# Argo UML Tool
# Tutorial

Peter King

## 1 Introduction

Argo is a UML design tool being developed by University of Southern California and others. It supports development of UML designs and can generate outline code from the diagrams. The manual (a little bit patchy) is on line on the DIS. From the Departmental Home page go to Departmental Information System → Computing Facilities → User Guides → Argo Guide.

## 2 Example

This tutorial takes you through the development of use case diagrams and class diagrams for the video rental store example.

> Develop a software system to support a video rental store. The system should automate the process of renting tapes and having tapes returned by borrowers. Calculation of all charges concerning rental will be automated by the system, including extra charges for overdue items. The rental may be charged in advance, when the tape is rented, or it may be charged when the tape is returned. Borrowers are known to the system by a unique identifier read from a bar code on their membership card. The borrower's card identifies them as having a particular class of membership, which may restrict the number of videos they mare allowed to borrow simultaneously, or prevent them borrowing videos that have a particular censorship rating. The video tapes are also uniquely identified by a bar code. Bar codes are read with a laser scanner. There may be multiple copies of any video title, but each will have a different bar code. Tapes also have a running time, a price code, and a rating imposed by the local authorities that affects the age of person allowed to rent that tape. The system must allow for tapes to be added and removed from the shop's stock. Customers must be able to change their name and address details. Staff must be able to find out if a title is available or if all copies are on loan.

## 3 Use Case Diagrams

Start Argo from any terminal window by typing

```
argo
```

After a short delay a small window appears shown in Figure 1. The progress


Figure 1: Splash Screen for ArgoUML

bar at the foot of the window will show the names of internal packages being loaded, and when complete, the window disappears and is replaced by the main window, shown in Figure 2 (the dimensions may be slightly different, but all components should be visible). When iconified, argo displays a very small folded paper boat as an icon[1].

- You will observe that the bottom left of the window has a tree structured list, with three "directory" type icons. The heading says By Priority 2 Items. This can be seen if Figure 3. Clicking on the key icon next to Medium shows the two items Add Elements to Package untitledmodel and Revise Package Name untitledmodel.

  Clicking on Revise Package Name untitledModel causes the Details pane to display an explanation of why the name is poor, and allows you to change it. Click next at the bottom of that area, and a "Wizard" appears, with the text that needs changing, as shown in Figure 4. Replace untitledmodel (Argo will have already removed the capital letter!) with videostore and then click on the Finish button.

argo is continually monitoring the changes you make to your models and advising you of any problems that they may cause. This criticism of your model is controlled by the Critique pulldown menu.

- To create a use case diagram, click on the Usecase Diagram 1 in the navigation pane. The icons on the buttons along the top of the editing pane

[1] In Greek mythology, *Argo* was the name of Jason's boat when he was seeking the Golden Fleece. Perhaps this icon is some sort of joke or pun!

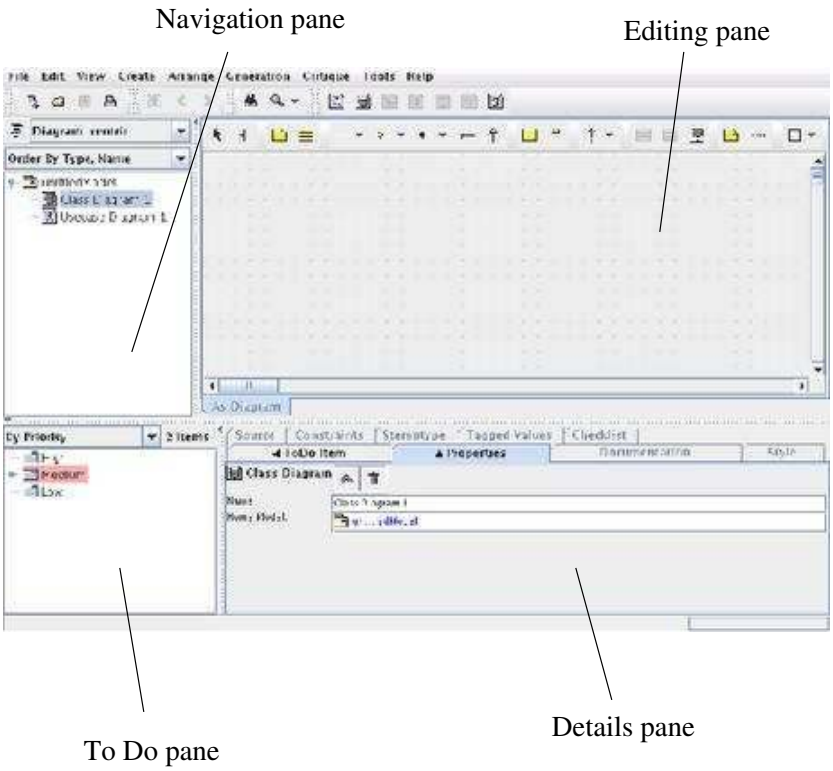


Figure 2: argo: Screen Layout

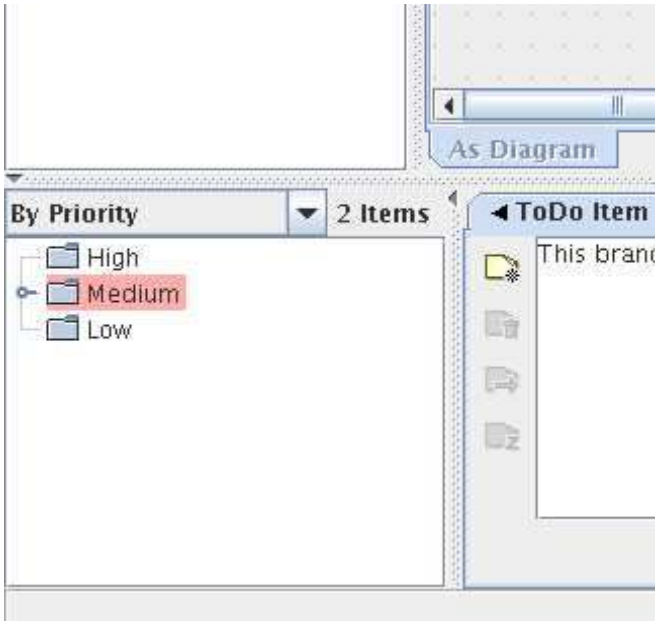


Figure 3: To Do pane

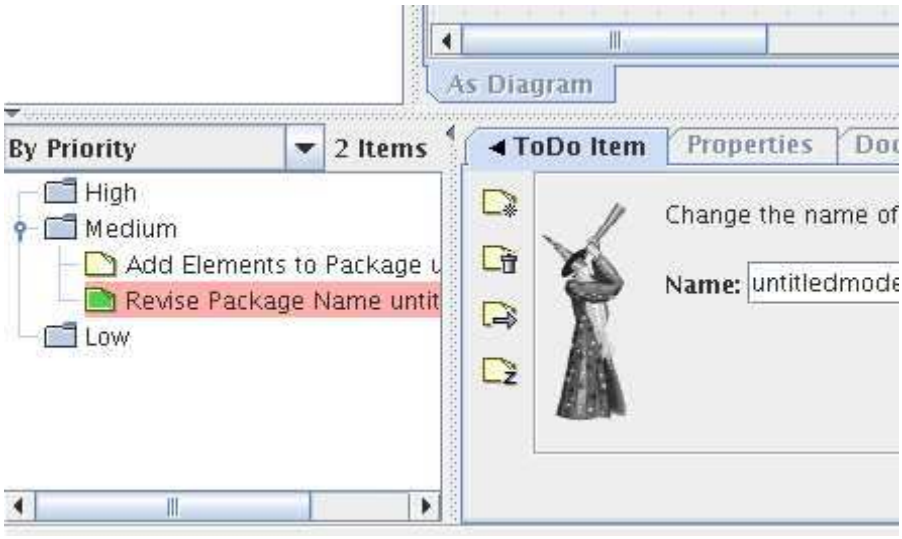


Figure 4: Wizard correcting To Do Item

will change to reflect use cases, specifically including actors and use-case icons.

Click on the actor button, and place the actor in the editing pane. It will start with no name indicated by a small wavy red line. Typing will add a name - say Customer. The red line disappears when you click away from the actor. See Figure 5

- Add a use case, by clicking on the button with the use case icon and placing the ellipse in the editing pane. The wavy red line is to remind you that the use case needs a name. When you give it a name (borrow), you will find two new ToDo items have appeared, asking you to add Associations to the Customer and to the borrow use case.

- When you add an actor or a use case, a small association icon appears as a handle to the left and right of the actor or use case symbol. To add an association, hold down the mouse button in the handle, and drag it to the actor or use case for which an association is required.

- You can continue to add use cases, actors and associations. As they are added, you can either deal with the naming as each component is added, or you can wait and deal with all the names after the diagram is complete.

  Add a use case for borrow, return and query with associations with the customer and the staff member.

  As components are added, whether use cases, actors, or associations, they also appear in the navigation pane.

  If you want to delete a component, it is easiest to click on that component in the *navigation* pane, and the use the Edit menu from the menu bar.

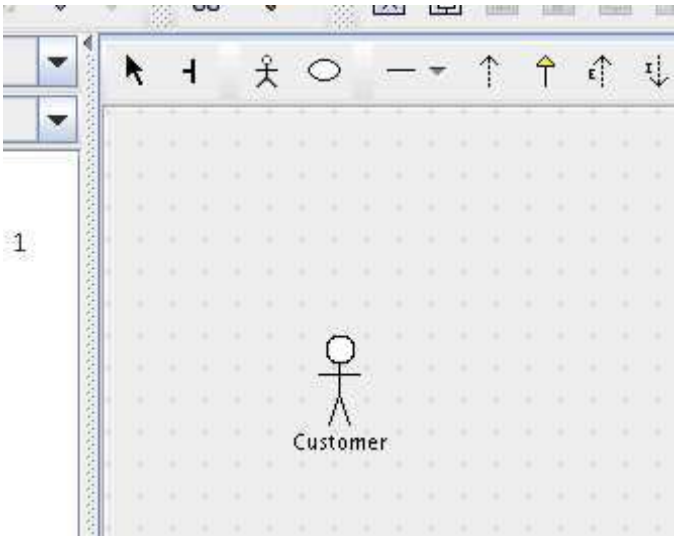


Figure 5: Actor

*Beware*, using the DELETE key will delete the component from the diagram only, not from the model. To delete a component completely from the model, use the menu.

- After adding multiple elements to a diagram, you may want to tidy it up somewhat, for example to move the use case ellipses so that they are all in the same vertical line, use the broom tool on the drawing toolbar ⊣ is its icon. It sweeps all before it, pushing any components, but keeping their associations intact. Assume you want to align all your use cases with the rightmost one. Click on the icon in the tool bar to select the broom, and move to a point to the left of the use cases, but to the right of the actor. Drag the mouse button to the right, and a vertical bar will appear, sweeping all components with it. If you need to make the bar longer, after you have started dragging the mouse, any vertical movement of the mouse will extend the bar in that direction.

  The direction of the sweeping is set by the first direction in which the mouse is dragged.

- It is probably worth giving the use case diagram a name, by clicking on it in the navigation pane, and then choosing the properties tab in the details pane. Name this one "Customer Use Cases".

- Comments (notes in UML terminology) can be added to actors, use cases, or to the associations between them by clicking on the component, and then clicking on the note button on the diagram editing row of buttons.

- The diagram can be saved as a graphic by choosing the File menu from the menu bar, and then Export Graphics... Graphics can be saved in Postscript, PNG, SVG, or GIF format and its file name will default to the name givne to the diagram.