

CrySL Visual Order Editor – User Manual (Sirius/Xtext Version)

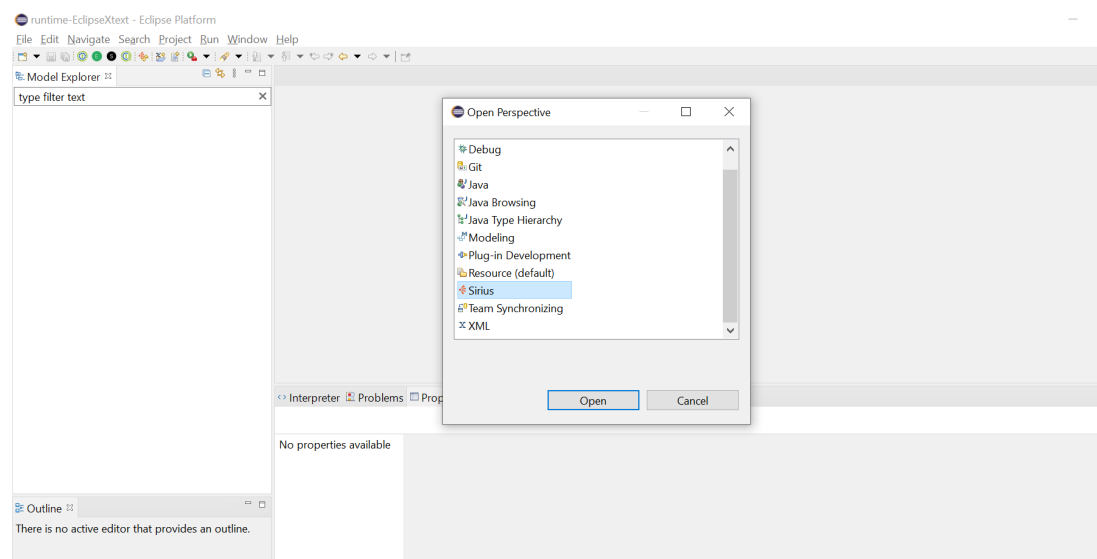
The Visual Order Editor displays the usage pattern of the class as defined in the Order expression of its CrySL rule as a state machine.

Set up

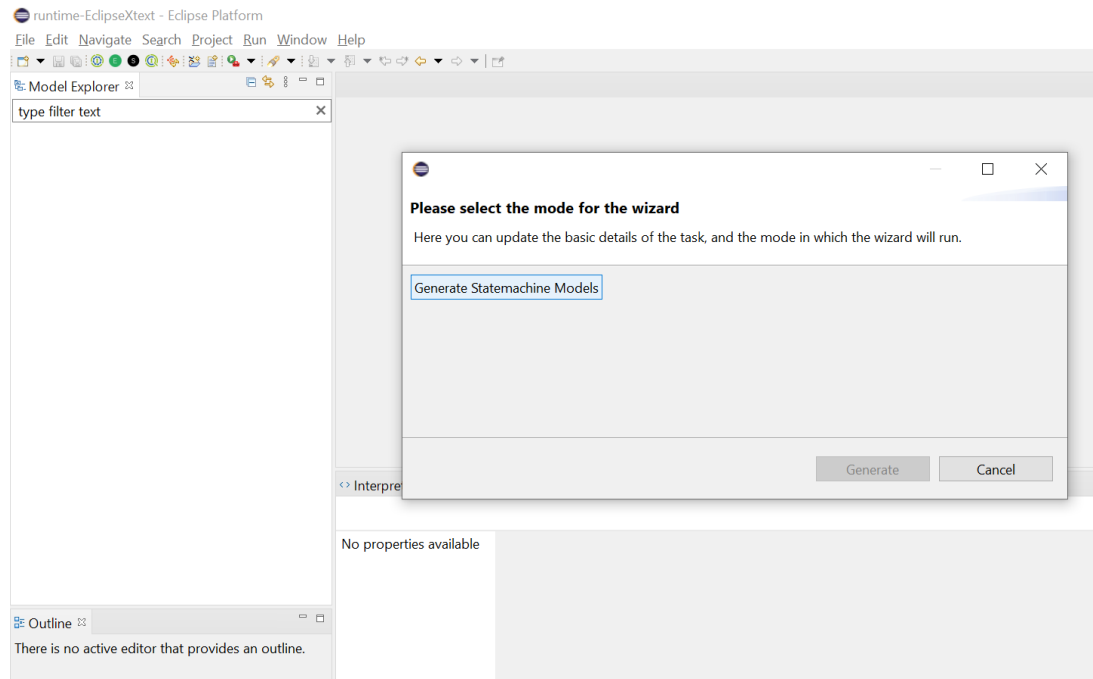
- Clone the CogniCrypt repository.
- Clone the Crypto-API-Rules repository (<https://github.com/CROSSINGTUD/Crypto-API-Rules>) to a folder named "git" in your home directory. This is required since the class StaxWriter which writes the configuration file needs to access this different repository and therefore accesses the paths relative to home directory by e.g. "`<home-dir>\git\Crypto-API-Rules\JavaCryptographicArchitecture\src`".
- Install Sirius (<http://www.eclipse.org/sirius>) from the Eclipse Marketplace.

Create a diagram

- Launch a new runtime from your Eclipse. Within the runtime environment, select the Sirius perspective. This opens a model explorer in the left corner.

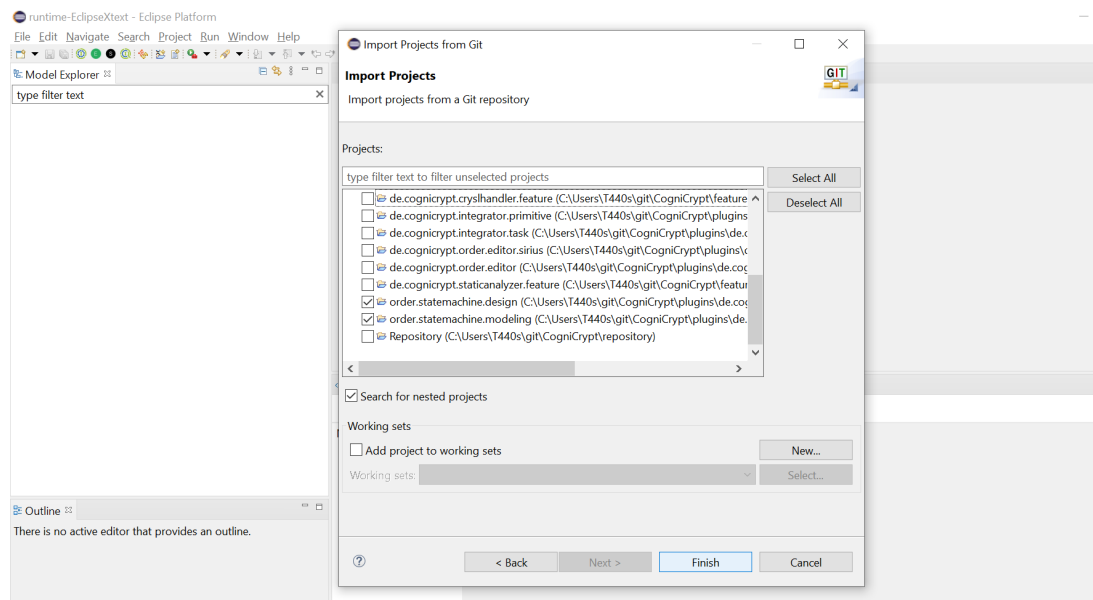


- Click on the black plugin icon "S" in the upper left corner, next to the other buttons for TaskIntegrator and CogniCrypt, then click on the button "Generate Statemachine Models", which is currently a simple button but should later be replaced by a single CrySL rule selection.



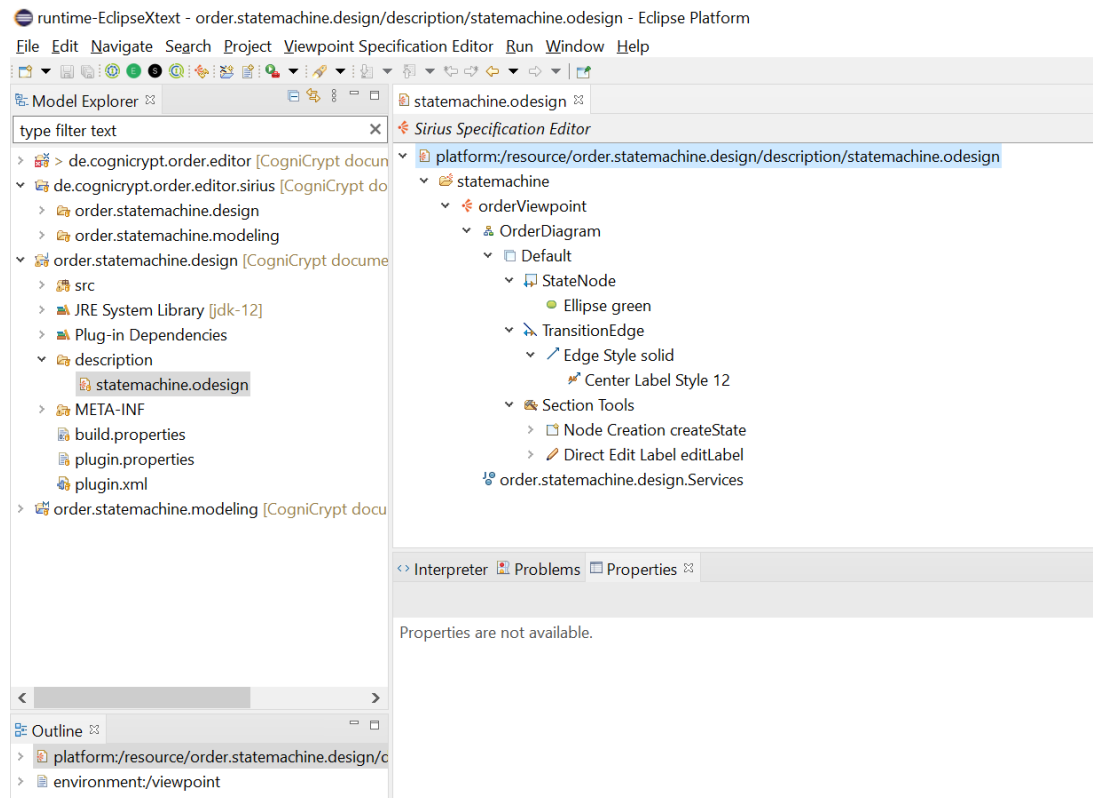
This button triggers the generation of the statemachine model resources into a separate folder, i.e., "de.cognicrypt.order.editor\output".

- Import the project "CogniCrypt\plugins\de.cognicrypt.order.editor\sirius" into the runtime environment. This folder contains the Sirius specific project files. Make sure to only add the inner projects, otherwise the projects might have referencing issues.



The project folder

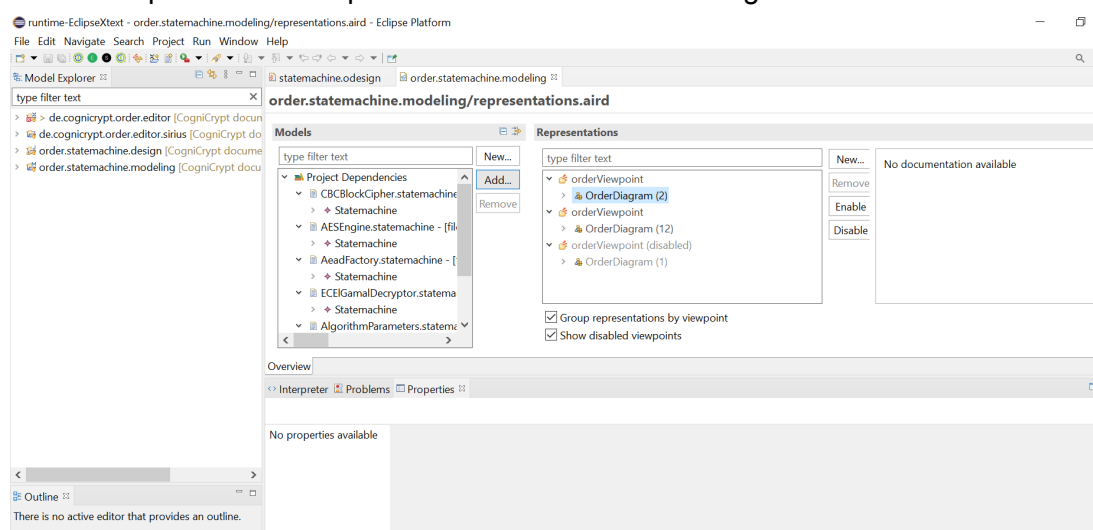
"~\CogniCrypt\plugins\de.cognicrypt.order.editor\sirius\my.project.design" is the Viewpoint Specification Project containing the .odesign file (definition of the modeling workbench).



The other project folder

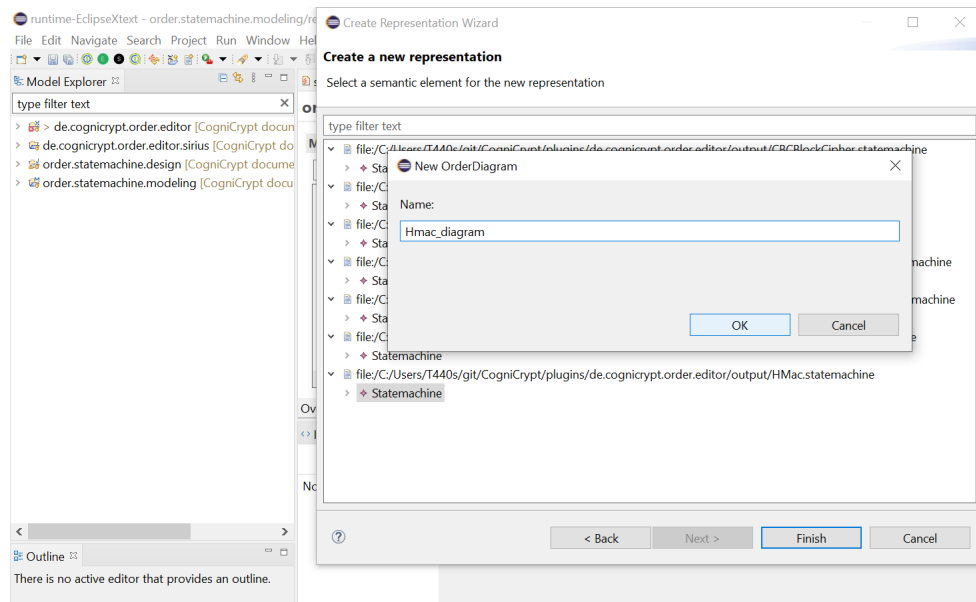
"~\CogniCrypt\plugins\de.cognicrypt.order.editor\sirius\my.project.order.diagram.modeling" is the Modeling project containing the graphical representations created with Sirius, saved in a file representations.aird.

- To create a diagram, open the file representations.aird from the modeling project. In the left corner of the new window, named "Models", click on Add > Browse File System to select a statemachine model from the plugin-relative output folder. The model will appear in the Models window. Now double click "orderDiagram" below "orderViewpoint" in the Representations window on the right.

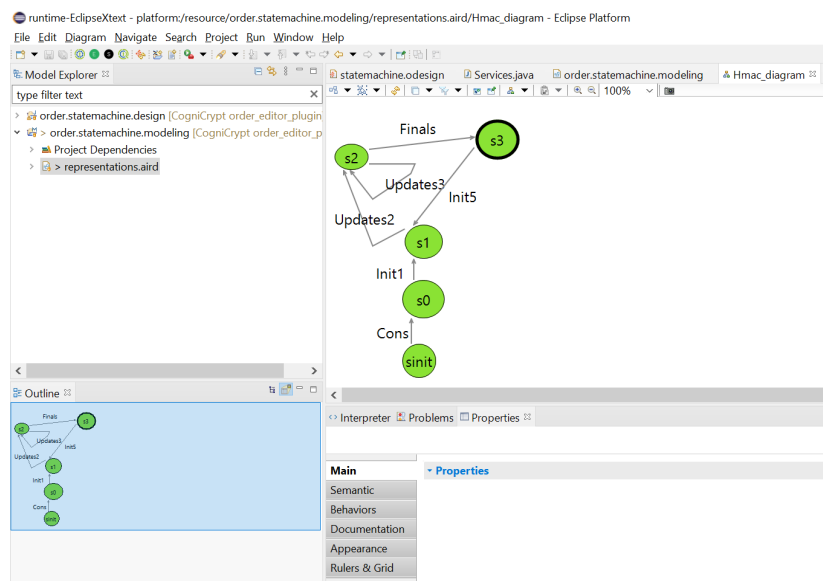
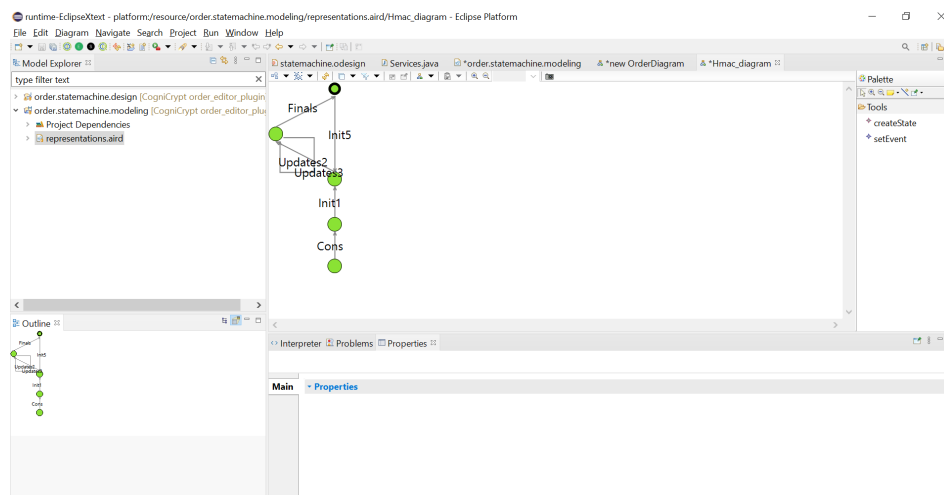


This opens a new window "Create a new representation" which allows to select a semantic element for a new representation. Here, you can select the model you just added, click on its "Statemachine" model identifier and click on Finish. You can

optionally type a custom name for the diagram.

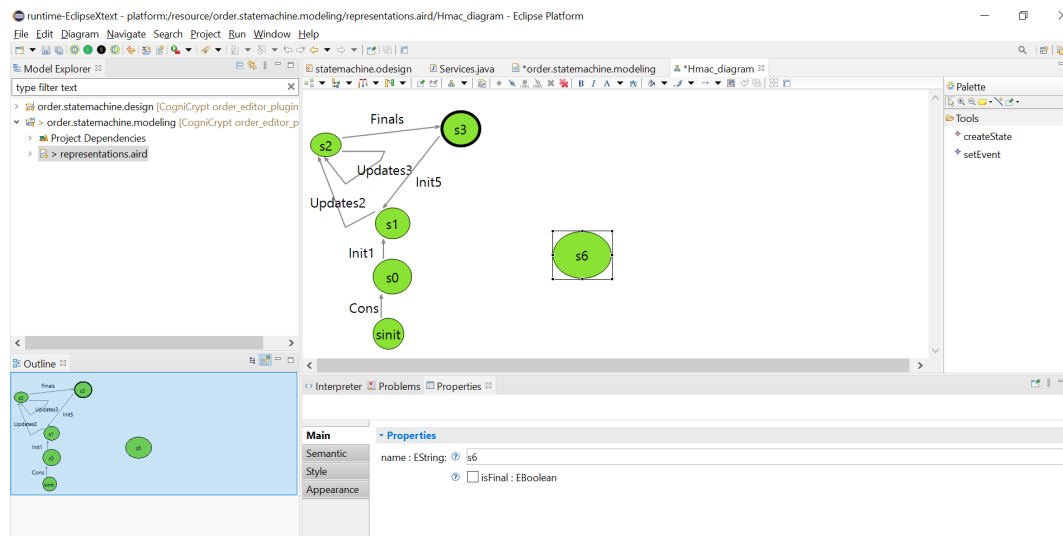


The representation is opened now and you can play around with the Sirius model editor features to enhance the representation.

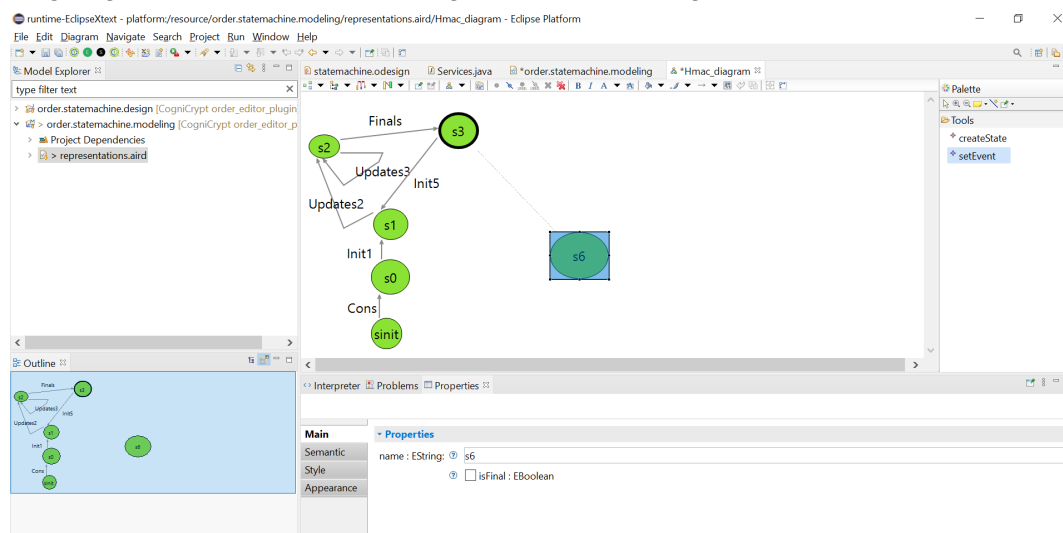


Current Features

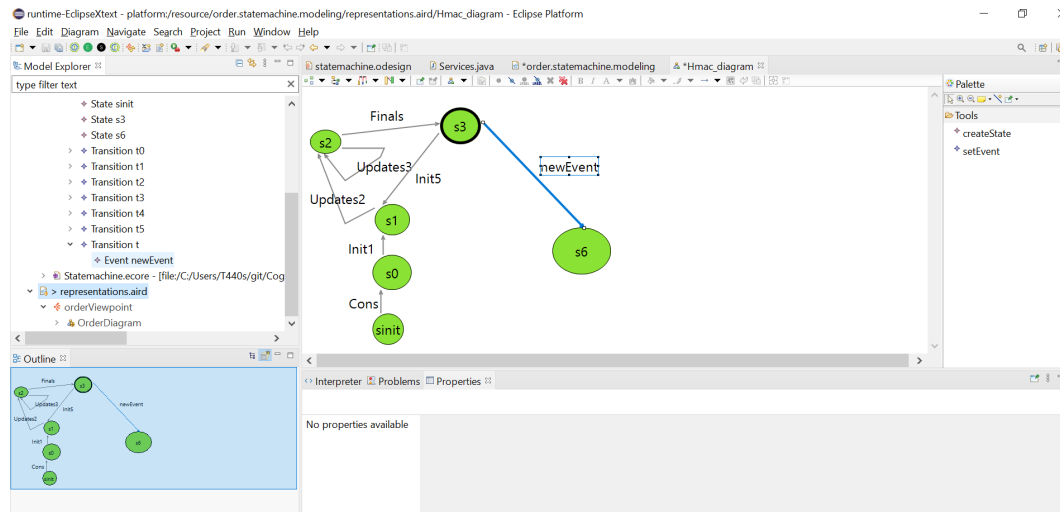
- the nodes can be automatically rearranged by clicking an icon above the diagram, their size can be changed by dragging them, this and more properties can also be adjusted by modifying them in the Properties tab below
- Nodes and edges can be moved by Drag and Drop
- displaying an icon next to the node and edge labels can be set in the Properties tab
- Add states: in the Palette in the right corner, there is an editing tool called “createState”. Click on this, then click into the diagram pane to create a new state.



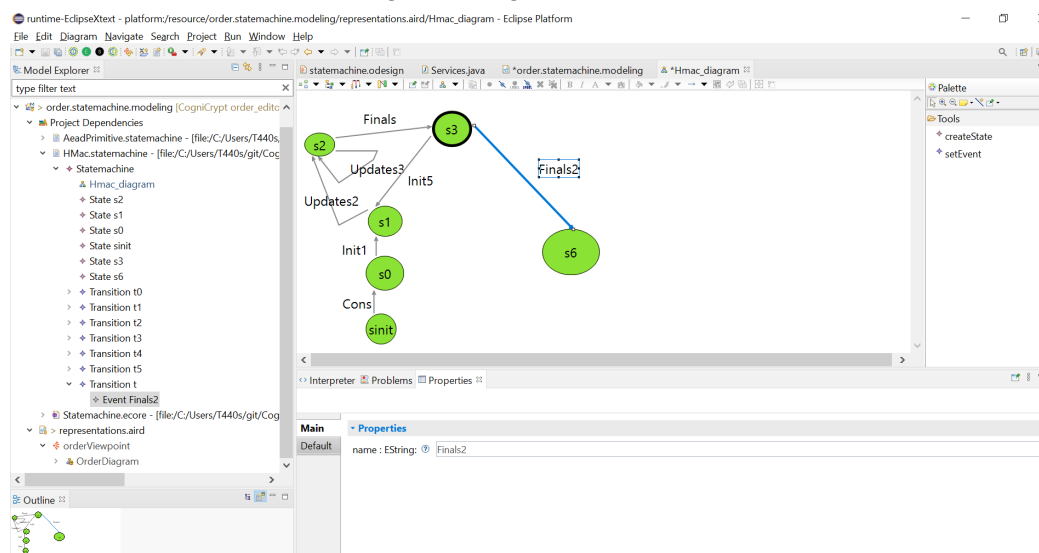
- Add edges: in the Palette click the tool called “setEvent”. Then first click on the outgoing node and then on the target node in the diagram.



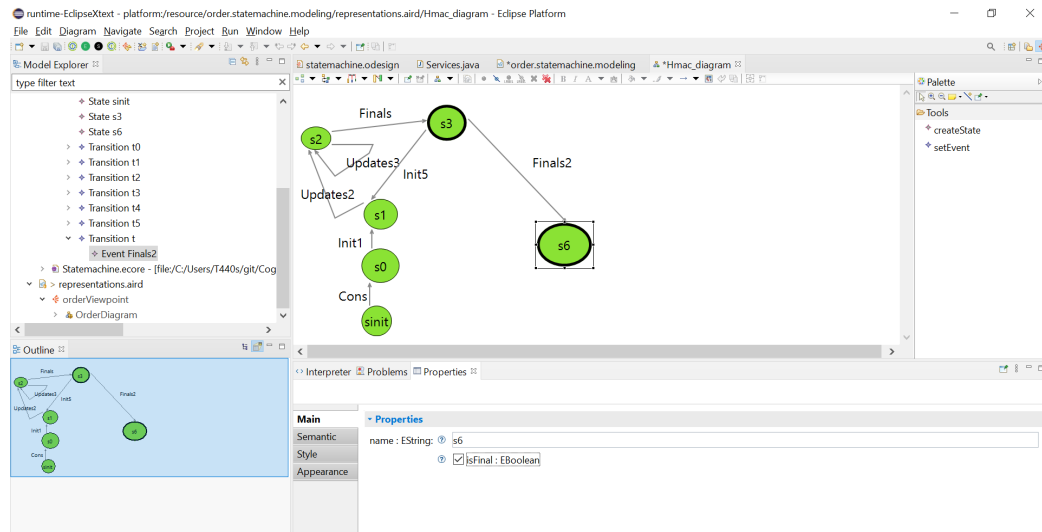
This created an edge between these nodes, setting a default label “newEvent”.



By clicking in the tree editor in the left corner, selecting the current model under “Project Dependencies” and then clicking on the newly generated Transition object, you can change the edge label, i.e. the name of the new Event object: Clicking on the Event opens the responding Properties tab below the diagram and clicking into the name field allows to change the edge label.



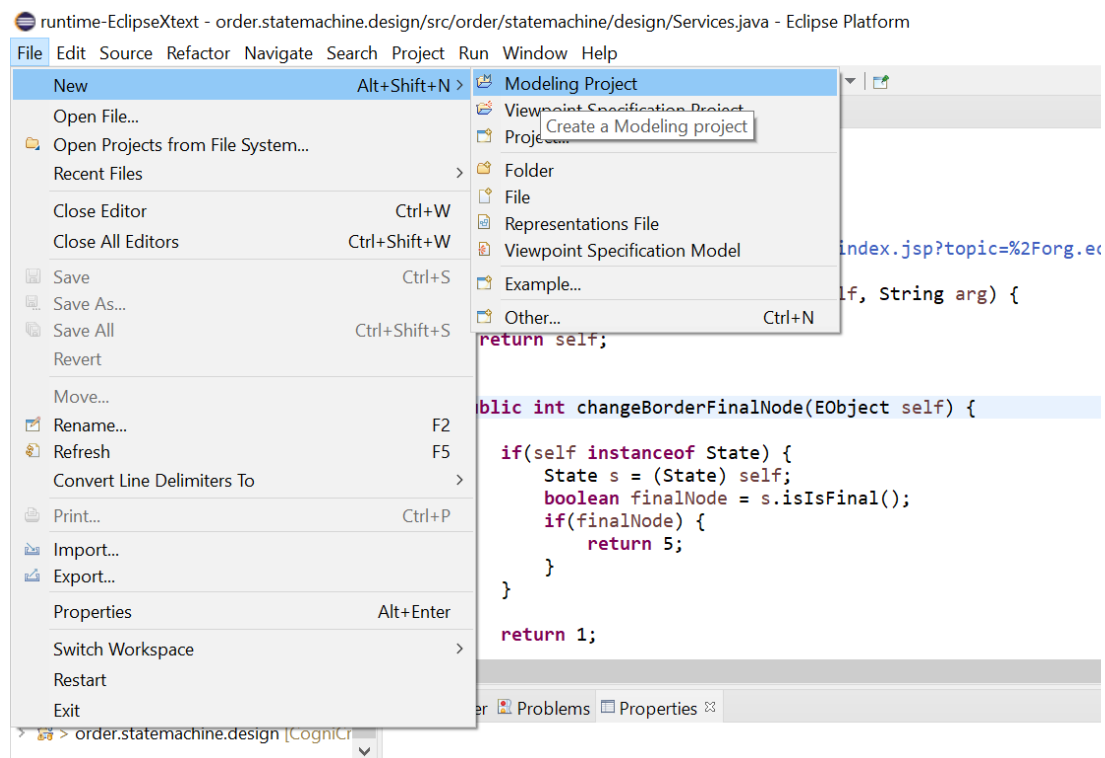
When you click on the new node you can specify in the Properties tab below whether it should be a final node that is displayed with a wider border.

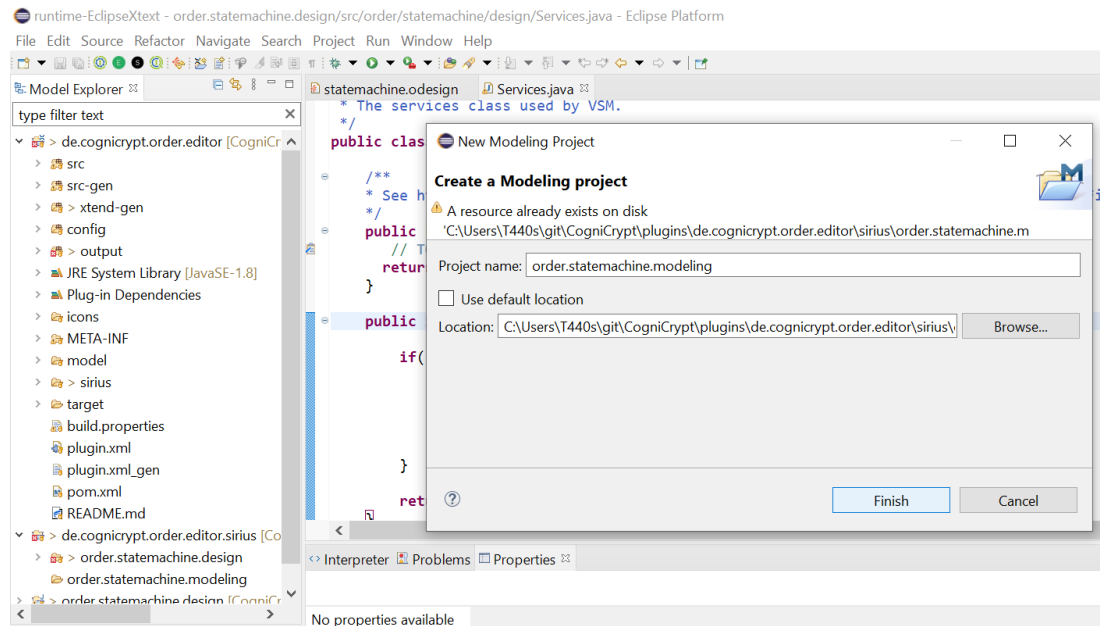


- For more information on Sirius, have a look at their tutorial (<https://wiki.eclipse.org/Sirius/Tutorials/StarterTutorial>).

Troubleshooting

- If anything does not work as expected, e.g. there are problems adding a statemachine model in the representations view or the diagrams do not display the edges, this can be circumvented by deleting the current modeling project from the workspace and creating a new one in the same location:





This Modeling project then contains a new representations.aird file and the above steps can be repeated.

Missing Features

- adjust state names (The name of a new state should be the lowest natural numeral that is not yet a state name)
- more editing tools (as described in the general manual of the entire Visual Editor, e.g. reconnect edge tool, delete element tool, style customization, constraints on deletion)
- transforming graphical edit into crysl rule edit