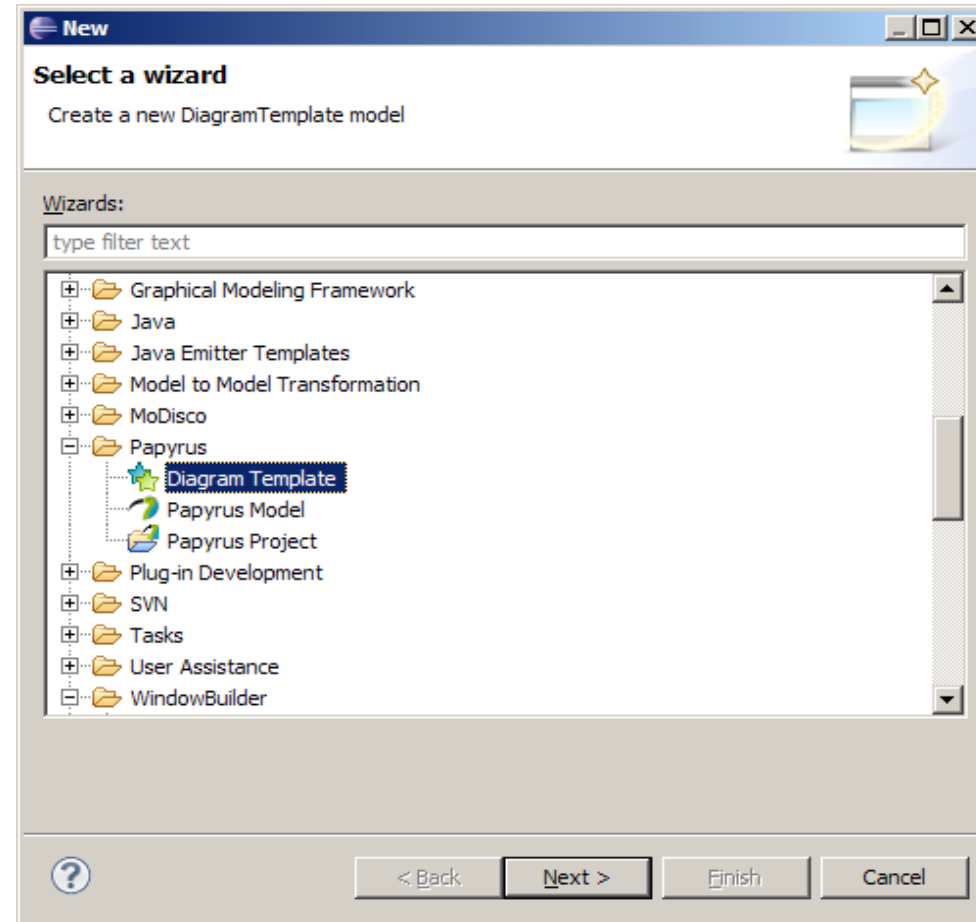


Template based diagram generation

CEA LIST

December the 2nd 2010

Create a new diagram template



Editor overview

Name of the diagram definition

Prefix used to name the diagram: prefix+name of the owner

Root to start search

The model to apply the template on

Clear specific information: remove application on a specific model

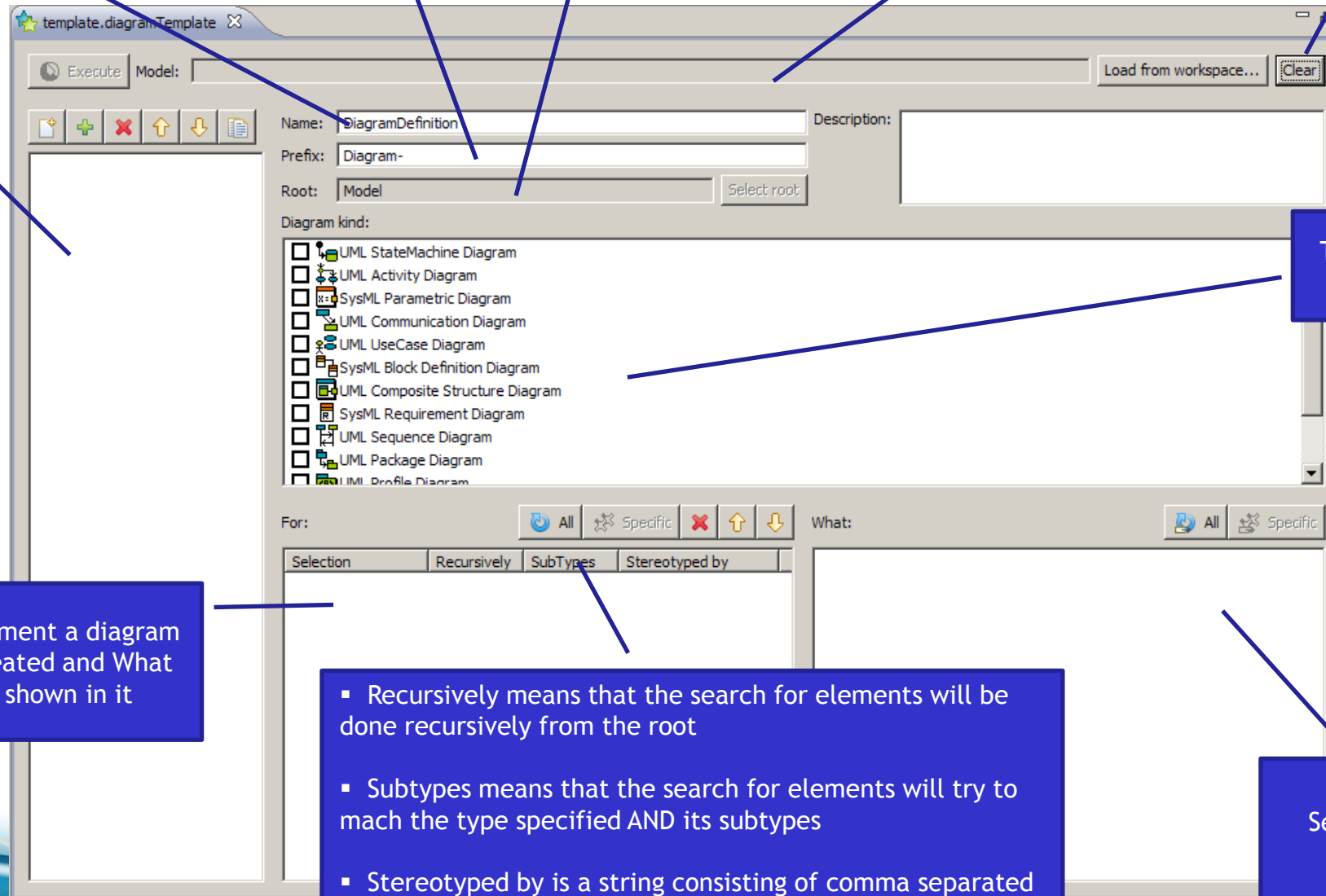
Diagram definitions

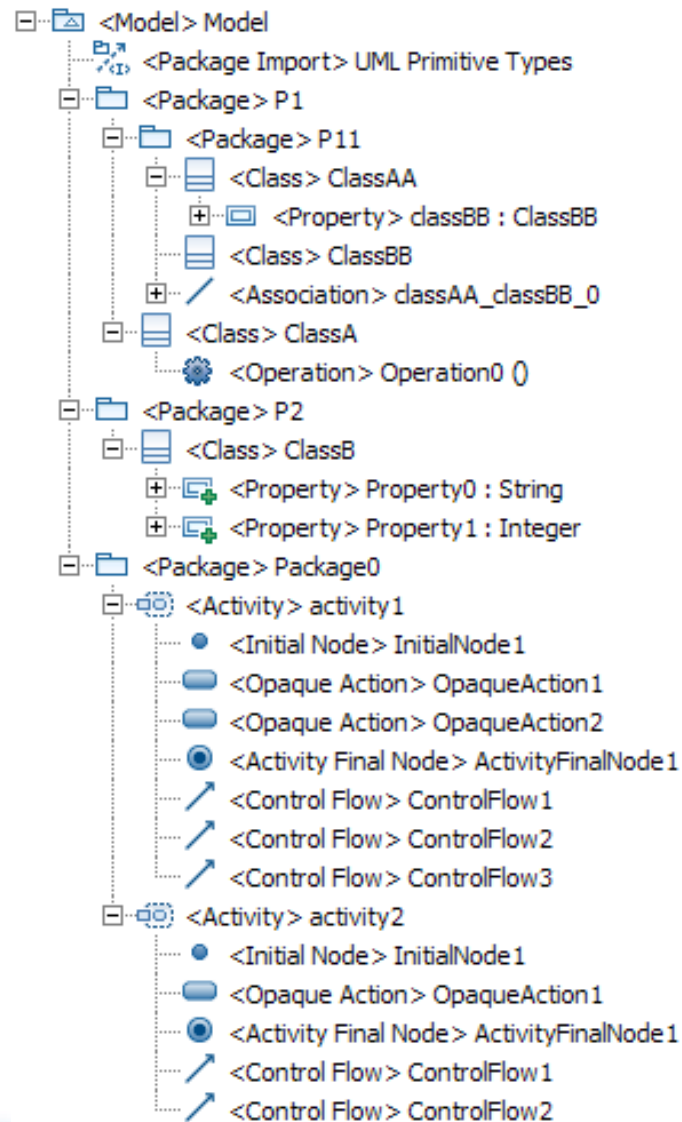
The kind of diagram to create

For which element a diagram should be created and What should be shown in it

- Recursively means that the search for elements will be done recursively from the root
- Subtypes means that the search for elements will try to match the type specified AND its subtypes
- Stereotyped by is a string consisting of comma separated qualified names of stereotypes (e.g. SysML::Blocks::Block). The search will try to match this stereotype applications

Select what should be shown





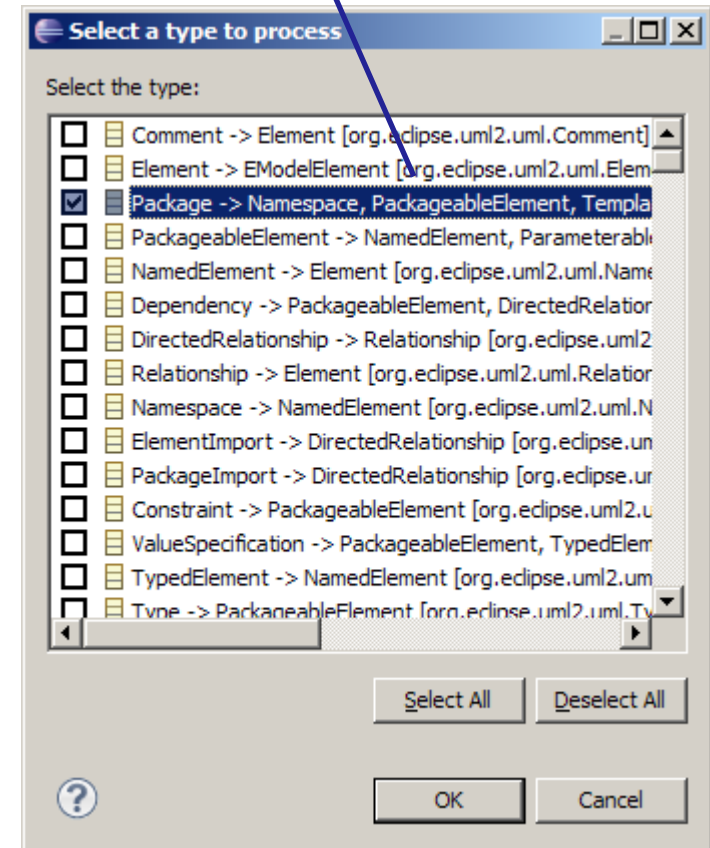
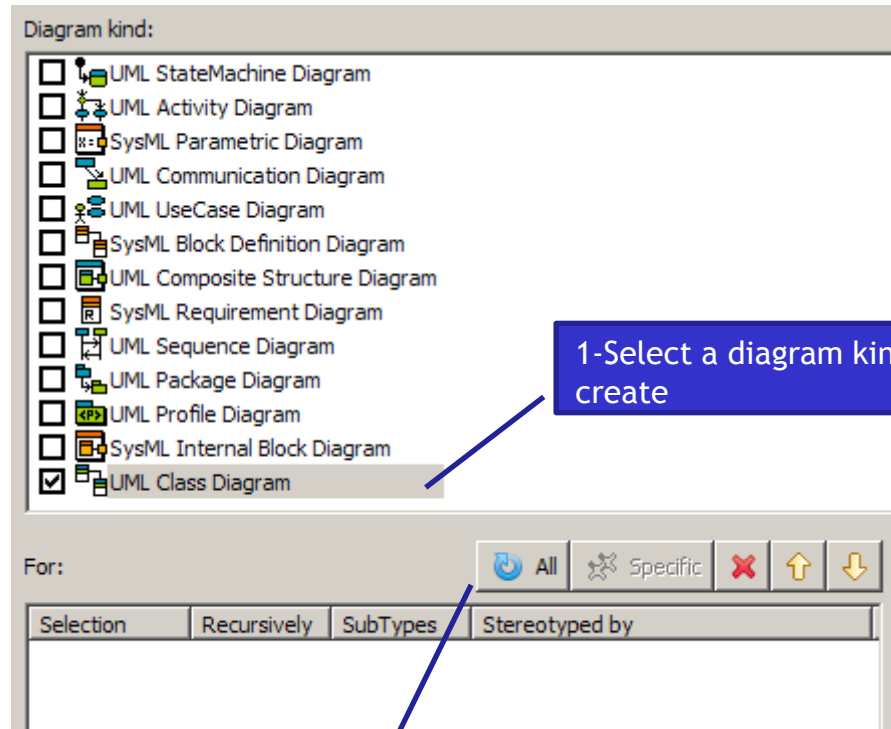
- Create class diagrams for all packages
 - Show classes
 - Show attributes and operations
 - Show associations
- Create an activity diagram for activity1
 - Show ControlFlows



Create generic templates

Create class diagrams for all packages

3-Select the type of the element you want to create diagrams for. Here, select Package



Create generic templates

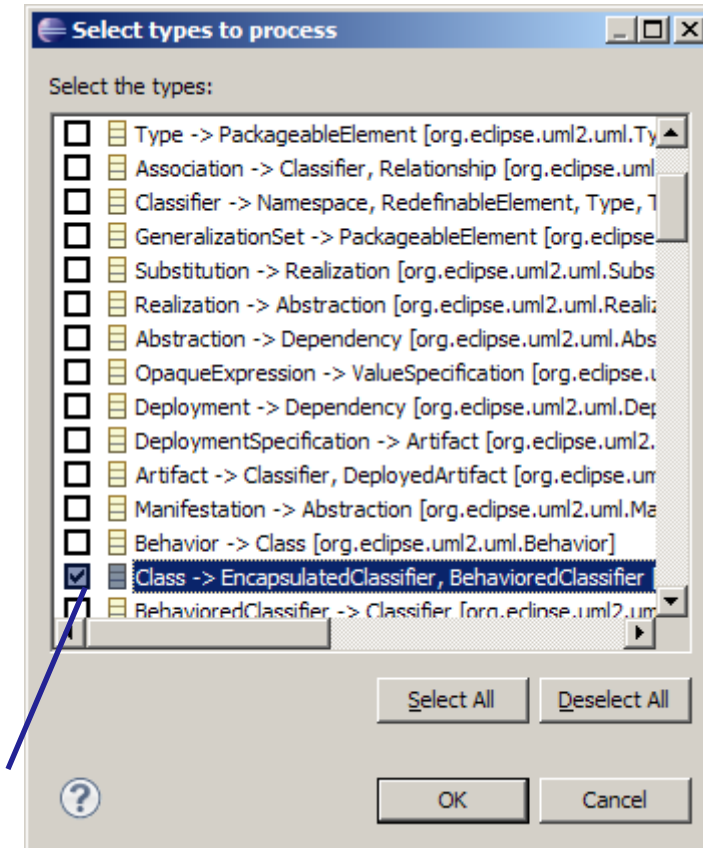
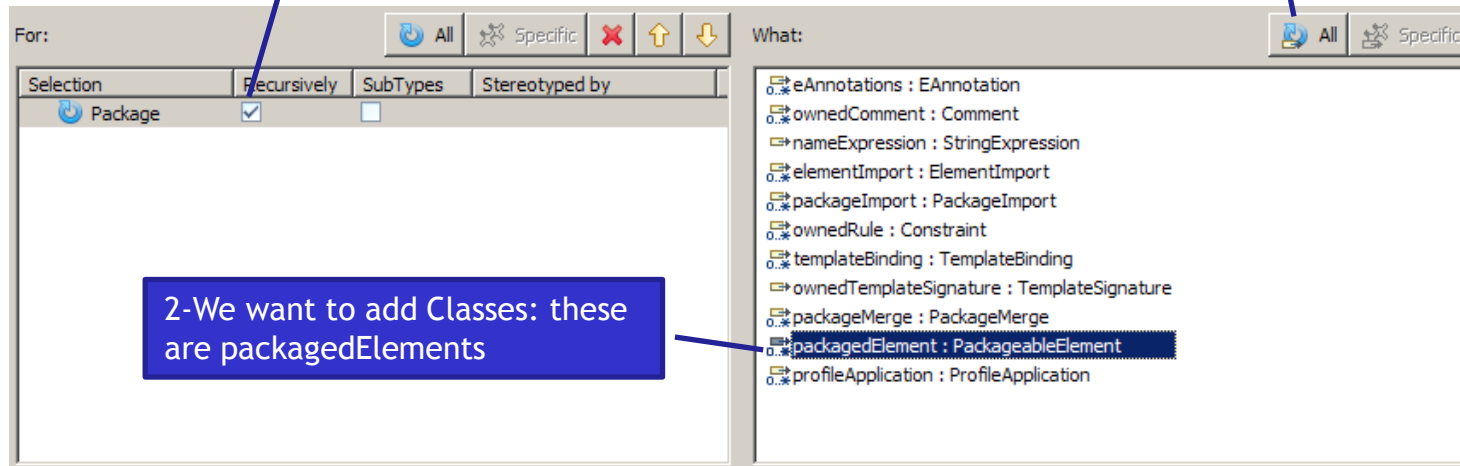
Show classes

1-We want to create diagrams for all packages recursively

3-We want to process all the classes

2-We want to add Classes: these are packagedElements

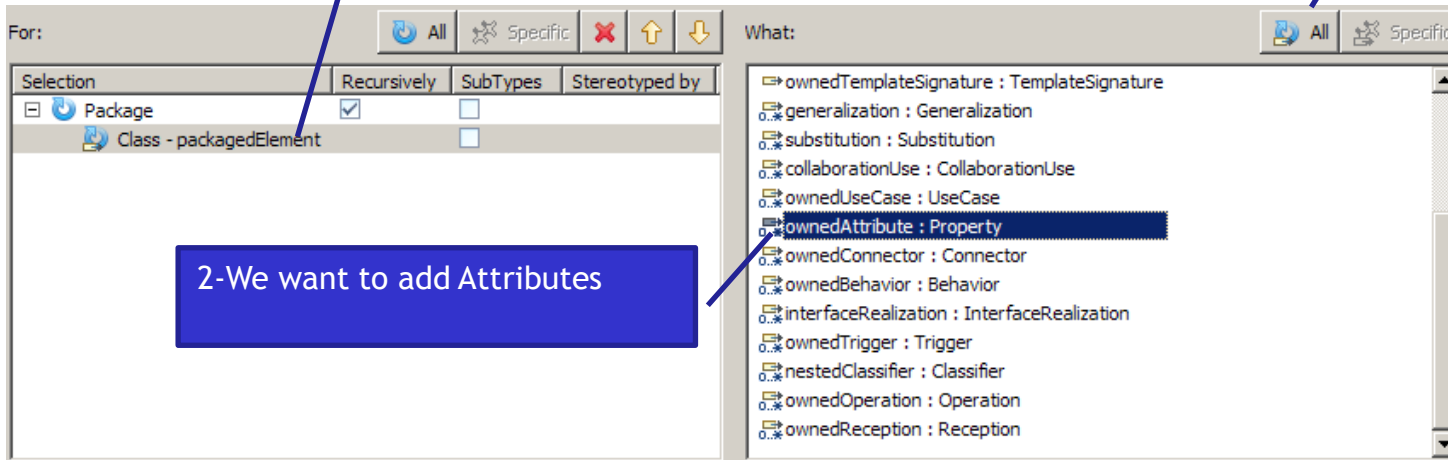
4-Select Class



Create generic templates

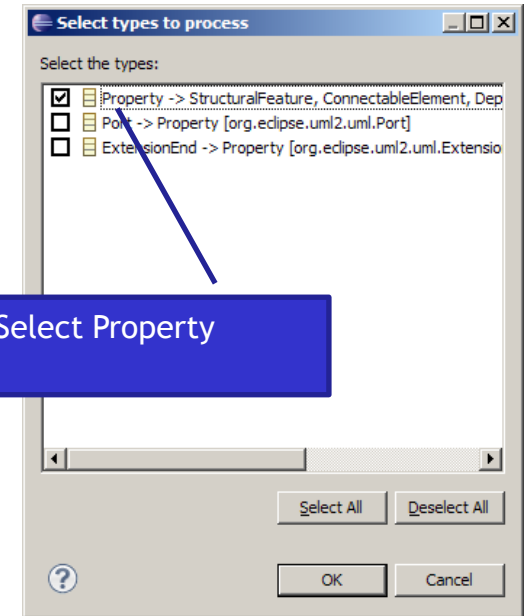
Show attributes and operations

1-Select the "All classes"

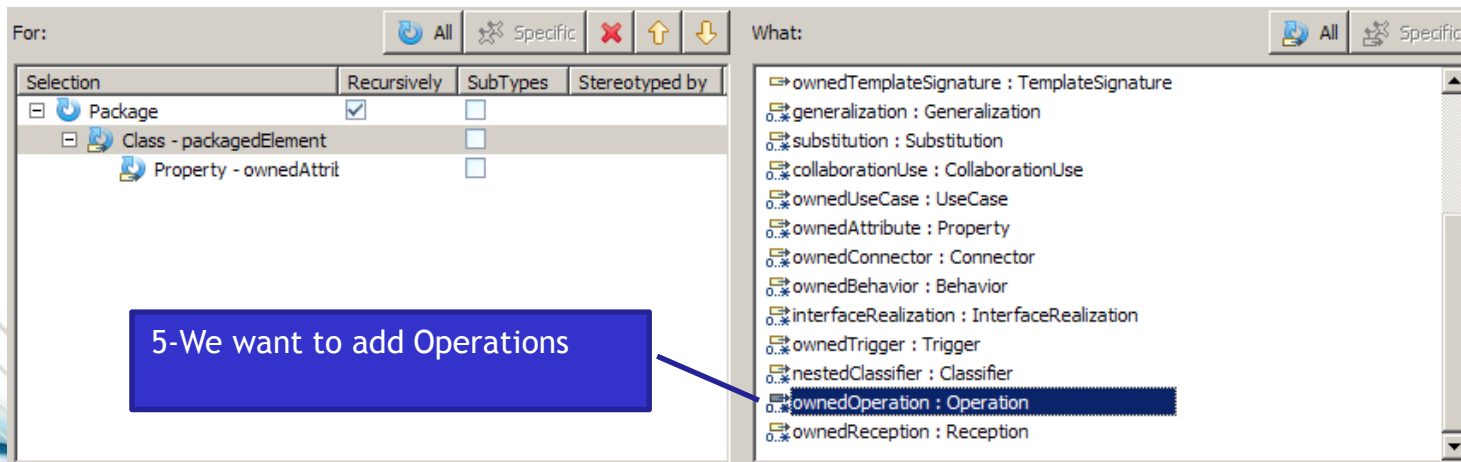


2-We want to add Attributes

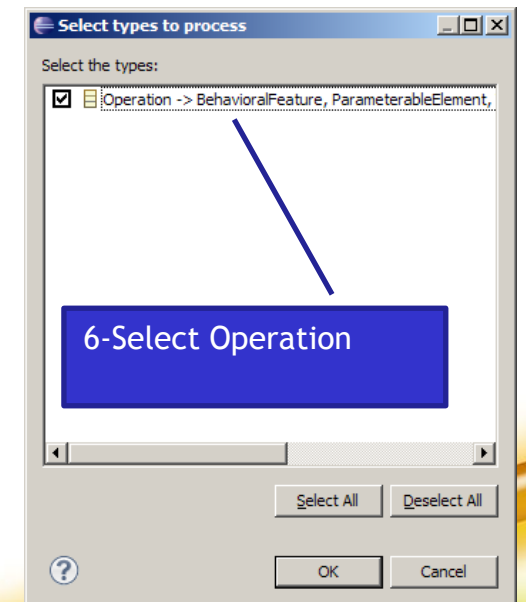
3-We want to process them all



4-Select Property



5-We want to add Operations



6-Select Operation

Create generic templates

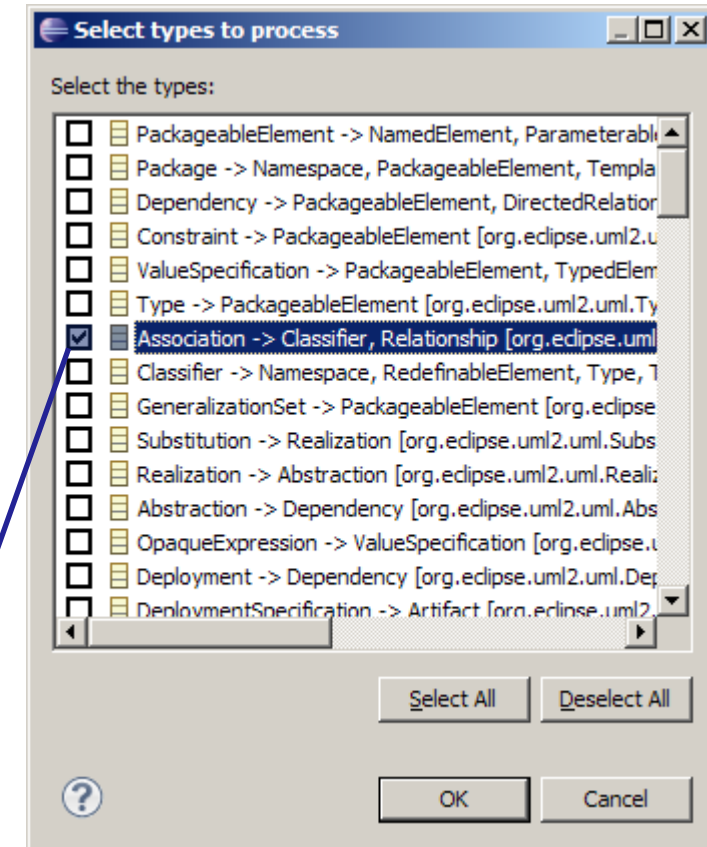
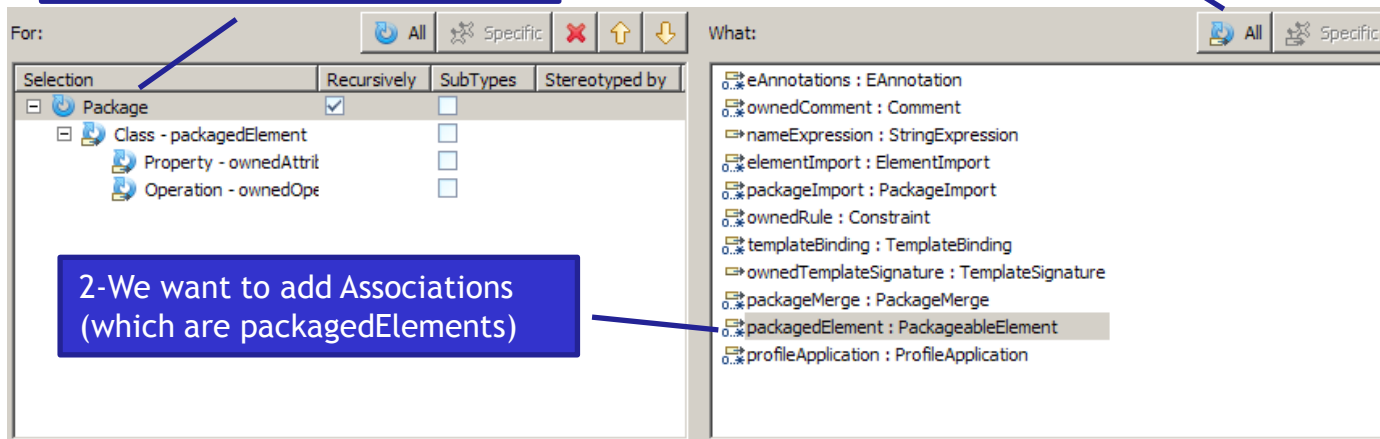
Show associations

1-Select the "All packages"

3-We want to add them all

2-We want to add Associations
(which are packagedElements)

4-Select Association



Create generic templates

Add this diagram definition

At this stage, the template is generic

template.diagramTemplate

Execute Model: Load from workspace... Clear

Name: DiagramDefinition Description:

Prefix: Diagram- Root: Select root

Diagram kind:

- UML StateMachine Diagram
- UML Activity Diagram
- SysML Parametric Diagram
- UML Communication Diagram
- UML UseCase Diagram
- SysML Block Definition Diagram
- UML Composite Structure Diagram
- SysML Requirement Diagram
- UML Sequence Diagram
- UML Package Diagram

For: All Specific

Selection	Recursively	SubTypes	Stereotyped by
<input checked="" type="checkbox"/> Package	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/> Class - packagedElement	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/> Property - ownedAttrit	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/> Operation - ownedOpe	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/> Association - packagedEler	<input type="checkbox"/>	<input type="checkbox"/>	

What: All Specific

- eAnnotations : EAnnotation
- ownedComment : Comment
- nameExpression : StringExpression
- elementImport : ElementImport
- packageImport : PackageImport
- ownedRule : Constraint
- templateBinding : TemplateBinding
- ownedTemplateSignature : TemplateSignature
- packageMerge : PackageMerge
- packageableElement : PackageableElement
- profileApplication : ProfileApplication

Apply template to a specific model

1-Select a UML model to apply this template on

2-Create a new diagram definition

Execute Model: Load from workspace... Clear

Name: Description:

Prefix: Root: Select root

kind:

- UML StateMachine Diagram
- UML Activity Diagram
- SysML Parametric Diagram
- UML Communication Diagram
- UML UseCase Diagram
- SysML Block Definition Diagram
- UML Composite Structure Diagram
- SysML Requirement Diagram
- UML Sequence Diagram
- UML Package Diagram

For: All Specific

Selection	Recursively	SubTypes	Stereotyped by
<input checked="" type="checkbox"/> Package	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/> Class - packagedElement	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/> Property - ownedAttrit	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/> Operation - ownedOpe	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/> Association - packagedEler	<input type="checkbox"/>	<input type="checkbox"/>	

What: All Specific

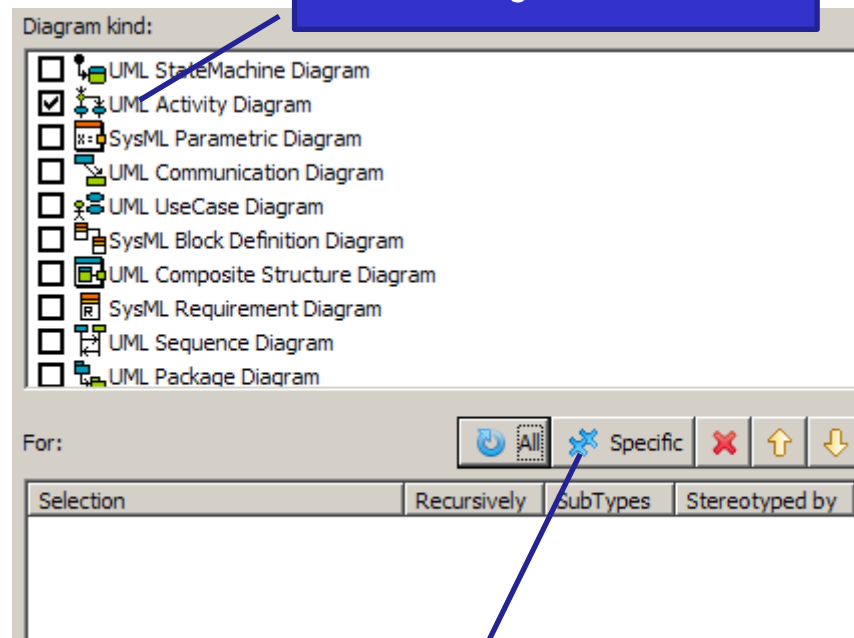
- eAnnotations : EAnnotation
- ownedComment : Comment
- nameExpression : StringExpression
- elementImport : ElementImport
- packageImport : PackageImport
- ownedRule : Constraint
- templateBinding : TemplateBinding
- ownedTemplateSignature : TemplateSignature
- packageMerge : PackageMerge
- packagedElement : PackageableElement
- profileApplication : ProfileApplication

Apply template to a specific model

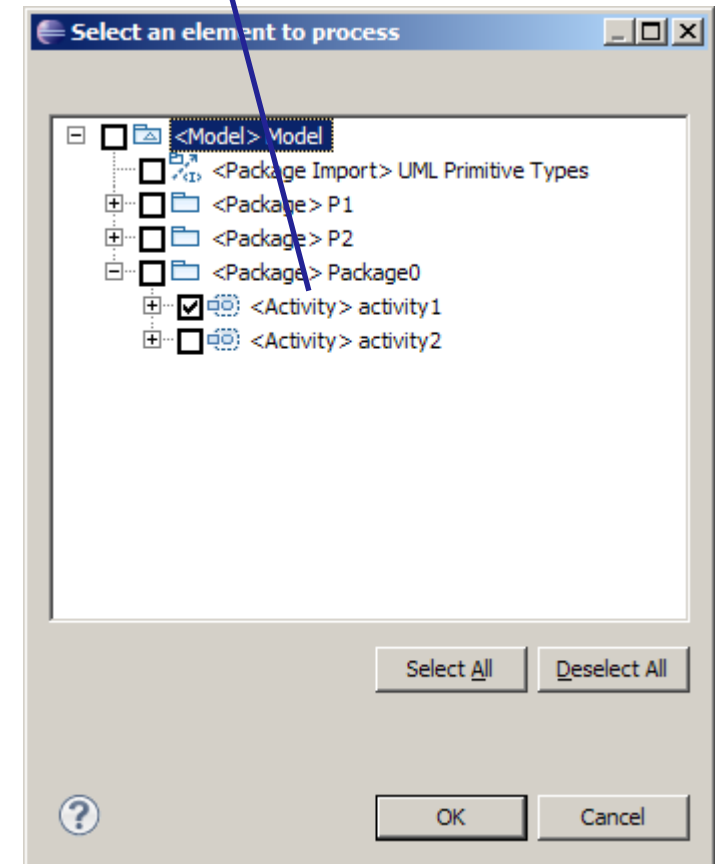
Create an activity diagram for activity1

3-Select the element you want to create the diagram for. Here, select activity1

1-Select a diagram kind to create



2-Select "Specific"



Apply template to a specific model

Show ControlFlows

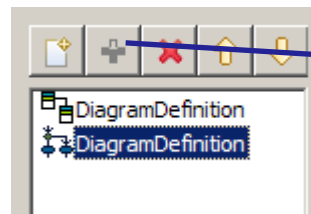
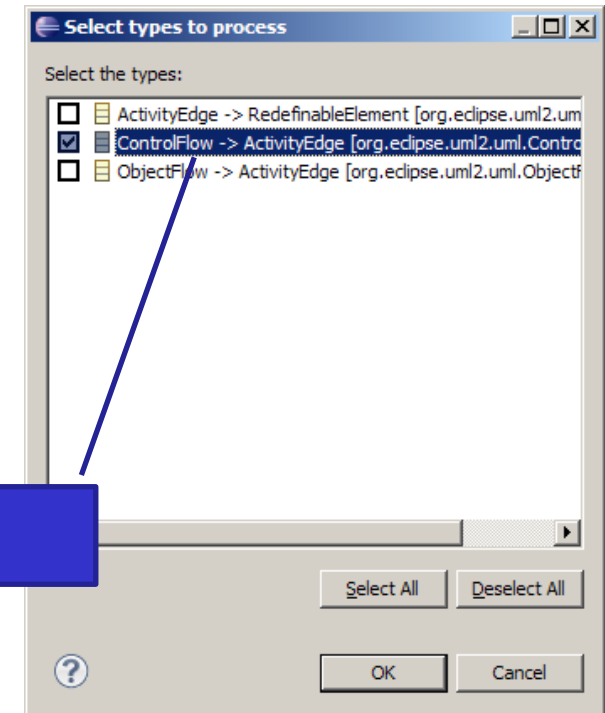
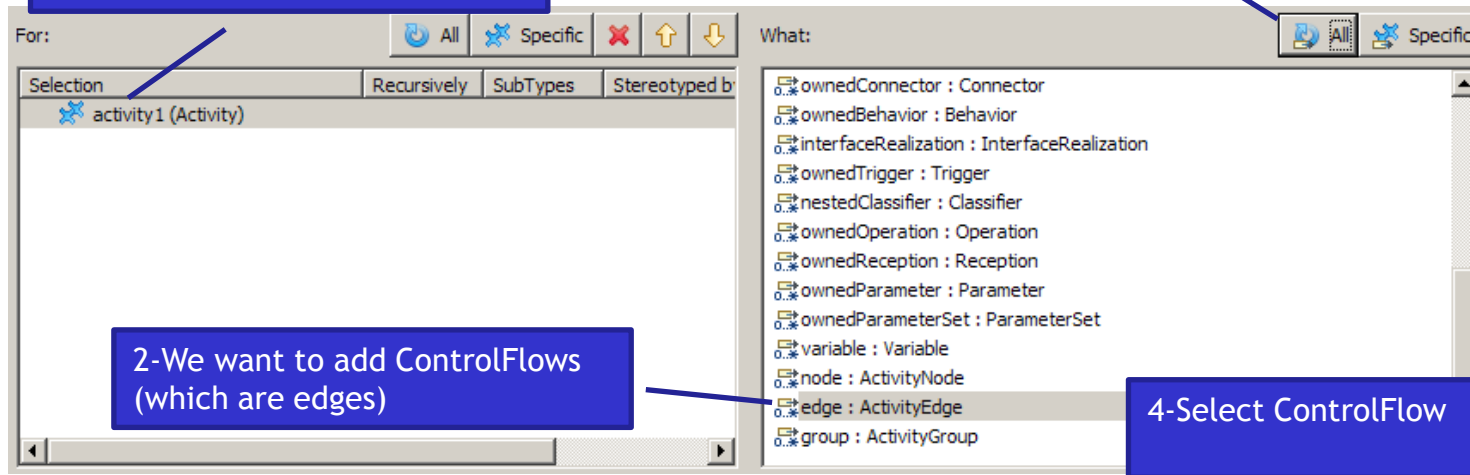
1-Select the "specific activity1"

3-We want to add them all

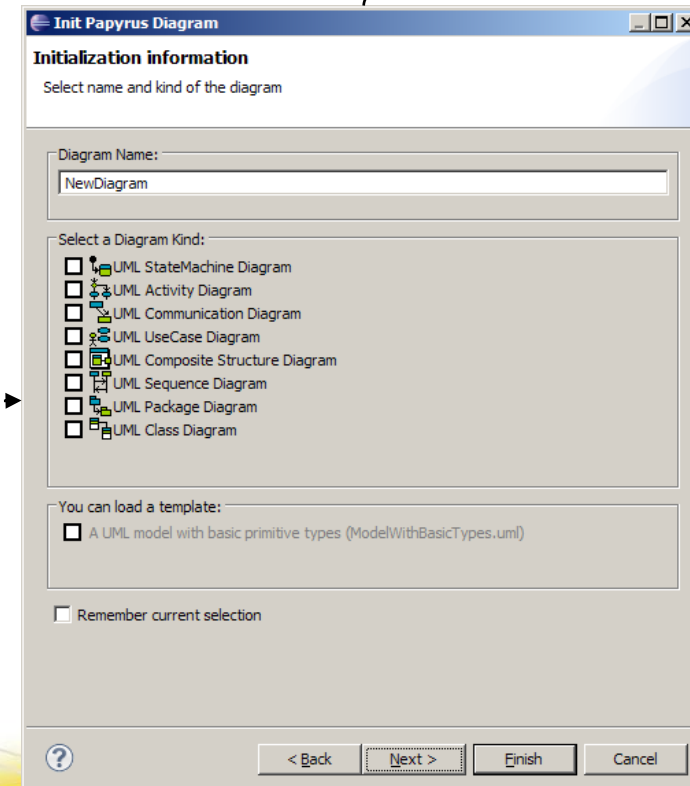
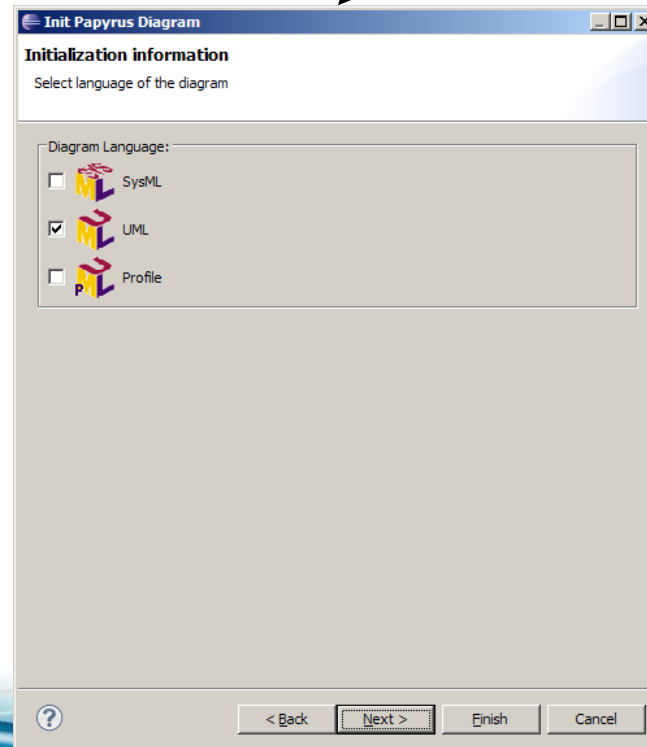
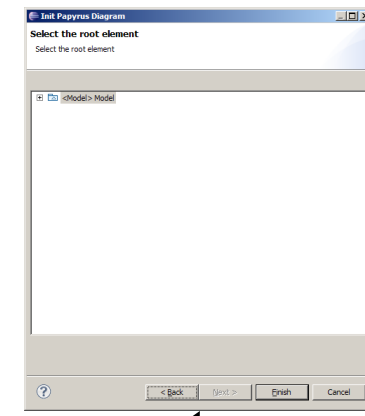
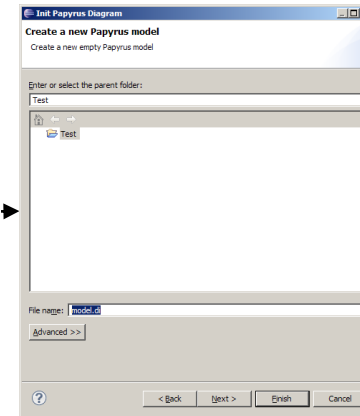
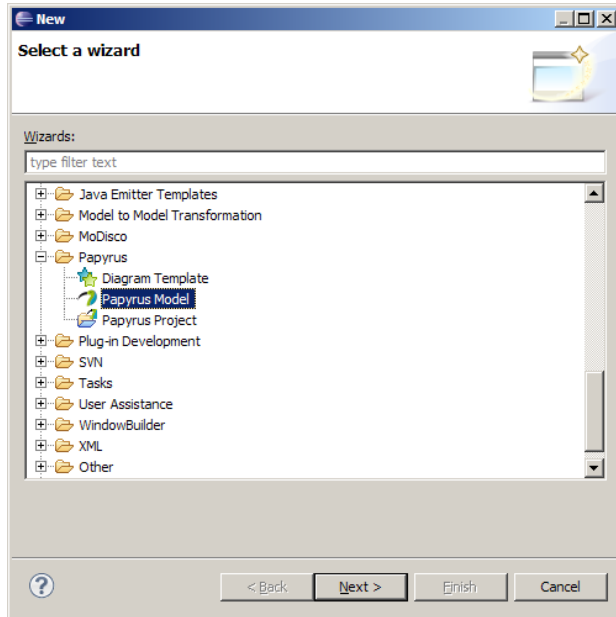
2-We want to add ControlFlows (which are edges)

4-Select ControlFlow

5-Add this diagram definition

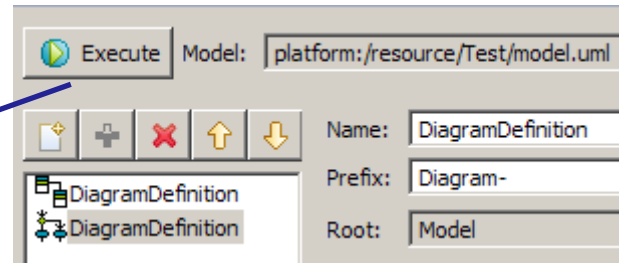


- An empty Papyrus diagram must be created for the UML model: use the Papyrus wizard

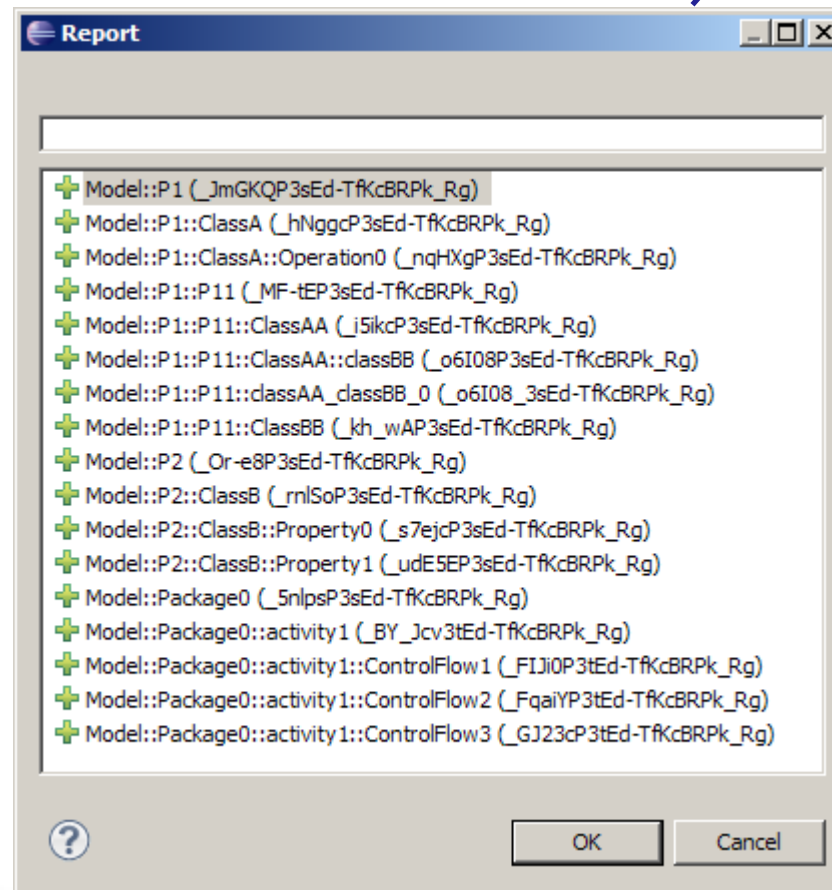


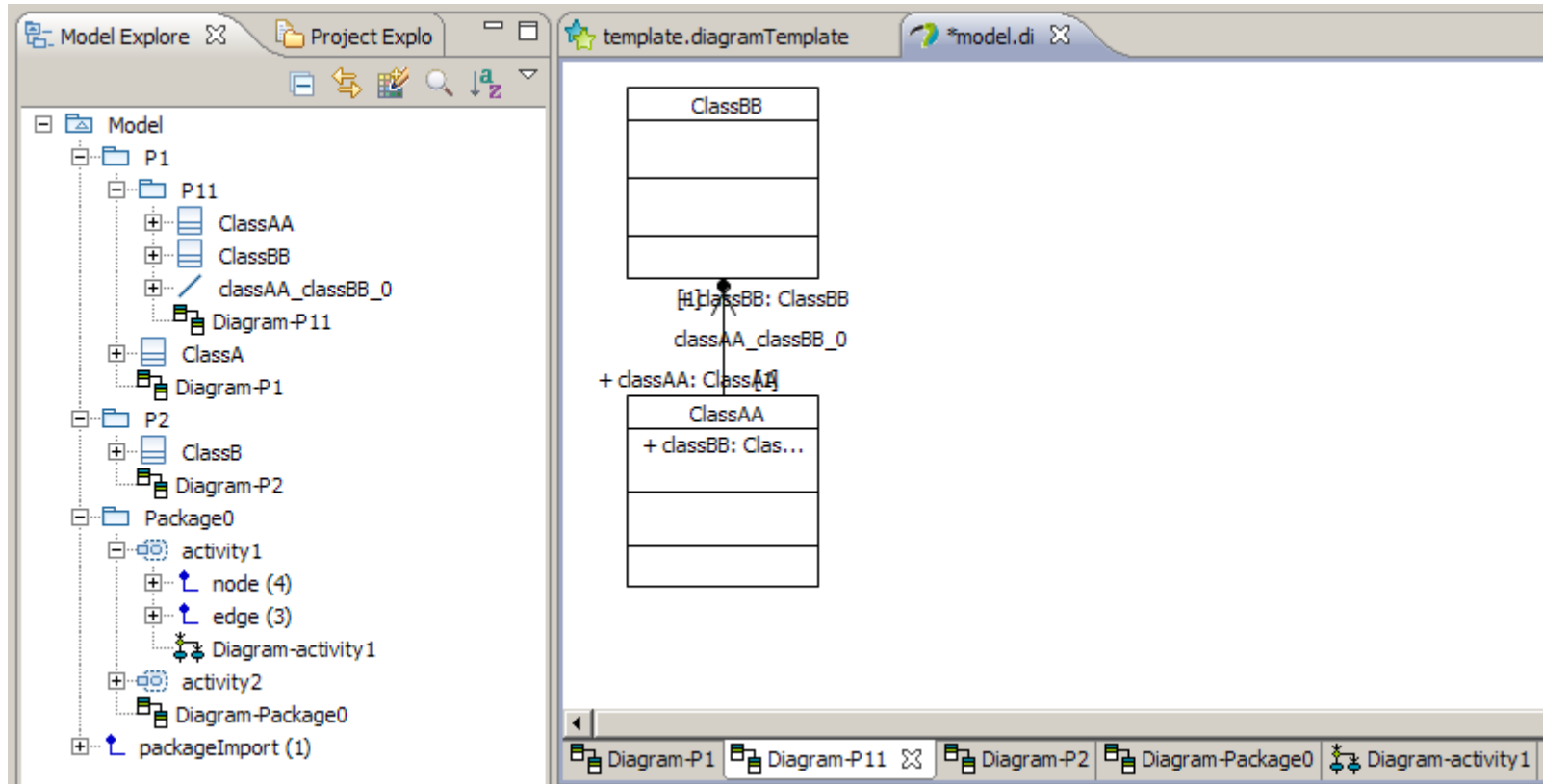
Execute the template

1-When your template is defined : Execute



2-You get a report of what has been added (green +). If something matches the template definition but failed to be shown on a diagram or a diagram cannot be created, you will get a red X for it





- **If the drag and drop feature is not well implemented then the diagram generation will fail**
 - Post a bug to the developer responsible for the diagram that failed.
- **Expressivity is clearly not enough**
 - Use queries (Modisco) to define :
 - for which elements diagrams are to be created
 - what to show on each diagram
- **Layout of generated diagrams is not always adequate**
 - Post process generation with advanced auto layout algos
 - Let the template designer choose which layout to apply on a diagram definition
- **Report is too laconic**
 - A verbose trace should be generated