SysML v2 Release Eclipse Installation

Requirements: Eclipse 2022-09 (4.25), with Java Development Kit

(**Note:** The release may work on later versions of Eclipse, but it has only been tested on 2022-09.)

Installing the plugins

1. Open an Eclipse workspace.
2. Select `Help > Install New Software`.
3. Select `Add...` and then, in the add dialog, select `Archive...` .
4. Navigate to the `org.omg.sysml.site.zip` archive and select it. (You can give it a name if you wish.) Click `Add`.
5. In the Install window, select the `KerML and SysML Editors` category and click `Next`.
6. Continue with the installation (select `Install Anyway` if asked), and, when it is complete, restart Eclipse.

Installing PlantUML graphical visualization

Graphical visualization is available in Eclipse using the open source PlantUML tooling to render diagrams.

1. Make sure that your Eclipse has PlantUML with SysMLv2 extensions. You can install it from the update site of https://github.com/himi/p2-update-puml-sysmlv2/raw/main/updates with Help > Install New Software
2. PlantUML visualization requires that GraphViz be installed. Visit https://www.graphviz.org/download/ and download the appropriate package for your environment.
    - The recommended GraphViz version is 2.44.1. Make sure you have initialized GraphViz with `dot -c` command. See https://plantuml.com/ja/graphviz-dot for details.
3. If Eclipse cannot automatically find the path to the GraphViz executable, you can set it by going to `Preferences > PlantUML`. For details, visit https://plantuml.com/en/eclipse.

Installing the model library and modeling projects

If you are updating an existing installation of an earlier SysML v2 release, then, before proceeding with the procedure below, delete the `kerml`, `sysml` and `sysml.library` projects from your workspace, selecting `Delete project contents from disk`.

1. Select `File > Import`.
2. Under `General`, choose `Existing Projects into Workspace`.
3. Browse to the `sysml.library` directory and select it.
4. Under `Projects`, select `sysml.library`, under `Options` select `Copy projects into workspace`, then click `Finish`.
5. Turn off `Project > Build Automatically`, then select `Project > Clean...` and build *only* `sysml.library`.
6. Repeat the above steps for the `kerml` and `sysml` projects.

Important Note: Import the `kerml` and `sysml` projects *only* after importing and building the `sysml.library` project.

After installation is complete, if you wish to turn `Build Automatically` back on, first go to `Preferences > General > Workspace > Build` and make sure that `sysml.library` is before `kerml` and `sysml` in the build order.

Working with model files

1. Double click on a file with a `.kerml` or `.sysml` extension to view it in a Kernel Modeling Language (KerML) or Systems Modeling Language (SysML).
2. Create new KerML files in the `kerml/src` directory with the extension `.kerml`.
3. Create new SysML files in the `sysml/src` directory with the extension `.sysml`.
4. You can view the model library files in the `sysml.library` project, but *do not change them*.
5. To show SysML diagrams, in `Window > Show View > Other...` select the PlantUML view. The diagram rendered in the view is relative to the text selected in the active SysML editor view. Tree (BDD-like), interconnection (IBD-like) and state machine views are currently supported.

Release Note: While performance has improved further in this release, there are still cases in which the processing of a file with several name resolution errors can take a long time, particularly if the `Quantities and Units` library is being used.

Initializing new model projects

You can also create a separate project for your KerML or SysML files.

1. Select `File > New > Project...` to open the New Project wizard.
2. Select `General/Project`.
3. Enter the project name (and location if necessary), then press Next.
4. On the Project References page, check the `sysml.library` project. This step tells Eclipse which other projects should be visible for resolving cross-references.
5. Right-click the new project and select `Configure > Convert` to an Xtext project. This step sets up the indexing infrastructure necessary for resolving references between different files.

6. Create any text files with `.kerml` or `.sysml` extensions to start working with a new file.

Adding the project references to an existing project can be done in the project Properties dialog available from the popup menu on the project in the Project References page.

If the Xtext setup (step 5) is missed, opening the KerML or SysML editor shows a dialog asking to convert the project to an Xtext project. Accepting this has the same results as manually selecting the menu item on the project.