

USER MANUAL
VERSION 2.2

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GmbH
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LieberLieber Modelling Assistants V3.3

**TABLE OF CONTENTS**

What are the Modeling Assistants?	3
Installation.....	5
Preconditions and Known Issues.....	5
Connector Style Assistant.....	5
Package Dependency Generator.....	9
Element Suggestion Window	11
Element Delete Control.....	14
Show Dependencies	19
Composite Diagram Forward	19
Composite Diagram Forward for BPMN Call-Activities	20
Automatic Connector-Style Application.....	21
DS Metamodel Generation.....	22
Move Diagram Elements into Package.....	23
Find and Replace	23
Find all or an empty String	25
Add Numbers to the Text	25
Manual Intervention.....	26
Select a subset of found elements	26
Currently supported Properties	26
Auto Nesting.....	27
Nest a Model-Element of a specific type within an existing package.....	27
Nest a Model-Element of a specific type and stereotype within an existing package	27
Manually trigger Auto Nesting	28
Disable Auto Nesting.....	28
Part & Port Synchronization	29
Property & CompositionEnd synchronization	29
Changing the AggregationKind to None.....	30

- Remove the Propertie’s Classifier 30
- Set the Properties Classifier 31
- Set the RoleEnd configuration..... 31
- CallBehaviourAction & CompositionEnd synchronization 31
- Property & AssociationEnd synchronization 32
- Automatic connection when Item is Changed 33
- Port on Property -> Port on Classifier synchronization 33
- Inherited Connector Synchronization 33
- Port-Type Check 34
- Allocate Partition Synchronization 35
- Layout 35
 - Port Layout 35
- Check Nesting Changes 36
- Template Package Synchronization..... 36
 - How it works..... 36
- Model Validation Assistant..... 38
 - Predefined Validation Rules 38
 - Generated custom rules from Model Constraints 39
- Multi-Element Editing 39
- Logfiles..... 40
- Contact 40



WHAT ARE THE MODELING ASSISTANTS?

The Modeling Assistant for Enterprise Architect is a plugin-based Enterprise Architect extension, where the particular plugins are developed to assist you while working with EA and to decrease modeling effort by improving existing EA features and make it even more comfortable as it already is.

We distinguish different kinds of plugin categories:

Refactoring

- **Connector Style Assistant (CS Assistant):** The plugin allows you changing the style of multiple connectors at once. The current version supports setting the line routing style, the line color and the line thickness. Various filters allow you selecting different ranges of connectors to which the style settings will be applied.
- **Move Diagram Elements into Package:** This plugin provides the facility to select elements from the diagram and move them directly into a selected package in the project browser, without searching the element in the project browser and move the elements within the project browser.
- **Find and Replace:** This plugin provides the possibility to search for one or all properties of a set of available properties like: ElementName, DiagramName, RoleName, ConnectorName, BehaviourText, CodeText, etc. within the whole model or just a subset and replace the found text. Wildcards can be used for the replace text to get more flexibility.
- **Template Package Synchronization:** This Assistant allows you the Synchronize Element's Tagged Values when the Element is contained within a Template Package. In addition to the EA feature which creates a copy of the Element from the Template Package, this Assistant allows you to Add/Remove Tagged Values from Elements within the Template Package and synchronize all corresponding Elements within a selected Package branch.

Inspection

- **Package Dependency Generator:** This plugin allows you to discover your models and better understand them by automatically generate dependencies between your model packages. A diagram is generated showing you which package is dependent on which package. A dependency is at hand when referring from one element to another element – both contained in a different package.
- **Element Suggestion Window:** This plugin suggests an existing element with a similar name from your repository, when you create a new element. This helps to prevent creating the same or a similar element multiple times. This is especially helpful in bigger models maintained by multiple persons. However, it also helps you if you are working alone on an existing model to reuse an existing element without searching it within the project browser.
- **Element Delete Control:** This plugin calculates the impact caused by an element deletion, before the element is definitely deleted. You are informed e.g. that the element is used as a type of an attribute and is linked to 5 other elements and occurs in 7 diagrams.
- **Show Dependencies:** This is similar to the Element Delete Control Assistant, but without the need to delete an element first to see the impact/dependencies.



- **Metamodel Generator:** This plugin generated a domain specific metamodel for the current model in the repository. This helps to understand the structure of your current repository and can be used to create a reference metamodel to define modeling rules.

Automation

- **Composite Diagram Forward:** This plugin automatically opens the diagram of a composite element, when you double click on an element, which type (classifier) is a composite element. Hence, when you click on an element, you see the diagram which is linked by its type. This is powerful when you have a lot of type relations in your model, like Ports and ActionPins, etc.
- **Automatic Connector-Style Application:** This assistant provides the possibility to configure connector style information for a combination of connector-type, diagram-type, source and target element and all stereotypes, respectively. If this plugin is active and the user creates a link which is in the style configuration list, the configured style is automatically applied to the new connector.
- **Auto Nesting:** This assistant helps to automatically nest new Model-Elements in preconfigured Packages. The rules for the auto nesting can be modeled in the EA-Repository.
- **Part & Port Synchronization:** This assistant provides a bunch of automations which creates and synchronize corresponding Model-Elements and connectors. With this assistant a specific modelling approach is provided to create Property Model-Element or CallBehaviourActions when a CompositionLink is created or the other way round. Also Ports and connectors between derived Properties are synchronized.
- **Check Nesting Change:** In order to prevent accidentally changing the nesting of Model-Elements within the Project Browser, this Assistant ask whenever the context of a Model-Element is changed.
- **Multi-Element Editing:** This assistant provides the possibility to apply property changes of one element to all currently selected elements in the diagram or the Project Browser.

Layout

- **Port Layout:** This assistant helps to easily align visible Ports and their label in the Diagram.

Future versions will contain additional plugins for further improvements to ease the use of EA.

If you have installed the Modelling Assistants you can open the Example Model which contains detailed examples about each Assistant. You will find it in the Ribbon: [\[Spezialize > Add-Ins > Modelling Assistants > Open Modelling Assistants Example Model\]](#)



INSTALLATION

To install the Modeling Assistants on your system, run the *.msi file and follow the installation wizard.



After the installation, open or restart Enterprise Architect. You will see a Screen with the information how long you can use the Modelling Assistants as a trial version.

Add a license with EA licensing mechanism

To add the Modelling Assistant license key, use EA's key mechanism as described here:

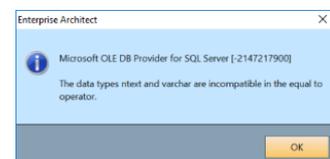
http://sparxsystems.com/enterprise_architect_user_guide/13.0/introduction/addlicensekey.html

Add a license with the RLM license mechanism

Because the Key Store in the new Pro Cloud Server of Enterprise Architect do not support Add-In licenses, this version of the Modelling Assistants support an additional License Server called RLM. This is the same license server which is also used by [LemonTree](#).

PRECONDITIONS AND KNOWN ISSUES

In case the EA Repository is a DBMS, the latest DB schema should be used. Otherwise you may get datatype errors like this:



CONNECTOR STYLE ASSISTANT

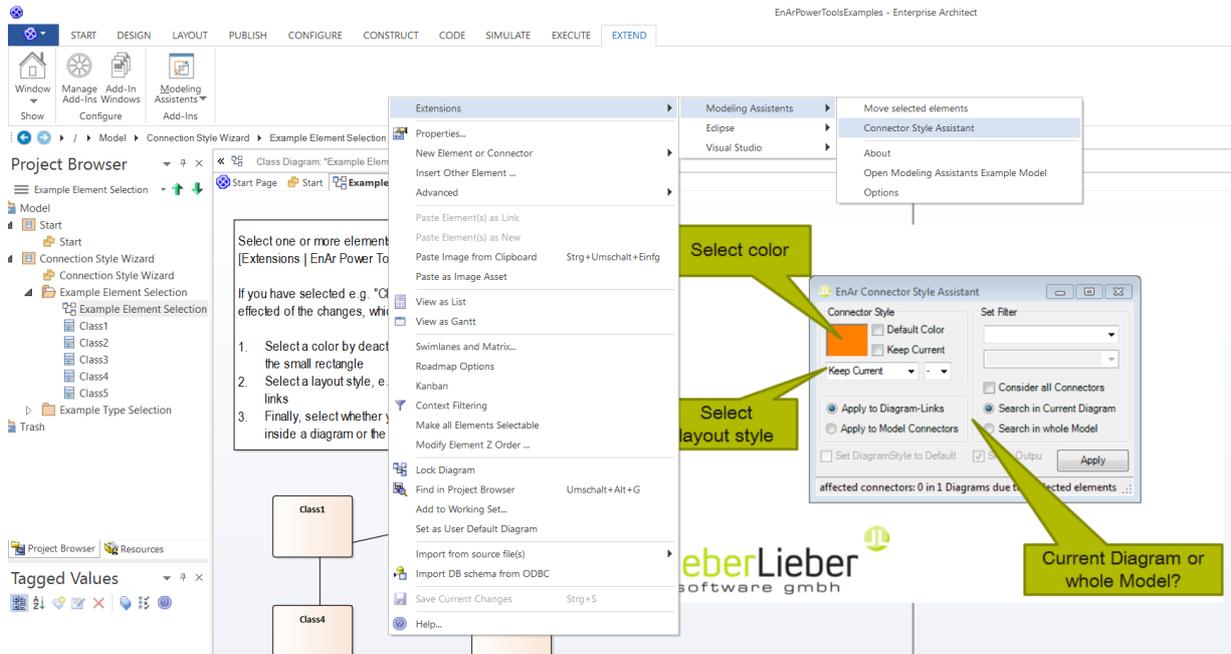
The Connector Style Assistant contains three sections:

Style: Allows configuring the line colour, line thickness and the routing style of the line.

- **Filter:** Allows filtering connectors by type and stereotype. Furthermore, it is possible to search the whole model or just the currently opened diagram for connectors.

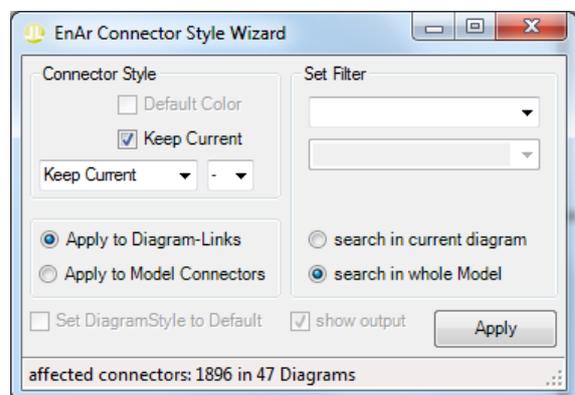
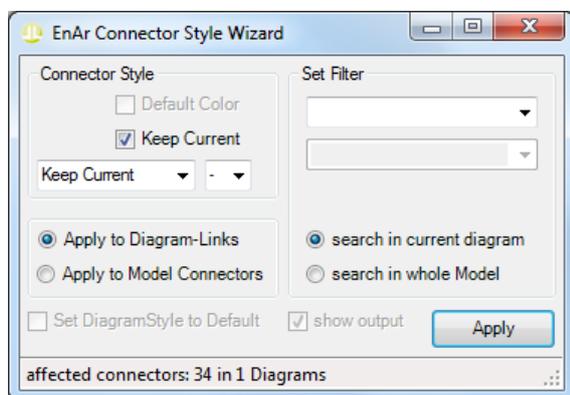
- Model:** Allows deciding if the style is applied directly to the connector object in the model or just to its representation in the current diagram. In case “Apply to Model Connector” is selected, each graphical representation in any diagram will get this style.

You can start the CS Assistant by right-clicking a diagram and by selecting *[Specialize (Extensions in older EA Versions) > Modeling Assistant > Connection Style Assistant]* as depicted in the following screenshot.



When you start the CS Assistant you see the affected connectors in the status line of the tool window. The default configuration is to search within the current diagram and to apply the style to the graphical representation of the connectors (Diagram-Link). When the option “search in whole Model” is selected, the configured filter is applied to all available connectors within the current model. The status line shows how many connectors are affected. Pressing *Apply* will apply the configured style to the selected range of connectors.

Applying the configuration to the whole model may reduce work in the first place, but may require adopting the layout of the affected diagrams.



The Connector Style Assistant window will stay on top until you close it. Hence you can use the configuration and apply it on different diagrams.



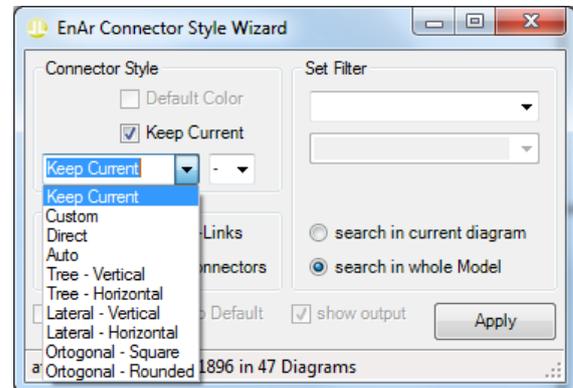
Routing Style

The drop-down box provides the supported routing styles. The selected routing style will be applied to all affected connectors. If “Keep Current” is selected, the routing style will be kept unchanged.

The routing style “Bezier” is currently not supported, but will be added in future versions of the Connector Style Assistant.

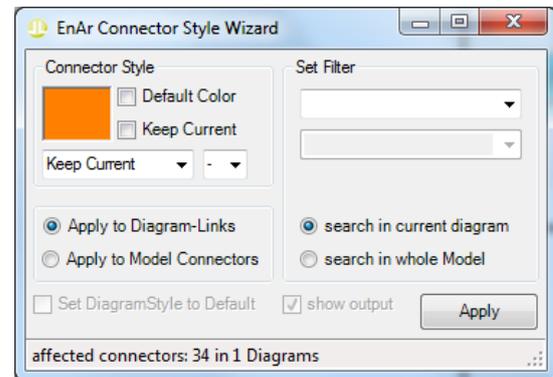
Connector Thickness

The connector thickness can be selected with the drop down list next to the routing style drop down list. If “-” is selected, the current line thickness of the connector will be kept unchanged.



Connector Color

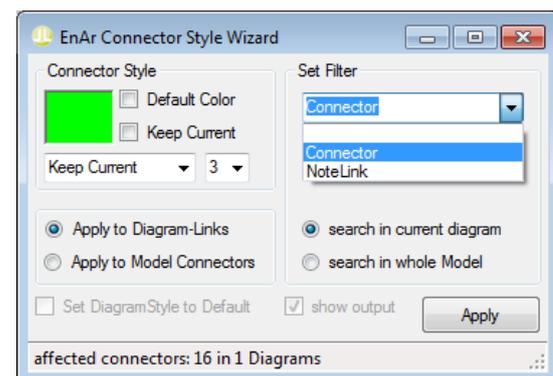
To select a connector color, the check box “Keep Current” must be unchecked. This will show a gray rectangle. Double clicking on the gray area opens the color picker dialog to choose the desired connector color. If the checkbox “Keep Current” is checked, the color will be kept unchanged. If the checkbox “Default Color” is checked, the model default color (black) will be applied.



Sub-range of available connectors

In case the changes should be applied not to all connectors available in the current diagram the CS Assistant provides several mechanisms for defining a sub-range of the available connectors.

Filter: The first option is to choose connector type and connector stereotype (if applicable). The drop down lists within the settings group “Set Filter” are filled with all available connector types and stereotypes. When a connector type is selected, only connectors of this type are affected. In case the affected connectors of the selected type also have stereotypes, the drop down list under the connector type list is enabled and shows all available stereotypes for the selected connector type. This will further restrict the range of affected connectors. The status bar shows the current number of the affected connectors.



Selected elements: The second option is to select one or more elements on the diagram. This will restrict the number of affected connectors to:

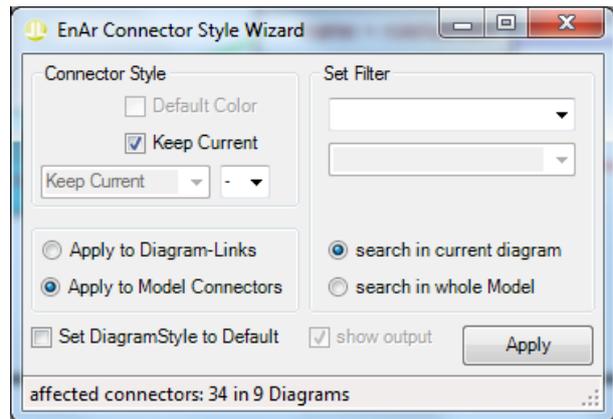
1. the connectors between the selected elements



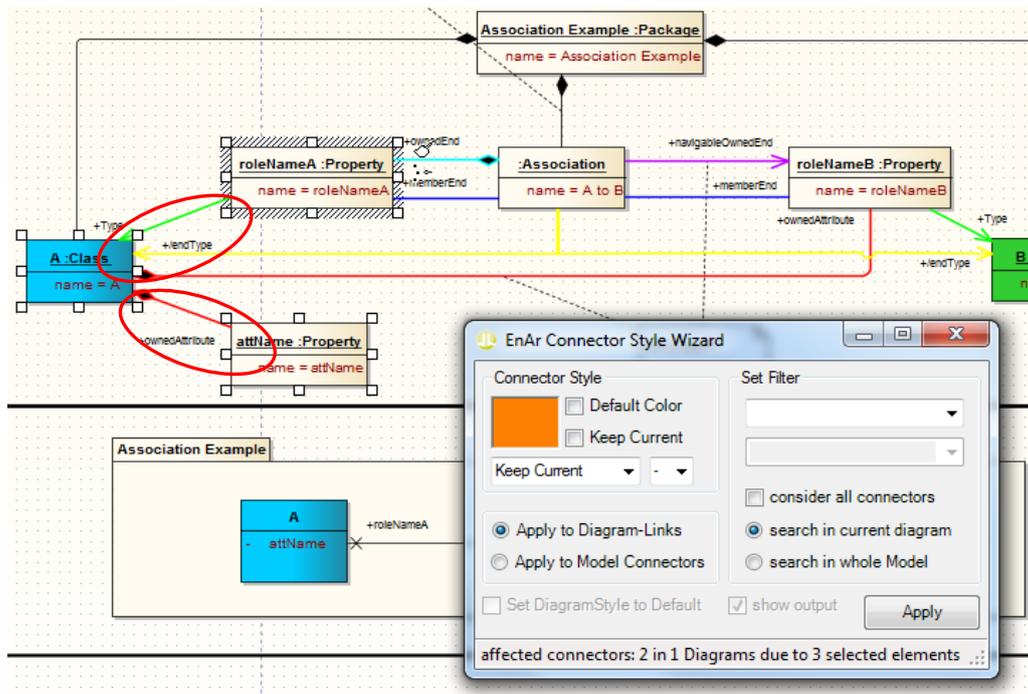
- all connectors of all selected elements.

The standard configuration is number 1, all connectors between the selected elements are affected.

To consider all connectors of all selected elements, the checkbox “consider all connectors” must be checked. (This checkbox appears when one or more elements are selected). It is also possible to select just one element to consider all connectors of the selected element.



For the depicted example, two connectors are considered. The text in the status bar is changed and shows “affected connectors: 2 in 1 Diagrams due to 3 selected elements”. If the checkbox “consider all connectors” is checked, 7 connectors will be affected.



Apply to Model Connectors

The configuration “Apply to Model Connector” will increase the amount of affected connectors, because the model representation of the connector is considered, which means all diagram representation of the connectors within the current diagram are affected. This happens when the two elements which are linked with the connector appear also in other diagrams.

With the filter (connector Type and Stereotype), the amount of affected connectors can be restricted.

Due to the fact that the routing of a connector is not stored in the model, the routing configuration is disabled when “Apply to Model Connector” is selected. To keep the current routing of the affected connectors, “Keep Current” automatically is selected.



Set Diagram-Link to Default

The activation of the checkbox “Apply to Model Connector” enables the checkbox “Set Diagram Style to Default”, which facilitates to reset the routing configuration of all affected connectors to the default setting, which is currently always “custom” style.

Undo connector style changes

Please keep in mind – the settings applied using the Connector Style can currently not be undone.

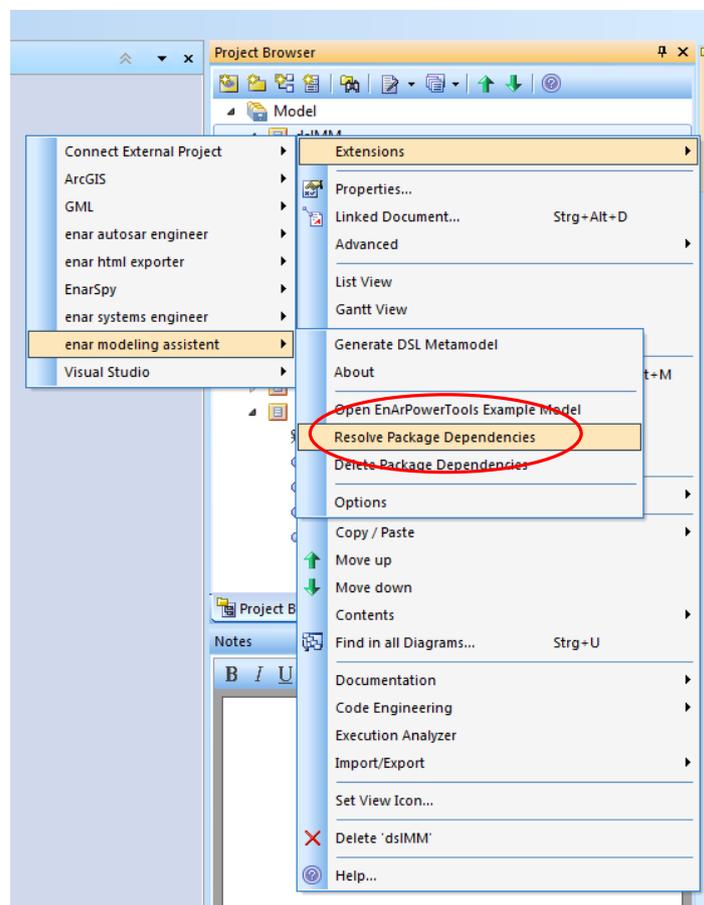
PACKAGE DEPENDENCY GENERATOR

The Package Dependency Generator automatically generates dependencies between different packages and visualize them by creating a package diagram. Especially when reverse engineering applications with Enterprise Architect, this plug-in helps you to discover and better understand the structure of your system. Being aware of dependencies inside the systems’ components is crucial for maintaining or migrating the system. In the following, the usage of the Package Dependency Generator is presented:

Resolve Package Dependencies:

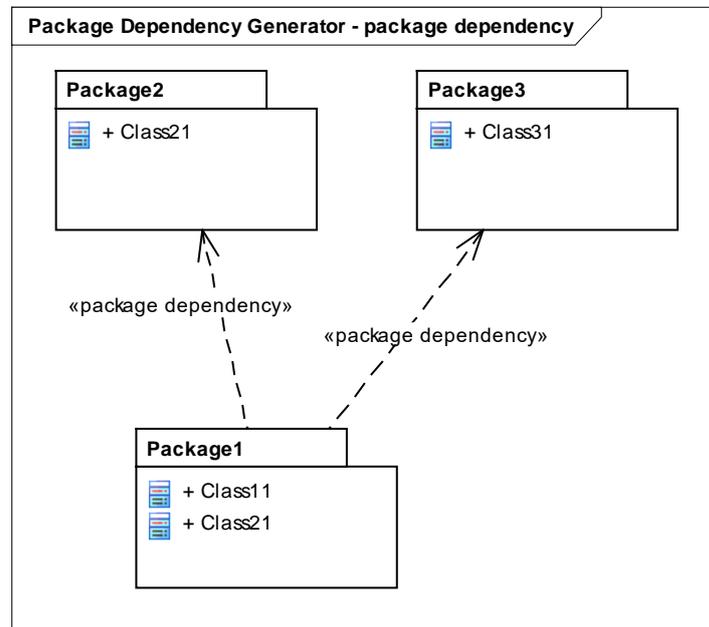
For creating dependencies between your packages, follow these steps:

1. Right-click a package in the project browser
2. Select *[Specialize (or Extension in older Versions of EA) > Modeling Assistant > Generate Package Dependency Diagram]*





Inside your model a package named “Package Dependencies” is created containing a package diagram. The generated diagram contains only the package and dependent packages. A dependency relation with the stereotype <<package dependency>> is generated between the dependent packages. When you run the generator on the example model the following diagram is generated:



In this example you can see that “Package 1” is depending on “Package 2” and “Package 3”.

A dependency is generated if

- an element is directly connected (associations, generalizations, etc.) to an element of another package
- the type of an attribute is an element from another package
- the return type of an operation is an element from another package
- the type of a parameter of an operation is an element from another package

Delete Package Dependencies:

If you want to delete all automatically generated dependency links between your packages, follow these steps:

1. Right-click a package containing these links in the project browser
2. Select *[Specialize (or Extension in older Versions of EA) > modeling assistant > Delete Package Dependencies]*
3. Optional: Delete manually the generated folder “Package Dependency” and its containing diagram if desired.

Note: If you have created dependency links with the stereotype “package dependency” manually, they will be also deleted in the whole repository.

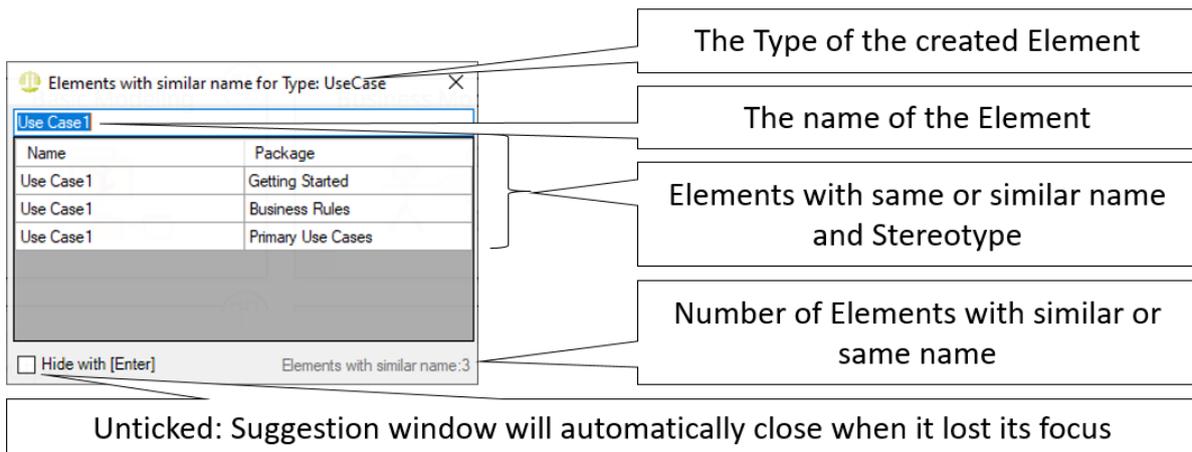


ELEMENT SUGGESTION WINDOW

When a new element is created, the suggestion window allows to search the complete project for elements of same type and Stereotype with similar names and provides the possibility to simply reuse it instead of creatign a duplicate element.

The suggestion window is automatically turned on when the Modeling Assistant is installed. Whenever a new element is created, the suggestion window is opened instead of EA's property window.

Description of the Winsdow



Description of the Suggestion Options

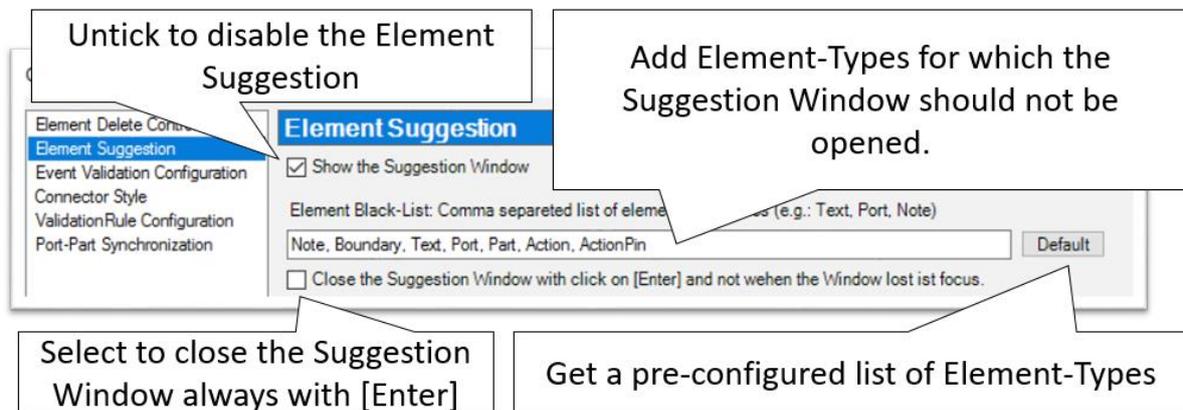


Figure 1: Element Suggestion Options

The type of the created element is listed in the top of the window. The text box shows the initial name of the new created element. The table shows all element within the project with the same or similar name. In the right bottom corner, the number of found elements is displayed.

Note: Because the new element is already created, it appears always in the list, if the initial name is not changed in the suggestion window.

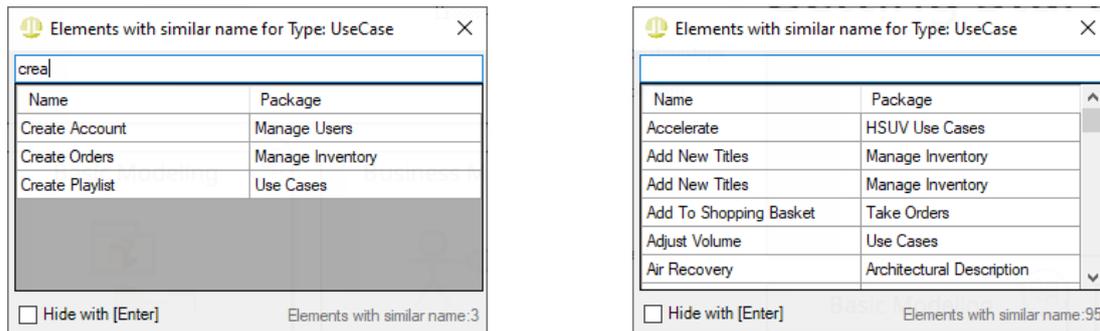
The check-box on the left bottom left corner allows you to change the behavior of closing the window. Uncheck the box to automatically close the window when the window loses its focus. This should be the default configuration in order to keep a smooth modelling experience.

However, if you would like to search the listed Elements in the Diagram (see figure Figure 2) the suggestion window will automatically close! To prevent this, you can select the checkbox *Hide with [Enter]*. The Dialog will stay on top. When another Element is created, this Dialog gets updated and will be closed with a click on [Enter]. This behavior is also important when you create Elements with other features and not with the Diagram Toolbox!

This configuration can also be configured in the Element Suggestion Options (*[Specialize (or Extension in older Versions of EA) > Modeling Assistant > Options]*), see Figure 1. Within the options you can also disable the Element Suggestion and maintain a Black-List of element Types for which the Element Suggestion window should not be shown.

Filter the Project for Similar Elements

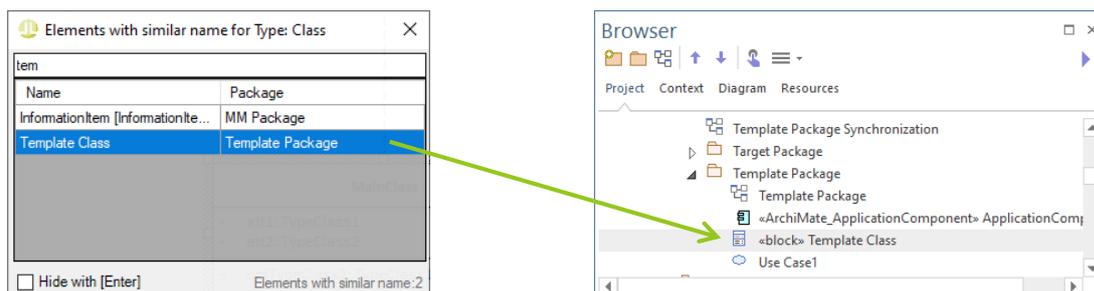
The initial element name is already selected and can be modified. When you start typing, the list of found elements is instantly updated. If the name field is empty, all elements with the same type of the created element are selected.



In the example above, all elements with a name like %crea% are listed. If the name field is completely empty, all elements with the same type (e.g. UseCase) are listed.

When you press the Enter-Key or whenever the window loses its focus -- click with the mouse outside the suggestion window -- the newly created element gets the name from the name field.

Working this way, helps to get an idea what other elements are contained in your model. If you would like to reuse an existing model element, simply click (left mouse button) within the suggested element table. Instantly, the corresponding element within the Project Browser is selected.





The Tab-Key can also be used to switch between the name field and the suggested element list of in the suggestion window. When the table with the suggested element is active, use the *up/down arrow-key* to browser through the list of suggested elements.

Show in Diagram

In order to get a better overview of the current usage of the selected model-element you can right click on the selected row and chose from the context menu [*Show in Diagram*] and find all diagrams in which the element is currently visualized.

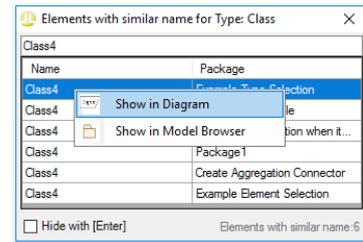


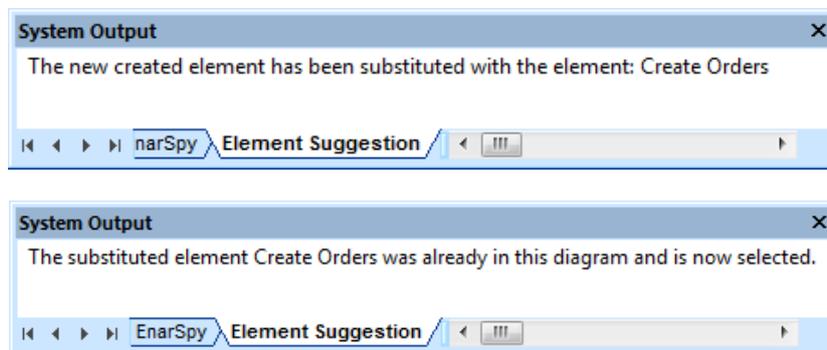
Figure 2: Trace into Diagram and Model

Reuse Existing Elements

Press the *enter-key* when a row is selected in the suggested element list or *double-click* on a row within the suggested elements list to substitute the newly created element with the existing one selected from the suggested element list. The newly created element is deleted and the reused element appears on the position of the deleted element.

If the existing (reused) element is already contained in the current diagram, the existing element is selected within the diagram and the newly created element is deleted.

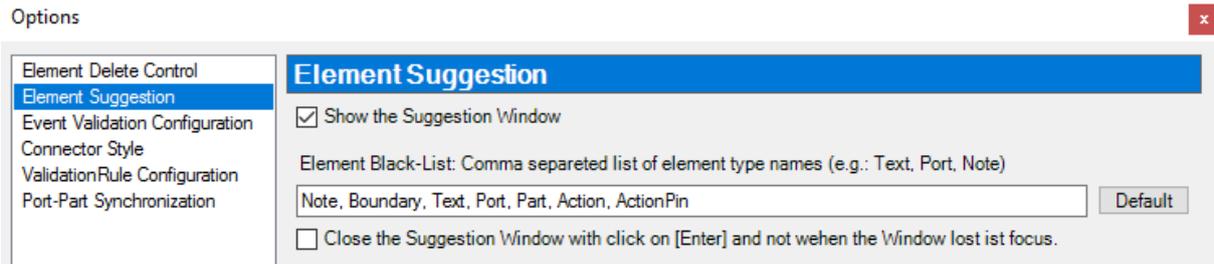
For a better understanding what actually happened, the Element Suggestion System Output tells you about the performed action.



Do not show suggestions for specific element types

Initially, the suggestion window is opened for all new created elements. Depending on the element type, it is not always convenient to reuse an already existing element. Instead of turning off the suggestion window, it is possible to put element types on a **black list**.

The suggestion window is not opened for element types on the black list, which can be found in the Modeling Assistant's options [*Specialize (or Extension in older Versions of EA) > Modeling Assistant > Options*].



Simple Action to add Element Types to the Black-List

In order to simplify this configuration of the black-list, it is possible **press the [Strg] then [Enter Key] when the suggestion window appears**. This action will add the element type name automatically to the black-list.

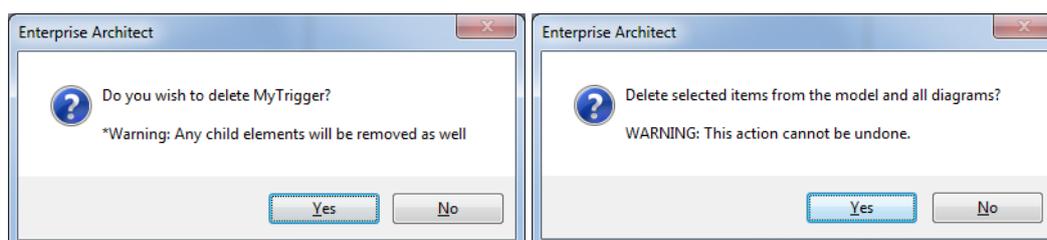
ELEMENT DELETE CONTROL

Elements in Enterprise Architect are normally related to other model elements in different ways. For instance: elements may be linked with connectors, the element is a type (classifier) of another element, e.g., an attribute, an operation return value, a parameter type. Operations of the element may be used in sequence diagrams. Signals may be used by triggers and send signal actions. Triggers may be used by transitions in a state machine and receive signal actions, etc.

Therefore, it is a good idea to think about all these relations before an element is deleted!

The Element Delete Control checks all these relations before the element is finally deleted and provides the chance to abort the final deletion.

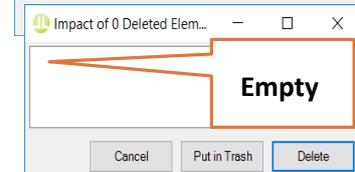
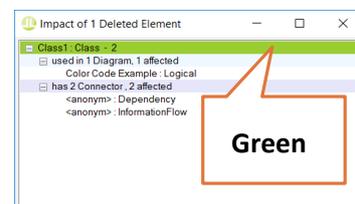
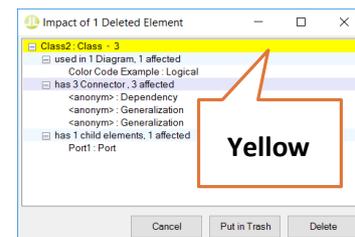
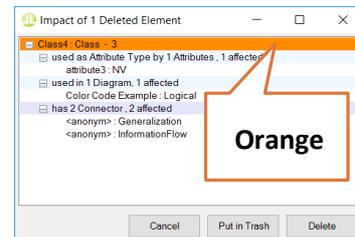
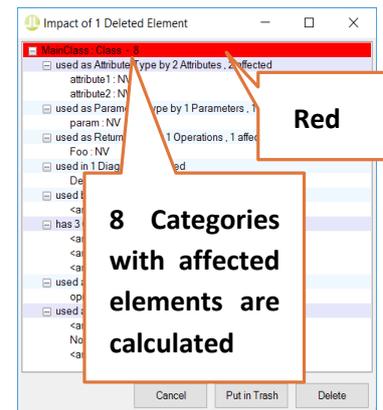
Whenever you delete an element or Package from the model (within the project browser or with **[Strg + Del]** from a selected diagram object), EA provides always a message.





In addition to that, the Element Delete Control provides all detail information about the following categories. The number next to the deleted element's name is the number of categories with affected elements.

- The number of diagrams in which the element is displayed.
- The number of elements, which have the element as classifier (type).
- The number of Port/Parts, which have the element as property type.
- The number of attributes, which have the element as type.
- The number of operation return values, which have the element as type.
- The number of operation parameter values, which have the element as type.
- The number of incoming and outgoing connectors from/to this element.
- The number of information flows which convey the element.
- The number of messages in a sequence diagram, which use an operation of the element.
- The number of transitions, which use the element (in case the element is a trigger).
- The number of receive signal actions, which use the element (in case the element is a trigger).
- The number of child element, which are deleted with the element.
- The number of triggers, which use a signal (in case the element is a signal).
- The number of call triggers, which use an operation of the class which will be deleted.
- The number of Operations, which use an Activity, StM, etc. as its Behavior.
- The number of Model-Elements which have a TaggedValue which reference other Model-Elements (the value is the GUID of a Model-Element).
- The number of inherited Port/Parts when its base Port/Part is deleted.
- The number of hyperlinks in Notes in which the element is referenced.



The *Delete Control* window provides all element usage information in an aggregated result table. The table shows the usage categories and affected elements. The Name and Type of the deleted element is the root.

Find impacted elements

In order to get a better understanding about the impact, you can select an impacted item and right click to find the item in the Project Browser or in all diagrams which contains the impacted item.

- **Show in Diagram:** opens a window which contains a list of all diagrams which contain the selected impacted item.
- **Show in Project Browser:** selects the impacted item within the Project Browser.

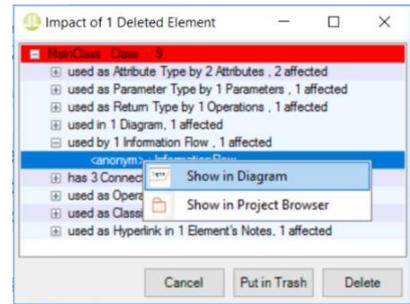


Figure 3: Trace inot the Model and Diagram

Delete multiple elements at once

In case you select multiple elements or a complete package, the impact of all deleted elements is calculated and depicted in the window. Each deleted element is listed as root element.

In case the deleted elements have a common impact, this impact is listed, but not considered in calculation of the relevance color.

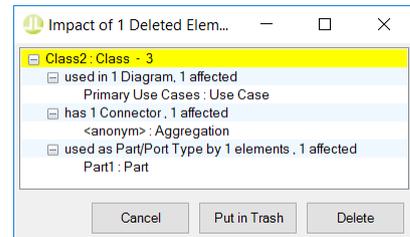
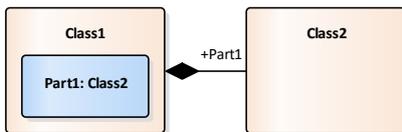


Figure 4: Delete only Class2

Example:



Class2 is deleted, the impact is bigger, because a connector and the type of a property is affected.

But if Class2 and Class1 and Part1 is deleted, the affected elements are also deleted and therefore have no impact. Elements which are part of the deleted set, they are visualized with gray letters. As a result, the affected element count of the category is reduced, which leads to another impact color.

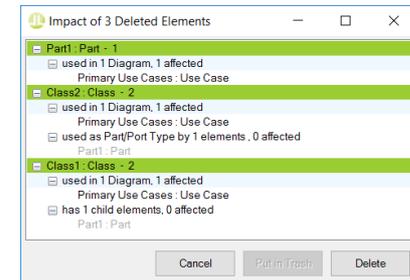


Figure 5: Delete Class1, Class2 and Part1

Current Limitations: In case one deleted element has child elements, these elements are currently only represented underneath the deleted element, the deleted child element is not listed as root. Hence, the impact of the child element is currently not calculated.

Color indication

The background color of the deleted elements is changed based on the calculated impact.

- **Empty:** There is no usage of the element at all.
- **Green:** It is quite safe to delete the element. Ofcourse, there may be an impact, but the impact is not too critical.
- **Yellow:** There is an impact which could be critical.
- **Orange:** There is a critical impact.
- **Red:** There is a really critical impact if you delete this element.

The background color of the categories.

- **White:** 0 elements are contained within this category.



- **Bright blue:** 1 element are contained within this category.
- **Bright violet:** 2-3 elements are contained within this category.
- **Bright pink:** 4-7 elements are contained within this category.
- **Dark pink:** more than 7 elements are contained within this category.

To see more examples for the color code, open the Modelling Assistants example model. The example model can be found until EA 13.5 at [\[Extend > Add-Ins > Modelling Assistants > Open Example Model\]](#) and since EA 14 at [\[Specialize > Add-Ins > Modelling Assistants > Open Example Model\]](#).

Delete the Element

Press [\[Delete\]](#), to delete the element or [\[Cancel\]](#) to abort the deletion.

With the button [\[Put in Trash\]](#), the element is not deleted from the EA Repository, but removed from any diagram and moved into a separate Package called Trash. All relations from and to the deleted element are removed, but stored, to be able to restore the element.

Current Limitation: in case multiple elements are deleted at once, [\[Put in Trash\]](#) is currently disabled.

The Model Trash

When a model element is moved into the trash package, the following is happening:

- The model element and its structure is moved into the trash package.
 - Deleted Diagrams are not trashed separately, but still be available underneath the package within the trash.
 - Deleted structured elements and element features like Attributes and Operations are not trashed separately, but still be available underneath the package within the trash.
 - Deleted Packages are not trashed.
- All diagram representations from this model element are removed.
- All connectors from and to the element are removed.

What information is still available?

- **Classifier usage:** in case the deleted element is used as a classifier (type), this relation still exists and will be found with all EA features. However, the user will find the classifier within the trash package.

Restore the element from Trash

To restore an element from trash, you can right click on the element within the trash and select [\[Specialize \(or Extension in older Versions of EA\) > Modeling Assistants > Restore from Trash\]](#).

In case the opposite element of a restored connector was deleted from the model, the connector is not restored and a message is written into the output window.

In case the diagram which has contained diagram objects of the restored element was deleted, the diagram objects are not restored and a message is written into the output window.



Using *drag&drop* to trash and restore an element

In case you *drag&drop* an element into the trash package or out of the trash package, the modeling assistants reacts on this events and automatically restores the element or puts the element into trash.

Depending on the action, the following behavior is performed:

- **Drag&drop into the Trash Package:** The restored model element appears in the previous project browser location. All diagram objects and connectors within the diagram are restored and will appear at the same location again.
- **Drag&drop from trash into Project Browser:** It is also possible to *drag&drop* an element directly into the trash without performing a delete with any EA delete possibility. A dialog window asks if you really want to put the element to trash.
- **Drag&drop from trash into a Diagram:** When you *drag&drop* an element from the trash into any diagram, EA displays a dialog to ask how the element should be placed into this diagram. In case you select “Drop as Link”, all diagram objects and connectors are restored and will appear at the same location again.
In case you drop it as an instance, or other kind of element, the trashed element is NOT restored from trashed and used as a classifier for the new created element, as normally used be EA.

Configure the Element Delete Control

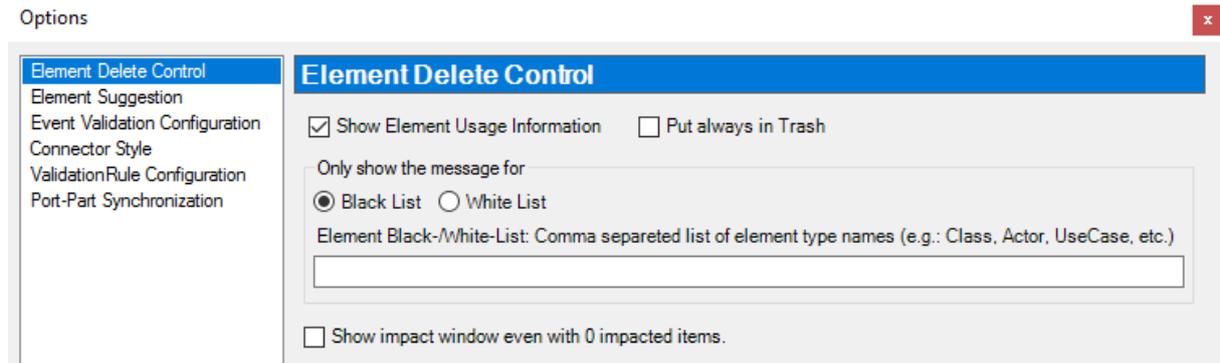
If you use the Modeling Assistant, but in case you are not interested in the Element Delete Control, it is possible to disable this feature. Go to [*Specialize (or Extension in older Versions of EA) > Modeling Assistant > Options > Element Delete Control*].

With the check-box “*Show Element Usage Information*”, you can enable or disable this feature.

In case you would like to control only the deletion of specific element types, you can add the type name in the text box. The radio buttons allow to configure if the list of element types should be treated as black-list or white-list.

In case of a white-list, the deletion is only checked for element types contained in the white-list. In case of a black-list, the deletion is checked for all element types, except for them in the black-list.

In case there is no impact found, you can check the box “*Show impact window even with 0 impacted items*”. This prevents deleting an Item without control, e.g. when you just want to know the impact of the deletion. However, therefore another assistant is available. See section: Show Dependencies on page19.



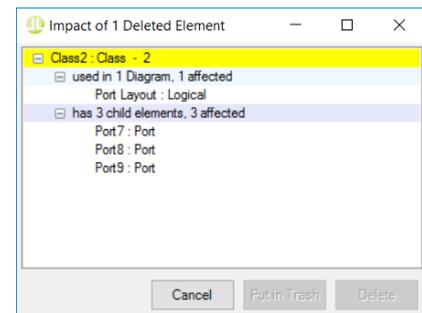
Open manually the Impact Analyzer

In order to inspect the impact of a model element without performing the deletion of the element, select the model element open the context menu and click on *[Specialize (or Extension in older Versions of EA) > Modelling Assistants > Show Dependencies]*. This will open the Impact dialog with disabled *Delete* and *Put in Trash* button.

SHOW DEPENDENCIES

In order to safely check the dependencies of a selected model-element you can also use the *[Specialize (or Extension in older Versions of EA) > Show Dependencies]* Dialog instead of using the Element Delete Control Assistant.

The *Show Dependencies Assistant* calculates the impact the same way as the Element Delete Control Assistant without the need to delete the element first. You get the same Dialog, but without the possibility to delete the element or put them into trash.



You can call the Dependency Window from any location, also for multiple selected Elements like this:

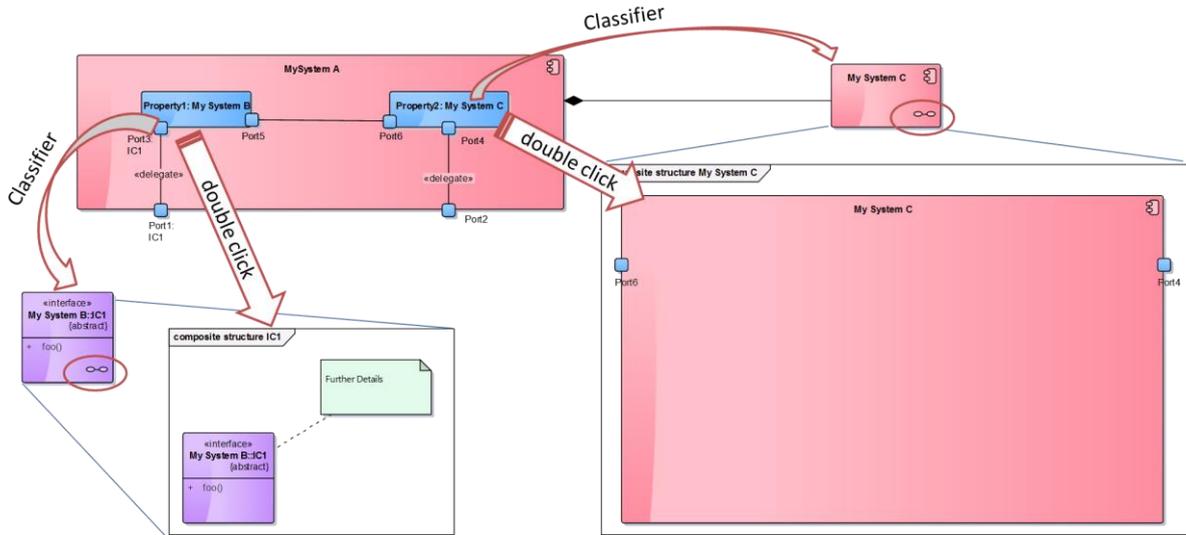
- **Select one or multiple element within the diagram:** open the context menu and select Show Dependency from the Modelling Assistants menu under Specialize or Extension (when you use older Versions of EA).
- **Select one element within the Project Browser:** use the context menu and select Show Dependency from the Modelling Assistants menu under Specialize or Extension (when you use older Versions of EA).
- **Select multiple elements within the Project Browser:** Due to the fact that EA doesn't provide Access to Add-Ins from multiple selected Project Browser Elements, you can use the Main Ribbon menu (Specialize or Extension (when you have an older Version of EA)) and select *Show Dependencies* from the *Modelling Assistant* menu.

COMPOSITE DIAGRAM FORWARD

Enterprise Architect provides a feature which is called "Composite Diagram", which links an element to a diagram. When the composite element is double clicked, the linked diagram is opened. This feature is helpful do cope with complex model structures. It allows to separate a specific view in its own diagram and link everything together.

However, in case the element which is a composite element is used as a classifier of another element, like a Port, Part, Object, etc. The reader of the model is also interested in the details of the classifier, for instance if the element is used as a classifier (type) of a part in a component.

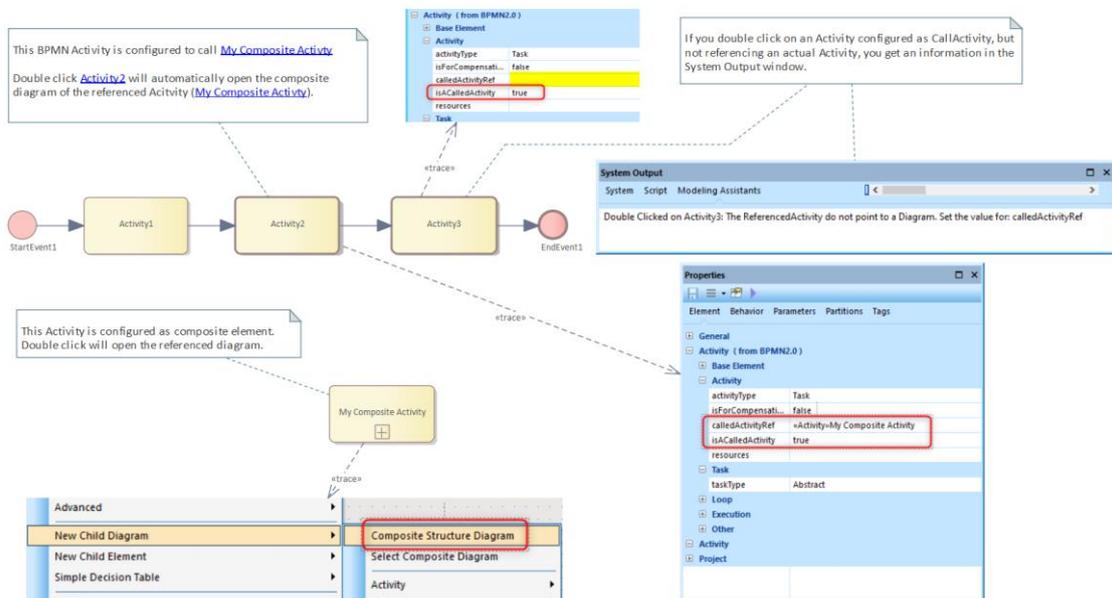
The *Composite Diagram Forward* tool provides now this functionality. Whenever an element has a classifier and this classifier is a composite element, the linked diagram is opened when the classified element is double clicked.



Notes: In case the double-click opens the composite diagram, you can open the property window of the classified element with *[Strg + Enter]*.

COMPOSITE DIAGRAM FORWARD FOR BPMN CALL-ACTIVITIES

In BPMN call Activities, the called Activity is not stored as the type of the Model-Element itself, hence, the normal composite diagram forward is not working. Therefore, we have added a special diagram forward for BPMN Call-Activities. The Modelling Example Model contains this example:





AUTOMATIC CONNECTOR-STYLE APPLICATION

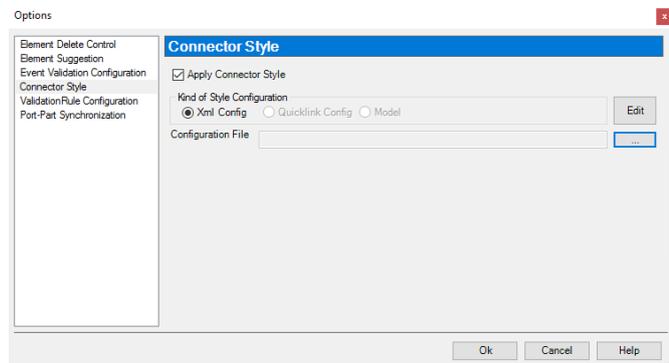
The automatic connector-style application provides the possibility to fine grain configure the applied style (routing, thickness and color) on the fly. Whenever a new connector is created between two elements or a connector is visualized within a diagram due to dropping the opposite element of a connector from the project browser into a diagram, a predefined style configuration is used to apply this style to the new connector.

In addition to that, a predefined style configuration can be applied via the context menu within an opened diagram. Click on context menu *[Specialize (or Extension in older Versions of EA) > Modelling Assistants > Apply Style]*.

The current version of the Event Validation component provides the following possibilities:

- **Connector Style configuration:** Configure connector styles like routing, color, width, etc.
- **Automatically apply the configured style for new connectors:** create a new link between two model elements.
- **Automatically apply the configured style for existing connectors when they appear within a diagram:** drop an existing model element from the project browser into a diagram, the preconfigured style will be applied for all connectors from the dropped model element.
- **Manually apply the configuration:** open a diagram and perform *[Specialize (or Extension in older Versions of EA) > Modelling Assistants > Apply Style]* from the context menu of the diagram. This will apply the preconfigured styles for all visible connectors within this diagram.

The Event Validation can be configured at main menu *[Specialize (or Extension in older Versions of EA) > Modeling Assistants > Options > Connector Style Application]*. Currently, the configuration is stored in a configuration xml file. To edit an existing configuration or create a new one, click on the “edit” button. To load an existing configuration from a file, click on the “...” button next to the input text box.



Possible Rules:

The “edit” button in the options dialog opens another window with the configuration loaded from the provided configuration file. In case no file can be found, an empty grid is displayed. Each row within the table represents one rule and may contain:

Is Active	Ignore Source Target	Source Profile	Source Stereotype	Source Element Type	Target Profile	Target Stereotype	Target Element Type	Connector Stereotype	Connector Profile	Connector Type	Diagram Profile	Diagram Stereotype	Diagram Type
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			Actor			UseCase			UseCase			
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			Class			Class			Associati...			
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		EaFunction	Class		EaFunction	Class			Nesting			
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		block	Class		block	Class			Associati...			
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			Action			ActionPin			ObjectFlow			
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			Actor			UseCase			UseCase			
<input type="checkbox"/>	<input type="checkbox"/>									Nesting			
<input type="checkbox"/>	<input type="checkbox"/>									Nesting			



- **Source/Target Element-Type:** The type name of the source/target element between the connector is created.
- **Source/Target Element Stereotype:** The stereotype name of the source/target element. No entry is considered as no applied stereotype. If any stereotype should be accepted, use an asterisk (*) as entry.
- **Source/Target Element Stereotype Profile name:** In case the stereotype must belong to a UML-Profile, the name of the profile can be provided.
- **Diagram Type:** The type of the diagram in which the connector is created.
- **Diagram Stereotype:** The stereotype of the diagram in which the connector is created.
- **Diagram Stereotype Profile Name:** In case the stereotype must belong to a UML-Profile, the name of the profile can be provided.

The first two columns provide the possibility to:

- **Is Active:** In case you would like to disable the rule, you can uncheck this checkbox, but keep the rule and style configuration for further use.
- **Ignore source/target:** In case if the source/target element-type is different, but the style should be applied in any case, you can select this checkbox.

Configure the connector style

When a row is selected in the rule table, the connector style configuration is enabled for that rule. It is possible to configure the routing, the connector width and the color of the connector.

In case the two elements are together contained in other diagrams as well, the new connector between these elements will also appear in the other diagrams as well. With the radio button *[Apply in all Diagrams]*, it is possible to apply the style also to the connectors within the other diagrams.



DS METAMODEL GENERATION

The Metamodel generation is a component which analysis the model of the currently opened EA Repository and generates an exact Metamodel of it. Because the generated Metamodel reflects exact the current content of your model, we call it Domain Specific (DS).

The resulting Metamodel will be generated within a package, which can be selected when the generation process is started.

The Metamodel contains UML classes for any element type found in the EA-Repository. For each connector within the EA-Repository, an Association with name of the connector type is created between the Metamodel elements which represent the original model element types.

To perform the generation of the DS Metamodel, select *[Specialize (or Extension in older Versions of EA) > Modeling Assistants > Generate DSL Metamodel]*.

The purpose of the DSL Metamodel is to provide a quick overview of all used model concepts in the current repository.

Current restrictions:



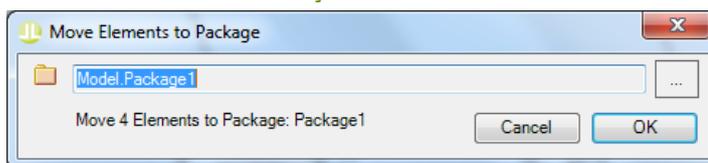
- No diagram is generated for the Metamodel.
- Performing the generation of the DSL Metamodel multiple times, generates multiple Metamodel packages. The new Metamodel also contains the classes used in the previous Metamodels!
Hence, delete first the current DSL Metamodel before you create a new one!
- Close or hide the Notes View. The generated Metamodel elements contain a hyperlink to all model elements represented by the Metamodel.

MOVE DIAGRAM ELEMENTS INTO PACKAGE

Elements within a diagram may be scattered over the whole project browser. If you want to move all elements from a diagram or just a subset, you have to search the elements in the project browser and move them within the project browser.

To ease this task, this assistant provides the facility to select elements within the diagram and move them directly in a selected package in the project browser.

1. Select the elements within the diagram which should be moved into a package in the project browser
2. Open the context menu [*Specialize (or Extension in older Versions of EA) > Modeling Assistants > Move selected elements*]



3. The currently selected project browser package will be set as target package. With the button [...] you can change the target package.
4. Press [OK] to perform moving the elements.

In case you know already the target package, you can select this package first in the Project Browser and perform the described steps.

Hint: If you would like to move elements (e.g. A, B, C) into the same package as other elements (X, Y, Z), which are also in the same diagram, simply select one of these elements (X, Y, Z), press [Alt + G] to select one in the project browser. Now select the elements A, B, C and perform the steps from above. Now you don't have to search for the target package, because it is already selected.

FIND AND REPLACE

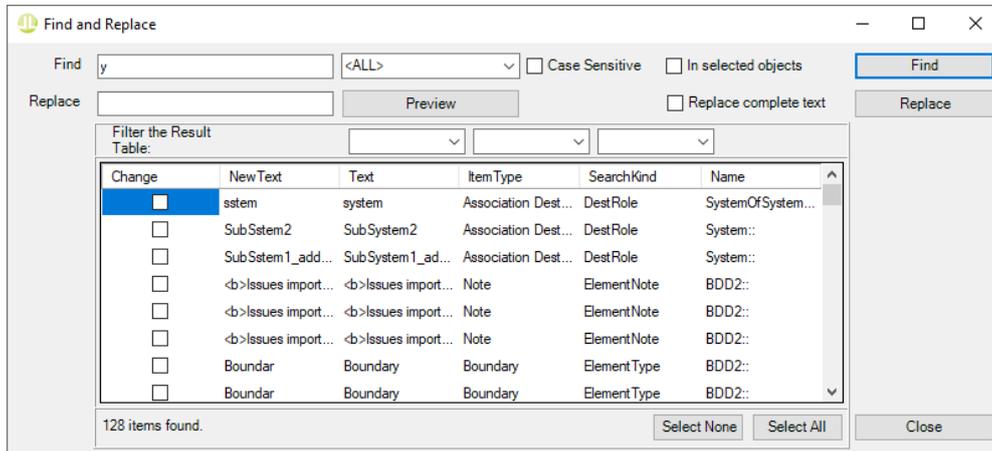
The find and replace wizard is a refactoring tool which allows you to search the whole project, a selected tree branch in the project browser or a within a selected set of model-elements within a diagram.

The wizard allows to search for single properties or all <All> supported properties of different items like model-elements, diagram, attributes, operations, etc. and replace the found text of the found items with a new text. In order to keep an overview of the search result, the result table shows a column called Name, which contains the PackageName::ElementName. If you search for Attributes, etc. also the name of the container element and its package is displayed in this column!



How it works:

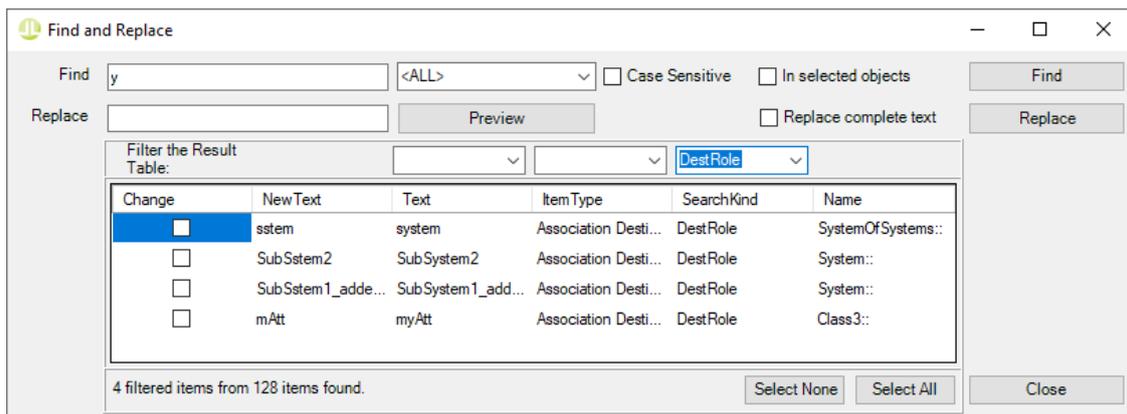
1. Open the *Find and Replace* window: [*Specialize (or Extension in older Versions of EA) > Modeling Assistants > Find and Replace*].
2. Select the property in which you would like to search, e.g. <All>, which search in all available properties.
3. Type the text you like to search in the **Find** text box (e.g. “y”) and click on the Button [*Find*].



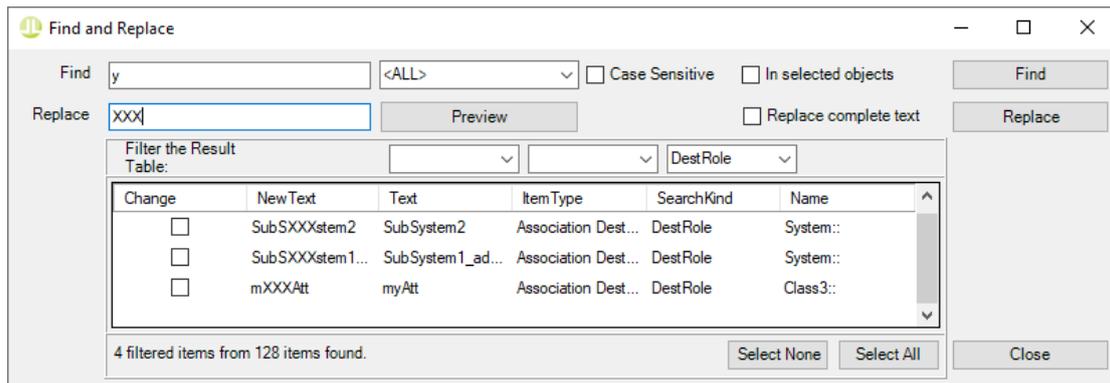
The table shows all found items which contains the text “y”. The status line below shows how many items have been found. In the example, 128 items have been found.

The column **SearchKind** gives you the information which text in which item has been found. This is an important information if you search for all properties as depicted in the example above. The depicted example shows that the text “y” occurs in an *DestRole (Destination role end of a connector)*, *ElementNote*, *ElementType*, *operationBehaviour*, *operationCode* and *diagramName*.

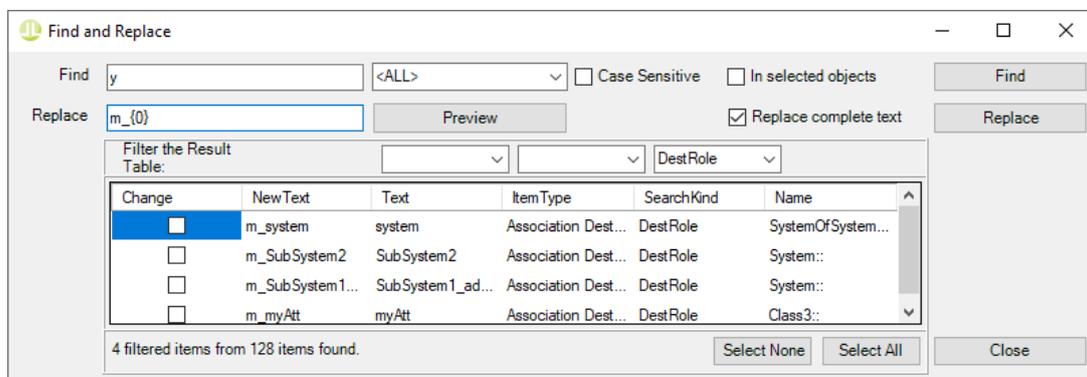
To filter the result table, type any text in the three text boxes above the last three columns.



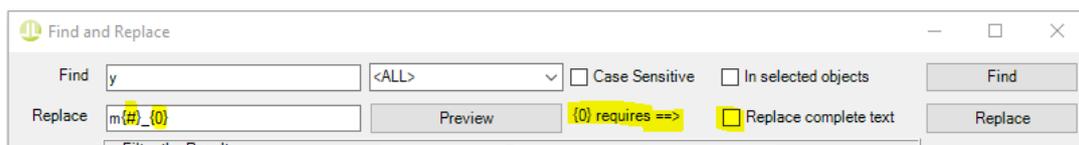
In order to replace text of the found items, write any text into the **Replace** text box. The new text will be visible within the column **NewName**. In the depicted example below, the string from the Find text box (“y”) will be replaced with the string entered in the Replace text box. The resulting string is shown in the column **NewText**. In our example we change the y in each RoleName of the destination end of 4 connectors with “XXX”.



In order to replace the complete string, select the checkbox “*Replace complete text*”. If you would like to keep the original string but just add a prefix or postfix, use “{0}” to indicate that the original text should be used at this position. In our example we have added the prefix “m_” to each existing RoleName of the destination end of our 4 connectors.



If you use one of the available special characters like {0} and {#}, you get an information that in order to use the use existing name ({0}) and get a continuous numbering ({#}), you have to select “Replace complete text”.



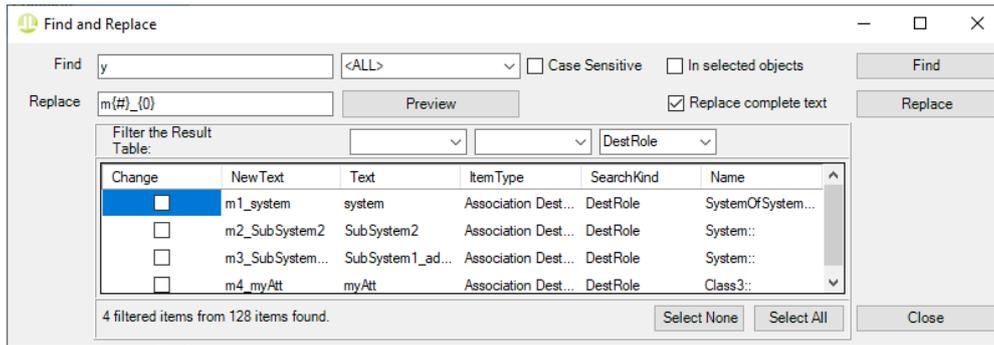
FIND ALL OR AN EMPTY STRING

In order to find **all** available text for a selected property, you can use the asterisk “*”. This will disable the checkbox **Case Sensitive**.

In order to find elements with no name, just leave the Find textbox empty and click on Find.

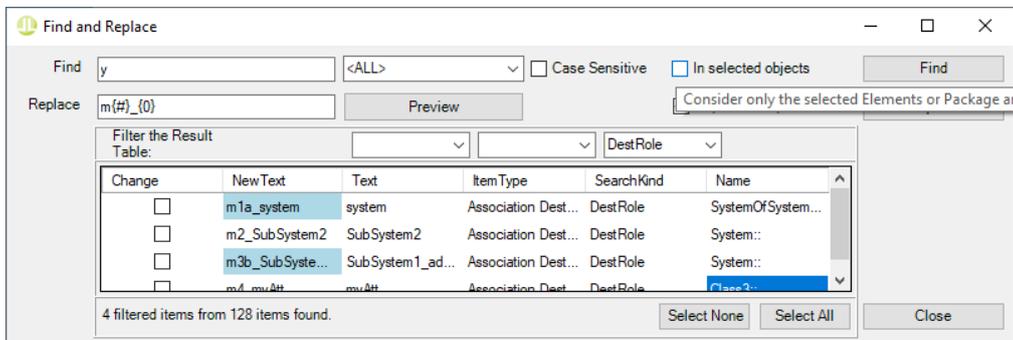
ADD NUMBERS TO THE TEXT

Sometimes it is required to add a continuous number to the found text to make the text unique. Therefore, the wildcard “{#}” can be used. The example adds a continuous number to the prefix of each role name.



MANUAL INTERVENTION

If you find any problems within the replaced text in the column **NewText** or in the column **Text** with the original text, you can easily change the text within the **Text** and **NewText** column! If you change the **Text** column, this text will be used for the replacement. If you change the **NewText** column, this is the resulting text which is used for the replacement. The changed cells will be highlighted.



SELECT A SUBSET OF FOUND ELEMENTS

The search provides a list of matches. However, in order to perform the replacement, you can select all or just a subset from the resulting table. Simply tick the checkbox in the Change column or use the Buttons "Select All" or "Select None".

CURRENTLY SUPPORTED PROPERTIES

Currently the following properties are supported:

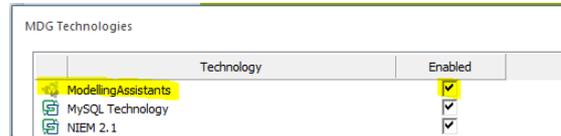
- **Element** Name: The name of any model element.
- **Element** Alias Name: The alias name of any model element.
- **Element** Type: The type of any model element.
- **Connector** Name: The connector name of any connector.
- **Connector** Alias Name: The alias name of any connector.
- Effect on **Connector**: The effect text, which occurs on connectors of type *Transitions* in State Machines.
- RoleName on **Connector**: The Role name of a connector end. This selection search within the source and target role.
- Guard on **Connector**: The Guard text, which occurs on connectors of type *ControlFlow*, *ObjectFlow* in Activity Diagrams and *Transition* in State Machines.
- **Attribute** Name: The name of an Attribute.
- **Attribute** Initial Value: The initial value of an Attribute.
- **Operation** Name: The name of an operation.
- **Operation** Behaviour: The text of the behaviour property for an operation.



- **Operation** Code: The text representing the code which is stored for an operation.
- **Operation** Parameter Name: The parameter Name of an operation parameter.
- **Diagram** Name: The name of a diagram.
- **ALL**: This will search in all currently available properties listed above.

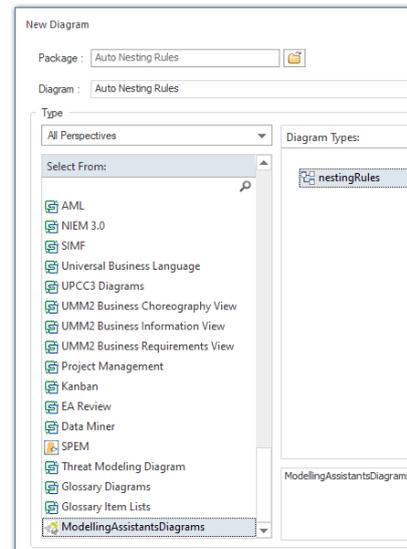
AUTO NESTING

In EA, a new model element is inserted in the Project Browser in the same context in which the diagram is located in which the new model element was created.



The Modelling Assistants provide an MDG Technology which should be enabled. If your EA already provided Perspectives, assure that the Modelling Assistant MDG Technology is in your current active Perspective. See the EA Help for more information.

In order to create nesting rules, create a new Package (e.g. named with *Auto Nesting Rules*, but the name is not important) and create a *nestingRules* diagram from the Modelling Assistants MDG Technology.



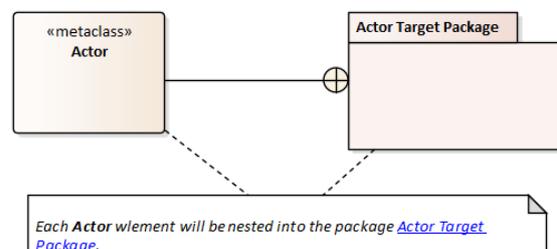
Within the diagram you model now your rules. Currently the following kinds of rules are supported:

1. Nest a Model-Element of a specific type within an existing package.
2. Nest a Model-Element of a specific type and stereotype within an existing package.

NEST A MODEL-ELEMENT OF A SPECIFIC TYPE WITHIN AN EXISTING PACKAGE

Within the diagram of type *nestingRules*, drag and drop the package in which the element of a specific type should automatically be nested. In the example it is the package *Actor Target Package*.

Now create a class with name of the Mode-Element type – for instance *Actor* – and add the stereotype `<<metaclass>>`. Now create a Nesting relation from the *Actor* class to the package.

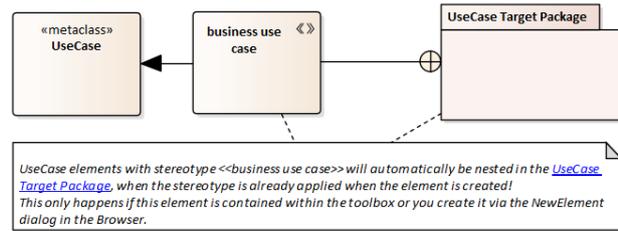


With this rule, all Model-Elements of type *Actor* will be automatically nested within the package with name *Actor Target Package*.

NEST A MODEL-ELEMENT OF A SPECIFIC TYPE AND STEREOTYPE WITHIN AN EXISTING PACKAGE



Within the diagram of type *nestingRules*, drag and drop the package in which the element of a specific type should automatically be nested. In the example it is the package *Actor Target Package*.

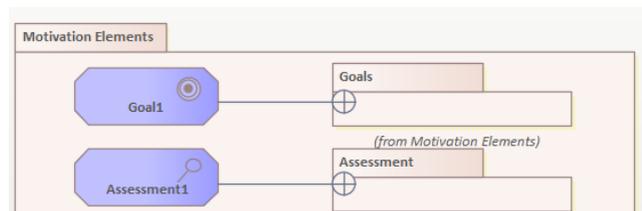


Now create a class with name of the Mode-Element type – for instance UseCase – and add the stereotype <<metaclass>>.

Now create a class with named with the stereotype you will automatically nest – e.g. *business use case* – and add the stereotype <<stereotype>> to that class.

Now create a **Nesting** relation from the class named *business use case* (which is stereotype with the stereotype <<stereotype>>) to the package *UseCase TargetPackage*.

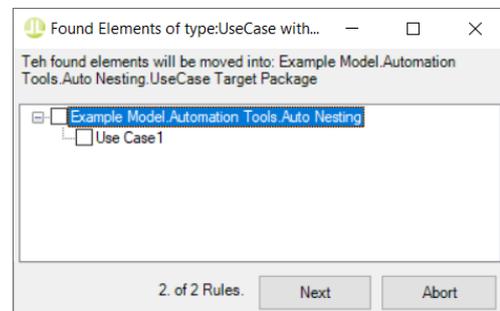
Instead of Metaclass and Stereotype class it is also possible to use the actual model element like this example with ArchiMate elements:



MANUALLY TRIGGER AUTO NESTING

In cases Auto Nesting was disabled or another user without the Modelling Assistant has created new Model-Elements, which are not automatically nested based on the configured rules, you can also manually trigger the Auto Nesting.

Use the menu [*Specialize (or Extension in older Versions of EA) > Modelling Assistants > Apply > Auto Nesting*] to manually trigger the auto nesting. This will search the whole model for Model-Elements which should be automatically nested.

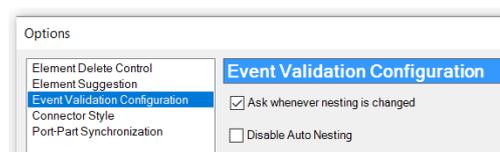


The Auto Nesting Assistant opens the “Found Element of type: <type-name>” dialog and shows all found elements for each configured rules. The resulting tree shows the package path and the found model elements within this package.

DISABLE AUTO NESTING

The Auto Nesting Assistant can be disabled even if auto nesting rules are configured in the model.

To disable the Auto Nesting Assistant, open the Options Dialog of the Modelling Assistants and select the checkbox “**Disable Auto Nesting**” within the Event Validation Configuration Options.



The “*Ask when nesting is changed*” is the configuration of another Assistant, see: on page 36.



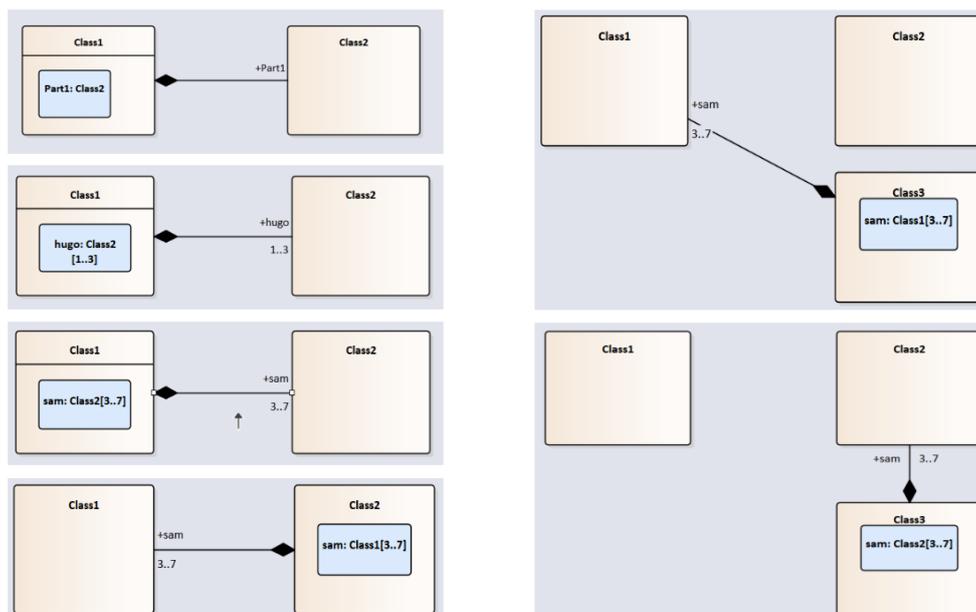
PART & PORT SYNCHRONIZATION

The **Part & Port Synchronization** Modelling Assistant provides an automatic synchronization of different connectors or more specific a ConnectorEnd with a Model-Element like a Property or a *CallBehaviourAction*. Also the use of Ports in different scenarios are synchronized.

The synchronization can be configured in the Options of the Modelling Assistants. Currently, the following synchronizations are supported. The Example Project of the Modelling Assistants provide examples for all possibilities.

PROPERTY & COMPOSITIONEND SYNCHRONIZATION

- When a classified property Model-Element is created within another Model-Element, a corresponding **Composition or Aggregation** connector is created between the container of the Property and the classifier of the property. The ConnectorEnd is synchronized with the properties of the Property element.
- When a **Composition or Aggregation** connector is created between two Model-Element, a Property Model-Element is created within the target (whole end) of the **Composition/Aggregation** connector. The ConnectorEnd will be synchronized with the properties of the *Property* element. (This behavior comes out of the box for SysML. The Assistants provides it also for other modelling languages)
- When an unclassified property gets a classifier, an **Aggregation/Composition** connector is created between the container of the Property and the classifier of the *Property*.
- When the source (Part-End) of target (Whole-End) of the **Aggregation/Composition** is changed, the corresponding *Property* is also changed. Which means moved into the other Model-Element – when the target end is changed – or the classifier of the *Property* is changed – when the source end has been changed. Also other properties like Visibility, Multiplicity, etc. are synchronized.



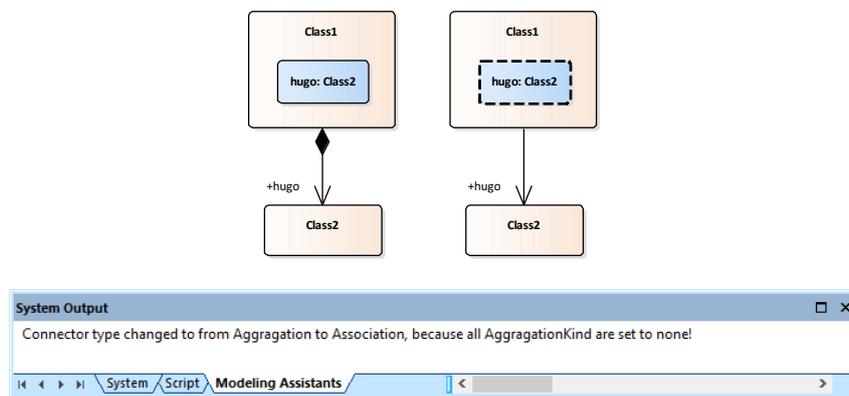
Note: In EA we have two possibilities to create **Aggregation/Composition** relation:



1. Create a connector of type **Association** and set the **AggregationKind** Property to <shared | composite | None>. See chapter Property & AssociationEnd synchronization.
2. Create a connector of type **Aggregation** and set the **AggregationKind** property to <shared | composite | None>. In the EA UI you can directly select Aggregation or Composition, which creates always a connector of type **Aggregation** and set the required **AggregationKind** property.
- 3.

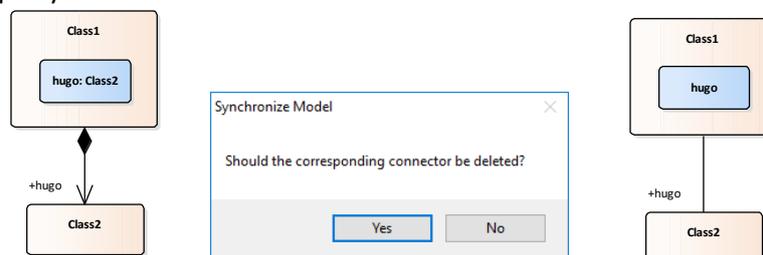
CHANGING THE AGGREGATIONKIND TO NONE

If you have an **Aggregation** and set the **AggregationKind** = None, the Modelling Assistants will treat this connector as a simple **Association**, but EA still shows the AggregationDiamod. Hence, the Modelling Assistant changes the type of the connector from **Aggregation** to **Association**, unlink the corresponding Property from the role end and ask if the corresponding Property should be deleted or kept.

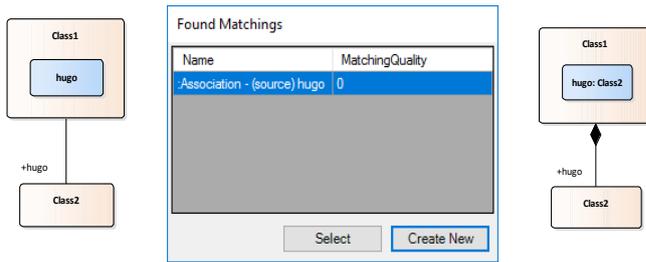


REMOVE THE PROPETIE'S CLASSIFIER

If you remove the classifier from the Property (select the property and click [Ctrl + L]), the Assistant will keep the model in synch and ask if the corresponding connector should be deleted. If you click No, the connector will become an **Association** and all RoleEnd configuration which would require a corresponding Property are removed!



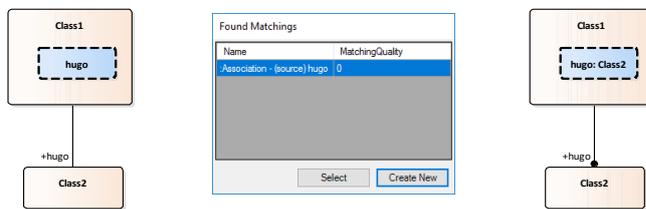
SET THE PROPERTIES CLASSIFIER



If we have a Property without a classifier and we set the classifier, the Part & Port Assistant tries to find a matching ConnectorEnd first before a new connector between the container Element of the Property and the Classifier Element of the Property is created.

For instance, if we set the Classifier of the Property “hugo” in Class1 to Class2. The Part & Port Assistant matches all available and unbound connectors and show them in a selection window. The column MatchingQuality indicates how good the Property and the ConnectorEnd fits together based on its configuration. In this example the ConnectorEnd has no further configuration, but is currently not mapped to a Property element. Hence, it is shown with MatchingQuality 0. The Name column shows the connector name, followed by the connector type, if the bound end will be the source or target and the role name of the ConnectorEnd which is used (“ConnectorName:ConnectorType – (source/target) RoleName”). The connector will be adapted to the requirements of the property. In our example the Property is a Part Property, which required a Composition RoleEnd. The connector type will be changed again to Aggregation with target RoleEnd AggregationKind = Composition.

In case we start with an unclassified reference property and an unbound AssociationEnd, the current method in the Part & Port Synchronization is to use an owned end configuration of the Association.



See Property & AssociationEnd synchronization on page 32.

Restrictions: In EA 13.5 and earlier Versions of EA, these synchronization strategies do not work always. Sometimes it happens that the role Ends are not

properly synchronized. We recommend to use EA 15 or above.

SET THE ROLEEND CONFIGURATION

Similar to setting the Properties classifier, it is also possible to configure the roleEnd of a connector, which may trigger the synchronization with existing and unbound properties.

CALLBEHAVIOURACTION & COMPOSITIONEND SYNCHRONIZATION

This automation works similar as the previous synchronization between **Property** and **Composition**. Instead of a **Property**, a **CallBehaviourAction** is created and synchronized with the **CompositionEnd**.

- Creating a **Composition** connector between two **Activities** will create a **CallBehaviourAction** in the **Activity** which acts as the Whole-End (e.g. A in Figure 6) of the composition connector.

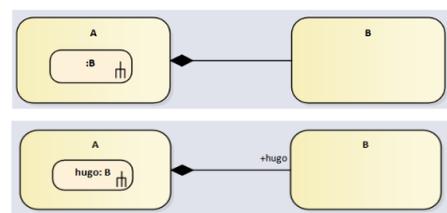


Figure 6: CallBehaviour Action bound to ConnectorEnd

- Create a *CallBehaviourAction* calling another Activity will create a composition connector between the container Activity (e.g. A) of the *CallBehaviourAction* and the called Activity (e.g. B in Figure 6).
- All other synchronizations work the same way as the synchronization between **Property** and **Composition**, but restricted to **CallBehaviourAction** and **Activities**. For instance, changing the called **Activity**, will change the *CompositionEnd* to the called **Activity**, etc.

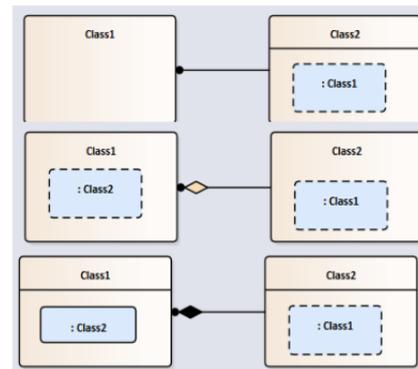
Restrictions: If you use SysML and create a Composition link between two Activities, EA automatically creates a Property Element and bind it to the Composition’s Role-End. Future versions of the Modelling Assistants will deal with this and automatically transforms that Property into a CallBehaviourAction.

However, if you create a CallBehaviourAction within the Activity, the Modelling Assistants will also create a Composition relation as described above!

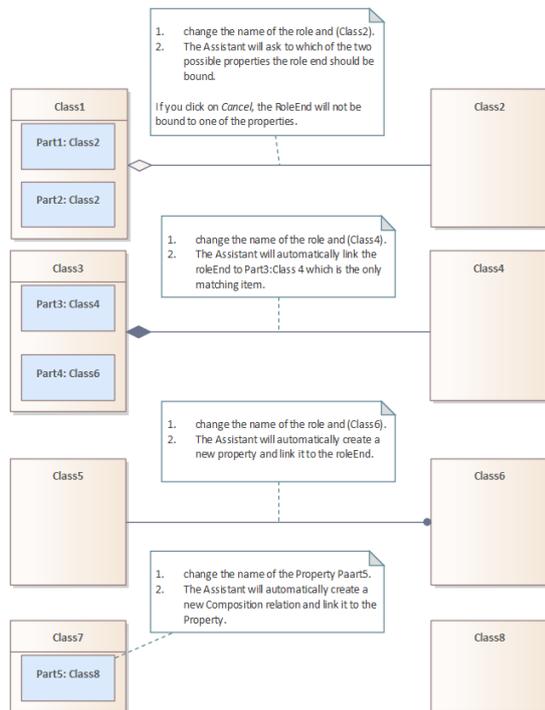
PROPERTY & ASSOCIATIONEND SYNCHRONIZATION

Similar to the synchronization between **Property** and **Composition/Aggregation** connectors. Instead of a **Composition/Aggregation**, an **Association** connector is considered.

- An **AssociationEnd** which is configured as **Owned** – represented by the black dot – a **Reference Property** is created.
- When the Association end’s AggregationKind is configured as *Shared/Composite*, a corresponding **reference Property** or **Property** Model-Element is created, similar to the synchronization when a **Composition/Aggregation** connector is used.



AUTOMATIC CONNECTION WHEN ITEM IS CHANGED



In case the model contains Properties/CallBehaviourActions which are currently not connected to also existing Connector RoleEnds, the modelling Assistants automatically try to find a match and show the result to connect the item (element or connectorEnd) with the changed item.

In case multiple matches are found, a Found Matchings dialog shows the matches and the matching quality. The higher the MatchingQuality, the better the match. For instance, if you change a Composite Connector and two Properties have been found, one is a reference Property and the other a normal Property, the normal Property has a better Match. Also the Type, and the Name and Multiplicity are considered in the Match.

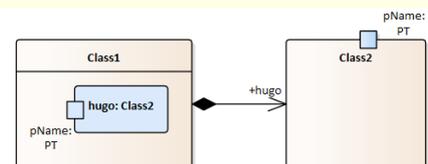
Name	MatchingQuality
Part1: - 0	2
Part2: - 0	2

Buttons: Cancel, Select, Create New

If you click on Cancel, nothing happens, the changed item will not be connected with the match. With a double click in the list or with a click on Select, the selected item will be used as corresponding item. If you click on Create New, a new item (element or connector) will be created and connected with the change one.

PORT ON PROPERTY -> PORT ON CLASSIFIER SYNCHRONIZATION

- When a classified **Property** gets a **Port**, the **Port** is also created on the **Classifier** Model-Element. These two Ports will now be automatically synchronized.
- When a **Port** is created on a **Property**, which is contained within another Model-Element, a new **Class/Block** is created and set as a type of the unclassified **Property**. Now a **Composition** connector is created between the new Class/Block and the container Model-Element of the now classified Property.



INHERITED CONNECTOR SYNCHRONIZATION

When a connector between two Properties exists which both are contained within a Model-Element (e.g. Class A see Figure 7) and the container (Class A) is used as another Type of a Property (e.g. within class D). It is possible to also show the nested **Properties** of the **Property** of type A. This Assistant creates and synchronizes the connector between the two **Properties** within the Property A.

- When you rename the original Connector (between the two Properties within Class A), all corresponding connectors (connector between the two Properties within **Property** of type A in Class D) are synchronized.



- When the original connector is deleted, you get an information about all corresponding derived connectors which will be deleted as well.
- When the corresponding derived connector is deleted, you will get an information that the original connector and all available other derived connector will be deleted as well.

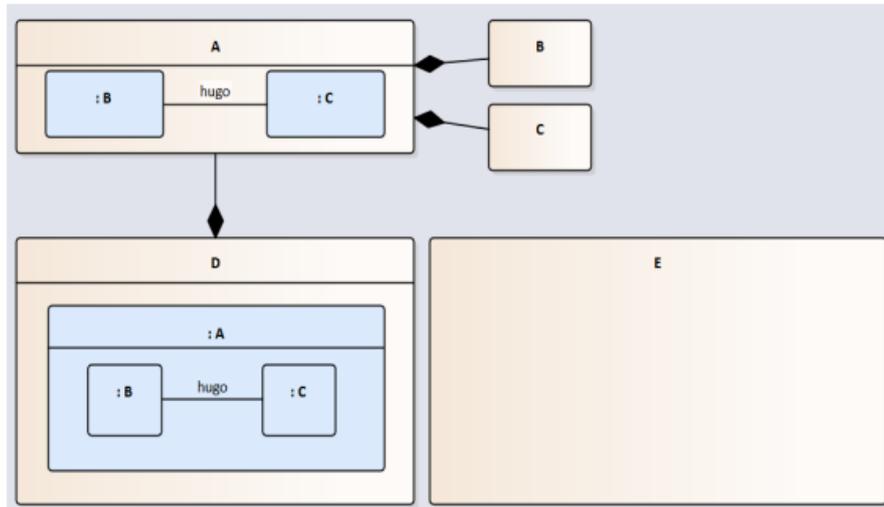
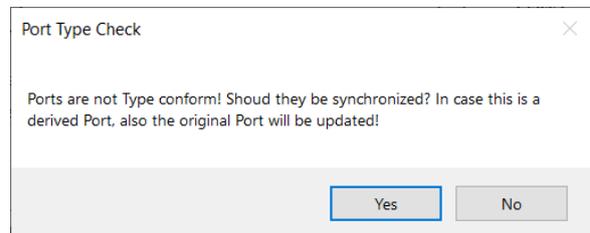


Figure 7: Connectors between inherited Properties

Current Limitation: only Connectors between Properties are synchronized! The synchronization currently does not consider Connectors between Ports.

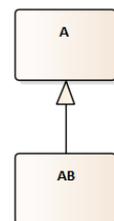
PORT-TYPE CHECK

The Port-Type Check Assistant validates the type of the Port when a connector is created between two Ports. If the two Port-Types do not match, you get a message with this information and the offer to automatically change the target Port's type to the type of the source Port. If you click on No, the target Port-Type will not be changed!



The current version checks:

- **If the Port-Type is the same:** This means both **Ports** reference the same model-element as Port-Type.
- **If the Port-Types are compatible:** This means if one **Port** is a more specific type as the other Port. For instance if **AB** is derived from **A** and one **Port** is of type **A**, the other is of type **AB**, the **Port-Types** are compatible.





ALLOCATE PARTITION SYNCHRONIZATION



In case you have a SysML allocation ActivityPartition, which contains CallBehaviourActions, the Modelling Assistants will take care about creating and Synchronize an allocate relation between the classifier of the ActivityPartition and the called Activity.

The following scenarios are possible:

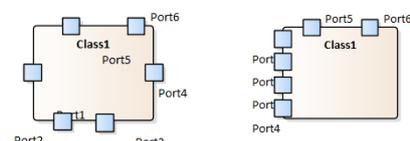
- **Add a new CallBehaviourAction into the ActivityPartition:** A new allocate connector will be created between the classifier of the ActivityPartition and the called Activity. BUT ONLY IF THERE IS NO EXISTING ALLOCATE CONNECTOR (MANUALLY CREATED OR AUTOMATICALLY CREATED):
- **Add the Stereotype allocateActivityPartition to an ActivityPartition:** An allocate connector will be created between the classifier of the ActivityPartition and all called Activities by CallBehaviourAction contained within the ActivityPartition. BUT ONLY ON CONNECTOR, NOT ONE FOR EACH COMBINATION.
- **Change the classifier of ActivityPartition:** All generated allocate relations between the Activity Hugo and Block A will be removed and a new allocate relation between the Activity Hugo and the new classifier of the ActivityPartition (e.g. B) will be created.
- **Changing the classifier (called Activity) of the CallBehaviourAction:** the existing allocate relation will be deleted and a new one between the new called Activity (e.g. Sam) called by call1 will be created.
- **Delete a CallBehaviourAction:** the corresponding allocate relation will be the called Activity and the classifier of the ActivityPartition will be deleted. BUT ONLY IF THE LAST CALL BEHAVIOUR ACTION CALLING THE ACITIVITY IS DELETED FROM THE ACTIVITY PARTITION.
- **Delete the ActivityPartition:** all created allocate relations from the classifier to the of the ActivityPartition to the called Activities will be deleted. BUT ONLY AUTOMATICALLY CREATED ALLOCATE RELATIONS WILL BE DELETED! If a user has created a manual allocate relations, this will not be touched.
- **Delete the stereotype allocateActivityPartition from the ActivityPartition:** Remove all allocate connectors between the classifier of the ActivityPartition and all called Activities by CallBehaviourActions contained within the ActivityPartition.
- **Manually trigger the synchronization for the ActivityPartition:** In order to manually trigger the synchronization, you can select the ActivityPartition and perform [specialize > Modelling Assistants > Synchronize > Synchronize Allocation Partition].

LAYOUT

The Layout Assistants provides additional Layout functions.

PORT LAYOUT

The current version of the Port Layout Assistant provides the functionality to auto layout all visible Ports within a Diagram for the selected Model-Elements within the diagram.





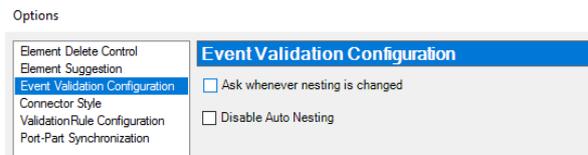
In this version, the Ports are arranged around the Model-Element, starting on the left side, going clockwise. The label names are arranged next to the Port.

To apply the layout, select one or more elements within a diagram and select from the context menu [*Specialize (or Extension in older Versions of EA) > Modeling Assistants > Layout / Layout visible Ports*].

CHECK NESTING CHANGES

This Assistant ask the EA user whenever the context of a Model-Element is changed. For instance, when a Model-Element is moved within the Project Browser or when the context is changed when a Model-Element is moved into another Model-Element in the diagram.

To disable the Check Nesting Changes Assistant, open the Options Dialog of the Modelling Assistants and deselect the checkbox “*Ask whenever nesting is changed*” within the Event Validation Configuration Options.



TEMPLATE PACKAGE SYNCHRONIZATION

Enterprise Architect provides a [Template Package](#) feature. Summarized, New Elements are copied from the Template Package if the New Element (Type + Stereotype) exists in the Template package. All properties and the style of the Element from the Template Package is copied when the New Element is created.

Later Changes of the content within the Template Package have no impact to already existing model elements!

This Assistant allows you to synchronize the **Tagged Values** of existing model elements based on corresponding Template Package elements.

HOW IT WORKS

In order to synchronize element’s *Tagged Values* with corresponding Template Package Elements, select a Package within the Project Browser, the Assistant will consider the whole package branch.

Now open the Template Package – *Tagged Value* Synchronization window. You can open it from the context menu or the main menu [*Specialize (or Extension in older Versions of EA) > Modeling Assistants > Synchronize > Template Package Synchronization*].



The Wizard window shows the following information:

A: The full qualified name of the **Template Package** of this project.

B: The Elements found in this **Template Package**.

C: The **Tagged Values** of the selected Element in **B**.

D: The full qualified name of the currently selected package in the Project Browser. Only Elements within this package branch are considered and showed. If you change the selection in the Project Browser, click on Reload (**I**) in order to update the Wizard.

E: All **affected Elements** within the selected package Branch (**D**) corresponding to the selected Element in the **Template Package** (**B**).

F: The **Tagged Values** of the selected affected Element (**E**).

G: **Select None**, deselects all Tagged Values which would be deleted or created. **Select All**, selects all Tagged Values which would be deleted or created.

H: Shows the overview of all Tagged Values to be created/deleted and the currently selected one.

I: Reloads all Data, this is necessary when the selected Project Browser Package is changed.

J: Start the Synchronization based on the selected Tagged Values.

The System Output window will show what was happening in the model.



MODEL VALIDATION ASSISTANT

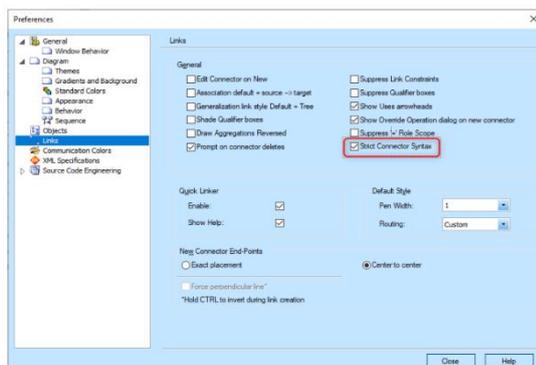
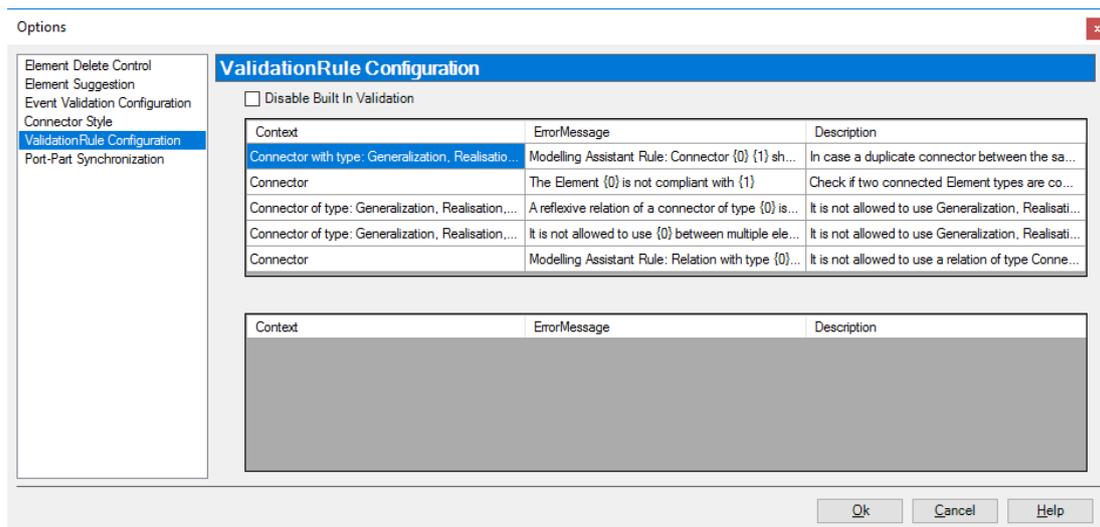
The Model Validation Assistant comes with 2 parts:

- **Predefined Validation Rules:** it provides a set of predefined additional Validation Rules.
- **Generate custom rules from Model Constraints:** it provides the possibility to add additional constraints directly into a UML-Profile, from which new Validation Rules are generated, stored in the Model and considered during Model Validation.

PREDEFINED VALIDATION RULES

Within the options, you can see the list of currently contained additional model validation rules, the context in which this rule will be applied, the error message which will be written in the output window during model validation and an additional description about the rule.

When you select the checkbox “Disable Built in Validation”, no additional rule will be considered during model validation. However, if Model specific Validation Rules are contained in the EA-Repository, they would be considered in the Model Validation.



If Strict Connector Syntax is disabled in the tools Properties, all Validation Roles provided by the Modelling Assistants which are applied on the fly - when you create a connector with the Quicklinker or via the Toolbox - will not be considered and ignored.

However, running the model validation will find wrong connectors even if Strict Connector Syntax is disabled!



GENERATED CUSTOM RULES FROM MODEL CONSTRAINTS

This is currently a preview of the possibilities to add additional constraints to UML-Profiles from which validation code is generated and stored in the model. The rules can be written in C# using LINQ and an additional library which extends the EA API with OCL like functions. The Modelling Assistant Example model shows an example.

The [video](#) shows a general introduction to Metamodeling and constrains an example of the extended possibility to add executable constraints to UML-Profiles.

MULTI-ELEMENT EDITING

In case multiple elements are selected in EA, one of them is the actual selected element. The element has a dashed border. The properties of the element with the dashed border are listed in the Properties window. If you change one of the properties, only the properties of the element with the dashed border are changed.

The Multi-Element Editing assistant provides the possibility to change the properties of all selected elements at once.

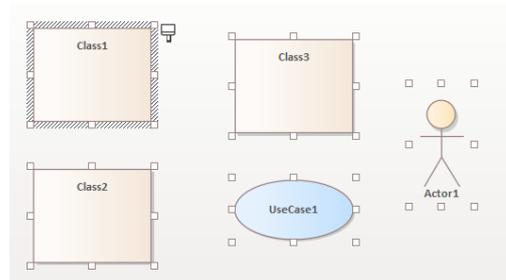
Just select multiple elements in the diagram or the Project Browser and change one or more properties.

The Multi-Element Editing assistant shows up and shows the changed properties, the actual element (context element with the dashed border) which properties are already changed and a list of all other selected elements.

With the checkbox named Selected, it is possible to remove some of the selected elements from the list and do not apply the change to them.

If cancel is clicked, only the properties of the element with the dashed border are changed and none of the additional selected elements.

To keep the overview, all changes of the additional selected elements are listed in the System Output window.



Affected Elements for Multi Element Property Editing

ChangedPropertyName	NewValue
Status	Implemented

Context element will be changed

Selected	Name	Selection
<input checked="" type="checkbox"/>	Automation Tools.Multi-Elem...	From Diagram Selection

Additionally selected elements

Selected	Name	Selection
<input checked="" type="checkbox"/>	Automation Tools.Auto Nesti...	From Diagram Selection
<input checked="" type="checkbox"/>	Automation Tools.Multi-Elem...	From Diagram Selection
<input checked="" type="checkbox"/>	Automation Tools.Multi-Elem...	From Diagram Selection
<input checked="" type="checkbox"/>	Automation Tools.Multi-Elem...	From Diagram Selection

Cancel Apply



```
System Output
System  Script  Modeling Assistants
ModellingAssistants Multi-Element Updage: Update Property  of Element Actor Target Package::Actor1, based on changes of Element Multi-Element Editing::Class1
ModellingAssistants Multi-Element Updage: Update Property  of Element Multi-Element Editing::UseCase1, based on changes of Element Multi-Element Editing::Class1
ModellingAssistants Multi-Element Updage: Update Property  of Element Multi-Element Editing::Class3, based on changes of Element Multi-Element Editing::Class1
ModellingAssistants Multi-Element Updage: Update Property  of Element Multi-Element Editing::Class2, based on changes of Element Multi-Element Editing::Class1
```

Double click on one row to highlight the affected element in the diagram. If it is used in more than one diagram you get a list of all diagrams in which the element is used.

LOGFILES

In case the Modelling Assistants do not behave as expected or cause exceptions, a log-file is written in the directory [...\ModellingAssistantLogs]. This directory is automatically created at the install directory of EA, which is [C:\Program Files (x86)\Sparx Systems\EA\ModellingAssistantLogs] if no other location was selected during installation of EA.

CONTACT

In case of any questions please send an email to modelingassistants@lieberlieber.com

LieberLieber Software GmbH is an internationally operating company located in Vienna, Austria. The core competencies of the Viennese software company lie in the area of consulting and extensions for Sparx Systems Enterprise Architect (software development with UML) as well as modern user interfaces for Web, Windows, embedded systems and multi-touch systems

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<https://www.sparxsystems.de/partnerprodukte/modelingassistants/>