message line and select the constructor. Edit the message so that the parameters are “f” and “w”.

Complete the diagram to look like Figure 3.

Hint. *To make a message that is labeled by some string that is not an operation, simply select the message line and start typing. This does not add a new operation to the model.*

5 Saving and loading models.

On the File menu, select Save As. Save your model to your home directory.

To open a model, you must first copy the appropriate .mdl file to the local hard disk from your home directory. *Rose does not correctly load models from home directories that are really on UNIX machines.* At least not with our current method of remotely loading unix home directories. Rational corp looked into this bug, but were not able to reproduce it, so we’ll have to live with it.

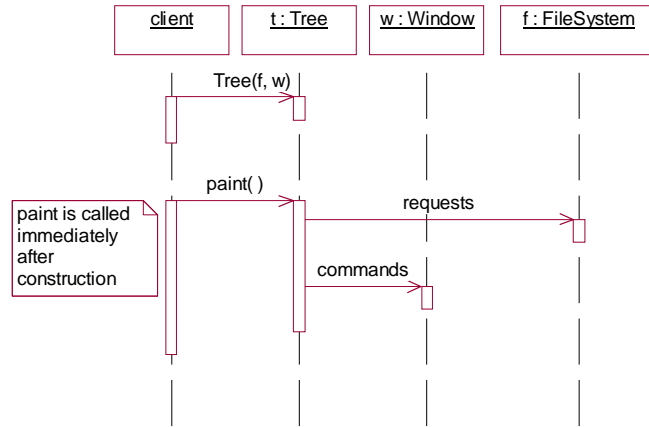


Figure 3:

So remember: Start by copying the model the local drive, and end with a Save As to your home directory.

[Note added 2007. I'm not sure if this problem exists with our current network setup and version of rose. Take the above advice under advisement. In any case make sure that all file associated with your courses are stored on or backed-up to your networked disk space ("M: drive").]