



## Astah SysML Quick Start Manual for Version 1.2

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## Introduction

Thank you for downloading Astah SysML.

This Quick Start Manual briefly explains all the functionalities Astah SysML supports. If you have any questions or feedback, please send them over to us.

Email: [sysml@astah.net](mailto:sysml@astah.net)

Contact through Website: <http://astah.net/editions/sysml/feedback>

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## Setup

In order to set up Astah SysML, please make sure that your machine meets the System requirements below.

### System Requirements

#### Windows

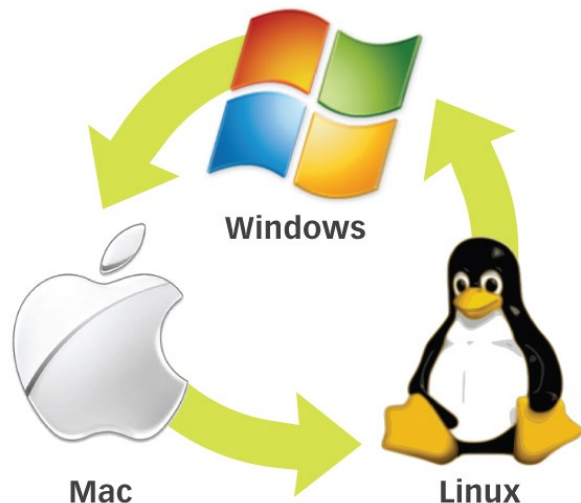
Windows 8, 7, Vista (Vista 64bit and XP not supported); 1 GHz or better; 1GB RAM (2GB recommended); 400MB Drive Space; Oracle Java 7 (Update 17) or later\*

#### Mac

Mac OS x 10.7.5 or later; Intel Processor; 1GB RAM (2GB recommended); 400 MB Drive Space; Oracle Java 7 (Update 17) or later\*

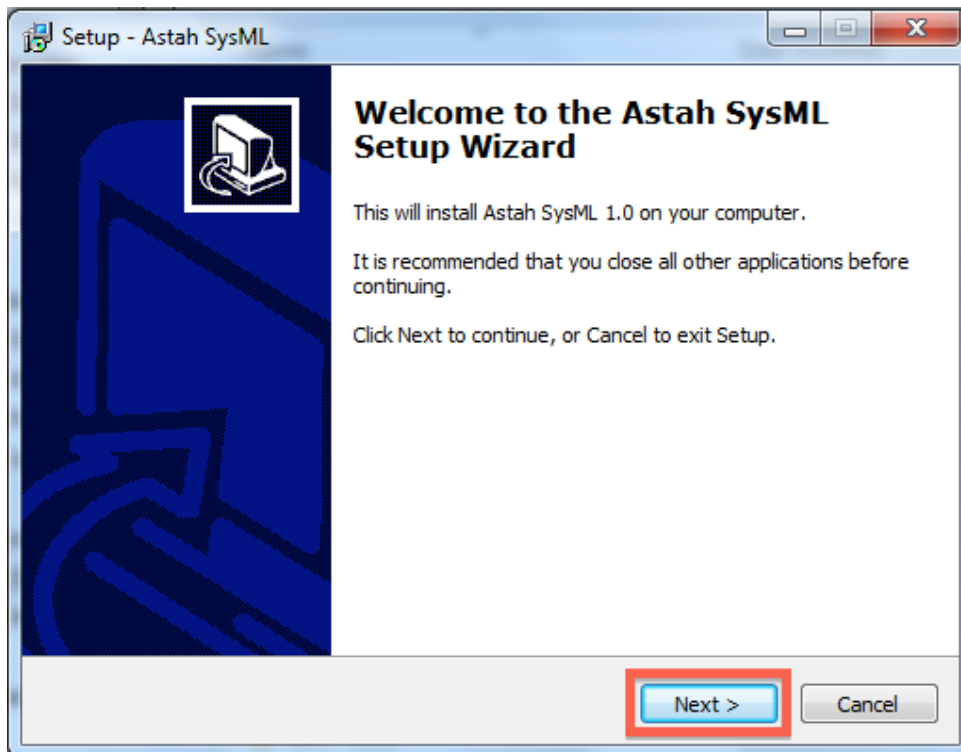
#### Linux

Ubuntu 12.04(Precise Pangolin) or CentOS 5.5 (Debian GNU,Linux 5.0.6 - lenny , Fedora 13 are unsupported) Oracle Java 7 (Update 17) or later\*; Desktop Manager: GNOME



## Download and Install

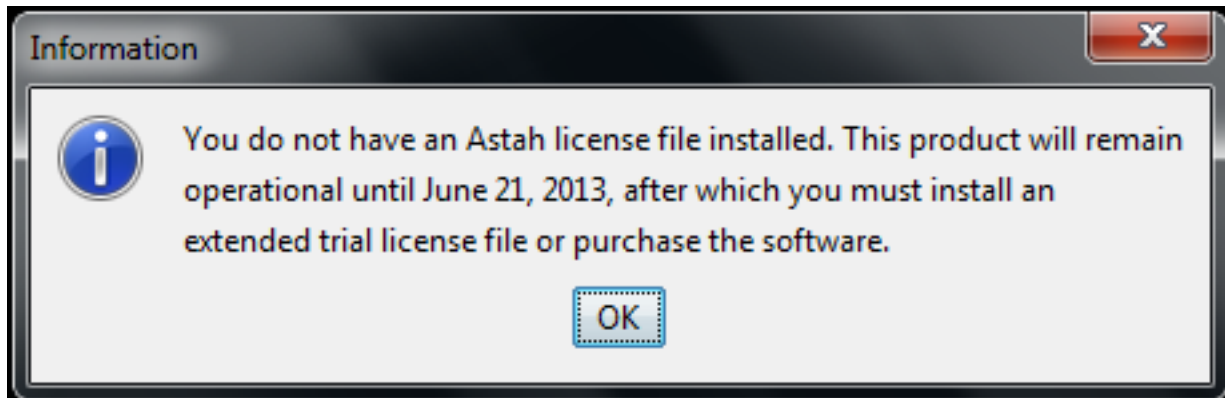
1. Download Astah SysML from our website: <http://astah.net/editions/sysml/download>
2. After downloading Astah SysML, run the setup and follow the given instructions.



3. Once you have completed the installation, you can run Astah SysML from Application menu or double-click the application icon of Astah SysML.



4. Once you start Astah SysML, a dialog appears to tell the date you are able to try out Astah SysML until.



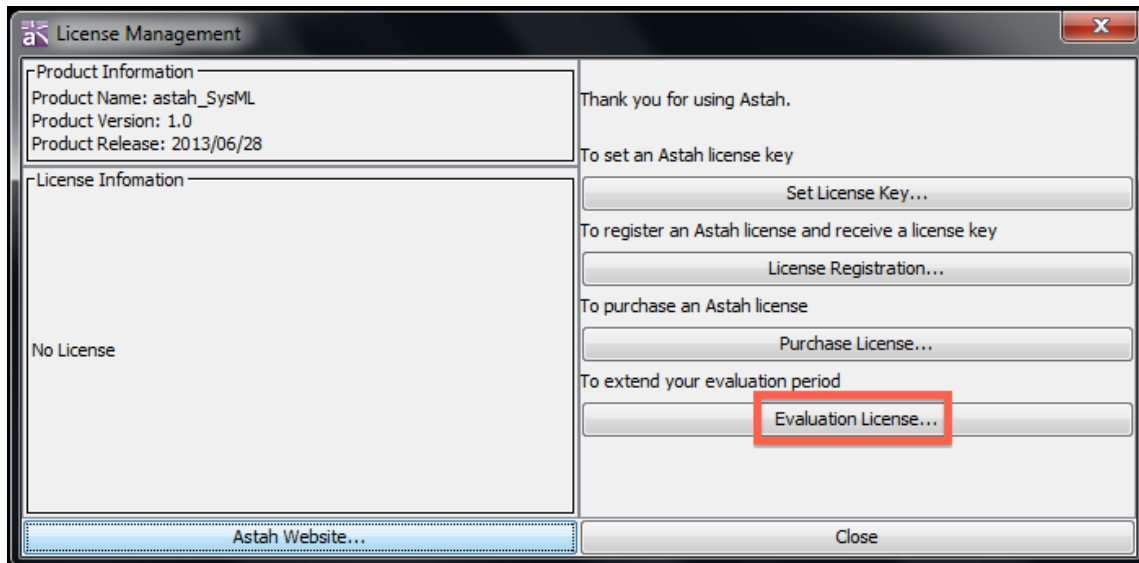
5. Click [OK] to start

For running Astah on Linux, please refer to the page : [How to run Astah on Linux](#)

If you already have a license, please go to [Setting up the license](#).

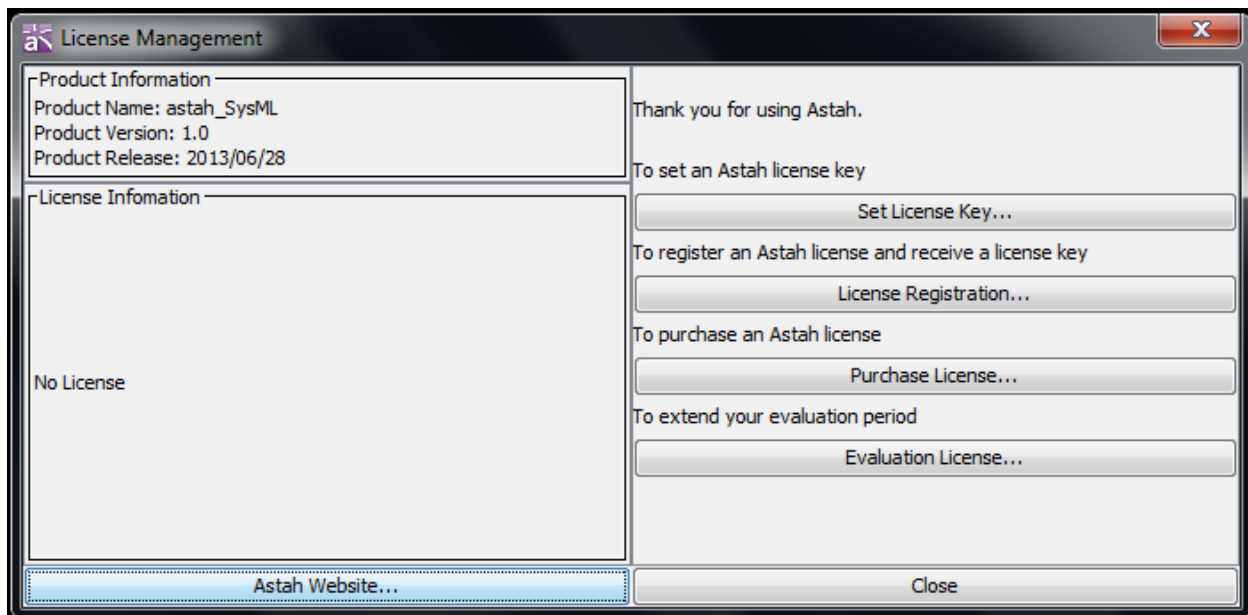
## Evaluate

From the day you install Astah SysML, you can use Astah SysML for 20 days without setting any licenses. In order to extend your evaluation period, go to [Tool] – [License] and click [Evaluation License] to apply one.



## Set up the License after evaluation

After the 20 day trial and the license is not set in Astah, the “License Management” dialog comes up when starting Astah.



### If you already have a license:

Select [Set License Key] in the [License Management] dialog and specify the license key file (astah\_sysml\_license.xml).

### If you do not have a license yet:

1. Select [Purchase License] button. You will be taken to our Online Store
2. Purchase the license
3. You will receive a License Number and Validation Code of your license
4. Register them on the [Astah Web site](#)



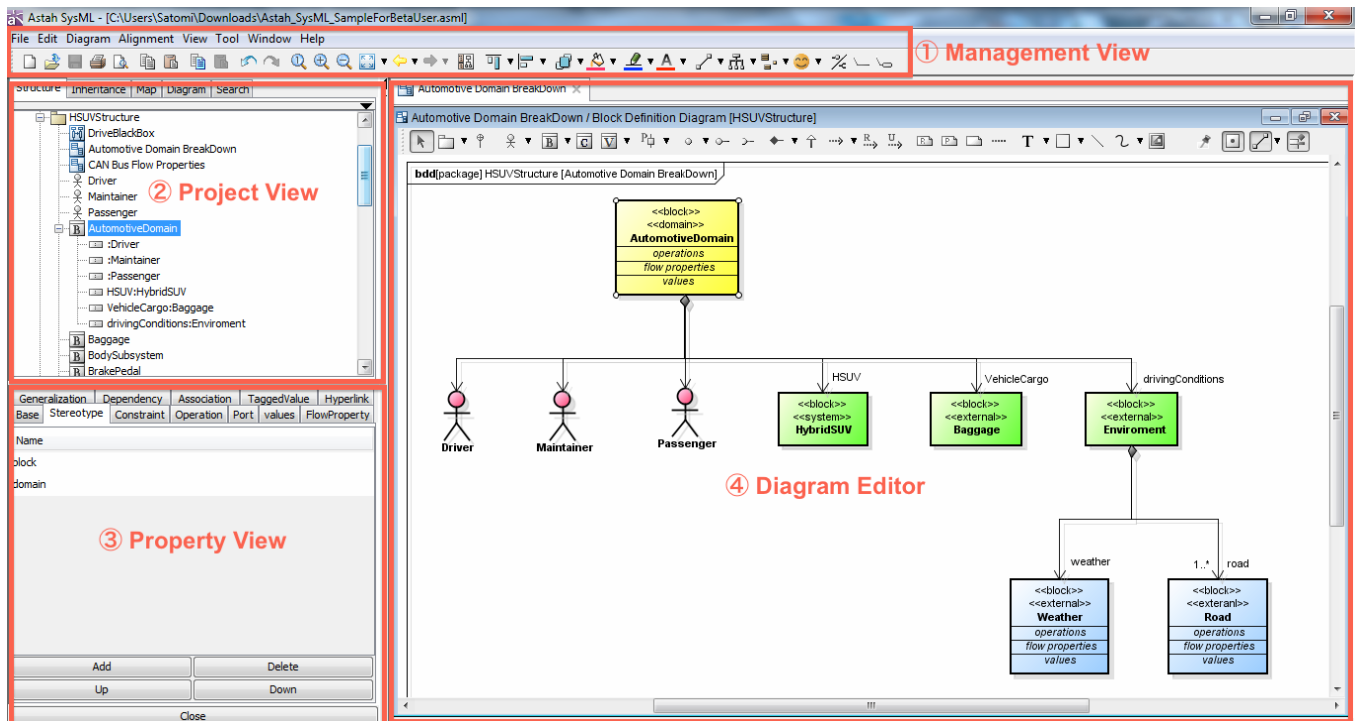
## Astah SysML Overview

Astah SysML supports the following diagrams.

SysML	<ul style="list-style-type: none"> <li>- Block Definition Diagram</li> <li>- Internal Block Diagram</li> <li>- Parametric Diagram</li> <li>- Requirement Diagram/Table</li> </ul>
SysML/UML	<ul style="list-style-type: none"> <li>- UseCase Diagram</li> <li>- Activity Diagram</li> <li>- Statemachine Diagram</li> <li>- Sequence Diagram</li> </ul>
Other	<ul style="list-style-type: none"> <li>- Mind Map</li> </ul>

## Overview of Astah Window

Astah consists of main 4 views as below.



The screenshot displays the Astah SysML application window with the following views:

- Management View:** The top toolbar and menu area.
- Project View:** A tree view on the left showing the project structure, including folders like 'HSUVStructure', 'Automotive Domain BreakDown', and 'AutomotiveDomain'.
- Property View:** A panel at the bottom left for editing object properties, with tabs for Generalization, Dependency, Association, TaggedValue, and Hyperlink.
- Diagram Editor:** The main workspace showing a SysML Block Definition Diagram (BDD) for 'Automotive Domain BreakDown'. It features a central 'AutomotiveDomain' block with relationships to 'Driver', 'Maintainer', 'Passenger', 'HybridSUV', 'Baggage', and 'Environment'. The 'Environment' block is further detailed with 'Weather' and 'Road' sub-blocks.



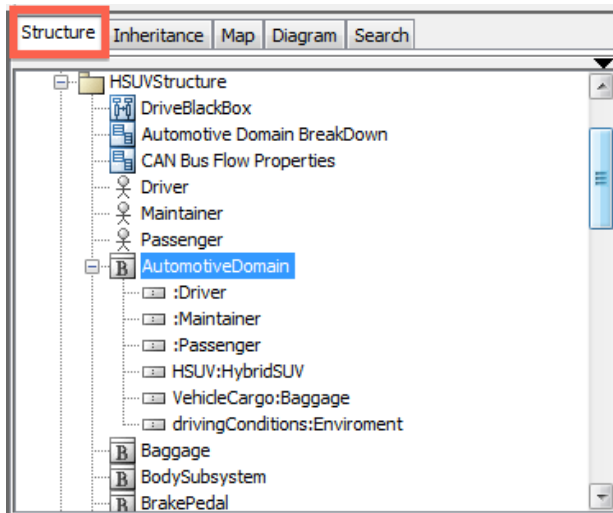
## **1: Management View**

It has a menu bar and icons of frequently used menu options

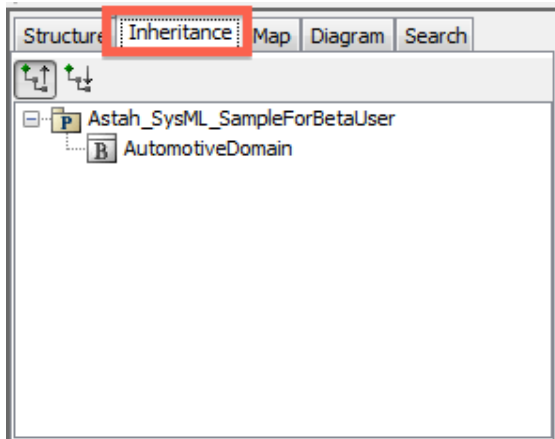
## **2: Project View**

It consists the following five tabs.

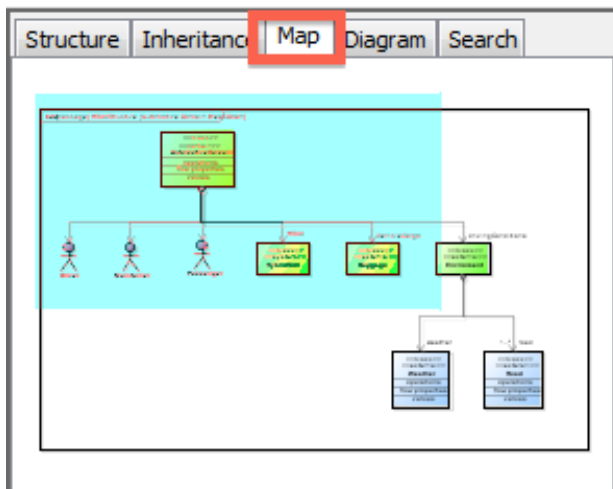
**Structure:** It shows all the diagrams and main models in the tree so that you can see the model structure in the tree view. You can also add new diagrams or models from this view.



**Inheritance:** It shows the inheritance tree of the models especially Blocks and Interfaces. Simply select the model you want to see its inheritance in the diagram. You can also add diagrams or models from this view too.



**Map:** You can control and adjust the area of diagram to show in the diagram editor in this view. This view is very useful when you have a large diagram, you can select certain area you want to see enlarged in blue rectangle, and then Astah shows the covered area in the diagram editor.



**Diagram:** It shows a list of all the diagrams in the file. You can sort the list by diagram types, names or its parent model elements etc.

Structure			Inheritance			Map			Diagram			Search		
Open Diagram						Update								
Name	Kind	Parent												
HSUV Specification		Astah_SysML_Sampl...												
Acceleration Require...		Astah_SysML_Sampl...												
DriveBlackBox		Astah_SysML_Sampl...												
HSUVOperationalSta...		Astah_SysML_Sampl...												
Values And Units		Astah_SysML_Sampl...												
PrimitiveValueTypes I...		Astah_SysML_Sampl...												
PowerSubsystem Fu...		Astah_SysML_Sampl...												
HybridSUV BreakDown		Astah_SysML_Sampl...												
Definition of Dynamics		Astah_SysML_Sampl...												
CAN Bus Flow Prope...		Astah_SysML_Sampl...												
Automotive Domain ...		Astah_SysML_Sampl...												
HybridSUV Internal S...		Astah_SysML_Sampl...												
CAN Bus description		Astah_SysML_Sampl...												
StraightLineVehideD...		Astah_SysML_Sampl...												
HSUV MOEs		Astah_SysML_Sampl...												

**Search:** You can search and replace model names from here.

Structure			Inheritance			Map			Diagram			Search		
hybrid						Search								
						Replace All								
<input type="checkbox"/> Case Sensitive														
Skip				Replace				Delete						
Element	Kind	Parent												
HybridSUV	Block	HSUVStructure												
HybridSUV	Text View	HSUVUseCases::...												
HybridSUV	UseCase Diagram	HSUVUseCases												
HybridSUV BreakD...	Block Definition Di...	HSUVStructure::H...												
HybridSUV Intern...	Internal Block Dia...	HSUVStructure::H...												

### **3: Property View**

This is where you modify detailed properties to the model you select in the diagram.

### **4. Diagram Editor**

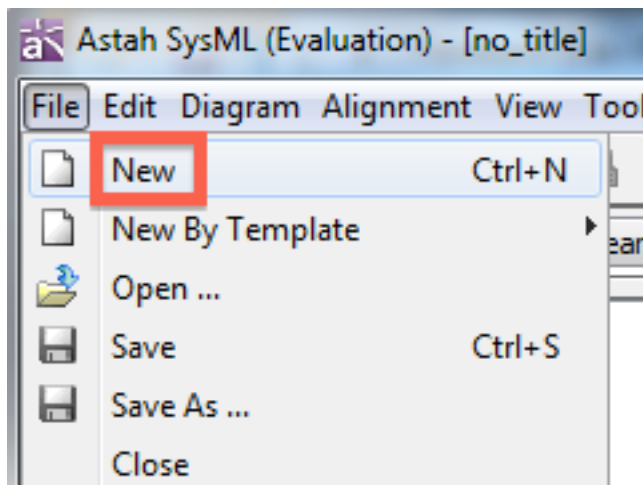
This is where draw diagrams.

## **Functionalities on Main Menu**

### **1. Creating a new file**

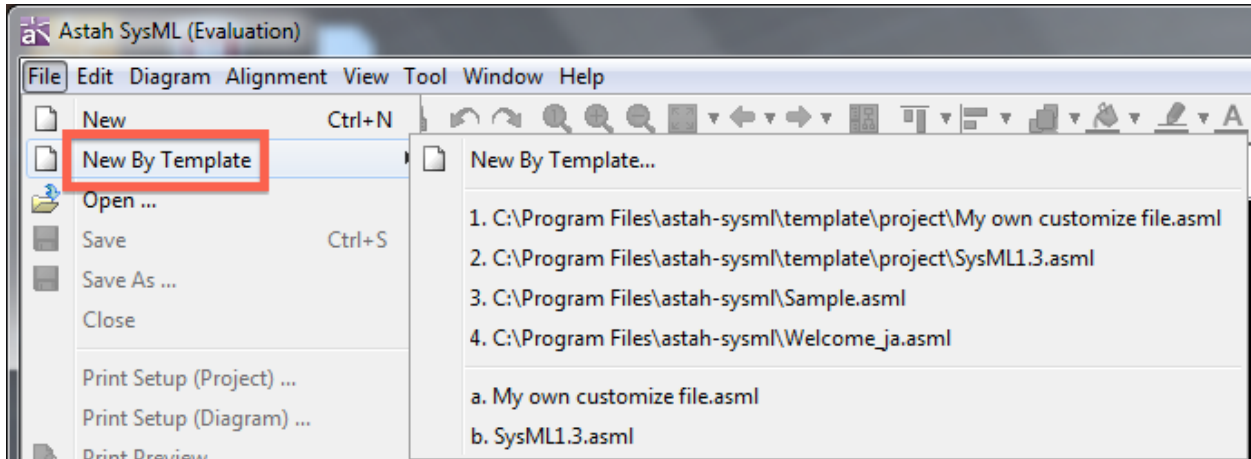
There are two ways to create a new file.

A: [File] – [New] to open a blank file



Advanced usage: You can create your own customized file that you always want to open from [Tool] - [System Properties] – [File].

B: [File] – [New By Template] and select Astah's built-in file to start with.



When you select [New By Template], a list of files appears as below:

1-5: Recently opened file

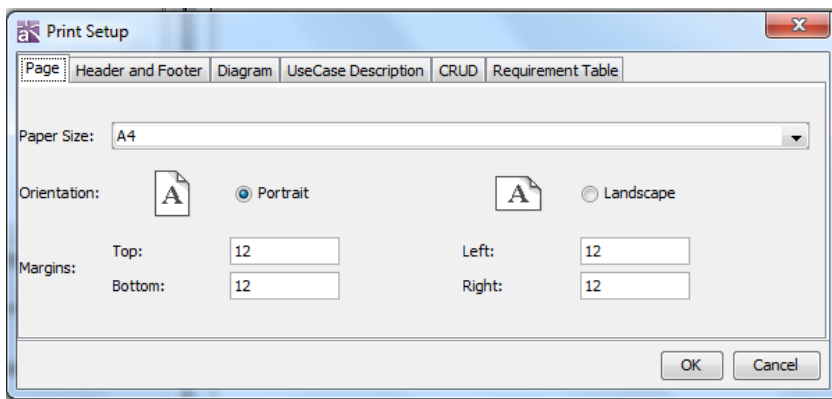
a.b...: Template files that are stored in Astah Installation folder/template/project

## 2. Printing

You can configure the printing preference per project file that applies for all the diagrams or per each diagram or per diagram individually.

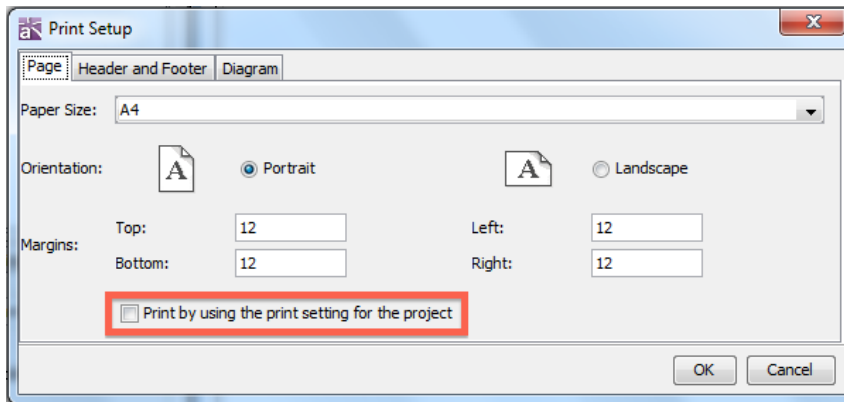
**Print Setup (Project) :** [File] – [Print Setup (Project)]

You can set your printing preference for all the diagrams at once in this dialog.



**Print Setup (Diagram)**: [File] – [Print Setup (Diagram)]

You can set your printing preference for each diagram you are currently opening. To allow yourself to apply the print setting to certain diagrams individually, check off the [Print by using the print setting for the project] and then set it up.

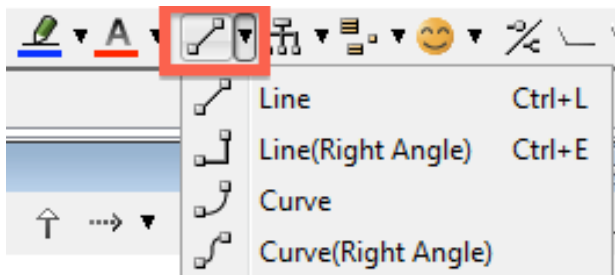


### 3. Line Style

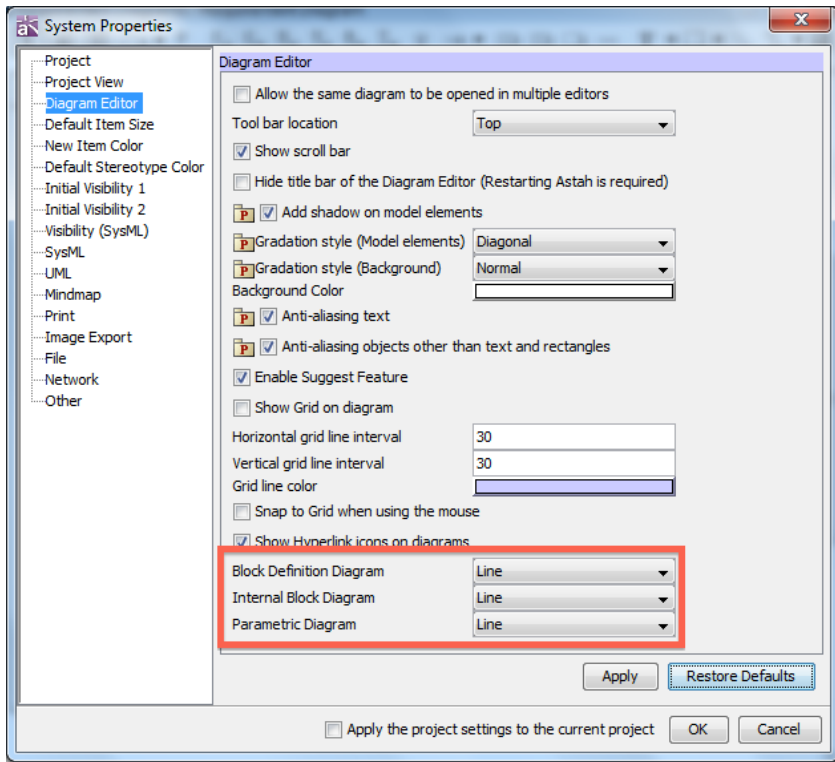
You can choose the line styles for lines like Generalization, connector lines from the following four styles:

“Line”, “Line (Right Angle)”, “Curve”, and “Curve (Right Angle)”. To change the line style, select the line in the diagram and go to [Edit] – [Line Style] and one you choose from Main Menu.

This is also available using a following button on the Tool bar.



The default line style can be specified in [Tool] – [System Properties] – [Diagram Editor].

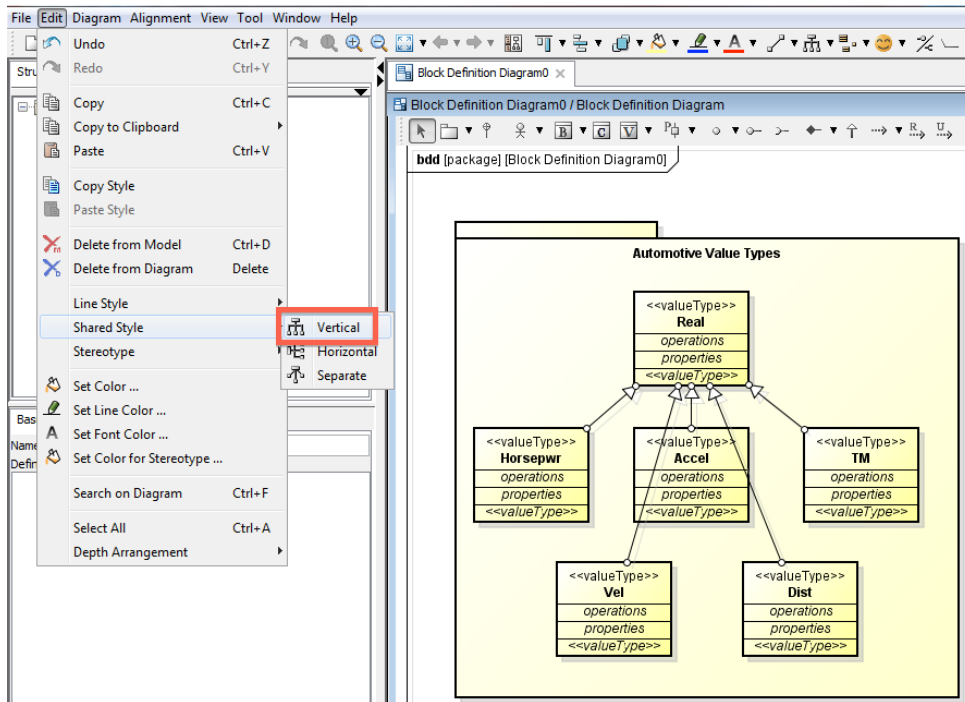


## 4. Shared Style

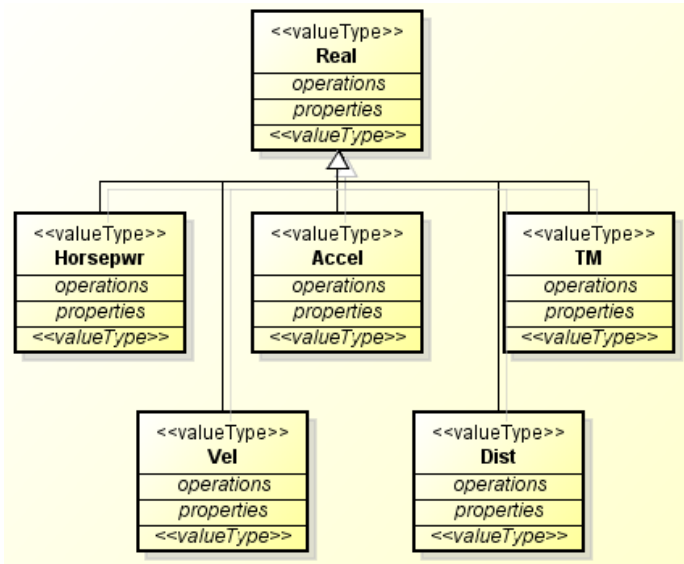
You can put several lines together in one by using this menu. For example, if there are several Generalization lines coming out from several Blocks towards one Block. You can put them together in one line as below.

- 1) Select all the lines in the diagram and go to [Edit] – [Shared Style] – [Vertical]



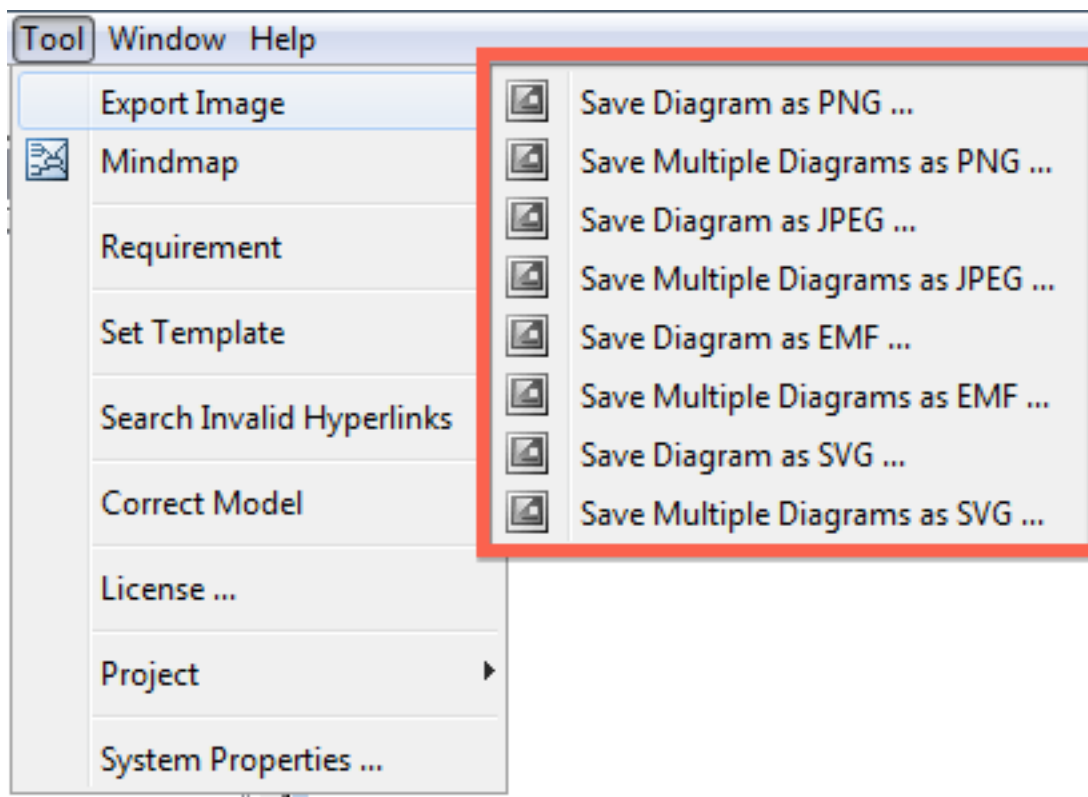


2) Then the lines will be in shared style as below.



## 5. Exporting Images

You can export diagram(s) in PNG/JPEG/EMF/SVG format files from [Tool] – [Export Image].

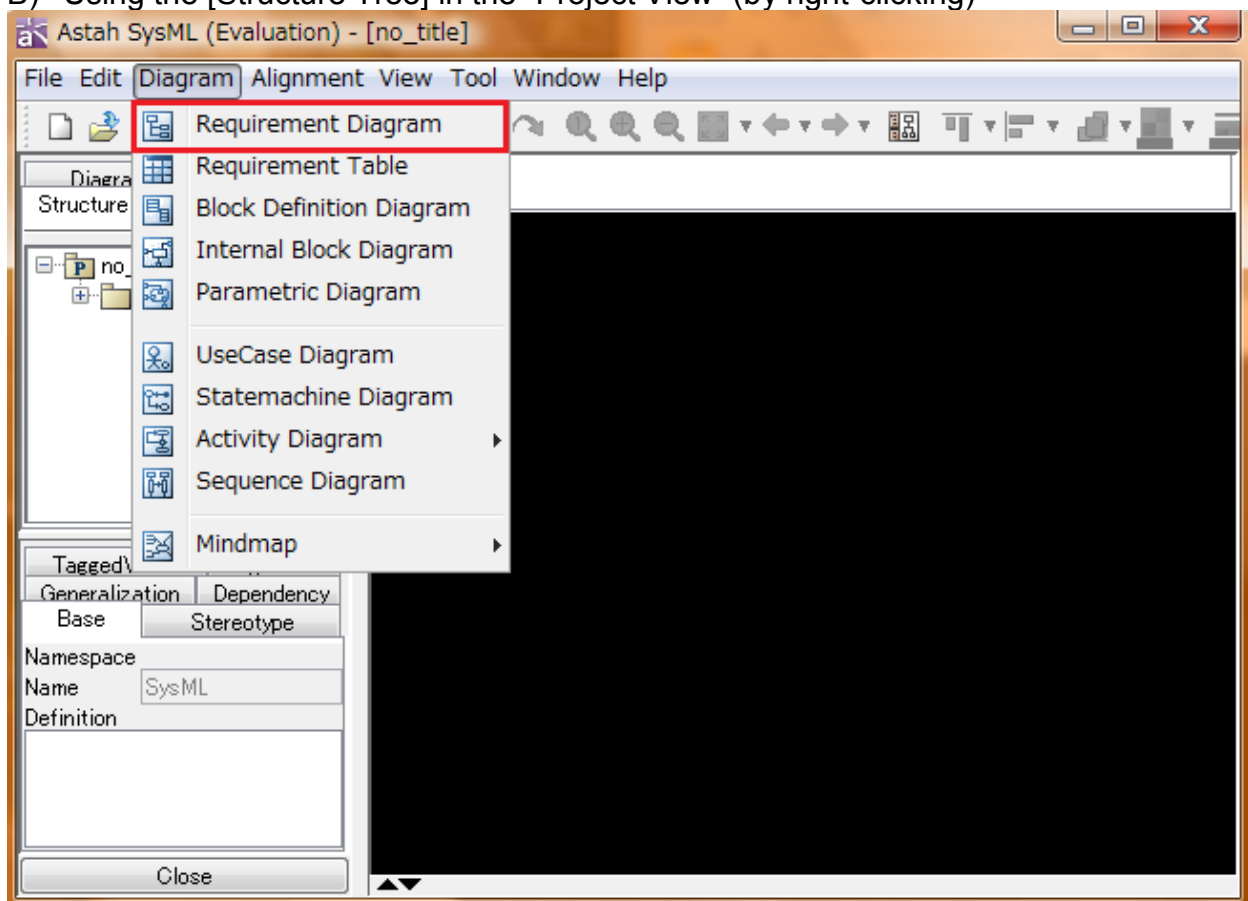


## Diagram and Model Elements

### Requirement Diagram

There are several ways to create a Requirement Diagram.

- A) Using [Diagram]-[Requirement Diagram] in the Main Menu
- B) Using the [Structure Tree] in the “Project View” (by right-clicking)



### Model elements on a Requirement Diagram

A tool bar shows in the Diagram Editor that has model elements that you can just click to create with.



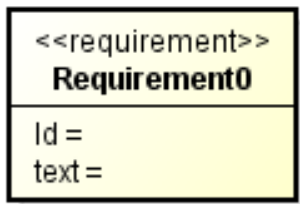
## REQUIREMENT

There are several ways to create a Requirement.

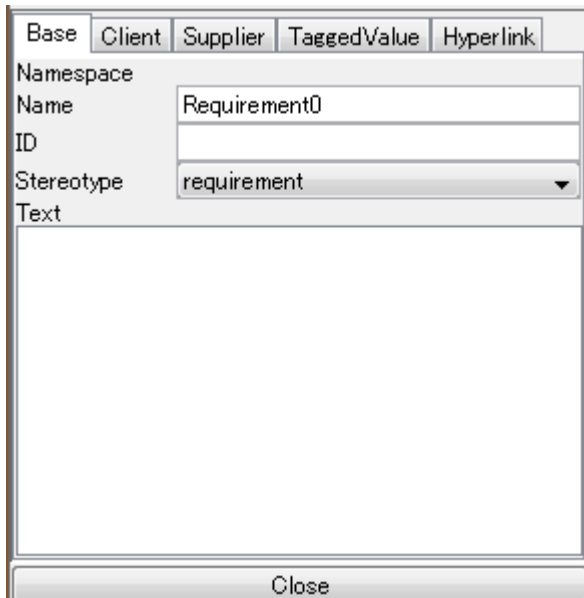
- A) Choose [Requirement] on the tool bar and click on diagram



- B) From the Project view – [Create Model] – [Add Requirement] in the Structure view  
 C) Double clicking on Requirement Diagram



You can directly add ID and text on the diagram or from [Base] tab of Requirement's property view.



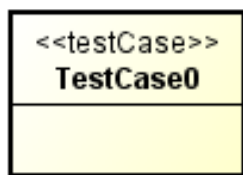
## TESTCASE

There are several ways to create a TestCase.

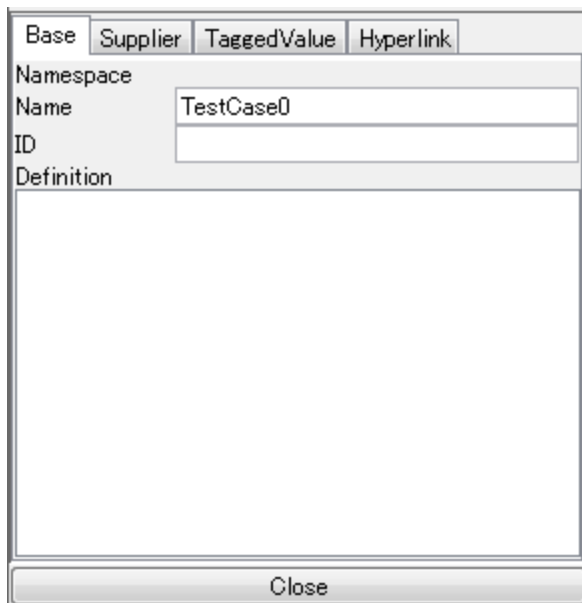
A) Choose [TestCase] on the tool bar and click on diagram



B) From the Project view – [Create Model] – [Add TestCase] in the Structure view



To add an ID, go to [Base] tab of TestCase in the Property View.

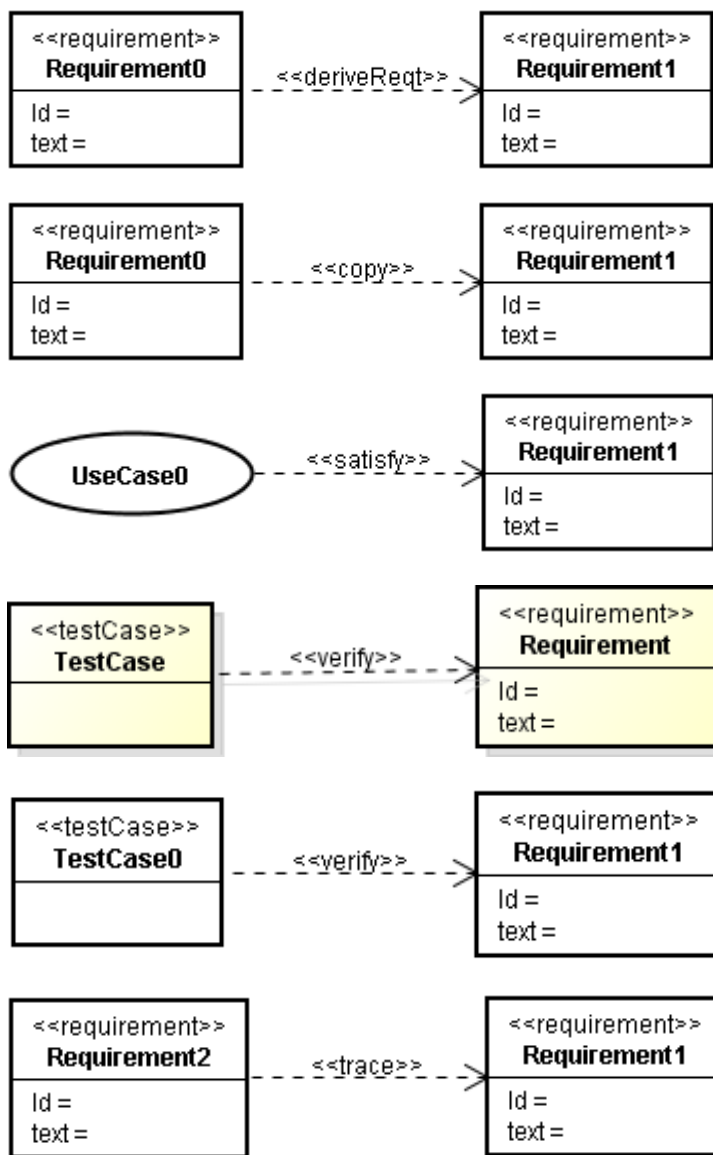


## DERIVE, COPY, SATISFY, VERIFY, REFINE AND TRACE

There are several ways to create a Derive, Copy, Satisfy, Verify, Refine and Trace.

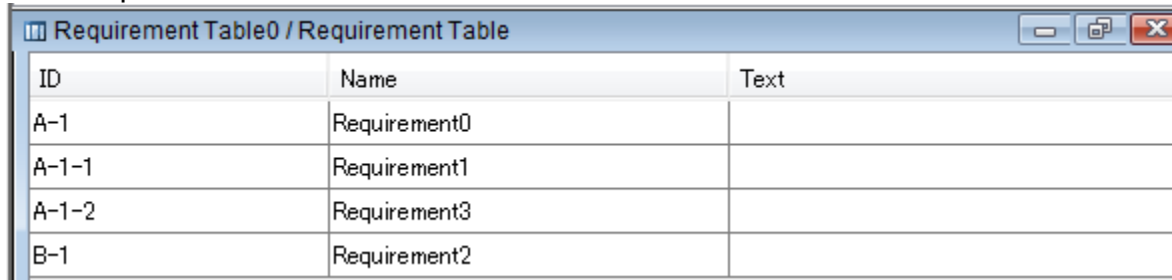


Select one that you'd like to draw and then click two model elements you want to connect with it.



## Requirement Table

Requirement Table is a table to list Requirement ID, Name and Text. One Requirement Table can be created to each Project, Package, Model, Subsystem and Requirement.

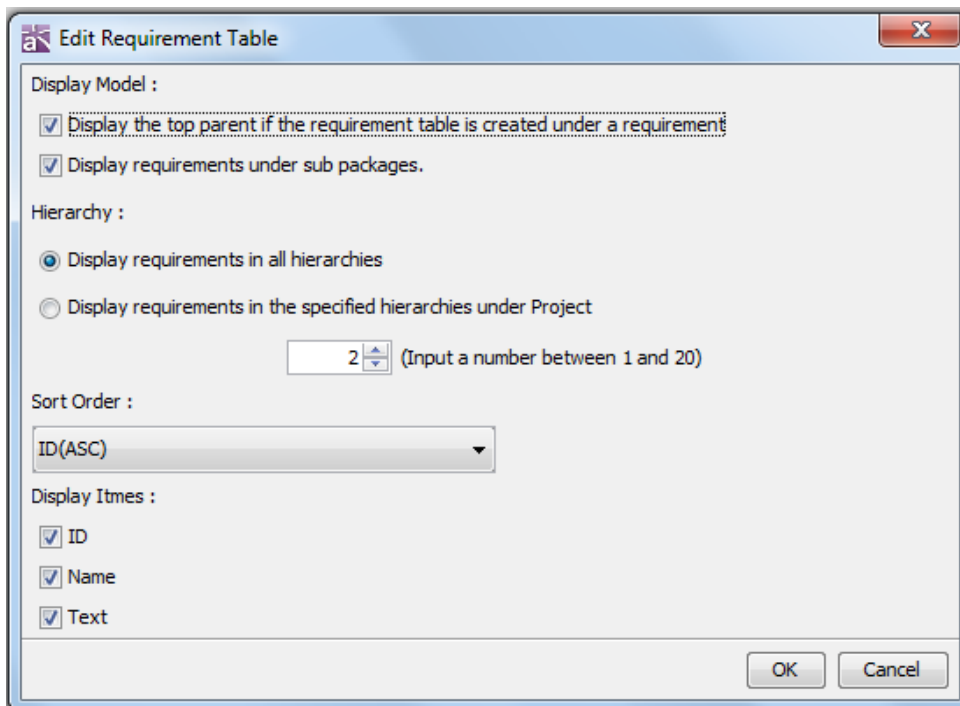


ID	Name	Text
A-1	Requirement0	
A-1-1	Requirement1	
A-1-2	Requirement3	
B-1	Requirement2	

There are several ways to create a Requirement Table.

- A) Using [Diagram] – [Requirement Table] from the Main Menu
- B) From the Project view – [Create Diagram] – [Add Requirement Table]

A dialog as below appears when you create a new Requirement Table, specify them and click [OK].



**Edit Requirement Table**

Display Model :

- Display the top parent if the requirement table is created under a requirement
- Display requirements under sub packages.

Hierarchy :

- Display requirements in all hierarchies
- Display requirements in the specified hierarchies under Project

2 (Input a number between 1 and 20)

Sort Order :

ID(ASC)

Display Itmes :

- ID
- Name
- Text

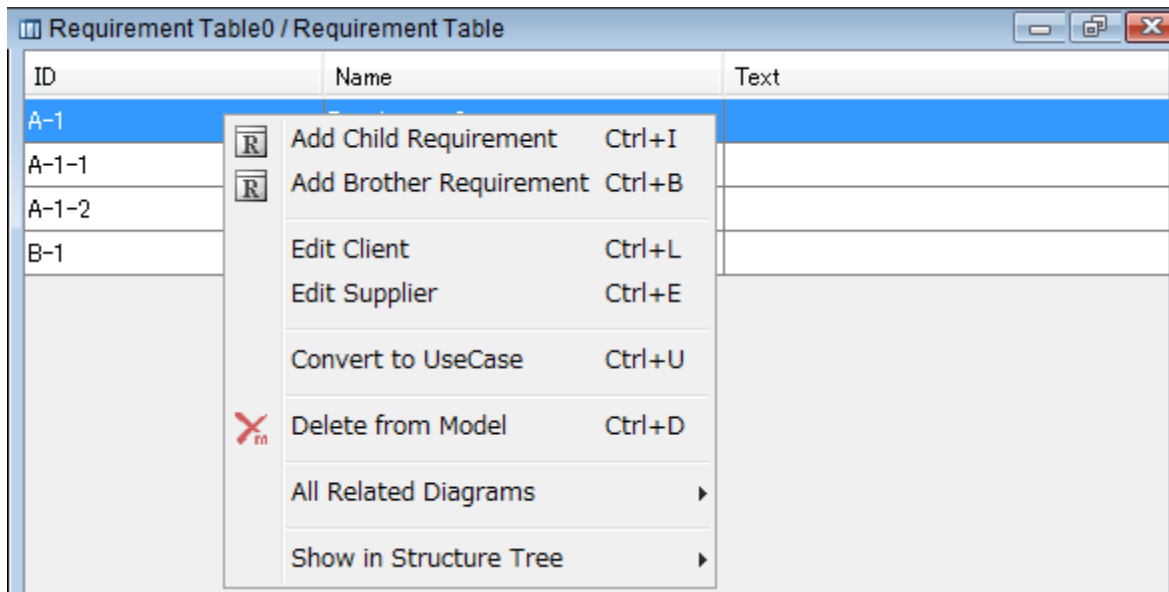
OK Cancel



## HOW TO EDIT REQUIREMENT TABLE

You can directly double-click on the ID / Name / Text cell on the Requirement Table. Text cell can be input with multiple lines. Click on the header of the Requirement Table. ID / Name / Text can be sorted in the ascending / descending order.

By right-clicking, the pop-up menu appears with many options to edit.

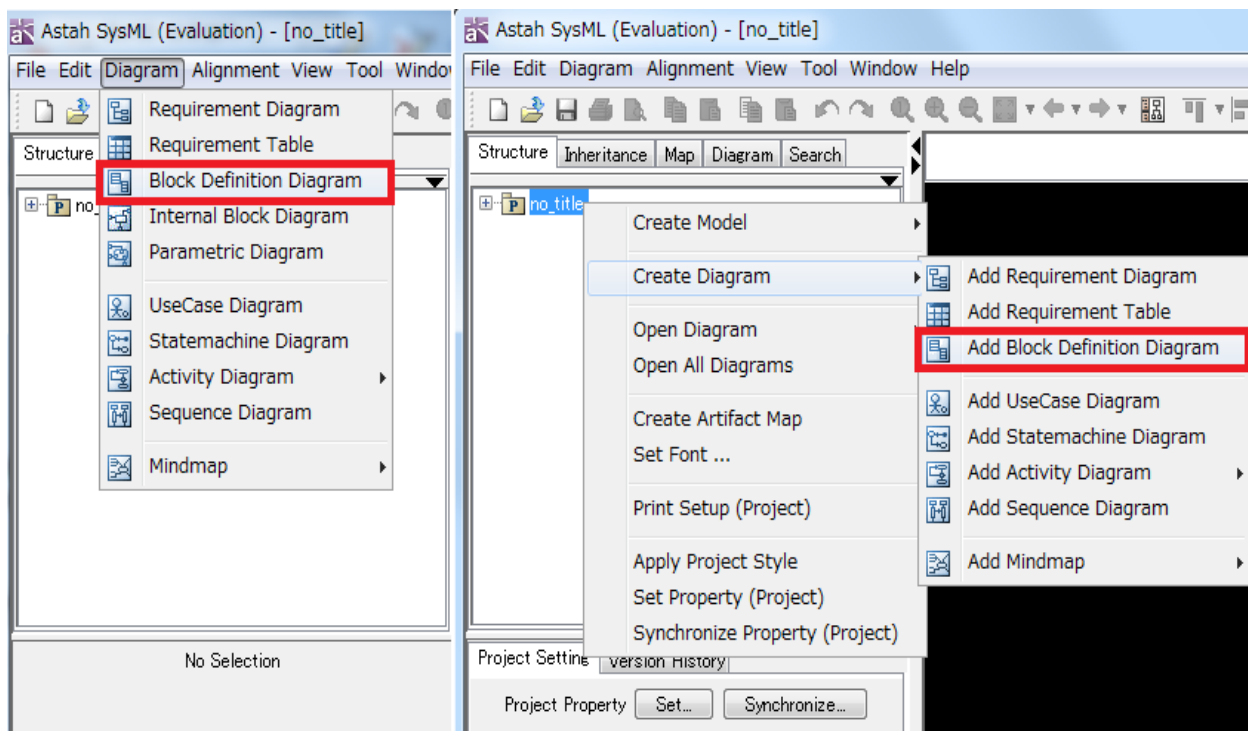


You can export the Requirement Table to Excel, to do so go to [Tool] – [Requirement] – [Export Requirement Table to Excel]. You can also import the Requirement Table from [Import Requirement Table from Excel] and the excel spread sheet should be the importable format which would be the same as one that you can import from Astah.

## Block Definition Diagram

There are several ways to create a Block Definition Diagram.

One is to go to [Diagram] – [Block Definition Diagram] from Main menu, and another is to right-click a model (i.e. a package) in the Project view and then select [Create Diagram] – [Add Block Definition Diagram].



## Model elements on a Block Definition Diagram

A tool bar shows in the Diagram Editor that has model elements that you can just click to create with.



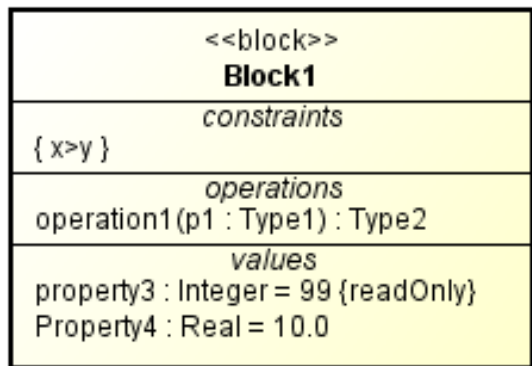
## BLOCK

There are several ways to create a Block.

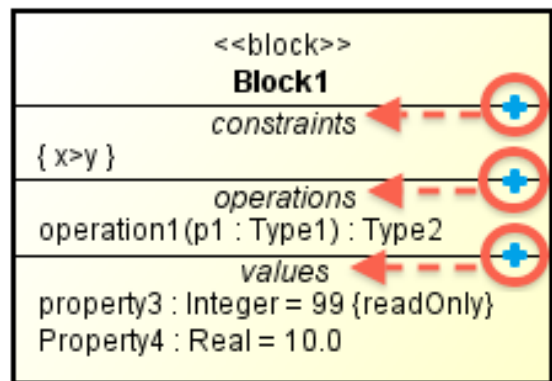
- A) Double-click somewhere on the Block Definition Diagram
- B) Select [Block] from tool bar and then click on the Block Definition Diagram



- C) In the Structure Tree, right click some model element and then select [Create Model] - [Add Block] from its Pop-up menu and then drag and drop it in the diagram.



To add properties to the Block, directly click the blue cross (Called “[Suggest Feature](#)”) that is displayed at each compartment and then type in, or you could right-click Block and add/delete the properties.



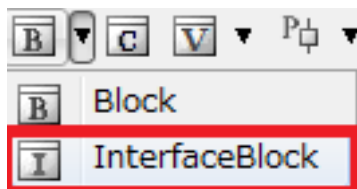
Or you could use the property view (The left bottom pane). Select the Block in the diagram or Structure tree and then go to the Property View. Switch tabs to choose the properties you want to add/modify of.

Generalization	Dependency	Association	TaggedValue	Hyperlink
Base	Stereotype	Constraint	Operation	Port
			values	FlowProperty
Namespace				
Name	Block0			
Abstract	false			
Definition				

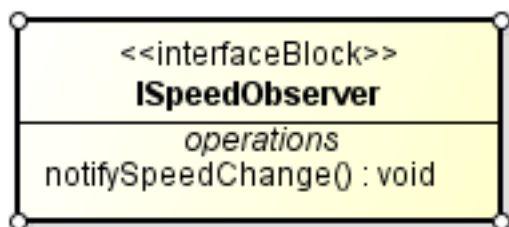
## INTERFACEBLOCK

There are two ways to create an Interface Block.

A) Select [InterfaceBlock] from tool bar and then click on the Block Definition Diagram



B) In the Structure Tree, right click some model element (i.e. a package) and then select [Create Model] – [InterfaceBlock] from its Pop-up menu and then drag and drop it in the diagram.

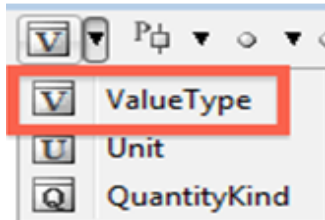


You can add/modify the properties in a same way as [Block](#).

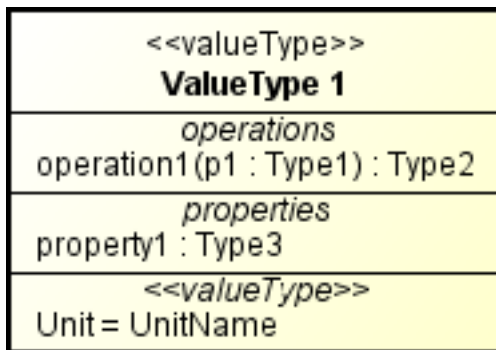
## VALUETYPE

There are two ways to create a ValueType.

A) Select [ValueType] from tool bar and then click on the Block Definition Diagram



B) In the Structure Tree, right click some model element (i.e. package) and then select [Create Model] – [ValueType] from Pop-up menu and then drag & drop it in the diagram.

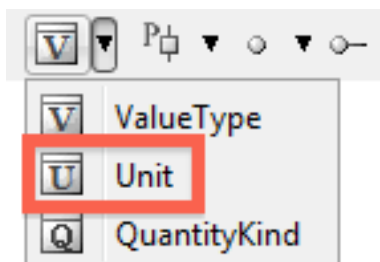


You can add/modify the properties in a same way as [Block](#).

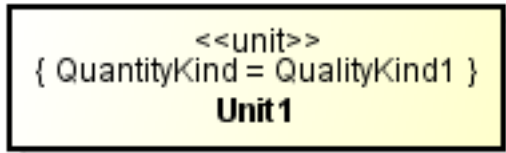
## UNIT

There are two ways to create a Unit.

A) Select [Unit] from tool bar and then click on the Block Definition Diagram



B) In the Structure Tree, right click some model element (i.e. a package) and then select [Create Model] – [Unit] from its Pop-up menu and then drag and drop it in the diagram.

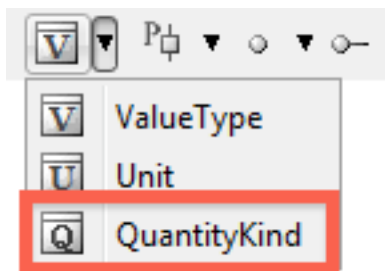


You can add/modify the properties in a same way as [Block](#).

## QUANTITYKIND

There are two ways to create a QuantityKind.

A) Select [QuantityKind] from tool bar and then click on the Block Definition Diagram



B) In the Structure Tree, right click some model element (i.e. a package) and then select [Create Model] – [Add QuantityKind] from its Pop-up menu and then drag and drop it in the diagram.



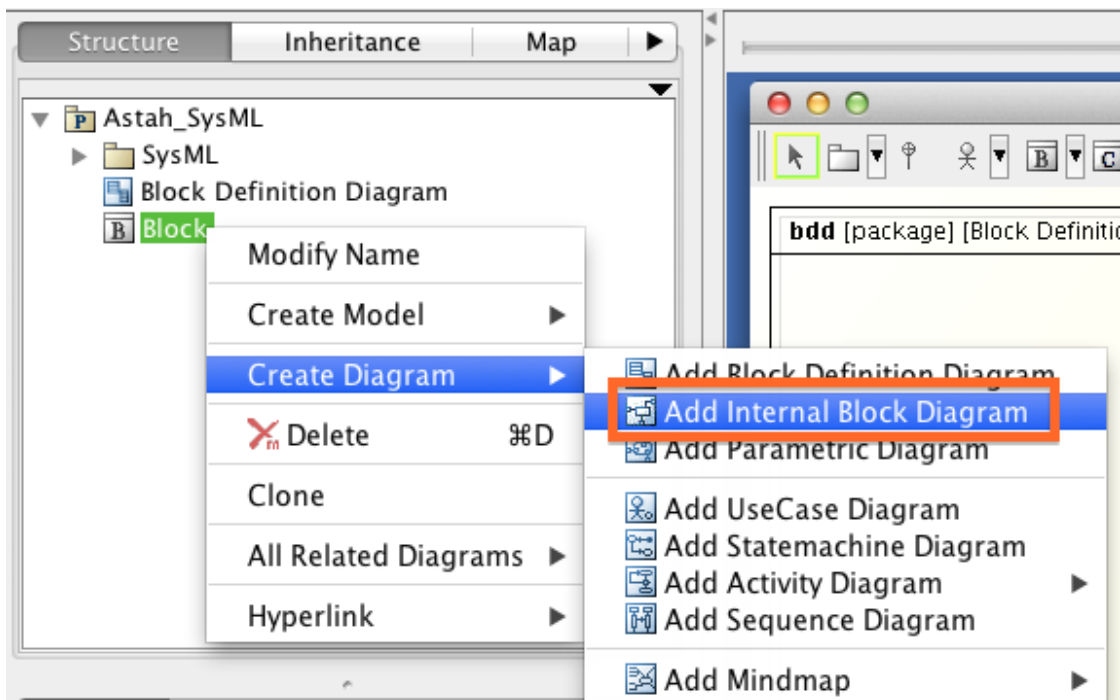
You can add/modify the properties in a same way as [Block](#).



## Internal Block Diagram

There are several ways to create an Internal Block Diagram.

First, you must select a Block to create an Internal Block Diagram based on in the Structure Tree or Block Definition Diagram, then select [Diagram] – [Internal Block Diagram] from Main Menu or [Create Diagram] – [Add Internal Block Diagram] in the tree (or [Add Internal Block Diagram] in the Diagram Editor.)



## Model elements on an Internal Block Diagram

The following tool bar appears for Internal Block Diagram in the Diagram Editor.



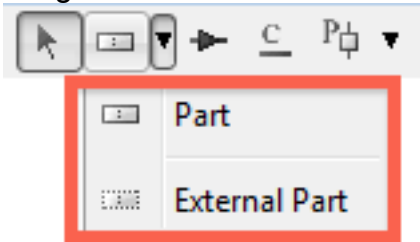
## PART / EXTERNAL PART

There are several ways to create a Part / External Part.

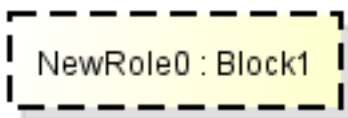
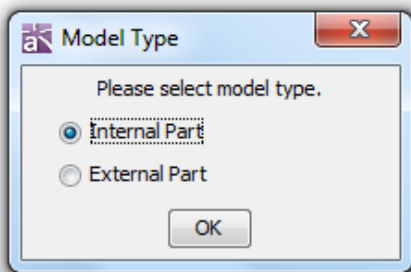
A) Double-click somewhere on the Internal Block Diagram (This creates Part)



B) Select [Part]/[External Part] from tool bar and then click on the Internal Block Diagram



c) Drag the Block from the Structure Tree and drop it in the Internal Block Diagram. A dialog appears to ask if you would like to create an Internal Part or External Part, check either and then click [OK].



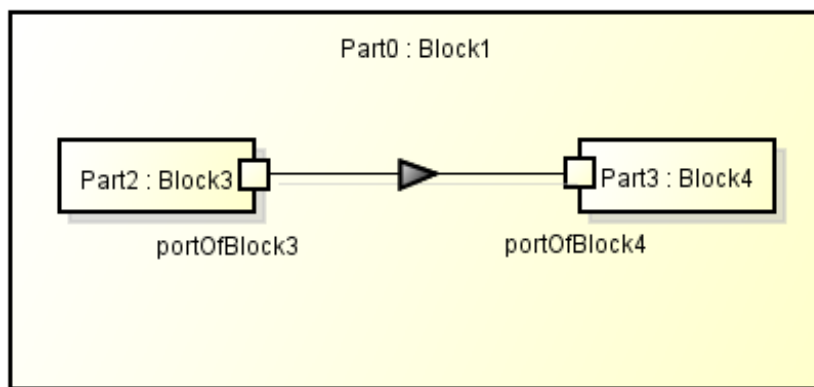
To add/edit properties to the Part/Internal Part, select it in the diagram and then go to the Property View. Switch tabs to choose the properties you want to add/modify of.

Base	Stereotype	Constraint
Association End B	Constraint B	TaggedValue
Association End A		Constraint A
Target	Block1	
Type Modifier		
Name	Part1	
Navigation	unspecified navigable	
Aggregation	none	
Initial Value		
Visibility	private	
Static	false	
Leaf	false	
Multiplicity		
Derived	false	
Definition		

## NESTED PART

There are several ways to create a nested part.

- A) Select [Part]/[External Part] from tool bar and then click inside the Parent Part
- B) Drag an existing Part and drop it in the Parent Part



## ITEMFLOW

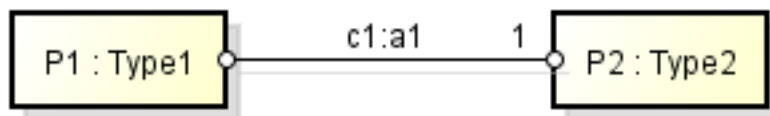
To create an ItemFlow, select [ItemFlow] from the Tool bar and then connect with two model elements.



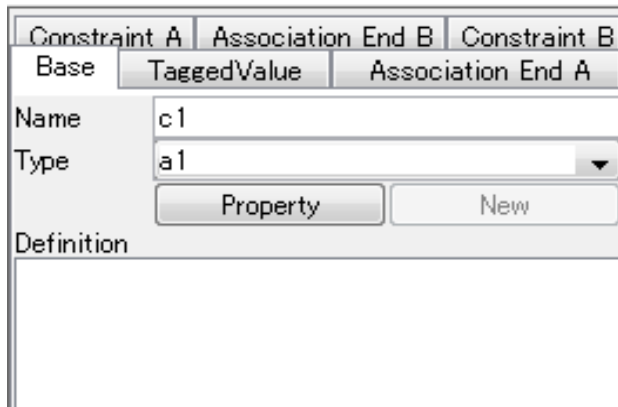
To edit the properties of ItemFlow, select ItemFlow in the diagram and then go to the Property View.

## CONNECTOR

To create a Connector, select [Connector] from the tool bar and then click two model elements that you want to connect with.



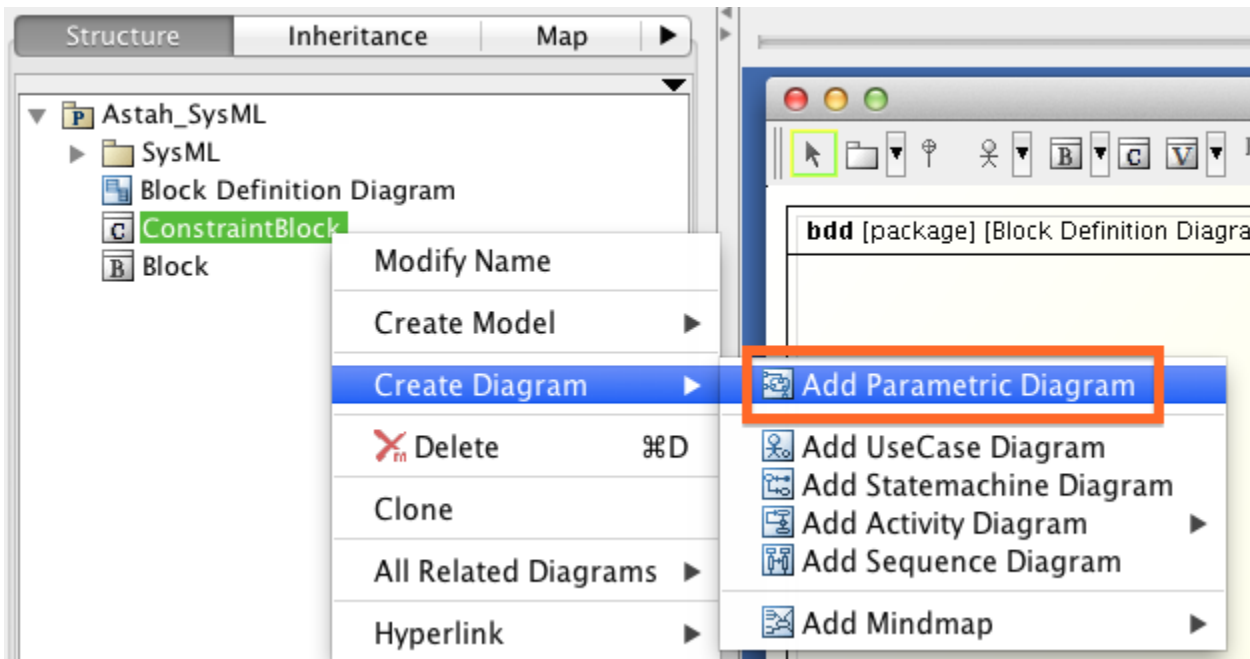
To edit the properties of Connector, select Connector in the diagram and then go to the Property View. Switch tabs to choose the properties you want to add/modify of.



## Parametric Diagram

There are several ways to create a Parametric Diagram.

First, you must select a Block or a Constraint Block on the Structure Tree or a Parametric Diagram, then select [Diagram] – [Parametric Diagram] from Main Menu or [Create Diagram] – [Add Parametric Diagram] in the tree (or [Add Parametric Diagram] popup menu item in the Diagram Editor.)



## Model elements on a Parametric Diagram

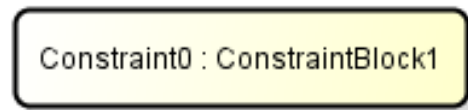
The following tool bar appears for Parametric Diagram in the Diagram Editor.



### CONSTRAINT PROPERTY

There are several ways to create a constraint property.

- A) Double-click somewhere on the parametric Diagram
- B) Select [Constraint Property] from tool bar and then click on the parametric diagram

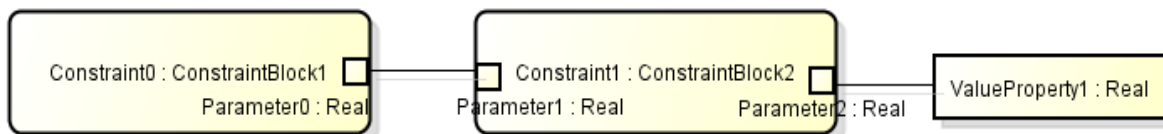


To edit properties of the constraint property, select it in the diagram and then go to the Property View.

Target	ConstraintBlock1
Type Modifier	
Name	Constraint0
Navigation	unspecified naviga...
Aggregation	none
Initial Value	
Visibility	private
Static	false
Leaf	false
Multiplicity	
Derived	false
Definition	

## BINDING CONNECTOR

To create a binding connector, select [Binding Connector] from the Tool bar and then connect with two constraint parameters or with a constraint parameter and a value property



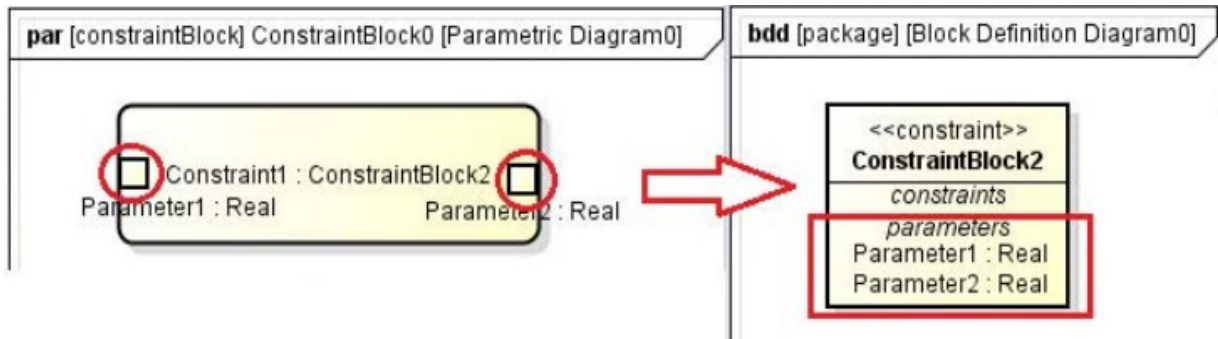
To edit the properties of binding connector, select binding connector in the diagram and then go to the Property View.

## CONSTRAINT PARAMETER

To create a constraint parameter, select [constraint parameter] from the tool bar and then click a constraint property that you want to add to.



Constraint Parameters are the parameters of the ConstraintBlock on the Block Definition Diagram.



To edit the properties of constraint parameter, select constraint parameter in the diagram and then go to the Property View.

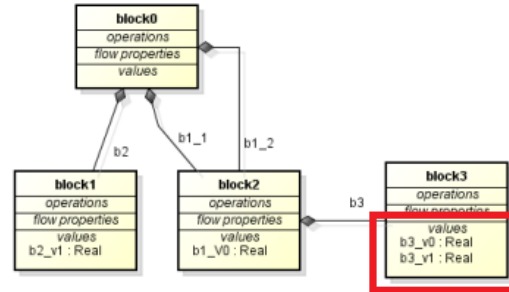
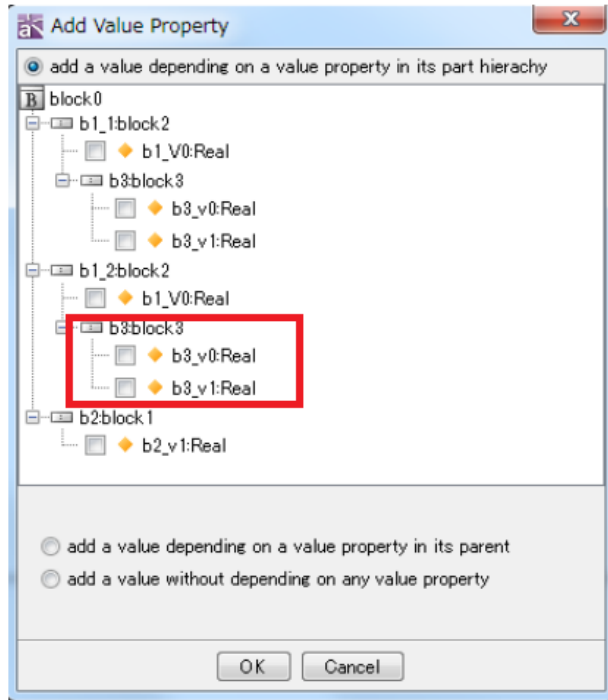
## VALUE PROPERTY

To create a Value Property, select [Value Property] from the tool bar and then click parametric diagram.



When creating a new value Property, a dialog on the left appears and you will choose the Value Property in the diagram and then click [OK].



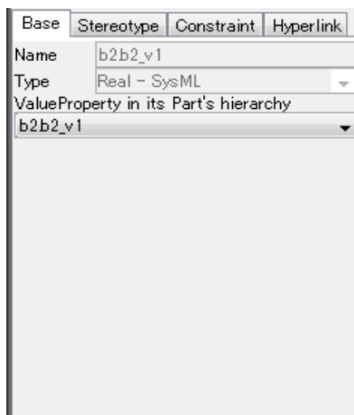


Suppose a value property will be added on a block0 on the Parametric, two kinds of value of block0 are listed as value property candidates on the dialog.

- (1) Those values belong to the type of parts of block0, such as b1\_v0 of block2.
- (2) Those values belong to block0.

A value property which isn't associated to any value of a block can also be added.

To edit the value property, select value property in the diagram and then go to the Property View.



## UseCase Diagram

There are several ways to create a UseCase Diagram.

One is to go to [Diagram] – [UseCase Diagram] from Main menu, and another is to right-click a model (i.e. a package) in the Project view and then select [Create Diagram] – [Add UseCase Diagram].

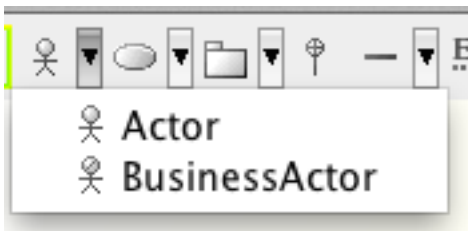
## Model elements on a UseCase Diagram

A tool bar shows in the Diagram Editor that has model elements that you can just click to create with.



## ACTOR/BUSINESSACTOR

To create an Actor/BusinessActor, select [Actor/BusinessActor] from tool bar and then click on the Diagram.

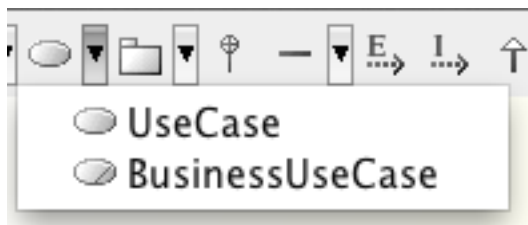


Select the Actor in the diagram and then edit its name directly, or go to Base tab of the Actor in the Property View to edit.

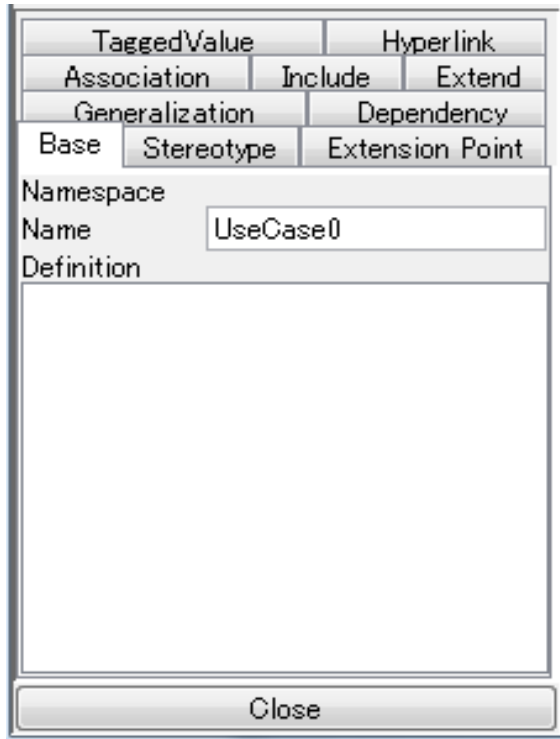


## USECASE/BUSINESSUSECASE

To create an UseCase/BusinessUseCase, select [UseCase/BusinessUseCase] from tool bar and then click on the Diagram.



Select the Usecase in the diagram and then edit its name directly, or go to Base tab of the UseCase in the Property View.



## INCLUDE

To create an Include, select it on the tool bar and click the two model elements to connect.



## EXTEND

To create an extend, select it on the tool bar and click the two model elements to connect.



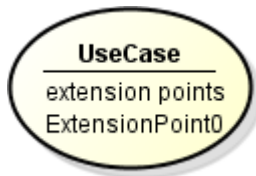
### Notes about Extends and Includes

Extends are not the same as Dependencies with the Stereotype <<extend>>. Similarly and Includes are not the same as Dependencies with the Stereotype <<include>>.

Dependencies with “extend” or “include” as their Stereotypes are not recognized as Extends or Includes by Astah.

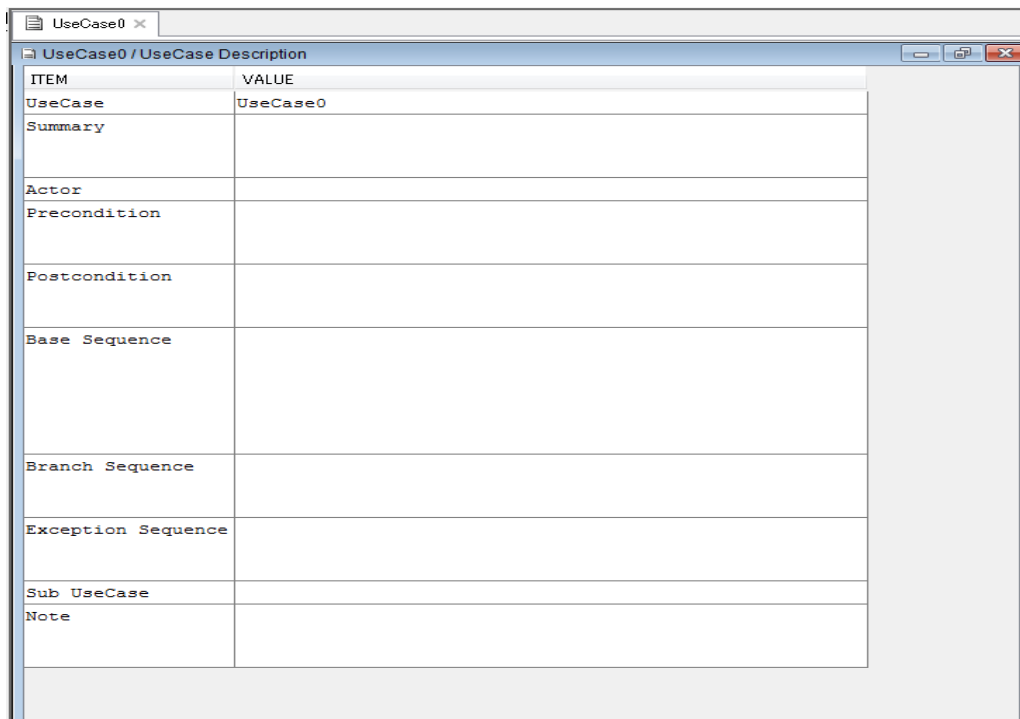
## EXTENSION POINT

To add and Extension Point to UseCasem right-click on the target UseCase and select [Add Extension Point] or go to Extension Point tab in the Property View.



## USECASE DESCRIPTION

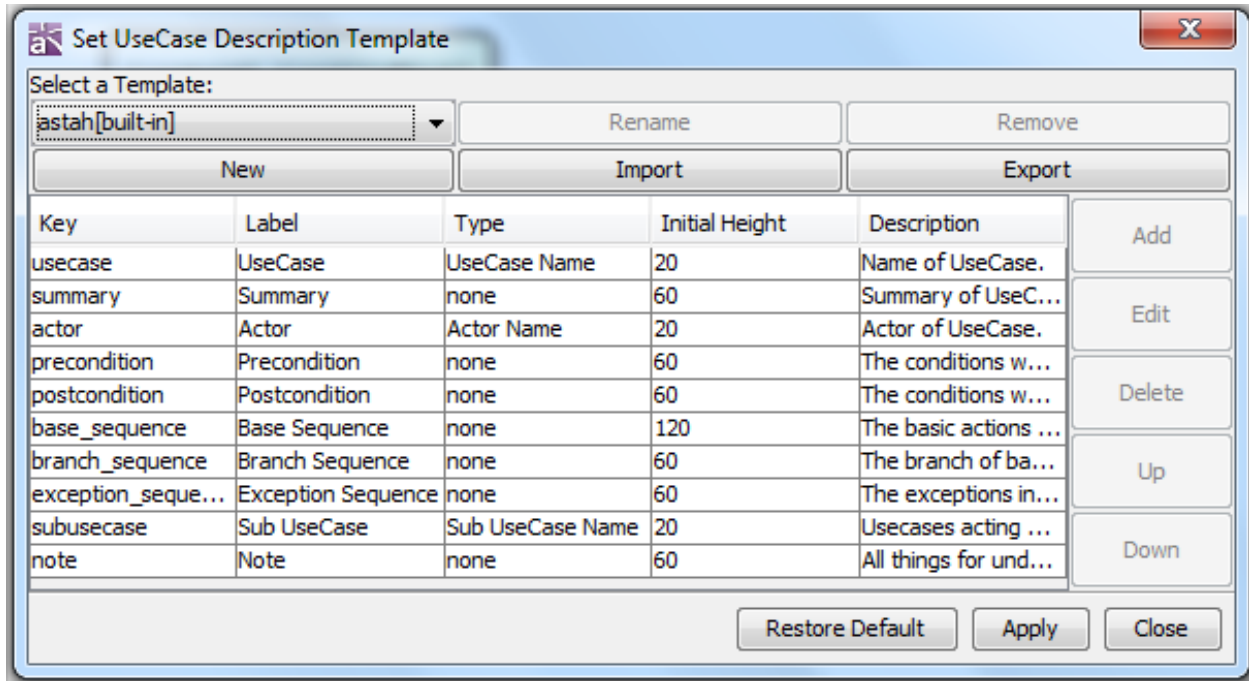
To create an UseCase Description, right-click on the target UseCase and select [Open UseCase Description].



The screenshot shows a dialog box titled "UseCase0 / UseCase Description". It contains a table with two columns: "ITEM" and "VALUE". The table is currently empty, with the "VALUE" column containing the text "UseCase0".

ITEM	VALUE
UseCase	UseCase0
Summary	
Actor	
Precondition	
Postcondition	
Base Sequence	
Branch Sequence	
Exception Sequence	
Sub UseCase	
Note	

You can customize the template for UseCase Descriptions from [Tool] – [Set Template] – [UseCase Description].



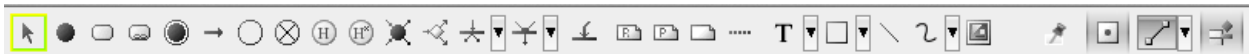
## Statemachine Diagram

There are several ways to create a Statemachine Diagram.

One is to go to [Diagram] – [StateMachine Diagram] from Main menu, and another is to right-click a model (i.e. a package) in the Project view and then select [Create Diagram] – [Add Statemachine Diagram].

## Model elements on a Statemachine Diagram

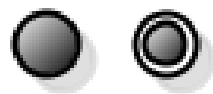
The following tool bar appears for Statemachine Diagram in the Diagram Editor.



## INITIAL PSEUDO STATES / FINAL STATES

To create an Initial Pseudo State/Final State, use [Initial Pseudo State]/[Final State] on the Tool Palette.

Note) Initial Pseudo State cannot be created more than one in a diagram.



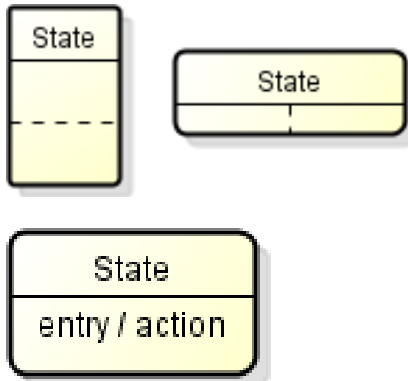
## STATES

To create a State, use [State] on the Tool Palette or double-click on the Statemachine diagram.



Right-click on the State and select [Add Region]/[Add Action] to add region and action.





## TRANSITIONS

To create a Transition, use [Transition] on the Tool Palette or draw suggest feature of State.



“Trigger” is added to a transition automatically when creating a transition from State/Submachine State. Also “[Guard]” is added to a transition automatically when creating a transition from Junction Pseudo State/Choices Pseudo State. Use Transition Properties to set an Action on a Transition.

## SHALLOW HISTORY PSEUDO STATE AND DEEP HISTORY PSEUDO STATE

To create a history Pseudo State, use [Shallow History Pseudo State] or [Deep History Pseudo State] on the Tool Palette.



## JUNCTION PSEUDOSTATES

To create a Junction Pseudo State, use [Junction Pseudostate] on the Tool Palette.



## CHOICES PSEUDOSTATES

To create a Choice Pseudo State, use [Choice Pseudostate] on the Tool Palette.



## FORK PSEUDOSTATES AND JOIN PSEUDOSTATES

To create a Fork Pseudo State, use [Fork Pseudostate] on the Tool Palette.



To create a Join Pseudo State, use [Join Pseudostate] on the Tool Palette.



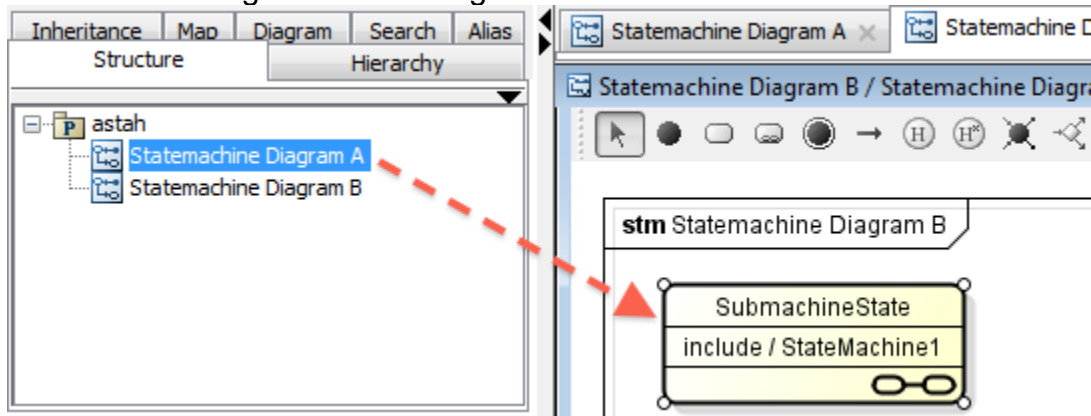
## ENTRYPOINT AND EXITPOINT

To create an Entry Point or an Exit Point, select [EntryPoint]/[ExitPoint] from the tool bar and then click a state or frame that you want to add to.



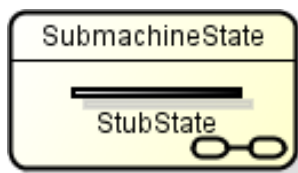
## SUBMACHINE STATES

To create a Submachine State, use a [Submachine State] on the Tool Palette.  
Or, Drag the Submachine Diagram from the Structure Tree and drop it onto another Submachine Diagram on the Diagram Editor



## STUBSTATES IN SUBMACHINE STATES

To create a StubState, use [StubState in Submachine State] on the Tool Palette.  
StubStates are created inside Submachine States.



## Activity Diagram

There are several ways to create an activity diagram.

- A) Using [Diagram] - [Activity Diagram] - [New Activity Diagram] or [Template Activity Diagram] in the Main Menu.
- B) Using the [Structure Tree] in the “Project View” (by right-clicking).

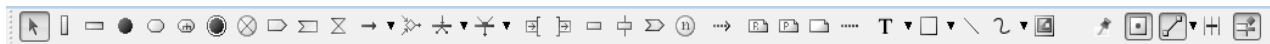
Notes to use Template Activity Diagrams -

- A) A new Activity diagram will be created based on the selected Activity diagram by [Template Activity Diagram] and it will lose both of the references of CallBehaviorActions and class information of the type of Object Node from the original Activity diagram.
- B) To select a project file that contains more than one Activity Diagram, a new Activity diagram will be created based on the top Activity diagram in the project file.

When you create a diagram, it will be opened in the Diagram Editor.

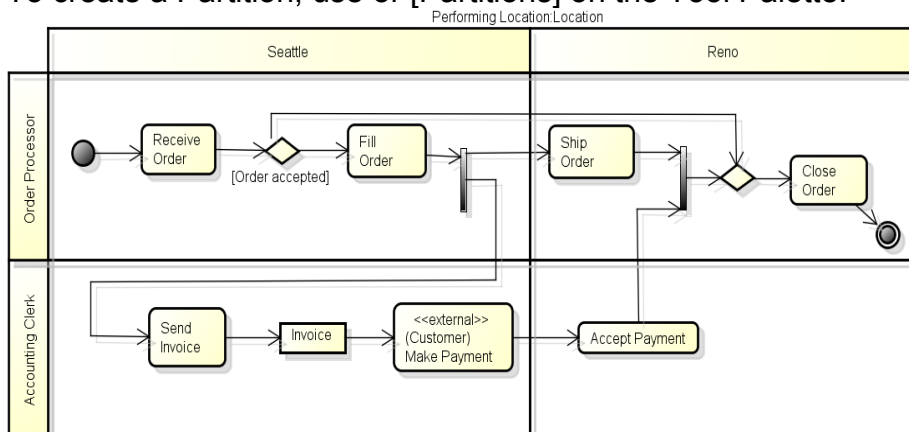
## Model elements on an Activity Diagram

A tool bar shows in the Diagram Editor that has model elements that you can just click to create with.



## PARTITIONS

To create a Partition, use or [Partitions] on the Tool Palette.



Double-click the Name of Partition in the Diagram Editor and then edit its name directly, or go to Base tab of the Partition in the Property View.

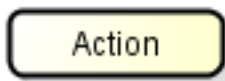
## INITIAL NODES

To create an Initial Node, use [Initial Node] on the Tool Palette.



## ACTION

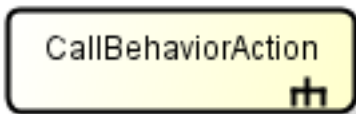
To create an Action, use [Action] on the Tool Palette or double click on an Activity Diagram.



Double-click the name of Action in the diagram and then edit its name directly, or go to Base tab of the Action in the Property View. To insert new lines in the Action name, press SHIFT+ENTER, ALT+ENTER, CTRL+ENTER.

## CALLBEHAVIORACTION

To create a CallBehaviorAction, use a [Call Behavior Action] on the Tool Palette.



Or, Drag the Activity Diagram from the Structure Tree and drop it onto another Activity Diagram on the Diagram Editor

- (1) Select the Activity diagrams on the Structure Tree.
- (2) Drag the Activity diagrams and drop them onto another Activity Diagram Editor.

To edit CallBehaviorAction Names, Double-click the name of CallBehaviorAction in the diagram and edit its name directly, or go to Base tab of the CallBehaviorAction in the

Property View.

## ACTIVITY FINAL

To create an Activity Final, use [Activity Final] on the Tool Palette.



## FLOW FINAL NODES

To create a Flow Final Node, use [Flow Final Node] on the Tool Palette.



## SENDSIGNAL ACTIONS AND ACCEPTEVENT ACTIONS

To create a SendSignal Action, use [SendSignalAction] on the Tool Palette.

To create an ActionEvent Action, use [AcceptEventAction] on the Tool Palette.



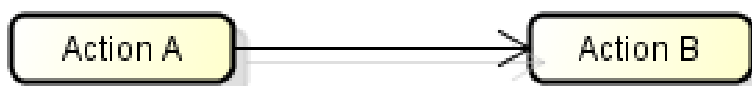
## ACCEPTTIMEEVENTACTIONS

To create an AcceptTimeEventAction, use [AcceptTimeEventAction] on the Tool Palette.



## CONTROL FLOW/OBJECT FLOW

To create a Control Flow/Object Flow, use [Control Flow/Object Flow] on the Tool Palette or draw suggest feature of State/Object Node.



Actions can be set on Control Flows/Object Flows using Control Flows/Object Flows Properties.

### MERGE NODES/DECISION NODES

To create a Merge Nodes & Decision Nodes, use [Merge Nodes & Decision Nodes] on the Tool Palette.



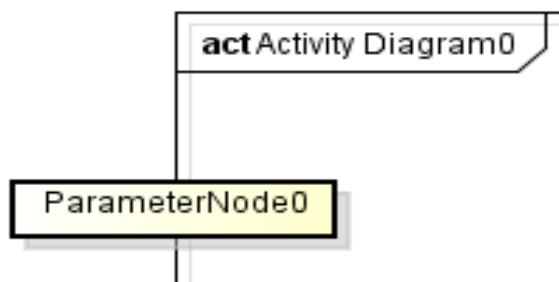
### FORK NODES/JOIN NODES

To create a Fork Node, use [Fork Node] on the Tool Palette.  
To create a Join Node, use [Join Node] on the Tool Palette.  
They are also called "Synchronization Bars".



### PARAMETER NODES

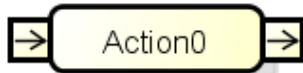
To create a parameter node, use [Parameter Node] on the Tool Palette and click the frame which the parameter node should be added to.



### INPUTPINS/OUTPUTPINS

To create an InputPin, use [InputPin] on the Tool Palette.  
To create an OutputPin, use [OutputPin] on the Tool Palette.

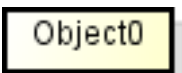




To add States, Right-click on the Pin and select [Add State], or go to Base tab of the Pin in the Property View.

## OBJECT NODES

To create an Object Node, use [Object Node] on the Tool Palette.

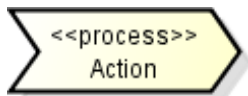


To add States, Right-click on the Object Node and select [Add State], or go to Base tab of the Object Node in the Property View.



## PROCESS

To create a Process, use [Process] on the Tool Palette.



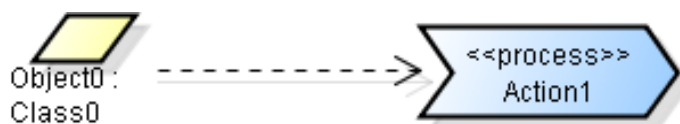
## CONNECTOR

To create a Connector, use [Connector] on the Tool Palette.



## DEPENDENCIES

To create a Process, use [Dependency] on the Tool Palette.





## Sequence Diagram

There are several ways to create a Sequence Diagram.

One is to go to [Diagram] – [Sequence Diagram] from Main menu, and another is to right-click a model (i.e. a package) in the Project view and then select [Create Diagram] – [Add Sequence Diagram].

## Model elements on a Sequence Diagram

A tool bar shows in the Diagram Editor that has model elements that you can just click to create with.

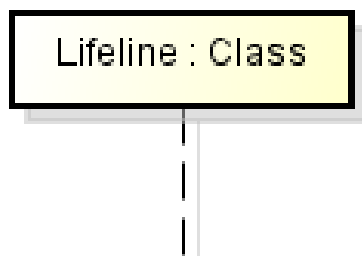


## LIFELINE

Lifeline/Actor/BusinessActor can be created.

- (1) Using the [Structure Tree] in the “Project View”
- (2) Double-clicking in the Sequence Diagram

Drag the target Class in the Structure Tree and drop it onto a Sequence diagram. A Lifeline is created which has the target Class Model as its Base Class.



To adjust the Lifeline Length, use the Pop-up Menu [Adjust Lifeline Length].  
For the plural Pop-up Menu and the Sequence diagram Pop-up Menu, use [Adjust Lifeline Length].

To adjust the Execution Specification Length, use the Pop-up Menu [Adjust Execution

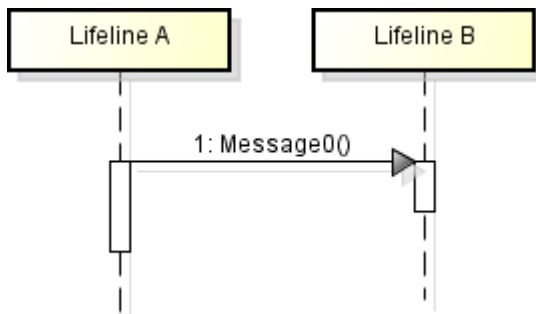
Specification Length].

For the plural Pop-up Menu and the Sequence diagram Pop-up Menu, use [Adjust Execution Specification Length].

## SYNCHRONOUS MESSAGES

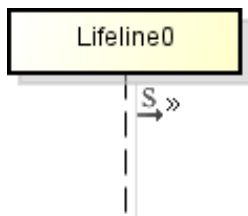
To create a Synchronous Message, use [Message] on the Tool Palette.

- (1) Select [Message] from Tool palette
- (2) Click the Lifeline that sends the Message.
- (3) Click the Lifeline that receives the Message.



Using Suggest Feature:

- (1) Put mouse over a lifeline, execution specification, InteractionUse or Frame
- (2) Icon button appears, click on it
- (3) Click the lifeline you want to draw the arrow to



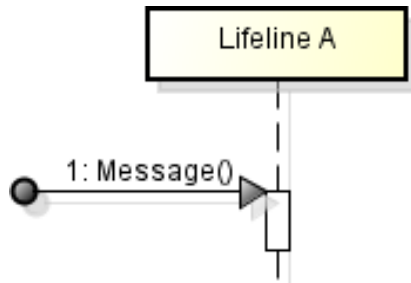
## ASYNCHRONOUS MESSAGES

Asynchronous message can be created in the same way as Synchronous Messages as described in [Synchronous Messages](#) section.

## FOUND MESSAGES

To create a Found Message, use [Message] or [Asynchronous Message] on the Tool Palette.

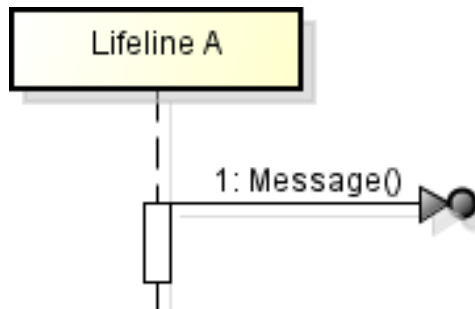
- (1) Select [Message] or [Asynchronous Message] on the Tool Palette
- (2) Click on where this message origins in the diagram except on the lifeline
- (3) Click the Lifeline that receives the Message



## LOST MESSAGES

To create a Lost Message, use [Message] or [Asynchronous Message] on the Tool Palette.

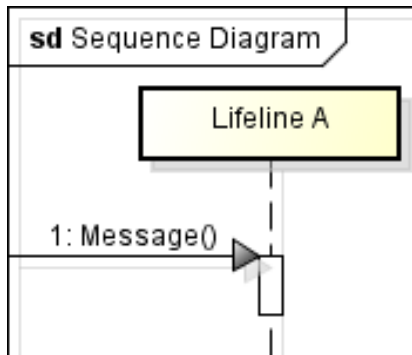
- (1) Select [Message] or [Asynchronous Message] on the Tool Palette
- (2) Click the lifeline where the message origins
- (3) Click on the where the message ends in the diagram except on the Lifeline



## GATE

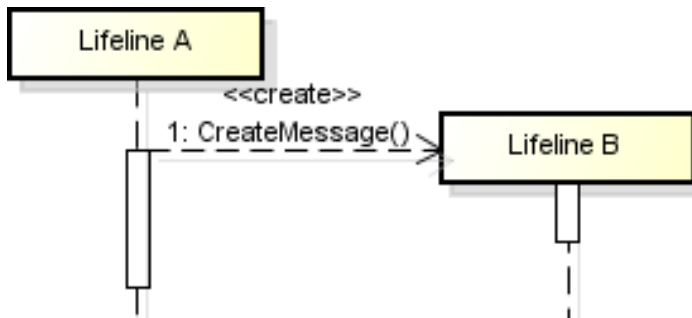
To create a Gate, use [Message] or [Asynchronous Message] on the Tool Palette.

- (1) Select [Message] or [Asynchronous Message] on the tool Palette
- (2) Click the Frame where the message origins
- (3) Click the Lifeline that receives the Message



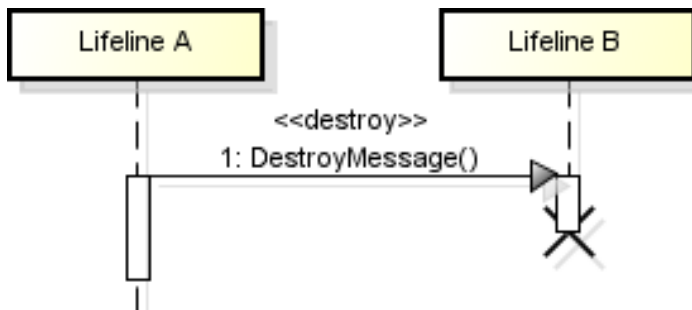
## “CREATE” MESSAGES

To create a “Create” Message, use [Create Message] on the Tool Palette.



## “DESTROY” MESSAGE

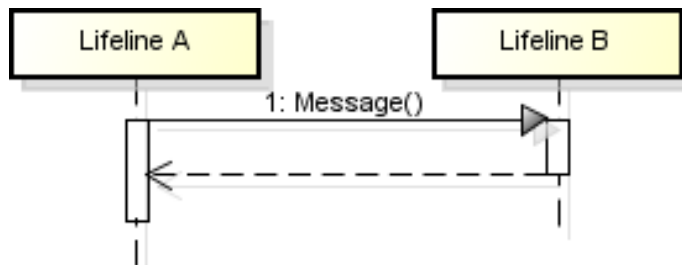
To create a “Destroy” Message, use [Destroy Message] on the Tool Palette.



## “REPLY” MESSAGE

Click [Reply Message] on the Tool Palette and select the Execution Specification that

sends the “Reply” Message.

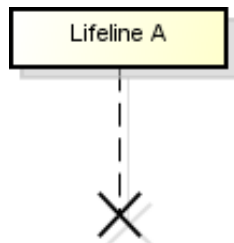


Or, use [Reply Message Automatic Mode] on the Tool Bar or select [Create Reply Message] from Message’s Pop-up menu.

## STOP

To create a Stop, use [Stop] on the Tool Palette.

- (1) Select [Stop] on the Tool Palette
- (2) Click the target Lifeline



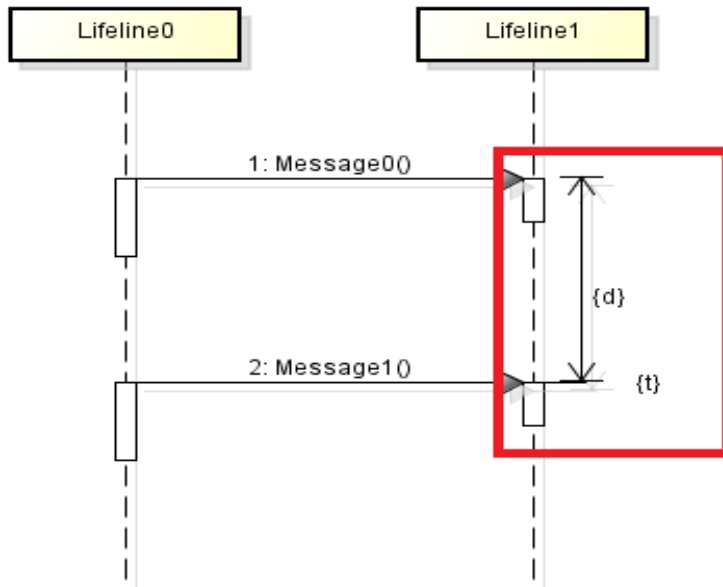
## DURATION CONSTRAINT AND TIME CONSTRAINT

To create a Duration Constraint, use [Duration Constraint] on the Tool Palette.

- (1) Select [Duration Constraint] on the Tool Palette
- (2) Click on lifelines

To create a Time Constraint, use [Time Constraint] on the Tool Palette.

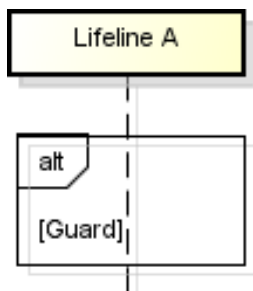
- (1) Select [Time Constraint] on the Tool Palette
- (2) Click a lifeline



## COMBINED FRAGMENT

To create a Combined Fragment, use [Combined Fragment] on the Tool Palette.

- (1) Select [Combined Fragment] on the Tool Palette
- (2) Click on lifeline



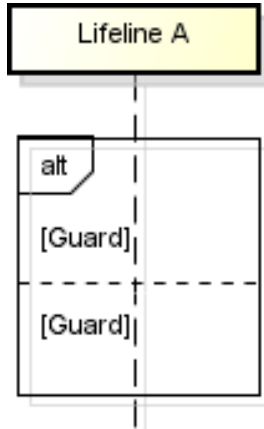
To edit Combined Fragment Names, Double-click on the top left corner of the Combined Fragment then type the name directly, or go to Base tab of Combined Fragment in the Property View.

To add Operands,

- (a) Click the target Combined Fragment and select [Add Operand] Pop-Up Menu.
- (b) Double-click on the inserted [Guard].



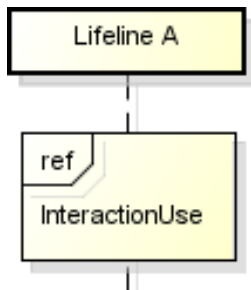
Or, go to Operand tab of Combined Fragment in the Property View.



## INTERACTION USE

Creating Interaction Uses

- (1) Select [Interaction Use] on the Tool Palette
- (2) Click on the Diagram Editor near the Lifeline



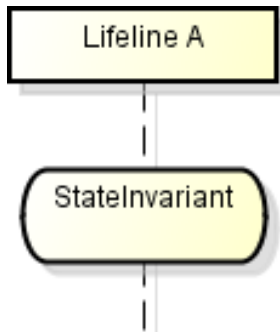
To create a Sequence Diagram, Right-click on an Interaction Use and select [Create Sequence Diagram], or double-click on the target Interaction Use. Also, use base tab of Interaction Use in the Property View.

To open Sequence Diagram, Right-click on the target Interaction Use and select [Open Nested Diagram], or double-click on the target Interaction Use.

## STATE INVARIANT

To create a State Invariant, use [State Invariant] on the Tool Palette.

- (1) Select [State Invariant] on the Tool Palette
- (2) Click the target Lifeline



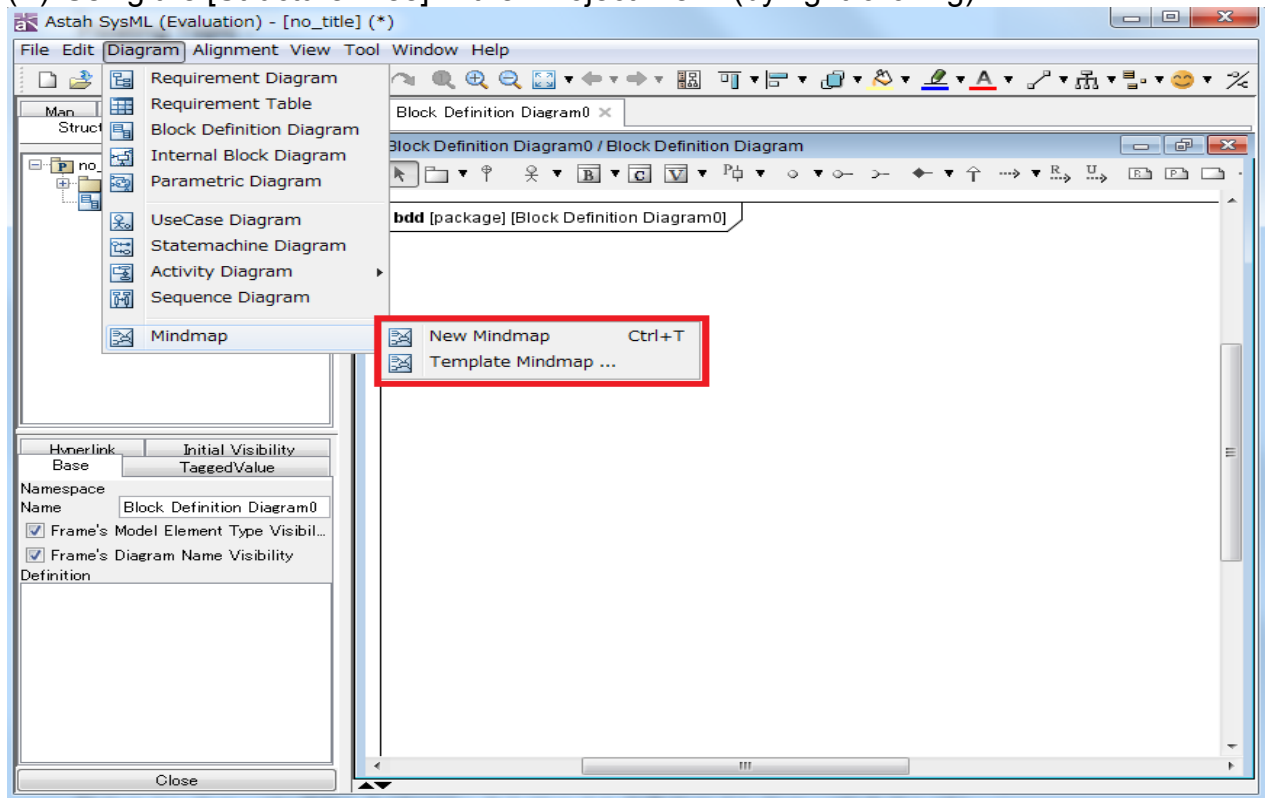
## Mind map

Mindmap refers to a method of thinking and of visualizing thoughts suggested by Tony Buzan, U.K. Its free and inspiring conventions help to extend ideas.

To create Mind maps,

(A) Using [Diagram]-[Mindmap] in the Main Menu.

(B) Using the [Structure Tree] in the "Project View" (by right-clicking).



## TOOL BUTTONS

There are Tool Buttons for Mind Map in Main Tool Bar.



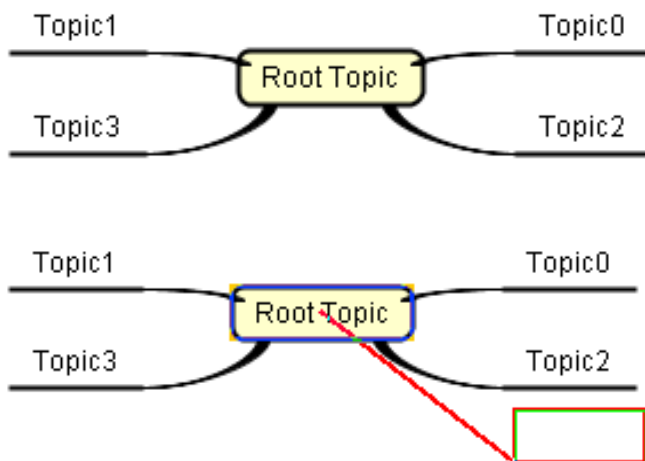
## TOPICS

To create a topic

- A) Creating a topic using the Tool Palette.
- B) Creating a Topic using Suggest Feature.
- C) Creating a Topic using the Pop-up Menu.

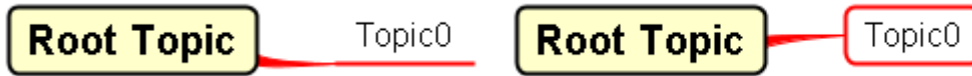
To edit a topic name, Double-click the topic name in the Diagram Editor or press [Ctrl+E](Windows) / [command+E](MacOS) or [F2] key and then edit its name directly.

The order of Brother Topics can be changed by dragging.





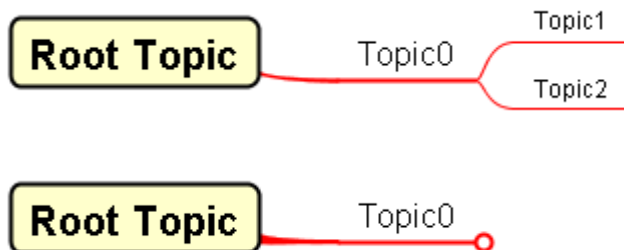
To change topic styles, Right-click on the target topic and select [Set Style] - [Topic Style]. Or, click [Fork] or [Bubble] on Tool Bar.



Topics with Child Topics can be expanded or collapsed (display/non-display).

Right-click on the target Topic and select [Open or Close Topic] (Windows:[Alt+X] MacOS: [command+K]).

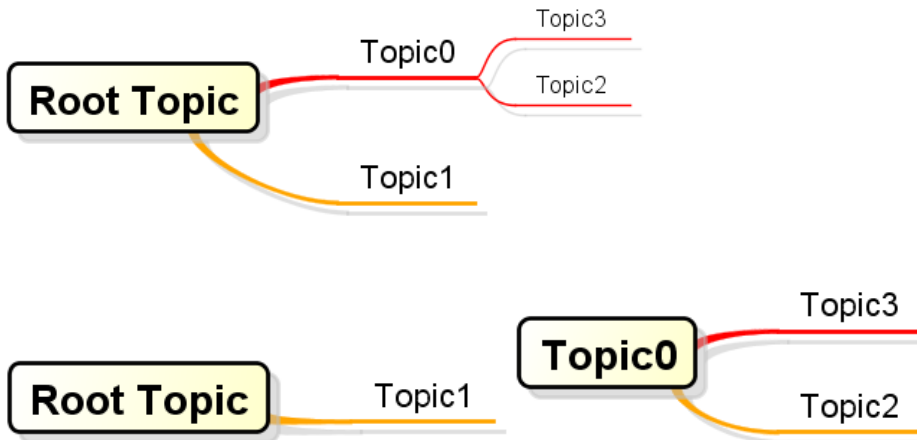
Double-click the connector of the Topic. Or, click [Open or Close Topic] on the Tool Bar.



## FLOATING TOPIC

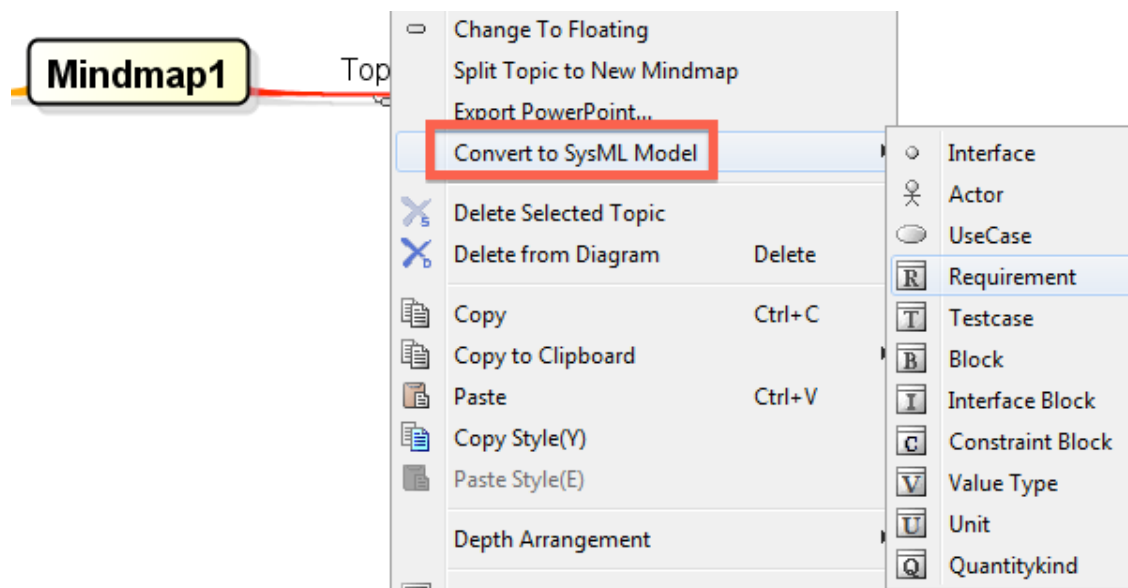
To create a floating topic

- A) Use [Floating Topic] on the Tool Palette.
- B) Double-Click on the in the Diagram Editor.
- C) Right-click on the target Topic in the Topic Pop-Up menu and select [Change to Floating].



To split topics to a new Mind Map, Select [Split Topic to a new Mind Map] on a Pop-Up Menu of a Topic. All child topics of the selected topic will be extracted and a new Mind Map will be created. A hyperlink of the new Mind Map will be added on the selected Topic.

To convert topics to SysML models, select the target Topics in the Structure Tree and drag them to another Diagram (except Mindmap) or right-click on the Mind Map Topic and select [Convert to SysML Model] and choose the model element you want it to be.

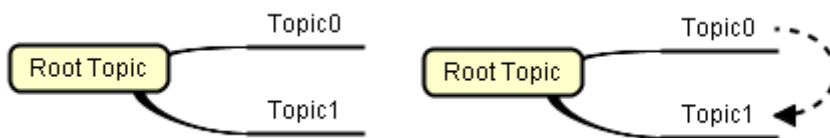


## EDGES

Edges are automatically created when Child Topics are created. Edges cannot be created by themselves. To change styles/Line Width, Right-click on the target Edge and select [Edge Style]/[Line Width].

## LINK BETWEEN TOPICS

To create a Link between Topics, use [Link between Topics] on the Tool Palette.



## BOUNDARY

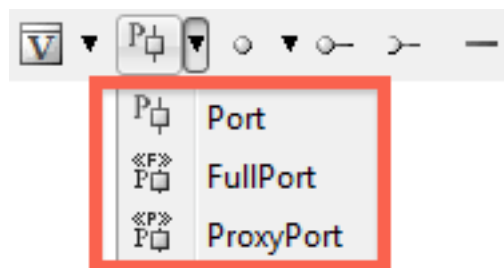
To create a Boundary, use [Boundary] on the Tool Palette.



## Common Model Elements

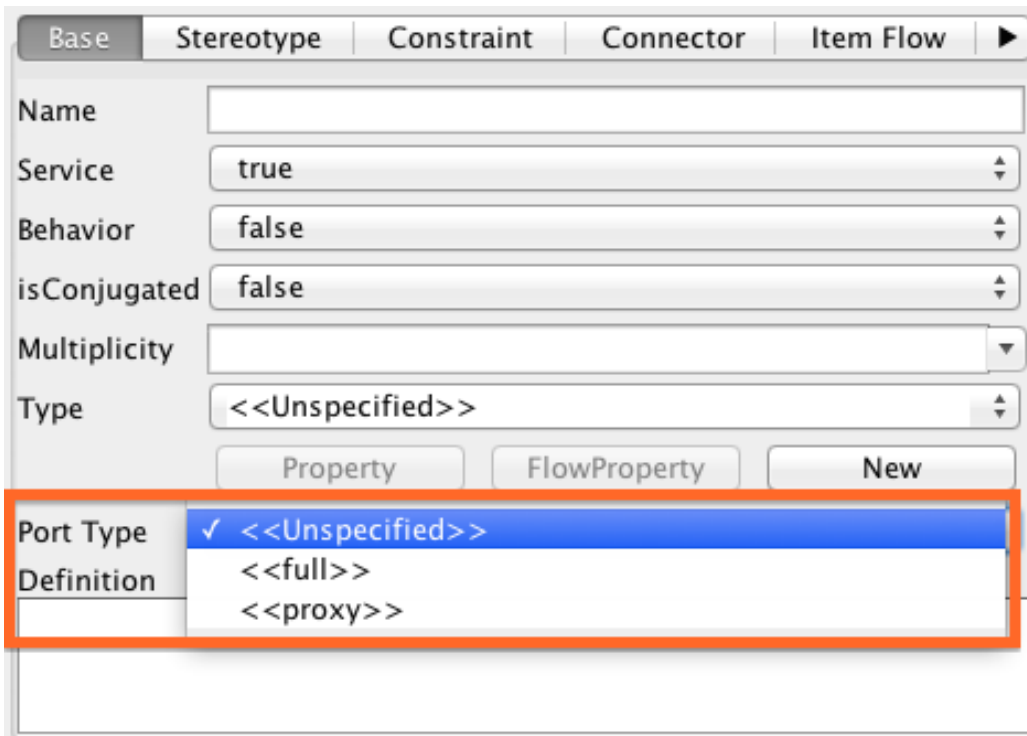
### PORT / PROXY PORT / FULL PORT

To create a Port, select Port/Proxy Port/ Full Port from the Tool bar and then click on a model element you want to add the Port on.





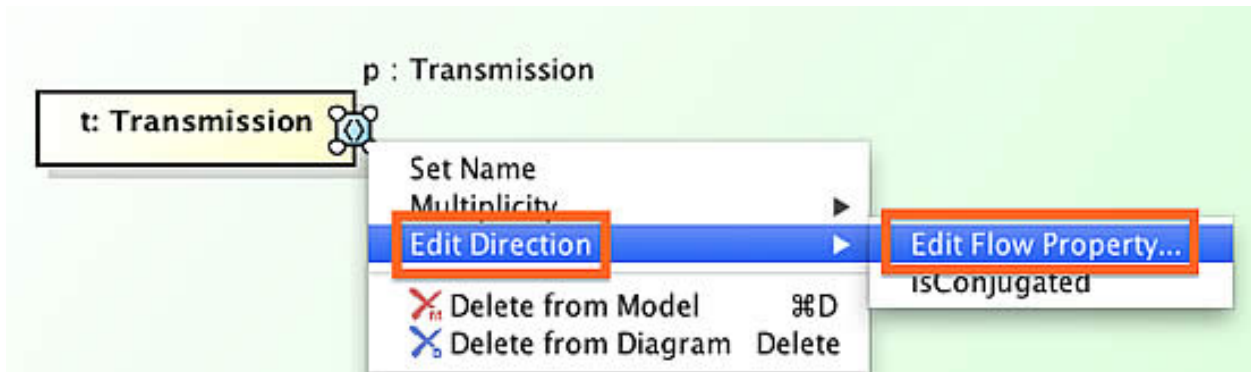
To set the property to Port, select the Port in diagram and then go to the Property View. You can also change the Port type to Proxy Port, Full Port from its Property view as well.



There are several ways to set direction for a Port.

- A) Set flow properties of the Port type from its Property view
- B) Set flow properties of the Port type from its popup menu





## INTERFACE

To create an Interface, select [Interface] from tool bar and click in the diagram. You can choose which notation you'd like to use from this tool bar directly. But you can always change its notation from [Icon Notation] option from its Pop-up menu.

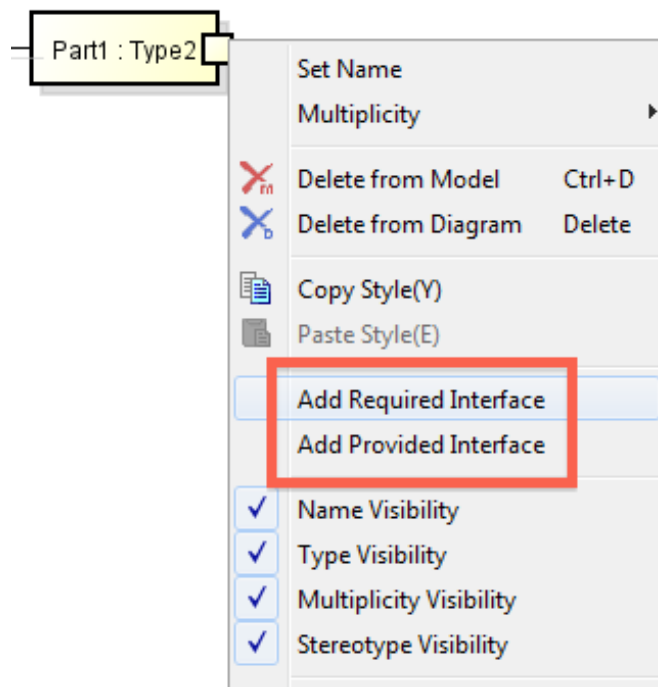
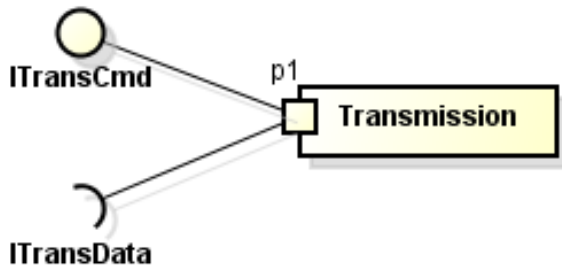


## PROVIDED INTERFACE/REQUIRED INTERFACE

To create a Provided/Required Interface, select it from the tool bar and then click in the diagram.

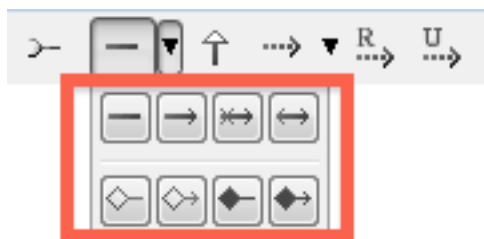


You can also create them directly from Port's Pop-up menu.



## ASSOCIATION

To create an Association, select the association type from its drop-down menu and then click two model elements that you want to connect with it.



## NEST

To create a Nest, use [Nest] on the Tool Palette.

Select one that you'd like to draw and then click two model elements you want to connect with it.



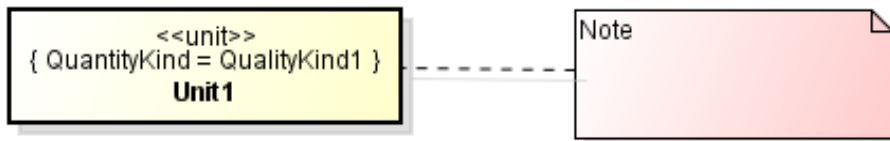
## REALIZATION/DEPENDENCY/NEST

Select one that you'd like to draw and then click two model elements you want to connect with it.



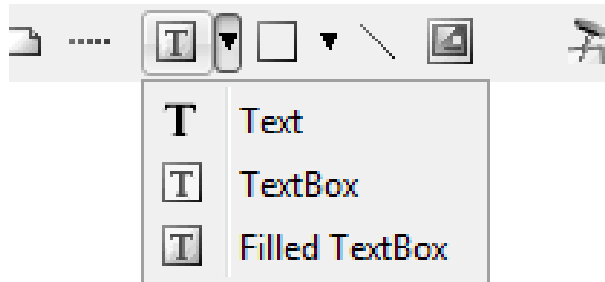
## NOTE AND NOTE ANCHOR

To create a Note, select the Note from the tool bar and then click on the diagram, you can connect the Note to model elements by using the Note Anchor.



## TEXT

You can put any Text you'd like directly on the diagram by using the [Text] from Tool bar.

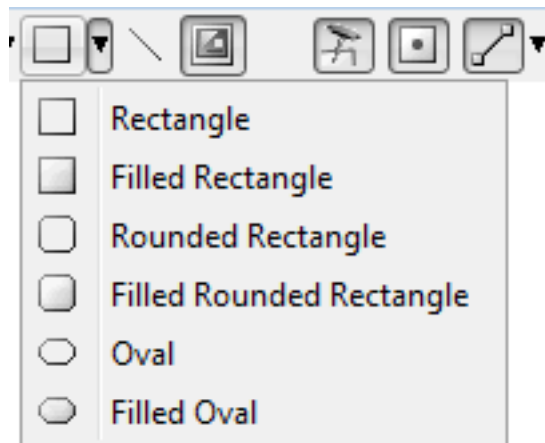


Text



## GENERAL-PURPOSE OBJECT

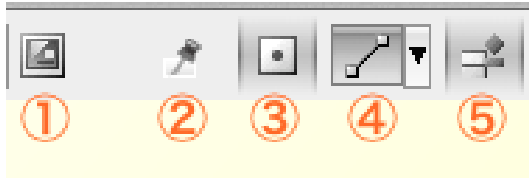
To add extra on your diagram, you can use the general-purpose objects (Rectangle/Rounded corner rectangle and Oval – all fillable in your favorite color.)



## Other options and settings

### TOOL MENU

There are 5 following options in the right of the tool bar.



## 1. INSERT IMAGES

You can insert an image file from this menu.

## 2. LOCK ON THE SELECTED MODEL

While this mode is on, the selection on tool menu stays, so that you can create the same model continuously in the Diagram Editor.

## 3. SET LINE ENDS IN THE CENTER OF MODEL ELEMENTS

While this mode is on, when you create line elements such as ItemFlow, Associations or connectors, the line end always starts and ends in the center of model elements. If you take this mode off, you can move the line end to any point of the model elements.

**While this mode is ON,  
Line always comes from the center**

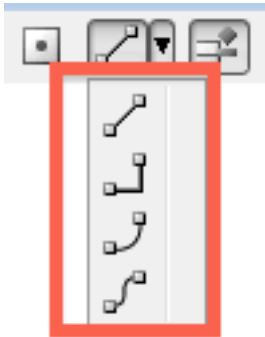


**While this mode is OFF,  
Line can come off from anywhere**



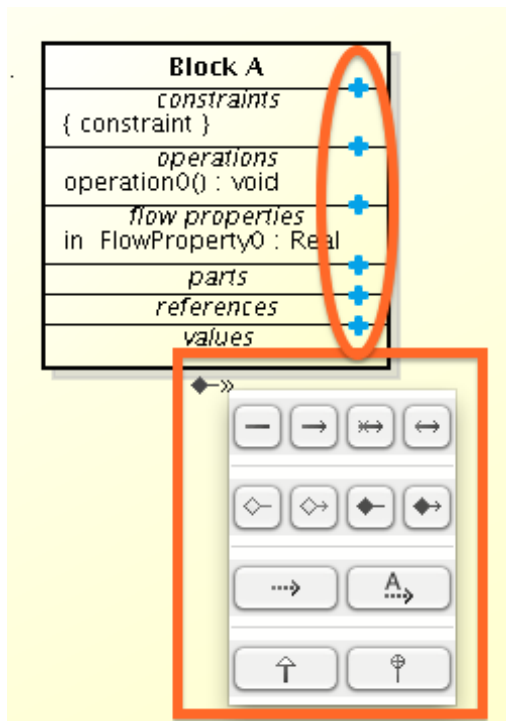
#### 4. LINE STYLE

You can choose the default line style from straight, straight with right-angle, curve and curve with right-angle per diagram. (This can be also set in the [System Properties](#).)



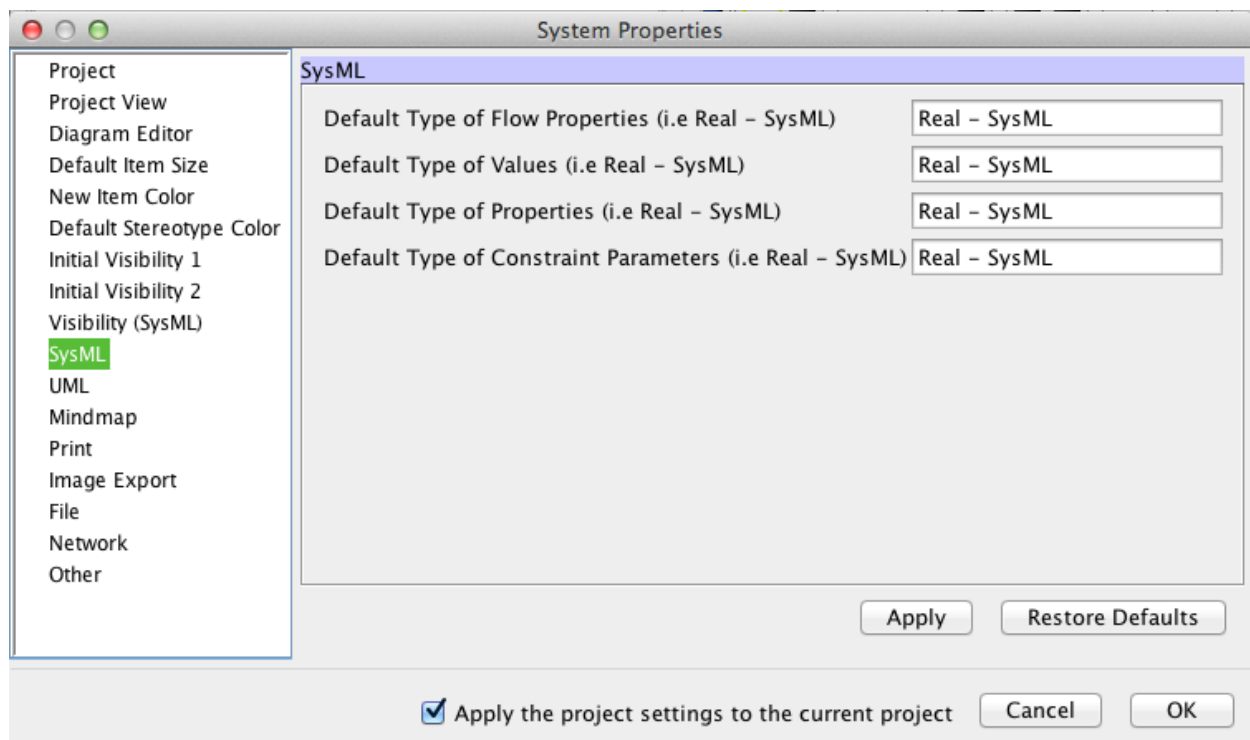
#### 5. SUGGEST FEATURE

Just by moving a mouse over a model, Astah offers suggestions to add other models in/from the model easily. While this mode is on, a small icon always appears when you move a mouse over models. You can turn this off by switching this mode off or just by pressing the [Shift] key down. [Suggest Feature](#)



## System Properties

You are able to set some default properties from [Tool] – [System Properties] such as a default Type setting and all the many other options.



## Font Setting

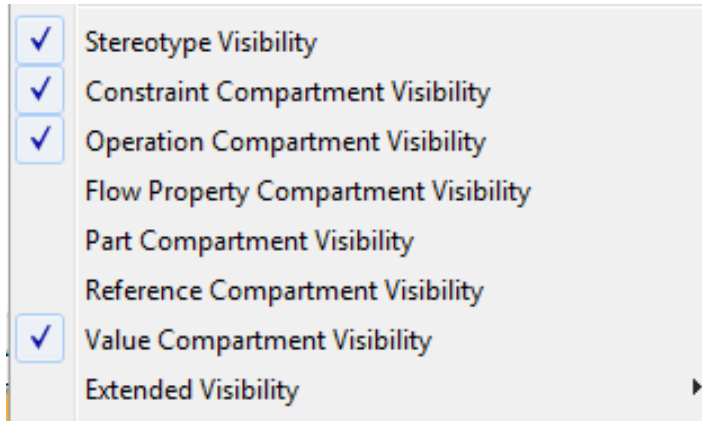
To use your preferred font in the diagram, go to the structure tree view, and then select a top package, then go to Property View. Click [Default Font] button to open the font setting dialog or go to [Tool] – [License] – [Default Font] from Main Menu.

## Visibility Setting

You can set to show/hide models on the Diagram – such as <<stereotype>> inside the Block or the other items such as FlowProperty, Values..etc. There are several ways to do so.

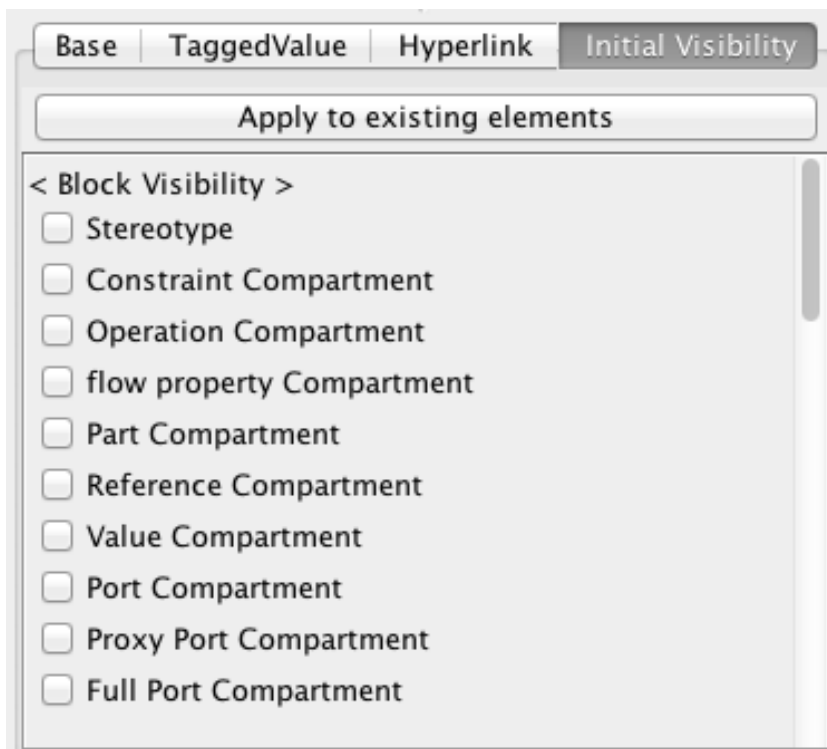


1) Right-click the model element and check on/off the visibility options.



(i.e. Visibility setting menu on Block's Pop-up menu)

2) Go to diagram's property view – [Initial Visibility] and check on/off the visibility options for each model in the diagram.



(i.e. Visibility setting menu of Block Definition Diagram)

You can also set all the default visibility settings from [Tool] – [System Properties] – [Initial Visibility 1,2 and SysML].

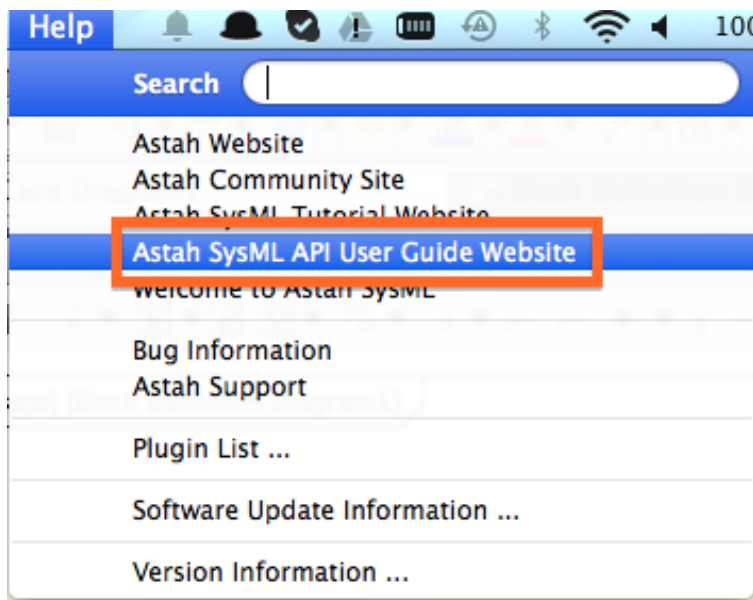
## Copy and Paste .asml files

In Astah SysML you can easily copy and paste models from diagrams in one .asml file to another.

1. Select model you want to copy and go [Edit] - [Copy] or use shortcut key for copying (Ctrl + C)
2. Open a blank diagram where you want to paste the copied models. And then go to [Edit] - [Paste] or use the shortcut key for pasting - Ctrl + V.

## Astah SysML API

The Astah API enables you to obtain Astah SysML model information, create and modify diagrams and models, and use them in application software. For information on how to use the Astah SysML API, please refer to the API Sample guide and the sample applications.



## Send us Feedback

We'll keep update our manual and also online contents.

If you have any feedback or feature requests, please send us them to [sysml@astah.net](mailto:sysml@astah.net).

Thank you!

Astah Development Team