Old Xtext Tutorial

January 28, 2024

1 Introduction

The Eclipse Modeling Framework can be used to create a meta model for domain specific languages. One part of such a model is the Ecore file. A Ecore file holds information about the defined classes and their relationships. Eclipse has a graphical editor to work with them. In this tutorial the main steps – from the project creation up to the data generation – will be explained. We assume, that Eclipse[1] is already installed with the Ecore tools.

1.1 Creation of a modeling project

After Eclipse was started, the usage of the proper perspective for modeling projects is recommended. The modeling perspective can be opened via the main drop down menu *Window > Perspective > Open Perspective > Other...* Choose the entry „Modeling". See: figure 1
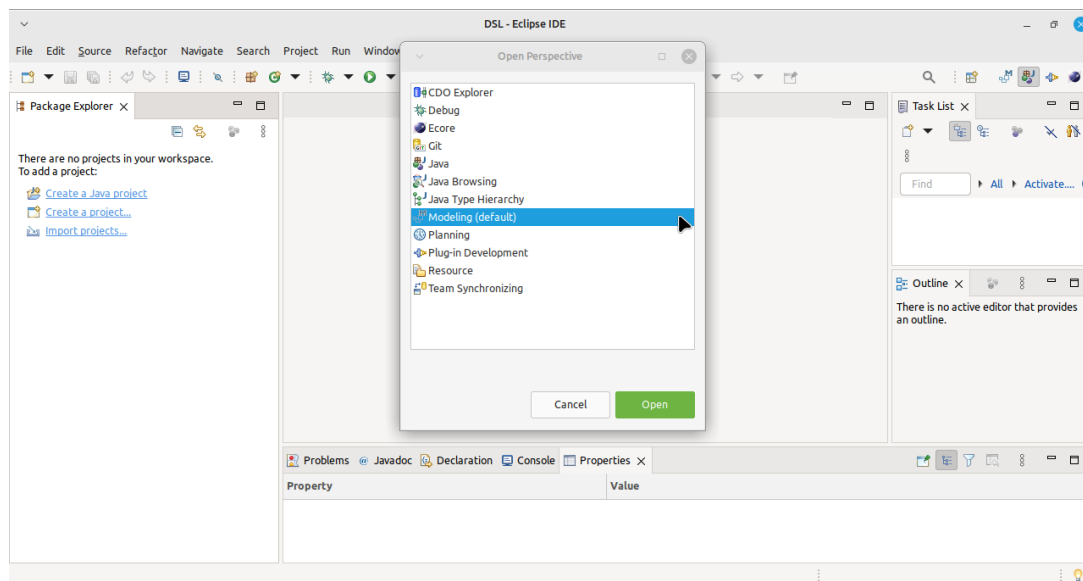

Figure 1: Perspective change to „Modeling".

With a right mouse click on the free space in the model explorer a new Modeling project can be created. (Figure 2). We named the project *MyDSLProject*.

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[1]For the tutorial Version 2023-09 (4.29.0) was used. Newer versions should also work.
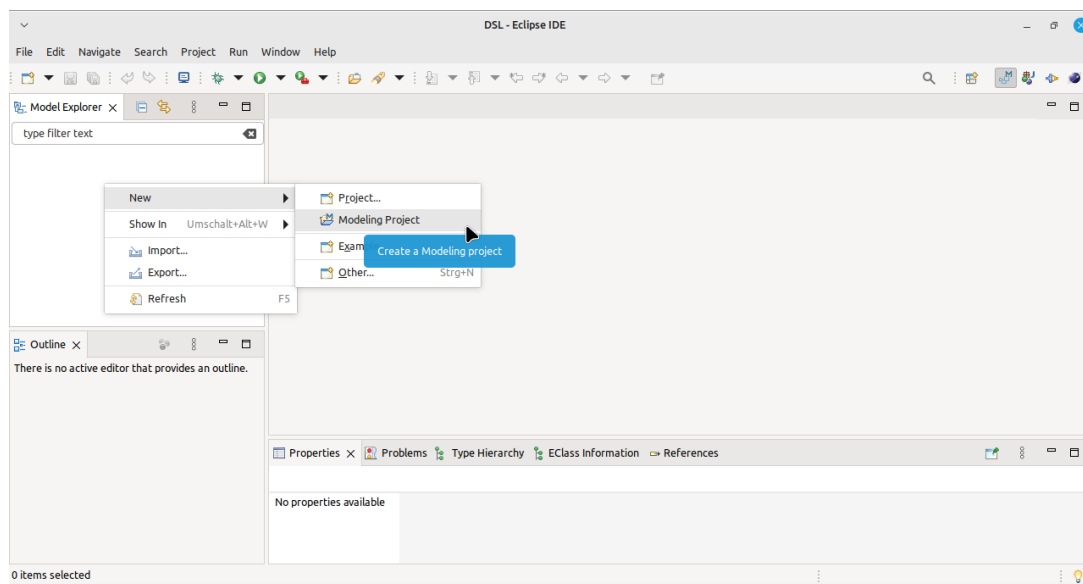
Figure 2: Creation of a new Modeling project.

For the future work we need an Ecore file. This file can be created with a right click on the project in the model explorer. Via *New > Other...* the wizard for a new file can be opened:
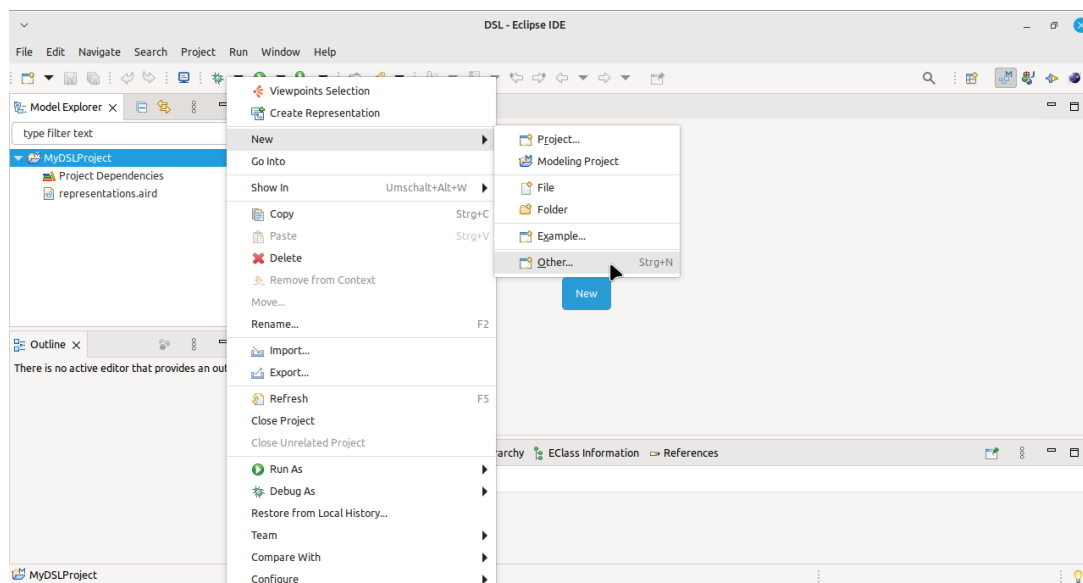

Figure 3: Open the wizard for a new Ecore file.

Inside the wizard is a folder named „Eclipse Modeling Framework". In this is an entry for a Ecore model. See figure 4. We named the Ecore file *My.ecore*
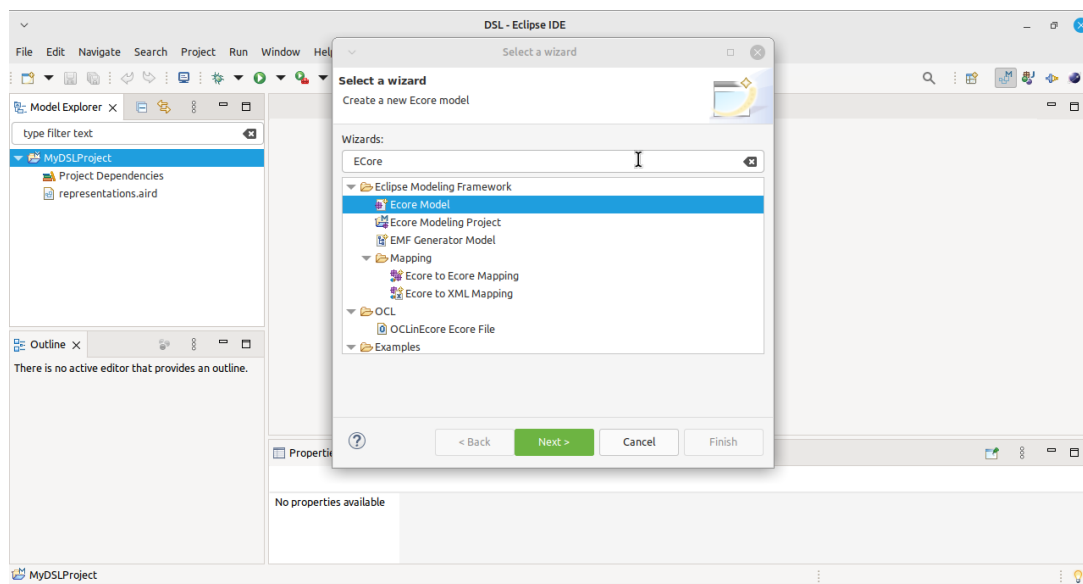
Figure 4: Choosing the Ecore Model in the wizard.

By default the textual Ecore editor will be opened. To use the graphical editor, we need to initialize the Ecore diagram first. This can be done with a right click on the Ecore file. There is a menu entry with the name „Initialize Ecore Diagram...". See: figure 5
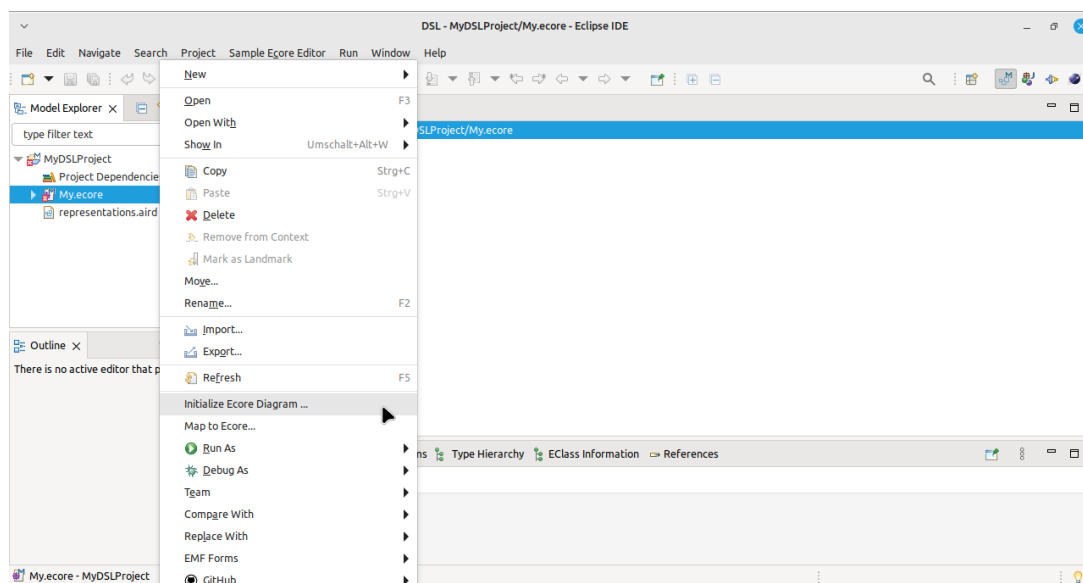

Figure 5: Initialize the Ecore Diagram to use the graphical editor for this file.

Now a representation of the Ecore file can be selected. In our case the first entry „Entities in a Class Diagram" is used. → figure 6
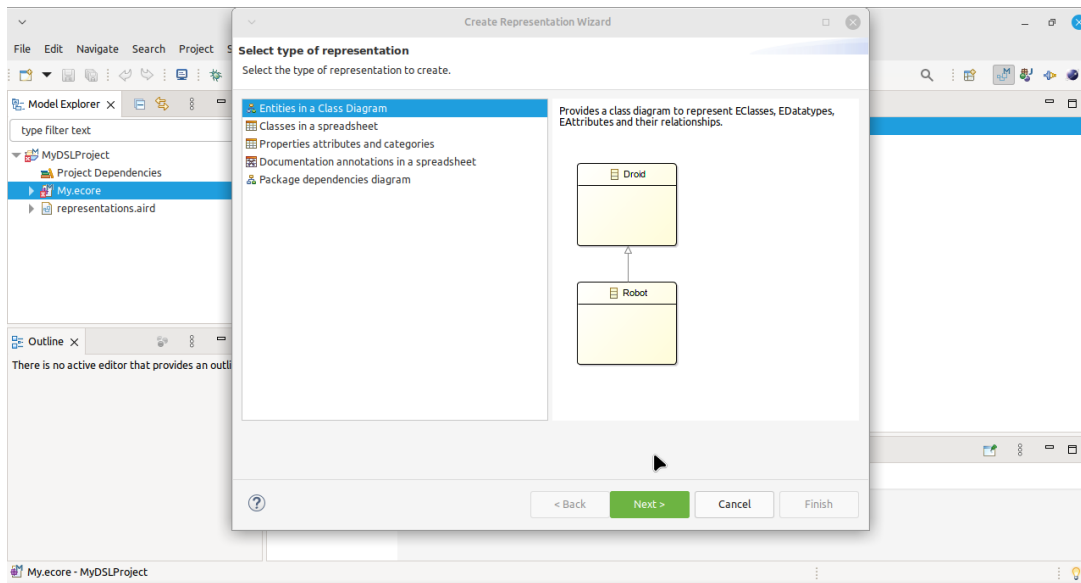
Figure 6: Opened wizard with different representations of an Ecore file.

After selecting this entry, the graphical editor will be opened. By now there are no entities. On the right side is a menu called „Palette". Here under *Classifier > Class* new classes can be created. On figure 7 two classes with the name „NewEClass1" and „NewEClass2" were created.
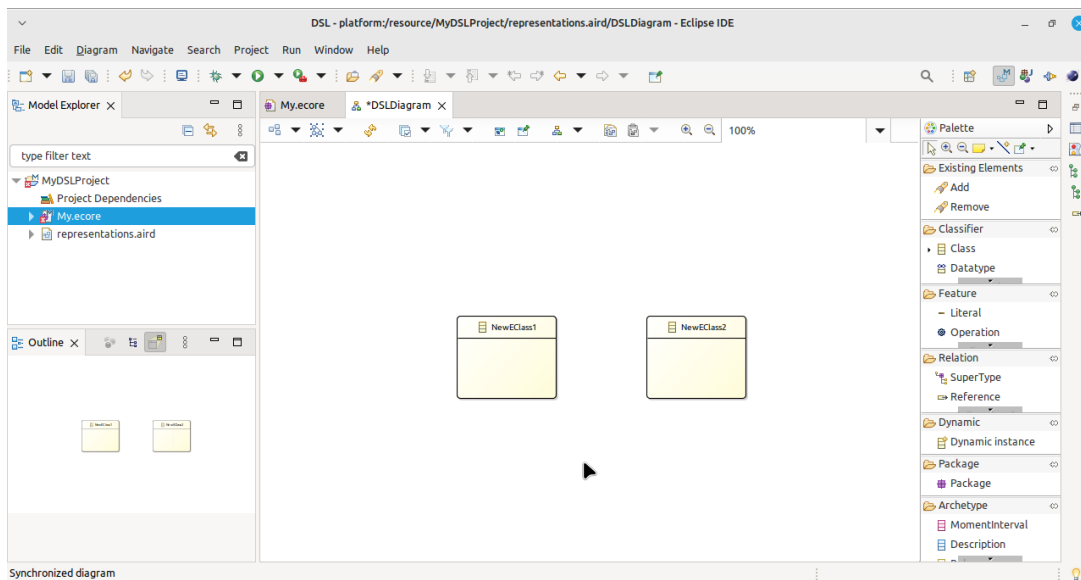

Figure 7: graphical Ecore editor with two new classes.

With an double left click all properties of a selected class can be shown and altered. We renamed the classes in „MyClass1" and in „MyClass2". Under *Classifier > Enumeration* an new enumeration is creatable. (Figure 8). We named the new enumeration „MyEnum1".
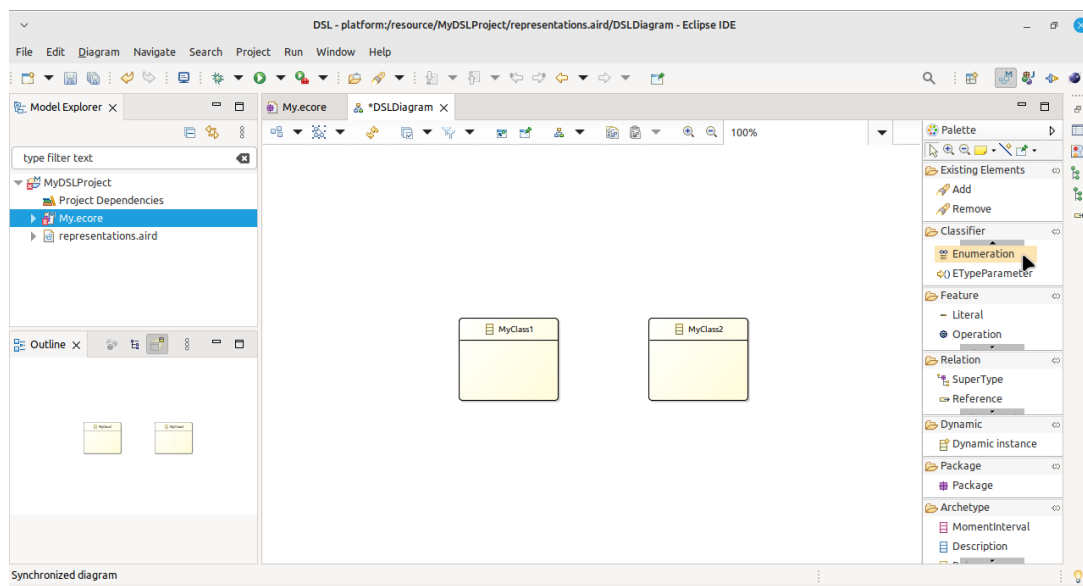
Figure 8: Under Classifier is also for example an entry for new enumerations.

After creating the enumeration, there is no value in it – not even a default value. To insert new entries a menu like in figure 9 will appear, when the mouse is in the enumeration.
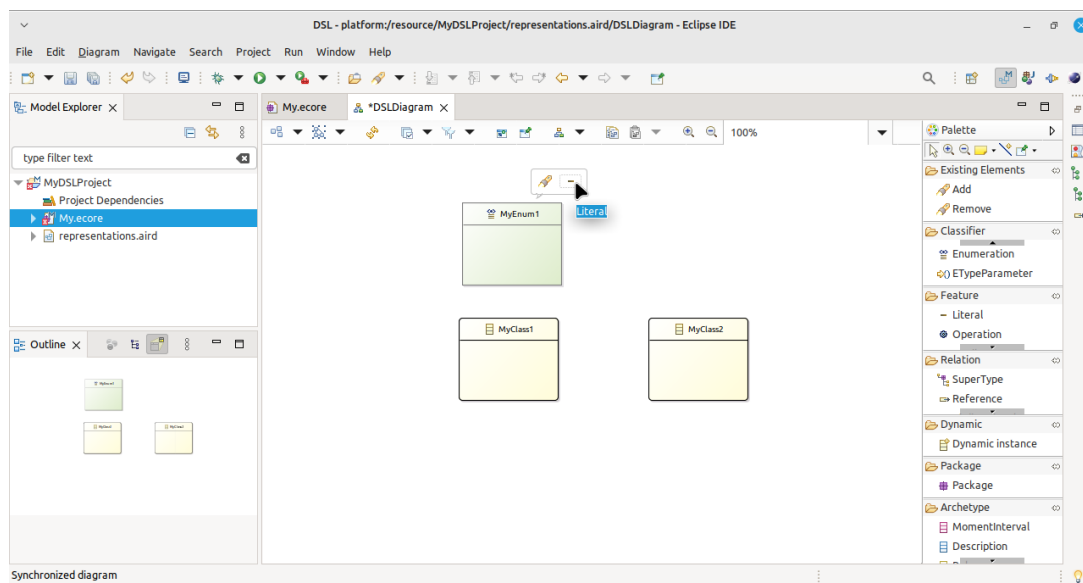

Figure 9: Enumeration with opened menu to insert new entries.

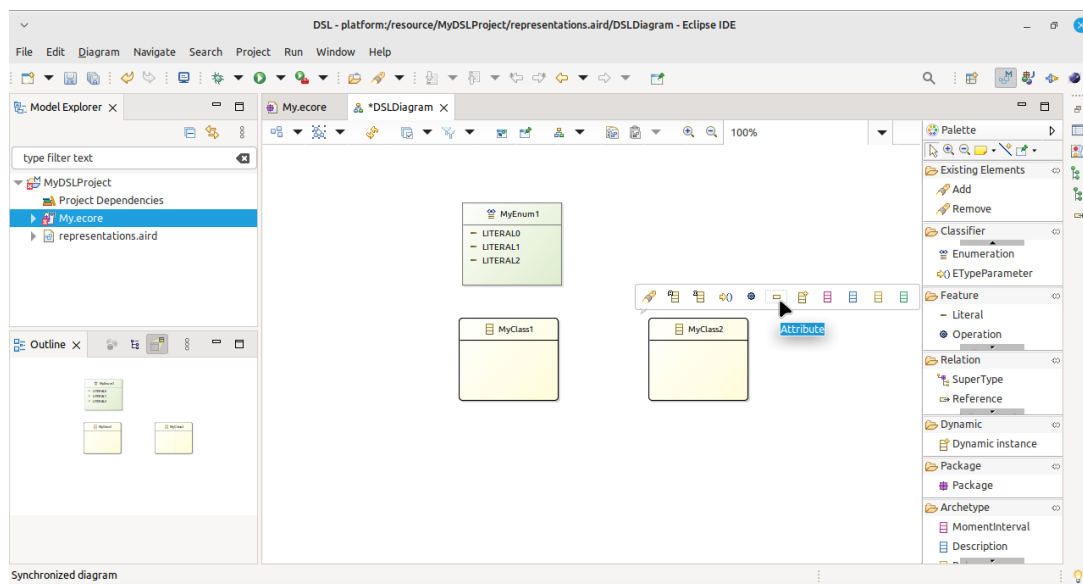In the same way new attributes can be added to a class. (See: figure 10)

Figure 10: Class with opened menu to insert new attributes.

Instead of inserting directly a new object like with enumerations, a window with the new properties of the new attribute will appear. To use an self-defined object, the button with the three dots can be used. → Figure: 11
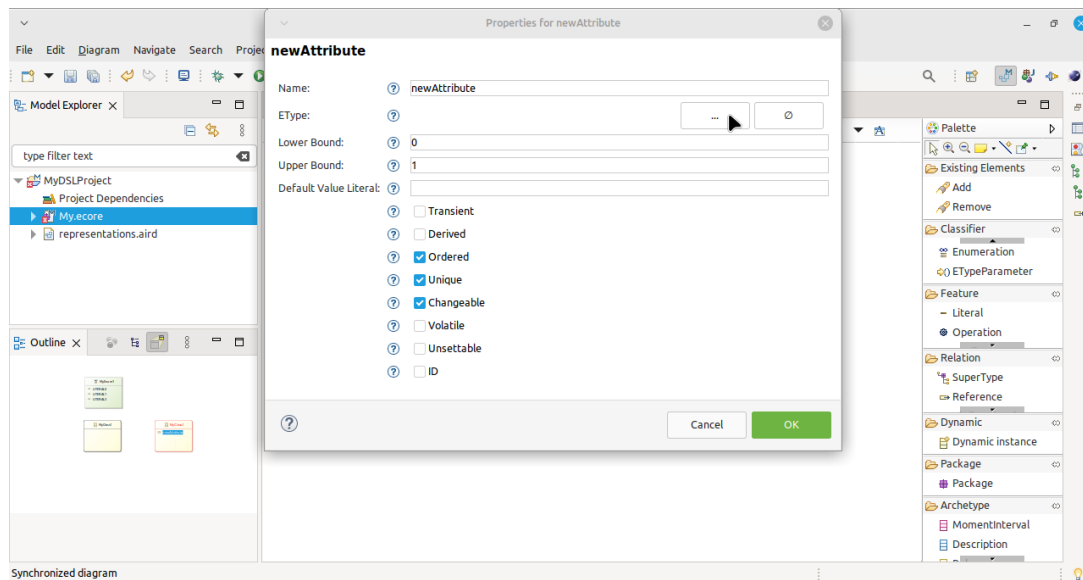

Figure 11: Properties window for the new attribute.

In the list all possible types will be listed. Almost all of them are defined by the Eclipse Modeling Framework. To find our enumeration, the search function should be used. (Figure: 12)
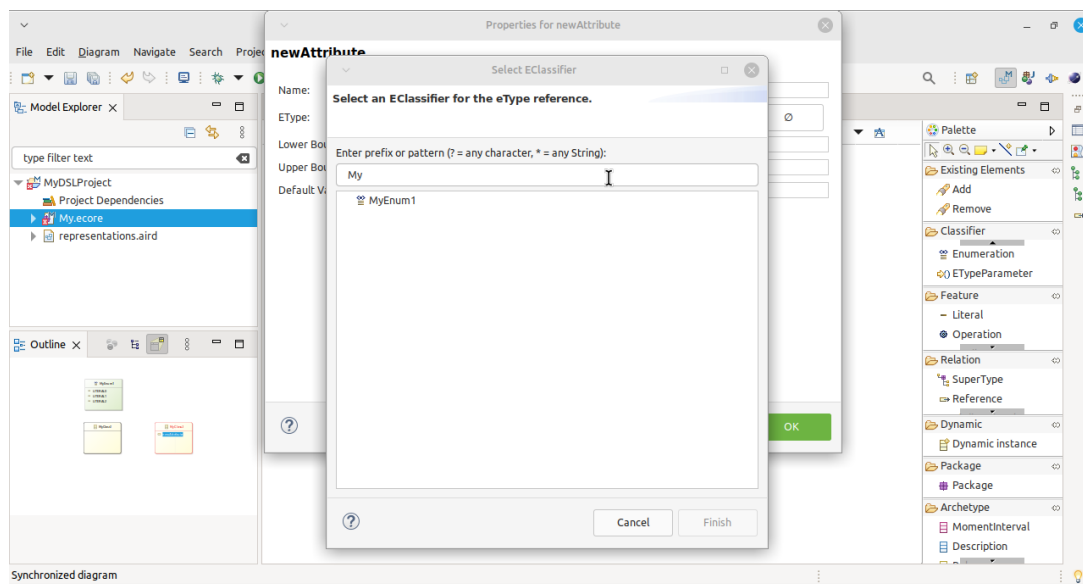
Figure 12: Properties window for the new attribute.

After clicking on „OK", the new attribute will be created. The new attribute will get a default value, if in the selected type a default value was set. In an enumeration the first entry will be select as default value.[2] So the new attribute „newAttribute" was get the default value „LITERAL0".

Usually classes have relationships to each other. If we for example need an composition between to classes this can be added via the menu entry *Relation > Composition*. After selecting this entry two classes needs to be selected.

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[2]This behaviour can be changed. In normal cases it is a good practice for readability to set the default value always on the first position.
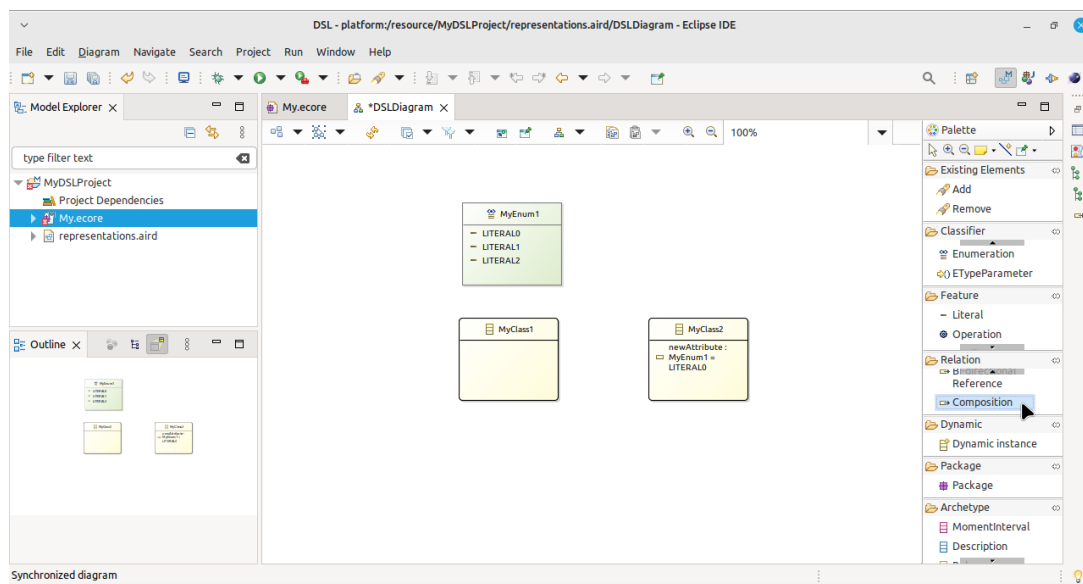
Figure 13: Menu entry to add a composition relation for classes.

For a composition a cardinality *0..** from the first selected to the second class will be added by default. After selecting the relation with the properties menu on the right side (see figure 14) the cardinality can be changed.
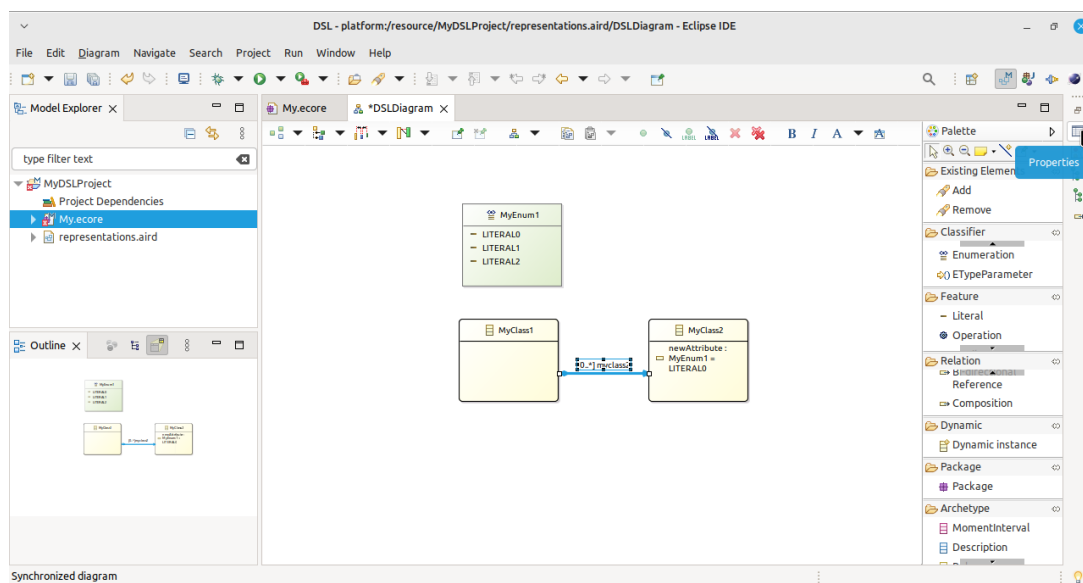

Figure 14: The properties menu is a small button on the right side.

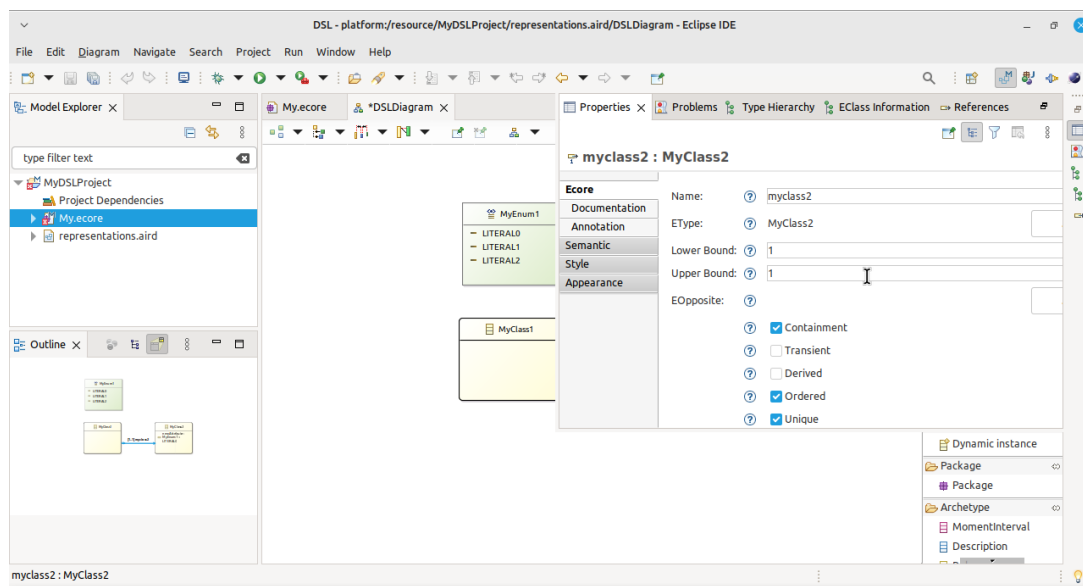In the properties window the cardinality is called „Lower Bound" and „Upper Bound".

Figure 15: The properties menu is a small button on the right side.