



Enterprise Architect

User Guide Series

# Building Models

How do I build a UML model? Sparx Systems Enterprise Architect is the ideal tool for building any kind of UML or extended model from scratch or from a wide selection of Patterns in the Model Wizard, and managing the structure with the Project Browser.

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# Table of Contents

Building Models	16
Views	18
Add Views	20
Rename Views	22
Delete Views	23
Packages	25
Add a Package	27
Open Package in the Project Browser	31
Rename a Package	32
Copy a Package	34
Delete a Package	38
Model Wizard	39
Customize Model Content	46
Diagrams	49
Diagram View	52
How to Context Filter a Diagram	58
The Pan & Zoom Window	60
Diagram Tabs	62
Switch Between Views	66
Diagram Toolbox	69
Toolbox Appearance Options	80
Toolbox Shortcut Menu	85
Add Multiple Elements	88

Common Page	95
Artifact Toolbox, Enterprise Architect, Artifact element	99
Use Case Toolbox	110
Class Toolbox	112
Object Toolbox	115
Composite Toolbox	117
Communication Toolbox	119
Interaction Toolbox	121
Timing Toolbox	123
State Toolbox	125
Activity Toolbox	128
Component Toolbox	131
Deployment Toolbox	133
Profile Toolbox	135
Metamodel Toolbox	138
Analysis Toolbox	140
Custom Toolbox	142
Requirements Toolbox	145
Maintenance Toolbox	148
User Interface Toolbox	151
WSDL Toolbox	154
XML Schema Toolbox	156
Data Modeling Toolbox	158
Test Domain Toolbox	161
XML Transformation Toolbox	163
Set Diagram Properties	165

General Tab	167
Configure Diagram Display	172
Define Element Characteristics	182
Features Tab	188
Connectors Tab	192
Theme Tab	195
Properties Window for Diagrams	199
Diagram Tab	203
Diagram Context Menu	210
The Quick Linker	219
Create New Elements	223
Create Connectors	225
Working In Diagrams	227
Add New Diagrams	232
Insert Diagram Properties Note	235
Drop Package From Project Browser	237
Show or Hide Package Contents	240
Drop Elements from Project Browser	242
Copy And Paste Diagram Element	250
Z Order Elements	253
Move/Copy Elements To & From Floating Diagrams	255
Move Elements In Diagram Sections	258
Autosize Elements	260
Virtual Connector Ends	262
Locate Related Elements	267
Manage Object Labels	269

Hide/Show Labels	273
Show Realized Interfaces of Class	275
Open Package From Diagram	278
Undo Last Action	279
Redo Last Action	281
Add Diagram Links To Diagrams	282
Pan and Zoom a Diagram	289
Diagram Navigation Hotkeys	291
View Last and Next Diagram	294
Change Diagram Type	295
Scale Image to Page Size	297
Set Up Diagram Page	300
Lock Diagram	303
Copy (Duplicate) Diagram	304
Save Diagram Image to Disk	307
Copy Image to Clipboard	310
Delete Diagrams	312
Diagram Filters	314
Work With Diagram Filters	320
Diagram List	329
Layout Diagrams	334
Circular/Elliptical Layout	338
Box Layout	343
Per Page Layout	346
Digraph Layout	349
Spring Layout	350
Neaten Layout	352

Converge/Diverge Layout	355
Fan Relations Layout	357
Auto Route Layout	360
Lay Out a Diagram Automatically	362
Chain Diagram Layouts	371
Swimlanes	375
Creating Sub-lanes	382
Swimlane Details	386
Swimlanes Matrix	388
Diagram Legends	395
Create Legends	399
Legend Properties	402
Legend Key	405
Image Assets	415
Using the Image Manager	419
Create Custom Diagram Background	426
Import Image Library	428
Print Preview	431
Elements	433
Element Facilities	435
Create Elements	440
Add Elements Directly To Packages	442
Set Auto Naming and Auto Counters	447
Apply Auto Naming to Existing Elements	452
Set Element Templates Package	458
Set Element Font	463
Move Elements Within Diagrams	467

Copy Elements Between Diagrams	471
Move Elements Between Packages	475
Copy Elements Between Packages	479
Copy Features Between Elements	482
Move Features Between Elements	484
Highlight Context Element	486
Insert Related Elements	489
Change Element Type	494
Make Linked Element a Local Copy	496
Set an Element's Default Appearance	497
Feature Visibility	502
Align Elements	509
Resize Elements	512
Create Notes and Text	515
Link Note to Internal Documentation	519
Delete Elements from Diagram and Model	524
Customize Visibility of Elements	528
Set Up Cross References	530
Show Element Use	533
Manage Structural Elements	539
Set Element Parent	545
Composite Elements	549
Show Structural Elements In Composite Diagram	555
Visual Representation	558
Element Icons	559
Compartments	563
Rectangle Notation	566

Info view Style .....	568
Element Property Displays .....	572
Properties Window for Elements .....	574
Templates .....	578
Properties Dialog .....	580
General Settings .....	584
Details .....	590
Advanced Properties .....	594
Requirements .....	596
External Requirements .....	601
Constraints .....	602
Scenarios .....	606
Structured Specification Tab .....	611
Set Up Scenario Specification .....	612
Structured Specification Toolbar .....	618
Structured Specification Item Context Menu .....	623
Structured Specification Selected Text Context Menu .....	628
Structured Specification Entry Points Context Menu .....	634
Structured Specification Floating Toolbar .....	638
Generate Diagrams .....	639
Generate Activity Diagram .....	643
Generate RuleFlow Diagram .....	647
Generate StateMachine Diagram .....	649
Generate Sequence Diagram .....	652
Generate Robustness Diagram .....	657

Generate Scenario From Activity Diagram	660
Generate Test Cases	663
Context References Tab	668
Scenario Constraints Tab	671
Associated Files	673
Links	676
The Features Window	678
The Element Browser	680
The Document Window	687
Dynamic Documents in the Document Window	689
Linked Documents in the Document Window	701
Responsibilities	707
Select <Item> Dialog	711
Select Property Dialog	715
Set Feature Dialog	718
Element Context Menu Operations	720
Selectable, Dockable and Printable Options	730
Advanced Operations on Elements	733
Finding Elements	741
Changing Element Appearance	744
Operations on Multiple Elements	749
Linked Documents	755
Create Document Artifact	760
Create Linked Document on an Element	762
Edit Linked Documents	766
Replace or Delete Linked Documents	770
Create Linked Document Templates	772



Edit Linked Document Templates.....	775
Hyperlink From Linked Document.....	778
Create Element From Document.....	780
Connectors.....	782
Connector Management Options.....	783
Connector Type-Specific Options.....	785
Manage Connector Properties.....	789
Advanced Connector Management Options.....	791
Connector Style Options.....	794
Connector Appearance Options.....	801
Connector Tasks.....	803
Connect Elements.....	805
Connect to Element Feature.....	808
Connect to a Connector.....	811
Add a Note to a Connector.....	815
Arrange Connectors.....	817
Change Connector Type.....	819
Change the Source or Target Element.....	820
Connector Styles.....	823
Create Connector in Project Browser.....	830
Relationship Visibility.....	832
Hide/Show Connectors.....	834
Delete Connectors.....	837
Creating Generalization Sets.....	839
Connector In-place Editing Options.....	842
Reverse Connector.....	843
Set Association Specializations.....	844

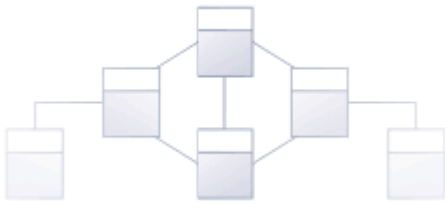
Change Sequence Message Scope	846
Show Uses Arrow Head	848
Tree Style Hierarchy	849
Connector Properties	852
Connector Advanced	857
Connector Tagged Values	859
Source and Target Role	861
Connector Constraints	868
Binding	871
Tagged Values	872
Quick Start - Add Tagged Value To Elements	876
Assign a Tagged Value to an Item	879
Assign Notes to a Tagged Value	882
Modify Tagged Values	885
Show Duplicate Tags	888
Advanced Tag Management	890
Attributes	892
Create and Manage Attributes	896
Attribute Tagged Values	902
Properties Window for Attributes	904
Create Properties	911
Attribute Constraints	915
Display Inherited Attributes	918
Create Object From Attribute	921
Classifiers and Instances	923
Classify an Object	925
Add Property Slots to Instance	928

Classify Object Via Classifier Associations	930
Behavior	934
Operations	935
Define Properties of Operations	938
Properties Window for Operations	944
Operation Behavior	949
Initial Code	954
Redefine Operation and Check for Exceptions	956
Operation Constraints	959
Operation Tagged Values	962
Override Parent Operations	965
Display Inherited Operations	967
Interactions and Activities	970
Behavior Calls	972
Associate with Different Behaviors	974
Synchronize Arguments	975
Behavior Call Arguments	977
Behavior Parameters	980
Define Parameters	981
Parameter Tagged Values	986
Operation Parameters by Reference	989
Hyperlinks	991
Hyperlink Target Objects	1001
Hyperlinks Between Diagrams	1012
In-place Editing Options	1015
In-place Editing Tasks	1016
Edit Element Item Name	1022

Edit Feature Stereotype.....	1024
Edit Feature Scope.....	1027
Edit Attribute Keyword.....	1030
Edit Operation Parameter Keyword.....	1033
Edit Parameter Kind.....	1035
Edit Custom Compartment.....	1037
Insert New Feature.....	1039
Insert Operation Parameter.....	1041
Insert Maintenance Feature.....	1043
Insert Testing Features.....	1046
Non-printable Elements.....	1049
Properties Window.....	1052
Notes.....	1054
Notes Toolbar.....	1062
Model Glossary.....	1064
Project Glossary View.....	1067
Glossary Styles.....	1071
The Glossary Dialog.....	1076
Generate a Report.....	1081
Glossary Report Output Sample.....	1083
Editing Documents and Templates.....	1085
File Control.....	1089
Editor Display Options.....	1095
Styles, Special Text & Table of Contents.....	1099
Manage Page Counting.....	1110
The Normal.rtf Style Template.....	1112
Scroll, Search and Select Text.....	1114

Format Text	1121
Create Tables	1127
Format Paragraphs	1140
Define Document Sections	1148
Set Tabs	1153
Manage Page Breaks	1157
Insert Headers, Footers, Footnotes and Endnotes	1159
Insert Hyperlinks	1169
Insert Images, Objects and Frames	1171
Checking Text	1181
Track Changes	1186
Protect Document Contents	1190
Bookmarks	1193

# Building Models



An Enterprise Architect model is a top level (root) Package in a repository. It is possible to have more than one root Package in a repository and hence more than one model. Each model is the root node of a hierarchy of Packages, elements, features and diagrams that are nested under the Package. The Project Browser window is used to manage the model and the hierarchy of elements, features and diagrams, showing how the models are structured and helping you to reorganize a model by dragging and dropping objects to new locations in the hierarchy.

Enterprise Architect has a powerful Model Wizard that helps you to create models and a hierarchy of Packages under each root, from a wide selection of model Patterns. The Wizard is displayed automatically when a new model is added to a repository, but can be invoked manually. Using the Wizard simplifies the process of setting up repositories and models for the novice modeler. More experienced modelers are free to add a single Model Package and build up the structure as they see fit, or to create a model from a base (template) repository.

As the repository is developed and during the lifetime of a project or program of work, new models might have to be added and existing ones refactored.



# Views

The top-level Packages in a model (below the project root nodes) can be created as Views, which are simply used to structurally partition and extend the model according to specific requirements and modeling techniques, such as Component View or Dynamic View. These Views have the same concept as the Simple UML Views generated as Model Packages; however, unlike the Model Package views, basic Views:

- Do not have any automatically-generated components
- Can be created only under a root node
- Are top-level Packages with special Package icons
- Are not directly available for Requirements, Analysis or Testing, although you can develop these Views from Simple Views or within Use Case Views

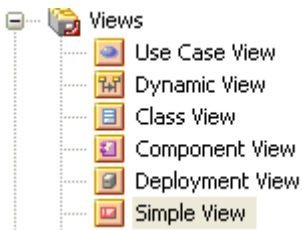
## Types of View

There are six main types of View, each with their own Package icon, as listed; the types of diagram are the suggested content of each View type:

- Use Case View - containing Use Case diagrams and Analysis diagrams
- Dynamic View -containing Activity diagrams, Communication diagrams, Sequence diagrams and StateMachine diagrams



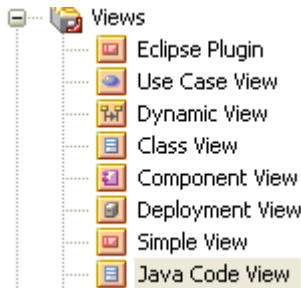
- Class View - containing Class diagrams, Code Engineering and Data Models
- Component View - containing Component diagrams
- Deployment View - containing Deployment diagrams
- Simple View - to customize your own type of view



You can work within the first five standard View types, or devise your own type based on the Simple View. You can create Views, rename them, move them into a different order or delete them, by right-clicking on the selected View and choosing the appropriate context menu option.

# Add Views

This example shows a customized view called Java Code View, which has been added to the end of the Views list.



## Access

In the Project Browser, select a model root node, then:

Ribbon	Design > Package > Insert > Insert a Simple Package
Context Menu	Right-click on root node   Add   Add View
Other	Package Browser caption bar menu   New Package

## Create a View

Option	Action
Name	Type the name of the View (in the example, this is Java Code View).
Set View Icon Style	Click on the appropriate radio button to set the icon to display next to the View name (the Java Code View has a Class icon).
Add to Version Control	<p>If the model root node is under Version Control, this checkbox displays, defaulted to selected.</p> <p>If you do not want the new View to also be under Version Control, deselect the checkbox.</p>
OK	Click on this button to add the View to the Project Browser.

# Rename Views

If you decide to change the name of a View, you can do so very easily.

## Rename a view

Step	Action
1	Right-click on the View in the Project Browser, and select the 'Properties' option. Alternatively, click on the View name and press F2. The 'Package Properties' dialog displays.
2	In the 'Name' field, type the new name and click on the OK button.

# Delete Views

You can use Views as the main divisions of your project, or as temporary holding structures that you delete after you have redistributed any content you want to keep.

## Delete a View

Step	Action
1	In the Project Browser, right-click on the View to delete and select the 'Delete <viewname>' option.
2	<p>If you have selected the 'Confirm Deletes' option in the Project Browser section of the 'Start &gt; View &gt; Preferences &gt; General' dialog page, the system displays a warning that child elements are to be deleted.</p> <ul style="list-style-type: none"><li>• To delete the View and its contents, click on the Yes button.</li><li>• To cancel the deletion, click on the No button.</li></ul>

## Notes

- If you delete a View, its contents are deleted at the same time; they cannot be restored

# Packages



A Package is a grouping element that acts as a container for other modeling elements (including other Packages) and diagrams; Packages are represented in the Project Browser as a familiar folder icon. Using the Package element, you can construct hierarchical models, allowing complex systems to be decomposed and categorized. Packages and their contents can be moved around freely in the Project Browser, so that you can easily refactor the repository. Packages can be copied and pasted between model branches, renamed or viewed as a list.

Packages are important in Enterprise Architect because a number of functions can be applied at Package level, such as Baselining, Version Control, Transformation and more. Formally, the Package is a Namespace for the members it contains, and a model element can be a member of one and only one Package. In software engineering and other formal modeling disciplines a Package can be set as a Namespace Root, which acts as the starting point of a given namespace.

## Notes

- In the Corporate, Unified and Ultimate editions of

Enterprise Architect, if security is enabled you must have 'Update Element' permission to update or delete a Package




# Add a Package


Adding a Package to a model is a simple but versatile process. It is possible to add a new Package to a View, Model Package or lower-level Package. In the process you can automatically:

- Create a Package using a specific Model Pattern
- Create a child diagram for the Package
- Add the new Package to the Version Control system that its parent object is under

## Access

Ribbon	Design > Package > Insert > Insert a Simple Package
Context Menu	Project Browser   Right-click on Package   Add a Package
Keyboard Shortcuts	Ctrl+W
Other	Project Browser caption bar menu   New Package (  )

## Add a Package to the model hierarchy

Option	Instruction
Owner	Displays the name of the currently-selected Package or View, to which you are adding the new Package. If this is not the required owner Package, click on the  button and select the correct Package.
Name	Defaults to the automatic name, either 'Package n' or, if you have an autonaming scheme turned on, the defined name. If necessary, overwrite this name with the preferred name of the new Package.
Select and Apply Model Pattern	Select this radio button to create the new Package from a Model Pattern.
Create diagram	Select this radio button if you want to immediately create a child diagram for the Package.
Package	Select this radio button if you want to just

Only	create a Package.
Add to Version Control	(Available if you are adding this Package to a parent object that is under Version Control.) Select this checkbox to add the new Package to the same Version Control system, deselect the checkbox to exclude the Package from Version Control.
OK	<p>Click on this button to create the Package in the Project Browser.</p> <p>If you selected the 'Select and Apply Model Pattern' radio button, the Model Wizard screen displays. Select the appropriate Technology and select the checkbox against the Model Pattern (in the 'Name' panel) to import.</p> <p>If you selected the 'Create diagram' radio button, the 'New Diagram' dialog displays. Provide a name for the diagram and select the Technology and type.</p> <p>The new Package is inserted into the Project Browser under the selected parent Package or View.</p>
Cancel	Click on this button to abort the changes you have made and close the dialog.

## Notes

- You can also add a new Package element by dragging the Package icon from the Toolbox into a diagram; in this case the Package is created under the diagram's owning Package
- If the change is not immediately visible in the Project Browser, click on the parent Package and press the F5 key to refresh it
- In a multi-user environment, other users do not see the change until they also press the F5 key or reload their project

# Open Package in the Project Browser

When you access a model in Enterprise Architect, you can explore the contents of any Package in the Project Browser by clicking on the white arrow to the left of the Package name, to expand the Package structure. If the model has a default diagram (which displays automatically when you access the model) the diagram's parent Package is already expanded.

To display the Package's properties, right-click on the Package name and select the 'Properties | Properties' menu option; the Properties window displays for the Package.

## Notes

- Package contents are arranged alphabetically, and elements can be dragged from one Package to another using the computer mouse
- To collapse the Package structure again, click on the black arrow to the left of the Package name in the Project Browser
- To refresh the view of the Package contents, click on the Package in the Project Browser and press the F5 key

# Rename a Package

If you want to correct or change a Package name, it is very simple to do so using the 'Properties' dialog for the Package.

## Access

In the Project Browser, select a Package and:

Ribbon	Design > Package > Edit > Properties
Context Menu	Right-click on Package   Properties
Keyboard Shortcuts	Alt+Enter
Other	Double-click on Package

## Rename a Package

Step	Action

1	In the 'Name' field, type the new name.
2	Click on the OK button.

## Notes

- In a multi-user environment, other users do not see the change until they reload their project

## Copy a Package

In developing your model, you might want to duplicate the structure and organization of a section so that, for example, you can replicate that part of the model in another model, or make it easier to cross-refer the contents of duplicate sections. You can quickly do this by copying a complete Package, including its child Packages, elements and diagrams, and then pasting it under:

- The same parent Package
- One or more other Packages in the same model or project, or
- One or more other Packages in another model or project

You would tend to use this procedure for copying sections of a model within the project rather than reproducing an entire model or project, although copying these larger structures is equally feasible.

## Duplicate a Package

Action	Detail
Copy the Package	In the Project Browser, right-click on the Package and select the 'Copy / Paste   Copy to Clipboard   Full Structure for



	<p>Duplication' option (or click on the Package and press Ctrl+Shift+C).</p> <p>The 'Copy selected Package to Clipboard' dialog briefly displays until the copy operation completes.</p>
Paste the Package	<p>In the Project Browser, right-click on the target Package into which to paste the copied Package, and select the 'Copy / Paste   Paste Package from Clipboard' context menu option (or click on the Package and press Ctrl+V).</p> <p>The 'Paste Package from Clipboard' dialog briefly displays until the paste operation completes.</p> <p>In the Project Browser, the target Package is expanded to show the pasted Package; if you are pasting the Package within the same model as the copied source, the source parent Package is also collapsed.</p> <p>If the target Package already contains:</p> <ul style="list-style-type: none"><li>• A Package with the same name as the pasted Package, the pasted Package name has the suffix - Copy</li><li>• A Package with the same name as the pasted Package including the - Copy suffix, the suffix becomes - Copy1 (or - Copy2, - Copy3 and so on, as copies of</li></ul>

	<p>the Package accumulate in the target parent Package)</p> <p>You can keep the same Package name as the source, or you can rename the Package by either:</p> <ul style="list-style-type: none"><li>• Clicking twice on it and editing the name in the Project Browser, or</li><li>• Double-clicking on it and editing the name in the 'Properties' dialog</li></ul>
--	--

## Notes

- You cannot paste a Package into a parent Package that is locked by another user or that is checked in; the 'Paste...' option is grayed out in the context menu
- This procedure is effectively the same as exporting and importing the Package XMI file, with the 'Strip GUIDs' checkbox selected
- The paste operation can be a single transaction or a series of transactions to paste each data item separately, depending on the setting of the 'Import using single transaction' checkbox in the 'XML Specifications' page of the 'Preferences' dialog
- You can also move a Package to a different part of the model, in the same way as moving an element



# Delete a Package

If you do not want to keep a particular Package in the model, it is very simple to remove it.

## Access

Context Menu	Right-click on Package   Delete '<package name>'
Keyboard Shortcuts	Ctrl+Del

## Notes

- Deleting a Package also deletes all contents of the Package, including sub-Packages and elements; make very sure that you really want to do this before proceeding
- In a multi-user environment, other users do not see the change until they reload their project

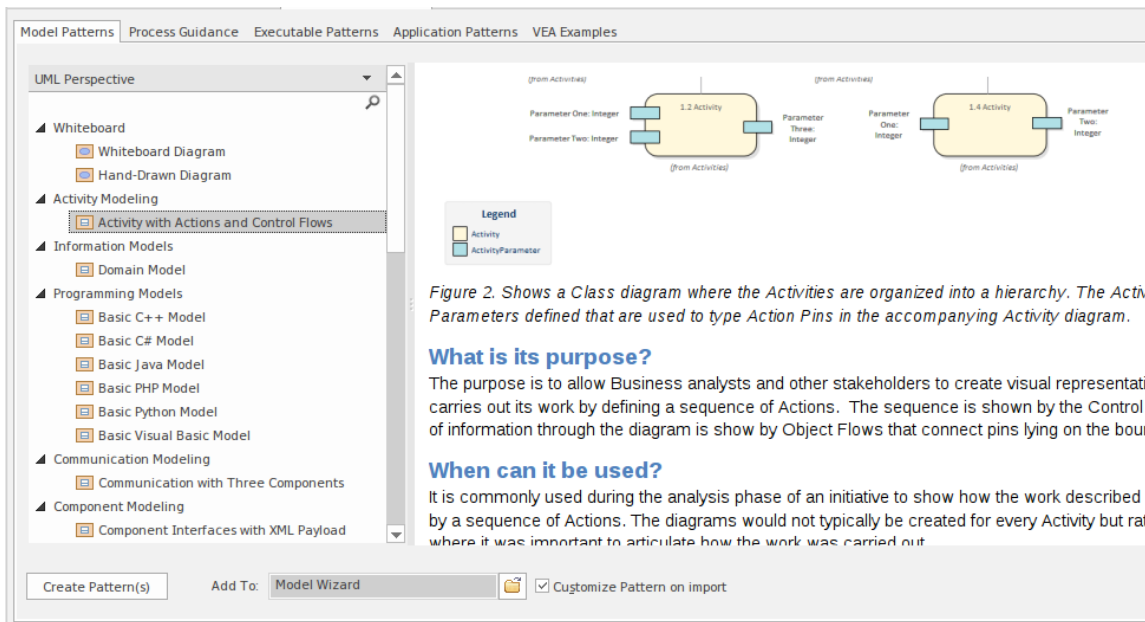
# Model Wizard

The Model Wizard view provides Patterns from a wide range of technologies, which you can use to quickly generate new models in your project both when you first create the project and over time. The Model Wizard view has five tabs:

- Model Patterns - from which you can create basic models that you can develop further as components of your project
- Diagram - provides filtered groups of Patterns for generating individual diagrams
- Process Guidance - providing a series of Patterns that define the steps of business and development processes, including checklist elements that users can fill in as they complete the stages of the process
- Application Patterns - from which you can generate starter projects including model information, code and build scripts for several basic application types
- VEA Examples - through which you can import complete sample models (Packages), including all necessary model information, code and build scripts, to explore and try out the Visual Execution Analyzer

For the 'Model Patterns', 'Process Guidance' and 'Diagram' tabs, a 'Perspective', 'Select From' or Filter Group panel on the left of the view shows a list of Pattern groups and the Patterns they contain. If you click on a Pattern, a description displays in the right-hand panel of the window, showing a

type diagram (where appropriate) and an explanation of what the Pattern is and what it does. This description is drawn from an RTF file paired with the Pattern's source XML file.





Use of the 'Model Patterns' tab is described here. For information on the other tabs, see these Help topics:

- *Applying Process Guidance*
- *Diagram Patterns*
- *Application Patterns*
- *Visual Execution Analyzer Samples*

## Access

The Model Wizard automatically displays when creating a new project; otherwise use these options to access it:

Ribbon	Design > Package > Insert > Insert using
--------	--

	Model Wizard
Context Menu	Right-click on Package   Add a Model using Wizard
Keyboard Shortcuts	Ctrl+Shift+M
Other	<p>Project Browser caption bar : </p> <p>Project Browser caption bar :  &gt; New Model from Pattern</p>

## Generate a New Model

Field/Button	Action
UML Perspective	<p>The 'All UML' Perspective is the default when you open the Model Wizard on a root node that has no models. This Perspective shows a list of groups of basic UML Patterns available to build your model from. The display defaults to showing the groups expanded.</p> <p>If you click on the drop-down arrow in the 'All UML Perspectives' title bar, a list</p>


of the other Perspective groups displays. As you mouse-over an option in the list, the Perspectives available in that group also display. When you click on a Perspective to select it, the panel is updated with the Pattern groups and Patterns provided by the selected Perspective. Again, as you click on a Pattern in the list, a description is provided in the right-hand panel.

It is possible to list every Pattern Group and Pattern available in the model; click on the drop-down arrow and select the 'Manage > Show All Perspectives' option. Conversely, you can restrict the list of Patterns shown by typing a text string in the Filter Bar underneath the panel heading. Only Patterns that have that text string in their name are listed.

If you are a Technology Developer you can create and import your own MDG Technology, and distribute one or more custom Model Patterns from that Technology through the Model Wizard; the name of your Technology (or Technology categories) is added to the selection list for your users to access the Technology Patterns.

To select a Model Pattern, simply click



	<p>on it. If you want to select more than one Pattern, hold the Ctrl or Shift key down while you click on each Pattern.</p>
Create Pattern(s)	<p>Click on this button to import a model structure derived from the Pattern(s) you have selected. The 'Importing Model Templates' dialog displays whilst the import is in progress, and any problems with the import are reported in the System Output window. The generated model structure displays under your selected Package in the Project Browser.</p>
Add To	<p>Displays the name of the Package you have selected in the Project Browser.</p> <p>If you are using the Model Wizard by default on a newly-opened project, this field shows the Model root, 'Model'.</p> <p>If you need to change the Package to generate the model under, click on the  icon and browse for the correct Package on the 'Navigator' browser.</p>
Customize Pattern on import	<p>A Pattern can contain several Packages; select this checkbox to indicate that you will import only some of these Packages from the Pattern into your model. After you click on the Create Pattern(s) button,</p>

	<p>the 'Select Packages' dialog displays on which you specify which of the Packages to import.</p> <p>If you select more than one Pattern, the 'Select Packages' dialog displays for each Pattern in turn.</p> <p>If you do not select the checkbox, all Packages in each Pattern will be imported into the model.</p> <p>The option is disabled if there are too few Packages to select from, or if it is not logical to import only some of the Packages.</p>
Combine with selected Package	<p>Select this option to import the contents of the Pattern into the selected Package.</p> <p>When creating a Pattern, Enterprise Architect will normally create a new Package to represent the Pattern, as a child of the selected Package. If you select this checkbox, no new Package is created and instead the contents of the Pattern are added to the selected Package (provided that the selected Package is not a root node).</p>

## Notes

- The 'Select Package(s)' dialog does not display for some of the Simple Template and Basic Template Patterns, even if the 'Customize Pattern on import' option is selected

# Customize Model Content

When you set up a project by importing models using the Model Wizard, you generate the model structures from Patterns that you select in the Wizard. Each Pattern can contain a number of Packages and sub-Packages, and it is possible to select which of these Packages to add to your model and which to omit, using the 'Select Packages' dialog. This is especially useful when setting up a new model with a reasonably complex structure, such as the TOGAF framework model. Being able to select which Packages are included and which are omitted is a good way to customize the level of implementation necessary for the current project.

## Access

Ribbon	Design > Package > Insert > Insert Using Model Wizard > Select 'Customize Pattern on import' : Create Pattern(s) button
Context Menu	Project Browser   Right-click on a Package node   Add a Model using Wizard   Select 'Customize Pattern on import' : Create Pattern(s) button

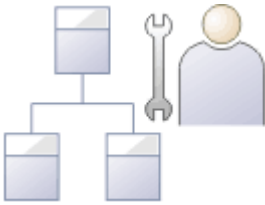
Keyboard Shortcuts	Ctrl+Shift+M   Select 'Customize Pattern on import' : Create Pattern(s) button
Other	Project Browser caption bar menu   New Model from Pattern   Select 'Customize Pattern on import' : Create Pattern(s) button

## Select Package(s) dialog

Option	Description
Select Package(s) to import from <pattern>	<p>Shows the hierarchy of Packages contained in the Pattern, with a checkbox to the left of each item. The checkboxes are selected by default.</p> <p>Deselect the checkbox against each Package that you do not want to import.</p> <ul style="list-style-type: none"><li>• Deselecting a Package automatically deselects all its child Packages</li><li>• Re-selecting a Package automatically selects all its ancestor Packages</li></ul>
OK	Click on this button to import the selected Packages from the current Pattern.

Cancel	<p>Click on this button to abort the creation of model structures from the current Pattern.</p> <p>If you originally selected only one Pattern, clicking on this button also closes the Model Wizard.</p>
--------	---

# Diagrams



Diagrams are one of the most expressive views of the repository. They show a number of elements connected to each other by relationships, creating a narrative that describes a part of the repository in a visual language. Quite commonly the elements in a diagram exist in the same Package in the Project Browser; however, the most expressive diagrams typically contain elements of different types from different Packages.

Creating a diagram is one of the most common ways for a modeler to add elements or relationships to the repository. As new elements are dropped onto the diagram canvas from the Toolbox, they are added to the same Package (or element) that contains the diagram. These same elements can participate in other diagrams; in fact, the more diagrams the elements appear in, the richer the model.

Diagrams are displayed in the Project Browser as a child of either a Package or another element. While they often reside in the same Package (or element) as the elements they contain, they can be freely moved around the Project Browser to any location.

Like learners of natural languages, newcomers to modeling often create basic diagrams that lack expression, but with a little practice and some time spent examining the diagrams

of experienced modelers their diagrams will soon become rich and expressive.

Enterprise Architect supports a wide range of modeling languages, each of which has a set of diagrams; these include the UML, BPMN, SysML and many other languages and technologies.

## Developing Diagrams

As you create your diagrams and add modeling elements to them, you can use a number of powerful facilities to add extra meaning and expression, such as:

- Partition the diagram, whatever the type, either vertically into columns or horizontally into rows, using Swimlanes
- Partition the diagram into a grid of cells, using a Swimlanes Matrix
- Create a Kanban diagram, sectioned and color-coded to organize the elements' project management properties
- Add Legend elements, which both provide and can automatically apply a key to the colors and styles you have used for the modeling elements on the diagram
- Depict the more elements on the diagram as the objects that they represent, using graphical images from the Image Manager
- Automatically apply one of a range of layout formats to the diagram



## Notes

- If the diagram display is too small to read comfortably, click on the diagram, press and hold Ctrl and use the mouse wheel to temporarily expand or reduce the display magnification
- Diagrams can be the subjects of informal discussions and formal reviews; to add a diagram to a:
  - Discussion, simply click on it when the Collaborate window is open
  - Review, encapsulate it in a Navigation Cell on the Review diagram

# Diagram View

If you have created diagrams in the Project Browser, you can select to open them and then add elements and connectors to them within the Diagram View. This is the main workspace for developing the structure of your model components, dragging new objects onto the diagram from the Diagram Toolbox and existing objects from the Project Browser. You can also add elements and connectors using the Quick Linker and other context menus within the Diagram View, and move, format and edit them.

Most work on elements and connectors is carried out in the Diagram View, so understanding how it works and how to manipulate elements is essential. You can use the EAExample project supplied with the system, or your own 'sandpit' models, to explore the capabilities and behavior of the Diagram View.

## Access

Project Browser	<ul style="list-style-type: none"><li>• Double-click on the diagram name or</li><li>• Select the diagram node and press the Enter key</li></ul>
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## Diagram sections

Section	Description
Caption Bar	<p>Across the top of a diagram is the diagram caption bar, which includes:</p> <ul style="list-style-type: none"><li>• A horizontal 'chevron' icon to display or hide the Diagram Toolbox docked on the left of the Diagram View, from which point you can drag it and dock it elsewhere; if you then hide the toolbox and show it again, it is placed back on the left of the Diagram View</li></ul> <p>Whichever diagram you have displayed, the Toolbox pages are appropriate to that diagram type</p> <ul style="list-style-type: none"><li>• Icon and text label for the diagram type</li><li>• Diagram name</li><li>• A second 'chevron' icon that toggles display of the inline specification panel for the diagram (see the later table entry on this view).</li><li>• A drop-down arrow that lists the currently-open diagrams and views; click on:<ul style="list-style-type: none"><li>- A diagram or view name to switch to that diagram or view</li><li>- Options to redisplay the hidden</li></ul></li></ul>

	<p>Start Page and (if defined) the Model Default</p> <p>diagram, Model Default Kanban chart, User Default diagram or User Default</p> <p>Kanban chart</p> <ul style="list-style-type: none"><li>• The window 'close cross'; click on this to close the displayed diagram</li></ul>
Diagram View	<p>The larger area underneath the Caption bar is the work area within which you can create and view the diagram structures. The borders of the printable diagram page are represented by pale broken lines; structures created beyond these borders will print on separate pages.</p> <p>The Diagram View area is also where the diagram and object context menus operate, and where the representation of the model structure can be changed to a Gantt chart or Diagram List format.</p>
Inline Specification Panel	<p>This panel presents a textual specification of each element in the diagram, the elements being listed initially in alphabetical order. This helps you to visualize and read, at the same time, the section of the model represented by the diagram, giving a comprehensive view of</p>

the model. It is also useful when you are creating Package structures using templates (with the Model Wizard); you can quickly update your elements without having to open another docked window. As you click on an element in one of the diagram or panel, it is also selected in the other.

The panel does not display separately from the diagram; it has to be toggled on or off for each diagram individually.

You can double-click on the element name or notes in the panel and edit the text directly. You can also right-click on an element and select from these context menu options:

- Properties - to display the 'Properties' dialog for the element
- Edit Selection - to immediately put the element name in edit mode, to change it
- Edit Notes - to immediately put the element notes in edit mode, to change them
- Find in Project Browser - to locate and highlight the selected element in the Project Browser
- Properties Window - to display the

	<p>Element Properties window</p> <ul style="list-style-type: none"><li>• Extended Properties - to display the Tagged Values window if it is not already displayed</li><li>• Apply Sort - to change the order in which the elements are listed, to the sequence of elements either left to right across the diagram, or top to bottom down the diagram</li><li>• Reload View - to refresh the display in the Inline Specification View</li></ul>
--	---

## Notes

- Diagrams can contain hyperlinks to other diagrams, which are opened when you click on the links
- It is possible to open several diagrams at once, but within the Diagram View you can only view one at a time
- You can view and work on several diagrams at once by making each tab containing a diagram into a floating window, using the tab context menu; the docked Toolbar remains on the left of the Diagram View frame
- You can also work on elements using the Diagram List
- Additional information on the diagram, or a selected element within the diagram, is displayed in the system

## Status bar

# How to Context Filter a Diagram

As you review a modeling diagram, it is possible to click on any element on the diagram and show only those elements that are directly related to the selected element. All other elements are grayed out until you click on the diagram background.

## Access

Ribbon	Layout > Filter : Choose 'Relationships' from the drop-down list Layout > Tools > Diagram Filters : Right-click dialog background > Context Filtering Show > Portals > Window > Diagram > Diagram Filters : Right-click dialog background > Context Filtering
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## Notes

- When you set the option and click on an element, any elements on the diagram that are not directly related to the selected element are grayed out



- Setting the context filter applies to all diagrams that are open; you can select an element on each opened (floating) diagram and examine their relationships together
- To clear the filtering (but not turn Context Filtering off) press the Esc key
- To select the next element in a direct chain or group of relationships on a diagram, press the Tab key; the Tab key does not take you out of the element group
- To select the next element on the diagram, and display that element's related elements, use the arrow keys to move up, down, left or right to the next element in that direction; when moving left or right, the selection tends to be upwards rather than downwards
- When you enable the option on the Diagram Filters window, it overrides the Diagram Filters settings; to use the Diagram Filters again, toggle the 'Context Filtering' option off
- Context filtering can be made even more useful by highlighting the incoming and outgoing relationships in different colors, by pressing and holding the L key on the selected element

# The Pan & Zoom Window

The Pan & Zoom window provides a 'birds-eye' view of diagrams. It enables you to navigate quickly around large diagrams.

## Access

Ribbon	Layout > Tools > Pan and Zoom
Keyboard Shortcuts	Ctrl+Shift+N

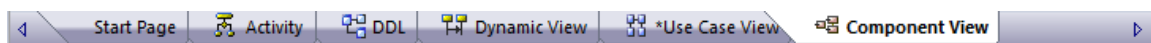
## Reference

Topic	Detail
View	<p>The window shows a reduced image of the whole diagram.</p> <p>The shaded box represents the viewed area, displayed on the open diagram.</p>
Toolbar	The toolbar provides these functions (in

	<p>order):</p> <ul style="list-style-type: none"><li>• Zoom In</li><li>• Zoom Out</li><li>• Zoom to fit diagram</li><li>• Zoom to fit page</li><li>• Zoom to 100%</li><li>• Zoom Slider</li></ul>
Use	<p>Open the required diagram.</p> <p>Move the cursor onto the shaded box inside the Pan &amp; Zoom window.</p> <p>Hold down the mouse button as you move the cursor to move the shaded box over the open diagram.</p> <p>To zoom, use either the Zoom Slider or the buttons located on the tool bar.</p>

# Diagram Tabs

Diagram tabs indicate which diagrams and views (such as the Start Page, document reports, code editors and the Model Search) are currently open in the work area, by showing the view name and icon. The currently displayed view is indicated by the name being in bold on a white tab. An asterisk against the tab name indicates that the diagram or view contains unsaved changes.



To open the view that you want, click on its tab. You can select options for saving, reloading, moving and closing the views from the tab context menu. You can also review the tabs and select one using the View Tab Switcher window. The tabs are located, by default, at the top of the Diagram View; if you prefer, you can move them to the bottom of the Diagram View using the 'Application Look' dialog (the 'Main View Tabs at bottom' checkbox).

## Access

Context Menu	Right-click on the 'Diagram' tab
Other	The View Tab Switcher window can be accessed by pressing and holding the Ctrl key, while pressing the Tab key.

## Diagram tabs context menu options

Option	Action
Save Changes to '<tab name>'	Select this option to save changes made to the diagram or view.
Save All	Select this option to save changes made to the model.
Reload '<tab name>'	<p>Select this option to reopen the diagram or view without the unsaved changes; that is, revert to the state before any of your changes were made.</p> <p>This also refreshes the diagram or view from the repository, to show any changes made by other users in a shared model.</p>
Float	<p>Select this option to convert the diagram or view into a floating window that you can move around your screen(s).</p> <p>An alternative is to simply click on the selected tab and drag it off the 'Diagram Tabs' row.</p>

	<p>You could use this option to display and work on several diagrams at the same time.</p> <p>To restore a floating view to a tab in the Diagram View, right-click on its Caption Bar and select the 'Tabbed Document' option.</p>
Close '<tab name>'	<p>Select this option to close the selected diagram or view; the system prompts you to save any changes.</p> <p>You can also close the tab by clicking the middle mouse button/scroller.</p>
Close All	<p>Select this option to close all open diagrams and views; the system prompts you to save any unsaved changes.</p>
Close All Except '<tab name>'	<p>Select this option to close all diagrams and views except for '&lt;tab name&gt;'; the system prompts you to save any unsaved changes.</p>
Close All <view type>	<p>(Where several views of the same type can be opened at the same time, such as diagrams, report documents, or text editors.)</p> <p>Select this option to close all views of the same type as the selected tab, leaving</p>

	views of other types still open.
Hide	<p>(Start Page only) Select this option to hide the Start Page.</p> <p>To redisplay the Start Page, use the drop-down menu at the top right of the Diagram View, or select the 'Start &gt; View &gt; Workspace &gt; Show Start Page' menu option.</p>

## Notes

- The only context menu option available for the 'Start Page' tab is the 'Hide' option
- You can change the sequence of tabs by clicking on each tab and dragging it to a different position, as required; however, you cannot change the position of the 'Start Page' tab - when displayed, it always sits at the left-hand end of the sequence

# Switch Between Views

When there are a number of open views available in the Diagram View (such as separate diagrams, editors and the Model Search screen), you can review them and switch between them using the View Tab Switcher.

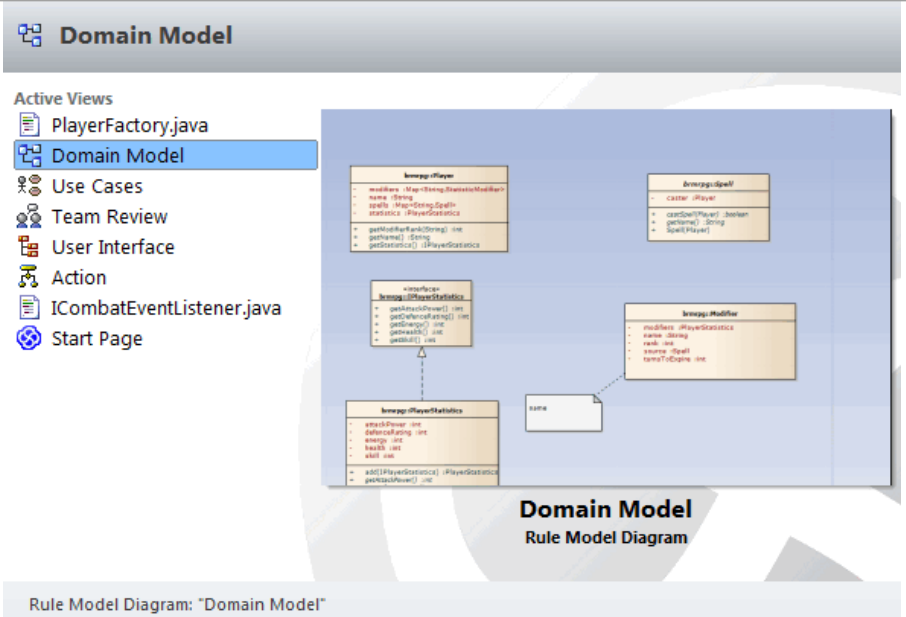
## Access

Other	Click on a view tab, press and hold Ctrl while you press the Tab key.
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## Switching between views

Action	Detail
Selecting a different view	





The screenshot shows the Sparx Systems software interface. On the left, the 'Active Views' list includes: PlayerFactory.java, Domain Model (selected), Use Cases, Team Review, User Interface, Action, ICombatEventListener.java, and Start Page. The main area displays a UML class diagram for the 'Domain Model'. The diagram includes classes such as `IImagePlayer`, `ImagePlayer`, `ImageSpell`, `ImageModifier`, and `ImageStatistics`. A 'Rule Model Diagram' is also visible at the bottom of the main area.

The View Tab Switcher lists the currently open views, in order of most recently activated to least recently activated; the selection cursor is on the name of the view that was activated just before the currently active one.

Details of the selected view are displayed on the right hand side of the screen, and include:

- A preview thumbnail of the view, and
- A description of the view and its contents

Continue holding the Ctrl key to keep the window open; to move the selection cursor:

- Down the list of views, press the Tab

	<p>key</p> <ul style="list-style-type: none"><li>• Up the list, press the Shift+Tab keys</li></ul> <p>Alternatively, use the arrow keys.</p>
Activating a view	<p>To activate a view in the Diagram View, either release the Ctrl key or press the Enter key; alternatively, click on the required view.</p> <p>Activating a view moves it to the top of the 'Active Views' list, whereas closing a view removes it from the list completely.</p>

# Diagram Toolbox

The Diagram Toolbox is a panel of icons that you can use to create elements and connectors on a diagram. You can also use the Toolbox to add elements to:

- A Package through the Specification Manager and
- A Package or an element in the Project Browser



Within the Toolbox, related elements and connectors are organized into pages, each page containing the elements or connectors used for a particular type of diagram. The diagrams include standard UML diagrams, Enterprise Architect Extended diagrams, and diagrams customized for any MDG Technologies and Profiles that you have added to the system.

When you open a diagram, the Toolbox automatically provides the element and relationship pages corresponding to the diagram type. This does not prevent you using elements and connectors from other pages in a given diagram, although some combinations might not represent valid UML.

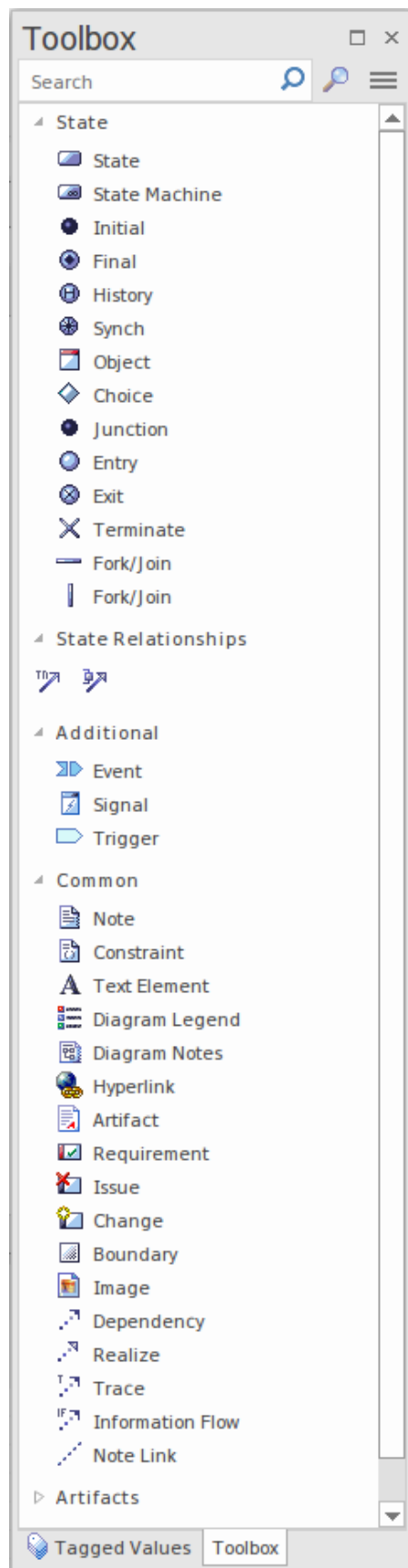
The Toolbox provides a number of mechanisms for locating the page or object you want to use.

## Access

Ribbon	Design > Diagram > Toolbox
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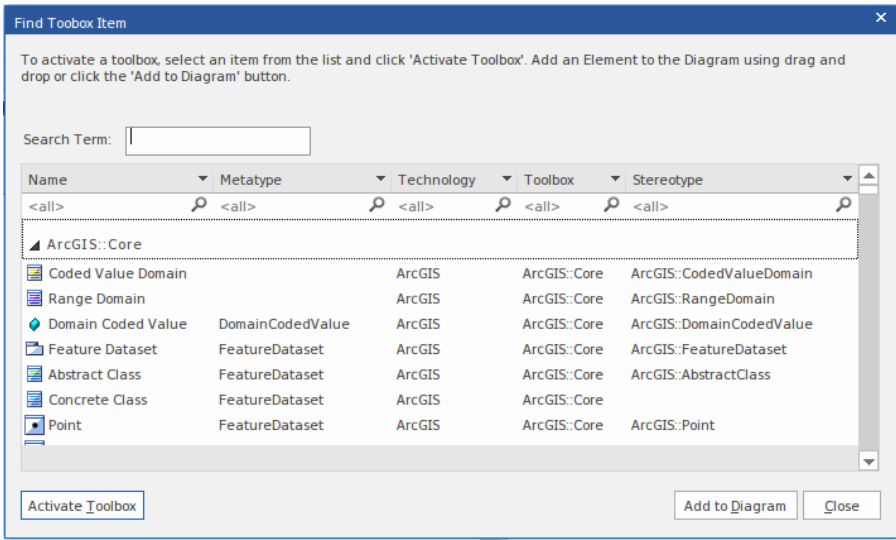
Keyboard Shortcuts	Alt+5
Other	You can display or hide the Diagram Toolbox by clicking on the  or  icons at the left-hand end of the Caption Bar at the top of the Diagram View.

## Example



## Locating Diagram Toolbox Pages or Icons

These options help you to locate and display particular pages or icons in the Diagram Toolbox

Option	Detail
Search for a Toolbox page or icon	<p>The easiest way to locate a Toolbox page or specific icon that you require is to use the 'Find Toolbox Item' dialog, which you display by clicking on the  button at the top of the Toolbox. The 'Find Toolbox Item' dialog displays every Toolbox page, listed by Technology name and page name, in alphabetical order.</p>  <p>The columns that display on this dialog can be added to using the 'Field Chooser' dialog (right-click on the column headings and select the 'Field Chooser' option), and dragged into a different</p>

sequence. You can also select options to use the 'Group Box' to reorganize the display of information in the dialog, and to expand or hide the contents of every Diagram Toolbox page. You can expand the Toolbox pages individually by clicking on the white arrowhead to the left of the page name.

To locate a Toolbox page or icon, you can type some or all of the characters in the name or property of the object you are searching for in either:

- The 'Search Term' field or
- The appropriate Filter Bar field underneath each column header (right-click on the column headers and select the 'Toggle Filter Bar' option) or
- 'Search Term' and Filter bar fields in combination to further refine the search

As you type, the list immediately reduces to show only the objects that have those characters in their name or property text.

Be aware that if you have the list collapsed, showing only the Toolbox page name, the list might show page names that do not include the characters. Those pages do contain objects that have those characters. The search automatically selects the first object in

the list; to move to the next object, press the Down Arrow key.

To confirm what the object is that you have positioned the cursor on (especially if you do not want to use all the columns available in the 'Field Chooser' dialog) the stereotype and page name for the object display in the bottom left corner of the dialog.



Having located the Toolbox page or object you require in the dialog, you click on the Add to Diagram button or drag the objects onto an open diagram to generate elements or connectors. You can also drag element icons into the Specification Manager to generate elements there.

If you want to refresh the Diagram Toolbox to display the Toolbox page you have selected, so that you can use all the icons in it during this session, either:

- Click on the Activate Toolbox button, or
- Double-click on a page name or an object in the 'Find Toolbox Item' dialog, or
- Right-click on an object in the list and select the 'Show Toolbox' option

The context menu also provides options



	<p>to</p> <ul style="list-style-type: none"><li>• Pin the Toolbox page to the Diagram Toolbox so that it is always included there until it is specifically unpinned</li><li>• Move the cursor to the first Filter Bar field ('Name') to edit it</li><li>• Hide the Filter Bar</li><li>• Expand or collapse all the Toolbox pages displayed in the dialog</li></ul>
Search for an icon on the current Toolbox page	<p>To locate an element or link on the currently-displayed Toolbox pages, simply overtype the <i>Search</i> field at the top of the Toolbox with some or all of the characters of the object name. The field filters the pages to show only those objects that have those characters in their names.</p> <p>To clear the field, click on the  icon or press the Delete key or Backspace key. This facility is very useful if you have long pages of elements or several pages pinned in the Toolbox (see the <i>Customize the Toolbox</i> section).</p>
Display a full list of pages	<p>Click on the  icon at the left of the Toolbox toolbar. This displays an extensive list of Toolbox pages, through which you can scroll until you find the</p>

	<p>name of the pages you want. You can scroll using the mouse wheel or up arrow and down arrow keyboard keys, or by clicking on the small black arrows at the top and bottom of the list window. Click on the required name to display the pages in the Toolbox.</p> <p>For the selected option a number of pages might display, but these generally include:</p> <ul style="list-style-type: none"><li>• &lt;type&gt; Elements</li><li>• &lt;type&gt; Relationships</li><li>• Common and</li><li>• Artifacts</li></ul> <p>If you select the &lt;default&gt; option, right at the end of the list, you display only the 'Common' and 'Artifact' pages.</p>
Customize the Toolbox	<p>You can customize the Toolbox display by pinning pages within the Toolbox, or by adding MDG Technologies and UML Profiles to the Toolbox.</p>

## Create elements and connectors on the diagram from the Toolbox

Step	Instruction
1	<p>In the Project Browser, double-click on the icon against the required diagram.</p> <p>The diagram opens with the appropriate Toolbox pages for that diagram type.</p> <p>If you want a different set of elements and connectors, select the appropriate Toolbox pages as explained previously.</p>
2	<p>Click on the icon for the required item; for example, the Class element or Associate relationship.</p>
3	<p>For element items, click anywhere on the diagram to place the new element at the cursor position.</p>
4	<p>For connector items, drag the cursor between the source and target elements on the diagram; as you pass the cursor over the elements, a hatched border displays inside each element's solid border, indicating the source and potential target elements.</p> <p>To add bends to the connector, press Shift as you change the drag direction of the cursor.</p> <p>Alternatively, drag from the source element to an empty area of the diagram; the Quick-linker suggests common target element types and connector types to</p>

	create.
5	Edit the element properties or connector properties, as required.

## Create elements in the Project Browser

Click on the element icon in the Diagram Toolbox, then click on the parent Package or element in the Project Browser to select it, and click again to drop the element under the parent.

You cannot add objects that do not display in the Project Browser, such as Note elements, Text elements, connectors or Boundaries.

If an element is of a type that cannot be added as a child of the object in the Project Browser, an error message displays.

## Notes

- Dropping a Package icon from the Toolbox into a diagram creates a new Package in the Project Browser, and a default diagram of the same type as the current diagram
- If you are creating several elements of one type, after creating the first just press Shift+F3 or Ctrl+click to create

the next element of that type; for connectors, click on the source element and press F3 to create another connector of the same type

- You can change an unstereotyped element to one of its stereotyped elements by dragging the stereotyped element icon from the Toolbox onto the unstereotyped element in the diagram; for example, you can stereotype a Class by dragging a Table icon or a Profiled Class icon onto it
- As you drag the stereotyped element icon, you can press Ctrl to apply the element stereotype to the unstereotyped element, or Shift to add the stereotyped element as a new element; otherwise a small context menu displays offering these actions as options
- If the diagram element already has the stereotype, you can also drag the Toolbox icon onto it to synchronize the element's stereotype Tagged Values
- The Toolbox can be docked on either side of the diagram, or free floated on top of the diagram to expose more surface for editing; you can also hide and redisplay the Toolbox by clicking on the horizontal 'chevron' icon at the left of the diagram header bar
- Enterprise Architect provides Toolbox pages for a wide range of MDG Technologies, such as ArchiMate, BPEL, BPMN, Data Flow diagrams, ICONIX and Mind Mapping, as part of the initial install

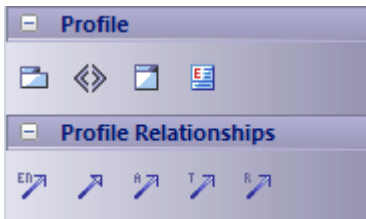
# Toolbox Appearance Options

You can modify the appearance of the Diagram Toolbox pages in several ways, through the Toolbox context menu.

## Access

Other	Right-click on a Toolbox page background
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## Options

Option	Detail
Hide or Show element or relationship name labels	<p>Select the 'Hide Labels' (or 'Show Labels') context menu option.</p> <p>The icons in the page then 'wrap' within the page, without text labels.</p> 

	<p>When you hide the labels, you can display the label of an individual element or relationship by moving the cursor over the icon.</p>
<p>Pinning pages to display all the time</p>	<p>Select the 'Pin in Toolbox' context menu option (not available on the 'Common' page, which displays all the time anyway).</p> <p>For example, if you 'pinned' the expanded 'Class elements' page, and switched to the 'Communication' pages, the Toolbox would include a collapsed 'Class elements' page below the 'Communication' pages.</p> <p>You can also pin a 'SysML Common' page to the Toolbox, simply by making the SysML 1.4 Technology the Active technology for your work login.</p>
<p>Unpinning pages</p>	<p>To unpin the expanded page so that it displays only in its own Toolbox group, select the 'Unpin from Toolbox' context menu option.</p>
<p>Collapsing pages</p>	<p>To collapse a page to just show the heading (&lt;type&gt; elements, &lt;type&gt; Relationships or Common), select the</p>

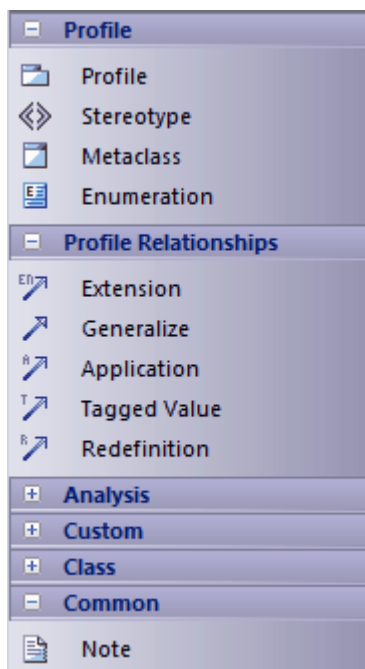
	<p>'Collapse the current branch' option. Alternatively, click on the page name. To expand the page again, click on the page name.</p>
--	---

## Tailor Toolbox to list all required pages at once

Step	Instruction
1	<p>On the context menu, click on the 'Set Toolbox Visibility' context menu option. The 'Pinned Toolbox Pages' dialog displays.</p>
2	<p>By default, the dialog lists the element pages only, in alphabetical order. To include the corresponding relationship pages, select the 'Show Relationship Pages' checkbox at the bottom of the dialog.</p>
3	<p>For each page to display on the Toolbox, select the 'Pinned' checkbox. Deselect the checkbox if you no longer require a page to be displayed.</p>



- 4 When you have defined the list of pages to display, click on the OK button.
- The pages you have selected are pinned to the Toolbox in a collapsed state, underneath the current diagram-type pages.



- 5 To expand a page, click on the heading.
- To remove an individual page, expand it, right-click on it, and select the 'Unpin from Toolbox' option.

## Notes

- On a Toolbox page for an MDG Technology or UML

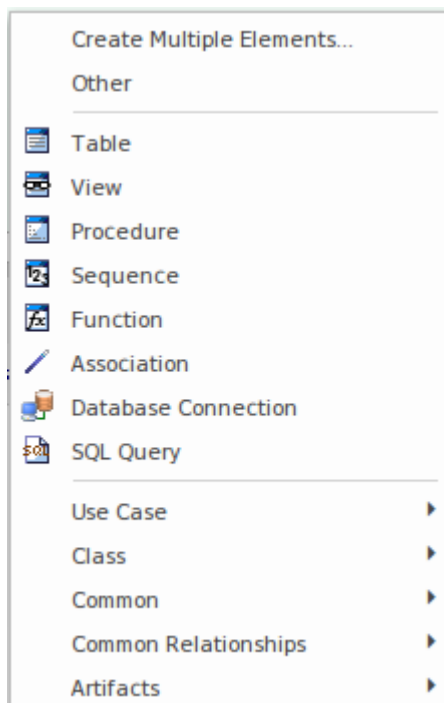
Profile, if you right-click directly on a Profile element an additional option - 'Synchronize Stereotype' - is available at the end of the context menu; this enables you to synchronize the Tagged Values and constraints for all elements created from the selected Profile element

- MDG Technologies can impose their own Toolbox page visibility; for example, if ICONIX is the active technology, all six ICONIX pages are automatically exposed in the Toolbox
- If the active Technology pages duplicate UML or Extended pages (as the ICONIX pages do), the pinned Technology pages override and replace the pinned UML and Extended pages; for example, if ICONIX is active and you have pinned the 'Extended | Analysis' page, the 'Analysis' page in the list is the ICONIX-defined page, not the 'Extended | Analysis' page

# Toolbox Shortcut Menu

When you add elements and connectors to a diagram, you can do so using the 'Toolbox Shortcut' menu as an alternative to employing the full graphical Toolbox.

The menu resembles this example:



It provides options to add to the diagram:

- Multiple elements at once, of types appropriate to the diagram or selected Toolbox page
- Elements and connectors from Toolbox pages assigned to other diagram types (the 'Other' option)
- Elements and relationships specific to the current diagram type (in the example, the Database elements)
- Elements and relationships from any pages pinned in the Toolbox (in the example, the 'Use Case' and 'Class')

options)

- Common elements and relationships
- Artifacts of any type

The advantage of using the shortcut menu is that it provides an increased amount of the workspace to be used for diagramming rather than displaying fixed (instead of pop-up) menus.

## Use the Toolbox Shortcut Menu

Step	Action
1	Open a diagram.
2	Click on the diagram background and press the Insert key or Spacebar The 'Toolbox Shortcut' menu displays.
3	If you want to: <ul style="list-style-type: none"><li>• Create a group of elements in one go, select the 'Create Multiple Elements' option to display the 'Create Multiple Elements' dialog, or</li><li>• List elements and connectors for a different diagram type, either:<ul style="list-style-type: none"><li>- Select a pinned Toolbox page option, or</li><li>- Select the 'Other' option to display the 'Find</li></ul></li></ul>

	<p>Toolbox Item' dialog and search for the appropriate element or toolbox page</p> <ul style="list-style-type: none"><li>• Add a common element or an Artifact element, expand the appropriate option</li></ul>
4	<p>Click on the element or connector to include in the diagram; the element is added to the diagram, or you can drag from one element to another to create the connector.</p> <p>If you select the 'Other' context menu option, the 'Find Toolbox Item' dialog offers the 'Activate &lt;Type&gt; Toolbox' option; this opens and activates the corresponding page in the Toolbox.</p>

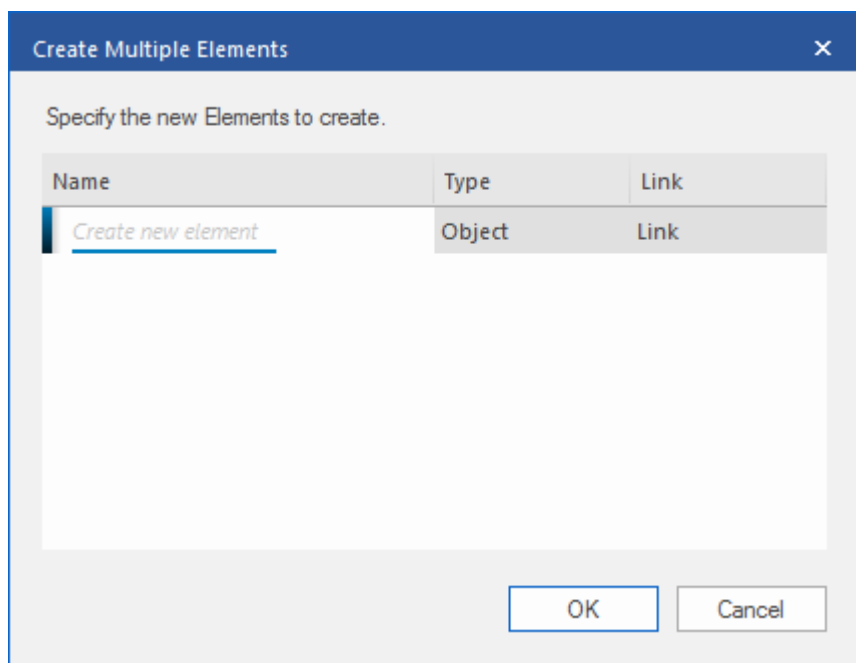
## Notes

- As with the Toolbox itself, if an MDG Technology:
  - Is active
  - Automatically pins Toolbox pages, and
  - Duplicates UML or Extended pagesthen the pinned Technology pages override and replace the pinned UML or Extended pages in the 'Toolbox Shortcut' menu

# Add Multiple Elements

Enterprise Architect provides a facility for quickly creating a number of elements to be added to a diagram in one go. This helps you to organize a set of elements - all the same type or a mixture of types - and review them, renaming or deleting some if necessary, before committing them to the diagram and model. One of the very useful features of this facility is that you can import a block of lines of text and automatically create a new element from each line. You can use this to generate a large number of, say, Requirement or Business Rule elements with meaningful names, from a source document such as a spreadsheet or specification in an instant.

You set up the group of new elements using the 'Create Multiple Elements' dialog.



There are two variants of this dialog. You can create:

- Separate elements through one of a number of keyboard commands, in which case the dialog shows the 'Name' and 'Type' columns, or
- Elements related to one selected element using the Quick Linker arrow, in which case the dialog also provides a 'Link' column (as shown) through which you specify what the relationships are between the selected element and the new elements

## Access

On an open diagram:

Ribbon	Design > Element > Insert > Insert Multiple New Elements
Keyboard Shortcuts	Insert key > Create Multiple Elements Space Bar > Create Multiple Elements Ctrl+right-click > Create Multiple Elements Shift+right-click > Create Multiple Elements
Other	Drag an element's Quick Linker arrow to an open space on the diagram and release the mouse button > Create Multiple Elements

## Create the group of elements

On the 'Create Multiple Elements' dialog:

Step	Action
1	In the 'Name' column, overtype the <i>Create new element</i> text with the name of the new element.
2	<p>In the 'Type' column, click on the drop-down arrow at the right of the field and select the required element type.</p> <p>The types offered in the drop-down list are those currently listed in the Toolbox selected for the diagram (or, if you selected the option with the Quick Linker arrow, the types are the same as those in the Quick Linker list).</p>
3	<p>Selecting the type positions the cursor on the next line, with the 'Type' field set to the same element type as you selected from the previous element.</p> <p>You can simply type in the next element name and press the Enter key to create another element of the same type, or type in the name and repeat Step 2 to add an element of a different type.</p>



4	<p>If you have displayed the 'Create Multiple Elements' dialog from the Quick Linker arrow menu, the dialog displays a 'Link' column for the type of relationship between the selected element and each new element. Click on the drop-down arrow and select the relationship type from the list; the list is the same as that provided by the Quick Linker, and consists of the appropriate common relationships for the source and element types.</p> <p>The first selected relationship sets the default for the next relationship you create on the dialog, and you can either leave that as it is or select a different type.</p>
5	<p>When you have specified a complete set of elements and relationships, you can quickly review and - if necessary - modify them using a context menu within the dialog (see the <i>Review New Elements</i> table) before you commit them to the diagram and model.</p> <p>When you are satisfied that you have defined the objects you require, click on the OK button to add them to the diagram and model.</p> <p>If the linked elements need to have other structures (such as the Object Flow link between an Activity and an Action) these are also added (in this case, an ObjectNode on the Activity and an ActionPin on the Action).</p>

6	If you decide not to create elements from the names you have entered, press the Cancel button to delete them all and to close the dialog.
---	---

## Review New Elements

Right-click on an item in the list, to display the context menu.

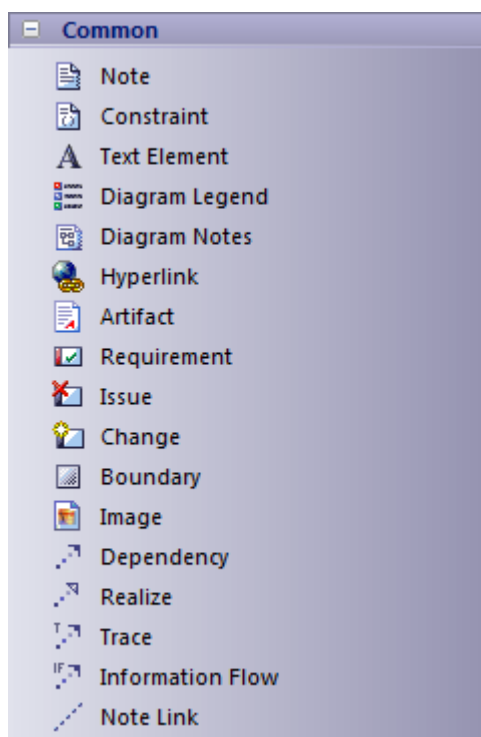
Option	Action
Add New Element	Position the cursor in the next empty 'Name' field, ready for you to type in an element name. The 'Type' and 'Link fields' default to the values from the previous entry. Shortcut: Ctrl+N
Edit Item	Place the selected element name in Edit mode, to be typed over with a different name. You can also change the name, element Type and

m	<p>Link type by clicking on the field and overtyping or selecting a new value from the drop-down list.</p> <p>Shortcut: Enter key</p>
Delete item	<p>Immediately remove the selected item from the dialog. The element does not and will not exist in the diagram and model, and therefore will not have any links to other elements, Packages or diagrams to check. There is no validation to establish whether to delete the element from the diagram only, or from the diagram and model.</p> <p>Shortcut: Ctrl+D</p>
Import from Clipboard	<p>Insert a number of lines of text from the Windows clipboard, each line becoming the name of a new element. The element Type and Link type default to the last-defined types, which you can leave as is or change as required. If the dialog is too narrow to display the element names, you can resize it.</p> <p>The imported text can come from an internal or external file. The system takes any line break (Enter, Shift+Enter, Ctrl+Enter) as the end of the text string and hence the end of the element name.</p>




# Common Page







The 'Common' page of the Diagram Toolbox provides the elements and relationships that can be used on any diagram. It is displayed at the bottom of every other set of pages in the Toolbox.








The Artifacts Toolbox page is also a common page, displayed at the bottom of every Toolbox.

## Common Elements






Element	Description
 Note	A Note element is a textual annotation

	that can be attached to a set of elements of any other type.
 Constraint	A Constraint is a form of Note, identifying a constraint on other elements.
 Text Element	A Text element is a textual annotation that is similar to a Note, however has no boarder or background color.
 Diagram Legend	A Legend element provides a key to the colors and line thicknesses you have used to distinguish between element and/or connector groupings on the diagram.
 Diagram Notes	On a diagram, it is possible to display a customized text box called the Diagram Properties Note, which automatically shows the diagram properties.
 Hyperlink	A Hyperlink element is a special kind of Text element that, when double-clicked, opens the configured target object such as a document, web page or diagram.
 Artifact	An Artifact is any physical piece of information used or produced by a system.

 Requirement	<p>A Requirement element captures the details of a system requirement.</p>
 Issue	<p>An Issue element represents an item of concern (that might or might not arise) or a failure to meet a defined requirement in the current system.</p>
 Change	<p>A Change element represents a change in the defined requirements for the current system and can be used to request and manage the change process.</p>
 Boundary	<p>A System Boundary element is a non-UML element used to define conceptual boundaries.</p>
 Image	<p>An Image is a System Boundary element that has automatically has a Alternate Image defined.</p>

## Common Connectors

Connectors	Description

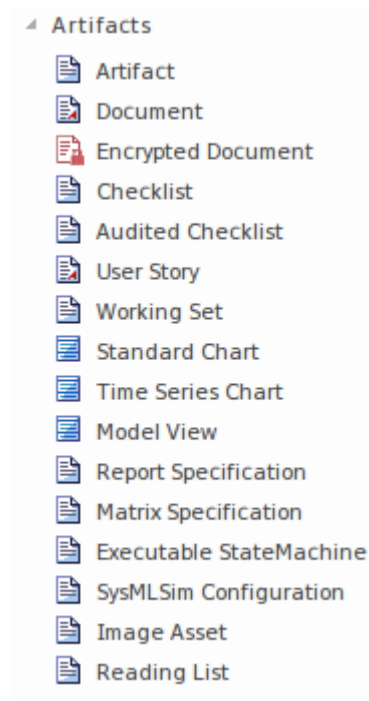
 Dependency	Dependency relationships are used to model a wide range of dependent relationships between model elements.
 Realize	A source object implements or Realizes its destination object.
 Trace	The Trace relationship is a specialization of an Abstraction, connecting model elements or sets of elements that represent the same concept across models.
 Information Flow	An Information Flow represents the flow of Information Items (either Information Item elements or classifiers) between two elements in any diagram.
 Note Link	A Notelink connector connects a Note to one or more other elements of any other type.



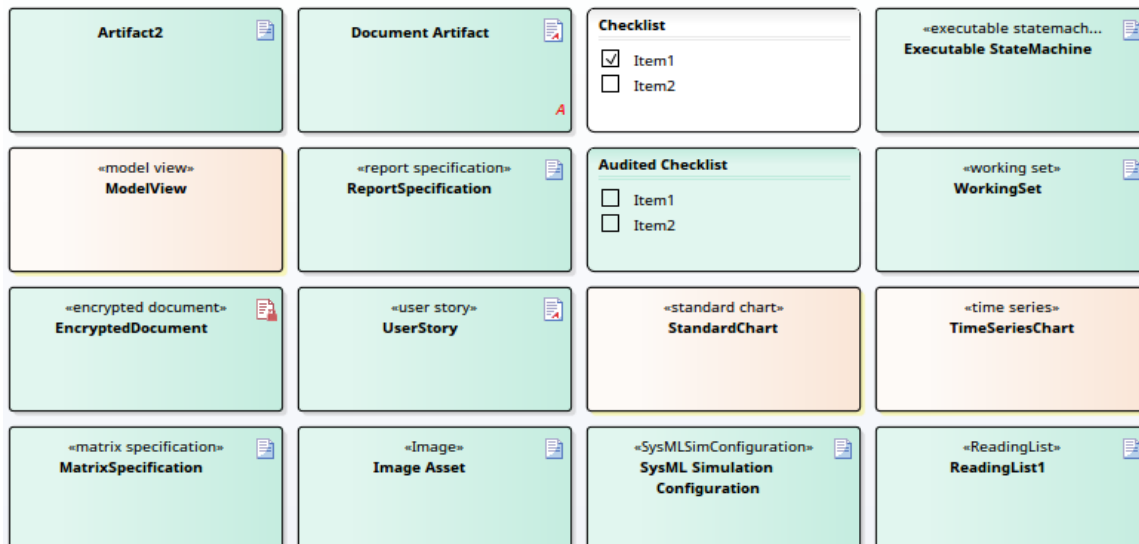
# Artifact Toolbox, Enterprise Architect, Artifact element

An Artifact is any physical piece of information used or produced by a system. In Enterprise Architect these are represented by the Artifact element, which can have one of a number of stereotypes to tailor it to a specific purpose, including internal operations and structures within the model as indicated in the examples. Artifacts can have associated properties or operations, and can be instantiated or associated with other Artifacts according to the object they represent.


You can create an Artifact element by dragging one of the Artifact icons from the Artifacts page of the Diagram Toolbox, or from one of several other Toolbox pages according to type. The Common page of the Toolbox also has a generic Artifact icon that - when you drag it onto a diagram - offers a choice of types of Artifact to create.

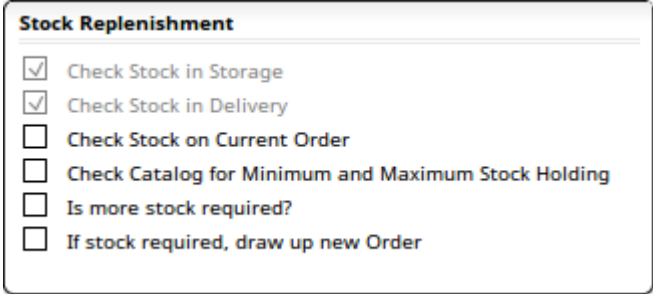




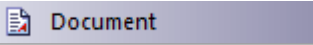
## Types of Artifact


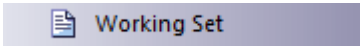


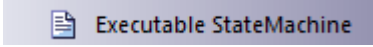
Type	Description
Artifact (Base)	A Base Artifact defines the external artifacts used in a process and the internal artifacts generated in the process, such as

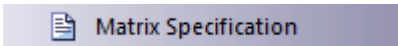
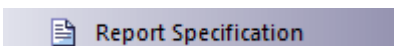
	<p>model files, source files, database tables, development deliverables or support documents. The files represented by the Artifact are listed on the 'Files' tab of the Properties window for the element.</p> <p>To open the files represented by the Artifact, click on the element on the diagram and press Ctrl+E. Each file is opened either on a separate tab in the Diagram View workspace (if the file can be opened within Enterprise Architect) or in the default Windows viewer/editor for the file type (if the file cannot be opened within Enterprise Architect).</p> <p>Files can also be launched individually from the 'Files' tab (opening in the Windows default editor), as for elements of any other type that have associated files.</p> <p><b>Toolbox Icon</b></p> 
Checklist Artifact	<p>A Checklist Artifact provides the facility for generating a list of items, each with a checkbox, to be used as a checklist. You can set each checkbox to default to being selected or unselected, and set all selected options to be grayed out or struck through, so that the unselected options</p>

	<p>are more prominent. The end users can then work with the element to tick off items that have been obtained or activities that have been completed.</p> <p>A version of this Artifact - the Requirements Checklist - is available in the 'Extended Requirements' Toolbox page. This automatically contains ten characteristics of a good Requirement, for a Requirement author to tick off as they check that their Requirement has been set up to show those characteristics.</p> <div>  </div> <p><b>Toolbox Icon</b></p> <div>  Checklist </div>
Document Artifact	<p>A Document Artifact is an Artifact having a stereotype of «document». You create the Document Artifact using the Artifacts, Component, Documentation or Deployment pages of the Diagram Toolbox, and associate it with an RTF document or CSV file.</p> <p>Double-click on the element to display the Linked Document Editor. When you</p>


	<p>have created the Linked Document, the Document Artifact element on the diagram shows an 'A' symbol in the bottom right corner.</p>  <p><b>Toolbox icon</b></p> 
<p>Encrypted Document Artifact</p>	<p>An Encrypted Document Artifact is used to create and hold a Linked Document that is automatically encrypted, and that cannot be opened and automatically decrypted within Enterprise Architect without entering a password. You can therefore use the generated Artifact element to record sensitive information, which you protect from general access by assigning a password.</p> <p>When you drag the 'Encrypted Document' icon onto the diagram from the 'Artifacts' page of the Toolbox, a prompt displays to type in a password. When you enter the password, you can create the Linked Document. Thereafter, if any user attempts to open the document, the same password prompt displays. If the user does not provide the password that you originally specified, the document will not open. If the correct password is</p>

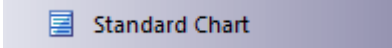
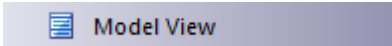
	<p>provided, the document is decrypted and opened.</p> <p>The Encrypted Document Artifact is indicated in the Toolbox page, diagram and Project Browser by a red 'document' icon - .</p>
Working Set Artifact	<p>A Working Set Artifact defines a Working Set that opens various windows, diagrams and views, recreating a work environment that you frequently use.</p> <ul style="list-style-type: none"> <li>• To create or modify the Working Set, right-click on the element and select the 'Edit Working Set' option</li> <li>• To execute the Working Set to open the defined windows and views and execute any commands, double-click on the element</li> </ul> <p><b>Toolbox icon</b></p> 
Executable StateMachine Artifact	<p>An Executable StateMachine Artifact is the vehicle through which you can generate, build (compile) and execute - via simulation - code for a StateMachine or complex of StateMachines.</p> <p>Each StateMachine is the child of a Class element; when you drag the Class from the Project Browser onto the Artifact</p>

	<p>element, it is pasted inside the Artifact as a Part. You can paste several Classes - and, therefore, Parts - into a single Artifact.</p> <p>Having set up the Executable StateMachine Artifact, you use simple context menu options on the Artifact to perform the code generation, build and execution operations on all StateMachines bound within the Artifact.</p> <p><b>Toolbox icon</b></p>  The icon shows a document with a blue header bar and the text 'Executable StateMachine'.
Matrix Specification Artifact	<p>A Matrix Specification Artifact encapsulates a Relationship Matrix Profile definition. When you have created the element on the diagram, you double-click on it to display the 'Matrix Specification' dialog, in which you create the Profile definition. The Profile takes the name of the element. The profile defined in the Artifact is independent of the Package that contains the Artifact element, and therefore could specify source and target Packages other than parent Package.</p> <p>After you create the Profile definition, each time you double-click on the Artifact element the Relationship Matrix</p>

	<p>displays with the Profile applied.</p> <p>To edit the Profile, right-click on the Artifact and select the 'Documentation   Edit Matrix Profile' option.</p> <p><b>Toolbox icon</b></p> 
Report Specification Artifact	<p>A Report Specification Artifact encapsulates a report definition. When you have created the element on the diagram, you double-click on it to display the 'Generate Documentation' dialog, on which you enter the report parameters and, if required, generate the report.</p> <p>After you create the Report Specification, each time you double-click on the Artifact element the 'Generate Documentation' dialog again displays with the same report parameters. You can continue to generate the same report, or alter the parameters if necessary. If you change the parameters, they are re-presented until such time as you change them again,</p> <p><b>Toolbox icon</b></p> 
User Story Artifact	<p>A User Story Artifact provides a means of documenting a business Use Case, in</p>



	<p>the context of Agile methodologies such as Extreme Programming (XP). In the Linked Document, you define the functions a business system must provide; it captures the 'who', 'what' and 'why' of a requirement in a simple, concise format. The User Story Artifact behaves as a Document Artifact, prompting you to select a Linked Document template to base the document on.</p> <p><b>Toolbox icon</b></p>  <span>User Story</span>
<p>Standard Chart Artifact</p>	<p>A Standard Chart Artifact provides the facilities for generating a Pie Chart or Bar Chart on an aspect of the data in your model. It adds three 'Chart Details' tabs to the standard tabs of the element 'Properties' dialog.</p> <p>After you have added the element to your diagram, double-click on it. The element 'Properties' dialog automatically opens at the 'Chart Details - Source' tab. Define the chart type and data source, then go on to define any filters you want to apply, and how the chart should display.</p> <p>Once you have defined the chart, it automatically displays with the latest</p>

	<p>information whenever you open the parent diagram.</p> <p><b>Toolbox icon</b></p> 
Model View Artifact	<p>A Model View Artifact provides the facilities for generating a tabular Model View Chart on a segment of the data in your mode, extracted using a custom SQL search.</p> <p>After you have added the element to your diagram, double-click on it. The element 'Properties' dialog automatically opens at the 'Chart Details - Source' tab. Define the SQL Search to extract and tabulate the information.</p> <p>Once you have defined the chart, it automatically displays with the latest information whenever you open the parent diagram.</p> <p><b>Toolbox icon</b></p> 
Time Series Chart Artifact	<p>A Time Series Chart Artifact provides the facilities for generating a linear graph of a model property over time.</p> <p>After you have added the element to your diagram, double-click on it. The element 'Properties' dialog automatically opens at</p>

the 'Chart Details - Source' tab. Define the Package from which the data is to be extracted, and the time interval over which the data is to be sampled. Then go on to define the appearance of the chart. Once you have defined the chart, it automatically displays with the latest information whenever you open the parent diagram.

### **Toolbox icon**



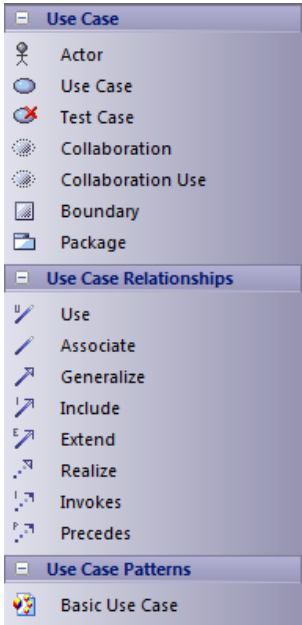
Time Series Chart

# Use Case Toolbox

The Use Case Toolbox pages are used to model system functionality from the perspective of a system user. Use Case objects are used to build the Use Case models, which describe the functionality of the system to be built, the requirements, the constraints and how the user interacts with the system.

Sequence diagrams can be associated with Use Cases to capture workflow and system behavior.

## Use Case Toolbox pages

Image	Detail
	<p>Except where discussed here, each element and relationship that you can create using these Toolbox pages is described in the <i>UML Elements</i> and <i>UML Connectors</i> sections of the Help.</p> <p>These two relationships are stereotyped Dependency relationships defined by the Open Modeling Language (OML):</p> <ul style="list-style-type: none"> <li>• Invokes indicates that Use Case A, at some point, causes Use Case B to happen</li> <li>• Precedes indicates that Use Case C</li> </ul>

	<p>must complete before Use Case D can begin</p> <p>The 'Basic Use Case' icon adds the Basic Use Case Pattern to your diagram as a starting point for developing the diagram (drag the icon onto the diagram to open the 'Add Pattern &lt;name&gt; to Diagram' dialog and click on the OK button).</p>
--	--

## Notes

- To add an element to the currently-open diagram, click on the appropriate icon and drag it into position on the diagram; set an element name and other properties as prompted
- To add a relationship, click on the appropriate icon, then click on the start element in the diagram and drag to the end element

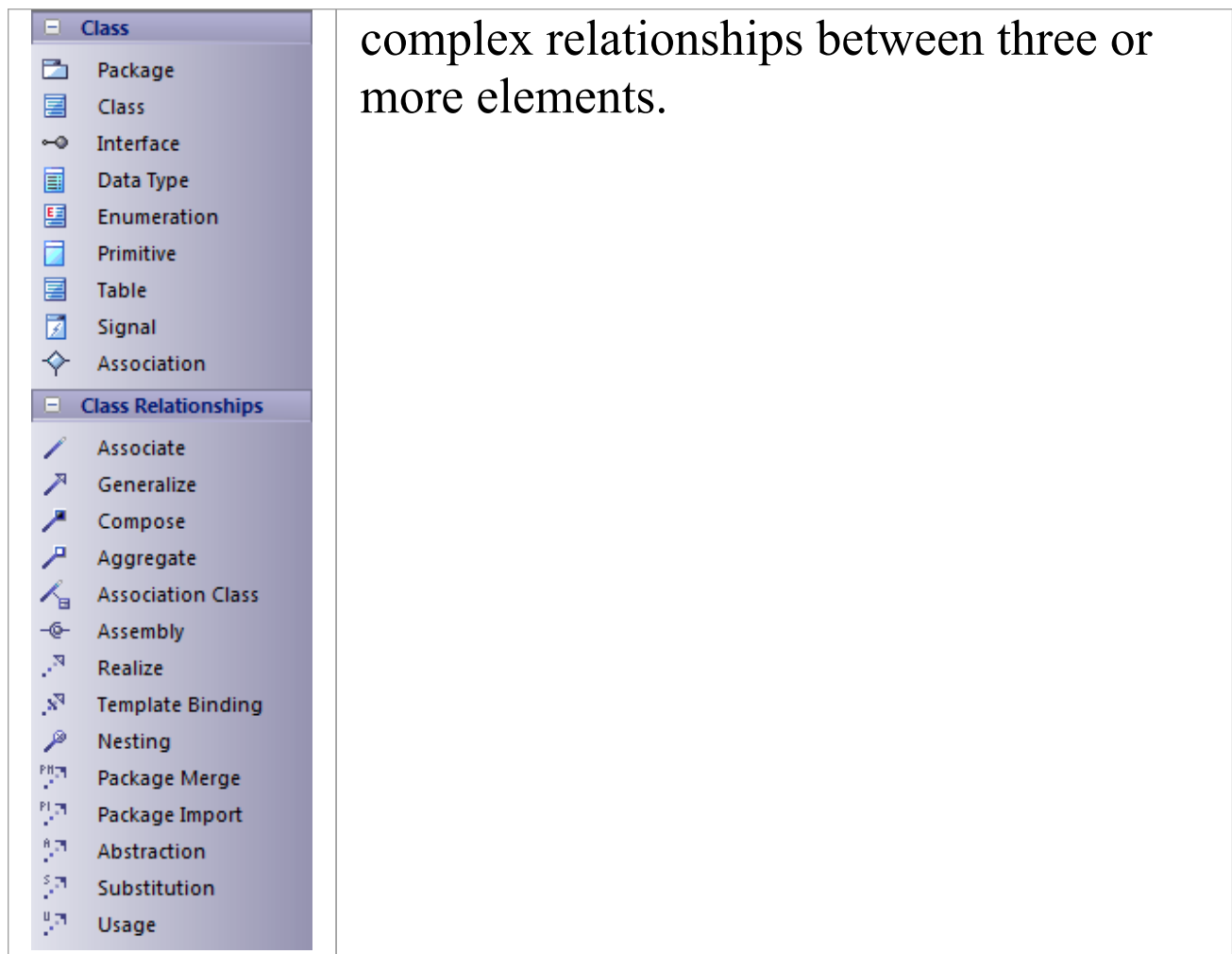
# Class Toolbox

The Class Toolbox can be used for creating Class models and Data models. Such models contain Package diagrams, Class diagrams and Object diagrams - those diagrams that usually display elements concerned with the logical structure of the system, such as Objects, Classes and Interfaces.

Logical models can include domain models (high level business driven object models) through to strict development Class models (defining inheritance, attributes and operations).

## Class Toolbox pages

Image	Detail
	<p>Except where discussed here, each element and relationship that you can create using these Toolbox pages is described in the <i>UML Elements</i> and <i>UML Connectors</i> sections of the Help.</p> <p>You use the Table element to insert a stereotyped Class for use in data modeling.</p> <p>The Association element is an n-ary Association, which is used to model</p>



## Notes

- To add an element to the currently-open diagram, click on the appropriate icon and drag it into position on the diagram; set an element name and other properties as prompted
- To add a relationship, click on the appropriate icon, then click on the start element in the diagram and drag to the end element

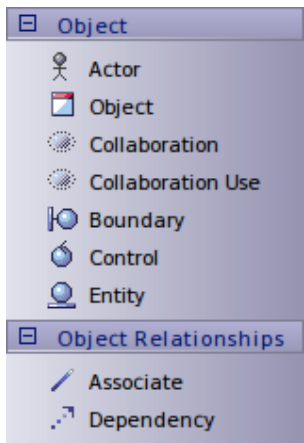




# Object Toolbox

The Object Toolbox is used to create Object diagrams, which reflect multiplicity and the roles that instantiated Classes could serve. They are useful in creating different cases in which relationships and Classes are applied.

## Object Toolbox pages

Image	Detail
	<p>Except where discussed here, each element and relationship that you can create using these Toolbox pages is described in the UML Elements and UML Connectors sections of the Help.</p> <p>A Boundary is a stereotyped Object that models some system boundary, typically a user interface screen.</p> <p>A Control is a stereotyped Object that models a controlling entity or manager.</p> <p>An Entity is a stereotyped Object that models a store or persistence mechanism that captures the information or knowledge in a system.</p>

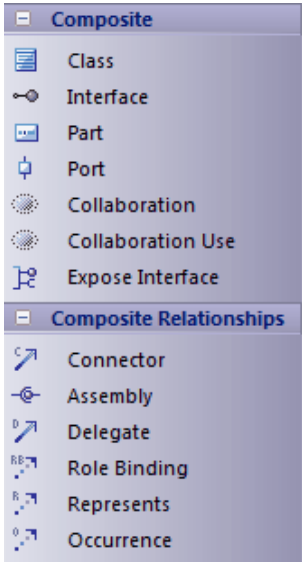
## Notes

- To add an element to the currently-open diagram, click on the appropriate icon and drag it into position on the diagram; set an element name and other properties as prompted
- To add a relationship, click on the appropriate icon, then click on the start element in the diagram and drag to the end element

# Composite Toolbox

The Composite Toolbox is used to create Composite Structure diagrams. These reflect the internal collaboration of Classes, Interfaces or Components to describe a functionality or to express run-time architectures, usage patterns and the participating elements' relationships, which static diagrams might not show. The Class elements form the basic structure of the diagram, with Interface, Part, Port and Collaboration elements defining the functionality or use of the Classes.

## Composite Toolbox pages

Image	Detail
	<p>Except where discussed here, each element and relationship that you can create using these Toolbox pages is described in the UML Elements and UML Connectors sections of the Help.</p>

## Notes

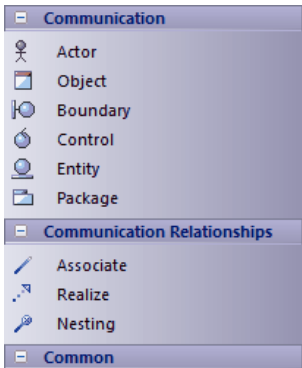
- To add an element to the currently-open diagram, click on the appropriate icon and drag it into position on the diagram; set an element name and other properties as prompted
- To add a relationship, click on the appropriate icon, then click on the start element in the diagram and drag to the end element

# Communication Toolbox

The Communication Toolbox is used to develop Communication diagrams, in which you model dynamic interactions between elements at run-time. These diagrams are used to model workflow and sequential passing of messages between elements in real time; they are often placed beneath Use Case elements to further expand on Use Case behavior over time.

The Actor element models a user of the system, while the other elements model things within the system, including standard elements (Object) and the user interface component (Boundary), Controller and Entity.

## Communication Toolbox pages

Image	Detail
	<p>Except where discussed here, each element and relationship that you can create using these Toolbox pages is described in the UML Elements and UML Connectors sections of the Help.</p> <p>A Boundary is a stereotyped Object that models some system boundary, typically a user interface screen.</p> <p>A Control is a stereotyped Object that</p>

	<p>models a controlling entity or manager.</p> <p>An Entity is a stereotyped Object that models a store or persistence mechanism that captures the information or knowledge in a system.</p>
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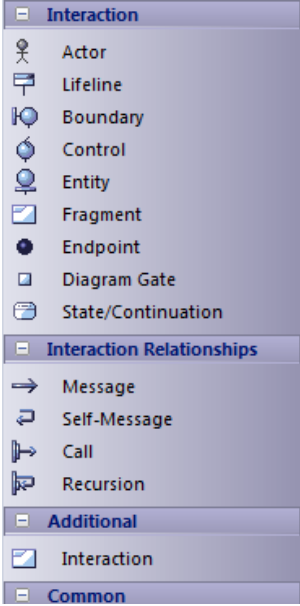
## Notes

- To add an element to the currently-open diagram, click on the appropriate icon and drag it into position on the diagram; set an element name and other properties as prompted
- To add a relationship, click on the appropriate icon, then click on the start element in the diagram and drag to the end element

# Interaction Toolbox

The Interaction Toolbox is used to develop Sequence diagrams. You use Sequence diagrams to model dynamic interactions - workflow and the sequential passing of messages - between elements in real time. Sequence diagrams are often placed beneath Use Case elements to further expand on Use Case behavior over time.

## Interaction Toolbox pages

Image	Detail
	<p>Except where discussed here, each element and relationship that you can create using these Toolbox pages is described in the UML Elements and UML Connectors sections of the Help.</p> <p>A Boundary is a stereotyped Object that models some system boundary, typically a user interface screen.</p> <p>A Control is a stereotyped Object that models a controlling entity or manager.</p> <p>An Entity is a stereotyped Object that models a store or persistence mechanism that captures the information or</p>

	knowledge in a system.
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## Notes

- The Interaction element supports the capture of Interaction diagrams through the Project Browser and diagram context menus; you cannot capture these diagrams by dragging the element onto a diagram
- The 'Fragment' icon creates Combined Fragment elements
- Message, Self Message and Call are described as Sequence diagram messages
- Messages can be simple or recursive calls
- To add an element to the currently-open diagram, click on the appropriate icon and drag it into position on the diagram; set an element name and other properties as prompted
- To add a relationship, click on the appropriate icon, then click on the start element in the diagram and drag to the end element

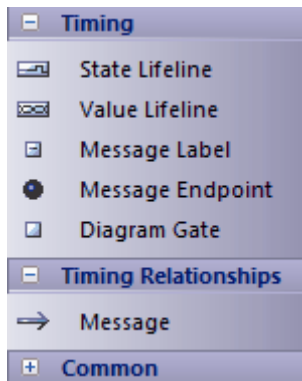


# Timing Toolbox

The Timing Toolbox provides the modeling elements for creating Timing diagrams, which define the behavior of objects along a time-scale to visualize how the objects change state and interact over time.

Timing diagrams can be used for defining hardware-driven or embedded software components, and time-driven business processes.

## Timing Toolbox pages

Image	Detail
	<p>Except where discussed here, each element and relationship that you can create using these Toolbox pages is described in the UML Elements and UML Connectors sections of the Help.</p> <p>The Message relationship is specifically described for Timing diagrams.</p>

## Notes

- To add an element to the currently-open diagram, click on the appropriate icon and drag it into position on the diagram; set an element name and other properties as prompted
- To add a relationship, click on the appropriate icon, then click on the start element in the diagram and drag to the end element

# State Toolbox

The State Toolbox is used to develop StateMachine diagrams, to show the enableable states a Class or other element might be in and the transitions from one state to another. These diagrams are often placed under a Class element in the Project Browser to illustrate how a particular element changes over time. States can have substates; for example, Accelerate and Brake might be substates of Active.

## State Toolbox pages

Image	Detail
	<p>Except where discussed here, each element and relationship that you can create using these Toolbox pages is described in the <i>UML Elements</i> and <i>UML Connectors</i> sections of the Help.</p> <p>Event is used to create a basic Send element (the default) or Receive element on the StateMachine diagram.</p>



## Notes

- To add an element to the currently-open diagram, click on the appropriate icon and drag it into position on the diagram; set an element name and other properties as prompted
- To add a relationship, click on the appropriate icon, then click on the start element in the diagram and drag to the end element



# Activity Toolbox

The Activity Toolbox is used to model system dynamics from a number of viewpoints (represented by activities and the flows between them) in Activity diagrams and Interaction Overview diagrams. Both types of diagram are usually created under Activity elements.

Activities can be stereotyped as a process to display a business process icon; the Activity represents some work that is carried out, which might overlap several Use Cases or form only a part of one Use Case.

## Activity Toolbox pages

Image	Detail
	<p>Except where discussed here, each element and relationship that you can create using these Toolbox pages is described in the <i>UML Elements</i> and <i>UML Connectors</i> sections of the Help.</p> <p>The 'Basic Activity' icon adds the Basic Activity Pattern to your diagram as a starting point for developing the diagram (drag the icon onto the diagram to open the 'Add Pattern &lt;name&gt; to Diagram' dialog and click on the OK button).</p>



## Notes

- To add an element to the currently-open diagram, click on the appropriate icon and drag it into position on the diagram; set an element name and other properties as prompted
- To add a relationship, click on the appropriate icon, then click on the start element in the diagram and drag to the end element





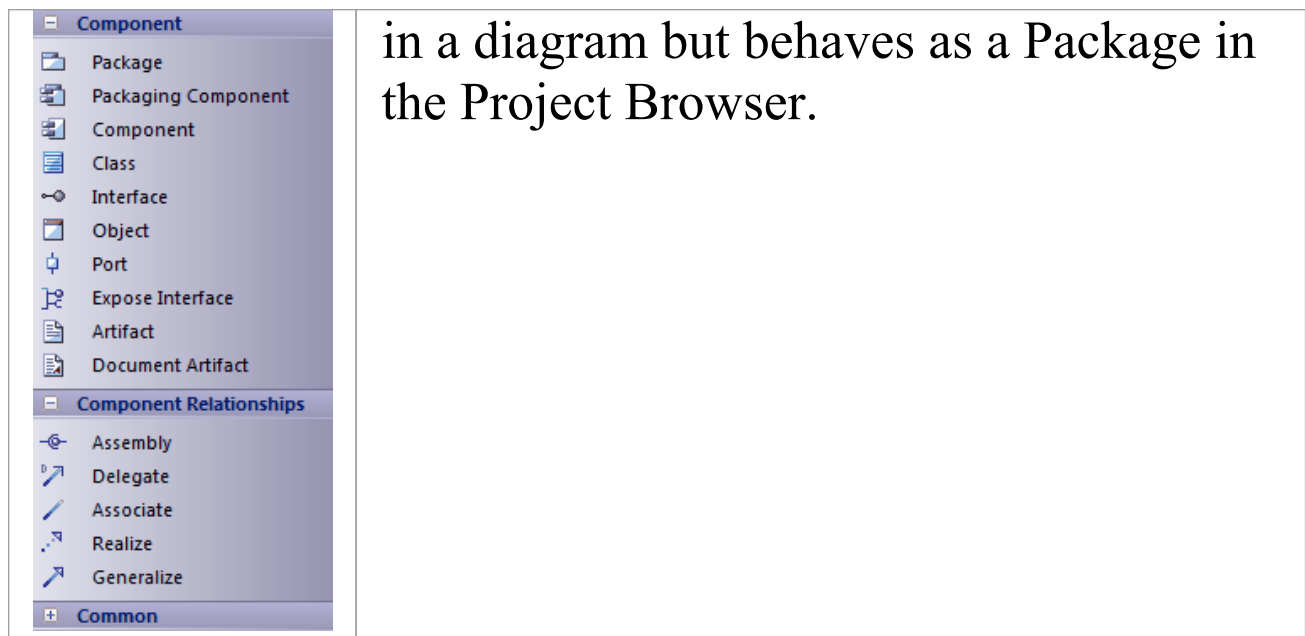
# Component Toolbox

The 'Component' pages of the Diagram Toolbox provide model elements that you can use to model the physical components of your system in a Component diagram. The 'Component' pages contain elements and connectors related to the actual building of the system - the components that make up the system (such as ActiveX DLLs or Java beans), the Interfaces they expose and the dependencies between those elements.

A component is a piece of hardware or software that makes up the system; for example, a DLL or a Web Server are components that might be deployed on a Windows 2000 Server (Node).

## Component Toolbox pages

Image	Detail
	<p>Except where discussed here, each element and relationship that you can create using these Toolbox pages is described in the UML Elements and UML Connectors sections of the Help.</p> <p>A Packaging Component is an element that appears very similar to a Component</p>



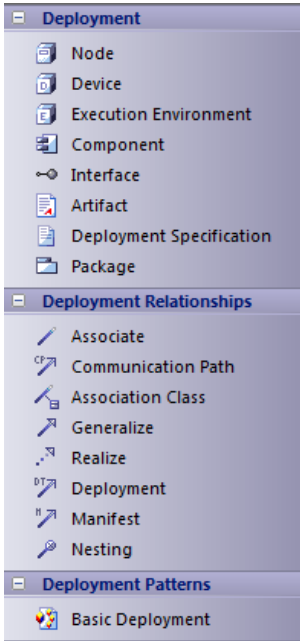
## Notes

- To add an element to the currently-open diagram, click on the appropriate icon and drag it into position on the diagram; set an element name and other properties as prompted
- To add a relationship, click on the appropriate icon, then click on the start element in the diagram and drag to the end element

# Deployment Toolbox

The Deployment Toolbox provides model elements that you can use to model the physical components and deployment structure of your system in a Deployment diagram. The Deployment group contains elements related to the actual building of the system - the hardware or software Components that make up the system (such as ActiveX DLLs or Web Servers) and the physical platforms (Nodes) those Components run on (such as a Windows 2000 Server), including the physical connections between Nodes.

## Deployment Toolbox pages

Image	Detail
	<p>Except where discussed here, each element and relationship that you can create using these Toolbox pages is described in the <i>UML Elements</i> and <i>UML Connectors</i> sections of the Help.</p> <p>The 'Basic Deployment' icon adds the Basic Deployment Pattern to your diagram as a starting point for developing the diagram (drag the icon onto the diagram to open the 'Add Pattern &lt;name&gt; to Diagram' dialog and click on the OK</p>

	button).
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## Notes

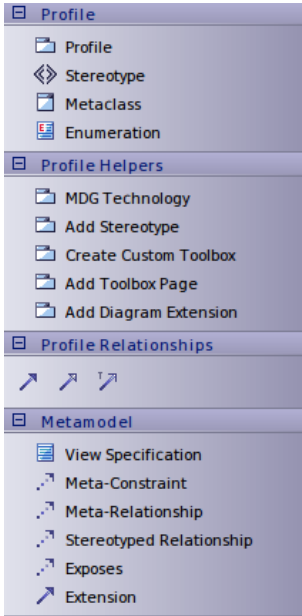
- To add an element to the currently-open diagram, click on the appropriate icon and drag it into position on the diagram; set an element name and other properties as prompted
- To add a relationship, click on the appropriate icon, then click on the start element in the diagram and drag to the end element

# Profile Toolbox

The Profile Toolbox is used in creating Profiles, a generic mechanism for extending UML models. Profiles can define custom Stereotypes, Tagged Values, Diagram Types and Toolboxes.

The Toolbox also contains a set of Profile Helpers that provide templates and dialogs to help you create Stereotype Profiles, Toolbox Profiles and Diagram Profiles within an MDG Technology.

## Profile Toolbox pages

Image	Detail
	<p>The Profile Package element acts as the container for the diagrams, elements and connectors that define the Profile itself.</p> <p>The Stereotype element provides a mechanism for varying the behavior and type of a base UML model element.</p> <p>A Metaclass element represents the base UML element or connector type that you are extending.</p> <p>An Enumeration element is used to define an enumeration Tagged Value, which can be attached to one or more Stereotype</p>

elements that have been defined in the Profile.

Profile Helpers are templates and dialogs that help you create, respectively:

- An MDG Technology Package to contain Profile definitions
- Stereotypes and Metaclasses within a UML Profile
- A customized Toolbox Profile
- Toolbox pages within the customized Toolbox
- A Diagram Profile to define an extended diagram type

An Extension relationship shows that a Stereotype extends a Metaclass; all Stereotypes must extend either:

- One or more Metaclasses, or
- Another Stereotype that extends a Metaclass; you can create a chain of extending Stereotypes that ultimately extend the Metaclass (however, in practice you are unlikely to have more than two Stereotypes in the chain)

A Generalize relationship shows that one Stereotype specializes a more general Stereotype; the more general Stereotype must still extend a Metaclass.

A Tagged Value relationship defines a

	reference-type (that is, RefGUID) Tagged Value owned by the source stereotype; the Tagged Value is named for the target role of this association, and is limited to referencing elements with the stereotype by the association target element
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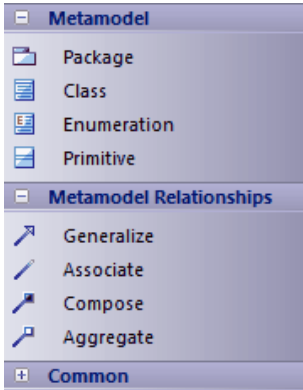
## Notes

- To add an element to the currently-open diagram, click on the appropriate icon and drag it into position on the diagram; set an element name and other properties as prompted
- To add a relationship, click on the appropriate icon, then click on the start element in the diagram and drag to the end element

# Metamodel Toolbox

The Metamodel Toolbox provides model elements for creating Metamodel diagrams.

## Metamodel Toolbox pages

Image	Detail
	<p>Except where discussed here, each element and relationship that you can create using these Toolbox pages is described in the UML Elements and UML Connectors sections of the Help.</p> <p>The Metamodel Primitive element that supports the MOF specification, which you create using the Primitive icon, is deprecated. Use the Primitive element from the Class Toolbox.</p>

## Notes

- To add an element to the currently-open diagram, click on the appropriate icon and drag it into position on the



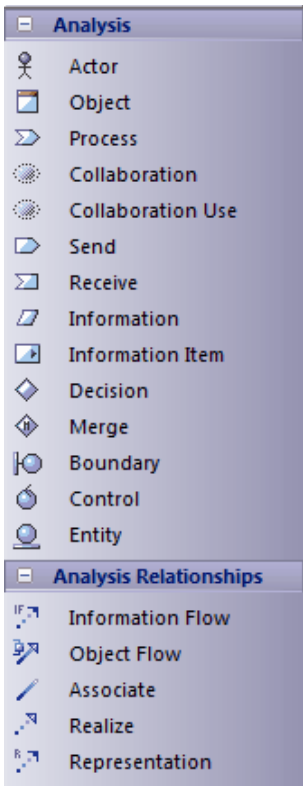
diagram; set an element name and other properties as prompted

- To add a relationship, click on the appropriate icon, then click on the source element in the diagram and drag to the target element

# Analysis Toolbox

Analysis-type elements are used early in modeling to capture business processes, activities, collaborations and general domain information. They are generally used in Analysis diagrams.

## Analysis Toolbox pages

Image	Detail
	<p>Except where discussed here, each element and relationship that you can create using these Toolbox pages is described in the <i>UML Elements</i> and <i>UML Connectors</i> sections of the Help.</p> <p>A Process is a stereotyped Activity, used to model business processes.</p> <p>A Boundary is a stereotyped Object that models some system boundary, typically a user interface screen.</p> <p>A Control is a stereotyped Object that models a controlling entity or manager.</p> <p>An Entity is a stereotyped Object that models a store or persistence mechanism that captures the information or knowledge in a system.</p>

	<p>You can also use a number of stereotyped elements from the 'Business Modeling' pages of the Toolbox, to capture UML business process modeling extensions such as worker, case worker, entity and controller.</p>
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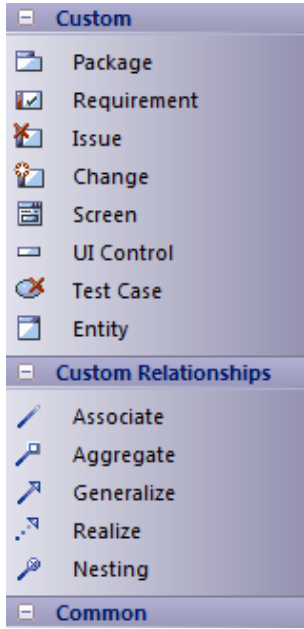
## Notes

- To add an element to the currently-open diagram, click on the appropriate icon and drag it into position on the diagram; set an element name and other properties as prompted
- To add a relationship, click on the appropriate icon, then click on the start element in the diagram and drag to the end element

# Custom Toolbox

The Custom Toolbox contains extended UML elements that can be of use in modeling or designing your system in a Custom diagram.

## Custom Toolbox pages

Image	Detail
 A screenshot of the Custom Toolbox in a modeling software. It shows a list of elements under the 'Custom' tab, including Package, Requirement, Issue, Change, Screen, UI Control, Test Case, and Entity. Below this is the 'Custom Relationships' section with Associate, Aggregate, Generalize, Realize, and Nesting. At the bottom is the 'Common' tab.	<p>Except where discussed here, each element and relationship that you can create using these Toolbox pages is described in the UML Elements and UML Connectors sections of the Help.</p> <p>A Requirement is a custom element used to capture requirements external to standard UML elements; a Requirement expresses required system behavior that can cross several Use Cases.</p> <p>You can connect Requirements to other elements using the Realize connector to express the implementation of a requirement and hence the traceability from user requirements to what is being built.</p>

An Issue element is a structured comment that contains information about defects and issues relating to the system/model; affected elements are connected by Trace connectors.

A Change element is a structured comment that contains information about changes requested to the system/model; affected elements are connected by Trace connectors.

A Screen provides a stereotyped Class element that displays a GUI type screen; this can be used to express application GUI elements and flows between them.

A UI Control likewise can be used to express GUI controls.

A Test Case element defines what must be set up in order to test a particular feature; you can use it to define a set of tests once for a number of elements. As an element rather than a property, it provides greater visibility for tests.

Entity - use of this element is deprecated - it was originally intended to take the role now supplied by the Table element.

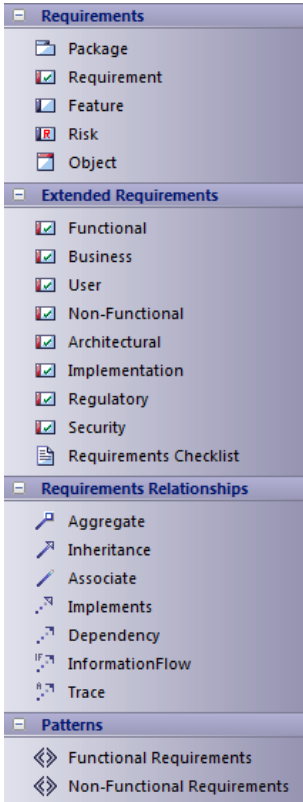
## Notes

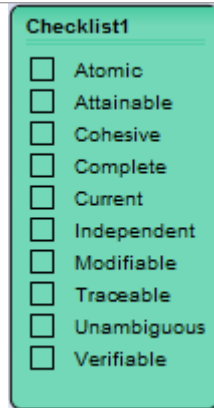
- To add an element to the currently-open diagram, click on the appropriate icon and drag it into position on the diagram; set an element name and other properties as prompted
- To add a relationship, click on the appropriate icon, then click on the start element in the diagram and drag to the end element

# Requirements Toolbox

As an analysis step, often it is desirable to capture simple system requirements. These are eventually realized by Use Cases.

## Requirements Toolbox pages

Image	Detail
 <p>The screenshot shows the Requirements Toolbox interface. It is organized into four main sections:</p> <ul style="list-style-type: none"> <li><b>Requirements:</b> Contains icons for Package, Requirement, Feature, Risk, and Object.</li> <li><b>Extended Requirements:</b> Contains icons for Functional, Business, User, Non-Functional, Architectural, Implementation, Regulatory, Security, and Requirements Checklist.</li> <li><b>Requirements Relationships:</b> Contains icons for Aggregate, Inheritance, Associate, Implements, Dependency, InformationFlow, and Trace.</li> <li><b>Patterns:</b> Contains icons for Functional Requirements and Non-Functional Requirements.</li> </ul>	<p>Except where discussed here, each element and relationship that you can create using these Toolbox pages is described in the <i>UML Elements</i> and <i>UML Connectors</i> sections of the Help.</p> <p>A Requirement is a custom element used to capture system requirements external to individual UML elements; a Requirement expresses required system behavior that can cross several Use Cases. You can create a number of specific types of stereotyped Requirement from their own element icons.</p> <p>Requirements Checklist is a stereotyped Checklist, and is rendered as this element:</p>



A Feature is a small client-valued function expressed as a requirement. Features are the primary requirements-gathering artifact of the Feature-Driven Design (FDD) methodology.

A Risk element represents an identified risk to the project.

You can also add structures of Functional and Non-Functional Requirements to your diagram, each with a Checklist, using the two Requirements Patterns.

## Notes

- To add an element to the currently-open diagram, click on the appropriate icon and drag it into position on the diagram; set an element name and other properties as prompted

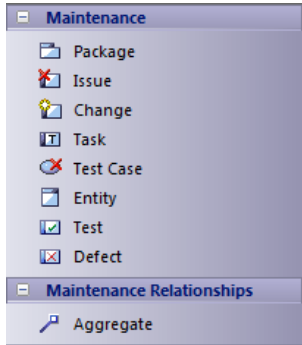


- To add a relationship, click on the appropriate icon, then click on the start element in the diagram and drag to the end element

# Maintenance Toolbox

The Maintenance Toolbox provides the elements and connector for defining and monitoring Issues, Defects, Changes, work Tasks and Tests for project management.

## Maintenance Toolbox pages

Image	Detail
	<p>Except where discussed here, each element and relationship that you can create using these Toolbox pages is described in the <i>UML Elements</i> and <i>UML Connectors</i> sections of the Help.</p> <p>An Issue element is a structured comment that contains information about issues relating to the system or model; affected elements are linked by Trace connectors.</p> <p>A Change element is a structured comment that contains information about changes requested to the system/model; affected elements are connected by Trace connectors.</p> <p>A Task element defines a task attached to an element; you can assign resources specifically to the task rather than just to</p>

the parent element, and monitor the tasks on diagram Gantt charts.

A Test Case element defines what must be set up in order to test a particular feature; you can use it to define a set of tests once for a number of elements. As an element rather than a property, it provides greater visibility for tests.

An Entity is an abstract type that is often used in analysis to record that something is of interest to the system, without necessarily defining how it will be represented in the system.

A Test element represents a step in any of the Basic, Alternate or Exception Paths of a Scenario, created within a Use Case or other element.

A Defect element is a structured comment that contains information about defects relating to the system or model; affected elements are linked by Trace connectors.

## Notes

- To add an element to the currently-open diagram, click on

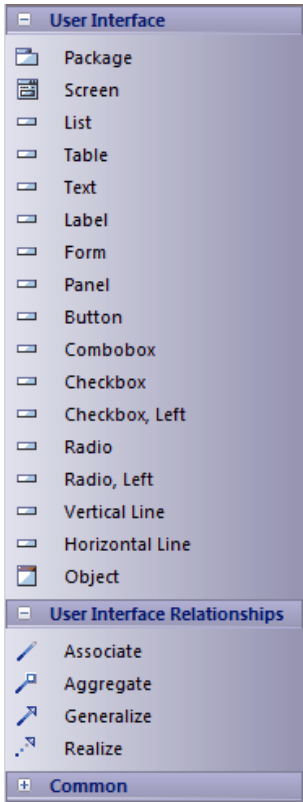
the appropriate icon and drag it into position on the diagram; set an element name and other properties as prompted

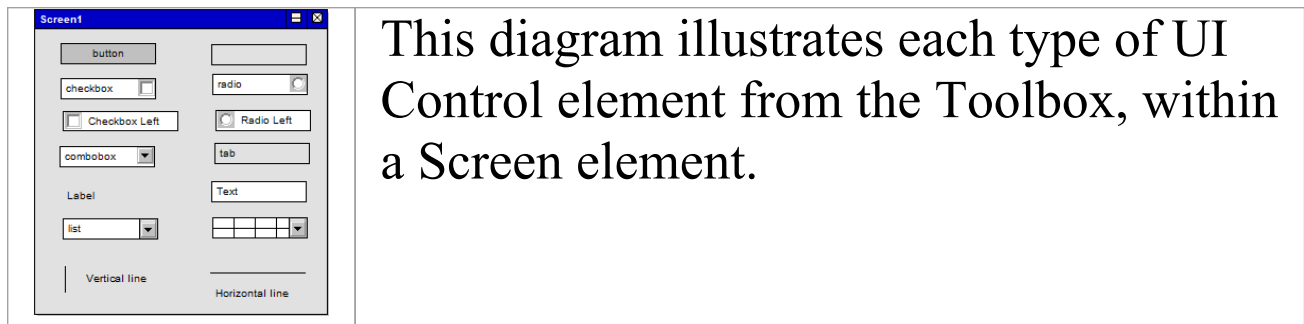
- To add a relationship, click on the appropriate icon, then click on the start element in the diagram and drag to the end element

# User Interface Toolbox

The User Interface Toolbox provides a wide range of icons that you can use to create User Interface diagrams.

## User Interface Toolbox pages

Image	Detail
 <p>The screenshot shows the 'User Interface' toolbox with the following categories and items:</p> <ul style="list-style-type: none"> <li><b>User Interface</b> <ul style="list-style-type: none"> <li>Package</li> <li>Screen</li> <li>List</li> <li>Table</li> <li>Text</li> <li>Label</li> <li>Form</li> <li>Panel</li> <li>Button</li> <li>Combobox</li> <li>Checkbox</li> <li>Checkbox, Left</li> <li>Radio</li> <li>Radio, Left</li> <li>Vertical Line</li> <li>Horizontal Line</li> <li>Object</li> </ul> </li> <li><b>User Interface Relationships</b> <ul style="list-style-type: none"> <li>Associate</li> <li>Aggregate</li> <li>Generalize</li> <li>Realize</li> </ul> </li> <li><b>Common</b></li> </ul>	<p>Except where discussed here, each element and relationship that you can create using these Toolbox pages is described in the <i>UML Elements</i> and <i>UML Connectors</i> sections of the Help.</p> <p>The Screen element represents the screen or dialog frame in a graphical user interface. You can identify fields, delimiters and buttons on the screen using the different UI Control elements.</p> <p>UI Control elements are different stereotyped elements defining controls such as buttons, fields and combo boxes. You arrange these on the Screen element, as part of a User Interface diagram, to define a screen or dialog in a user interface.</p>



## Notes

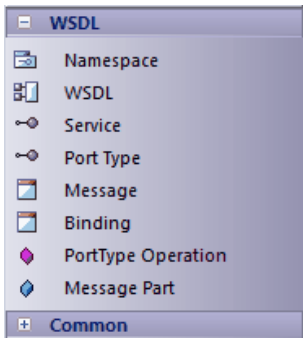
- To add an element to the currently-open diagram, click on the appropriate icon and drag it into position on the diagram; set an element name and other properties as prompted
- To add a relationship, click on the appropriate icon, then click on the start element in the diagram and drag to the end element
- To place one UI Control object inside another (for example, adding fields or options to a Panel or Form), press Shift as you drag the object into place
- You can add objects to the diagram and move them around, but once the object is within the boundary of a Screen element (or another UI Control element) you cannot move it out of that boundary on the diagram; you can move child elements between parents on the Project Browser
- If you delete a Screen (or other parent element) on the diagram, all the UI Control elements it contains are also

deleted from the diagram

# WSDL Toolbox

The WSDL Toolbox provides elements you can use to rapidly develop a W3C Web Service Definition Language (WSDL) model, from which you can automatically generate WSDL documents.

## WSDL Toolbox page

Image	Detail
	<p>A Namespace represents the top-level container for the WSDL model. Drag this element onto an open diagram to create the necessary model structure for WSDL documents.</p> <p>A physical WSDL document is represented as a UML Component. Its interfaces represent the WSDL Services. A WSDL Port Type is modeled as a UML Interface. Its Port Type Operations are realized by Binding elements.</p> <p>Each of the operation parameters is derived from the Message elements defined in the Messages Package.</p>



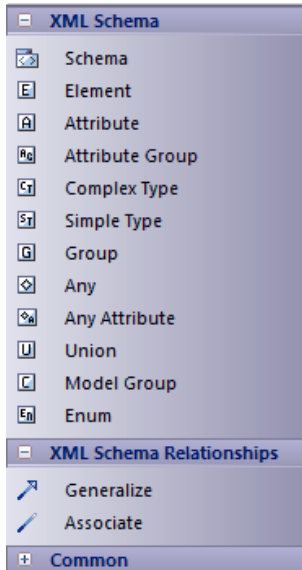
## Notes

- To add an element to the currently-open diagram, click on the appropriate icon and drag it into position on the diagram; set an element name and other properties as prompted
- To add a relationship, click on the appropriate icon, then click on the start element in the diagram and drag to the end element

# XML Schema Toolbox

The XML Schema Toolbox provides model elements that you can use to model W3C XSD schema files. This Toolbox implements the constructs provided by the UML Profile for XML Schema. Having created your model, you can automatically generate the W3C XSD schema files from it.

## XML Schema Toolbox pages

Image	Detail
 A screenshot of the XML Schema Toolbox. It shows a list of schema elements under the 'XML Schema' category, including Schema, Element, Attribute, Attribute Group, Complex Type, Simple Type, Group, Any, Any Attribute, Union, Model Group, and Enum. Below this, there are 'XML Schema Relationships' with Generalize and Associate, and a 'Common' section at the bottom.	<p>A Schema corresponds to a UML Package, which contains the type and element definitions for a particular targetNamespace. Drag this item onto an open diagram to create the Package to contain your schema model elements. The Package is stereotyped as XSDschema.</p> <p>Open the logical diagram created under the XSDschema Package and add additional schema elements to define the model.</p>

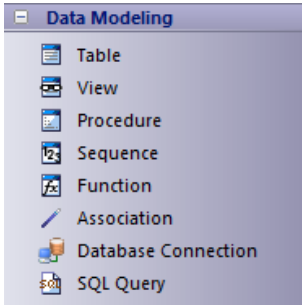
## Notes

- To add an element to the currently-open diagram, click on the appropriate icon and drag it into position on the diagram; set an element name and other properties as prompted
- To add a relationship, click on the appropriate icon, then click on the start element in the diagram and drag to the end element

# Data Modeling Toolbox

The Data Modeling Toolbox provides a basic set of elements for database modeling and database design, in conjunction with the UML Data Modeling Profile.

## Data Modeling Toolbox page

Image	Detail
	<p>In the data model, a:</p> <ul style="list-style-type: none"><li>• Table defines a database table</li><li>• View represents a database view</li><li>• Procedure represents database (or Stored) procedures</li><li>• Sequence represents a database Sequence</li><li>• Function represents a database Function</li><li>• Database Connection helps you to configure a connection to the database you are modeling, for testing, import and export of schema, and comparison of differences between database and model using the Database Builder</li></ul> <p>When you drop this icon onto the diagram the system prompts you to</p>

	<p>indicate whether to create the connection for an Access database, a Firebird database or an ODBC database</p> <p>For the first two options, when you click on the OK button the system prompts you to select the file to create the connection to</p> <p>If you select the 'ODBC database' option, the 'Select Data Source' dialog displays; click on the 'Machine Data Source' tab and select the data source (project on a database)</p> <p>After you have defined the data source, when you double-click on the element the Database Builder view opens for the current database model</p> <ul style="list-style-type: none"><li>• SQL Query is an Artifact element that provides a convenient mechanism for storing an SQL Statement in the repository, for repeated execution on live database(s)</li></ul>
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## Notes

- To add an element to the currently-open diagram, click on the appropriate icon and drag it into position on the diagram; set an element name and other properties as

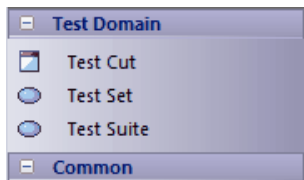
prompted

- To add a relationship, click on the appropriate icon, then click on the start element in the diagram and drag to the end element

# Test Domain Toolbox

The Test Domain Toolbox provides a basic set of elements that you can use to create Test Domain diagrams, used in the Testpoint facility. A Test Domain diagram provides specific elements that can aid in the logical composition of tests into Test Sets and Test Suites.

## Test Domain Toolbox page

Image	Detail
	<p>A Test Cut is a group of operations that represent a specific behavior (such as Print) defined for a Class, separate from other constraints defined for the Class.</p> <p>A Test Set aggregates one or more groups of methods (Test Cuts) that perhaps span multiple Classes, into a single task.</p> <p>A Test Suite aggregates one or more groups of tasks (Test Sets).</p>

## Notes

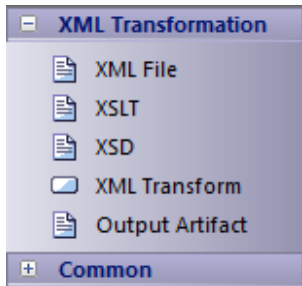
- To add an element to the currently-open diagram, click on the appropriate icon and drag it into position on the diagram; set an element name and other properties as prompted
- To add a relationship, click on the appropriate icon, then click on the start element in the diagram and drag to the end element



# XML Transformation Toolbox

The XML Transformation Toolbox page provides elements for modeling and executing the transformation of an input document into XML or other document formats under the control of an XSL Stylesheet. You can model and execute the transformation on an XML Transform diagram.

## XML Transformation Toolbox page

Image	Detail
	<p>XML File generates a File Artifact element, through which you identify the location of the input file to be transformed.</p> <p>XSLT generates a File Artifact element, through which you identify the XSLT Stylesheet to apply to the transformation.</p> <p>XSD generates a File Artifact that identifies the schema against which the output of the transformation (as directed in the Output Artifact element) is validated. The results of the validation are written to the 'XSL' tab of the System Output window.</p> <p>XML Transform generates a stereotyped</p>

	<p>Activity that performs the transformation. Output Artifact generates a File Artifact element, through which you specify the location of the output file generated by the transformation, on the 'Files' property page of the element. Output from the transformation will be written to this file. The elements can be connected to each other using Trace connectors.</p>
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## Notes

- To add an element to the currently-open diagram, click on the appropriate icon and drag it into position on the diagram; set an element name and other properties as prompted
- To add a relationship, click on the appropriate icon, then click on the start element in the diagram and drag to the end element

# Set Diagram Properties

You can set several properties of a diagram using either the:

- 'Diagram Properties' dialog or the
- Diagram Properties window

This topic discusses the 'Diagram Properties' dialog. For information of the Diagram Properties window, see the Help topic *Properties Window for Diagrams*.

There are several options for opening the 'Diagram Properties' dialog for a given diagram:

- Double-click in the background of the open diagram
- Right-click on the background of the open diagram and select the 'Properties' option
- Select the 'Design > Diagram > Edit > Properties' ribbon option to open the 'Properties' dialog for the currently open diagram

In the 'Diagram Properties' dialog you can set properties including name, author and version information, zoom factor, paper size and layout, diagram notes and various appearance attributes. Some properties influence the display of the diagram and some are logical attributes that appear in the documentation.

## Notes

- In the Corporate, Unified and Ultimate editions of

Enterprise Architect, if security is enabled you must have 'Update Diagrams' permission to change diagram properties

- Using the 'Diagram - Gradients and Background' page of the 'Preferences' dialog, you can define the default diagram background color and color gradients for all your diagrams; these settings are also applied to any Diagram Theme you apply across your model

## General Tab

You use the 'General' tab of the diagram 'Properties' dialog to record facts concerning the diagram as an object, such as its title, version and modification date.

### Access

Ribbon	Design > Diagram > Edit > Properties > General
Context Menu	Right-click diagram in Project Browser   Properties   General Right-click background of open diagram   Properties   General

## Set Diagram Properties

Option	Action
Name	Defaults to the name of the parent Package, as the name of the diagram. If necessary, overwrite the field with a

	<p>different diagram name. You can change the diagram name in this field whenever necessary.</p>
Author	<p>Defaults to the name of the person who created the diagram.</p> <p>If necessary, overwrite the field with a different author name, or click on the drop-down arrow and select a name from the list. You might do this if the diagram becomes the responsibility of another person.</p>
Version	<p>Displays the version number (or other version reference) that has been manually set for the diagram. If this is a cloned diagram, the version number will have been defined as part of the cloning process. If no number has been set, the field defaults to 1.0.</p> <p>To update the version number, overwrite the field.</p>
Filter to Version	<p>Select this checkbox to filter the elements on the diagram and mute those that do not have the same version number as the diagram. This is of particular value when you are working on the elements of a cloned diagram and want to distinguish</p>

	<p>between elements that have been cloned to match the diagram and Package structure, and elements that are still the same version as the source.</p> <p>You can use the facility to check more generally which elements are not of the same version as the diagram, such as when you drag elements from the Project Browser as links to local or, more especially, external elements.</p> <p>The filter takes effect when you click on the OK button.</p>
Set new elements to Version	<p>Select this checkbox to set the version of every new element added to the diagram to the same version as the diagram.</p> <p>Elements dragged and dropped from the Diagram Toolbox or added using the 'New Element' dialog will have the same version as the diagram. The version value of elements dragged and dropped from the Project Browser will not be updated.</p>
Stereotype	<p>(Optional) Type in the name of a diagram stereotype to apply, or click on the drop-down arrow and select a stereotype from the list.</p> <p>You can define stereotypes to select here using the 'Configure &gt; Reference Data &gt;</p>

	UML Types' ribbon option, selecting the 'Stereotypes' page and creating stereotypes with a 'Base Class' of 'Diagram'.
Created	Automatically displays the date on which the diagram was created. If necessary, overwrite the field with an amended creation data, or click on the drop-down arrow and select the date.
Modified	Automatically displays the date and time when the diagram was last modified.
GUID	Read-only field, displaying the GUID of the selected diagram.
Notes	Type in any additional information on the diagram. You can format the notes using the Notes toolbar at the top of the field.
OK	If you have finished updating the diagram properties, click on this button to save the changes and close the 'Properties' dialog.
Cancel	If you do not want to save the changes you have made, click on this button to discard the changes and close the dialog.



Help	Click on this button to display this Help topic.
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## Notes

- In the Corporate, Unified and Ultimate editions of Enterprise Architect, if security is enabled you must have 'Update Diagrams' permission to update diagram properties

# Configure Diagram Display

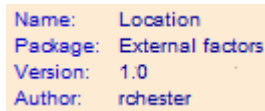
A diagram can show or hide information, and represent it in different ways depending on how you configure the display characteristics. You can maintain your display configuration using the diagram 'Properties' dialog ('Diagram' tab).

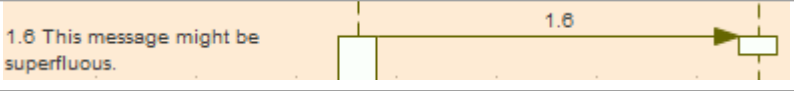
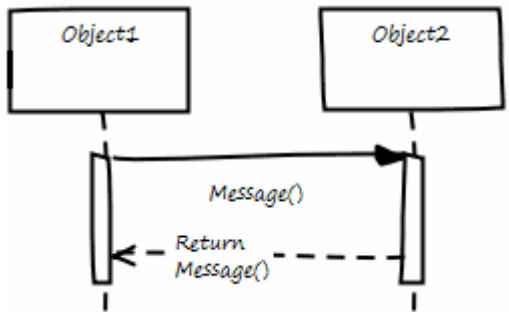
## Access

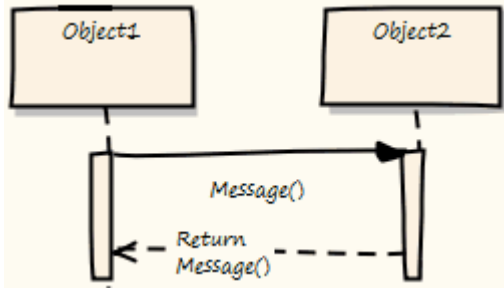
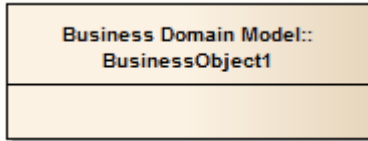
Ribbon	Design > Diagram > Edit > Properties > Diagram
Context Menu	Right-click diagram in Project Browser   Properties   Diagram Right-click background of open diagram   Properties   Diagram

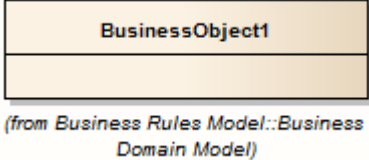
## Set the diagram display options


Option	Action
Use Alias if Available	Select this checkbox to display the element alias as the element's name,

	wherever the alias is specified.
Hide Additional Parents	Select this checkbox to hide the names of all parent elements not in the current diagram, for all Classes and Interfaces.
Hide Page Border (All Diagrams)	Select this checkbox to disable the display of page borders on all diagrams in the model.
Hide Page Border (Current Diagram)	Select this checkbox to disable the display of the page border on the current diagram only. (Disabled if 'Hide Page Border (All Diagrams)' is selected.)
Show Diagram Details	<p>Select this checkbox to show diagram details in a note in the top left corner of the diagram.</p>  <p>Deselect the option to hide the diagram details.</p>
Show Sequence Notes	(On a Sequence diagram) Select this checkbox to display the internal Notes for each Message down the left-hand edge of the diagram. Each note has the same number as the Message it comes from.

	
Whiteboard Mode	<p>Select this checkbox to display the diagram as if it had been drawn on a whiteboard, with white fill and background.</p>  <p>(This illustration also has 'Hand Drawn' mode enabled.)</p>
Disable fully scoped object names	<p>Select this checkbox to disable the use of fully scoped object names for elements in this diagram. This automatically deselects the 'Show Namespace' option and hides the 'Namespace::element Name' in each element, but does not hide the '(from 'Namespace')' label.</p> <p>The effect of this option is disabled if 'Fully Qualified Namespace' is also selected.</p>
Hand Drawn	<p>Select this checkbox to display the diagram contents as if they had been</p>

	<p>roughly drawn by hand.</p>  <pre> sequenceDiagram     participant Object1     participant Object2     Object1-&gt;&gt;Object2: Message()     Object2--&gt;&gt;Object1: Return Message()   </pre>
<p>Show Namespace</p>	<p>Select this checkbox to show the namespace of each element on the diagram.</p>  <pre> classDiagram     class "Business Domain Model:: BusinessObject1"   </pre> <p>For Class, Interface, Enumeration, Component, Node and Artifact elements, the namespace is shown as part of the element name; that is, 'Namespace::element Name'.</p> <p>For elements of other types, the namespace is shown as a '(from 'Namespace')' label beneath the element.</p>
<p>Fully Qualified Namespace</p>	<p>(Enabled when 'Show Namespace' is selected) Select this checkbox to show the fully qualified namespace of each element on the diagram, as a '(from 'Namespace')' label under the element.</p>

	 <p>(from Business Rules Model::Business Domain Model)</p>
Show Shape Scripts	<p>Defaults to selected to show elements and connectors with their Shape Scripts, on the diagram. Clear the checkbox to show elements and connectors in their native shapes.</p> <p>This option does not affect Custom Compartments. To hide those, deselect the appropriate 'Show Compartments' checkboxes on the 'Elements' tab of the 'Diagram Properties' dialog, or the element 'Feature Visibility' dialog.</p>
Display Element Lock Status	<p>Select this checkbox to add a locking indicator (🔒 or 🔓) outside the top left corner of each locked element on the diagram.</p> <p>If the element is:</p> <ul style="list-style-type: none"> <li>• Fully locked or locked by another user, the indicator is red</li> <li>• Locked by you or by another user in the same user group as you, the indicator is blue</li> <li>• Not locked, no indicator displays</li> </ul>
Always Open	Select this checkbox to always display

as Element List	the diagram contents as a Diagram List rather than as a diagram.
Always Open as Gantt	Select this checkbox to always display the diagram contents as a Gantt chart.
Always open as Specification	Select this checkbox to always display the diagram contents as a list of text descriptions in the Specification Manager.
Page Setup	Adjust the scaling of the diagram image according to the size of the page it is to be printed on.
Print Page Header and Page Footer	Select this checkbox to add page headers and footers to a print-out of the diagram. The headers and footers are generated from the diagram characteristics, such as the name of the creator and the date of modification.
Background Tile	<p>Click on the  button and select a background tile design to apply just to this diagram. The filename of the background design file displays in the left-hand field.</p> <p>If you no longer want to apply a background tile to the diagram, click on</p>

	the Clear button.
Document Generation Options	These are options for generating document reports that include the selected diagram.
Exclude image from Documentation	Select this checkbox to exclude this diagram image from any document report generated on the parent Package or element.
Document each contained element in Documentation	Select this checkbox to include documentation on each element in this diagram, in any document report generated on the parent Package or element.
Divide Diagram into Multiple Pages	Select this checkbox to divide each large diagram into separate pages in the document report.
Rotate Images	Select this checkbox to rotate each diagram image by 90 degrees in the document report.
Default Zoom	This facility is enabled when the selected diagram in the 'Diagram Properties'



	<p>dialog is open and available for editing in the Diagram View.</p> <p>Zoom in or out of the diagram to achieve the required magnification using either Ctrl+mouse wheel before you open the 'Diagram Properties' dialog, or the slider control on this 'Diagram' page. Click on the Set as Default button. Now, each time the diagram is opened, it will default to this zoom level.</p> <p>This diagram-local default zoom overrides any global zoom setting you have imposed for your user ID, using the slider in the Status bar.</p>
Make all elements dockable	<p>Select this checkbox to set all elements on the diagram as dockable.</p> <p>Setting elements as dockable allows you to align and join the elements either vertically or horizontally, on the current diagram only.</p> <p>Elements that you dock must have the joining edges parallel. As the distance between the elements narrows, the moving element snaps to the edge of the stationary element. Deselecting the 'Dockable' option does not separate the elements; if necessary, you can simply move the elements apart again.</p>

	Activity Partitions already have the option selected by default.
Set Layout Style	Click on this button to define the layout of the diagram, to be applied automatically when you select the 'Layout Diagram' options.
OK	If you have finished updating the diagram properties, click on this button to save the changes and close the 'Properties' dialog.
Cancel	If you do not want to save the changes you have made, click on this button to discard the changes and close the dialog.
Help	Click on this button to display this Help topic.

## Notes

- The 'Divide Diagrams into Multiple Pages' option is only effective when the 'Scaled Printing' option on the 'Print Advanced' dialog is set to 'None'
- 'Rotate Images' is only available for bitmap (.bmp) images



# Define Element Characteristics

It is possible to show a number of element characteristics on a selected diagram. You can define which of these characteristics to show, by selecting the corresponding checkboxes on the 'Elements' tab of the diagram 'Properties' dialog (and, conversely, which to hide by clearing their checkboxes). You can also override the model default coding language and set a different language for the elements in the context of this diagram.

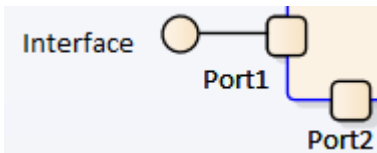
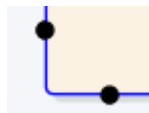
## Access

Ribbon	Design > Diagram > Edit > Properties > Elements
Context Menu	Right-click background of open diagram   Properties   Elements

## Set Component Display Options

Option	Action

Use Stereotype Icons	<p>For elements that have whole shapes drawn by Enterprise Architect (such as Analysis stereotypes), select this checkbox to draw the alternative shape (if defined).</p> <p>For elements that have an icon displayed in the top right corner (such as an Artifact element), if 'Show Element Stereotypes' is selected, select this checkbox to display the stereotype icon instead of the stereotype text.</p>
Show Element Stereotypes	<p>For elements that have whole shapes drawn by Enterprise Architect, if 'Use Stereotype Icons' is deselected, select this checkbox to display any stereotype on the element.</p> <p>For elements that have an icon displayed in the top right corner, select this checkbox to indicate that a stereotype is present (icon if 'Use Stereotype Icons' is selected, text if not).</p>
Show Port Classifiers	Select this checkbox to show the classifier of each Port on the diagram.
Show Property Type	Select the checkbox to show Port and Part types on the diagram by default.

<p>Show Data Model Owner</p>	<p>Select this checkbox to display the owner of each Table element in the diagram. This is defined in the Owner Tagged Value on the table or, for PostgreSQL, Owner To.</p>
<p>Show Element Property String</p>	<p>Select this checkbox to show the advanced property string for all elements; for example, {leaf}.</p>
<p>Collapse Embedded Elements</p>	<p>Reduces edge-mounted structural elements to black dots on the parent element border, on the current diagram. Each black dot represents one structural element or one hierarchy of elements; for example, a Port with an Interface collapses to one dot.</p> <div>  <p>The diagram shows a light blue rectangular area labeled 'Interface' on the left. A horizontal line connects it to a yellow square labeled 'Port1'. From the bottom of 'Port1', a line goes down and then right to another yellow square labeled 'Port2'.</p> </div> <div>  <p>The diagram shows a yellow square with two black dots on its left border. A blue line connects the top dot to the bottom dot, forming an L-shape that fits within the square's boundary.</p> </div> <p>This simplifies the information presented by the diagram, when the structural elements are currently not the focus of interest.</p> <p>You can move the dot representing a</p>

	structural element, but you cannot create new structural elements or connectors involving structural elements on the diagram whilst this option is in use.
Group Tags by Stereotype	Select this checkbox to organize the Tagged Values shown on the element on the diagram into groups according to stereotype.
Show Compartments	<p>Select each checkbox to show the corresponding named feature or property compartment for all elements using rectangle notation on the diagram:</p> <ul style="list-style-type: none"><li>• Attributes</li><li>• Inherited Attributes</li><li>• Operations</li><li>• Inherited Operations</li><li>• Requirements</li><li>• Inherited Requirements</li><li>• Testing (Testing Scripts)</li><li>• Discussions</li><li>• Resources (including 100% complete resources allocated to the element)</li><li>• Package Contents</li><li>• Tags (Tagged Values)</li><li>• Inherited Tags</li></ul>

	<ul style="list-style-type: none"><li>• Fully Qualified Tags</li><li>• Receptions</li><li>• Constraints</li><li>• Inherited Constraints</li><li>• Maintenance (Maintenance Scripts)</li><li>• Reviews</li><li>• Notes</li><li>• Classifier Behavior</li></ul> <p>Deselect the checkbox for each compartment you want to hide.</p> <p>If you have added custom compartments to your model display, such as Related Elements, Flow Ports or Parts, 'Show Compartments' checkboxes are also listed for each of them. These checkboxes default to selected to show the compartments on the diagram; deselect the checkboxes to hide the compartments.</p> <p>If the checkboxes do not seem to operate for an element on a diagram, also check the 'Feature Visibility' settings for that element.</p>
Language	<p>Click on the drop-down arrow and select the programming language that elements created on this diagram receive, overriding the model default language.</p> <p>If you do not want to override the model</p>



	default, select the value <none> from the drop-down list.
OK	If you have finished updating the diagram properties, click on this button to save the changes and close the 'Properties' dialog.
Cancel	If you do not want to save the changes you have made, click on this button to discard the changes and close the dialog.
Help	Click on this button to display this Help topic.

# Features Tab

The features - attributes and operations - of an element have a number of properties that you can show or hide on a diagram, or use to show or hide the features themselves. You control how the features are displayed using the 'Features' tab of the diagram 'Properties' dialog.

## Access

Ribbon	Design > Diagram > Edit > Properties > Features
Context Menu	Right-click diagram in Project Browser   Properties   Connectors Right-click background of open diagram   Properties > Features

## Define the display of features on the diagram

Option	Action

Show Qualifiers and Visibility Indicators	<p>Select this checkbox to show the qualifiers and visibility indicators of each feature on the diagram.</p> <p>Qualifiers include such things as the 'derived' symbol (/) and the public key symbol (PK).</p> <p>Visibility indicators include such things as +, -, # and ~, which indicate the scope of access of the item (such as an attribute, operation or role).</p>
Show Stereotypes	<p>Select this checkbox to show the stereotypes of all features that have them.</p> <p>Deselect the checkbox to hide the stereotypes.</p>
Show Operation Return Type	<p>Select this checkbox to display the return data type of each operation.</p>
Show Property String	<p>Select this checkbox to show the advanced property string for all element features, for example, {readOnly}.</p>
Suppress Brackets for Operations Without Parameters	<p>Select this checkbox to suppress brackets on operations that have no parameters; that is, Opn; rather than Opn();.</p>

Always Show Linked Features	Select this checkbox to force display of linked attributes and operations, regardless of the setting of any other option that might hide them.
Visible Class Members	Select the appropriate checkboxes to show Class members according to their scope and methods that specify properties.
Show Attribute Detail	Click on the drop-down arrow and select whether to show both the attribute name and type, or the attribute name only.
Show Parameter Detail	Click on the drop-down arrow and select how to display method parameters: <ul style="list-style-type: none"><li>• None - No details shown</li><li>• Type Only - Show the type of parameter only</li><li>• Full Details - Show all details of each parameter</li><li>• Name Only - Show the name of the parameter only</li></ul>
Supress Compartment Items	These three edit control fields each suppress the display of the feature names listed in the field, in the corresponding feature-type compartment of an element

	<p>depicted on the diagram.</p> <ul style="list-style-type: none"><li>• In the 'Attributes' field, list the attributes to suppress in the Attributes compartment of the element</li><li>• In the 'Operations' field, list the operations to suppress in the Operations compartment of the element</li><li>• In the 'Tag Names' field, list the tags to suppress in the Tagged Values compartment of the element</li></ul> <p>You can type the feature names separated by commas or by carriage returns.</p>
OK	<p>If you have finished updating the diagram properties, click on this button to save the changes and close the 'Properties' dialog.</p>
Cancel	<p>If you do not want to save the changes you have made, click on this button to discard the changes and close the dialog.</p>
Help	<p>Click on this button to display this Help topic.</p>

# Connectors Tab

It is possible to control a number of aspects of how connectors are shown on a diagram, using the 'Connectors' tab of the diagram 'Properties' dialog.

## Access

Ribbon	Design > Diagram > Edit > Properties > Connectors
Context Menu	Right-click diagram in Project Browser   Properties   Connectors Right-click background of open diagram   Properties   Connectors

## Define connector appearance

Option	Action
Show Relationships	Select this checkbox to show connectors between elements in the current diagram. Deselect the checkbox to hide all

	connectors on the diagram.
Show Collaboration Numbers	(In Communication diagrams) Select the checkbox to show the group numbering on Communication Messages. Messages are added to Association connectors in the Communication diagram.
Show Non-Navigable Ends	Select this checkbox to indicate when Association ends are not navigable; a cross is shown on each non-navigable end of an Association connector.
Show Connector Property String	Select this checkbox to show the property strings (constraint text) for connectors.
Suppress All Connector Labels	Select this checkbox to hide all connector labels on the diagram.
Show Stereotype Labels	Select this checkbox to show a label on each connector indicating the connectors' stereotype. Deselect the checkbox to hide these stereotype labels.

Connector Notation	<p>Click on the drop-down arrow and select the required connector notation:</p> <ul style="list-style-type: none"><li>• UML 2.1 - use the standard UML 2.1 notation for connectors</li><li>• Information Engineering - use the Information Engineering (IE) connection style</li><li>• IDEFX1 - use the Integrated Definition Methods IDEFX1 connection style</li></ul>
OK	<p>If you have finished updating the diagram properties, click on this button to save the changes and close the 'Properties' dialog.</p>
Cancel	<p>If you do not want to save the changes you have made, click on this button to discard the changes and close the dialog.</p>
Help	<p>Click on this button to display this Help topic.</p>



# Theme Tab

A Theme is a definition of the display characteristics for a diagram, such as the text font used or the background colors of the elements and diagram. You generally create and/or select a theme to apply to all diagrams across the model, but you can apply a different (existing) theme to a selected diagram, using the 'Theme' page of the diagram's 'Properties' dialog.

Themes applied to diagrams are model-based rather than user-based. If the diagram is imported into a model without an applied theme, the global theme will be used instead.

## Access

Ribbon	Design > Diagram > Edit > Properties > Theme
Context Menu	Right-click diagram in Project Browser   Properties   Theme Right-click background of open diagram   Properties   Theme

## Select Theme

Option	Description
Theme	<p>Click on the drop-down arrow and select the theme to apply to the current diagram. The field defaults to the value 'Use global theme', which applies the theme selected on the 'Diagram &gt; Theme' page of the model 'Preferences' dialog.</p>
Font	<p>Select the checkbox to apply the 'User Font Face' and 'Font Size' settings assigned to the selected theme on the 'Appearance' page of the model 'Preferences' dialog.</p> <p>Deselect the checkbox to apply the font from the global theme on the 'Preferences' dialog.</p>
Color	<p>Select the checkbox to apply the element, connector and diagram colors assigned to the selected theme on the 'Gradients and Background' page and the 'Standard Colors' page of the model 'Preferences' dialog.</p> <p>Deselect the checkbox to apply the colors from the global theme on the 'Preferences' dialog.</p>

Line Thickness	<p>Select the checkbox to apply the default element border width and connector line thickness assigned to the selected theme on the 'Appearance' page and 'Link' page of the model 'Preferences' dialog.</p> <p>Deselect the checkbox to apply the line widths from the global theme on the 'Preferences' dialog.</p>
Gradient	<p>Select the checkbox to apply the gradient of the diagram background color and element fill color, as assigned to the selected theme on the 'Gradients and Background' page of the model 'Preferences' dialog.</p> <p>Deselect the checkbox to apply the gradients from the global theme on the 'Preferences' dialog.</p>
Background Image	<p>Select the checkbox to apply the diagram background image assigned to the selected theme on the model 'Preferences' dialog.</p> <p>Deselect the checkbox to apply the image from the global theme on the 'Preferences' dialog.</p>
Element Shadows	<p>Select the checkbox to apply the element shadow setting ('on' or 'off') and color</p>

	<p>assigned to the selected theme on the model 'Preferences' dialog.</p> <p>Deselect the checkbox to apply the shadow setting and color from the global theme on the 'Preferences' dialog.</p>
OK	<p>Click on this button to apply the theme aspects you have defined on this tab, and to close the 'Properties' dialog.</p>
Cancel	<p>Click on this button to abort the changes you have made and close the 'Properties' dialog.</p>
Help	<p>Click on this button to display this Help topic.</p>

# Properties Window for Diagrams

The docked Properties window provides a convenient and immediate way to view and edit properties of modeling objects, including diagrams. When the Properties window is open and you click on an open diagram, the window becomes the Diagram Properties window, displaying the common properties and providing an associated 'Compartments' tab and 'Swimlanes and Matrix' tab. As you review the properties for the diagram, you can edit the values by overtyping them, or by clicking on the drop-down arrow or browse button to select alternative values.

If you click on a diagram name in the Project Browser, you can edit some of the common properties in the Diagram Properties window; however, most of the options are not available for editing unless the diagram is open and selected.

## Access

Ribbon	<p>After selecting the Properties window using one of these methods, click on the first required diagram.</p> <p>Start &gt; Explore &gt; Properties &gt; Properties or Show &gt; Portals &gt; Window &gt; Properties &gt; Properties</p>
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Keyboard	Alt+1
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## Properties Window Tabs

Tab	Description
Diagram Tab	<p>The 'Diagram' tab provides a number of checkbox fields that make it simple to define what the diagram shows and how the objects are presented. You can also tailor certain fields that were assigned default values when the diagram was created. For further details, see the <i>Diagram Tab</i> Help topic.</p> <p>You can also define additional properties on the 'Diagram Properties' dialog.</p>
Compartment s Tab	<p>This tab provides a list of the simple compartments that you can display in elements included in the current diagram. Some types of element are automatically displayed in rectangular notation, whilst others might have to be set manually in rectangular notation to show the compartments.</p>

	<p>Click the check box against each compartment to show in the elements on the diagram:</p> <ul style="list-style-type: none"><li>• Attributes</li><li>• Operations</li><li>• Tags</li><li>• Requirements</li><li>• Constraints</li><li>• Testing</li><li>• Maintenance</li><li>• Package Contents</li><li>• Notes</li><li>• Receptions</li></ul> <p>For further information on these compartments and others you might set on the diagram, see the <i>Compartments</i> and <i>Define Element Characteristics</i> Help topics.</p>
Swimlanes and Matrix Tab	<p>On any type of Enterprise Architect diagram, you can access this tab of the Diagram Properties window to develop:</p> <ul style="list-style-type: none"><li>• Swimlanes, as vertical or horizontal bands that divide the diagram into logical areas or partitions</li><li>• A Swimlanes Matrix, to divide your diagram into cells at the intersections</li></ul>

	of columns and rows
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# Diagram Tab

The 'Diagram' tab of the Diagram Properties window provides a number of fields and options you can set to define what the diagram shows and how the objects are presented.

## Access

Ribbon	After selecting the Properties window using one of these methods, click on the first required diagram. Start > Explore > Properties > Properties or Show > Portals > Window > Properties > Properties
Keyboard	Alt+1 > Diagram

## Diagram Properties

Field	Description

Name	Defaults to the name of the parent Package as the name of the diagram. If necessary, you can edit the name or overtype it with a new name.
Type	Displays the diagram type. You cannot edit this field.
Stereotype	<p>(Optional) Type in the name of a diagram stereotype to apply, or click on the drop-down arrow and select a stereotype from the list.</p> <p>You can define stereotypes to select here using the 'Configure &gt; Reference Data &gt; UML Types' ribbon option, selecting the 'Stereotypes' page and creating stereotypes with a 'Base Class' of 'Diagram'.</p>
Author	Defaults to the name of the person who created the diagram. If necessary, you can overtype this or click on the drop-down arrow and select an alternative name from the list.
Applied Metamodel	Displays the name of the metamodel on which the diagram is based. If necessary, click on the drop-down arrow at the right of the field and select a different

	metamodel.
Filter to Metamodel	Select this checkbox to filter the diagram to 'fade' all elements that are not derived from the same metamodel as the selected element.
Filter to Context	Select this checkbox to filter the diagram to 'fade' all elements that have no relationships with the selected element (the context element), so that only those in the relationship group are apparent.
Version	Displays the version number of the diagram. This defaults to 1.0 when the diagram is created, and you update the version manually according to the conventions applied in your workplace.
Filter to Version	Select this checkbox to filter the elements on the diagram and mute those that do not have the same version number as the diagram. This is of particular value when you are working on the elements of a cloned diagram and want to distinguish between elements that have been cloned to match the diagram and Package structure, and elements that are still the same version as the source.

	<p>You can use the facility to check more generally which elements are not of the same version as the diagram, such as when you drag elements from the Project Browser as links to local or, more especially, external elements.</p>
New to Version	<p>Select this checkbox to set the version of every new element added to the diagram to the same version as the diagram. Elements dragged and dropped from the Diagram Toolbox or added using the 'New Element' dialog will have the same version as the diagram. The version value of elements dragged and dropped from the Project Browser will not be updated.</p>
Display as	<p>This field defines the format of the display whenever the diagram is opened. The setting persists until it is specifically changed. The field defaults to 'Diagram' to depict elements rendered as shapes joined by connectors. Click on the drop-down arrow and select:</p> <ul style="list-style-type: none"><li>• Specification - to always display the diagram contents as a list of text descriptions in the Specification Manager</li><li>• List - to always display the diagram</li></ul>

	<p>contents as a list of elements (Diagram List) rather than as a diagram</p> <ul style="list-style-type: none"><li>• Gantt - to always display the diagram contents as a Gantt chart</li></ul>
Hand Drawn	Select this checkbox to display the diagram contents as if they had been roughly drawn by hand.
Whiteboard	Select this checkbox to display the diagram as if it had been drawn on a whiteboard, with white fill and background.
Disable fully scoped object names	Select this checkbox to disable the use of fully scoped object names for elements in this diagram.
Display Element Lock Status	<p>Select this checkbox to add a locking indicator ( ! or ! ) outside the top left corner of each locked element on the diagram.</p> <p>If the element is:</p> <ul style="list-style-type: none"><li>• Fully locked or locked by another user, the indicator is red</li><li>• Locked by you or by another user in the same user group as you, the indicator is blue</li></ul>

	<ul style="list-style-type: none"><li>• Not locked, no indicator displays</li></ul>
Theme	Click on the drop-down arrow and select the theme to apply to the current diagram. The field defaults to the value 'Use global theme', which applies the theme selected on the 'Diagram > Theme' page of the model 'Preferences' dialog.
MDG Technology	If the diagram is part of a model created for an MDG Technology, this field displays the name of that technology
GUID	Read-only field, displaying the GUID of the selected diagram.
WebEA	Displays the URL to access this diagram in WebEA. This URL is defined in WebEA itself.

## Notes

- In the Corporate, Unified and Ultimate editions of Enterprise Architect, if security is enabled you must have 'Update Diagrams' permission to update diagram properties



# Diagram Context Menu

You can perform a wide range of tasks and operations on a diagram and its contents. To access and initiate these operations, you select options from the diagram's context menu.

## Access

Context Menu	Right-click on the diagram background
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## Options

Option	Action
Specialize	<p>Provides two sets of functions:</p> <ul style="list-style-type: none"><li>• Scripts - scripts created using the Scripting facility, to be executed on diagrams; click on a script name to execute it (this option is not shown if no appropriate scripts have been created)</li></ul>



	<ul style="list-style-type: none"><li>• Extensions - a list of the enabled technologies on the system, each of which provides options for performing technology-specific operations on the diagram; these options are available in the Professional, Corporate, Unified and Ultimate editions of Enterprise Architect</li></ul>
Collaborate	Select this option to display a short menu of options to exchange electronic notes on the selected diagram with team colleagues, in the form of Reviews, Discussions and, if User Security is enabled, Chats and Model Mail messages.
Properties	Displays the diagram 'Properties' dialog, through which you can define properties including name, author and version information, zoom factor, paper size and layout, diagram notes and various appearance attributes. Some properties influence the display of the diagram and some are logical attributes that appear in the documentation.
Validate Diagram	(In a Business Process diagram) Validates the diagram, and the elements

	<p>and connectors within the diagram, for correctness.</p> <p>The results of the validation are displayed in a tab of the System Output window.</p>
Insert	<p>Displays a short menu of options for adding objects to the diagram:</p> <ul style="list-style-type: none"><li>• Other Element - displays the Select Element browser, through which you locate and select an existing element to add to the diagram as a linked element</li><li>• Store Document(s) in Model - displays the default file browser, through which you locate a file to store as a File Artifact element in the model and in the diagram; double-click on the Artifact to show the file contents</li><li>• Link to Document(s) in File System - again displays the default file browser, but when you select a file the system creates a hyperlink to that file</li><li>• Show Toolbox - Select this option to display the Diagram Toolbox at the appropriate pages for the type of diagram, if the Toolbox is not already displayed</li></ul>
Paste	<p>Displays a short menu of options for pasting copied elements or images into</p>

	<p>the diagram.</p> <ul style="list-style-type: none"><li>• Element(s) as Link - paste copied elements into the diagram as links to the original element(s)</li><li>• Element(s) as New - paste copied elements into the diagram as new elements</li><li>• Image from Clipboard - paste an image held on the clipboard into the diagram (shortcut: Ctrl+Shift+Insert)</li><li>• Image Asset - paste an image held on the clipboard into the diagram as a new Image Asset Artifact</li></ul>
Hide Diagram Frame / Show Diagram Frame	<p>This option applies to these diagram types when the diagram is a composite diagram:</p> <ul style="list-style-type: none"><li>• Any SysML type</li><li>• UML StateMachine</li></ul> <p>The elements on the diagram are automatically enclosed in a Diagram Frame having the same name as the element that owns the diagram. Click on the options to hide and redisplay this Diagram Frame.</p> <p>On a SysML diagram, the frame will:</p> <ul style="list-style-type: none"><li>• Auto-resize to fit the bounds of the diagram if the frame is non-selectable,</li></ul>

	<p>expanding from its default size but not shrinking smaller</p> <p>Note that diagrams showing Diagram Frames applied under release 14.0 or higher of Enterprise Architect might draw the parent object on the diagram when opened in a release prior to release 14.0.</p>
Open Diagram In	<p>Displays a short menu of options for displaying the contents of the diagram in the:</p> <ul style="list-style-type: none"><li>• Specification Manager - as a textual description of each element and its features</li><li>• List View - as a simple list of the elements and their main properties (such as Status, Type, Date Created and Date Modified)</li><li>• Gantt View - listing the elements that have allocated resources, and showing the status and progress of any tasks defined for the element and resource</li></ul>
Interaction Parameters	<p>(On an Interaction diagram.) Displays the 'Interaction Occurrence' dialog, on which you define the arguments, return value and attribute to create an Interaction Occurrence.</p>

Supress Activations	(On a Sequence diagram.) Hides or redisplay the activation rectangles on the Lifeline elements of the diagram.
Set Top Margin	(On a Sequence diagram.) Displays the 'Top Margin' dialog, through which you change the space above the Lifeline elements on the diagram to between 30 and 250 units.
Sequence Communication Messages	(On a Communication diagram.) Displays the 'Communication Messages' dialog, through which you can change the order of the communication messages in the current diagram.
Synchronize Structural Elements	<p>Applies to a SysML Internal Block diagram or a SysML Parametric diagram, where it shows all structural elements (such as Ports and Parts) relating to the Block that owns this diagram.</p> <p>This command will also generate Properties defined by existing Association connectors.</p>
Swimlanes and Matrix	Displays the 'Swimlanes and Matrix' tab of the Properties window for diagrams, through which you can add or modify Swimlanes or a Swimlanes Matrix on the

	diagram.
Roadmap	Displays the 'Roadmap options' dialog, which you use to define a Roadmap Timeline on the diagram.
Kanban	Displays the 'Kanban' dialog, through which you can define the structure, content and appearance of a new or existing Kanban diagram, or to convert a different type of diagram to a Kanban diagram.
Clear all Checklists	Clears all selected checkboxes within every Checklist Artifact element in the current diagram.
Set diagram flow direction	<p>(On a Business Process diagram)</p> <p>Displays a short menu of options to set the flow orientation of the diagram. Click on:</p> <ul style="list-style-type: none"><li>• None (the default, no specific orientation set)</li><li>• Horizontal (diagram flows across the page, Pool and Lane elements occupy the full width of the diagram), or</li><li>• Vertical (diagram flows down the page, Pool and Lane elements occupy the full height of the diagram)</li></ul>

Statechart Editor	<p>(For a StateMachine diagram.) Displays a short list of options to switch the current format of the diagram to:</p> <ul style="list-style-type: none"><li>• Diagram</li><li>• Table (State-Next State)</li><li>• Table (State-Trigger) or</li><li>• Table (Trigger-State)</li></ul>
Lock Diagram	<p>Select this option to lock the diagram to protect it from inadvertent changes.</p> <p>This does not apply in the Corporate, Unified and Ultimate editions if security is enabled, in which case you lock the model elements.</p>
Find in Project Browser	<p>Locates and highlights the current diagram in the Project Browser.</p> <p>Shortcut: Shift+Alt+G</p>
Execute Simulation	<p>(On a behavioral diagram.) Displays a short menu of options for performing a model simulation:</p> <ul style="list-style-type: none"><li>• Interpreted simulation - perform dynamic execution of a simulation (Corporate and Extended Editions)</li><li>• Manual simulation - step through a simulation manually (the only option</li></ul>

	<p>available in the Professional edition)</p> <ul style="list-style-type: none"><li>• Using Script - if simulation scripts exist for the diagram, list the scripts available; if no scripts exist, the option does not display</li></ul>
Save Current Changes	<p>Saves any changes to the current diagram.</p> <p>Shortcut: Ctrl+S</p>
Help	<p>Displays the Help topic on this type of diagram.</p>

## Notes

- Not all the menu options described appear on the context menu of every diagram



# The Quick Linker

If you want to create new elements and connectors quickly on a diagram, you can use the Quick Linker on an initial element to guide you in creating related elements and connectors of the appropriate types, without having to weigh up the full range of options from the Diagram Toolbox.

The Quick Linker consists of paired menus that list the commonest objects appropriate to the context of the selected element. You simply choose the type of element you need from the first menu, and that displays the second menu offering a choice of appropriate types of connector between the original and new elements. When you select the connector, you create a new element connected to your initial element, complete with any subordinate objects such as Object Nodes and Action Pins.

If you drag the Quick Linker arrow onto an existing element on the diagram, only the connector menu displays, so that you select the type of connector to create between the two existing elements.

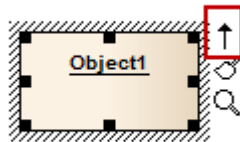
## Display the Quick Linker Menus

There are two methods of accessing the Quick Linker menus.

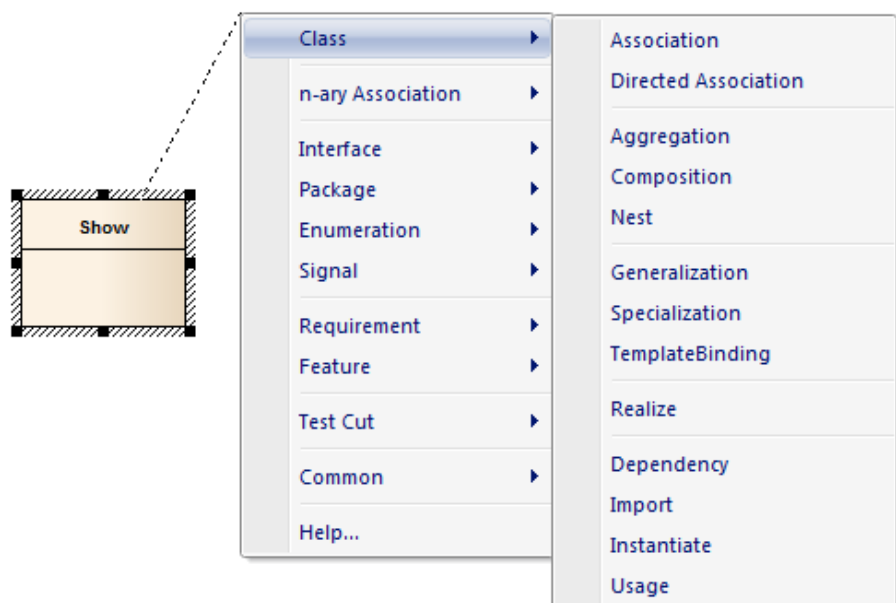
Action	Detail

## Click on Quick Linker Arrow

When you click on an element in a diagram, the Quick Linker arrow is displayed at the upper right corner of the element:



Click on this arrow and drag it in the direction in which you want to create the new connector and element. When you release the mouse button, the element menu displays. When you select an element type, the connector menu displays.



When you select the connector type, the element and connector are added to the

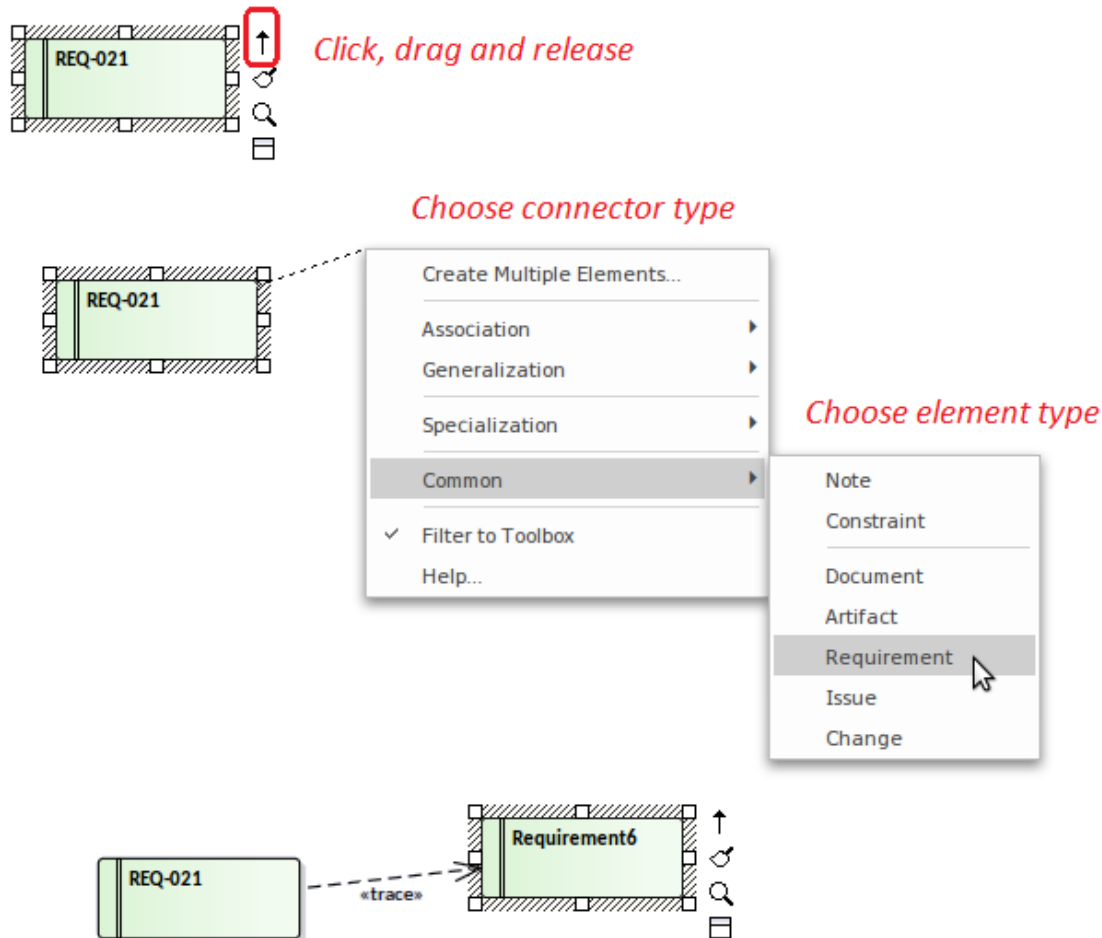
	diagram in the location in which you displayed the menus.
Press Ctrl+Shift+Arrow key	<p>After selecting the element, press Ctrl+Shift and the keyboard arrow key for the direction in which you want to create the new connector and element (Right, Left, Up or Down).</p> <p>The element and connector menus display. When you select the type of connector, the new element and connector are created off the edge of the element appropriate to the arrow key you pressed. For example, if you press the Right arrow key, the new element is created to the right of the original element.</p>

## Notes

- When using the Ctrl+Shift+<arrow key> method on a Sequence diagram, you cannot use the Up or Down keys; the Right and Left keys create a connector to a Lifeline element
- When using the Ctrl+Shift+<arrow key> method on a Timing diagram, you cannot use the Right or Left keys

- If the connectors and elements suggested by the Quick Linker do not include the types you need, you can create them from the Diagram Toolbox pages
- A Technology Developer can create new or different lists and combinations of elements and connectors

# Create New Elements



The connectors and elements listed on the two menus depend on the type of the element you initially selected; for example, if you click on the Quick Linker arrow for a Class, the options are not the same as if you clicked on the arrow for an Actor. However, in either case the menus show the most appropriate, commonly used connectors and target elements for that initial element; you can create other connectors and target elements by selecting them from the appropriate Toolbox page.

Certain types of element - such as Action and Artifact - are

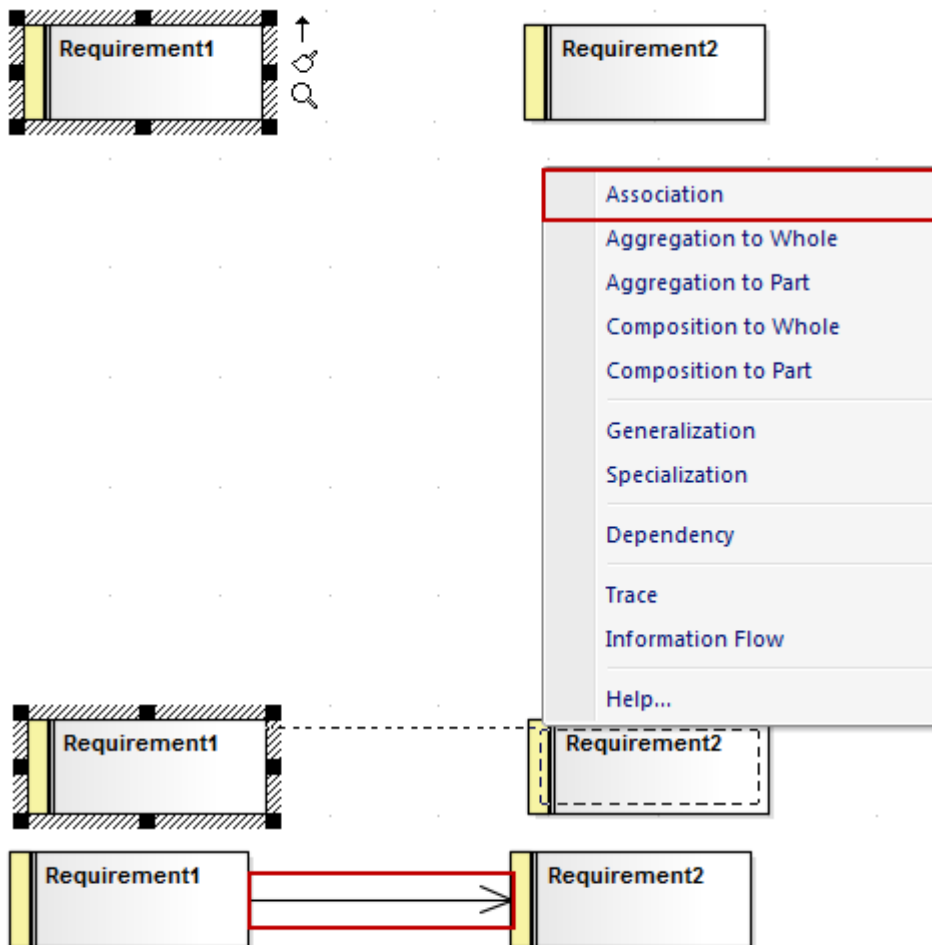
available in a range of subtypes. You can select which subtype to create by holding down the Ctrl key as you select the main element type. For an:

- Action element, the 'New Action' dialog displays from which you select the Action subtype, such as CallOperation or SendObject
- Artifact element, a submenu displays from which you select the Artifact subtype, such as Report Specification or Checklist

## Notes

- You can create a connector to an existing classifier from the Project Browser, by pressing Shift while clicking on the type of connector; the 'Select existing element' dialog displays on which you browse for and select the element, then the connector and element are added to the diagram

# Create Connectors



The connector list does not actually display until you release the mouse button over the target element; however, a dotted line shows where the connector would be at any point, and a hatched outline displays within the border of an element as you move the cursor onto it - this helps you identify where the connector should connect to, if there are many closely-arranged elements, Parts, Ports or other extensions.

The list contains the most appropriate, commonly-used types of connector for the source and target element types. If you want to use a different type of connector, select the appropriate Toolbox page, click on the required connector

and then on the source element, and drag across to the target element.

## Notes

- You can quickly create a Notelink to attach a Note or Constraint to a connector, simply by dragging the Quick Linker arrow on the Note element onto the connector



# Working In Diagrams

Enterprise Architect provides a wide range of facilities for creating, editing and managing the diagrams that represent aspects of your models.

## Facilities

Facility
<b>Create</b> a UML diagram, Extended diagram or MDG Technology diagram in your model, through the Project Browser.
Set or change various properties of a diagram, such as the diagram name, through the diagram 'Properties' dialog. Some properties influence the display of the diagram and some are logical attributes that appear in the documentation.
Display a Diagram Properties Note on the diagram. A Diagram Properties Note is a simple fixed-text box containing the diagram name, author, version, creation date and modification date. You can move this text box to any point on the diagram.
<b>Add new elements and connectors</b> to a diagram using

the **Diagram Toolbox** pages specific to the diagram type, or other Toolbox pages as you need.

**Add new elements and connectors** to a diagram using the **Quick Linker** facilities.

**Drop existing elements** from the Project Browser into the diagram.

**Drop elements copied from a diagram** into another diagram.

Change the Z-order of selected elements on the diagram, to define which elements might lie over or underneath other elements.

You can convert a tabbed diagram in the Diagram View into a floating diagram. In this case, you can move or copy elements between that diagram and another floating diagram or tabbed diagram.

Move sections of the diagram independent of the rest of the diagram.

Automatically resize the selected elements on the diagram to the default size for the element type, or as close to it as the element contents allow.

Identify which other elements are **related to** a selected

element on the diagram and, if necessary, add one or more of those other elements to the diagram.

Generate virtual images of connector end elements, to simplify complex and extended relationships on a diagram.

Control the display of labels around elements and connectors on the diagram.

More precisely represent realized interfaces of a Class on your diagram.

Expand the contents of a Package element within a diagram.

Manage the visibility of a range of element features on the diagram.

Undo and redo the immediately previous changes to the diagram.

Pan across and down a large diagram, and zoom into or out of the diagram display.

Select and move elements on the diagram using keyboard keys ('hotkeys').

Switch between the currently-open diagrams and views in

the Diagram View.

Change a diagram from one type (such as Class) to another (such as Data Modeling).

Flag a selected diagram as the Model Default diagram for your project, or your User Default diagram.

Scale down the Printable image of the diagram to fit the size of paper it is being printed on.

Set the scrollable/printable area of the diagram display area.

Present a set of diagrams in a Model Views slideshow.

Lock the current diagram so that it cannot be updated.

Create a duplicate copy of an existing diagram.

Save an image of the diagram to a file on disk, in a range of graphic file formats.

Copy an image of the diagram to the MS Windows clipboard.

Delete one or more diagrams from the model.


## Notes



- In the Corporate, Unified and Ultimate editions of Enterprise Architect, if security is enabled you must have 'Update Element' permission to update or delete items on a diagram, and 'Manage Diagram' permission to create, copy or delete diagrams

# Add New Diagrams

Enterprise Architect provides a number of ways in which to create a new UML diagram, Extended diagram or MDG Technology diagram in your model. The principal method is to select the Package or element under which to create the diagram and select a menu option to add it, as explained here.

## Add a new diagram to the model

Step	Action
1	In the Project Browser, click on the Package or element under which to place the diagram.
2	<p>Either:</p> <ul style="list-style-type: none"><li>• In the Project Browser header bar, click on the  button, or</li><li>• Right-click on the object to open the context menu and select the 'Add Diagram' (Package) or 'Add   Add Diagram' (element) option, or</li><li>• Press the Insert key and select the 'Add Diagram' menu option</li></ul> <p>The 'New Diagram' dialog displays.</p>

3	<p>The 'Package' field defaults to the name of the Package selected in the Project Browser or, if the parent is an element, the name of the Package containing that element.</p> <p>If you are adding a diagram directly to a Package and notice that it is not the correct Package, click on the  button and browse for the correct Package. (The  button is disabled when you are creating a diagram under an element, and the 'Parent' field shows the name of the element under which you are creating the diagram.)</p>
4	<p>The 'Diagram' field defaults to the name of the selected Package or element; if necessary, type a different name for the new diagram.</p>
5	<p>Click on the 'Select From' header and select the Perspective Group and Perspective or Workspace most appropriate to the area you are working in. The panel underneath the header displays a list of diagram groups; click on the required group.</p>
6	<p>In the 'Diagram Types' panel, click on the type of diagram to create.</p> <p>A description of the selected diagram type displays in the field underneath this pane.</p>
7	<p>Click on the OK button to create your new diagram.</p>

Enterprise Architect checks whether there is a template diagram for this diagram type in the Templates Package and, if so, applies the display characteristics defined in that template.
--

## Notes

- In the Corporate, Unified and Ultimate editions of Enterprise Architect, if security is enabled you must have 'Manage Diagrams' permission to create new diagrams
- The diagram type determines the default Toolbox associated with the diagram and whether it can be moved as a child of another element in the Project Browser (for example, a Sequence diagram under a Use Case)



# Insert Diagram Properties Note

On a diagram, it is possible to display a customized text box called the Diagram Properties Note, which automatically shows the diagram properties:

- Name
- Author
- Version
- Creation date and
- Modification date

You can move this Note around the diagram and change its appearance, and you can create several instances of it to, for example, put the property information on each page of the diagram. You cannot change the content.

## Access

Ribbon	Layout > Diagram > Appearance > Show Diagram Property Note
Other	<p>Drag the Diagram Notes icon from the Common page of the Toolbox onto the diagram</p> <p>Click on the Diagram Properties Note icon in the UML Elements toolbar and</p>

	click on the diagram
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## Notes

- The Diagram Properties Note is not the same as the Diagram Details Note, which displays if the 'Show Diagram Details' checkbox is selected on the 'Diagram Properties' dialog; this always displays in the top left corner of the diagram - you cannot move it, change its appearance or have more than one instance of it on the diagram

# Drop Package From Project Browser

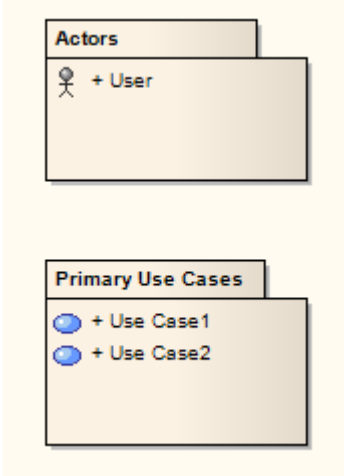
You can drag a Package element from the Project Browser and drop it onto the current diagram, to show a representation of the Package in one of several formats. You select the format from a short context menu. This is a useful feature to help organize the display, reporting and documentation of models.

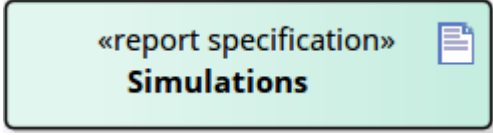
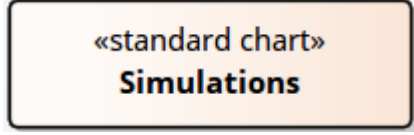
## Access

Other	Drag existing Package(s) from the Project Browser onto the diagram
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## Select Drop options

Option	Action
Package element	Select this option to generate a Package element on the diagram, containing a list of the Package contents. In this illustration, note the child Actor and Use Case icons.

	 <p>You can hide the contents of the element if necessary. See the <i>Show or Hide Package Contents</i> Help topic. The diagram element is a simple link to the Package in the Project Browser; any changes to the Package are reflected in all diagrams in which it is shown.</p>
Report Specification linked to package	<p>Select this option to generate a Report Specification Artifact element linked to the Package, which immediately opens to the 'Generate Documentation' dialog on which you enter the parameters for generating the report. Thereafter, you can simply double-click on the element and click on the Generate button to generate the same report on the Package, whenever necessary. The report can be read as a Linked Document on the element.</p>

	 <p>A light green rectangular button with a thin black border. It contains the text «report specification» in a dark blue font, followed by the word Simulations in a bold black font. To the right of the text is a small blue icon of a document with lines.</p>
Graph based on Package contents	<p>Select this option to create a Standard Chart Artifact. The Standard Chart 'Properties' dialog displays at the 'Chart Detail's pages, on which you can configure the generation of a Pie Chart or Bar Chart to graphically represent an aspect of the Package content.</p>  <p>A light orange rectangular button with a thin black border. It contains the text «standard chart» in a dark blue font, followed by the word Simulations in a bold black font.</p>
Matrix profile	<p>Select this option to create a Matrix Specification Artifact. The 'Matrix Specification' dialog displays.</p>
Package as List	<p>Drop the Package as a Model View chart element that lists the elements within the Package and shows the type (by icon), name, Scope, Status and Author of each element.</p>

# Show or Hide Package Contents

If you have Package elements displayed in an open diagram, you can toggle between showing the Package contents within the elements, or leaving them clear.

## Access

Ribbon	Design > Diagram > Edit > Properties > Elements
Context Menu	Project Browser or open diagram   Right-click on diagram   Properties > Elements

## Steps

Step	Instruction
1	Select the 'Package Contents' checkbox to list the content of each Package within its element. Clear the 'Package Contents' checkbox to hide the

	content of each Package within its element.
2	Click on the OK button.

# Drop Elements from Project Browser

As well as creating new elements in the current diagram, you can drag existing elements (individually or as a group) from the Project Browser into the diagram. To select multiple elements, click on the element names in the Project Browser while pressing and holding:

- Ctrl to add single items to the selection of multiple elements, or
- Shift to select all the elements between the first and last selected items

When you drag an element onto a diagram from the Project Browser, the system response depends on whether you are dragging a Package element or any other type of element. For information on dragging a Package element onto a diagram, see the *Drop Packages* topic.

## Access

Other	Drag existing element(s) from the Project Browser onto the diagram (If the 'Drop <element> from Project Browser' dialog does not display, press Ctrl while dragging the elements)
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## Select Paste options

Option	Action
Drop as	<p>Click on the drop-down arrow and select one of the drop types:</p> <ul style="list-style-type: none"><li>• Link - Drop the element as a simple link: in this case the one element is represented in the Project Browser and in any diagram to which it has been added; changes to the element are reflected in all diagrams in which it is shown</li><li>• Lifeline - (On Sequence diagrams) Drop a copy of the element as a separate Lifeline element, classified by the original element</li><li>• Instance - (On diagrams other than Sequence) Drop a copy of the element as a separate instance of the original element, classified by the original element</li><li>• Invocation - Drop a copy of a StateMachine or Activity element as an invocation of the source element; the resulting element is a State object or Action - respectively - with the source</li></ul>

	<p>element as its classifier</p> <ul style="list-style-type: none"><li>• Property - Drop a copy of the element as a separate Object instance</li><li>• Attribute - (Available when dragging a classifier onto an element that supports attributes) Create a new attribute classified by the dragged classifier; the attribute is automatically selected in in-place editing so that you can add the attribute name</li><li>• Child - Drop the element as a child of the copied element - that is, as a new element with a Generalization connector back to the copied element; this is very useful when you have a Class library or framework from which you inherit new forms - for example, you can drop a Hashtable as 'MyHashtable', which automatically becomes a child of the original Hashtable</li></ul> <p>Used with the 'Override Parent Operations' feature, this is a quick way to create new structures based on frameworks such as the Java SDK and the .NET SDK</p>
Name	If the dropped element is a new element

	(that is, a Lifeline, Instance, Child, or Property), this field is active; type a name for the new element.
Structural Elements	<p>If the original element has any structural elements (for example, Ports and Parts) this field contains the value 'Select'. Either:</p> <ul style="list-style-type: none"><li>• Leave this value as is, so that when you click on the OK button the Features window displays, from which you can select the child elements to reproduce with the pasted element (on the 'Parts / Properties' tab, 'Interaction Points' tab or 'Connection Points' tab, depending on the element type)</li><li>• Click on the drop-down arrow and select:<ul style="list-style-type: none"><li>- 'None' to not reproduce any child elements</li><li>- 'All' to reproduce all child elements on the original element, or</li><li>- '&lt;diagram name&gt;' to reproduce the configuration of child elements on an instance of the original element on another diagram (if there are any other instances); there can be more than one diagram name, if the</li></ul></li></ul>

	<p>original element is found on several diagrams</p> <p>The resulting Object element is created large enough to display the selected child elements laid out neatly within the Object border.</p> <p>(If the element has no structural elements, the field contains the text 'No Embedded Elements'.)</p>
Copy Connectors	<p>This checkbox is enabled when you select to drop the copied element as an Instance, Property or Invocation.</p> <p>Select the checkbox to reproduce on the diagram any connectors between the original element and any other elements that have also been dropped into this diagram, as connectors between the instances.</p>
Select for all	<p>(If dragging multiple elements onto the diagram at once.)</p> <p>Select the checkbox to apply the dialog settings to all multiple-selected elements being dragged onto the diagram, and to add the elements together.</p> <p>Leave the checkbox unselected to add the elements to the diagram one at a time, with the opportunity to change the dialog</p>

	settings for each element.
Save selection as default	<p>Select this checkbox to make the current settings on this dialog the default for all drag and drop operations from the Project Browser.</p> <p>This option also deselects the 'Auto Instance' checkbox on the 'Diagram &gt; Behavior' page of the 'Preferences' dialog. The automatic drop operation becomes whatever you have set on the 'Drop ... from Project Browser' dialog, and is not overridden by the drop-as-Instance imposed by the 'Auto Instance' checkbox. The default setting you apply on Sequence diagrams is separate from the default for other types of diagram. Therefore, you can set the default to 'Lifeline' (if you prefer) and this does not affect or get changed by the default you might set for other types of diagram.</p>
Hold Ctrl to Show this dialog	<p>Select this checkbox to display this dialog for drag and drop operations only if you press and hold Ctrl as you drag the element onto the diagram.</p> <p>If you select this option, you can drag elements from the Project Browser without displaying the dialog; the paste</p>

	operation complies with whatever settings you used the last time you opened the dialog. To change these settings, hold Ctrl as you drag an element, and edit the field values on the dialog.
OK	Click on this button to complete the drop operation and close the dialog.
Cancel	Click on this button to cancel the drop operation and close the dialog. If you have selected multiple elements, the first-selected element is not dropped, but the remainder are.
Cancel All	(If dragging multiple elements onto the diagram at once.) Click on this button to cancel the insertion of all the multiple-selected elements being dragged onto the diagram.

## Notes


- Not all drop options apply to all element types; for many types, the only option available is 'Link'

- When an element dragged from the Project Browser is dropped into the diagram, its default style and size is applied rather than any alternative styles and sizes used for instances of the element in other diagrams
- When using the 'Drop as - Instance' option, if the Instance is the same element type as the Classifier, then any stereotype that has been applied to the Classifier will be propagated to the Instance also

# Copy And Paste Diagram Element

It is possible to copy one or more elements from an open diagram and paste them into a different diagram as either new elements or as links to the original elements.


## Copy diagram elements

Step	Instruction
1	Select the element(s) to copy.
2	Either: <ul style="list-style-type: none"><li>• Select the element(s) and the 'Layout &gt; Diagram &gt; Edit &gt; Copy Selected Elements' ribbon option, or</li><li>• Press Ctrl+C, or</li><li>• Click on the 'Copy' icon () in the Default Tools toolbar</li></ul>


## Paste diagram elements

Step	Instruction
------	-------------



p	
1	Open the diagram to paste into.
2	<p>Either:</p> <ul style="list-style-type: none"><li>• Click on the Paste button () in the Default Tools toolbar, or</li><li>• Right-click on the diagram background to open the diagram context menu</li></ul>
3	Select either the 'Paste  Element(s) as New' menu option (completely new element) or the 'Paste   Element(s) as Link' menu option (reference to the original element).

## Notes

- The 'Date Created' and 'Time Created' parameters of a pasted-as-new element are set to the current date and time; the parameters for a linked element remain the same as the copied element
- You can also move elements between diagrams by cutting the elements from one diagram and pasting them into another; to cut the selected elements, click on the Cut button () in the Default Tools toolbar



## Z Order Elements

Z Order refers to the sequence in which elements are layered through the depth of the diagram; each element on the diagram has a specific Z-order number that - when elements overlap - determines which elements the selected element displays in front of, and which behind. You can move an element:

- One place further back, deeper into the diagram
- One place further forward, towards the front of the diagram
- To the bottom of the diagram (deeper in than all other elements in the diagram)
- To the top of the diagram (further forward than all other elements in the diagram)

You have options to change the Z order of a single element approximately in relation to the rest of the diagram; you can also select the 'Configure Z Order' option from the diagram context menu, to review and adjust the Z Order of each element on the diagram precisely relative to every other element

### Access

Ribbon	Layout > Alignment > choose either 'Bring to Front' icon (top of the Z order)
--------	---

	or 'Send to Back' icon (bottom of the Z order) Design > Diagram > Edit > Configure Z Order
Context Menu	Right-click on element in a diagram   Z-Order : Select the appropriate option to reposition the selected element.

## Notes

- On a diagram, you can move the focus from element to element according to Z Order, by pressing Shift+Tab; each time you press these keys, the element with the next-lowest Z Order number is selected

# Move/Copy Elements To & From Floating Diagrams

If you have converted a tabbed diagram in the Diagram View into a floating diagram, you have a number of context menu options to move or copy elements between that diagram and another floating or tabbed diagram.

## Access

Other	Drag element(s) from one diagram to another and release mouse button
-------	--

## Move or copy selected elements

Option	Action
Move to this diagram	Select this option to cut the selected element or elements from the source diagram and paste them into the target diagram.  If the moved elements are held in a different Package, when the elements are

	<p>pasted each has a label underneath identifying the parent Package.</p> <p>Function Keys: Drag+Shift</p>
Create link on this diagram	<p>Select this option to create an element or elements on the target diagram, each as an instance of a selected element on the source diagram.</p> <p>Function Keys: Drag+Alt</p>
Copy as New Object(s)	<p>Select this option to create an element or elements on the target diagram, each as a copy of a selected element on the source diagram.</p> <p>The 'Paste Element(s) as New' dialog displays, on which you enter a new name for each element to identify it as a new, separate element. Click on the Paste button to complete the create task.</p> <p>Function Keys: Drag+Ctrl</p>
Instance (Object)	<p>Select this option to create an element or elements on the target diagram, each as an object instance or invocation of an element on the source diagram. The source element is the classifier for the new object element.</p> <p>Function Keys:</p>

as New Child (Generalization)	<p>Select this option to create a new child element on the target diagram, as a generalization of the element of the source diagram.</p> <p>The 'Element Name' dialog displays for each copied element, on which you enter a new name for the element to identify it as a new, separate element.</p> <p>Click on the OK button to complete the create task.</p> <p>Function Keys:</p>
----------------------------------	---

## Notes

- Multiple elements are processed individually, so if one element is 'illegal' the other elements are still copied and/or transferred
- If you select multiple elements to copy as instances or generalizations, those elements must be of the same type and stereotype
- Embedded elements are moved or copied only if they are specifically selected with the parent element

# Move Elements In Diagram Sections

As you build up a diagram, you might find that you have to move all elements within a part of the diagram up, down or to one side. You can do this in a number of ways.

## Fine Movement

You can nudge the position of a single element or a selected group of elements in 1 pixel increments. Press Shift and then the arrow key for the direction of movement (Right, Left, Up or Down).

## Drag Selected Groups of Elements

If you want to reposition a certain group of elements, hold down the left mouse button and drag the cursor over the elements to move (creating an outline around the elements), then click on an element within the outline and drag the group as required.

## Move Sections of the Diagram

You might need to create some space in the diagram.



Selecting and moving even groups of elements around in a large diagram can be difficult, so it is possible to just move everything beyond a certain point further away from the rest of the diagram, without having to select the elements you are moving. To do this:

- Select the 'Layout > Helpers > Sweeper' ribbon option, click on the diagram at an appropriate point and drag the cursor to move everything beyond the cursor in the direction of the movement

Depending on whether you drag the cursor vertically, horizontally or diagonally, either a horizontal or vertical line or both displays on the diagram just behind the cursor. If you are moving the cursor left, everything to the left of the line moves with the cursor. If you move the cursor up, everything above the line moves upwards. If you move the cursor diagonally, everything within the quadrant formed by the lines moves. For example, if you move the cursor left and down, everything below and left of the cursor is moved.

# Autosize Elements

You can autosize an element or group of elements in a diagram to the default size for the element type (for a Class, 90 x 70 pixels at 100% zoom). However, if the element contains more information than the default size can show (such as a long name, long attributes or additional compartments) the autosize option resizes the element to the minimum size for displaying the information.

The size change effectively operates around the mid point of each element, so the layout and size of the diagram do not change. Automatically changing the layout of a diagram is a different process.

## Access

Context Menu	Right-click on selected elements   Autosize (available only when multiple elements are selected)
Keyboard Shortcuts	Alt+Z

## Notes

- Not all elements resize: elements such as Events remain the same; Timing and Sequence diagrams (where position is crucial) are unchanged; and elements added from a profile or Shape Script maintain any size definitions imposed by the profile
- With an element image created with a Shape Script that contains a `defSize` command, Autosize returns the element to the `defSize` value and not the element default size

# Virtual Connector Ends

Virtual connector ends assist you to simplify complex diagrams containing many elements with multiple connectors, supporting good layout strategies that minimize crossed relationship lines and group related elements accordingly. They are highly effective when the element of interest is:

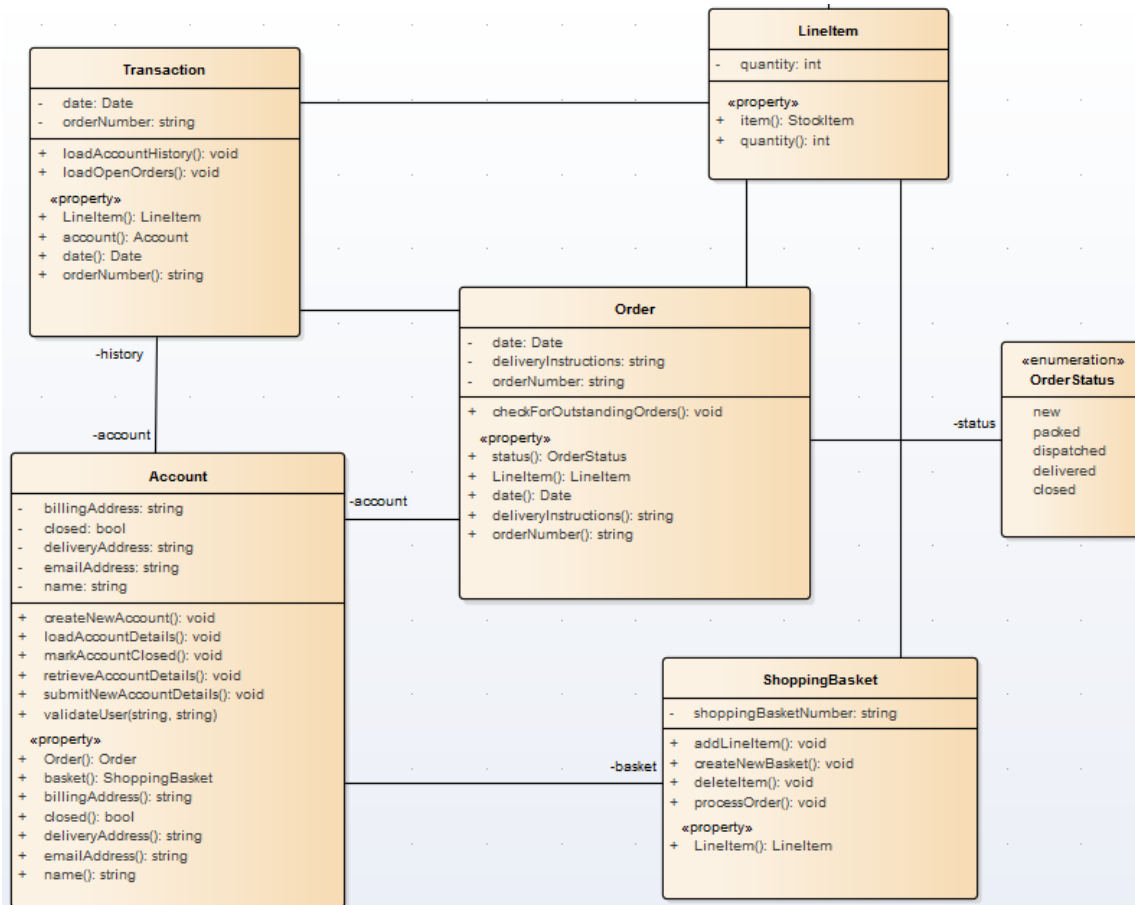
- The focus of a large number of relationships, or
- A member of two or more groups of elements that are a distance apart on the diagram, or
- Simply used in several contexts when you currently want to focus attention on one of those contexts

While Enterprise Architect does not support placing an element on the diagram more than once, using this strategy you can create any number of **virtual representations** of the element on the diagram, so that you can show the full image of the element in one context and have separate, simpler images of it on the same diagram in other contexts. This reduces the number of visible connectors crossing the diagram without you having to hide the connectors individually, and helps you create cleaner, more readable diagrams on which you can place linked elements closer together.

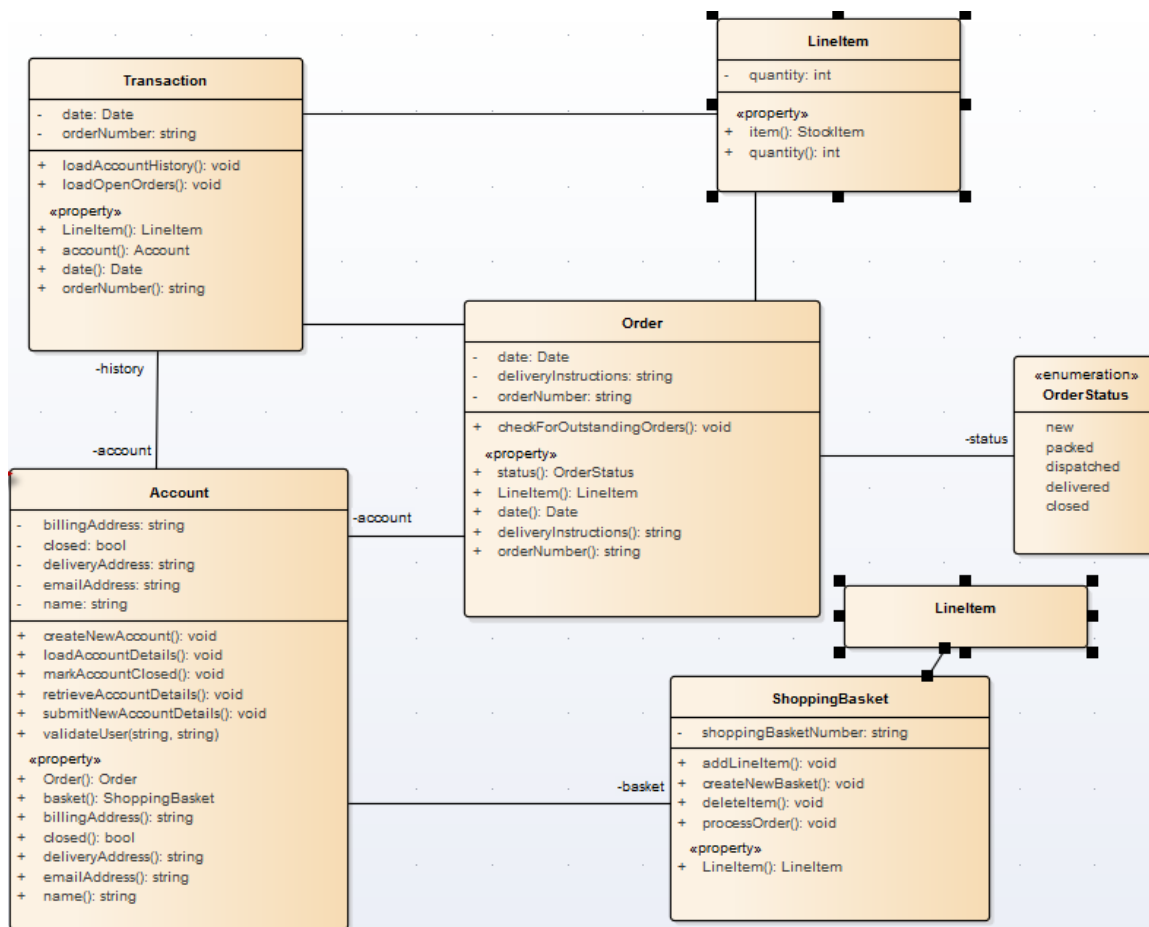
To achieve this, you right-click on the connector that you want to keep the element on, and select to virtualize the appropriate connector end (source or target). The system adds a simple rectangle containing the element name and

with the element fill color to the connector end, with no other connectors on it.

Consider this example:



The diagram is relatively simple but still quite large, and the connector between the ShoppingBasket and Lineltem elements crosses another connector. You might want to simplify the diagram for any of several reasons, such as avoiding the crossover or temporarily bringing the Lineltem element more closely into the Account/Order/ShoppingBasket group as a simple participant. So, you create a virtualization of Lineltem as the target of the Association connector to ShoppingBasket.



## Access

Context Menu	On diagram   Right-click on connector   Virtualize Connector End   Target (or Source)
--------------	---

## Notes

- A 'Virtual Element' is an extension of a connector that

provides access to **some** of the properties of the element it represents

- Virtualization operates on waypoints in a connector line, and therefore requires the connector line style to be set to **Custom Line**
- If no waypoints exist on the connector, the operation creates one
- If you virtualize the target element on a connector, the virtual connector end displays on the last waypoint of the connector line
- If you virtualize the source element on a connector, the virtual connector end displays on the first waypoint of the connector line
- You cannot virtualize both ends of a connector
- The original connector still exists, and if you click on the 'Virtualize Connector End' option again, the full connector redisplay and the virtual element disappears
- If you click on one virtual element, the original element and all its other virtual elements are selected and highlighted; any changes to properties made through the 'Properties' dialog of a virtual element affect the original element
- Changes to an element's **appearance** (other than fill color) do not affect its virtual elements
- Virtual elements appear on prints, reports and copies of **diagrams**; they do not appear in lists or reports on the **model** structure
- Virtual elements are specific to the diagram they are

created on; if you copy a diagram (with or without virtual elements) and add virtual elements to the copy, those changes are not reflected in the original diagram



## Locate Related Elements

When you are reviewing an existing element on a diagram, it is possible that the diagram does not show all of the relationships between that element and others. The related elements might be:

- On the diagram, but with the relationships hidden, or
- Depicted on a different diagram

You can quickly check what other elements have relationships with the selected element, using the Relationships window. The right-click context menu for each relationship listed in the window also indicates if the corresponding related element is not shown on the same diagram, by providing the 'Place Related Element in Diagram' option to add the related element to the diagram. This is useful when you are building up a picture of what an element interacts with, especially when reverse engineering an existing code base. To put the element in a specific position on the diagram, click on that point.

## Access

Ribbon	Show > Portals > Window > Trace > Relationships Start > Explore > Trace > Relationships

Keyboard Shortcuts	Ctrl+Shift+2
-----------------------	--------------

# Manage Object Labels

When you create certain elements or connectors, some of the properties of the created object are displayed on the diagram as labels offset from the object. For example, these properties display as labels:

- Embedded element name
- Run state, attributes and operations (if they exist) of an element that has an alternative image
- Connector name, stereotype, constraints and/or source and target role names

You can format and hide these labels using the 'Labels' context menu.

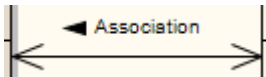
## Access

Context Menu	Right-click on a label
--------------	------------------------

## Options

Option	Action

Edit Label	<p>(Connector Labels only.)</p> <p>Select this option to display the text within a small editing box, with the cursor within the text. Delete or add text as appropriate.</p> <p>Shortcut: F2</p>
Set Label Color	<p>Select this option to display the 'Color' dialog, on which you select a standard color or define a custom color in which to display the label text.</p>
Hide Label	<p>Select this option to hide the label on the diagram; to reveal the label again:</p> <ul style="list-style-type: none"> <li>• For an element label, right-click on the element and select the 'Appearance   Show labels' option</li> <li>• For a connector label, right-click on the connector and select the 'Visibility   Set Label Visibility' option; select the checkbox against each label to redisplay</li> </ul> <p>You can also hide all connector labels on a diagram using the 'Suppress All Connector Labels' option on the 'Connectors' tab of the 'Diagram Properties' dialog.</p>
	<p>Select this option to display the label text</p>

Bold	in bold.
Label Rotation	<p>(For embedded elements and connectors.)</p> <p>Select this option to orient the label in the horizontal (default) or vertical planes. You can rotate the text in the vertical plane either clockwise or anti-clockwise from horizontal.</p>
Text Alignment	<p>Select this option to align the text to the left, center or right of the label text area. This is more apparent where there are several items of text in the label, of different lengths.</p>
Direction	<p>(Connector name labels only - ensure that the connector has a name.)</p> <p>Select this option to set or clear a small arrow on the name label. You can choose to set the arrow pointing to the label source or destination.</p>  <p>This arrow is part of the label, so if there is no label text (or if the label consists only of spaces) there is no direction indicator.</p>

Default Position	Select this option to move the label to the position it was initially created in, relative to the parent element or connector.
Default Color	Select this option to set the label color to the default color in which it was first created.

## Notes

- As labels can be concentrated on and around the element or connector, try to click on a section of the required label that is clear of any other label or structure
- The 'Label Rotation' option is not currently available for stereotyped elements and connectors

# Hide/Show Labels

A connector can have a number of different labels along its length and at each end. It is possible to selectively hide or display these labels to reduce the volume of text around the connector or to focus attention on specific properties.

## Access

Context Menu	Right-click on connector   Visibility   Set Label Visibility
--------------	--

## Hide or display labels on a connector

Step	Action
1	On the 'Label Visibility' dialog: <ul style="list-style-type: none"><li>• Select the checkbox against each label to show, and</li><li>• Clear the checkbox against each label to hide</li></ul>
2	Click on the OK button.

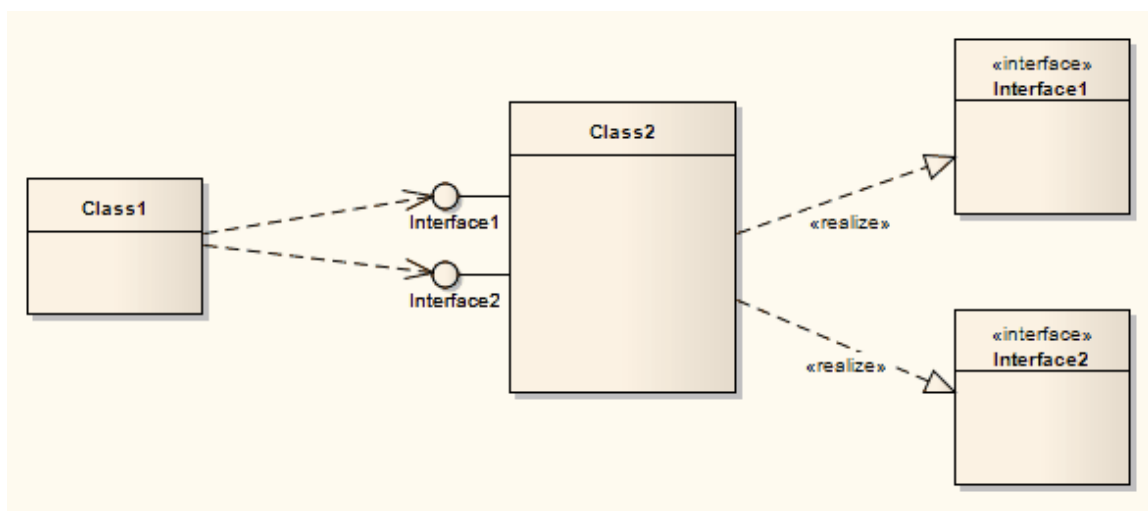
	<p>The diagram displays the connector with the selected labels shown.</p>
--	---



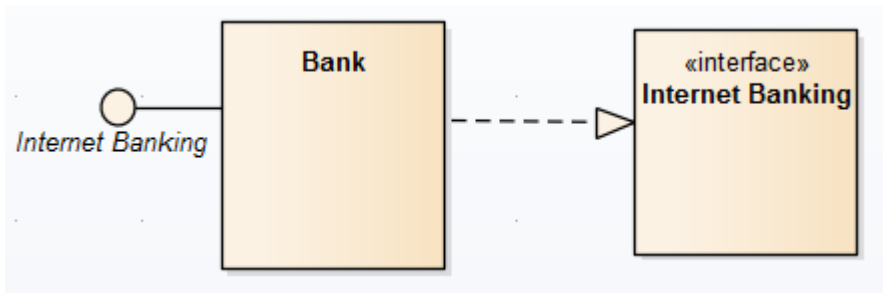
## Show Realized Interfaces of Class

If you are modeling interfaces that are directly realized by a Class, you can render each of those interfaces as a 'lollipop' style interface node, which protrudes from the left-hand side of the Class.

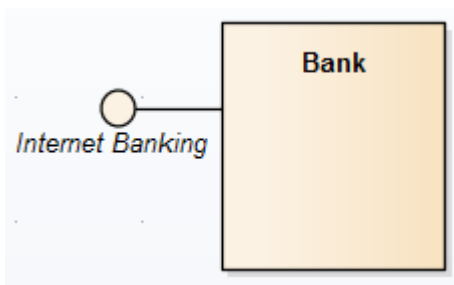
Consider this example:



The Bank Class realizes (or *provides*) the Internet Banking Interface. The diagram would be a useful depiction of this simple relationship if you wanted to populate the elements with visible features and properties. However, in more complex diagrams with more detailed realized (and dependent) interfaces, you might not want to show all the information defining each element. Therefore you can represent the realized interface as the 'lollipop' node, and remove the original Interface element from the diagram (but not from the model).



and then



To depict the interfaces that a Class realizes as nodes, right-click on the Class and select 'Features | Show Realized Interfaces'. This setting only applies to the selected Class, and can be changed at any time. If you turn the option off, in the scenario here, neither the node nor the Interface element are shown. If you turn the option back on, the node redisplay.

## Notes

- There are various mechanisms for showing that an interface is realized by one object and required by another, including using the Expose Interface element; however, the simplest method of representing such interactions is to create an Assembly connector between

the 'realizing' object and the 'using' object

# Open Package From Diagram

As you develop your model, you might create diagrams that show the organization and/or content of some or all of the Packages in the model. From a Package element shown in one of these diagrams, you can quickly locate and expand the Package in the Project Browser and open the Package default diagram in the Diagram View.

The default diagram is the first available diagram in the Package, selected in alphabetical order - for example, a diagram called Alpha in a child Package or element several levels down opens before a diagram called Beta immediately under the selected Package.



## Access

Context Menu	Right-click on Package element   Open Package
Keyboard Shortcuts	Ctrl+K

# Undo Last Action

When you are editing diagrams, moving, re-sizing and deleting elements and deleting connectors, and you make a mistake, you can work back through multiple levels of undo to roll back the error.

## Access

Ribbon	Layout > Undo >  Undo
Keyboard Shortcuts	Ctrl+Z
Other	Click on the Undo button in the Default Tools toolbar - 

## Notes



- Currently you cannot undo element additions or connector moves
- If an undo action is itself in error, you can reverse it with a redo action



# Redo Last Action

When you are editing diagrams, moving, re-sizing and deleting elements and deleting connectors, and you make a mistake, you can work back through multiple levels of undo to roll back the error. If the undo actions are themselves in error, you can reverse them with the equivalent number of redo actions.

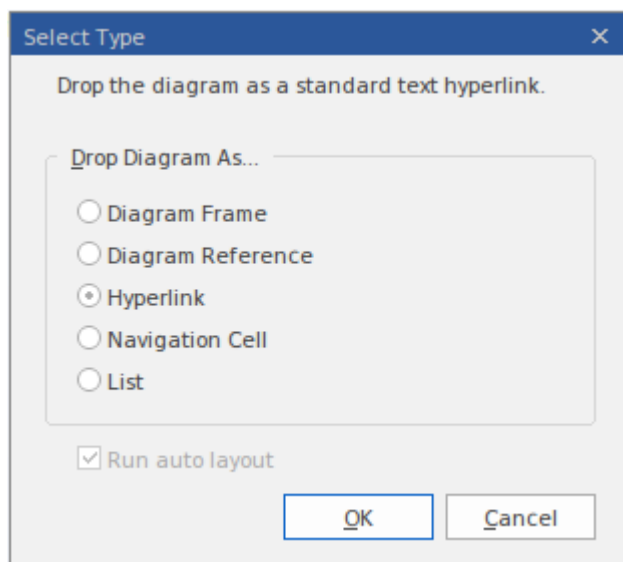
## Access

Ribbon	Layout > Undo >  Redo
Keyboard Shortcuts	Ctrl+Y
Other	Click on the Redo button in the Default Tools toolbar - 

# Add Diagram Links To Diagrams

Whilst a diagram usually represents a structure of modeling objects, it can also act as a portal through which you can access related diagrams that provide more detail on an aspect, or alternative views of the structure, or other structures. Where there are many diagrams (or, indeed, other objects and features) to move on to, the initial diagram can become a home page for a part of the project, or even the entire project.

Several options for linking to another diagram are provided by the 'Select Type' dialog, which displays when you drag the target diagram from the Project Browser onto the host diagram.



## Drop Diagram Options

Select the appropriate option to set up the required type of

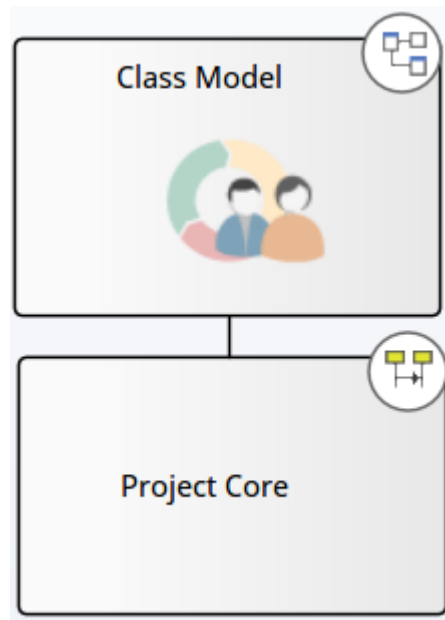


link to the target diagram, and then click on the OK button.

Option	Description
Diagram Frame	This option creates a Diagram Frame element containing an image of the dropped diagram, with the name of the dropped diagram in the frame label. Any user looking at the host diagram can double-click on the Diagram Frame and open the target diagram for review and - if they have the access permissions - for edit.
Diagram Reference	This option creates an empty Diagram Frame element with the name of the dropped diagram in the frame label. Any user looking at the host diagram can double-click on the Diagram Frame and open the target diagram for review and - if they have the access permissions - for edit.
Hyperlink	This option adds a Hyperlink element to the diagram, containing a diagram icon with no frame, followed by the names of the parent Package and target diagram. Double-clicking on this hyperlink will open the target diagram. You can edit the hyperlink to point to

	<p>another diagram, or to not display the diagram icon, by right-clicking on the element and selecting the 'Properties' option.</p> <p>You can also create an identical Hyperlink element by dragging the Hyperlink icon onto the host diagram from the 'Common' Toolbox page, right-clicking on the element and selecting 'Properties', and then selecting 'Diagram' from the 'Type' drop-down list.</p>
Navigation Cell	<p>This option creates a Navigation Cell (a UML Diagram element) that contains the name of the target diagram and, in the top right corner, an icon representing the diagram type. Just after you click on the OK button, the 'Select Image' dialog displays, from which you can select a graphic that represents the nature of the diagram. You can also select a diagram Theme for the image, from the 'Image List' field. If you do not want to add an image to the element, click on the Cancel button.</p> <p>If you are using an image, it displays in the center of the element with the target diagram name at the top. If you are not using an image, the name displays in the</p>

center of the element.



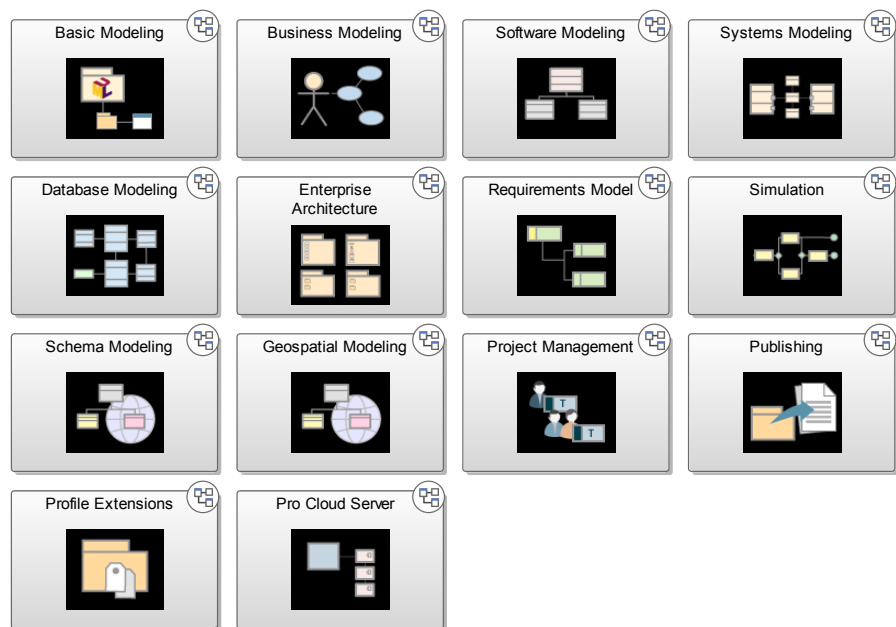
If you subsequently decide to change or remove the image in a Navigation Cell, right-click on the element and select the 'Appearance > Select Navigation Image' option. The 'Select Image' dialog displays, and you can simply click on a different image or - to just remove the existing image - click on the Cancel button.

Selecting the 'Navigation Cell' option also enables the 'Run auto layout' checkbox, which you can select to automatically adjust the layout of the Navigation Cells to form a grid with 10 units of separation between cells. (The unit is defined in the diagram Properties). If you do not want to adjust the layout of the cells, clear the

checkbox before clicking on the OK button.

When a diagram user double-clicks on the Navigation Cell, the target diagram that it represents is opened and displayed. Navigation Cells are an excellent tool for creating a 'Home' page for a project or website, as illustrated by the default model diagram for the Sparx Systems Example Model.

### Getting Started



They are also the vehicle for identifying and providing access to diagrams that are to be reviewed in a Formal Review.

If you use Navigation Cells in a model, they add the stereotype <<NavigationCell>> and its associated

	<p>Shape Script to the model. Users opening the model in builds of Enterprise Architect earlier than 13.5 can then use this stereotype to create more Navigation Cells that are functionally the same as the Cells under Release 13.5, though a little more rudimentary.</p>																																
List	<p>This option creates a Model View chart that lists the elements within the target diagram. When you select the option and click on the OK button, the Model View element 'Properties' dialog displays at the 'Chart Details &gt; Source' page, showing the SQL statement that populates the list. Click on the OK button to execute the search and generate the List of Elements Chart.</p> <div><p><b>List of Elements in Diagram Java Model</b></p><table><thead><tr><th></th><th>Name</th><th>Status</th><th>Author</th></tr></thead><tbody><tr><td></td><td>Account</td><td>Proposed</td><td>Paulene Dean</td></tr><tr><td></td><td>LineItem</td><td>Proposed</td><td>Paulene Dean</td></tr><tr><td></td><td>Order</td><td>Proposed</td><td>Paulene Dean</td></tr><tr><td></td><td>OrderStatus</td><td>Proposed</td><td>Paulene Dean</td></tr><tr><td></td><td>ShoppingBasket</td><td>Proposed</td><td>Paulene Dean</td></tr><tr><td></td><td>StockItem</td><td>Proposed</td><td>Paulene Dean</td></tr><tr><td></td><td>Transaction</td><td>Proposed</td><td>Paulene Dean</td></tr></tbody></table><p>Showing 1 - 7 of 7 items</p></div>		Name	Status	Author		Account	Proposed	Paulene Dean		LineItem	Proposed	Paulene Dean		Order	Proposed	Paulene Dean		OrderStatus	Proposed	Paulene Dean		ShoppingBasket	Proposed	Paulene Dean		StockItem	Proposed	Paulene Dean		Transaction	Proposed	Paulene Dean
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	StockItem	Proposed	Paulene Dean																														
	Transaction	Proposed	Paulene Dean																														

## Other Links to Diagrams from Diagrams

There are additional ways to link to and access one diagram from another. These include:

- From the Project Browser, drag a Package containing the target diagram (as the first diagram listed in the Package) onto the host diagram, and select the 'As Element' option; when a user double-clicks on the Package element on the host diagram, the target diagram displays
- Right-click on a suitable element in the host diagram and select the 'New Child Diagram | Composite Structure Diagram' option, then double-click on the element to display the first diagram underneath the element; if that is not the required diagram, right-click on the element and select the 'New Child Diagram | Select Composite Diagram' option, then choose the target diagram from the 'Select Classifier' dialog
  - You can display the target Composite diagram instead of the parent element on the host diagram; right-click and select the 'New Child Diagram | Show Composite Diagram in Frame' option
  - Alternatively, you can display the target diagram in a compartment within the parent element outline; right-click and select the 'New Child Diagram | Show Composite Diagram in Compartment' option

# Pan and Zoom a Diagram

When you are viewing a diagram, you can pan across, up and down the whole diagram in a low magnification to locate a particular section, and then zoom into that section in a higher magnification.

## Pan over diagram

You can pan over the Diagram View using the:

- Left, Right, Up, Down, Page Up, Page Down, Home and End keys when the Diagram View is selected
- Diagram scrollbars
- Middle mouse button
- Pan & Zoom window (Ctrl+Shift+N)

## Zoom into and out of diagram


You can zoom into and out from the diagram using the:

- 'Layout > Diagram > Persistent Zoom' options or
- The Zoom + and - icons and slider bar in the Status bar at the bottom of the screen, or
- Zoom buttons on the Diagram toolbar or Pan & Zoom window toolbar



Change the zoom level by clicking on either the Zoom In (+) button or Zoom Out (-) button; each click changes the magnification by 10%.

You can return the diagram to 100% in one of these ways:

- Click on the  ('Zoom to 100%') button
- Press Ctrl and click on the middle button of the mouse

## Notes

- You can zoom in and out of the main window dynamically by holding Ctrl and rolling the mouse wheel
- Changes in diagram magnification through the zoom options can be saved as permanent changes to the diagram
- At high levels of zoom, element features cease to display; this is because the Windows font mapper cannot easily select a font for extreme conditions, and the result can look odd



# Diagram Navigation Hotkeys

Whilst you are working on a diagram, a number of facilities are also available to you through the keyboard keys. Some of these facilities are exclusively provided by keyboard keys - the diagram navigation hotkeys - which you can use to quickly move or operate on elements within a diagram.

## Keys

Key Combination	Facility
Shift+Arrow	Move the selected element(s) by increments (in the direction of the arrow).
Arrow key	Scroll the diagram (in the direction of the arrow).
Esc	Clear the current selection.
Tab key	(If no element is selected) Select the element with the lowest Z-Order number - the furthest back in the diagram. (If an element is selected) Move focus to the element with the next-lowest Z Order number (coming forward out of the

	diagram).
Shift+Tab	<p>(If no element is selected) Select the element with the highest Z-Order number - the furthest forward in the diagram.</p> <p>(If an element is selected) Move focus to the element with the next-highest Z Order number (moving back into the diagram).</p>
Shift+click or Ctrl+click	<p>Toggle the addition of the clicked element to the current selection. If you are clicking on the area of overlap between elements:</p> <ul style="list-style-type: none"><li>• Shift+click toggles selection of the element with the lower Z-order (the element behind or further back than the others)</li><li>• Ctrl+click toggles selection of the element with the higher Z-order (the element in front of or further forward than the others)</li></ul>
Ctrl+Shift+drag	Pan the diagram.
Alt+G	Locate the item in the Project Browser and highlight it.
T	When you have selected an element in

	<p>the diagram, you can press the T key to open the Testing window for that element.</p>
--	--

# View Last and Next Diagram

If you are working on more than one diagram at a time, and have the diagrams open on separate tabs, you can step backwards and forwards through them. You will also step through any other views that are open, such as the Model Search, Project Gantt chart and Start Page.

You move between views using buttons on the Diagram Toolbar:



## To access

- The previous diagram or view, click on the Previous Diagram button or press Alt+Left
- The next diagram or view, click on the Next Diagram button or press Alt+Right
- The default model diagram (if one has been defined) click on the Home Diagram button

# Change Diagram Type

If necessary, you can change the type of a diagram to another type. This is useful if you have either made a mistake in selecting the diagram type to begin with, or if the purpose and nature of a diagram changes during analysis.

## Access

Ribbon	Layout > Diagram > Manage > Change Type
--------	---

## Change a diagram type

Step	Action
1	<p>On the 'Change Diagram Type' dialog, click on the 'Select From' header and select the appropriate Perspective group, and then select the Perspective from the panel beneath the header.</p> <p>The 'Diagram Types' panel displays a list of the diagram types for the selected Perspective; click on</p>

	the diagram type to change the diagram to.
2	In the Diagram Types panel, click on the diagram type to change to.
3	Click on the OK button to change the diagram type. The system checks whether there is a template diagram for this diagram type in the Templates Package and, if so, applies the display characteristics defined in that template.

## Notes

- Some diagram types do not switch to others - for example, you cannot change a Class diagram into a Sequence diagram; you can change, say, a Sequence diagram from one technology into a Sequence diagram from a different technology

## Scale Image to Page Size

When you print a diagram, the default setting is to scale the image to fit the size of the printer paper you have defined in the page set-up. The image is not scaled up to fill the page, but it is scaled down if it exceeds the current page boundary. The image retains its current proportions; that is, it is scaled down equally in the X and Y dimensions. For a large diagram, this can mean that the components of the diagram are small and hard to read.

Alternatively, you can print a multi-page image; that is:

- allow the diagram image to print on as many printer pages as it naturally occupies, (no scaling), or
- scale the diagram image to exactly fit a specified number of pages

In all three cases you also define the paper size and orientation.

## Access

Ribbon	Design > Diagram > Edit > Properties > Diagram: Advanced
Context Menu	Right-click on background of open diagram   Properties > Diagram: Advanced

	Right-click on diagram in Project Browser   Properties > Diagram: Advanced
--	--

## Turn off or customize image scaling options

Step	Action
1	<p>Select from these options as required:</p> <ul style="list-style-type: none"><li>• 'None': select to print on as many pages as the diagram image requires</li><li>• 'Scale to 1 page': select to scale the diagram image to fit on the currently selected page</li><li>• 'Custom': select to specify the width and height of the diagram images in terms of the number of pages in height and width; specify the number of pages for each dimension</li><li>• 'Page Setup': click to select the page size and alignment</li></ul>

## Notes



- Before printing, make sure you have selected the required page layout using the Page Setup button

# Set Up Diagram Page

You can change the size of the diagram area (or scrollable/printable area) using the 'Diagram Properties' dialog.

## Access

Ribbon	Design > Diagram > Edit > Properties > Diagram
Context Menu	Right-click on background of open diagram   Properties > Diagram Right-click on diagram in Project Browser   Properties > Diagram

## Set the page size

Step	Action
1	Select the 'Show Page Border' checkbox.

2	<p>On the 'Page Setup' panel, click on the Advanced button.</p> <p>The 'Print Advanced' dialog displays.</p>
3	<p>Click on the Page Setup button.</p> <p>The 'Page Setup' dialog displays.</p> <p>As you adjust the settings on this dialog, the page icon at the top illustrates the effects of your changes.</p>
4	<p>In the 'Size' field, click on the drop-down arrow and select an appropriate page size.</p>
5	<p>In the Orientation panel click on the radio button for the orientation of the page to print.</p>
6	<p>In the Margins panel, type the required left, right, top and bottom page margins for the diagram, in inches.</p>
7	<p>Click on the OK button on the 'Page Setup' dialog, the 'Print Advanced' dialog, and the 'Diagram Properties' dialog, in turn.</p> <p>The area within the page boundary lines on your diagram is expanded or reduced accordingly. When you print or print preview, the output is cropped to these boundary lines and the diagram divided between the necessary number of pages.</p>

## Notes

- You can set the default paper size for new diagrams on the 'Diagram' page of the 'Preferences' dialog (select the 'Start > View > Preferences > Diagram' ribbon option); once the paper size is set there, all new diagrams have that as the default size
- In the Corporate, Unified and Ultimate editions of Enterprise Architect, if security is enabled you must have 'Update Diagrams' permission to change diagram page set up

# Lock Diagram

If User Security is not enabled, to protect a diagram against inadvertent changes such as moving or resizing elements, you can lock the diagram. If you or any other users select any object on a locked diagram, the object's border or outline displays in red.

## Access

Context Menu	Right-click on the background of open diagram   Lock Diagram
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## Notes

- This does not apply in the Corporate, Unified and Ultimate editions if User Security is enabled; in this case, see the *Lock Model Elements* topic
- To unlock the diagram, select the 'Lock Diagram' menu option again

## Copy (Duplicate) Diagram

As you develop the diagrams in your model, you might find that some of the diagrams use many of the same elements and have a similar format. You can copy and replicate the complete diagrams for minor modification, resulting in a duplicate diagram with either:

- Links back to the original diagram elements, unless those elements are Text, Note, Hyperlink, Lifeline or Object elements that are specific to the diagram and that are copied (shallow mode) or
- Complete copies of all elements in the diagram, other than Packages (deep mode) or
- Complete copies of all elements in the diagram that have the same parent as the diagram, and links back to the original diagram elements for all other elements on the diagram (smart mode)

### Access

Context Menu	Right-click on diagram in Project Browser   Copy/Paste   Copy Diagram then: Right-click on Package   Copy/Paste   Paste Diagram or Right-click on element   Copy/Paste
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	Paste Diagram
Keyboard Shortcuts	Copy the diagram then: <ul style="list-style-type: none"><li>• Select Package &gt; Ctrl+V or</li><li>• Select element &gt; Ctrl+V</li></ul>

## Duplicate a diagram

Option	Action
Name	Type the name for the new diagram.
Type of copy	Click on the radio button for the type of copy you require; either: <ul style="list-style-type: none"><li>• Shallow</li><li>• Deep, or</li><li>• Smart</li></ul>
OK	Click on this button to initiate the copy. The new diagram is automatically created with linked or new elements arranged as in the original diagram. All connectors are also copied between diagram elements where appropriate.

## Notes

- In the Corporate, Unified and Ultimate editions of Enterprise Architect, if security is enabled you must have 'Manage Diagrams' permission to copy diagrams
- For a diagram copied in shallow mode, any changes to the properties of the original elements are reflected only in those elements that are copied as simple links in the pasted diagram
- For a diagram copied in deep mode, any changes to the properties of the original elements are not reflected in the elements in the pasted diagram
- For a diagram copied in deep mode, Package elements are copied as simple links only; you cannot paste as new
- For a diagram copied in smart mode, any changes to the properties of the original elements are reflected only in those elements that are copied as simple links in the pasted diagram
- Element position and size are independent in all copy modes



# Save Diagram Image to Disk

It is possible to capture a modeling diagram as an image file on disk, for later use in - for example - external documents and presentations. You can capture the image in a number of different file formats, including:

- Windows bitmap
- GIF image
- Windows Enhanced Metafile (standard metafile)
- Windows Placeable Metafile (older style metafile)
- PNG format
- JPG
- TGA

## Access

Ribbon	Publish > Diagram > Image > Save to File
Keyboard Shortcuts	Ctrl+T

## Capture a diagram as an image file on disk

Step	Action
1	On the 'Save As Image' dialog, select the appropriate folder location for the file.
2	In the 'File name' field, type the file name to save the image under.
3	In the 'Save as type' field, click on the drop-down arrow and select the appropriate graphic format.
4	Click on the Save button.

## Notes

- The system clips the image size to the smallest bounding rectangle that encompasses all diagram elements
- You can scale the size of the saved (bitmap) image upwards or downwards, using the option on the 'Diagram' page of the 'Preferences' dialog ('Start > View > Preferences > Diagram')
- You can also enable and disable Diagram Frames on the

images that you capture of a diagram, on the same page of the 'Preferences' dialog

- By deselecting the 'Printable' option on an element on a diagram, you can omit that element from the diagram image copied to disk

# Copy Image to Clipboard

It is possible to capture a modeling diagram as an image on the MS Windows clipboard for immediate use in - for example - external documents and presentations in MS Word or other applications, or in another diagram within Enterprise Architect.

You can set the format of the clipboard images - bitmap or metafile - on the 'Preferences' dialog ('Start > View > Preferences' ribbon option; the dialog opens at the 'General' page).

## Access

Ribbon	Open diagram, then: Publish > Diagram > Image > Save to Clipboard
Keyboard Shortcuts	Open diagram, then press Ctrl+B.

## Notes

- You can scale the size of the saved (bitmap, or non-metafile) image upwards or downwards, using the option on the 'Diagram' page of the 'Preferences' dialog ('Start > View > Preferences > Diagram')
- You can also enable and disable Diagram Frames on the images that you capture of a diagram, on the same page of the 'Preferences' dialog

# Delete Diagrams

Diagrams are representations of the ways in which model element structures are organized. If you no longer want to depict an arrangement of model elements, you can quickly delete the diagram from your model. This has no effect on the elements shown in the diagram - they and their relationships remain unchanged within the model, and accessible through the Project Browser and several other views and windows.

## Access

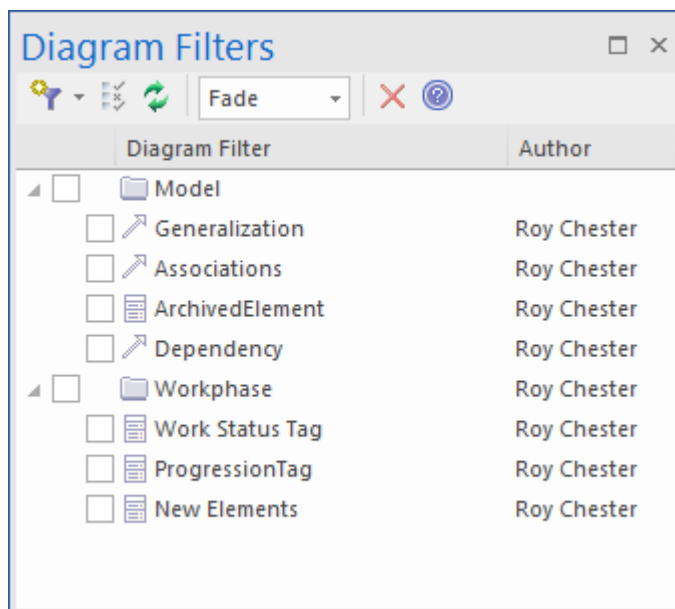
Context Menu	Project Browser   Right-click on diagram name   Delete '<diagram name>' A confirmation prompt displays. Click on the Yes button to confirm the deletion.
Keyboard Shortcuts	Select diagram in Project Browser   Ctrl+Del A confirmation prompt displays. Click on the Yes button to confirm the deletion.

## Notes

- In Enterprise Architect there is no 'Undo' feature for deleting diagrams, so be certain that you want to delete a diagram before you do so
- In the Corporate, Unified and Ultimate editions of Enterprise Architect, if security is enabled you must have 'Manage Diagrams' permission to delete diagrams
- You can also delete multiple diagrams from the Project Browser, by holding Ctrl or Shift while you select them, then right-clicking on one of them and selecting the 'Delete selected items' option

# Diagram Filters

Using Diagram Filters (Dynamic Visual filters), you can modify the display of diagram components so that the required items are immediately identified, without damaging the structure and integrity of the model. The filters operate on elements, connectors or Tagged Values according to properties such as Author, Status, Date Created or Stereotype Value and, for connectors, whether the connector is hidden or visible. Filters are stored against the model, so a filter you create is available to other users of the model; however, use of a filter is specific to the user, so your use of a filter does not affect another user's view of the diagram.



## Access

Ribbon	Layout > Tools > Diagram Filters or
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	Show > Portals > Window > Diagram > Diagram Filters
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## Applying Diagram Filters

You can use Diagram Filters singly, in sequence, or in combination to tailor the display of diagrams to show:

- Information for different users, so that - for example - technical staff and stakeholders each can apply filters that highlight the information pertinent to them
- What elements have been recently developed or changed
- Which part of a model was developed by a particular person
- Which parts of a diagram are at a particular phase, status or version

Examples of ways in which you might apply filtering include:

- Setting up a filter for immediate use on a diagram, and modifying that filter as you review the diagram so that you highlight elements with different values for the same properties - perhaps, by filtering on Phase, to compare 'As-Is' and 'To-Be' elements
- Setting up a filter and leaving it active so that all diagrams you display are automatically filtered the same way
- Setting up a series of filters to use:

- in one or more sequences to progressively highlight a diminishing set of items, or
  - alternately to highlight contrasting views of the diagram
- Grouping filters so that their combined results identify objects that meet the characteristics of each filter and indicate an 'overview' status as well; for example, 'Work In Progress' plus 'Work Not Started' show objects in each category at the same time, under the group filter 'Work Not Completed'

Filters for elements can also be applied to the Package Browser and Diagram List.

The 'Diagram Filters' context menu (right-click on the body of the window) provides an option for toggling between the filters and simple context filtering of diagrams; if you select the 'Context Filtering' option, the Diagram Filters are disabled and the contents of the diagram are grayed-out, except for a selected element and those elements directly related to it.

## Facilities

Facility	Detail
Developing Filters	You create and define as many filters as you require, setting up each filter by

	<p>defining which element, connector or Tagged Value properties to specifically check for and (depending on how you set up the filter parameters) whether to include or exclude elements or connectors having particular property values.</p> <p>You cannot combine element, connector and/or Tagged Value <i>properties</i> in one filter, but you can apply any combination of element filter, connector filter and/or Tagged Value filter to a diagram at the same time, individually or as a grouped filter.</p> <p>You can select to:</p> <ul style="list-style-type: none"><li>• Mute the excluded items in Gray Scale, or Fade the display color</li><li>• Hide the excluded items completely, or</li><li>• Select and highlight (with a hashed line) the included items</li></ul>
Filter Effect - Gray Scale, Fade or Hide	<p>If you select 'Gray Scale', 'Fade' or 'Hide', the action of the filters is to exclude items that do not match the parameters rather than include items that do.</p> <p>If, for example, you selected to filter on element name, looking for elements with the word 'Class' in the name, the filter</p>

	<p>would apply this logic:</p> <p>Does 'Name' contain string 'Class'? If 'No', apply effect; if 'Yes', take no action. The elements you want are therefore what is left on the diagram, rather than what was operated on.</p> <p>The filter effect remains in force while you do other work on the diagram, until such time as you disable the filter.</p>
Filter Effect - Highlight	<p>If you click on 'Select', the logic is reversed:</p> <p>Does 'Name' contain string 'Class'? If 'No', take no action. If 'Yes', apply effect. In this case, the filter effect is not permanent, and clicking off the items deselects them.</p> <p>This effect is excellent for selecting items having the same characteristics across a large diagram, to be processed in a single task; instead of having to locate the items and select them with Shift+click individually, you can apply the filter.</p> <p>If you inadvertently lose the selection by clicking off the items, you can get it back again almost immediately by re-applying the filter.</p>



# Work With Diagram Filters

You can modify the display of objects on a diagram using Diagram Filters, which you create and use through the Diagram Filters window. This window is dockable, so you can move it around or 'fix' it next to the Diagram View while you activate, deactivate and edit the filters.

## Access

Ribbon	Layout > Tools > Diagram Filters or Show > Portals > Window > Diagram > Diagram Filters
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## Create a single filter to be applied to your diagrams

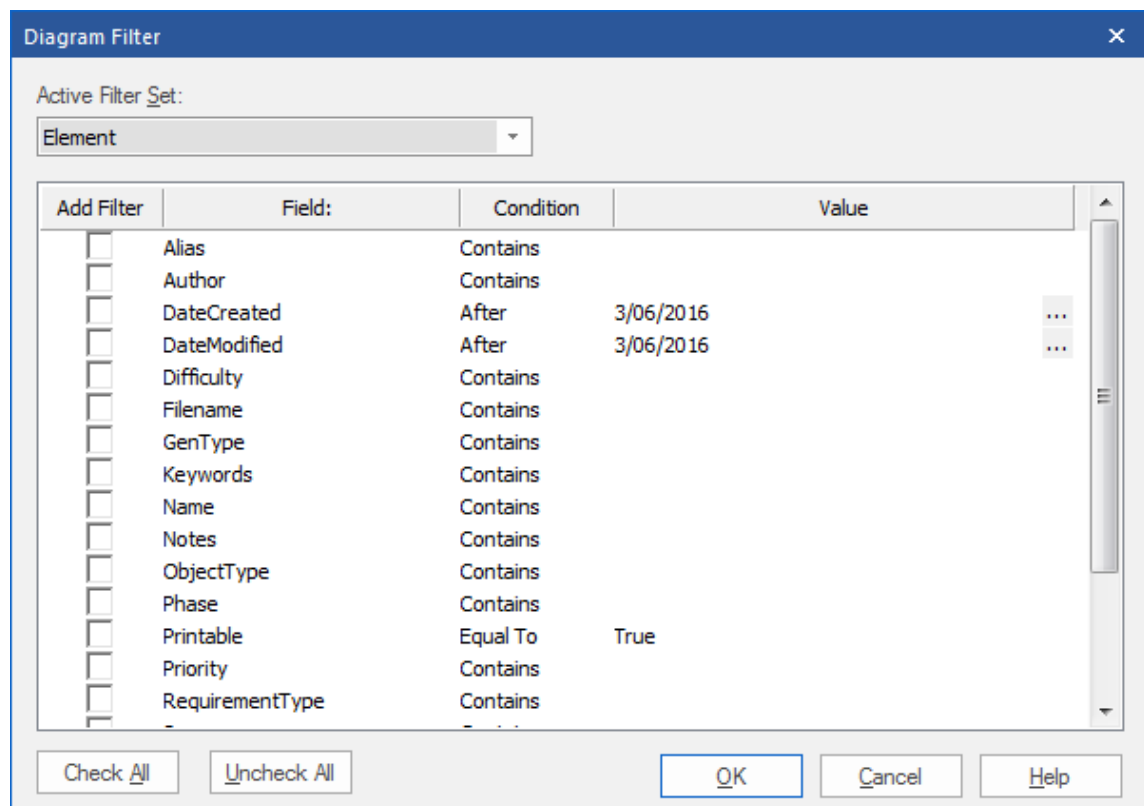
Step	Action
1	Perform one of these actions: <ul style="list-style-type: none"><li>On the Diagram Filter toolbar, click on the 'New Filter' icon - the first on the left</li></ul>

- Right-click on the list panel and select the 'New Filter' option

The 'Create New Diagram Filter' dialog displays.

- 2 In the 'Enter Filter Name' field, type a name for the filter, then click on the OK button.

The 'Diagram Filter' dialog displays.



- 3 In the 'Active Filter Set' field, either:
- Use the default value of 'Element' or
  - Click on the drop-down arrow and select 'Connector' or 'TagValue'

The body of the dialog displays a list of properties of elements, connectors or Tagged Values.

4	Scroll through the properties to filter on, and select the checkbox against each property you require.
5	<p>For each property, click on the 'Condition' field and select, from the drop-down list, the comparison condition to be applied.</p> <p>Consider how the combination of 'Condition - Equal To / Not Equal To' and 'Filter Effect' might affect the results on the diagram.</p>
6	For each property, double-click on the 'Value' field and type or select any specific value to filter on.
7	<p>Click on the OK button to save the filter and return to the Diagram Filters window.</p> <p>Unless you have specifically created the filter in a Filter Group, the filter is listed underneath the default Model group at the top of the window.</p>

## Create a Filter Group

Step	Action
1	In the Diagram Filters window toolbar, click on the drop-down arrow next to the Filter icon and select



	<p>the 'New Filter Grouping' option.</p> <p>The 'Create New Diagram Filter Grouping' dialog displays.</p>
2	<p>In the 'Enter Filter Name' field, type the name of the filter group, and click on the OK button.</p> <p>The filter group is added to the end of the list in the Diagram Filters window, and the 'Create New Diagram Filter' dialog displays for you to add a new filter to the filter group.</p>
3	<p>Define the new filter in the group as described in the <i>Create a single filter to be applied to your diagrams</i> table. You can apply that procedure to define the other filters for the group, clicking on the group name and then on the 'New Filter' option to start.</p> <p>Alternatively, you can copy or cut an existing filter from the Model list or from another filter group, and paste that filter into the new group. Right-click on the source filter and select the 'Cut' or 'Copy' option, then right-click on the target group and select the 'Paste' option.</p>

## Other Operations

Operation	Detail
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Edit a Filter	<p>To edit an existing filter on the Diagram Filters window, either:</p> <ul style="list-style-type: none"><li>• Double-click on the filter name</li><li>• Click on the filter name and select the 'Properties' icon from the toolbar (the second icon from the left), or</li><li>• Right-click on the name and select the 'Properties' option</li></ul> <p>The 'Diagram Filter' dialog displays; adjust the filtered fields as described in the <i>Create a single filter to be applied to your diagrams</i> table.</p>
Change the name of the Filter or Filter Group	<p>Right-click on the name and select the 'Change Name' option.</p> <p>The appropriate 'Create New Diagram Filter ...' dialog displays.</p> <p>Type over the existing name with the new name, and click on the OK button.</p>
Define how filters in a group combine	<p>When you define two or more filters in a filter group, they default to operating in combination, with an AND relationship. That is, an object must satisfy the criteria of <b>all</b> the selected filters in the group before being operated on.</p> <p>You can change this to an OR</p>

	<p>relationship, where the object must satisfy the criteria of <b>any</b> of the filters before being operated on. To set the relationship of the group filters to OR (or change it back from OR to AND):</p> <ol style="list-style-type: none"><li>1. Right-click on the filter group name and select the 'Properties' option. The 'Set logical operator for Filter Grouping' dialog displays.</li><li>2. In the 'Operator' field, click on the drop-down arrow and select the required value - OR or AND.</li><li>3. Click on the OK button.</li></ol>
Set Effect of Filters	<p>The filter effect applies to all filters in the Diagram Filters window. To set how your filters identify selected items on your diagrams, click on the drop-down arrow of the toolbar 'Filter Effect' field, and select one of these options:</p> <ul style="list-style-type: none"><li>• Fade - display all items that do not match the filter criteria in a pale version of the diagram background color</li><li>• Gray Scale - display all items that do not match the filter criteria in pale gray</li><li>• Hide - conceal all items that do not match the filter criteria</li></ul>

	<ul style="list-style-type: none"><li>• Select - select and highlight (with a hashed line) all those items that do match the filter criteria</li></ul> <p>If the filter is for elements in the Package Browser or Diagram List, note that the 'Select' filter effect cannot show up in this context.</p>
Enable Filters	<p>To enable a filter so that it takes immediate effect on your diagrams, select the checkbox against the filter name.</p> <p>You can select more than one filter at a time, to combine their effects.</p> <p>For a Filter Group, if you select the group checkbox all filters in the group are selected. You can then, if necessary, disable individual filters in the group.</p>
Disable/Clear Filters	<p>To disable a filter and clear the effect of the filter on the diagram so that it displays in full, clear the checkbox.</p> <p>To disable all filters, either:</p> <ul style="list-style-type: none"><li>• Click on the 'Reload Filters' icon in the toolbar (third option from the left), or</li><li>• Right-click on the list panel and select the 'Reload Filters' option</li></ul>
Copy or	To add an existing filter to another Filter

<p>Move a Filter between Filter Groups</p>	<p>Group, right-click on the filter and select the 'Copy' or 'Move' option as appropriate. Then right-click on the target Filter Group and select the 'Paste' option. If you are moving a filter, it is not removed from the source group until it has been pasted to the target group. You cannot move a Filter Group or add one group to another.</p>
<p>Toggle between Diagram Filters and Context Filtering</p>	<p>To disable the filters you have defined and simply highlight a selected element and its immediate relatives, right-click on the Diagram Filters window background itself and select the 'Context Filtering' option.</p> <p>To re-enable the Diagram Filter effects, display the Diagram Filters window again and deselect the 'Context Filtering' option.</p>
<p>Delete a Filter</p>	<p>To remove a filter or filter group from the Diagram Filters window, either:</p> <ul style="list-style-type: none"><li>• Click on the filter name and click on the Delete icon in the toolbar, or</li><li>• Right-click on the filter name and select the 'Delete Filter' option</li></ul> <p>A prompt displays to confirm the deletion.</p>



# Diagram List

The Diagram List is a tabular, editable view of elements in a selected diagram, which can be displayed in the main workspace. You can use the Diagram List to:

- Streamline the process of creating and updating elements in a diagram selected from the Project Browser; this can be particularly useful for analysts to create and maintain formal requirement definitions within the model
- Print the list or generate a document report directly from the entries on the list

## Access




Ribbon	Design > Diagram > View As > List
Context Menu	Right-click on diagram background   Open Diagram In   List View
Keyboard Shortcuts	Ctrl+Alt+R (opens a <b>new</b> view, as a list)

## Aspects

Aspect	Description
The Diagram List	The Diagram List is related to the Package Browser, which lists the elements in a selected Package; however, the Package Browser has a wider range of options.
Formats	The Diagram List is displayed in 'User Defined' format, where you can change how the element information is structured on the screen using the value-grouping band below the toolbar.
Change display	<ul style="list-style-type: none"><li>• Sort the items by any column value in ascending or descending order, by clicking on the column header; initially the elements are listed in numerical order (if level numbering is turned on in the Project Browser) or alphabetical order within type</li><li>• Apply a diagram filter for elements (the Fade, Gray Scale and Hide modes reduce the number of elements listed; Select mode has no effect)</li><li>• Change the sequence of columns, by dragging column headers left or right</li></ul>



Display Element Properties	Double-click on the element entry.
Select Items	<p>Select:</p> <ul style="list-style-type: none"><li>• an element by clicking on it</li><li>• a specific value by clicking twice on it (not double-clicking); either the value becomes directly editable or the 'Properties' dialog displays in which you can edit the value</li><li>• several individual elements by holding Ctrl as you click on them</li><li>• a range of elements by holding Shift as you click on the first and last in the range</li></ul>
Add new items to the diagram	Create new elements on the Diagram List, using the toolbar or context menu options; these elements are automatically added to the diagram.
Delete elements from the list	Select the item and press Ctrl+D.
Include each element's notes	Notes are shown underneath the element. To add or edit notes, click on the item

(documentation)	and press Ctrl+Space to transfer control to the Notes window, in which you create or edit the note text.
Review the element's custom (advanced) properties	Right-click on the item and select the 'Properties' option, then select the 'Advanced' page.
Further Options	<p>You can do further work on the Diagram List using the same toolbar and context menu options as for the Package Browser, except that the Diagram List does not have:</p> <ul style="list-style-type: none"><li>• The Model Hierarchy format and hence does not have the  button in the toolbar</li><li>• The  toggle button</li><li>• The  toggle button</li></ul> <p>The Diagram List does have these additional context menu options:</p> <ul style="list-style-type: none"><li>• Switch to Diagram View - show the elements of the selected diagram in graphical format instead of as the Diagram List</li><li>• Switch to View as Gantt - list the diagram elements as bars of a Gantt</li></ul>


	<p>chart, representing the elements' resource allocations</p> <ul style="list-style-type: none"><li>• Switch to Specification Manager - list the diagram elements with their notes and various other properties in the Specification Manager</li><li>• Switch to Traceability View - list the elements on the diagram as entries in the Traceability window, which you can expand to show the connectors and related elements of each element on the diagram</li><li>• Diagram Properties - display the 'Diagram Properties' dialog for the diagram</li></ul>
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# Layout Diagrams

As you develop a model diagram and add more elements and connectors to it, you can apply one of a number of formats to automatically lay out specific areas or sets of elements in the diagram in a structured arrangement. If the diagram is very simple, you could even use this facility to lay out the entire diagram.

Additionally, you can provide filters and parameters for two or three types of layout and then 'chain' the layouts so that they are executed in sequence to result in a more refined layout. You can select a system-defined chain, or one that you have created yourself.




## Access

Ribbon	Layout > Tools > Diagram Layout > Open Diagram Layout Tools
Context Menu	Right-click a selected element on a diagram   Layout Selected Elements (available only when multiple elements are selected)
Other	Right-click on any toolbar   Diagram Layout Tool : Select a Layout    Apply

	Layout
--	--------

## Lay out elements on a diagram

Step	Action
1	<p>Select the elements to lay out on the currently-active diagram - hold Shift or Ctrl while you click on each required element, or hold the mouse button down while you sweep over the area containing the required elements.</p> <p>If no elements are selected on the active diagram, then all elements on the diagram are laid out (except where otherwise documented).</p>
2	<p>Click on the drop-down arrow on the top left field of the Layout Tools window, and select the required layout type:</p> <ul style="list-style-type: none"><li>• Circle/Ellipse</li><li>• Box</li><li>• Per Page</li><li>• Digraph</li><li>• Spring</li><li>• Neaten</li></ul>

	<ul style="list-style-type: none"><li>• Converge/Diverge</li><li>• Fan Relations</li><li>• Auto Route</li></ul> <p>The layout type determines the fields presented in the window, therefore the appropriate fields are described separately for each layout type.</p> <p>If you want to apply a sequence or chain of diagram layouts to a diagram, select either:</p> <ul style="list-style-type: none"><li>• The appropriate system-defined chain name, or</li><li>• The name of a chain you have created yourself</li></ul> <p>You can create and modify a 'Layout Chain' by clicking on the  button in the dialog toolbar.</p>
3	<p>When you have completed the fields, click on the  button.</p> <p>The selected elements are reorganized into the pattern format you have selected and according to the options you have chosen.</p>
4	<p>If you do not want to work with the new layout, click on the Undo button in the toolbar (.</p>

## Notes

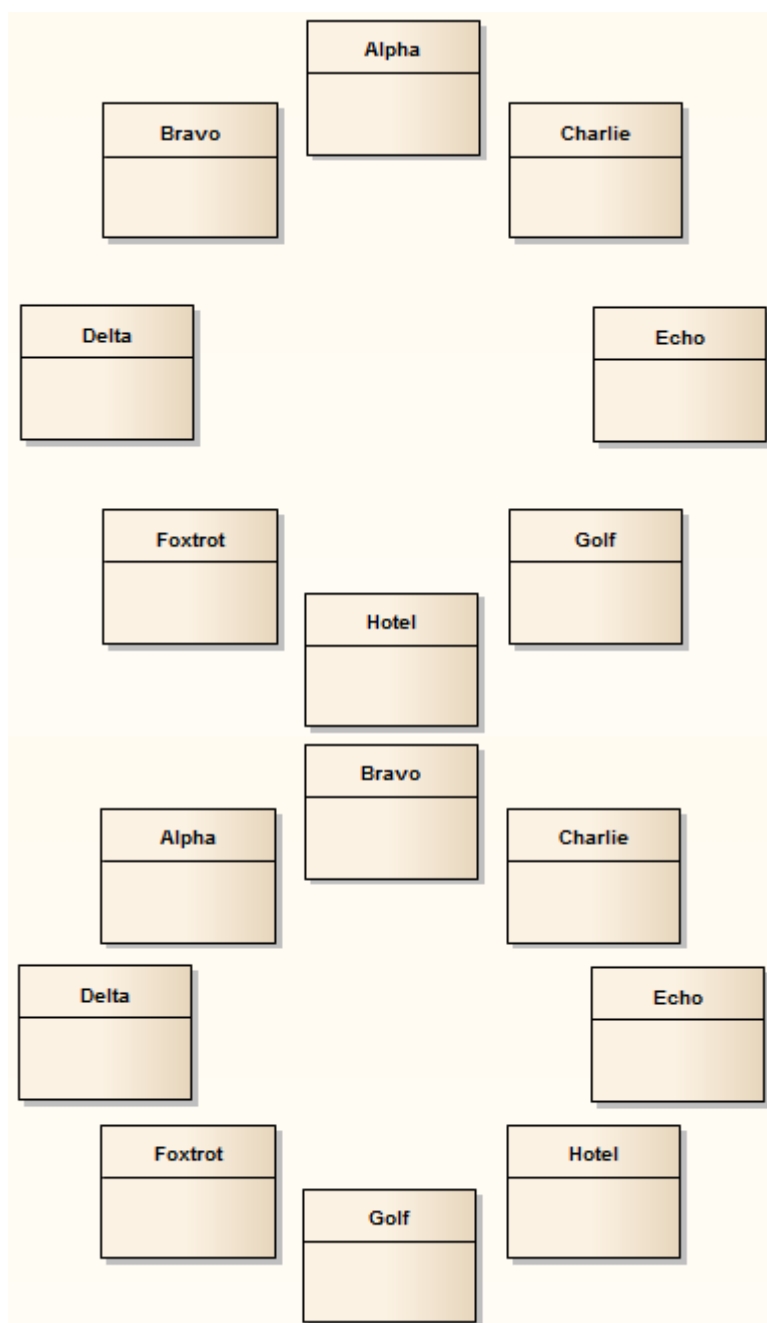
- If you have adjusted the settings for a layout, you can

automatically apply those settings to another diagram by selecting the 'Layout > Tools > Diagram Layout > <layout name>' ribbon option when you have opened the diagram

- You can also automatically lay out an entire diagram, without specifying any format or filters, using the alternative Layout Diagram facility
- Nested elements will remain within their parent element when applying a layout

## Circular/Elliptical Layout

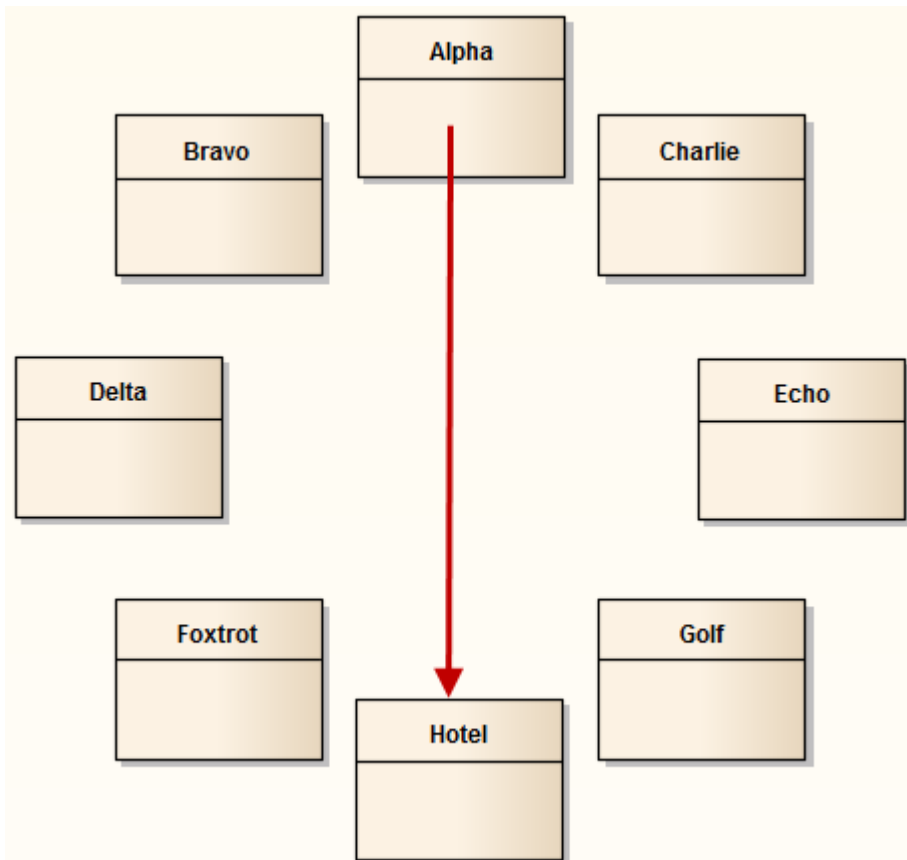
The Circle and Ellipse layouts arrange the selected elements in a circle or elliptical pattern, using the largest horizontal and vertical element edge in the set of elements when calculating the radius of the layout arc.





## Invoke the Circular or Ellipse layout

### Diagram A - Top To Bottom Layout

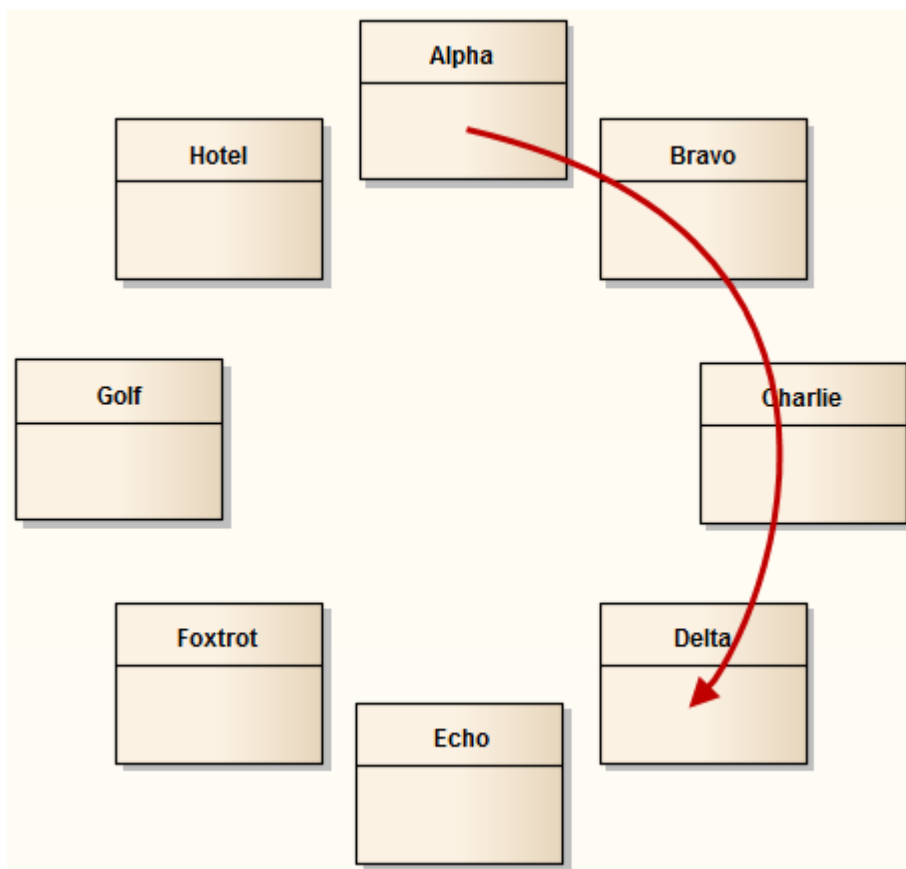


Step	Action
1	Follow the general <i>Layout Diagrams</i> procedure, and at step 2 select either 'Circle' or 'Ellipse' as required.
2	Click on the drop-down arrow in the 'Sort By' field and select the required sort parameter: <ul style="list-style-type: none"><li>• None - elements are passed to the specified layout in the order in which they appear on the original</li></ul>

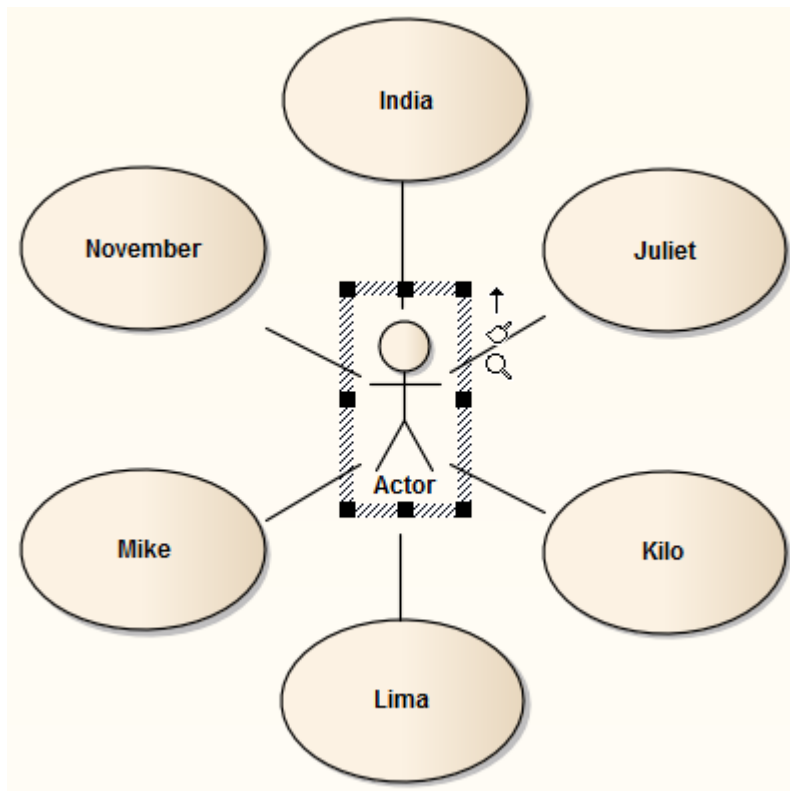
	<p>diagram (left to right, top to bottom)</p> <ul style="list-style-type: none"> <li>• Area (Ascending) - elements are passed to the specified layout in order of the screen space they occupy, smallest to largest</li> <li>• Area (Descending) - elements are passed to the specified layout in order of the screen space they occupy, largest to smallest</li> <li>• Name (Ascending) - elements are passed to the specified layout in alphanumeric order, based on the element name</li> <li>• Name (Descending) - elements are passed to the specified layout in reverse alphanumeric order, based on the element name</li> <li>• Element Type - elements are grouped by type (for example, Class, Use Case) and in alphanumeric order within the group by name</li> </ul>
3	<p>Under the 'Placement' option, select either:</p> <ul style="list-style-type: none"> <li>• Top to Bottom - the elements are positioned in the required order, zig-zagged across the perimeter of the circle or ellipse, as in Diagram A</li> <li>• Circular - the elements are placed in the required order, clockwise around the perimeter of the circle or ellipse, as in Diagram B</li> </ul>
4	<p>Select the 'Center focused element' checkbox to put the last-selected element (the one with the hashed border) in the center of the circle or ellipse, as in</p>

Diagram C.
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## Diagram B - Circular Layout



## Diagram C - Center Focused Element



## Box Layout

The Box layout arranges the set of selected elements into a square grid.



The dimensions of the box are determined by the number of columns that either:

- You set manually or
- The system automatically sets to a value that results in the same number of columns and rows (for example, 5, 6, 7, 8 or 9 elements would all be arranged in a three-column rectangle).

## Invoke the Box layout

Step	Action

1	Follow the general <i>Layout Diagrams</i> procedure, and at step 2 select 'Box'.
2	<p>Click on the drop-down arrow in the 'Sort By' field and select the required sort parameter:</p> <ul style="list-style-type: none"><li>• None - elements are passed to the specified layout in the order in which they appear on the original diagram (left to right, top to bottom)</li><li>• Area (Ascending) - elements are passed to the specified layout in order of the screen space they occupy, smallest to largest</li><li>• Area (Descending) - elements are passed to the specified layout in order of the screen space they occupy, largest to smallest</li><li>• Name (Ascending) - elements are passed to the specified layout in alphanumeric order, based on the element name</li><li>• Name (Descending) - elements are passed to the specified layout in reverse alphanumeric order, based on the element name</li><li>• Element Type - elements are grouped by type (for example, Class, Use Case) and in alphanumeric order within the group by name</li></ul>
3	In the 'Padding (px)' field, type the vertical and horizontal distance between elements, in pixels.
4	Select the appropriate element distribution option:

	<ul style="list-style-type: none"><li>• Automatically distribute: Automatically calculate the dimensions of the box (the square root of the number of selected elements; for example, 16 elements create a 4x4 box)</li><li>• Specify distribution: Manually define the width of the box, in columns</li></ul>
5	If you selected 'Specify Distribution', in the 'Columns' field type the required number of columns.

# Per Page Layout

The Per Page layout divides each diagram page into a number of cells, which house the selected elements. The number of cells per page is determined by the page distribution parameter.



## Invoke the Per Page layout

Step	Action

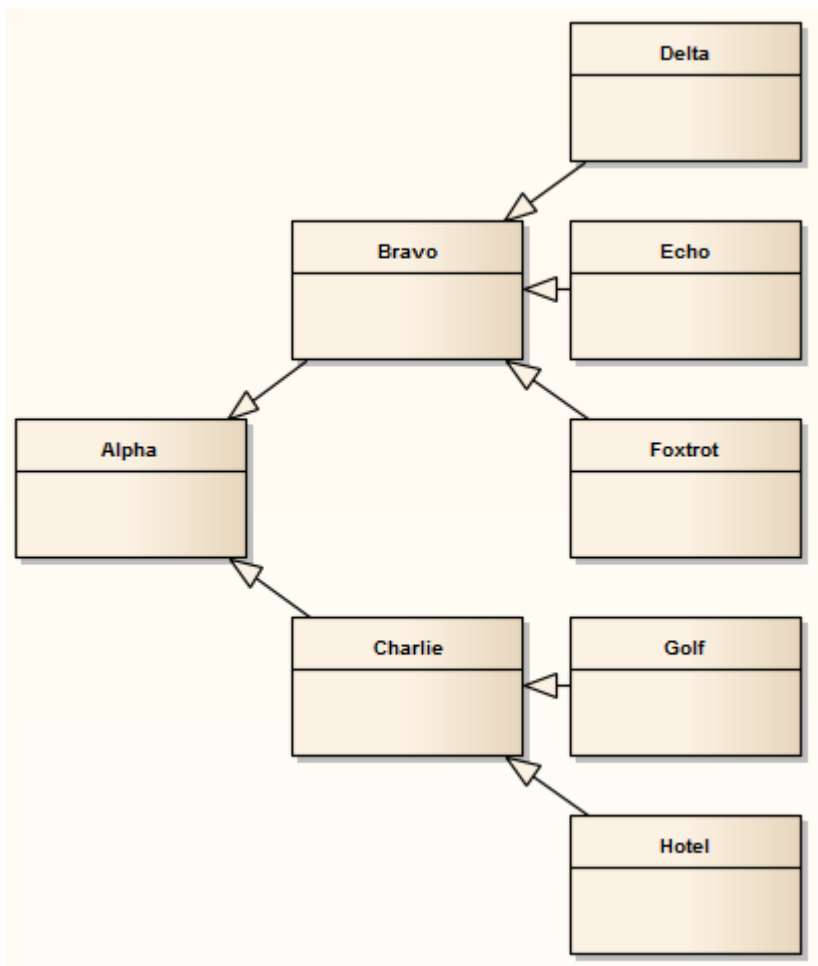


1	Follow the general <i>Layout Diagrams</i> procedure, and at step 2 select 'Per Page'.
2	<p>Click on the drop-down arrow in the 'Sort By' field and select the required sort parameter:</p> <ul style="list-style-type: none"><li>• None - elements are passed to the specified layout in the order in which they appear on the original diagram (left to right, top to bottom)</li><li>• Area (Ascending) - elements are passed to the specified layout in order of the screen space they occupy, smallest to largest</li><li>• Area (Descending) - elements are passed to the specified layout in order of the screen space they occupy, largest to smallest</li><li>• Name (Ascending) - elements are passed to the specified layout in alphanumeric order, based on the element name</li><li>• Name (Descending) - elements are passed to the specified layout in reverse alphanumeric order, based on the element name</li><li>• Element Type - elements are grouped by type (for example, Class, Use Case) and in alphanumeric order within the group by name</li></ul>
3	In the 'Padding (px)' field, type the vertical and horizontal distance between cells, in pixels.
4	Select the appropriate page distribution option:

	<ul style="list-style-type: none"><li>• Automatically distribute: automatically calculate the optimum number of cells, taking into consideration the largest horizontal and vertical element edges</li><li>• Specify distribution: manually enter the per page grid dimensions</li></ul>
5	If you selected 'Specify Distribution', in the 'Rows' and 'Columns' fields type the required number of rows and columns.
6	Select the 'Center Elements' checkbox to place each element in the center of its cell; otherwise the element placement defaults to the top left corner of the cell.
7	In the 'Start Page' field, type the number from which to start the page numbering; pages begin at the top left and continue horizontally to the right.

# Digraph Layout

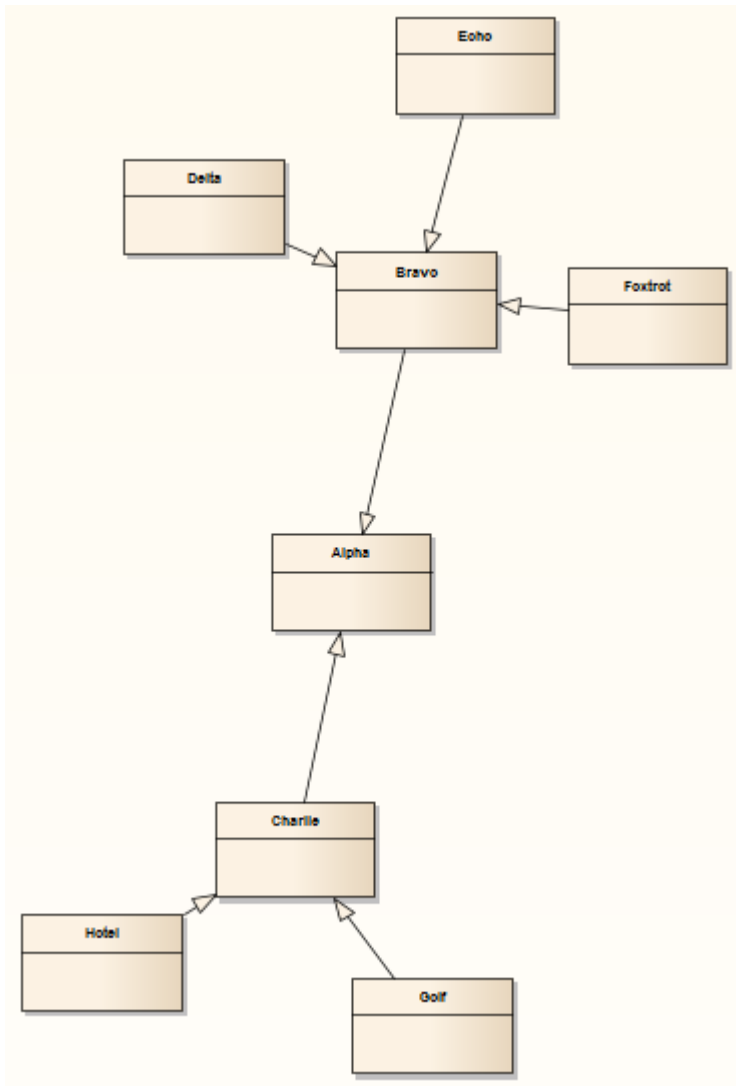
The Digraph layout arranges the selected elements into a directed graph ('digraph' for short). The Digraph attempts to highlight the hierarchy of the elements while keeping the direction of all connectors pointing to the same edge of the diagram.



The Digraph layout provides the same behavior as the Automatic Diagram Layout.

# Spring Layout

The Spring layout uses a force-directed approach to arrange the selected elements organically. It employs a physical analogy to lay out elements; each element is treated as a particle with a like electrical charge that repels other elements. Connectors act as springs (hence the name Spring layout) that draw connected elements back together. The layout is good for highlighting clusters of related objects and identifying symmetry in the graph.

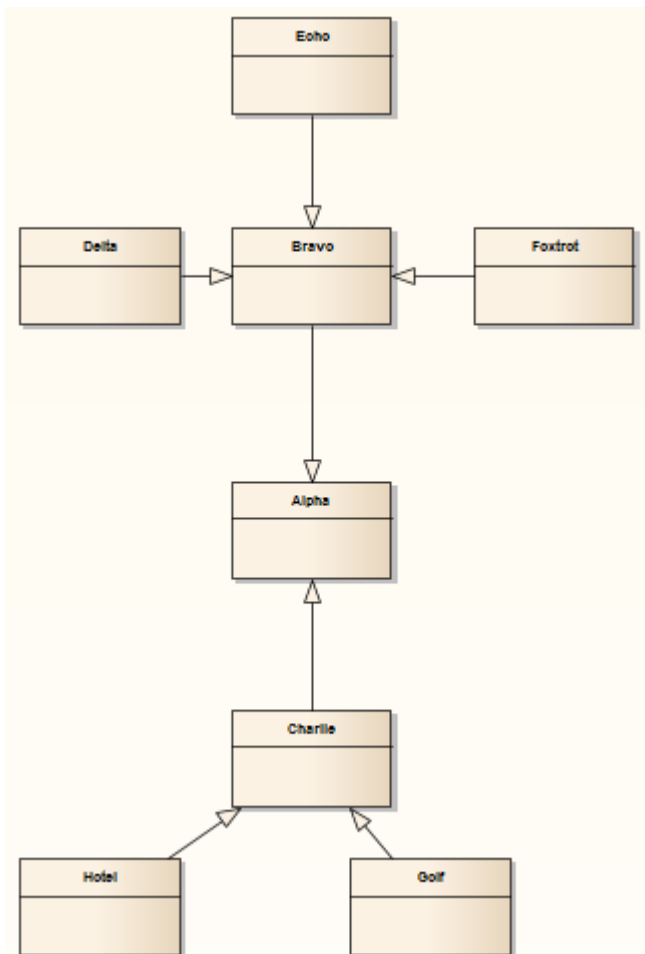


## Invoke the Spring layout

Step	Action
1	Follow the general <i>Layout Diagrams</i> procedure, and at step 2 select 'Spring'.
2	<p>In the 'Iterations' field, type the number of iterations, or rounds, to perform to reach the final layout.</p> <p>The layout is developed over several iterations; depending on the complexity of the graph, increasing the number of iterations produces a better result but takes longer to calculate.</p>
3	If the diagram contains elements that significantly vary in size, and that might overlap in the final layout, select the 'Scale to prevent overlap' checkbox to scale up the positions of the selected elements (preserving size) until no elements overlap.

# Neaten Layout

The Neaten layout attempts to pull the selected elements into a grid based on their horizontal and vertical proximity to each other. That is, the layout pulls elements that are roughly aligned into a neater arrangement. Elements that share the same row or column are aligned based on the 'Column' and 'Row Snap' parameters. The arrangement shown for the Spring layout, when the Neaten layout is applied, might resemble this:



## Invoke the Neaten layout

Step	Action
1	Follow the general <i>Layout Diagrams</i> procedure, and at step 2 select 'Neaten'.
2	<p>In the 'Threshold (px)' field type the separation, in pixels, up to which elements are considered to be in the same row or column.</p> <p>A higher threshold value produces a tighter result, pulling elements that are far distant into the same row or column. A lower threshold value provides for a larger number of rows and columns.</p>
3	<p>In the 'Column Snap' field, click on the drop-down arrow and select the appropriate alignment for elements in the same column:</p> <ul style="list-style-type: none"><li>• Left - elements are aligned with the left edge of the left-most element in the column</li><li>• Center - elements are aligned with the vertical center of the center-most element in the column</li><li>• Right - elements are aligned with the right edge of the right-most element in the column</li></ul>
4	In the 'Row Snap' field, click on the drop-down arrow and select the appropriate alignment for elements in the same row:

- |  |  |
|--|--|
|  | <ul style="list-style-type: none"><li>• Top - elements are aligned with the top edge of the highest element in the row</li><li>• Center - elements are aligned with the horizontal center of the center-most element in the row</li><li>• Bottom - elements are aligned with the bottom edge of the lowest element in the column</li></ul> |
|--|--|

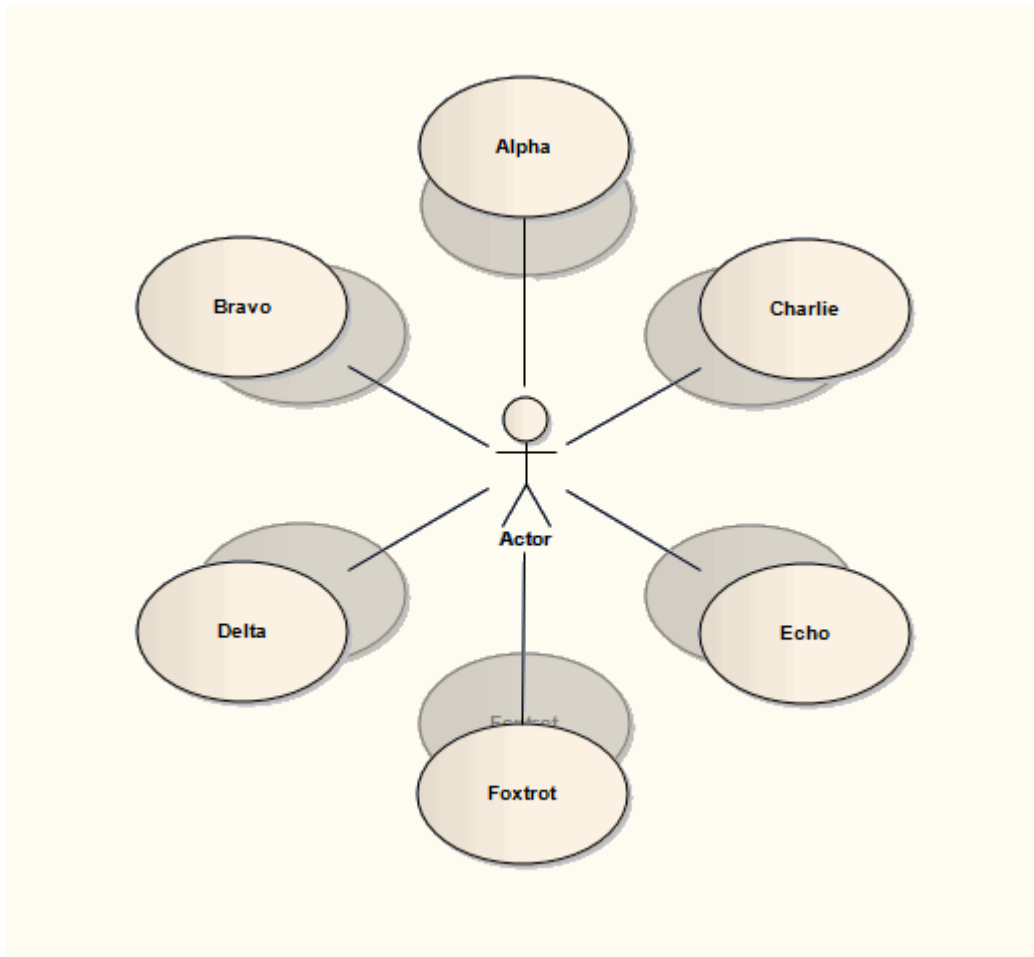
## Notes

- To prevent elements from overlapping in the neatened layout, check that the appropriate left, right, top, bottom, vertical center or horizontal center values of the elements (as dictated by the 'Column Snap' and 'Row Snap' options you select) are greater than the value in the 'Threshold' field



# Converge/Diverge Layout

The Converge layout attracts the set of selected elements towards the center of their bounding rectangle. Conversely, the Diverge layout repels the set of selected elements away from the center of their bounding rectangle. The Converge/Diverge layout also tries to maintain connector angles if an element in the set contains a connector with waypoints.

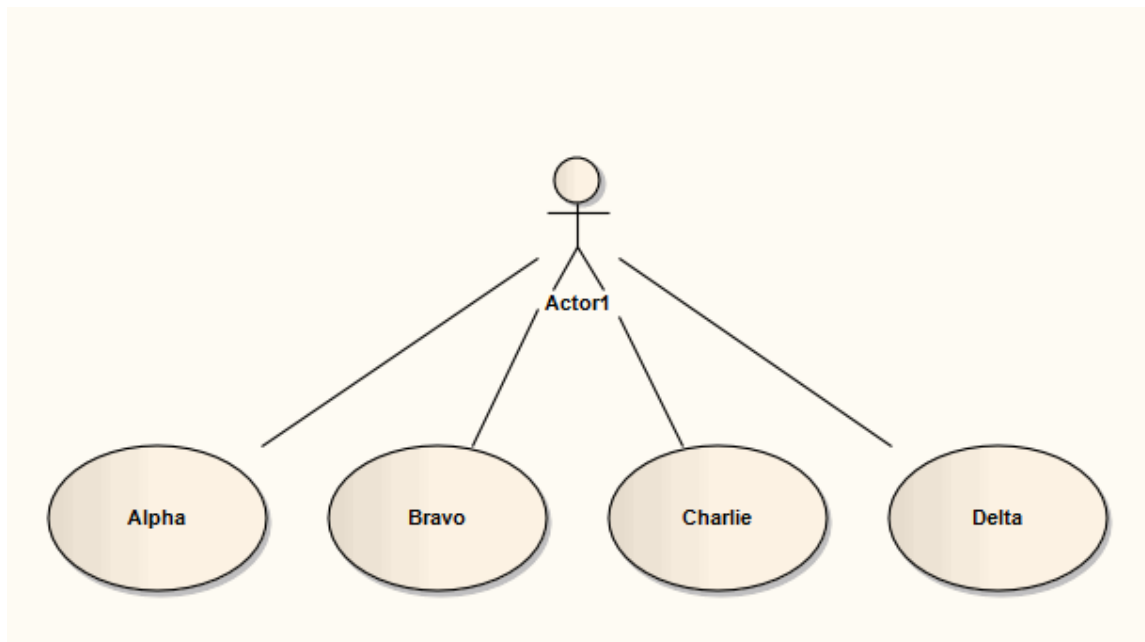


## Invoke the Converge/Diverge layout

Step	Action
1	Follow the general <i>Layout Diagrams</i> procedure, and at step 2 select 'Converge/Diverge'.
2	<p>Select the radio button for the required direction of the layout:</p> <ul style="list-style-type: none"><li>• Converge - attracts the set of selected elements to the center point</li><li>• Diverge - repels the set of selected elements from the center point</li></ul>
3	<p>Set the 'Amount (%)' slider to the required percentage. A smaller percentage provides finer control of the change in layout.</p> <p>The slider determines how far the elements are moved towards or away from the center point; the movement is the element's current distance from the center point multiplied by the percentage value set on the slider.</p> <p>In the Converge layout, the element moves towards the center point; in the Diverge layout the element moves further away from the center point.</p>

# Fan Relations Layout

The Fan Relations layout arranges the immediate relations of an element around a specified edge. This layout requires a single element to be selected on the diagram, to be used as the context for the layout.



## Invoke the Fan Relations layout

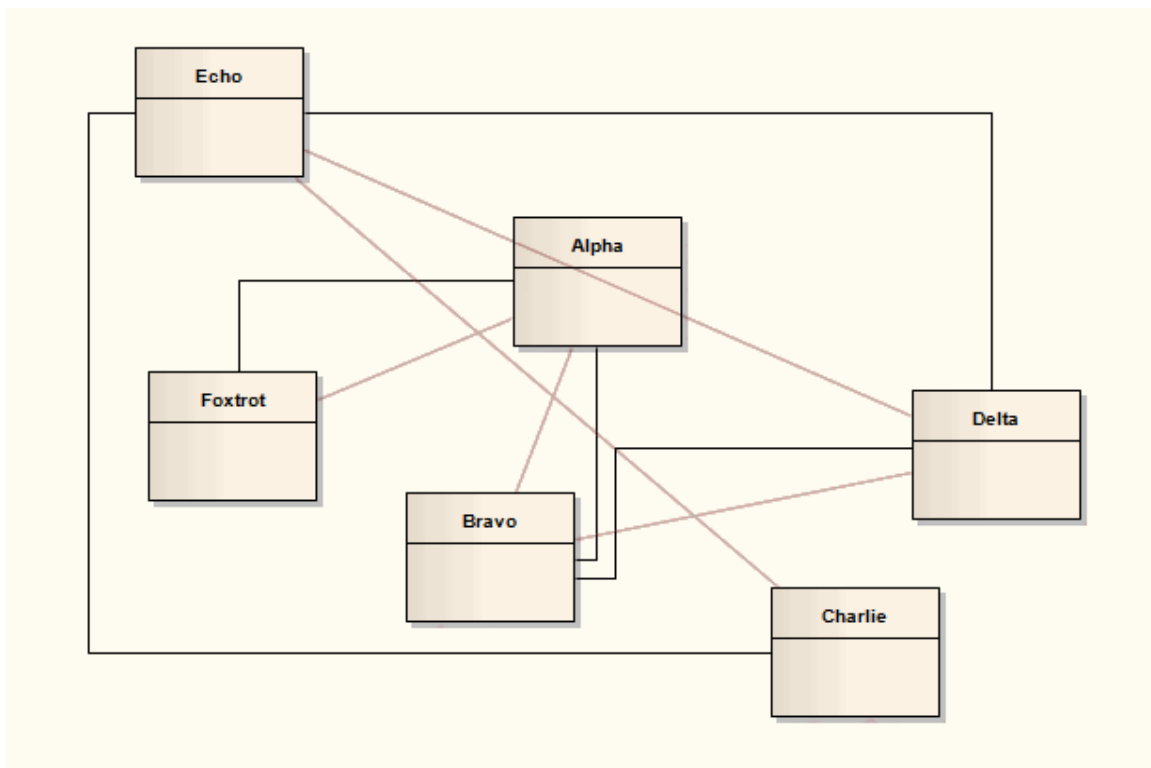
Step	Action
1	Open the Layout Tools window; either: <ul style="list-style-type: none"><li>• Select the 'Layout &gt; Tools &gt; Diagram Layout' ribbon option, or</li><li>• Right-click on the main toolbar and select the</li></ul>

	'Diagram Layout Tools' option
2	Select the single element around which to lay out related elements on the currently-active diagram.
3	Click on the drop-down arrow on the top left button of the Layout Tools window, and select Fan 'Relations'.
4	<p>Click on the drop-down arrow in the 'Sort By' field and select the required sort parameter.</p> <p>The options are:</p> <ul style="list-style-type: none"><li>• 'None' - elements are passed to the specified layout in the order in which they appear on the original diagram (left to right, top to bottom)</li><li>• 'Area (Ascending)' - elements are passed to the specified layout in order of the screen space they occupy, smallest to largest</li><li>• 'Area (Descending)' - elements are passed to the specified layout in order of the screen space they occupy, largest to smallest</li><li>• 'Name (Ascending)' - elements are passed to the specified layout in alphanumeric order, based on the element name</li><li>• 'Name (Descending)' - elements are passed to the specified layout in reverse alphanumeric order, based on the element name</li><li>• 'Element Type' - elements are grouped by type (for</li></ul>

	example, Class, Use Case) and in alphanumeric order within the group by name
5	In the 'Padding (px)' field, type the separation required between the selected element and its related elements, in pixels.
6	Select the connector direction to use in determining the related elements to lay out; either: <ul style="list-style-type: none"><li>• Incoming Nodes - to lay out related elements that have the selected element as the target</li><li>• Outgoing Nodes - to lay out related elements that have the selected element as the source</li></ul>
7	In the 'Fan Edge' field, click on the drop-down arrow and specify the edge of the selected element from which to lay out the related elements: <ul style="list-style-type: none"><li>• Left - to arrange related elements to the left of the selected element</li><li>• Right - to arrange related elements to the right of the selected element</li><li>• Top - to arrange related elements from the top of the selected element</li><li>• Bottom - to arrange related elements from the bottom of the selected element</li></ul>

# Auto Route Layout

The Auto Route layout orthogonally routes connectors between the selected elements. The layout attempts to find the shortest path between the two connected elements while minimizing crossings. In this illustration, the original connectors are shown in red.



## Invoke the Autoroute layout

Step	Action
1	Follow the general <i>Layout Diagrams</i> procedure, and at step 2 select 'Auto Route'.

2	<p>In the 'Cell Size (px)' field, type the effective connector separation in pixels.</p> <p>When calculating connector routes, the algorithm divides the diagram into cells of a size determined by this field value; a smaller cell size results in connectors being placed closer together.</p>
3	<p>In the 'Element Margin' field, type the separation between connector segments and element borders, in pixels.</p>


# Lay Out a Diagram Automatically

As you develop a diagram, it can become difficult to position the elements and connectors so that the layout and organization remain clear. Rather than continually moving structures around manually, you can simply select a 'Layout Diagram' option to automatically reposition all the structures on the diagram in a logical, tree-based structure. If your diagram is complex, you can then do some manual 'tweaking' to draw out particular elements and relationships. Generally the default layout parameters provide adequate layouts for a wide range of diagrams, but for a fine degree of control you can also set layout parameters using the 'Diagram Layout Options' dialog.

## Access

Ribbon	<p>To configure settings:</p> <ul style="list-style-type: none"><li>• Design &gt; Diagram &gt; Edit &gt; Properties &gt; Diagram: Set Layout Style or</li><li>• Layout &gt; Diagram &gt; Edit &gt; Properties &gt; Diagram: Set Layout Style</li></ul>
Context Menu	<p>To configure settings:</p> <ul style="list-style-type: none"><li>• Right-click on diagram   Properties &gt; Diagram: Set Layout Style</li></ul>



Other	<p>To configure settings:</p> <ul style="list-style-type: none"> <li>• Double-click background of diagram &gt; Diagram : Set Layout Style</li> </ul> <p>To apply layout:</p> <ul style="list-style-type: none"> <li>• diagram toolbar :  Auto Layout</li> </ul>
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## Apply Layout Configurations

Option	Action
Cycle Remove Options	<p>These settings remove cycles in the element organization (where element X is the source of a path but also becomes the target of a branch of the path), by reversing the connectors that impose the cycling and then reorganizing the diagram and reinstating the reversed relationships; this identifies the primary source element in the diagram. Select:</p> <ul style="list-style-type: none"> <li>• Greedy - to use the Greedy Cycle Removal algorithm, which minimizes the number of connectors reversed</li> <li>• Depth First Search - to use the Depth</li> </ul>

	<p>First Search Cycle Removal algorithm, which establishes the longest linear sequence possible before establishing parallel sequences and branches; this algorithm is less effective in large and/or complex diagrams, but produces a more natural layout than the Greedy algorithm</p>
<p>Crossing Reduction Options</p>	<p>These options determine the length of time the routine searches for ways of reorganizing the layout to avoid crossed relationships:</p> <ul style="list-style-type: none"><li>• Iterations - Type the number of iterations to be used during cycle removal (more than 8 does not usually provide any improvement)</li><li>• Aggressive - Select this checkbox to use an aggressive (detailed and time-consuming) crossing reduction step</li></ul>
<p>Layering Options</p>	<p>These settings determine how elements are organized in layers during layout. Select:</p> <ul style="list-style-type: none"><li>• Longest Path Sink - to use the Longest Path Sink Layering algorithm, where the final target elements (sinks, which have no relationships issuing from</li></ul>

	<p>them) are arranged in a layer at the top of the diagram, and the relationship paths built downwards from there in as many layers as there are nodes in the longest path</p> <ul style="list-style-type: none"><li>• Longest Path Source - to use the Longest Path Source Layering algorithm, where the original source elements (those with no relationships entering them) are arranged in a layer at the bottom of the diagram and the relationship paths built up from there in as many layers as there are nodes in the longest path</li><li>• Optimal Link Length - to use the Optimal Link Length Layering algorithm, which organizes the elements into the number of layers that minimizes the total source-to-sink relationship chain; in this layout you can have both source elements and sink elements at various levels of the diagram</li></ul>
Layout Options	<p>These settings define how far apart the element layers and columns are in the layout.</p> <ul style="list-style-type: none"><li>• Layer Spacing - Type the default number of logical units between layers</li></ul>

	<p>of elements (vertical spacing)</p> <ul style="list-style-type: none"><li>• Column Spacing - Type the default number of logical units between elements within a layer (horizontal spacing)</li></ul>
Initialize Options	<p>The autolayout routine inserts line waypoints and connectors into relationship paths to help plot the direction of the relationships; the routine then assigns an index number to every node, such that nodes in the same layer are numbered left to right. These settings determine how those index numbers are assigned. Select:</p> <ul style="list-style-type: none"><li>• Naive - to use the Naive Initialize Indices algorithm, which assigns index numbers to nodes as they are encountered in a sweep and tends to place all waypoints to the right of real nodes (and therefore long relationships between a small number of elements to the right of chains of short relationships between several elements)</li><li>• Depth First Search Outward - to use the Depth First Out Initialize Indices algorithm, which assigns index numbers to nodes as they are encountered in a depth first search from</li></ul>

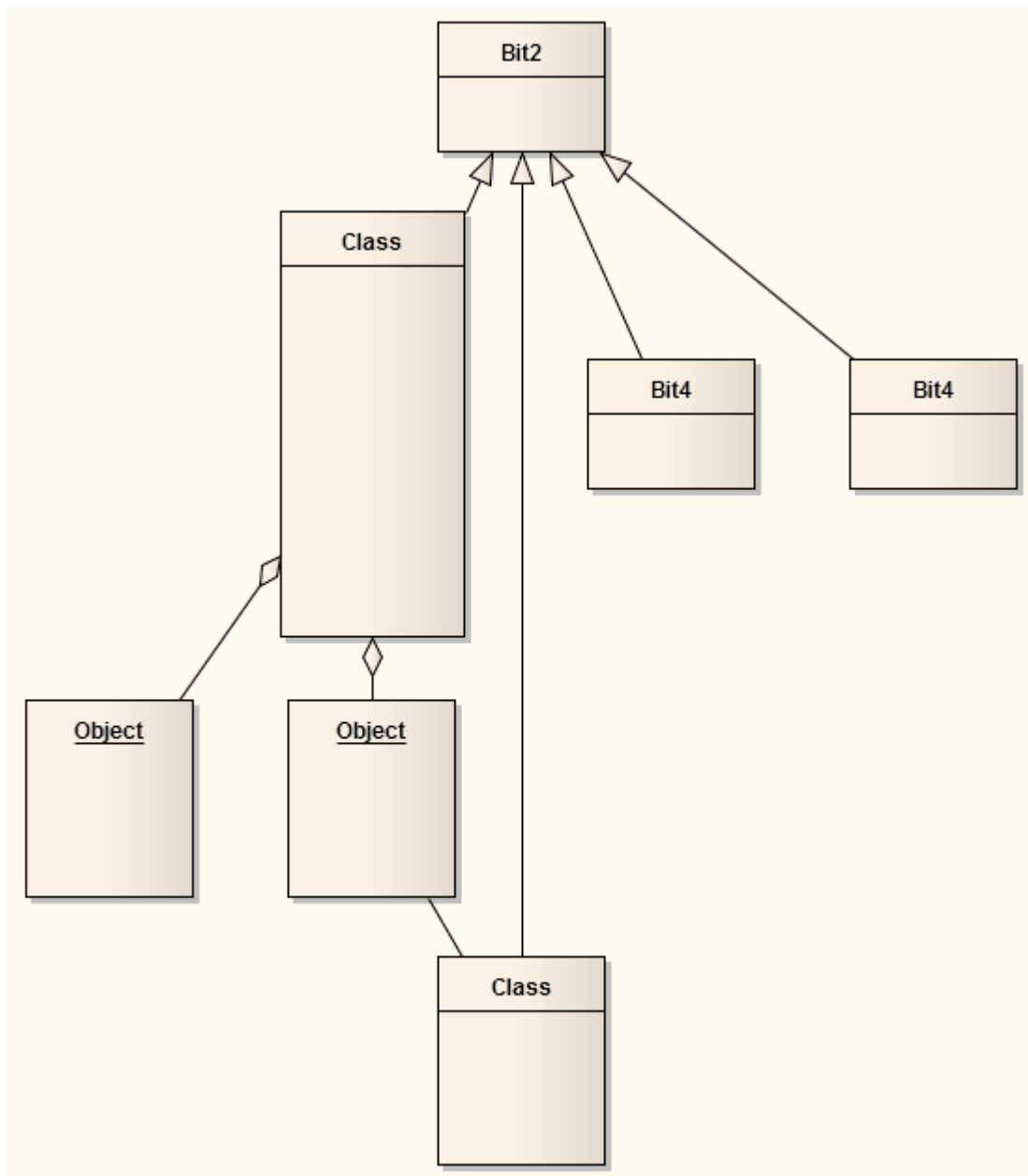
	<p>source nodes outwards (and would therefore place longer relationship chains to the left of shorter chains, with the primary source node at the start of the diagram flow)</p> <ul style="list-style-type: none"><li>• Depth First Search Inward - to use the Depth First In Initialize Indices algorithm, which also assigns index numbers to nodes as they are encountered in a depth first search, but from sink nodes inwards (and would therefore place longer relationship chains to the left of shorter chains, with the ultimate target node at the end of the diagram flow)</li></ul>
Direction	Select the direction in which all directed connectors should point, to set the position of the primary source element and the overall flow of the diagram. That is, Up, Down, Left, or Right.
Set as Project Default	<p>Select this checkbox to apply the diagram layout settings to all diagrams in the project.</p> <p>If you later define different settings and select this checkbox, the new settings override all those saved previously.</p>

OK	Click on this button to save your settings.
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## Example

This illustration shows an automatically laid out diagram with these options set:

- 'Depth First Search'
- 'Optimal Link Length'
- 'Depth First Search Outward'
- 'Direction - Up'



## Notes

- This facility is available for all types of diagram other than Timing and Interaction Overview diagrams
- If you decide that the autolayout is not appropriate, you can reverse it before saving the diagram; click Ctrl+Z





# Chain Diagram Layouts

Each of the diagram layout formats has a specific effect on the layout and appearance of a diagram. These effects can be combined by chaining certain layouts in a sequence, to further improve the final appearance of the diagram.

Enterprise Architect provides a selection of standard 'chains' for your use, and you can quickly and easily set up chains of your own.

The system does not restrict the way in which you combine the layouts, but in practice some layouts complement each other better than others, or are more logically executed in a certain order. You therefore need to consider the effect of each layout on the diagram - or part of the diagram - as you develop the chain. You also provide parameters for each layout, so you would set the parameters for each format to complement those for the other formats in the chain, using the 'Layout Chains' dialog.



The available formats could be grouped by impact on the diagram:

- Circle, Ellipse, Box, Per Page, Digraph and Spring each adjust element positions completely, so would destroy the effects of any other layout if used after it in a chain; one of these would therefore be the first layout to apply in the chain
- Fan Relations operates on a specific element, so you might not want to further adjust the diagram layout; if you did, you would only use these next layouts

- Converge/Diverge could be used after some of the preceding layouts, to broaden or narrow the final layout
- Neaten is a logical successor to the previous types, adjusting positions to provide more uniform separation
- Auto-route is the best final layout, to adjust connectors to the clearest routes without changing element positions

In creating a chain of layouts, you might consider these suggestions in selecting which layouts to use and in which sequence.






## Access

Ribbon	Layout > Tools > Diagram Layout > Open Diagram Layout Tools: 
Other	Right-click on any toolbar   Diagram Layout Tools: 

## Set up a chain

On the 'Layout Chains' dialog:

Step	Action

1	<p>Either:</p> <ul style="list-style-type: none"><li>• Click on the New Chain button and type in a new chain name (and click on the OK button) or</li><li>• Click on the drop-down arrow and select the name of an existing chain to edit</li></ul> <p>If you want to delete the existing chain you have selected, click on the Delete Chain button.</p> <p>If you want to rename the existing chain, click on the  button and overwrite the existing name with the new name (and click on the OK button).</p>
2	<p>In the 'Existing Layouts' field, click on the first layout to execute in the chain, then click on the  button to add it to the chain.</p> <p>Repeat this step to add further layouts to the chain.</p>
3	<p>If you do not want to include a layout that is currently in the chain, click on it and click on the  button.</p> <p>If you want to move a layout in the chain to a different point in the sequence, click on it and click on the  or  button as appropriate.</p>
4	<p>If you want to change the name of a layout, click once on the name in the chain list and overwrite it.</p> <p>To set the parameters of each layout, double-click on the layout name in the chain list. The appropriate parameter dialog for the layout displays; complete</p>

	<p>the fields as appropriate and click on the OK button. These are the parameters that will be applied whenever you execute this layout chain, regardless of the settings in any other use of the layout.</p>
5	<p>Click on the Save Chains button to save your changes, then click on the OK button. (If you have not saved your changes, an error message displays; click on the Yes button.)</p>

# Swimlanes

Swimlanes are vertical or horizontal bands in a diagram that divide the diagram into logical areas or partitions. You can apply them to all Enterprise Architect diagram types.

Activities relating to particular entities within the model (such as the User, or the back end Repository) can be placed within the same Swimlane to indicate their association. You set up the Swimlanes using the 'Swimlanes and Matrix' tab of the docked Diagram Properties window.

Having created a Swimlane, you can divide it into sublanes using context menu options.

## Access

Ribbon	Design > Diagram > Edit > Swimlanes > Swimlanes and Matrix > Swimlanes Layout > Diagram > Swimlanes > Swimlanes and Matrix > Swimlanes
Context Menu	Right-click on diagram background   Swimlanes and Matrix > Swimlanes
Keyboard	(On a diagram) Alt+1 > Swimlanes and Matrix > Swimlanes

## Options

Option	Action
Active	Select this checkbox to make the Swimlane facilities active on the diagram, as opposed to the Matrix facilities.
Orientation	Click on the drop-down arrow and select the orientation of the Swimlanes: Vertical or Horizontal.
Line Color	<p>Click on the drop-down arrow and select the color in which to display all Swimlane borders.</p> <p>If the color you require is not shown, click on the More Colors button and either select from a wider range of standard colors or define a custom color.</p>
Font Color	<p>Click on the drop-down arrow and select the color in which to display all Swimlane text.</p> <p>If the color you require is not shown, click on the More Colors button and either select from a wider range of</p>

	standard colors or define a custom color.
A	<p>Click on this button to display the 'Font' dialog, on which you can define the type, style, size and effects of the font used for text on all Swimlanes in the diagram.</p> <p>If you also change the text color here, it overrides the setting of the 'Font Color' field.</p>
Line Width	Click on the drop-down arrow and select the line width of all Swimlane borders - either 1 (thinnest), 2 or 3 (thickest).
Locked	Select this checkbox to prevent the Swimlanes in the diagram from being made narrower or wider.
Show Names in Title Bar	(If the 'Orientation' field is set to 'Vertical'.) Select this checkbox to display each Swimlane name in the title bar, above the Swimlane.
Bold Font	Select this checkbox to display all Swimlane text in bold.
Bind Width to Lane	Select this checkbox to bind the width of the elements in the diagram to the width of the swimlane or sublane holding them,


	<p>so that if you change the width of any lane you do not have to manually adjust the width of each element it contains. If non-rectangular elements (such as Use Cases) are not bound to the lane width, make sure that the 'Allow elongated Use Cases' option is selected on the 'Preferences' dialog 'Objects' page.</p>
Hide Classifier	<p>Select this checkbox to block all Swimlane classifier names from being shown on the diagram.</p>
Hide Names	<p>Select this checkbox to block all Swimlanes names from being displayed on the diagram.</p>
Hide Lines	<p>If the 'Bind Width to Lane' checkbox is selected, you can select this checkbox to hide the body of each swimlane (and, if appropriate, sublane), so that only the header cell is shown on the diagram. The element width and lane width remain bound</p>
New	<p>Click on this button to begin defining a new Swimlane for the diagram.</p> <p>The 'Swimlane Details' dialog displays, on which you provide the name, classifier</p>



	and background color of the Swimlane.
Swimlanes	<p>This panel lists the currently defined Swimlanes, in the sequence (top to bottom) in which they are displayed on the diagram (left to right, or top to bottom).</p> <p>To create sub-lanes within a Swimlane, right-click on the Swimlane name and select the 'Create sub lane' option. You can also copy sub-lanes from another Swimlane and paste them into the current Swimlane.</p> <p>The context menu also provides options to:</p> <ul style="list-style-type: none"> <li>• Edit the Swimlane properties - displays the 'Swimlane Details' dialog, on which you can change the Swimlane name, Classifier and fill color</li> <li>• Delete the Swimlane - prompts you to confirm deletion of the Swimlane before removing it from the list</li> </ul>
Modify	<p>Click on this button to change the name, classifier or background color of a selected Swimlane.</p> <p>The 'Swimlane Details' dialog displays.</p>
	Click on this button to move a selected

Hand (Up)	Swimlane one position up in the Swimlanes list.
Hand (Down)	Click on this button to move a selected Swimlane one position down in the Swimlanes list.
Delete	Click on this button to delete a selected Swimlane from the Swimlanes list and from the diagram. A prompt displays for you to confirm the deletion.

## Notes

- All changes you make on or through the 'Diagram Properties' dialog must be saved by clicking on the  icon in order to render those changes on the diagram
- If you set a background color for a Swimlane, it takes on the same shading profile as the main diagram background
- You can adjust the width or height of a Swimlane by dragging the border, whilst sub-lanes are automatically adjusted to take up the appropriate fraction of the Swimlane; for example, two sub-lanes take up half of the Swimlane each, three take up a third of the Swimlane each, and so on



# Creating Sub-lanes

When you add elements to a diagram, you can position them in horizontal or vertical Swimlanes to indicate the presence or absence of a particular feature or property.


Within each Swimlane you can further group or separate the elements into sub-lanes, which are a useful device for defining another level in the organization of the diagram. For example, you might want to divide a 'Process' lane into two sub-lanes representing input and output, or 'In-Progress' and 'Complete'. The 'Sub-lanes' page helps you to quickly and easily create any number of new sub-lanes for a Swimlane on a diagram.

## Access

Ribbon	Design > Diagram > Edit > Swimlanes > Swimlanes and Matrix > Swimlanes > Right-click on a Swimlane Layout > Diagram > Swimlanes > Swimlanes and Matrix > Swimlanes > Right-click on a Swimlane
Context Menu	Right-click on diagram background   Swimlanes and Matrix > Swimlanes > Right-click on a Swimlane

## Swimlane Context Menu Options

Right-click on the name of a Swimlane in the 'Swimlanes' panel.

Create sub lane	Displays the 'Create sub lane' dialog, on which you enter the title of the sub-lane. Click on the OK button to save the name and add it to the Swimlanes panel; click on the  icon at the top of the dialog to add the sub-lane to the diagram.
Copy sub lanes	Copies all the sub-lanes underneath the selected Swimlane.
Paste lane(s)	Adds the sub-lanes held in the clipboard to the currently-selected Swimlane.

## Sub-lane Context Menu Options

Right-click on the name of a sub-lane in the 'Swimlanes'

panel.

Edit name	Displays the 'Edit sub lane name' dialog, on which you overtype the existing name with a new name. Click on the OK button to effect the change and close the dialog. The Modify button on the Swimlanes page has the same effect.
Delete lane	Removes the sub-lane from the list. There is no confirmatory prompt. The Delete button on the Swimlanes page has the same effect.
Copy Lane	Copies the sub-lane to the clipboard. Use the 'Paste lane(s)' option on the Swimlane context menu to add the copied lane to another Swimlane

## Notes

- If you want to re-organize the sub-lanes, click on a sub-lane name and use the 'Hand Up' and 'Hand Down' buttons, as for the Swimlanes
- Whilst you can adjust the width or height of a Swimlane

by dragging the border, sub-lanes are automatically adjusted to take up the appropriate fraction of the Swimlane; for example, two sub-lanes take up half of the Swimlane each, three take up a third of the Swimlane each, and so on

# Swimlane Details

To define a vertical or horizontal Swimlane on a diagram, you use the 'Swimlane Details' dialog.



## Access

Ribbon	Design > Diagram > Edit > Swimlanes > Swimlanes and Matrix > Swimlanes: New or Modify Layout > Diagram > Swimlanes > Swimlanes and Matrix > Swimlanes: New or Modify
Context Menu	Right-click on diagram background   Swimlanes and Matrix > Swimlanes: New or Modify

## Options

Options	Action
Name	Type a name for the Swimlane.



Classifier	<p>(Optional) Click on the  button to browse for and select a classifier for the Swimlane.</p> <p>To delete a previously-assigned classifier, click on the  button and select the '&lt;none&gt;' option.</p>
Back Color	<p>Click on the drop-down arrow and select the color in which to display the Swimlane background.</p> <p>If the color you require is not shown, click on the More Colors button and either select from a wider range of standard colors or define a custom color.</p>
OK	<p>Click on this button to save and apply your changes, and close the dialog.</p>
Cancel	<p>Click on this button to abort your changes, and close the dialog.</p>

# Swimlanes Matrix

On any type of Enterprise Architect diagram, you can develop a Swimlanes Matrix to divide your diagram into cells at the intersections of columns and rows. This Matrix is based on the Zachman Framework. The top left cell of the Matrix contains the heading text, the cell at the top of each column contains the column title text and the cell at the left of each row contains the row title text.

You can define only one Matrix Heading cell, but you can create as many row and column headings as you need. You can also leave the column width and row height adjustable on the diagram, or fix the positions so that the cell borders cannot be moved.

The Matrix is defined on the 'Swimlanes and Matrix' tab of the Diagram Properties window.

## Access

Ribbon	Design > Diagram > Edit > Swimlanes > Swimlanes and Matrix > Matrix Layout > Diagram > Swimlanes > Swimlanes and Matrix > Matrix
Context Menu	Right-click on diagram background   Swimlanes and Matrix > Matrix

Keyboard	(On a diagram) Alt+1 > Swimlanes and Matrix > Matrix
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## Options

Option	Action
Active	Click on this checkbox to set the diagram to use the defined Matrix facilities, as opposed to any Swimlanes that have also been defined.
Title #	<p>Type in a title name. You can provide one, two or three title names per heading to, for example, group a set of columns or rows.</p> <p>There is no effective limit on the length of the text string but it does not wrap, so to display the full text you might have to drag the cell borders out to create a wide cell. Alternatively, you can divide the text string between the 'Title' fields to reduce the overall cell width.</p>
Color	Click on the drop-down arrow and select

	<p>the color in which to display the text in the heading, row or column title.</p> <p>If the color you require is not shown, click on the More Colors button and either select from a wider range of standard colors or define a custom color.</p>
Font	<p>Click on this button to display the 'Font' dialog, through which you define the font and style, size and effects of the text in the Matrix header, column and row titles.</p> <p>If you also change the text color here, it overrides the setting of the 'Color' field.</p>
Hidden	<p>Select this checkbox to hide the corresponding Matrix header, row or column Title text on the diagram.</p>
Type	<p>Click on the drop-down arrow and select 'Heading', 'Column' or 'Row' to apply your field settings to the Matrix heading cell, a column heading or a row title, respectively.</p>
Back Color	<p>Click on the drop-down arrow and select the color in which to display the heading cell, row or column background.</p> <p>If the color you require is not shown, click on the More Colors button and</p>

	either select from a wider range of standard colors or define a custom color.
Hide Item	Select this checkbox to hide the Matrix heading cell, row or column on the diagram.
Model Profiles	<p>Click on the drop-down arrow and select:</p> <ul style="list-style-type: none"><li>• An existing Profile to override the current contents of the dialog</li><li>• 'Empty Profile' to clear the fields so that you can define a matrix to save as a new Profile (see <i>Model Profiles: Save</i>)</li></ul>
Model Profiles: Save	<p>Click on this button to save the current dialog contents as a new Profile.</p> <p>A prompt displays for you to assign a name to the Profile.</p>
Model Profiles: Delete	Click on this button to delete the currently-displayed user-defined Matrix Profile from the drop-down list.
Line Widths	Click on the drop-down arrow and select the line width of all row and column borders - either 1 (thinnest), 2 or 3 (thickest).

Line Color	Click on the drop-down arrow and select the color in which to display all lines in the matrix.
Lock	Select this checkbox to prevent the Matrix rows and columns in the diagram from being resized.
Matrix list	<p>Lists the components of the current Matrix Profile, starting with the Heading and followed by the columns and then the rows. For each item, the list shows the first title (Title 1) whether it is visible on the diagram, and what type it is.</p> <p>The columns are listed in the order in which they are displayed, left to right, on the diagram.</p> <p>The rows are listed in the order in which they are displayed, top to bottom, on the diagram.</p>
Hand (Up)	<p>Click on this button to move a selected column or row one position up in the Matrix list. You cannot move a Column item above the Heading item, or a Row item above a Column item.</p> <p>When you save the changes, on the diagram the selected column or row is moved left or up one place.</p>

Hand (Down)	<p>Click on this button to move a selected column or row one position down in the Matrix list. You cannot move the Heading item below a Column item, or a Column item below a Row item.</p> <p>When you save the changes, on the diagram the selected column or row is moved right or down one place.</p>
New	<p>Click on this button to clear the dialog fields so that you can add a new column or row item to the Matrix.</p>
Copy	<p>Click on this button to copy a selected item from the list so that you can give it a new Title 1 and edit it as a new item.</p> <p>If you change the item, it is added to the list when you click on the Save button.</p>
Delete	<p>Click on this button to delete a selected item from the list. The column or row is removed from the list and diagram, which both close up.</p>
OK	<p>Click on this button to save and apply your changes, and close the dialog.</p>
Cancel	<p>Click on this button to abort your</p>

	changes, and close the dialog.
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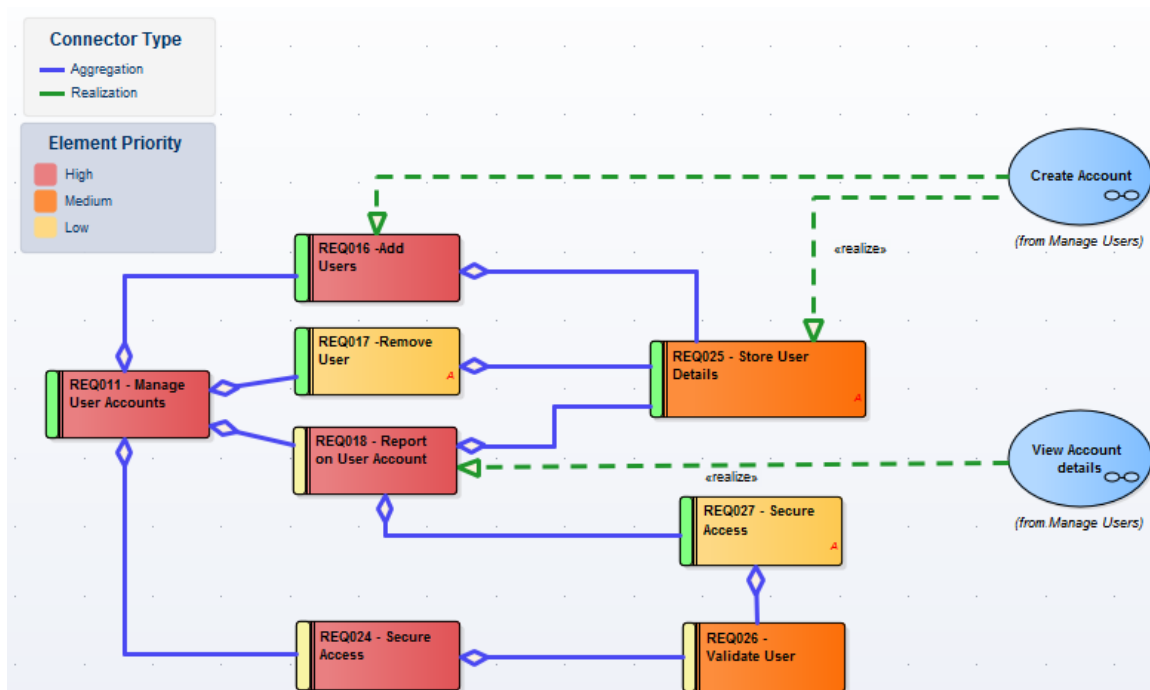
## Notes

- When you define columns and rows, you define the header or title cells; the properties of these cells do not reflect on the matrix cells themselves - for example, the intersection cell of a column and row has a transparent background and therefore takes the color and shading effect of the diagram background
- You can transport the Swimlanes Matrix Profiles between models (as Diagram Matrix Profiles), using the 'Configure > Model > Transfer > Export Reference Data' and 'Import Reference Data' ribbon options
- By applying a Matrix Profile to a diagram, you replace the current profile; save the current profile to avoid losing it
- To size the rows and columns, drag the row and column borders on the diagram - elements placed inside each cell are shifted when sizing; to prevent the elements shifting, press and hold Ctrl while sizing



# Diagram Legends

A Diagram Legend is an element that you can add to your diagram to provide information about the colors and/or line thicknesses and styles that have been used in the current diagram, where those colors and other styles have some particular meaning. For example, it is common to have a Legend that indicates a particular color is indicative of a particular element status or version. Connectors might be colored according to whether they are of a particular type or direction. Element borders might be thicker or thinner according to some other property or condition.



Legends have additional capabilities, including the ability to auto color elements in different ways and according to different rules and filters. Legends are classified as elements and will be listed in the Project Browser; however, they are

not shown in contents of a Package displayed on a diagram. The next topics detail the mechanics of setting up your Legend, but first a quick overview.

## Simple Legend

Simple Legends provide a manually configured key set that references the various styles used in the diagram. For example, an element might be manually set to fill with the color red, and the Legend can be configured to indicate that red means 'Overdue'. This is a very useful and powerful way of providing information about the conventions and styles used and the meanings that they represent. You can create and add as many Simple Legends as you like to your diagram.

## Auto Legend

An Auto Legend is one that has the 'Auto Color' checkbox ticked. This puts the Legend into a more 'active' mode, and will influence how the diagram is actually drawn without you having to make manual changes to the elements on display.

For example, it is possible to set up a Legend that will set all Requirement elements that have a Status of 'Validated' on a diagram to a specific fill color. The color will be applied automatically to the filtered element set with no manual

intervention. This is a very powerful mechanism for providing a dynamic view of a diagram and exposing inner attributes, properties or statuses in real-time. This technique can be applied to element fill, element border color, element line thickness, connector line thickness and connector color. It is important to remember that when the auto-color property is set, the change in element appearance is only dynamically applied on the Legend's diagram, and is not a permanent change. If you de-activate the Legend, all elements affected will return to their base appearance.

## Stacked (Multiple) Legend

What is even more powerful is the ability to 'Stack' multiple auto-color Legends on a diagram and let Enterprise Architect dynamically color according to the union of all the different Legend conditions. For example, this approach lets you dynamically color or affect the appearance of Requirements according to Status, Components according to Phase, Use Cases according to Version, and so on. By stacking multiple Legends you have the ability to create a very rich and detailed diagram that conveys a huge amount of information in its dynamically applied styles.

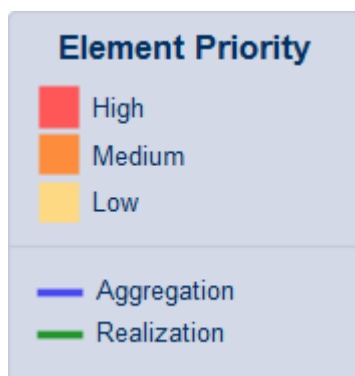
## Getting Started with Legends

These topics provide the necessary information for creating and configuring Legends on diagrams. Keep in mind that you can use Legends at any level, from the Simple type to the more dynamic Auto-Coloring and Stacked styles.

# Create Legends

A Legend element on a diagram provides a visual key to the colors and line thicknesses you have used to identify elements and/or connectors that have particular meaning. The Legend can reflect a simple, manually-applied convention such as all elements concerned with a management system being shaded in blue, or all outgoing connectors colored red. However, the Auto-Color Legends can also automatically apply the style to elements or connectors having a chosen property, such as a specific phase, stereotype or type.



The Legend lists the element appearance conventions first, and the connector appearance conventions underneath.



You work on a Legend element in two stages: first create and define the Legend element itself, then define the appearance styles as displayed on the diagram.

## Access

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Toolbox	Drag the Diagram Legend icon (  ) from the Common page of the Toolbox onto the diagram
Toolbar	Click the 'New Diagram Legend' icon (  ) on the UML Elements toolbar

## Multiple Legends

In many cases a single Legend will be sufficient to define the styles and their meanings within the current diagram. In some situations though, it is much more interesting and powerful to use multiple Legends, especially if the Legends are Auto-Coloring. Situations where multiple Legends are useful include:

- If you want to use more than one automatically-applied style (Stacked Legends)
- If you have used several manually-applied styles, and you want to identify them in small groups
- Where the diagram is large, and you want to reproduce the same key where it can be referred to in different sections of the diagram

Because a single Legend is limited to a single filter per element type (or all types), such as a range of Status values for Requirements, multiple Legends are a good way of addressing different filters on different element types. A

second Legend, for example, might indicate that all Components are colored according to a Version or Phase number.

You can have conditions that operate on different properties, by defining those conditions in separate Legend elements. However, check that the conventions in the two Legends operate on different display characteristics; for example, one Legend setting Class fill color whilst the other sets Class border width. They cannot both act on the same property, such as Class fill color. If they do, the most recently-created Legend (or the one with the highest Z-order) over-rides the previous Legend.

# Legend Properties

The 'Legend Properties' define the appearance of the Legend element itself, such as its background color, title text color and size, and border color. If you choose to use default colors, these are derived from the 'Preferences' dialog, 'Standard Colors' page.

## Access

The 'Style Options' dialog for a Legend element can be displayed using any of the methods outlined here.

Ribbon	Design > Element > Properties > Properties Dialog : Style Options
Other	Double-click Legend element: Style Options

## Define properties of a Legend

Option	Action
Heading Size	Either:



	<ul style="list-style-type: none"><li>• Overtyping the font size of the Legend Title text with a different value, or</li><li>• Clicking on the 'spinner' arrows to increase or decrease the font size</li></ul>
Font Color	<p>Click on the drop-down arrow and select one of the standard font colors for the Legend Title text.</p> <p>If you want to use a non-standard color, click on the More Colors button and either select from the larger pallet or define a custom color.</p>
Background	<p>Click on the down arrow and select one of the standard colors as the background fill color of the Legend element.</p> <p>If you want to use a non-standard color, click on the More Colors button and either select from the larger pallet or define a custom color.</p>
Border Color	<p>Click on the down arrow and select one of the standard colors as the color of the border lines of the Legend element.</p> <p>If you want to use a non-standard color, click on the More Colors button and either select from the larger pallet or define a custom color.</p>

OK button	Click on this button to save your changes and close the dialog.
Cancel button	Click on this button to abandon any changes and close the dialog.

## Notes

- As you define the properties of the element, the changes are reflected in the preview window to the right of the value fields

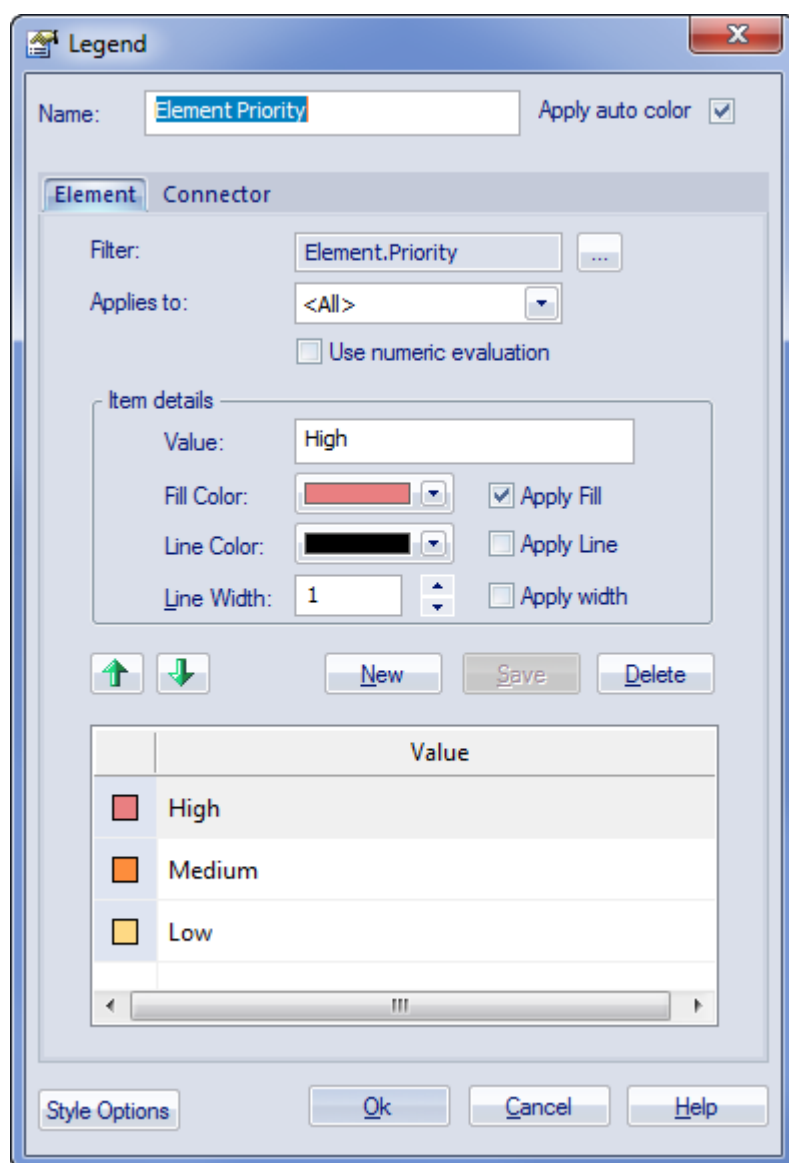
## Legend Key

A Legend element on a diagram provides a key to the element and connector appearance conventions used on that diagram. Each element or connector convention is separately defined within the Legend element, using the 'Legend' dialog and the element and connector tabs. If you want to present the Legend items in a specific sequence, you can adjust the order in which the items are listed on the element.

You can create more than one Legend on a diagram, to represent particular combinations of conditions.


## Access

The 'Properties' dialog for a legend element can be displayed using any of the methods outlined here.



Ribbon	Design > Element > Properties > Properties
Context Menu	Right-click on Legend element   Properties
Other	Double-click on the Legend element

## Add a Legend to a diagram

Option	Action
Name	This field defaults to the name 'Legend'; overwrite or edit the name if necessary. If you are using the 'Apply auto color' facility, you might use the Legend title to state which object property you are filtering for.
Apply auto color	Select this checkbox if you intend to apply an appearance convention automatically, according to a property of the objects as identified in the 'Filter' field.
Filter	<p>Click on the  button and, firstly, select whether the convention is to apply to an element (or connector) property or to a Tagged Value.</p> <p>For an element or connector, a list of properties displays from which you select the appropriate type.</p> <p>For a Tagged Value, select whether to use a customized tag or select a standard one. In either case, the 'Select Tagged Value'</p>

	<p>dialog displays. This dialog has a drop-down field from which you select the tag to apply the appearance convention to. The drop-down list is populated according to the options you select:</p> <ul style="list-style-type: none"><li>• Global Tagged Values - populates the drop-down list with all global tags in the project; you can therefore select a tag that is applicable to a large number of elements</li><li>• Tagged Values from the selected Element - click on the Select Element button and locate and select the required element; this populates the drop-down list with the Tagged Values from that element, so you can select from a specific set of tags</li></ul> <p>Note that the tag does not have to exist already; you can type in the name of a new tag if necessary.</p> <p>Click on the OK button to apply your selection.</p>
Applies to	<p>Click on the drop-down arrow and select the type of element or connector to apply the filter and, hence, appearance convention to. If you want to apply the convention to all types of element or</p>

	connector, select <All>.
Use numeric evaluation	<p>Select this checkbox if automatic application of the convention has to evaluate the numeric value of the property. For example, if a color is to be applied to elements with a Phase of 3.0, the value can be simply matched; no evaluation is necessary. If a color is to be applied to elements with a Phase value of less than 4, the Phase values have to be evaluated to see if they are less than 4 (and not equal to 4).</p> <p>The 'Apply auto color' checkbox must be selected for this checkbox to take effect.</p>
Value	<p>Type the actual value of the tag or property that must be satisfied for the appearance convention to be applied. You can use any of these operators with the value:</p> <ul style="list-style-type: none"><li>• .. (inclusive range); for example, 3..6 colors objects with the property having a value of 3, 4, 5 or 6</li><li>• &lt; (less than); for example, &lt;4 colors objects with the property having a value of 1, 2 or 3</li><li>• &gt; (greater than); for example, &gt;4 colors objects with the property having a</li></ul>

	<p>value of 5 or greater</p> <ul style="list-style-type: none"><li>• = (equal to); for example, =5 colors objects with the property having a value of 5 and only 5</li><li>• n (single number on its own, same as equal to)</li><li>• n:y:x:z (matches on any number equal to one of the values); for example, 2:4:6:8 colors objects with the property having a value of 2, 4, 6 or 8</li></ul> <p>The value that you enter becomes the name of the convention item in the Legend.</p>
Fill Color	<p>Click on the down arrow and select the standard color used as the fill or background color of the elements that match the selection criteria.</p> <p>If you have manually applied a non-standard color on the diagram, it should be available from the bottom of the pallet. If not, click on the More Colors button and either select from the larger pallet or define it as a custom color.</p>
Apply Fill	<p>(Defaults to selected; disabled if 'Apply auto color' is not selected.)</p> <p>Deselect the checkbox if you do not want</p>



	<p>the fill color to be automatically applied (that is, you only want the line color and/or line width automatically applied). This setting applies to the Legend as a whole, not just to a key on the Legend.</p>
Line Color	<p>Click on the down arrow and select the standard color used for the connector line or element border.</p> <p>If you have manually applied a non-standard color on the diagram, it should be available from the bottom of the pallet. If not, click on the More Colors button and either select from the larger pallet or define it as a custom color.</p>
Apply Line	<p>(Defaults to selected; disabled if 'Apply auto color' is not selected.)</p> <p>Deselect the checkbox if you do not want the line color to be automatically applied (that is, you only want the fill color and/or line width automatically applied). This setting applies to the Legend as a whole, not just to a key on the Legend.</p>
Line Thickness	<p>Either:</p> <ul style="list-style-type: none"> <li>• Overtyping the line thickness value with a different value (between 1 and 5), or</li> </ul>

	<ul style="list-style-type: none"><li>• Click on the 'spinner' arrows to increase or decrease the thickness</li></ul>
Apply width	<p>(Defaults to selected; disabled if 'Apply auto color' is not selected.)</p> <p>Deselect the checkbox if you do not want the line width to be automatically applied (that is, you only want the fill color and/or line color automatically applied). This setting applies to the Legend as a whole, not just to a key on the Legend.</p>
New	<p>Click on this button to clear the fields in preparation for defining a new appearance convention in the Legend. Take into account the points concerning multiple conventions and multiple Legend elements.</p>
Save	<p>Click on this button to save any changes you have made to an appearance convention.</p>
Delete	<p>Click on this button to delete the appearance convention you have selected in the current list.</p>
Value	<p>Lists the appearance conventions defined for objects in the diagram.</p>

Hand (Up)	If more than one definition is listed, click on this button to move the selected item closer to the start of the list.
Hand (Down)	If more than one definition is listed, click on this button to move the selected item closer to the end of the list.
Style Options	Click on this button to define or edit the appearance of the Legend element itself.
OK	Click on this button to save any current changes and close the dialog.
Cancel	Click on this button to abort any unsaved changes you have made, and close the dialog.

## Notes

- When you close the dialog, the Legend element is displayed showing all the appearance conventions defined; element conventions are listed first with connector conventions underneath, separated by a line across the Legend element



# Image Assets

Image Assets are model elements that are used to store images in the model.

To create an Image Asset element, simply drag an 'Image Asset' icon onto a diagram from the 'Artifact' page of the Diagram Toolbox. A prompt displays to choose an image file.

Alternatively, you can drag an image file from your file system straight onto a diagram. Enterprise Architect creates a new Image Asset Artifact, then stores the image from the file in the Artifact, as the 'owned image'.

The Image Asset images can then be used as alternative images in place of the standard UML notation for elements on diagrams. They can also be used in documentation by inserting hyperlinks to the Image Asset element. When a report is generated, the hyperlinked Image Asset element is rendered using its 'owned image'.

## Access

Diagram Toolbox	Select the 'Artifacts' page   select 'Image Asset'   click on the diagram, or Drag an 'Image Asset' Artifact from the toolbox onto a diagram.

Other	Select an image file in your file system (say, on the desktop) then drag and drop it onto a diagram in Enterprise Architect. A context menu will display; select the option 'Image Asset'.
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## Using Image Assets in Documentation

Step	Action
1	While editing the Notes of an element, or editing a Linked Document, right-click and choose 'Create Hyperlink. The 'Hyperlink Details' dialog displays.
2	Select 'Element Image' from the drop down list. The 'Select Element' dialog displays, showing only Image Assets.
3	Browse through the model and select the required Image Asset.
4	Click on the OK button.

## Select an Image Asset as an Alternative Image

Step	Action
1	Right-click an element on a diagram and choose the option 'Appearance   Select Image Asset as Alternate Image' from the context menu. The 'Select Element' dialog displays, showing only Image Assets.
2	Browse through the model and select the required Image Asset.
3	Click on the OK button.

## Viewing the Image

When placed on a diagram, the Image Asset can be displayed either as a simple artifact element, or as the owned image. The display can be toggled from one to the other, by right-clicking the element and selecting 'Show Owned Image' from the context menu.

When the Image Asset is displayed on a diagram as a UML Artifact element, double-clicking it will launch the default

external viewer for images and load the Artifact's owned image.

Ctrl+click on a hyperlink to an Image Asset displays the image in the default external viewer.

When hovering over the hyperlink the standard hyperlink element buttons will also be displayed, allowing you to display the 'Properties' dialog, find the element in diagrams or find the element in the Project Browser.

## Properties

To display the 'Properties' dialog for the Image Asset:

- Select the element and press Ctrl+Enter, or
- If the Image Asset is displayed on a diagram as the image, double-click on it, or
- If the Image Asset is referenced by a hyperlink, hover the mouse over the hyperlink to display a floating toolbar and click on the View Properties button



# Using the Image Manager

When you add an element to a diagram, it is rendered according to the standard UML notation. However, you can replace that representation with an image. For example, you could add a custom background image to a diagram, or display an image of a Router or PC on a UML element. You import, store and select these alternative images using the Image Manager. You can apply the image either as a:

- Default image, which displays on all instances of the element in diagrams across the model, or
- An alternative image, which displays only for the specific instance of the element to which it is applied, and which overrides the default image for that instance

To locate and display images within the Image Manager, click on individual image filenames, or press the Up arrow and Down arrow keys to scroll through the list of images. As you highlight each image filename, the 'Preview' panel changes to reflect the image. Double-click on the required image filename to display the image in full size.

## Access

Ribbon	Configure > Reference Data > Images
Context	Right-click on an element within a

Menu	diagram   Appearance   Select Alternate Image or Right-click on an element within a diagram   Appearance   Select Default Image
Keyboard Shortcuts	Click on an element within a diagram : Ctrl+Shift+W

## Image Manager Options

On the Image Manager, these buttons are available:

Button	Action
View	Click on this button to display the selected image in full size. Shortcut: Alt+V
Usage	Click on this button to display the 'Element Usage' dialog, which lists the diagrams in which the selected image is used.
Rename	Click on this button to change the filename of the selected image.

	<p>The option first warns you that the change would impact the other elements that use this image, and prompts you to confirm that you want to go ahead with the name change.</p> <p>If you continue, a prompt displays for you to enter the new filename.</p>
Add New	<p>Click on this button to display options for importing images from a file system or from the clipboard.</p> <ul style="list-style-type: none"><li>• From File - select this option to display a browser through which you can search appropriate directories to locate and import new images You can import images in .bmp, .png, .emf, .wmf, .tga, .pcx or .jpg format</li><li>• From Clipboard - select this option to download the image from the clipboard into the Image Manager (not via a diagram)</li></ul> <p>Internally, the images are stored in .png or metafile format to conserve space.</p> <p>You can also add images by:</p> <ul style="list-style-type: none"><li>• Importing a library of alternative images from the Sparx Systems website</li><li>• Copying the Image Library from</li></ul>

	<p>another model using the 'Export Reference Data' and 'Import Reference Data' facilities, and</p> <ul style="list-style-type: none"><li>• Capturing images from other sources into the clipboard and applying them to an element in a diagram, which automatically adds the image as an autonamed file to the Image Library</li></ul> <p>If necessary, you can change the file name using the 'Rename' option.</p> <p>Shortcut: Alt+A</p>
Update Selected	<p>Click on this button to refresh the selected image; for example, after it has been modified.</p> <p>A browser screen displays for you to select the updated image file from its parent directory.</p> <p>Shortcut: Alt+U</p>
Add Description	<p>Displays the 'Image Description' dialog, in which you enter a title for the image and a brief description to identify any significant facts about the image, such as its purpose, of the version it represents.</p>
Convert to Image Asset	<p>Displays a message warning that the image will be converted to an Image Asset Artifact in the currently-selected</p>

	<p>Package. The image will be removed from the Image Manager and can no longer be applied to another element, but the Image Asset element itself can be added to diagrams and called into documentation via a hyperlink.</p>
Delete	<p>(Not available for an image from a deployed MDG Technology.)</p> <p>Click on this button to delete the selected image.</p> <p>A message displays to indicate how many elements use the image. Click on the Yes button to delete information about the image from those elements, which then revert to their previous appearance.</p> <p>Shortcut: Alt+D</p>
Cancel	<p>Click on this button to close the Image Manager.</p>
OK	<p>Click on this button to confirm selection of the alternative image for the element selected in the diagram.</p> <p>Shortcut: Alt+O</p>

## Notes

- If you do not want an element to continue to have a default image or an alternative image, assign it the '--NONE--' option in the image list
- In the Corporate, Unified and Ultimate editions of Enterprise Architect, if security is enabled you must have 'Configure Images' permission to configure alternative element images
- If you are connected to a SQL Server repository, you require ALTER permission on the t\_image table in Enterprise Architect, to be able to import model images
- For elements with Lifelines, such as those used on Sequence diagrams, the Lifeline must remain intact so that messages can be created between the elements; therefore such elements cannot have alternative images
- There are two categories of image available through the Image Manager:
  - Images that have been imported into the model and are stored in the model
  - Images that are incorporated into a deployed MDG Technology, which are not copied into the current model but are held in memory; the technology images can be identified by the Technology name followed by the image file name, such as 'MDGFrame::ovalshape.emf', but can also be accessed by their short form (the name minus the technology name)

- If you are creating many elements of the same type that have a particular image, you should use a custom stereotype with an associated metafile
- If an element has an image, the element name is likely to be hidden; you can display the name underneath the image by right-clicking on the element and selecting 'Appearance | Show Name Under Image', and hide it again by selecting 'Appearance | Hide Name Under Image'
- You can transport image files between models, using the 'Configure > Model > Transfer > Export Reference Data' and 'Import Reference Data' ribbon options

# Create Custom Diagram Background

Enterprise Architect provides a number of options for setting the background of a diagram - a Theme, a system-defined tile background, a single-color flat background or a fading color gradient down the screen.

Alternatively, using the Image Manager, you can create a customized tiled or non-tiled background for your diagrams.

## Create a customized background

Step	Action
1	Check that a suitable image is available in the Image Manager. If the image you require is held elsewhere, import the file or the library containing the file.
2	Open a diagram and create a Boundary object from the 'Use Case Elements' page of the Toolbox (do not use the Boundary element from any other section of the Toolbox).
3	Stretch the Boundary to a size that can contain all of the elements you intend to place on the diagram, and drag it to the edges of the diagram workspace.



4	<p>Right-click on the Boundary element and select the 'Z-Order   Send to Bottom' option.</p> <p>This places the Boundary behind all other elements on the diagram.</p>
5	<p>Either:</p> <ul style="list-style-type: none"><li>• Press Ctrl+Shift+W, or</li><li>• Right-click on the Boundary and select the 'Appearance   Alternate Image' option</li></ul>
6	<p>On the Image Manager window, select the required image for the diagram background and check that the image size is large enough to span the required size of the diagram background.</p>
7	<p>Click on the OK button.</p>

## Notes

- As an alternative method: after you have added the Boundary element to the diagram, copy an image from another source onto the Windows clipboard, right-click on the Boundary element, and select the 'Appearance | Apply Image From Clipboard' option

# Import Image Library

Using the Image Manager, you can create attractive diagrams with custom images. You can quickly extend the range of images available through the Image Manager, by importing a bundled clip art collection of UML-based images as an Image Library file downloaded from the Sparx Systems website.

## Import the Image Library file

Step	Action
1	Download the Image Library from the Sparx Systems website onto your system.
2	In Enterprise Architect, open the project into which to import the Image Library.
3	Select the ribbon option 'Configure > Model > Transfer > Import Reference Data'. The 'Import Reference Data' dialog displays.
4	Click on the Select File button and locate the ImageLibrary.xml file to import, in the directory to which you downloaded the file.

	Click on the Open button.
5	<p>On the 'Import Reference Data' dialog, select the 'Model Images' data set that now contains the Image Library.</p> <p>Click on the Import button and, when the import is complete, the OK button.</p>

## Use the images contained within the Image Library

Step	Action
1	Create and/or open a diagram in which to use images from the Image Library.
2	Click on the element to which to apply one of the images contained within the library.
3	<p>Either:</p> <ul style="list-style-type: none"><li>• Press Ctrl+Shift+W, or</li><li>• Right-click on the selected element and select the 'Appearance   Select Alternate Image' option</li></ul>

- |   |   |
|---|---|
| 4 | <p>On the 'Image Manager' dialog, in the 'Loaded Images' panel, click on the appropriate image name and then on the OK button.</p> <p>The element appearance changes to the selected image.</p> |
|---|---|


## Notes

- Images contained within the Image Library are the copyright of Sparx Systems, are only available for use in conjunction with Enterprise Architect, and are supplied on the understanding that they are not used under any other circumstances
- If you are connected to a SQL Server repository, you require ALTER permission on the t\_image table in Enterprise Architect, to be able to import model images




# Print Preview


Before you print an Enterprise Architect diagram or document, you can display a preview of its output appearance.


## Access

Ribbon	 > Print Preview Publish > Diagram > Print > Preview Document-Edit > File > File > Print Preview <sub>w</sub>
--------	--

## Notes

- The display initially shows the first two pages on one screen, with no scroll bar
- To toggle between the two-page display and a single-page display, click on the  button in the preview screen toolbar; in either mode, you can use the  and  buttons in the toolbar to scroll through the pages of the diagram or document
- To display more than two pages on one screen, up to a

maximum of ten pages, click on the  button in the Preview screen toolbar; the screen now includes the vertical scroll bar, which you can also use to scroll through the pages of the diagram

- Having checked the preview, you can immediately print the diagram or document by clicking on the  Print button; otherwise click on the Close button

# Elements



Elements are the building blocks of models and, together with Connectors, they help a modeler to describe an enterprise, business engineering, real-time or software system. They can be found in the Project Browser and will typically appear on one or more diagrams, where a modeler will describe what role they play in the model. They also appear in a wide range of dialog windows that show other aspects of the elements, such as testing and resource allocation.

The element types are defined by the modeling languages or profiles they belong to; for example, Classes and Use Cases are part of the grammar of UML, Activities and Gateways are part of the grammar of BPMN, and Blocks and Requirements are part of the grammar of SysML. Each element type has a notation that helps modelers recognize the element and understand its purpose.

In a diagram, when you create or select an element, a small toolbar of options also displays off the top right corner of the element. The first of these is the Quick Linker arrow for creating connectors and target elements, and the others are Element Icons for performing specific operations on the element's appearance in the diagram.

Elements typically have a name, description and a series of

properties and features that describe them, including project properties such as status, phase and author.



# Element Facilities

Enterprise Architect provides a wide range of facilities for creating, editing and working with the elements that represent aspects of your models.

## Facilities

Facility	Description
Create Elements	Creating elements is extremely versatile. You can create entirely new elements or elements derived from existing ones, on diagrams or directly into Packages, from the standard system-provided definitions or from your own definitions in templates, Patterns or MDG Technologies.
Customize Elements	If the standard elements provided do not serve the purposes of your model, you can give some elements different appearances and/or define a set of properties for them, or create completely new types of element, and use these as the bases for creating the elements in your model.

Name Elements	As you create an element, you can either provide the name yourself, manually, or leave it for the system to provide from a simple standard or a more advanced automatic naming and numbering system set up by your department.
Set Element Parents	Once you have created an element, you can assign it to a parent element or to an interface that it realizes.
Trace Element Use	As you develop your models and use elements in several diagrams to represent different views of the model, you can track and list where the element is in use.
Move Elements	<p>You can easily move individual elements or element structures around the model to other Packages and/or diagrams, either changing the parent Package or diagram, or duplicating the elements in another Package or diagram.</p> <p>You also have a number of different ways in which to change the position of an element or a group of elements within a diagram, either in relation to the diagram or in relation to each other.</p>

Cross Referencing Elements	It is possible to set up a cross reference (or Custom Reference) from one element in Enterprise Architect to another. You can also view existing cross references on an element, using the 'Context References' dialog or the Traceability window.
Change Element Type	Sometimes, you might find that an object that you have represented as one type of element would be better represented as another type. You can change the type very quickly and simply.
Delete Elements	Elements can be created in error, or used on the wrong diagrams, or have a temporary function that becomes redundant. In such case you can easily and safely delete the elements from the diagram only or from both the diagram and the model.
Change Element Visibility	Some elements are not shown in Packages and in report documents, by default. These include Events, Decisions, Sequence elements and Associations. You have the option of making these elements visible in the documentation.

Write External Descriptions for Elements	One aspect of modeling is to describe and document the purpose and use of an element in the context of a particular diagram. You can provide such documentation in the form of Note or Text elements displayed with and connected to the elements they describe. The Note text can be extra to anything contained within the element, or can expose the internal description of a feature or property of the element.
Customize Element Appearance	You can set a number of standard default features that are applied globally to all elements, but you can also define a different default appearance for one element wherever it might be used.
Set Context Element	Sometimes, when you are working on a diagram, you might want to identify the element against which you are comparing or standardizing some or all of the other elements on the diagram. You can highlight the selected element as the context element.
Use Element Multiple Times	When you are using an element in more than one diagram, you can either create a representation of the element linked to

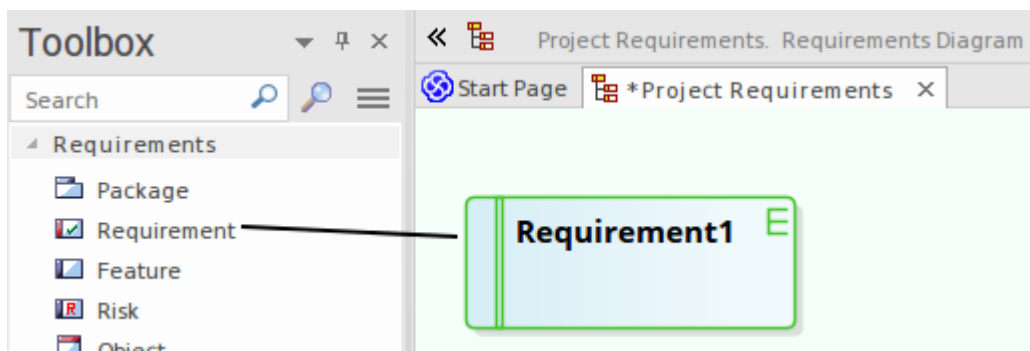
	the original, or a copy of the element as a separate object. If you create a link, you can subsequently convert it to a separate object.
Reuse Element Features	Many types of element have Features (attributes and operations) that define the properties and actions of the element. You can duplicate selected Features of one element in another, or take a Feature out of one element and place it in another.

## Notes

- In the Corporate, Unified and Ultimate editions of Enterprise Architect, if security is enabled you must have 'Update Element' permission to update element properties or delete an element
- If you select an element in a diagram, you can press the T key to display the Testing window for that element

# Create Elements

Enterprise Architect provides a number of ways to create completely new elements and those derived from existing elements. The simplest of the methods for creating a new element is to drag the icon for the required type of element from the Diagram Toolbox onto a diagram, as shown.



This method creates the element according to the system standard for that element type. You can also provide alternative element definitions that the Toolbox icons reference (using the system 'Preferences' dialog, Patterns or element Templates) and add further element definitions using Profiles and MDG Technologies (either supplied with the system or developed by your project team).

## Notes

- A quick way to apply the main facilities of the Toolbox is to press the Spacebar key or Insert key, displaying the 'Toolbox Shortcut menu
- If you are creating several elements of one type, after creating the first just press Shift+F3 or Ctrl+click to create

the next element of that type

- Once you have created an element, you can re-use it by dragging it from the Project Browser and dropping it onto your diagrams
- Sometimes it is useful to add elements directly to a Package, without adding them to a diagram; you can do this within the Project Browser

# Add Elements Directly To Packages

You can quickly add new elements to a Package without necessarily adding the element to a diagram at the same time. This is particularly useful in defining a group of Requirements, Changes, Issues, base Classes or other element types that you might not need to represent on diagrams in the model. You do, however, still have the option of adding the element to an open diagram.

## Access

Ribbon	Design > Element > Insert > Insert New Element into Model
Context Menu	Right-click on Package   Add Element
Keyboard Shortcuts	With a Package selected in the Project Browser: Ctrl+M In a diagram, press the M key
Other	Project Browser caption bar menu   New Element



## Add an element to a Package

Option	Action
Name	Type the name of the element.
Auto	<p>As an alternative to typing in the name, click on this button to insert predefined auto-counter text.</p> <p>If you already have some text in the 'Name' field, it is over-written by the auto-counter text.</p>
Type	<p>Click on the drop-down arrow and select the required element type from the list.</p> <p>The list of element types is derived from the diagram or technology shown in the 'Toolset' field.</p>
Toolset	<p>Shows the current UML diagram type, Profile, Add-In or MDG Technology within which you are creating the element.</p>
Toolset (button)	<p>If the Toolset is not appropriate for the type of element you want to create, click on this button and select the required</p>

	<p>diagram type or technology.</p> <p>The &lt;default&gt; group in the list provides a basic set of elements drawn from across the UML Behavioral and Structural groups, and the Enterprise Architect Extended groups.</p> <p>The selected technology is displayed in the 'Toolset' field.</p>
Stereotype	<p>If required, either type the stereotype name or click on the drop-down arrow and select the stereotype.</p> <p>This field is not available if the element you are creating is an extended element that already has a stereotype.</p>
Add to current diagram	<p>This checkbox is available if you have a diagram open and you are working from the Project Browser.</p> <p>The checkbox defaults to selected to add the new element to the diagram also; if you do not want the element in that diagram, deselect the checkbox.</p> <p>If you accessed this dialog by pressing the M key on the open diagram, this checkbox is not available. The element is automatically added to the diagram, in the top left corner.</p>

Save	<p>Click on this button to create the element and close the dialog.</p> <p>If you accessed this dialog by pressing the M key in an open diagram</p> <ul style="list-style-type: none"><li>• the element is created in the top left corner of the diagram, and</li><li>• the dialog remains open</li></ul> <p>If you accessed the dialog by selecting the 'New Element' option from the Project Browser header drop-down menu, clicking on this button also leaves the dialog open.</p>
Save and Exit	<p>Available if you have accessed this dialog by pressing the M key on an open diagram, or by selecting the 'New Element' option from the Project Browser header drop-down menu.</p> <p>Click on this button to create the element and close the dialog.</p>
Cancel	<p>Click on this button to abort the changes and close the dialog without creating an element.</p>

## Notes

- The 'New Element' dialog also displays when you create an element in the Specification Manager, if the Specification Type is <Any>

# Set Auto Naming and Auto Counters

When you create a new element in your model, you have different options for naming the element depending on how you are creating it. If you create the element:

- On a diagram, the system applies a default naming convention of the element type plus the increment of the number of elements of that type in the same Package - for example, Actor4; you can change this to any other name by editing the 'Name' field on the element's 'Properties' dialog
- Within the Project Browser, the system prompts you to type the element name into the 'New Element' dialog

You can also set up your own, automatic, naming and numbering convention for elements of the same type, so that:

- On a diagram, it is your naming/numbering convention that is automatically applied to the new element (which you can still change if you need to, as before)
- Within the Project Browser, the 'New Element' dialog Auto button applies the naming convention to your new element

If you have existing elements in a Package, and you want to apply the new naming convention to them, you can make this change very easily to all elements of the same type in the Package at once.

You define a naming convention for the element type as a

model setting. At the same time, you can also optionally define a naming/numbering convention for the 'Alias' field for elements of that type.

## Access

Ribbon	Configure > Reference Data > Settings > Auto Names and Counters
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## Set up auto naming for an element type

Option	Action
Type	Click on the drop-down arrow and select the element type to which to apply auto naming/auto numbering.
Name Prefix	Type a prefix for the new names (optional).
Name Counter	Type the counter value; use as many 0's as required to pad the number.
Name Suffix	Type a suffix for the new names

	(optional).
Name Apply on creation	<p>Select the checkbox to apply auto naming to each new element of the specified type, on creation.</p> <p>If you do not select the checkbox (but click on Save), the autonaming details for the specified element type remain defined in the dialog, but are not applied to new elements of that type. The default element naming convention takes effect (&lt;element type&gt;&lt;n&gt;).</p>
Alias Prefix	Type a prefix for the new Aliases (optional).
Alias Counter	Type the counter value; use as many 0's as required to pad the number.
Alias Suffix	Type a suffix for the new Aliases (optional).
Alias Apply on creation	<p>Select the checkbox to apply Alias auto naming to each new element of the specified type, on creation.</p> <p>If you do not select the checkbox (but click on the Save button), the Alias autonaming details for the specified element type remain defined in the</p>

	<p>dialog, but are not applied to new elements of that type. The default element naming convention takes effect (&lt;element type&gt;&lt;n&gt;).</p>
Save	<p>Click on this button to preserve the values you have entered.</p> <p>New elements of this type now have an automatically-generated name and/or Alias with an incrementing counter value.</p> <ul style="list-style-type: none"><li>• If the user creates an element on a diagram, such as from the Diagram Toolbox or Quick Linker, the element is automatically assigned the defined name and/or Alias</li><li>• If the user creates an element outside a diagram (such as in the Project Browser) using the 'New Element' dialog, they can click on the Auto button next to the 'Name' and/or 'Alias' field on the appropriate dialog to apply the auto-generated text</li><li>• If the user already has some text in the 'Name' or 'Alias' field, it is over-written by the auto-counter text</li></ul> <p>If an Alias is active, to view the Alias in a diagram requires that the option 'Use Alias if Available' is selected in 'Diagram Properties'.</p>



## Notes

- Automatic numbering - whether system default or user-defined - does not increment across Package levels; if you have an element called Actor1 in Package A, and you create an Actor element in a child Package of Package A, that Actor will also be Actor1

# Apply Auto Naming to Existing Elements

If you have set up auto-naming conventions for the names and/or Aliases of specific types of element, you can apply those conventions to all of the existing elements of those types in a selected Package, in one operation.

You apply auto-naming through the 'Apply Auto Naming to Elements' dialog. This groups the elements that have auto-naming conventions by type, and shows the effects of applying the conventions to the element names and/or Aliases. You can change all the element names in the Package, or select only certain elements to update.

## Access

Ribbon	Click on Package: Design > Package > Edit > Advanced > Apply Auto Naming
--------	--

## Apply Auto-naming to elements

Option	Action

<b>Current Name</b>	<p>Initially displays a contracted group for each element type that has auto-naming conventions, showing the number of elements of that type in the selected Package.</p> <p>Click on the '+' symbol to expand the type group and list the elements within it by their current name, with the most recently created element first.</p> <p>Select the checkbox against each element to be renamed, or against the element type name to select all elements in the group. Deselect the checkbox to leave the element name and Alias at their current values.</p>
<b>Name Preview</b>	<p>Initially shows the elements' current names.</p> <p>When you select the checkbox against each element, the name changes to show the effect of applying the auto-naming conventions to it.</p>
<b>Alias Preview</b>	<p>Initially shows the elements' current Aliases.</p> <p>When you select the checkbox against each element, the Alias changes to show the effect of applying the auto-naming conventions to it.</p>

All	Click on this button to select all elements listed on the dialog.
Clear	Click on this button to clear the checkboxes of all selected elements.
Update Name	
Prefix Auto Name to Current Name	<p>Click on this radio button to set the new element names to the auto-name text followed by the current name. That is, of this structure:</p> <p>MyPrefix00001MySuffix Original Name</p>
Overwrite current Name with Auto Name	<p>Click on this radio button to set the new element names to the auto-name text only. That is, of this structure:</p> <p>MyPrefix00001MySuffix</p>
Move current Name to Notes Apply Auto Name	Click on this radio button to show the current name in the 'Notes' field in the element 'Properties' dialog (in front of any existing notes) and overwrite the element 'Name' field with the auto-name.

No change	Click on this radio button to leave the current names unchanged. That is, review what the auto-naming would look like but not apply it.
Update Alias	
Prefix Auto Alias to Current Alias	Click on this radio button to set the new element Aliases to the auto-Alias text followed by the current Alias. That is, of this structure:  MyPrefix00001MySuffix Original Alias
Overwrite current Alias with Auto Alias	Click on this radio button to set the new element Aliases to the auto-Alias text only. That is, of this structure:  MyPrefix00001MySuffix
Move current Alias to Notes Apply Auto Alias	Click on this radio button to show the current Alias in the 'Notes' field in the element 'Properties' dialog (after any replaced element name text, but in front of any existing notes) and overwrite the 'Alias' field with the auto-Alias.
No change	Click on this radio button to leave the current Aliases unchanged. That is,

	review what the auto-Aliases would look like but not apply them.
Include sub packages	Select this checkbox to include elements in sub-Packages in this run of applying auto-naming (the checkbox reverts to deselected when the dialog is closed).
Configure Auto Naming	<p>Click on this button to immediately define automatic naming conventions for an element type if:</p> <ul style="list-style-type: none"><li>• You want to change the conventions for the element type, or</li><li>• The element type that you want to apply auto-naming to has no conventions (and is therefore not listed on the dialog)</li></ul> <p>The 'Auto Name Counters' dialog displays, on which you define your automatic element and/or Alias naming convention. When you click on the Save button on that dialog, any elements of that type in the Package are listed on the 'Apply Auto Naming to Elements' dialog.</p>
OK	Click on this button to close the dialog and put the naming changes into effect.
Cancel	Click on this button to close the dialog

	and cancel any naming changes you have defined.
--	---

## Notes

- If you select this facility and there have never been any auto-naming conventions defined in the model, the 'Current Name' column displays the message *Configure Auto Naming*; click on the Configure Auto Naming button to define any conventions for any element type you need
- The contents of Packages that are locked under Version Control will not be auto-named
- Because you are applying auto-naming to existing elements, the auto-naming set up 'Apply on Creation' setting has no impact on this operation
- The 'Apply Auto Naming to Elements' dialog is resizable; if you want to expand or reduce the dialog, drag its edges to the size you want

# Set Element Templates Package

In building up a model, you might want to represent or emphasize certain characteristics of elements in the appearance of those elements, or select particular display options as standard. For example, you could make new Interface elements a different default color to new Class elements, ensure all new Activity Partitions are vertical rather than horizontal, or set a specific group of display options for new Use Case diagrams.

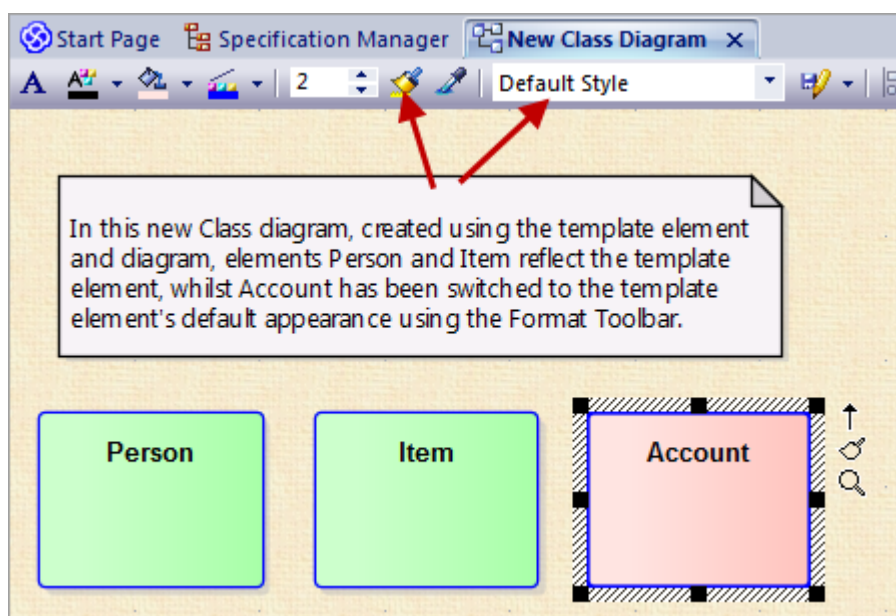
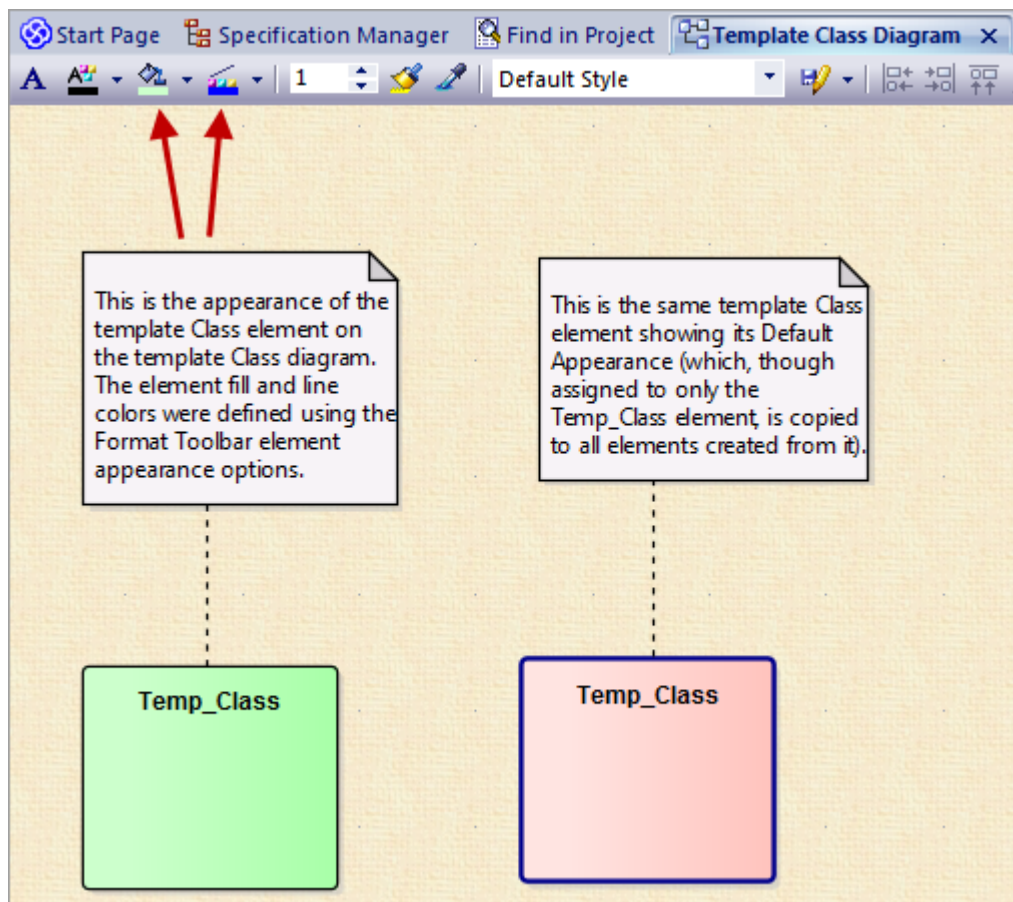
To do this, you create an element or a diagram with all the characteristics you require, and store it in an Element Templates Package; the system then checks this Package:

- Whenever you create a new diagram, or
- Whenever you start to create an element using the Diagram Toolbox

When you are creating a new diagram, the system checks for the diagram type in the Templates Package and, if it finds that diagram type, will copy the display options of the template diagram into the new diagram.

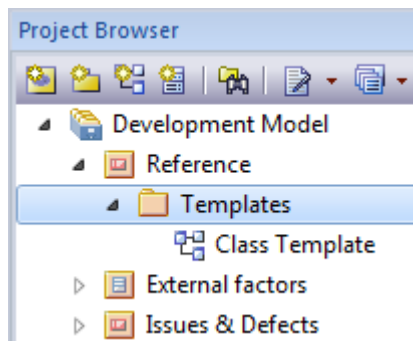
When you are creating a new element, the system checks for that element type in the Templates Package and, if it finds that element type, will copy the template element as defined. The definition includes any default display options of the template element, so you can apply the template definition and switch to the default appearance for the new element, if you prefer.





You can create the Templates Package anywhere in your model; however, it is better to create it in a location that is

not likely to be accidentally changed or lost in any project development work.



## Set up the Element Templates Package

Step	Action
1	Create a new Package. 'Templates' is used as the Package name in the illustration, but you can give the Package any name you prefer.
2	Within the Templates Package create new diagrams, one for each type of diagram to template. Give the diagrams easily recognized names; for example Class Template for the template for Class diagrams.
3	Add elements to the template Package (each element must also appear on one, and only one, diagram), and configure the size, appearance, notes, version and other properties that you want new elements to have. You can use a standard UML element or a

	stereotyped element as the base for your template definition.
4	Select the 'Configure > Reference Data > Settings > Project Template Package' ribbon option to set the templates as the default element templates. The Find Package window displays.
5	Locate and click on the Templates Package, and click on the OK button to set the Package as the default Element Template Package (you can set only one Package as the Templates Package at a time). Now each new element or diagram you add to your project is created with the settings from the appropriate template element or diagram.

## Notes

- In the Corporate, Unified and Ultimate editions of Enterprise Architect, if security is enabled you must have 'Manage Reference Data - Update' permission to set up or access the Element Templates Package
- The fill color for an element derived from the element template can be overridden by the element fill color defined by a Shape Script applied to the element via a stereotype, or you can switch to or change the default

appearance in the 'Default Appearance' dialog


- If you decide not to use any element templates, set the Element Templates Package to '<none>' in the Find Package window; the '<none>' Package is at the bottom of the hierarchy shown in the window
- An alternative way in which you can modify the immediate appearance of elements as you create them in diagrams is to redefine them, either under the same type name or as new element types, in a UML Profile

# Set Element Font

When you display an element on a diagram, the text font defaults to a global setting defined from the 'Diagram Appearance' page of the 'Preferences' dialog. You can change this global default setting if you need to. On the diagram, however, you might want to change the font only on a specific element or group of elements, to distinguish them from other elements. You have several options for doing this.

## Access

Select the element in a diagram, then use one of these options.

Ribbon	Layout > Style >  (Set Font)
Context Menu	Right-click on the element   Appearance   Set Font

## Font Dialog Options

Option	Action
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Font	<p>Scroll through the list of font types and click on the name of the appropriate font, which is then displayed in the field at the top of the list.</p> <p>This setting affects all text in the selected element except for the Note compartment text.</p>
Font Style	<p>In the list of font styles click on the name of the appropriate style, which is then displayed in the field at the top of the list.</p> <p>This setting affects all text in the selected element except for the Note compartment text.</p>
Size	<p>Scroll through the list of font sizes and click on the appropriate size, which is displayed in the field at the top of the list.</p> <p>Alternatively, type the font size directly into the field.</p> <p>This setting affects all text in the selected element.</p>
Strikeout	<p>Select this checkbox to show the element text with a line through it. (This checkbox is not currently available.)</p>
Underline	<p>Select this checkbox to show the element</p>

	text with an underline.
Color	<p>Click on the drop-down arrow and click on a color in the list.</p> <p>(If you access the 'Font' dialog through the 'Default Appearance' dialog, the color you select will be overridden by the color in the 'Font Color' field of the 'Default Appearance' dialog, if different.)</p>
Script	<p>If Western script is not appropriate for the element text, click on the drop down arrow and select a different script type.</p>
Sample	<p>Review the combined effects of the settings you have selected.</p>
OK	<p>Click on this button to save your changes.</p>

## Notes

- If you set the element font through the 'Default Appearance' dialog (F4) the changes can be overridden by any different values set through the other two access paths
- When it has been called directly on one or more selected elements ('Appearance | Set Font'), the 'Font' dialog

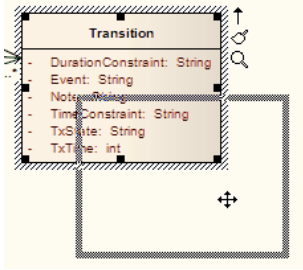

overrides the 'Default Appearance' dialog

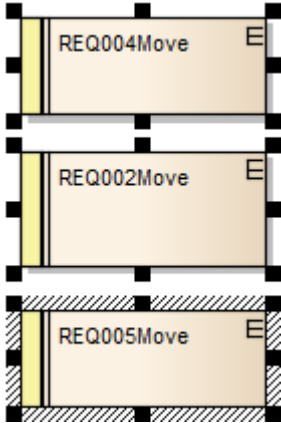

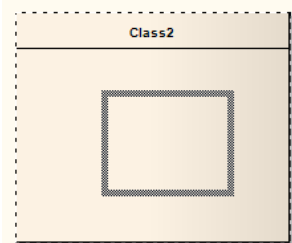


# Move Elements Within Diagrams

As you add new elements to a diagram, you might want to move the existing elements to create more space, make a structure more apparent, or create a nesting relationship between two elements. There are several ways in which you can move the elements within the diagram.

## Move Elements

Image	Action
<p>Change Position</p> 	<p>Select an element or group of elements in the diagram, then:</p> <ul style="list-style-type: none"> <li>• Use the mouse to drag the element or group of elements to the required position (the cursor switches to the four-arrow icon as shown)</li> <li>• Hold down Shift and press the appropriate arrow keys to move the element or group of elements by small increments in the arrow direction</li> </ul> <p>If you are moving a single element and you have selected the 'Layout &gt; Alignment &gt;  &gt; Smart Placement' and 'Show smart placement guide' options, as you move the element colored lines will</p>

	<p>display around the element. These indicate the positions of the edges and edge-centers as they align with an adjacent element or connector.</p>
<p><b>Align Elements</b></p> 	<p>Select a group of elements in the diagram and align them on the last-selected element using:</p> <ul style="list-style-type: none"> <li>• The 'Align...' options in the right-click context menu or</li> <li>• The Alignment buttons on the Diagram toolbar</li> </ul> 
<p><b>Confirm Possible Nest Elements</b></p> 	<p>If you want to nest one element within another, you can drag that element onto the 'nest' element; the nesting element is then always encapsulated by the nest and moved within the nest.</p> <p>Not all element combinations are valid. For example:</p> <ul style="list-style-type: none"> <li>• Drag a Signal element over a Class; because a Class element can nest a Signal, the Signal element is encapsulated</li> <li>• Drag a Class element over a Signal element; because a Signal cannot nest a Class, the Class element is not</li> </ul>

	<p>encapsulated</p> <p>To confirm that the proposed nest element is able to accept the selected nesting element, observe the nest element border as you drag the nesting element over it:</p> <ul style="list-style-type: none"><li>• If the nest element can accept the selected element, the nest element border changes to a dashed line</li><li>• If the border does not change, the selected element cannot be encapsulated within the nest element</li></ul>
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## Notes (on Adding nesting element to nest)

- The 'Support for Composite Objects' checkbox must be selected on the 'Objects' page of the 'Preferences' dialog (select the 'Start > View > Preferences' ribbon option and click on the 'Objects' page); if this option is not selected, the dashed border does not show and the nesting element cannot be embedded on the nest element in the diagram
- Both elements must already exist on the diagram; the nest element border does not change if you drag a potential nesting element over it from the Toolbox or Project Browser
- The nesting element must be dragged right over the nest

element, so that its borders are completely within the nest element borders

- The Z-order of the nesting element is automatically adjusted so that it is not hidden by the nest element
- When you embed a nesting element on its nest element, the nesting element becomes part of the nest element hierarchy in the Project Browser; if you drag the nesting element out of the nest element, the nesting element becomes independent and is no longer embedded in the nest element hierarchy

# Copy Elements Between Diagrams

As you develop a diagram, it is not uncommon to find that some of the elements and structures of elements could also be used on another diagram. You can copy those elements and structures onto another diagram as a new set of elements without losing the element composition or the organization of the structure. In doing this, you can change any of the element names within the structure and preserve the relative nesting of the elements.

## Access

Ribbon	<p>With element(s) selected in source diagram:</p> <ul style="list-style-type: none"><li>• Layout &gt; Diagram &gt; Edit &gt; Copy Selected Elements</li></ul> <p>With input focus on target diagram:</p> <ul style="list-style-type: none"><li>• Layout &gt; Diagram &gt; Edit &gt; Paste as Reference or</li><li>• Layout &gt; Diagram &gt; Edit &gt; Paste as New</li></ul>
Keyboard Shortcuts	<p>With element(s) selected in source diagram:</p> <ul style="list-style-type: none"><li>• Ctrl+C</li></ul>

	<p>With input focus on target diagram:</p> <ul style="list-style-type: none"><li>• Shift+Insert (Paste as Link)</li><li>• Ctrl+Shift+V (Paste as New)</li></ul>
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## Complete the Paste Element(s) as New Dialog

Option	Action
Original Element Name	<p>Each element name defaults to selected, to be inserted in the target diagram.</p> <p>If you want to omit an element from the copied structure, clear the checkbox against it.</p>
New Element Name	<p>If you want to give a copied element a new name, delete the current name and type in the new name.</p>
Include Connectors	<p>This checkbox defaults to selected, to make copies of the original connectors where both source and target elements in the relationship have been copied. This maintains the relationships between and organization of the copied elements.</p>

	If you do not want to copy the connectors, clear the checkbox.
Paste	Click on this button to add the copied elements and connectors to the target diagram as new elements.

## Notes

- Package elements cannot be copied as structured elements
- The Date Created and Time Created parameters of a pasted-as-new element are set to the current date and time; the parameters for a linked element remain the same as the copied element
- Elements - including special embedded elements such as SysML Properties - do not have to have a parent element when pasting as new, although normal embedded elements such as Ports must have a parent
- Elements in State regions cannot be pasted as new outside the parent element
- Parenting is still applied when copying and pasting as new using Ctrl+click-and-drag between (floating) diagrams
- You can also use the Cut, Copy and Paste icons in the Default Tools toolbar





# Move Elements Between Packages

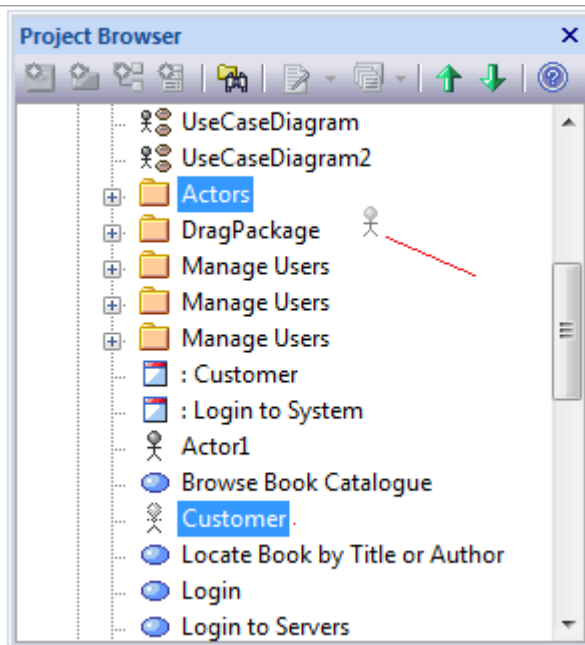
If an element or Package is not in the most appropriate part of the model structure, you can move it to a different location in the Project Browser, either by:

- Dragging and dropping the element to a target destination, or
- Cutting and pasting the element or Package

If you move a Package, all the subordinate Packages and their contents are moved to the new location also.

## Drag an element between Packages

Step	Action
1	Click on the element in the Project Browser. See 'Customer' in the example diagram.
2	Drag the element so that the cursor is over the target Package icon. The element symbol (and, in some operating systems, the element name) displays at the moving cursor position.



- 3 Release the mouse button.  
The element is moved into the target Package.

## Cut and Paste the Element

Step	Action
1	In the Project Browser, right-click on the element to be moved and select the 'Copy / Paste   Cut' option. The selected element is highlighted.
2	Right-click on the Package or element under which to move the cut element, and select the 'Copy / Paste

	Paste' option.
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	The cut element is listed as a child of the selected element or Package, in the Project Browser.
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## Notes

- You can also drag the element under a host element in the new Package; for example, drag an element under a Class
- Moving an element has no effect on any relationships that the element might have
- Moving an element in the Project Browser has no effect on the use of that element in any diagram
- Moving a diagram generally does not affect the location of elements in Packages - if you move a diagram out of one Package into another, all the elements in the diagram remain in the original Package; however, certain elements (such as Decision, Initial and Final elements) are used only within one diagram, have no meaning outside that diagram, and are never re-used in any other diagram, therefore, if you move a diagram containing these elements they are moved to the new parent Package with the diagram
- In a multi-user environment, if one person moves or updates the Project Browser structure, other users must reload their project to see the latest changes in the Project Browser; although this is true of any addition or

modification to the tree, it is most important when big changes are made, such as dragging a Package to a different location

# Copy Elements Between Packages

You can quickly and easily duplicate one or more elements, with their child elements and diagrams, across Packages. You can insert a copy of an element under one or more other Packages, in the same project file or any other project file.

## Operations

Operation	Actions
Copy the Elements	<p>In the Project Browser, select the elements to copy, right-click on one and select:</p> <p>'Copy / Paste   Copy to Clipboard   Full Structure for Duplication'</p> <p>Alternatively, click on a selected element and press Ctrl+Shift+C.</p> <p>The 'Copying Selected Element(s) to Clipboard' dialog briefly displays while the copy operation completes.</p>
Paste the Elements	<p>In the Project Browser, right-click on the Package into which to paste the copied elements, and select the 'Copy / Paste   Paste Element(s) from Clipboard' option.</p> <p>Alternatively, click on the Package and</p>

press Ctrl+V.

The 'Pasting Element(s) from Clipboard' dialog briefly displays while the paste operation completes.

The target Package is expanded and the pasted elements are exposed in the Project Browser. If you are pasting the elements within the same model as the copied source, the source parent Package is also collapsed.

If the target Package already contains:

- An element of the same type with the same name as a pasted element, the pasted element name has the suffix - Copy
- An element with the same type and name as the pasted element including the - Copy suffix, the suffix becomes - Copy1 (or - Copy2, - Copy3 and so on, as copies of the element accumulate in the target Package)

You can keep the same element names as the source, or you can rename each element either by clicking twice on it and editing the name in the Project Browser, or by double-clicking on it and editing the name in the 'Properties' dialog.

## Notes

- A copy of an element does not have the external cross references of the source element; that is:
  - if one element is copied it has no connectors
  - if more than one element is copied, only the connectors between the copied elements are retained
  - however, if those elements come from a Sequence or Communication diagram and the diagram itself is not copied, the message connectors between the copied elements are not retained
- You cannot paste an element into a Package that is locked by another user or that is checked in; the 'Paste...' option is grayed out in the context menu

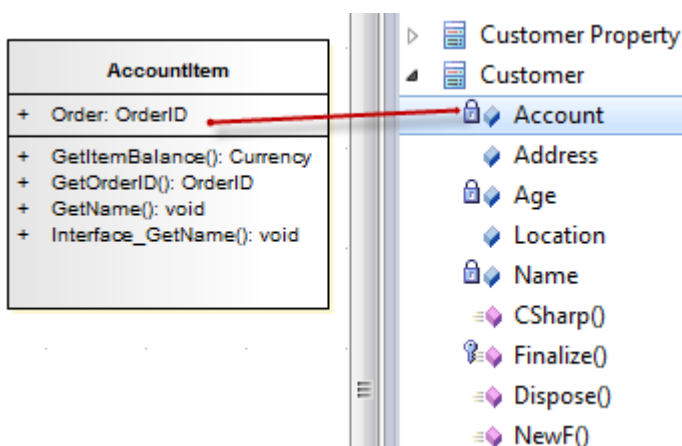
# Copy Features Between Elements

As well as copying elements between Packages using a diagram, you can also copy features - attributes and/or operations - between elements in a similar way, dragging the features from an element in the Project Browser or Element Browser and dropping them onto another element in a diagram.

## Copy a single element feature

Open a diagram containing the target element. In the Project Browser or Element Browser, click on the attribute or operation and drag it onto the element in the diagram.

In this example, the attribute `Account` is being dragged and copied from the `Customer` element in the Project Browser into the `AccountItem` element in a diagram. The process from the Element Browser is, visually, almost identical.



This image shows `AccountItem` after the attribute `Account` has been dropped on to it.



AccountItem
- Account: CustomerAccount + Order: OrderID
+ GetItemBalance(): Currency + GetOrderID(): OrderID + GetName(): void + Interface_GetName(): void

## Notes

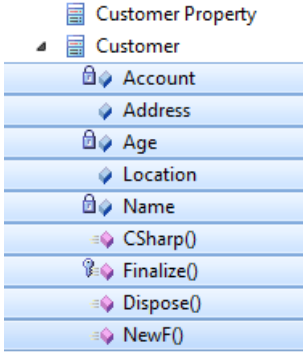
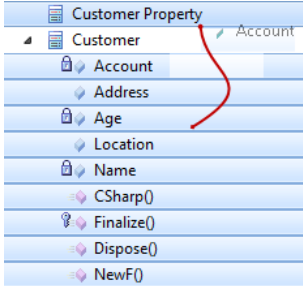
- You can also select and copy multiple features at the same time; you simply press Ctrl or Shift as you select the features in the element in the Project Browser, drag them onto the diagram and drop them into the target element (you cannot copy multiple features from the Element Browser)

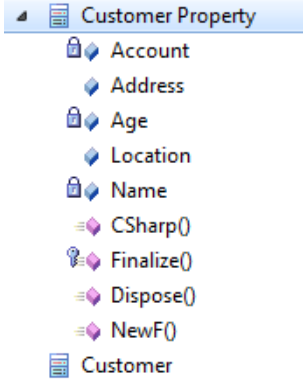
# Move Features Between Elements

As well as moving elements between Packages in the Project Browser, you can also drag and drop features - attributes and operations - between elements to move them out of the source element and into the target element.

## Move element features

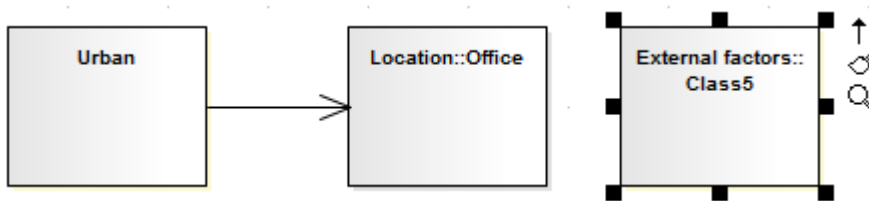
Perform these actions in the order in which they are listed.

Images	Action
	<p>In the Project Browser, click on the attribute or operation to move from the source element.</p> <p>If you are moving several features at once, while you click on the features hold down:</p> <ul style="list-style-type: none"> <li>• Ctrl (several individual features) or</li> <li>• Shift (the first and last features in a range)</li> </ul>
	<p>Holding down the mouse button, drag the attributes and/or operations to the target element.</p> <p>A single feature symbol (and, under some operating systems, the first feature name)</p>

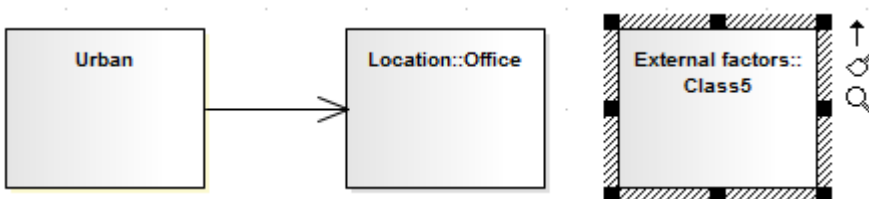
	displays under the cursor during the move; however all of the selected features are moved.
	<p>Release the mouse button.</p> <p>The features that you selected and drag/dropped are now features of the target element, as seen in the Project Browser.</p>

# Highlight Context Element

When you click on an element on a diagram, it becomes the context element; that is, all actions take effect on that element. The context element has black rectangles on its border, firstly to indicate that the element is selected and secondly to act as 'handles' that you can click on and drag to enlarge or shrink the element.



Many actions that you can take on an element involve selecting menu options or working on windows and dialogs that are separate from the element, and on a large or complex diagram you can lose track of the context element. To make every context element more visible, you can configure the system to add a hatched border to the element.



## Access

To add a hatched border to the context element, open the 'Preferences' dialog using one of the methods outlined here, then select the 'Always Highlight Context Element' checkbox on the 'Diagram Behavior' page.

Ribbon	Start > View > Preferences > Diagram > Behavior: Always Highlight Context Element
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## Multiple Selection

If you select multiple elements to work on at the same time, the context element has a hatched border by default, regardless of whether the 'Always Highlight Context Element' checkbox is selected or not. The context element here is the element against which other selected elements are aligned, or through which the changes to properties are made.



## Notes

- If you have selected multiple elements and you want to change which element is in context, simply click once on the element that is to become the context element



# Insert Related Elements

Elements can be used more than once in a model, either individually or as a group. If you want to reproduce an existing set of elements that have one element as the focus, without copying and linking the elements individually in the new diagram, you can use the Insert Related Elements facility. With this facility, you drag the context element from the Project Browser onto your diagram, right-click on it and select to add related elements. The 'Insert Related Elements' dialog displays, on which you can specify:

- Which types of relationship to filter on, and what direction these relationships have
- Which types of element to filter on
- Which Package the related elements exist in
- How many levels of relationship to bring in; that is, just the elements immediately related to the focus element, or also elements related through those elements
- Whether to add all elements that satisfy the criteria you have specified, or just those you select
- Whether or not to automatically re-organize the diagram when the related elements have been added

## Access

First, select an element on the diagram, then:

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Ribbon	Design > Element > Insert > Insert Related Elements
Context Menu	Right-click on element   Insert Related Elements

## Define selection criteria to insert related elements

Field/Button	Action
Connector types	<p>Displays the types of relationship in which the selected element and, if more than one level of relationship is selected, its related elements are currently involved.</p> <p>To limit the inserted elements to those connected by specific relationship types, select the checkbox against each of those types of connector.</p> <p>To deselect a selected checkbox, click on it again.</p>
Element types	Display the types of element to which the selected element and, if more than one



	<p>level of relationship is selected, its related elements are connected.</p> <p>To limit the inserted elements to those of specific types, select the checkbox against each of those types.</p> <p>To deselect a selected checkbox, click on it again.</p>
Link Direction	<p>Limit the inserted elements to those in incoming or outgoing relationships with the selected element; click on the drop-down arrow and select the appropriate direction, or &lt;All&gt; for either direction.</p>
Limit to Namespace	<p>Restrict the inserted elements to those from a specific Package; select the namespace from which the elements are to come. Select &lt;None&gt; for elements in any namespace.</p>
Find relationships to: levels	<p>Click on the drop-down arrow and select the level down to which to insert connected elements, between levels 1 (immediately related elements) and 5 (elements 5th in a chain from the focus element).</p> <p>You can select levels 4 or 5 to see how far the element/relationship hierarchy</p>

	<p>extends, but as this can produce a complicated and tangled diagram, it is better to use level 1 or 2 on selected elements in turn.</p>
Refresh	<p>Click on this button to locate and list all elements that satisfy the criteria you have specified.</p> <p>Each list item shows the depth at which the related element exists in relation to the focus element, the name of the element, its parent Package, and whether it is currently in the diagram.</p> <p>If there are many entries, you can re-organize them for clarity using the 'Drag a column header...' panel.</p> <p>If you want to add an element to your diagram, select the checkbox against that element. Alternatively, to select all elements, click on the All button.</p> <p>To deselect all selected checkboxes, click on the small Clear button.</p> <p>To empty the list panel altogether, click on the large Clear button.</p>
Layout Diagram when complete	<p>Select the checkbox if you want the system to layout the diagram after the elements have been inserted; the layout applied is the Digraph layout.</p>

	If no elements have been added, this option has no effect; elements have to be added for the system to adjust the layout.
OK	Click on this button to add the selected elements to the diagram and close the dialog.



## Notes

- If the selected element has a relationship to an edge-mounted structural element such as a Port or Exposed Interface, adding the Port or Interface to the diagram using the 'Insert Related Elements' dialog will also add the associated parent elements onto the diagram, if they are not already shown

# Change Element Type

You might find that an object that you have represented as one type of element would be better represented as another type. The 'Select Element Type' dialog allows you to change the type very quickly and simply.

## Access

Ribbon	<p>Design &gt; Element &gt; Edit &gt; Change Type</p> <p>Show &gt; Portals &gt; Window &gt; Properties &gt; Properties : In the Type field of the Properties window, click on the  button</p> <p>Start &gt; Explore &gt; Properties &gt; Properties : In the Type field of the Properties window, click on the  button</p>
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## Change Type

On the 'Select Element Type' dialog, click on the 'Element Type' drop-down arrow and select the new element type from the list.

Click on the OK button.

The target element is transformed into the required type.

## Notes

- This operation is effective on basic UML elements, but has limited use for profile-stereotyped elements such as those used in BPMN or ArchiMate modeling

# Make Linked Element a Local Copy

When you use an element on more than one diagram, you drag the element from the Project Browser and drop it onto the diagram either as a link to the original element or as a separate instance or copy of the original element.

Subsequently, you might decide to change a link to the element into a new object, as a local copy of the element in the same Package as the diagram. You can do this very quickly and simply by selecting a menu option.

## Access

Context Menu	On diagram, right-click element   Advanced   Convert Linked Element to Local Copy
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# Set an Element's Default Appearance

All elements that you use have global default appearance settings for:

- The fill, border and font colors
- Font styles, including font face and size
- The border thickness

You define these settings on the 'Preferences' dialog.

However, you can change the default appearance for a specific element on all diagrams on which it is found, using the 'Default Appearance' dialog.


## Access

Context Menu	Right-click on element   Appearance   Default Appearance
Keyboard Shortcuts	F4 or Ctrl+Shift+E

## Options

Option	Action
<b>Background Color</b>	<p>Click on the drop-down arrow and select the fill - or background - color of the element.</p> <p>This setting overrides all other fill color definitions in the model, except for:</p> <ul style="list-style-type: none"><li>• A color defined in a Shape Script and applied through a stereotype</li></ul> <p>If you want to use a color that is not available, click on the More Colors button and define the required color.</p>
<b>Border Color</b>	<p>Click on the drop-down arrow and select the border color for the element.</p> <p>If you want to use a color that is not available, click on the More Colors button and define the required color.</p>
<b>Border Width</b>	<p>Type in the width of the border surrounding the element, or use the increment/decrement arrows to the right of the field.</p> <p>The minimum width setting is 1, the maximum is 5.</p> <p>If you set this value to the current model default value, any updates to the default value are immediately applied to this</p>



	<p>local 'Border Width' field, until you specifically reset the local field to a non-default value. (The current model default border width is set in the 'Default Element Border Width' field; select the 'Start &gt; View &gt; Preferences' ribbon option and the 'Diagram &gt; Appearance' page.)</p>
Font Style	<p>Displays the current font typeface for the element text. To change this, click on the  button.</p> <p>The 'Font' dialog displays, on which you can select a different typeface, style (such as bold/italic) and font size.</p> <p>You can also select to use or cancel underlines, and (if necessary) select a different script classification.</p>
Font Color	<p>Click on the drop-down arrow and select the font color to apply to the text of the element.</p> <p>If you want to use a color that is not available, click on the More Colors button and define the required color.</p>
Reset to defaults	<p>(Optional) Click on this button to reset all appearance settings to the system default values.</p>

Preview	Displays a representation of the colors, border width and font styles, which updates as you choose the new settings.
OK	Click on this button to close the dialog and apply the appearance settings you have defined.
Cancel	Click on this button to close the dialog and abort all the changes you have made within the dialog.

## Notes

- You can adjust several elements at the same time; select all of the required elements, right-click on one of them and select the 'Appearance | Default Appearance' option, or use the 'Layout > Style' ribbon panel
- You can also define a default image for the element, that displays for all instances of the element in diagrams across the model
- If the 'Show Project Custom Colors in Color Combo Boxes' checkbox is selected on the 'Preferences' dialog, 'Standard Colors' page, the last 16 color squares in the color selection palettes contain the project colors set on

that dialog

- The 'Font Color' field affects only the element name text; it does not override the feature text colors as defined on the 'Preferences' dialog, 'Standard Colors' page
- When it has been called directly on one or more selected elements ('Appearance | Set Font'), the 'Font' dialog overrides the 'Default Appearance' dialog
- When called from the 'Default Appearance' dialog, the 'Color' field on the 'Font' dialog is not available; font color is set in the 'Font Color' field on the 'Default Appearance' dialog
- The 'Font' and 'Font Style' fields on the 'Font' dialog affect all text except for the Note compartment text
- The 'Size' field on the 'Font' dialog affects all text
- An alternative option for changing an element's appearance is to define a stereotype that has different fill, border and font settings, or either a Shape Script or an image file associated with it; you can then assign the stereotype to the element to change the element's appearance to that defined by the stereotype

# Feature Visibility

When you set up the characteristics and features of an element, you can set a collection of options to display or hide the features of that element on a specific diagram. You can also filter the attributes and operations that are shown by scope - such as hiding all protected attributes - or select to hide or show specific attributes and operations. The visibility you set applies only to the current diagram, so a Class can appear in one diagram with all features displayed, and in another with features hidden.

It is possible to hide or show inherited attributes, operations, responsibilities, constraints and Tagged Values for elements that support those features. When the system displays inherited features, it creates a merged list from all generalized parents and from all realized interfaces. If a child Class redefines something found in a parent, the parent feature is omitted from the list.

## Access

Context Menu	Right-click element on diagram   Compartment Visibility
Keyboard Shortcuts	Ctrl+Shift+Y

## Customize Feature Visibility

Field/Button	Action
Attribute Visibility	Select the checkbox against each scope that should be visible, and clear the checkbox against each scope that should not be visible.
Operation Visibility	Select the checkbox against each scope that should be visible, and clear the checkbox against each scope that should not be visible.
Custom	<p>Click on this button to show or hide specific operations or attributes. The 'Show Features in Diagram' dialog displays, on which you select the features to show.</p> <p>On the right of the dialog is a 'Show' field with a drop-down arrow; if you click on this and select the 'Hide' option, the dialog alters slightly to become the 'Suppress Features in Diagram' dialog, on which you select the features to hide.</p>

	<p>The two dialogs are identical. Select the checkboxes of specific features to show or hide on the element in the diagram. You can specify both attributes and operations on the same dialog, by selecting the appropriate radio button for the type of feature to work on.</p> <p>You can also use the:</p> <ul style="list-style-type: none"><li>• 'Filter by' drop-down arrow to filter the list to show only features that have a specific scope</li><li>• All button to select all operations or attributes in the list</li><li>• None button to clear the checkboxes against all selected operations or attributes in the list</li></ul>
When Resizing Elements	<p>Select the appropriate option for resizing the Class, Object or Table to manage very wide diagram objects. Select the:</p> <ul style="list-style-type: none"><li>• 'Resize to longest Feature' radio button (the default), so that the minimum width for a diagram object is determined by its longest displayed attribute, operation or other compartment value</li><li>• 'Wrap Features' radio button (so that any long features are wrapped onto</li></ul>

	<p>multiple lines) or</p> <ul style="list-style-type: none"><li>• 'Truncate Features' radio button (so that long features are not displayed in full)</li></ul>
Runstate	Select the checkbox if you want to hide the object runstate of the element on the diagram.
Hide Stereotyped Features	<p>If you do not want to show attributes or operations that have a particular stereotype, type that stereotype name - exactly as defined - in this field; the field is case-sensitive.</p> <p>If you want to specify more than one stereotype, separate the stereotype names with a comma.</p>
Show Element Compartments	<p>Select the checkbox against each compartment to display in the element on the diagram. If you want to display inherited attributes, operations, tags, requirements and/or constraints as well as directly owned ones, select the checkbox against each inherited feature as well as against the general feature.</p> <p>If you select to display the Resources compartment, note that this shows both currently-active and complete resource allocations.</p>

Some technologies such as SysML define additional compartments in the element, such as for Ports, Parts and Flow Ports. Visibility of these compartments will also be controlled by a checkbox matching the name of the compartment.

If you select the 'Fully Qualified Tags' checkbox, the Tags compartment will contain the full provenance of each Tagged Value (if created in Enterprise Architect release 7.1 or later) where the same Tagged Value is used several times in different contexts with different values. The description in the Tags compartment reads:

`<Profile>::<Stereotype>::<Tagged Value name>=<Value>`

For example:

BPMN::Activity::Activity Type = Task

A Structure Compartment displays on the element by default when you add child elements such as Parts and Classes. The Structure Compartment acts as a container for the child elements, which are normally fixed within the compartment; to move child elements out of the compartment, press the Ctrl or Shift key while dragging the child element. Parts/Properties cannot be



	<p>dragged out of the parent element. Any element that supports Rectangular Notation can support a Structure Compartment.</p> <p>Ports and other edge-mounted elements normally bind to any part of the parent element border, but can be confined to the borders of the Structure Compartment; by right-click on the parent element and select the 'Behavior &gt; Bind Port to Compartment' option.</p> <p>If you want to apply a structure and formal relationships to the child elements, create a proper Composite Structure diagram containing the elements and select the 'Show Composite Diagram in Compartment' context menu option.</p>
Element Notes	<p>Select the 'Notes' checkbox in the 'Show Element Compartments' list to display, in a Notes compartment on the element in the diagram, the text that has been typed into the 'Notes' field of the element 'Properties' dialog.</p> <p>This checkbox also enables the 'Maximum' field, which defaults to 1000 as the number of characters of Notes text that can be displayed. Overtyping this value to display less text or more text, as you</p>

	<p>need.</p> <p>The setting applies only to the selected elements on the diagram, so you can display full notes for the selected element whilst the other elements on the diagram have no notes text.</p>
OK	<p>Click on this button to save your settings.</p> <p>The diagram redisplay with the appropriate level of feature visibility.</p>

## Notes

- To show features for element types that do not have visible compartments, such as Use Cases and Actors, right-click on the diagram object to display the context menu and select the 'Advanced | Use Rectangle Notation' option

# Align Elements

When you have created a number of elements on a diagram, you might want to organize them in groups so that they form a column or row with a uniform edge. You can do this quickly and easily by selecting the group of elements and aligning them all against the left, right, top or bottom edge or center of one element in the group. You can also space three or more elements evenly in a row or column, at an average of their previous separations.

The selected elements are aligned with respect to the 'context' element, which is the element that has a hatched border drawn around it. You can set a given element as the 'context' element by right-clicking on the element, or by deselecting then re-selecting, using 'Ctrl+click'.

## Access

Ribbon	Select a set of elements, then <ul style="list-style-type: none"><li>• Layout &gt; Alignment &gt; &lt;alignment button&gt;</li></ul>
Context Menu	Select a set of elements, then right-click on a selected element and choose: <ul style="list-style-type: none"><li>• Align Left</li><li>• Align Right</li></ul>

	<ul style="list-style-type: none"> <li>• Align Top</li> <li>• Align Bottom</li> <li>• Align Centers  Vertically or Horizontally</li> <li>• Space Evenly   Across or Down</li> </ul>
Keyboard Shortcuts	<p>Select a set of elements (ensuring that the 'context' element is correctly set), then</p> <ul style="list-style-type: none"> <li>• Ctrl+Alt+Left Arrow (align left)</li> <li>• Ctrl+Alt+Right Arrow (align right)</li> <li>• Ctrl+Alt+Up Arrow (align top)</li> <li>• Ctrl+Alt+Down Arrow (align bottom)</li> <li>• Alt+'-' (space evenly across)</li> <li>• Alt+'=' (space evenly down)</li> </ul>

## Align multiple elements

Step	Action
1	Select a group of elements by dragging a selection box around them all with the cursor (or select them one by one by holding down Ctrl and clicking on each element).

2	Right-click on the element in the group to align others to. The context menu displays.
3	Select the alignment function you require. All selected elements are aligned with the one beneath the cursor.

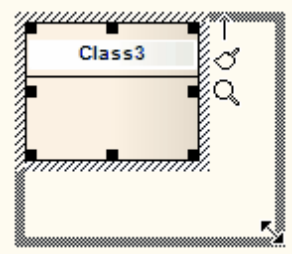
## Notes

- You can also use the first four buttons of the Diagram toolbar to align elements; these are made available when more than one element is selected in a diagram
- If you have a single element that you want to move into alignment with another, an alternative method is to use the 'smart placement guides' which indicate where the navigation points (edges and center points of edges) on the element are in relation to the adjacent element

# Resize Elements

You can change the size of an element, or of several elements in a group, using the cursor or various menu options.

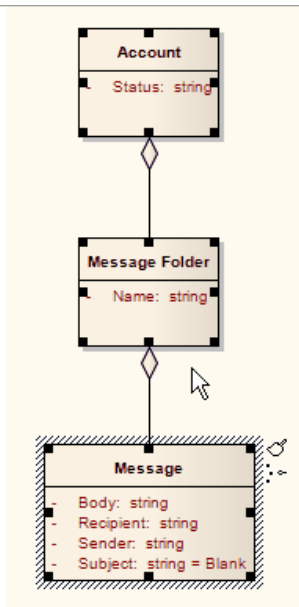
## Resize using handles

Image	Detail
	<p>Select an element or group of elements in the diagram view, then:</p> <ul style="list-style-type: none"><li>• (Single element) With the mouse, drag the resize handles that appear at each corner and side, to resize the element (the cursor switches to the double-ended arrow as shown in the image)</li></ul> <p>If you have enabled the 'Layout &gt; Alignment &gt; &lt;grid options&gt; Smart Placement' and 'Show smart placement guides' options, as you move the resize handles the guide lines display to show where the resizing top, bottom, sides or edge center points are in relation to an adjacent element</p> <ul style="list-style-type: none"><li>• Press and hold Ctrl and use the Arrow</li></ul>

	<p>keys to resize elements by increments; to make elements:</p> <ul style="list-style-type: none"><li>- Wider - press Ctrl+Right Arrow</li><li>- Narrower - press Ctrl+Left Arrow</li><li>- Taller - press Ctrl+Down Arrow</li><li>- Shorter - press Ctrl+Up Arrow</li></ul> <ul style="list-style-type: none"><li>• Autosize selected element(s) to their default size using 'Layout &gt; Diagram &gt; Edit &gt; Autosize Selected Elements', or by pressing Alt+Z</li></ul> <p>If you select multiple elements, 'Autosize' is also available in the right-click context menu for the elements.</p>
--	--

## Resize a Set of Objects to a specific size

Image	Detail
	<p>If you right-click a selected set of objects, you can resize them to the same dimensions (height, width or both) using context menu options.</p> <p>When you select multiple elements using Ctrl+click, you can right-click and select options that use the dimensions of the last-selected (hatched) object to set the</p>



dimensions of the other selected objects.

For example, in this diagram, the Message Class height and width are used to set the height and width of the Account and Message Folder Classes.

The steps are:

1. Set one element to the required size (for example, Message).
2. Select that element and the elements to resize (for example, Account and Message Folder).
3. Right-click on the pre-sized element (Message).
4. Select the appropriate resizing option ('Same Height', 'Same Width', or 'Same Height and Width').



## Create Notes and Text

One aspect of modeling is to describe and document the purpose and use of an element in the context of a particular diagram. You can provide such documentation in the form of Note or Text elements displayed with and connected to the elements they describe.

Both Note and Text elements display text on the diagram; a Note element contains the text within a border with a background color and a turned-down corner image, whilst a Text element has no border or background color. Otherwise they behave in the same way.

### Access

Context Menu	Right-click on element   New Child Element   Attach Note
Other	<ul style="list-style-type: none"><li>• Diagram Toolbox : from the Common page, drag the Note or Text icon onto diagram - drag the Quick Linker arrow from the new Note element to connect to the element being annotated</li><li>• UML Elements Toolbar &gt; Click on the 'New Note' icon, then click on the diagram - drag the Quick Linker arrow</li></ul>

	<p>from the new Note element to connect to the element being annotated</p> <ul style="list-style-type: none"><li>• Drag the Quick Linker arrow from an element into an empty space on the diagram &gt; Common &gt; Note</li></ul>
--	---

## Complete a Note or Text element

The element displays on the diagram.

If, on the 'Objects' page of the 'Preferences' dialog, the 'Edit Object On New' checkbox is deselected, the Notes window displays, and you can type the element text within it. To display the text in the element, click on the element.

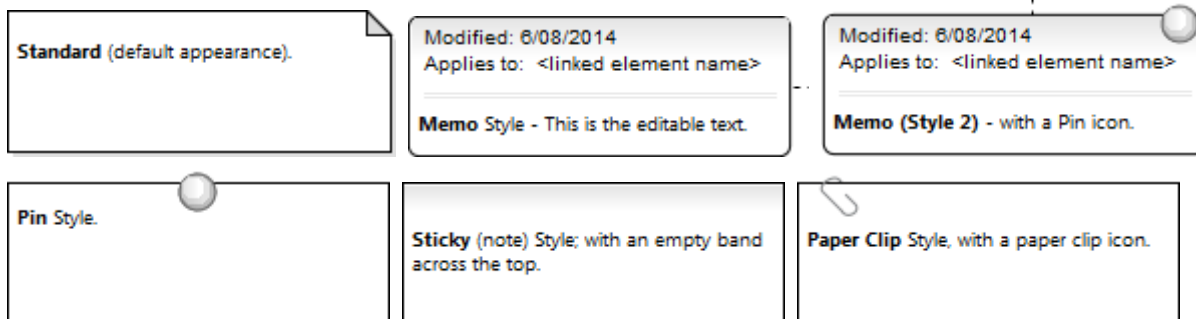
If the checkbox is selected, the 'Notes Properties' dialog immediately displays; type your text in the dialog, and click on the OK button to display the text in the element.

In either case, if you want to display the text in a more readable layout, you can resize the Notes window or dialog, and you can also format the text using the Notes toolbar.

## Note element appearance

It is possible to change the appearance of a Note element, by right-clicking on the element and selecting one of the

'Appearance' menu sub-options. The available images are:



The two Memo-style images list all the elements that the Note is linked to, in the 'Applies to:' field. You can hide the actual Notelink connectors, so that the Note identifies the elements it refers to without complicating the diagram appearance by having the connectors visible. To hide (and reveal) the connectors, click on the element and select the 'Advanced | Hide (Show) attached links' Option.

## Notes

- You can also create a Note or Text element by clicking on the New Note or New Text Element icon on the UML Elements toolbar and clicking on the diagram
- When you have created your Note or Text element, you can leave it free-standing to display information on the diagram, or you can connect it to the specific modeling element or elements it describes using a Notelink connector, which you also drag from the Common toolbox
- Instead of typing in text for the element, you can reflect an element's internal documentation, such as the value of

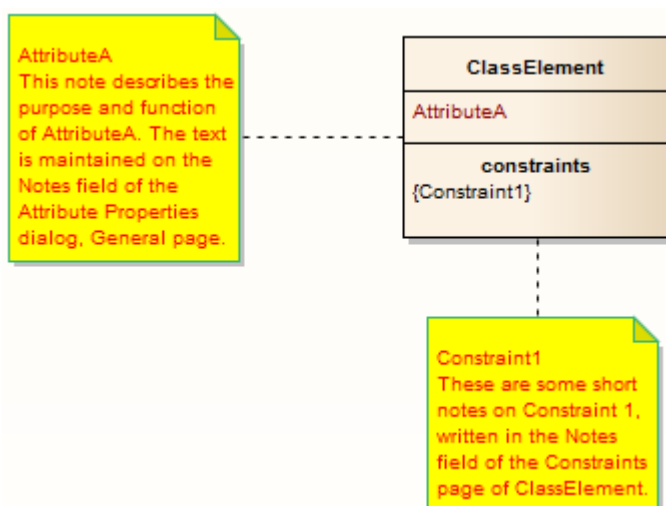
a constraint or feature

## Link Note to Internal Documentation

Whilst a Note often contains information in addition to that contained within other elements, you can also expose the internal description of a feature or property of an element. In this way you can externalize model documentation at the diagram level, and as the system keeps the Note and the internal text in synch, you do not have to update the Note; in fact, you are blocked from editing the Note text, because it is maintained automatically.

Similarly, it is also possible to expose the Notes text of the diagram properties in a Note element.

In this example, two Notes are connected to an element's internal structures. One Note is connected to an attribute and displays the attribute name and notes. The other is connected to a constraint, showing the constraint name and documentation.



## Connect a Note element to another

## element's feature

Step	Action
1	Click on the target element and then click on the feature itself, so that it is highlighted for inline editing.
2	Right-click on the feature and select the menu option 'Create Linked Note'. This creates a Note element linked to the selected feature, reflecting the content of that feature.

## Alternatively

Step	Action
1	Insert or identify the target element in a diagram.
2	Drag the 'Note' icon from the 'Common' page of the Diagram Toolbox onto the diagram, next to the target element. The 'Notes' dialog displays. Do not type any text,

	simply click on the OK button.
3	Click on the 'Note Link' icon from the 'Common' page of the Toolbox, and drag the cursor from the Note to the target element to create the connector.
4	Right-click on the Note Link to display the context menu, and select 'Link this Note to an Element Feature'. The 'Link note to element feature' dialog displays.
5	In the 'Feature Type' field, click on the drop-down arrow and select the type of feature to link to. The 'Feature' list now shows the features of the selected type in the element.
6	In the Feature list, click on the specific feature to link to, and click on the OK button. The Note now automatically shows the contents of the feature's Notes or Description field, and is automatically updated with any changes to this field.

## Connect a Note element to the diagram

### Notes text

Step	Action
1	Open the diagram and right-click on the background.
2	Select the 'Properties' menu option, type an appropriate description in the 'Notes' field, then click on the OK button.
3	Drag the 'Note' icon onto the diagram, from the 'Common' page of the Toolbox. The 'Notes' dialog displays. Simply click on the OK button.
4	Right-click on the Note element and select 'Advanced   Link to Diagram Note'. The Note now automatically shows the contents of the diagram's 'Notes' field, and is automatically updated with any changes to this field.

## Notes

- You can unlink a Note linked to an element feature, leaving the Note text, which can be edited manually and directly as normal; to unlink the Note from an element feature, either:



- Right-click on the Note and select the 'Advanced | Unlink from Element Feature' option, or
- Right-click on the Notelink connector, select the 'Link this Note to an Element Feature' option and,
  - on the 'Link note to element feature' dialog, set the 'Feature Type' field to 'None'

# Delete Elements from Diagram and Model

An element might become inappropriate in a certain context, so you would want to remove it from the diagram in which that context is represented. It is also possible that the element becomes unnecessary in the model as a whole, so you would want to delete it altogether. You therefore have a number of situations under which you would 'delete' an element:

- Just from a particular diagram
- As a member of a group of elements to be removed from a diagram
- From a diagram and from the model at the same time
- Directly from the model, through the Project Browser

## Delete an element just from a diagram

Step	Action
1	In the diagram, click on the element to delete.
2	Either: <ul style="list-style-type: none"><li>• Press the Delete key or Ctrl+D, or</li></ul>

- Right-click and select 'Delete <element name>'
- The element is immediately deleted from the diagram, but not from the model. There is no prompt to confirm the deletion.

## Delete a group of elements from a diagram

Step	Action
1	In the diagram, press Ctrl while you click on each element to delete.
2	<p>Either:</p> <ul style="list-style-type: none"><li>• Press the Delete key or Ctrl+D, or</li><li>• Right-click and select 'Delete selected elements'</li></ul> <p>The elements are immediately deleted from the diagram, but not from the model. There is no prompt to confirm the deletion.</p>

## Delete an element from the model

Step	Action
1	<p>Either:</p> <ul style="list-style-type: none"><li>• In the Project Browser, right-click on the element to delete and select 'Delete &lt;element name&gt;', or</li><li>• In the diagram or Project Browser, click on the element to delete and press Ctrl+Delete</li></ul> <p>A confirmation prompt displays, also offering an option to show the Traceability window so that you can check the impact of deleting the element.</p>
2	<p>Click on the Yes button.</p> <p>The element is completely removed from all diagrams in which it has been used, and from the model. If you delete an element in this way, you delete all its properties, child objects and connectors as well.</p>

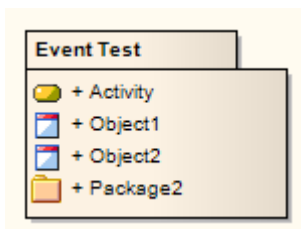
## Delete multiple elements from the model

Step	Action
1	On the diagram or in the Project Browser, press Ctrl

	as you click on the elements to remove from the model, to select them.
2	<p>Press Ctrl+Delete to completely remove the elements from the model.</p> <p>Alternatively, in the Project Browser, right-click on one of the selected items and select the 'Delete selected item(s)' option.</p> <p>In either case, a confirmation prompt displays.</p>
3	<p>In the diagram, the prompt is to confirm deletion of all elements from the model and all diagrams, at once. Click on the Yes button.</p> <p>In the Project Browser, the prompt offers options to confirm and delete:</p> <ul style="list-style-type: none"><li>• Each element individually (click on the Yes button), or</li><li>• All the elements together (click on the Yes to all button)</li></ul> <p>The elements are completely removed from all diagrams in which they have been used, and from the model. If you delete elements in this way, you delete all their properties, child objects and connectors as well.</p>

# Customize Visibility of Elements

Some modeling objects are, by default, not listed in Packages shown on diagrams, or in report documents. These include Events, Decisions, Sequence elements, Activity Endpoints and Association Classes. For example, in this Event Test Package, the Events and Decisions contained in the Package are not shown on the Package diagram.




You have the option of turning on display of the hidden elements.

## Access

Ribbon	Start > View > Preferences > Objects: Advanced
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## Display Hidden Elements

Ste	Action
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p	
1	On the 'Advanced Settings' dialog, select the checkbox against each type of element to show in Package diagrams and in report documents.
2	Click on the Close button on each dialog in turn.
3	<p>Reload the current diagram if required.</p> <p>The Package from the earlier example now shows the Event and Decision elements it contains.</p> 

# Set Up Cross References

It is possible to set up a cross reference (or Custom Reference) from one or more elements in a diagram to another element selected in the Project Browser. You can also review the existing cross references on an element, using the 'Context References' dialog or the Traceability window.

## Set up a cross reference

Step	Action
1	Open the diagram that contains the elements that will reference the target element.
2	<p>In the Project Browser, right-click on the target element (the object of the cross reference) and select:</p> <ul style="list-style-type: none"><li>• 'Add   Add Custom Reference' (for a target element)</li></ul> <p>The 'Set up references' dialog displays.</p>
3	Click on the checkbox against each element that is to refer to the target element.
4	Optionally, in the 'Comment' field, type the purpose



	of the references.
5	Click on the OK button to set the references and close the dialog.

## Use the cross reference

Step	Action
1	Click on the required element in the opened diagram.
2	<p>Either:</p> <ul style="list-style-type: none"><li>• Right-click on the element and select 'Find   Custom References' or</li><li>• Press Ctrl+J</li></ul> <p>The 'Custom References' dialog displays, showing a list of elements that have been set as cross references for the selected element.</p>
3	<p>Optionally, open the 'Properties' dialog for a referenced element by clicking on it and clicking on the Open button.</p> <p>Similarly, open a referenced diagram by clicking on</p>

	it and clicking on the Open button.
4	If you have opened a string of diagram links, click on the Home button to return to the original diagram.

## Notes

- You can create cross references from an element on the diagram to a number of elements in the Project Browser, and from another element on the diagram to different elements in the Project Browser
- You cannot create a commented cross reference from one element on the diagram to an element in the Project Browser, and a separate commented cross reference from a different element on the diagram to the same element in the Project Browser
- You can delete a cross reference by selecting it on the 'Custom References' dialog and clicking on the Delete button; cross references are also automatically deleted if the source or target element in the reference is deleted
- You can also add, review and delete cross references on the 'Cross References' tab of the 'Scenarios' page in an element's 'Properties' dialog

## Show Element Use

An object can be used several times in a model; for example, an image might be used for different elements on different diagrams, or an element might be represented on several diagrams depicting different concepts. You can quickly locate where the object is used in the model, by selecting a 'Find' menu option that displays the 'Element Usage' dialog. This lists the occurrences of the object and, when you select one, the diagram containing that occurrence opens with the object selected.

You can locate occurrences of:

- A Package
- An element
- An image

You can also list the:


- Extension Points of the target Use Case in an <<extend>> relationship
- Triggers associated with a Transition
- Items conveyed on an Information Flow connector
- Objects derived from an Operation

If the object:

- Occurs once only (such as in one diagram only), the object is immediately highlighted in the diagram or Project Browser
- Is not used in any diagram, the 'Element Usage' dialog

displays with no entries; click on the Close button to close the dialog

- Is used in more than one diagram, the 'Element Usage' dialog lists those diagrams; either:
  - Double-click on a diagram name to open that diagram (the 'Element Usage' dialog remains open), or
  - Click on the diagram name and click on the Open button to open that diagram (the 'Element Usage' dialog closes)

The 'Element Usage' dialog defaults to showing, in order, the 'Usage Type' of the object, 'Diagram Type' and 'Diagram' columns. If you float the cursor over the right edge of the 'Diagram' column header, so that it changes to , you can drag the column border right to expose the hidden columns 'Diagram ID', 'Object ID' and 'Kind' (do this in separate passes for each hidden column).

To make the display of information easier to read, you can resize the 'Element Usage' dialog and drag the borders of the column headers to the appropriate width for the listed items. You can also click on a column header and re-sort the items in the forward or reverse alphanumeric order of the selected column content.

## Locate Objects

This table provides the instructions for locating occurrences - uses - of different types of object.

Object Type	Action
-------------	--------

Element	<p>In the Project Browser, right-click on the element and select the 'Properties   Find in all Diagrams' option.</p> <p>On a diagram, right-click on the element and select the 'Find   Find in all Diagrams' option.</p> <p>Alternatively, click on the element and press Ctrl+U.</p>
Package	<p>In the Project Browser, right-click on the Package and select the 'Properties   Find in all Diagrams' option.</p> <p>On a diagram, right-click on the Package and select the 'Find   Find in all Diagrams' option.</p> <p>Alternatively, click on the Package and press Ctrl+U.</p>
Image	<p>On a diagram, right-click on the element to which you want to assign an image and select either the 'Appearance   Select Default Image' option or the 'Appearance   Select Alternate Image' option. In either case, the Image Manager screen displays. Click on the required image name and on the Usage button. The 'Element Usage' dialog displays showing, in this case:</p> <ul style="list-style-type: none"><li>• The names of the elements to which the</li></ul>

	<p>image has already been applied</p> <ul style="list-style-type: none"><li>• The name of the diagram on which each instance of the image has been used</li><li>• The Image Manager image ID for the image (a hidden column)</li><li>• The Diagram ID (DID) for each diagram (a hidden column)</li><li>• The Object ID for each element on which the image has been used (a hidden column)</li></ul> <p>Click on an element name and on the Open button to display the diagram on which the image has been used, with that instance of the image highlighted.</p>
Use Case Extension Point	<p>On a diagram, right-click on the &lt;&lt;extend&gt;&gt; connector and select the 'Advanced   Extension Point   Set Extension Point' option.</p> <p>The 'Element Usage' dialog displays, listing the Extension Points currently assigned to the target Use Case element.</p> <p>Click on the required Extension Point and on the Open button; the dialog closes, and the &lt;&lt;extend&gt;&gt; connector shows a small circle attached to a Note element that identifies which extension point it</p>

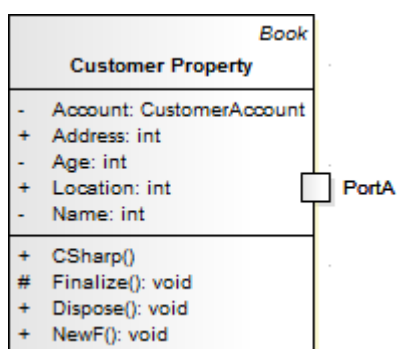
	<p>represents.</p> <p>If the target Use Case has no extension points, you are prompted to create them.</p>
Objects derived from an operation	<p>In the Project Browser, right-click on the operation and select the 'Properties   Find in all Diagrams' option.</p> <p>The 'Element Usage' dialog displays, listing the Action elements and/or Sequence Message types derived from the operation in the model. For a Sequence Message, in the 'Kind' column, you can see the value of the 'Kind' property of the message.</p> <p>Double-click on an object to open its parent diagram and show the location of the object in the diagram.</p>
Triggers Associated with a Transition	<p>On a StateMachine diagram, right-click on the Transition connector between two States and select the 'Find Triggers Associated' option. The 'Element Usage' dialog displays, listing the Triggers assigned to the Transition. The 'hidden' column in this instance is 'GUID', showing the GUID of each Trigger element. If you double-click on a Trigger name, the system locates and highlights the Trigger element in the Project</p>

	Browser.
(Information) Items Conveyed	<p>You can also use the 'Element Usage' dialog to identify and select items conveyed and/or realized on an Information Flow connector. On the diagram, right-click on the connector and select the 'Find Items Conveyed' menu option. The 'Element Usage' dialog displays, listing the items conveyed on the connector. The 'hidden' column in this instance is 'GUID', showing the GUID of each conveyed element. If you double-click on an element name, the system locates and highlights the element in the Project Browser.</p>



# Manage Structural Elements

In UML Modeling, you can define certain constructs and events with structural elements (also called Parts, Properties, interaction points or - in the case of Entry and Exit Points on a State element, connection points) that are added on to a parent element. For example, you can add Ports to a Class (as shown), Action Pins to an Action, or Activity Parameters to an Activity. Structural elements become a component of the parent element; certain structural elements (such as Parts and Properties) can exist independent of a parent, but do not have an independent role.



You manage structural elements through the Features window, managing Parts and Properties on the 'Parts / Properties' tab and Ports on the 'Interaction Points' tab. If the parent element is a State, its connection points are shown on the 'Connection Points' tab. All three tabs have the same fields and options, described here.

## Access

When you access the Features window, you select the 'Interaction Points' option, which opens the window at the 'Interaction Points' tab. If necessary, select an alternative tab ('Connection Points' or 'Parts / Properties') for the type of structural element you want to examine or create.

Ribbon	Design > Element > Features > Interaction Points
Context Menu	Right-click on element in diagram   Features   Interaction Points

## Review Structural Elements

Option	Action
Defined Elements	<p>Review the definition of each structural element currently associated with the selected parent element. If you select the 'Show Owned/Inherited' checkbox, the list will also include any structural elements from any classifiers that the parent element has.</p> <p>If you want any structural element to be visible on the parent element on the diagram, select the checkbox next to that</p>

	<p>element's name. Notice that the 'Visible' column in this panel then shows the value True against each selected element.</p> <p>To hide the structural element on the diagram, clear the checkbox. The structural element still exists on the parent element, but is just not visible in the diagram.</p>
All None	Click on these buttons to select (All) or clear (None) the checkboxes against all listed elements.
Show Owned/Inherited	The tab lists the structural elements on the selected parent element. If you want to include inherited or owner properties from any classifier that the parent element might have, select this checkbox.

## Context menu operations

Right-click on the 'Defined Elements' panel to display a short context menu for managing the structural elements.

Option	Description
Add New	Click on this option to create a new

	<p>structural element. The 'Insert New Embedded Element' dialog displays.</p> <p>The 'Type' field defaults to the first in the list of types of structural element you can create for the selected element. If this is not the type you need, click on the drop-down arrow and select another type.</p> <p>Type a name in the 'Name' field or, if you have set up auto-naming conventions, click on the Auto button to generate the name.</p> <p>If appropriate, in the 'Stereotype' field type the name of a stereotype to apply, or click on the drop-down arrow and select the stereotype.</p> <p>Click on the OK button. The structural element is now listed on the appropriate Features window tab and is depicted on the primary element, as in the Class/Port example.</p>
Redefine	<p>If you want an inherited structural element to have different properties from the original structural element on the parent's classifier, right-click on that element's entry in the list and click on this option.</p> <p>A duplicate structured element is created in the list and on the diagram, where the</p>

	<p>Owner of the structured element is the parent element and not its classifier. You can now modify that duplicate element. (The 'Redefine' option is not available for structural elements directly owned by the parent element.)</p>
Modify	<p>If you want to change a structural element directly owned by the parent element, click on the element entry in the list and click on this option.</p> <p>The element 'Properties' dialog for the structural element displays. Provide any characteristics the element might require, such as Notes, Tagged Values, advanced properties and related files. Click on the OK button to close the dialog and return to the 'Interaction Points' tab.</p> <p>(The 'Modify' option is not available for inherited structural elements.)</p>
Delete	<p>If you want to remove a structural element from the parent (and therefore from the model altogether), right-click on that element's entry in the list and click on this option. The element is immediately deleted.</p>

## Notes

- The name of a structural element displays on the diagram as a label, which you can edit using the 'Labels' context menu

# Set Element Parent

In the context of one element being generalized by one or more other elements, those other elements are referred to as the parent elements. You can define the parent element(s) for a generalizable element, or an interface it realizes (implements), using the 'Set Parents and Interfaces' dialog. The parent elements do not necessarily have to exist in the model; you can specify an element that you intend to create later. You can also delete an existing parent/child relationship using the dialog.

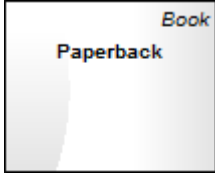
## Access

Ribbon	Design > Element > Edit > Parents and Interfaces
Context Menu	Right-click on element in diagram   Advanced   Parent
Keyboard Shortcuts	Ctrl+I

## Set an element parent

Option	Action
Type	<p>Click on the drop-down arrow and select the type of relationship to set (Implements or Generalizes) from the list. You select the relationship type first because, if you use the Choose button, the 'Select Classifier' dialog actually creates the relationship based on this field value, immediately when you select the parent or interface element.</p>
Class Name	<p>Either:</p> <ul style="list-style-type: none"><li>• Type in the parent or interface name, or</li><li>• Click on the Choose button to browse or search for the element within the current model (the relationship is created immediately when you select the classifier)</li></ul>
Accept classifier even if not in model	<p>If the parent element does not currently exist in the model, select this checkbox to protect the reference to a non-existent element.</p>
Add	<p>If you do not use the Choose button, click on this button to add the relationship to</p>



	<p>the 'Type Details' list, to the selected child element and to the model.</p>  <p>Prior to this:</p> <ul style="list-style-type: none"><li>• If the parent element does not exist in the model and you have not selected the 'Accept classifier even if not in model' checkbox, an <i>Unknown Classifier</i> error message displays</li><li>• If you have specified an existing element with the same name as other elements in the model, a dialog displays listing the elements and their parent Packages, prompting you to select the correct classifier</li></ul>
Delete selected	<p>If you no longer want to keep the relationship between a parent and child element, click on it in the Type Details panel and click on this button to remove it.</p>

## Operations on the parent element

If the parent name is shown in the element, you can select it (click on the child element, then click on the parent element name) and right-click to display a context menu of further operations:

- Apply the facilities of any relevant technology enabled in Enterprise Architect
- Redisplay the 'Set Parents and Interfaces' dialog to, for example, delete the parent or add further parents
- Display the parent element 'Properties' dialog
- Find the parent element in the Project Browser
- Find the parent element in any diagram in which it exists

If the parent element does not currently exist in the model, but is shown on the child element in the diagram, you can still access the first two of the context menu options for it.

## Notes

On a diagram, the parent element name is displayed in the top right corner of the child element if:

- The parent element is not on the same diagram as the child element, and
- The 'Show Hidden Parents' option is selected on the 'Diagram > Behavior' page of the 'Preferences' dialog

# Composite Elements

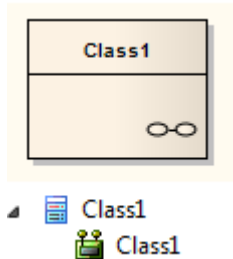

You might want to use one element to represent a structure composed of other elements; for example, a general Use Case representing a collection of more specific Use Cases. To achieve this, you can make the 'general' element a composite element, as a pointer to a child diagram containing the 'detail' elements. The elements that you can turn into composites include Classes, Objects, Activities and Use Cases.

## Access

Ribbon	<p>With an element selected in the Project Browser:</p> <p>Design &gt; Diagram &gt; Insert : Select From &gt; Software Construction   UML   UML Structural   Composite Structure   &lt;one of the two diagram types&gt;</p> <p>There are several Perspective groups and Perspectives that lead you to the UML Structural group; the one provided is an example.</p>
Context Menu	<p>Right-click element in diagram   New Child Diagram   Composite Structure</p>

Diagram or  
Right-click element in Project Browser |  
Add | Composite Structure Diagram

## Make an element composite

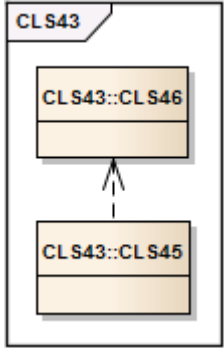
Images	Step / Action
 <p>The diagram shows a rectangular element labeled 'Class1' with a small icon in the bottom right corner. The Project Browser on the left shows a tree structure with 'Class1' as a child of a composite element, indicated by a small icon next to its name.</p>	<p>When you select to make an element composite, it displays in the diagram and in the Project Browser as illustrated on the left.</p> <p>Note:</p> <ul style="list-style-type: none"> <li>• The small icon in the bottom right hand corner of the element shape, indicating that this is now a composite element</li> <li>• The icon against the child diagram name in the Project Browser, indicating that this diagram was created as a child of the composite element</li> </ul>
 <p>The diagram shows a rectangular element labeled 'Class1' with a small icon in the bottom right corner. The Project Browser on the left shows a tree structure with 'Class1' as a child of a composite element, indicated by a small icon next to its name. Below 'Class1', there are three child diagrams: 'ClassX', 'ClassY', and 'ClassZ', each with its own icon.</p>	<p>Double-click on the composite element in the diagram to access the child diagram that it points to. You can populate the child diagram with elements and connectors to represent the internal</p>

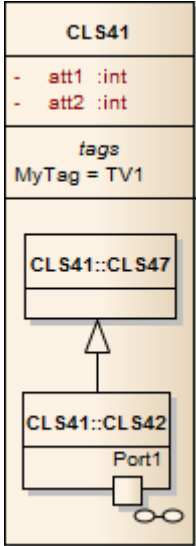
	<p>structure of the (parent) composite element.</p> <p>In this process, structural (embedded) elements cannot be directly added to the child diagram. However, you can add them using a different, modified procedure.</p> <p>The composite element and its child diagram are now represented in the Project Browser as shown. ClassX, ClassY and ClassZ are elements added to the child diagram.</p>
	<p>If you already have, or subsequently create, another diagram that better represents the content of your composite element, you can select that diagram as the child of the composite.</p> <p>Right-click on the composite element in its diagram and select the 'New Child Diagram   Select Composite Diagram' option. The 'Select Classifier' browser displays, through which you can browse the entire project to locate the alternative diagram. Click on the diagram and on the OK button to apply it as the child of the composite element.</p> <p>Neither the original nor the alternative child diagram move location or change</p>

	icons in the Project Browser (unless you specifically make these changes as a separate operation).
--	--

## Alternative Notation

You can display the contents (the child diagram) of a Composite element within the element, in two ways.

Display Format	Detail
<p>Display Composite Element as Frame</p> 	<p>Composite elements can show their contents in place of their usual notation.</p> <ol style="list-style-type: none"> <li>1. Right-click on the composite element in the diagram; the context menu displays.</li> <li>2. Select the 'New Child Diagram   Show Composite Diagram in Frame' option.</li> </ol> <p>The composite element is replaced by a frame containing the child diagram. The frame label shows the composite element name. The element is resized to contain the diagram; whilst it can be enlarged, it cannot be reduced to less than the diagram size.</p> <p>Some technologies, such as SysML,</p>

	<p>qualify the frame label to show the diagram type, element type, element name and child diagram name. If you design custom diagram profiles, you can also qualify the frame label as required.</p>
<p>Display Composite Element Content In Compartment</p> 	<p>Composite elements can also show their contents in addition to their usual notation, in a separate compartment of the element.</p> <ol style="list-style-type: none"> <li>1. Right-click on the composite element in the diagram to open the context menu.</li> <li>2. Select the 'New Child Diagram   Show Composite Diagram in Compartment' option.</li> </ol> <p>A compartment is added to the element, containing the child diagram. The element is resized to contain the diagram; whilst it can be enlarged, it cannot be reduced to less than the diagram size.</p> <p>You can also display a Composite diagram inside its parent element using a Shape Script. The diagram is displayed in a custom compartment in the center of the element and not necessarily with the standard compartments (such as attributes, tags).</p>

## Notes

- If the 'Composite' option is not listed in the context menu, the option is not available for the type of element you have selected
- If you select either of the alternative notation options to display the child diagram on the composite element, and then you select a different child diagram, the display settings are cleared; reselect the appropriate option to display the new diagram on the composite element
- Automation support is available for Composite elements - Element has an Elements collection and a Diagrams collection; additionally you can set the Composite diagram with SetCompositeDiagram



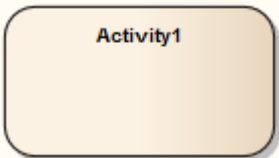
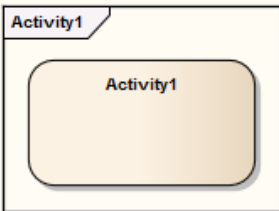
# Show Structural Elements In Composite Diagram

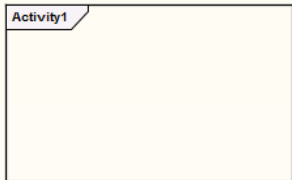
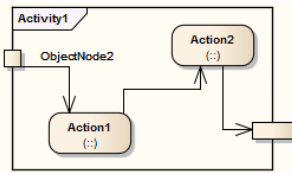
A Composite element shows the external relationships of the element with other components of the model and, via a child diagram, its own internal structure. You cannot normally add structural elements to the representation of this internal structure; however, this procedure describes a modified process through which you can add structural elements to the child diagram.

Structural elements include:

- ActivityParameter
- RequiredInterface
- ActionPin
- Port
- EntryPoint
- ExpansionNode
- ObjectNode
- ProvidedInterface
- ExitPoint
- Part

## Include embedded elements in a child composite diagram

Images	Step / Action
	<p>Create the element to set as a Composite element. For example, a Class, Activity, or SysML Block.</p>
	<p>Right-click on the element in the diagram and select the 'New Child Diagram   Composite Structure Diagram' option.</p> <p>The element redisplay with a small icon in the bottom right hand corner, indicating that this is now a Composite element.</p>
	<p>Double-click on the Composite element to access the child diagram that it points to.</p>
	<p>From the Project Browser, drag the Composite element itself onto the child Composite diagram, and paste it in as a Link.</p>
	<p>Right-click on the element in the diagram, and select the 'New Child Diagram   Show Composite Diagram in Frame' option.</p> <p>The element redisplay with a labeled frame around it.</p>

	<p>Press Ctrl+S to save the diagram.</p> <p>Right-click on the diagram tab and select the 'Reload &lt;diagram name&gt;' option.</p> <p>The diagram redisplay with just the frame showing. This frame represents the original composite element.</p>
	<p>Populate the frame with the appropriate internal elements, including the structured elements that attach to the frame itself.</p>

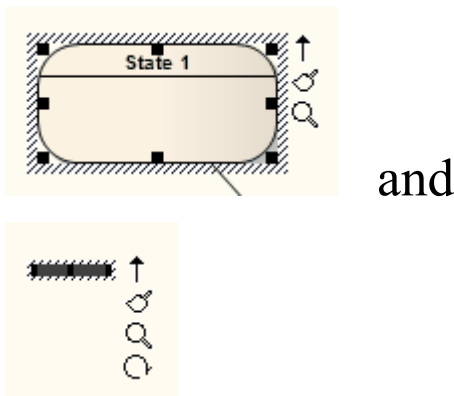
# Visual Representation

Each UML element has a default representation. However, you can:

- Change the appearance, features, position and - for some elements - orientation using a number of toolbars
- Display or hide various types of information held in the element, in compartments
- Display the element in a simpler format, showing basic properties and notes but hiding features

# Element Icons

When you select an element on a diagram, or add a new element, a number of small icons display off the *right* hand side of the element underneath the Quick Linker arrow; for example:








These icons display small versions of the diagram toolbars or perform specific actions, to help you quickly edit the element you have highlighted. If you do not want to show or use these icons, you can prevent their display by deselecting the 'Show buttons for selected Object on diagram' checkbox on the 'Objects' page of the 'Preferences' dialog.




Also, if an element shown in the diagram is locked, and the 'Display Element Lock Status' option is selected in the 'Diagram Properties' dialog, a locking indicator is displayed outside the top *left* hand corner of the element. The indicator is the same as the exclamation mark (!) against a locked element in the Project Browser:

- Red if the element is under a full lock or locked by another user

- Blue if the element is under a lock set by yourself or by a user in the same User Group as yourself

## Icon Use

Icon	Action
	Click on this icon to rotate a Fork/Join element from vertical to horizontal or vice-versa.
	Click on this icon to display a short formatting toolbar, to change the appearance of the element. The options are the same as those on the 'Layout > Style' ribbon panel.
	Click on this icon to display the Current Element toolbar, to edit the element's properties and features.
	When multiple elements are selected, click on this icon to display the Diagram Toolbar to change or align the elements together.
	Click on this icon to toggle an Activity Partition between vertical and horizontal.

	<p>Indicates that the Interaction Fragment currently contains messages; in this state you can:</p> <ul style="list-style-type: none"> <li>• Move the fragment vertically, but not horizontally; all elements and messages below the fragment move up or down by the same amount</li> <li>• Resize the fragment to larger than the contained messages/elements, but not smaller</li> </ul> <p>This is the default condition when you open or reload a diagram containing a fragment. You can click on the icon to toggle to 'move freely' mode.</p>
	<p>Indicates that the Interaction Fragment can be moved independently of the Messages or other elements contained within the fragment.</p> <p>This is the default condition when you first create the fragment. You can click on the icon to toggle to 'contains messages' mode (earlier).</p>
	<p>For elements that do not have the default rectangle/compartments rendition, such as Use Cases and Actors, toggles display of the element between their default shape</p>

	and rectangular notation.
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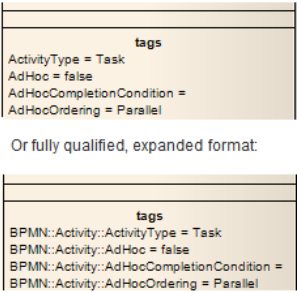


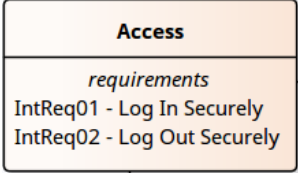
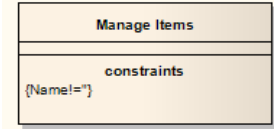
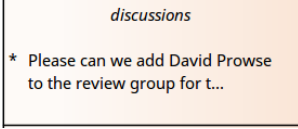
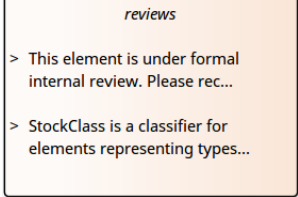
# Compartments

When you place an element on a diagram, you can display it with a number of compartments that reveal not only the attributes and operations of the element, but also several other properties such as tags, requirements, constraints, allocated resources, discussions and reviews.

## Compartment Types

This table describes some of the types of compartment that you can show on an element in a diagram. For a full list of standard compartments, and information on custom compartments, see the *Feature Visibility* and *Define Element Characteristics* topics.

Images	Remarks
 <p>ActivityType = Task AdHoc = false AdHocCompletionCondition = AdHocOrdering = Parallel</p> <p>Or fully qualified, expanded format:</p> <p>BPMN::Activity::ActivityType = Task BPMN::Activity::AdHoc = false BPMN::Activity::AdHocCompletionCondition = BPMN::Activity::AdHocOrdering = Parallel</p>	<p><b>Tags Compartment</b></p> <p><b>Detail:</b> The tags compartment lists all Tagged Values for an element as entered in the Tagged Values window.</p> <p>The fully-qualified option shows only those Tagged Values that were created in Enterprise Architect release 7.1 or later; it does not expand Tagged Values created in earlier releases.</p>

	<h3>Requirements Compartment</h3> <p><b>Detail:</b> The Requirements compartment shows a list of internal requirements as entered on the 'Requirements' tab of the Responsibilities window for the element.</p>
	<h3>Constraints Compartment</h3> <p><b>Detail:</b> The constraints compartment shows a list of element constraints as entered in the 'Constraints' tab of the Element Properties window.</p>
	<h3>Discussions Compartment</h3> <p><b>Detail:</b> The discussions compartment displays the first two lines of each open discussion topic on the element. It does not include closed discussions, so it is a useful reminder of current discussions on the element that you might need to check. If you double-click on a discussion topic, the Collaborate window is displayed with the selected discussion fully expanded.</p>
	<h3>Reviews Compartment</h3> <p><b>Detail:</b> The reviews compartment displays the first two lines of each open review topic on the element. It does not include closed reviews, so it is a useful reminder of current reviews of the</p>

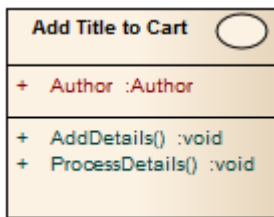
	<p>element that you might need to check. If you double-click on a review topic, the Collaborate window is displayed with the selected review fully expanded.</p> <p>If the element has several compartments, the reviews compartment might show fewer topics, to conserve space.</p>
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## Notes


- To set the display of each of the various compartments, see the *Feature Visibility* topic; the display of the compartments is also controlled through the diagram properties, on the 'Elements' tab - the specific element settings take precedence over the more general diagram settings
- Kanban diagrams do not automatically show element compartments, which contain useful and important information; however, you can use the Kanban 'Native Element Draw Style' option to show compartments on a Kanban diagram and display the information they contain

# Rectangle Notation

You can display various 'shaped' elements, such as an Interface, Use Case or Actor, using rectangle notation. This notation shows on the diagram any attributes, operations or constraints belonging to the element, in the same style as for a Class.




To show an element using rectangle notation, either:

- Click on the element in the diagram and on the  icon that displays on the right of the element, or
- Right-click on the element on the diagram and select the 'Advanced | Use Rectangle Notation' context menu option

This displays the element as a rectangle, by default displaying a UML keyword identifying the element type in guillemets (« ») above the element name. However, certain elements such as Activities and Use Cases by default define an icon of the 'normal' shape instead of the keyword, and display the icon in the top right-hand corner of the element.

The setting only applies to the selected element, and can be toggled on and off either by:

- Clicking on the  icon again, or
- Deselecting the context menu option or
- Selecting the reciprocal context menu option such as 'Use

## Circle Notation' or 'Use Actor Notation'

## Info view Style

Info view is an alternative notation to display a simplified view of an element that allows the name, description and selected other properties to be displayed for an element instead of the normal notation showing child features. This view allows a diagram to be constructed for a non-technical audience or any purpose where display of descriptions is more important than the notations defined by the modeling language.

For example, a database engineer will normally need to see the columns and indexes of a Table, while a manager might be more interested in seeing a high level description relating to each table.

## Access

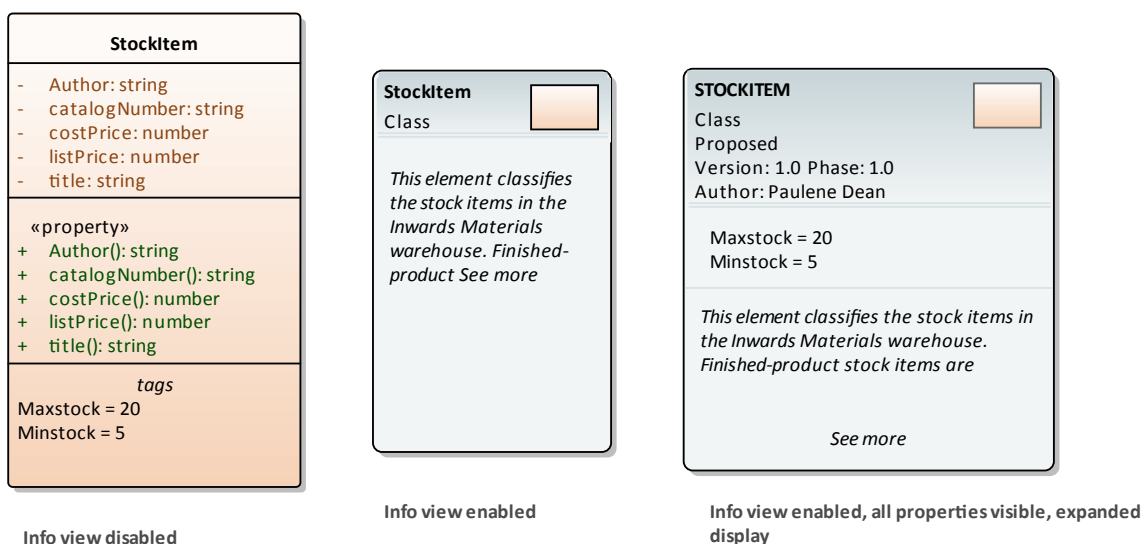
Context Menu	On diagram, right-click element   Behavior   Enable Info View On diagram, right-click element   Behavior   Info View Properties
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## Description

When you enable Info view on an element, the element is rendered as a rounded rectangle, divided into two. In the:

- Top half, on the left, the element name, type and stereotype display; on the right a small icon of the element's native shape displays
- Bottom half, at least some of the element's notes display

If there are more notes than can show in the available space, the text *See more* displays at the bottom, in which case you can expose more of the notes text by dragging the 'expansion handles' to resize the element. (Under Linux, the Notes text displays outside the element boundary.)



Notes might not be shown on the original rendering (as in the illustration), but automatically show when Info view is enabled. They display in italics but otherwise reflect any formatting applied to the Notes in the element.

The element has a minimum size; you cannot drag the element any smaller than that. However, if you reduce the element to the minimum size in Info view, when you select

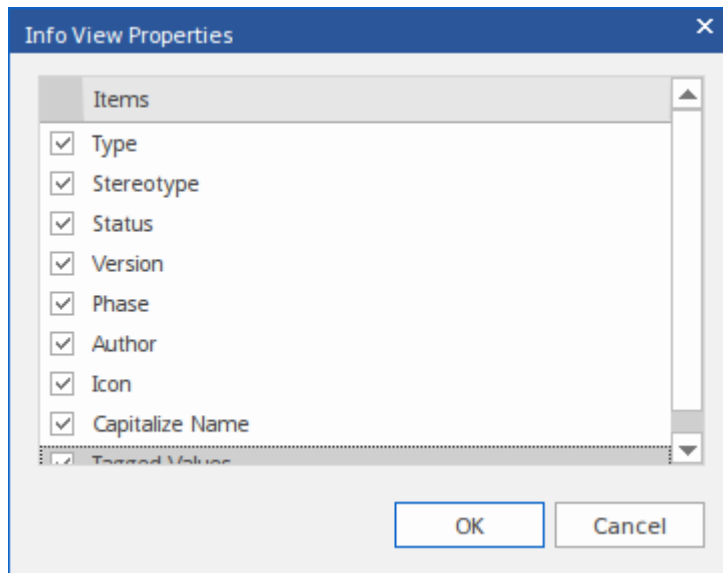
the 'Enable Info View' option again to turn off Info view, the element returns to its original size to display all of its visible content.

The properties listed in the top left of the element are customizable. The list defaults to show the element type and stereotype (where a stereotype exists) but you can chose to hide one or both of those properties, and to show any or all of the element Phase, Version, Status, Author and (for an element in the Requirement group) Priority. Those five properties are not shown on the element when Info view is disabled. You can also hide the native-shape icon on the element, display the element name in capitals, and display the element's Tagged Values compartment while in Info view (the Tagged Values compartment must also be enabled in either the diagram 'Properties > Elements' page or the element 'Compartment Visibility' dialog).

To customize the properties shown:

1. Right-click on the element and select the 'Behavior | Info View Properties' option; the 'Visible Properties' dialog displays.





2. Select the checkbox against each property to display, and clear the checkbox against each property to hide.
3. Click on the OK button.

## Notes

- The 'Info view' element icons reflect the fill and line colors of the original elements; if the 'Use Element Group Style' option is selected on the 'Diagram > Appearances' page of the 'Preferences' dialog (select the 'Start > View > Preferences' ribbon option) these will be the colors assigned to each element type, otherwise they will be the standard element fill and line colors, but not any default appearance colors assigned to the individual element

# Element Property Displays

Enterprise Architect provides a number of ways to define, assign and review the properties and features of elements, each offering different facilities more suited to one aspect or another of model development.

## User interface screens for accessing element properties

Screen
<b>Properties dialog</b> - the element 'Properties' dialog defines both the general properties of an element such as its name, phase, version and status, and properties specific to the element type such as Table columns, Activity behaviors and Chart format.
<b>Element Properties Window</b> - this window displays the general properties of the currently-selected element in a single view. You can dock the window within the Enterprise Architect workspace or have it free-floating within or outside the workspace.
<b>Element Browser</b> - the browser presents all of the existing add-on properties of an element in a folder structure, through which you can create further property objects,

operate on them, and delete them.

Responsibilities window - this window provides a convenient method of quickly adding, viewing, editing and deleting rules applied to an element. The window shows details of the requirements, responsibilities, constraints and scenarios that impose such rules or restrictions on the element.

'Select <Item>' dialog - This dialog is a multi-purpose browser and search tool for locating model items such as Classifier elements, properties, attributes and behaviors. The '<Item>' in the dialog title changes to represent the type of object the original operation is working on.

# Properties Window for Elements

The docked Properties window provides a convenient and immediate way to view and edit properties of modeling objects such as elements. When the Properties window is open and you click on an element in a diagram or in the Project Browser, the window becomes the Element Properties window, displaying the common properties and providing an associated 'Files' tab and any specialized tabs required for the particular type of element. For example:

- Port and Part elements have a 'Property' tab and a 'Redefined/Subsetted' tab
- Class elements have a 'Templates', 'Parameters' and 'Bindings' tabs
- Objects have a 'Run States' tab
- Activity elements have 'Behavior', 'Parameters', and 'Partitions' tabs
- Action and Invocation elements (depending on their type) have 'Action', 'Trigger', 'Behavior', 'Arguments' and 'Call' tabs
- Action Pins have a 'Pin' tab
- Checklists have a 'Checklist' tab
- Signal elements simply have 'Element' and 'Files' tabs
- System Boundaries have a 'Boundary' tab on which you define the element appearance
- Wireframe elements have a 'Wireframing' tab for wireframe Tagged Values

As you review the properties for an element, you can edit the values by overtyping them, or by clicking on the drop-down arrow or browse button to select alternative values.

## Access

Ribbon	<p>After selecting the Properties window using one of these methods, click on the first required element.</p> <p>Start &gt; Explore &gt; Properties &gt; Properties</p> <p>or</p> <p>Design &gt; Element &gt; Properties &gt; Properties or</p> <p>Show &gt; Portals &gt; Window &gt; Properties &gt; Properties</p>
Keyboard Shortcuts	Alt+1

## Properties Window Options

As well as the Save icon (to apply changes to the model) the Properties window has a 'Hamburger' icon that, when you

click on it, provides a number of options. These options are available when you are displaying the Properties window for an element.

Option	Description
Find in Project Browser	Locates and highlights the current element in the Project Browser.
Element Properties	If you are displaying the properties of an element, displays the 'Properties' <i>dialog</i> for the element.
Operations	If the current element is capable of having operations, opens the Features window at the 'Operations' tab, to show the operations of the element.
Attributes	If the current element is capable of having attributes, opens the Features window at the 'Attributes' tab, to show the attributes of the element.
Receptions	If the current element is capable of having Receptions, opens the Features window at the 'Receptions' tab, to show the Receptions of the element.
Set Parents	If the current element can have interfaces

	and parent elements, opens the 'Set Parents and Interfaces' dialog.
Show Groups	Select or deselect this option to partition the Properties into groups (such as 'General Settings', 'Project' and 'Advanced'), or present them all in one continuous list.

## Notes

- As the Element Properties window is so versatile and supports so many aspects of defining what the element represents, documentation of all tabs and fields is not currently complete; for information on how to populate tabs and individual fields, please refer to the Help on the 'Properties' dialog and on the type of task you are performing

# Templates

If you are working with Parameterized Classes or Binding Classes, you can use the 'Templates' tab of the Properties window to define:

- The Parameterized Class template parameters and
- The Binding expressions on a Binding Class

## Access

Open the 'Templates' page for the element, using any of the methods outlined here.

In the 'Template Parameter(s)' panel, click on the Add button to add a new parameter, or click on an existing parameter and on the Edit button to edit the parameter; in either case, the 'Template Parameter' dialog displays.

In the 'Binding(s)' panel, click on the Add button to add a new binding expression or click on an existing expression and on the Edit button to edit the expression. When you click on the Add button, a short context menu displays from which you select the type of relationship to generate, and then you define the binding expressions.

If either a template parameter or a binding expression is no longer required, click on it and then click on the corresponding Delete button.

Ribbon	Start > Explore > Properties > Properties
--------	---



	> Templates Design > Element > Properties > Properties > Templates
Keyboard Shortcuts	Alt+1 > Templates

# Properties Dialog

The element 'Properties' dialog helps you to define and review a wide range of properties of a selected element. For a Class, these properties include:

- General settings, such as name, notes, alias, stereotype (if any), version, scope, dates created and modified, and status
- Details such as cardinality, concurrency and features (attributes and operations) owned
- Advanced, or custom, properties that you can edit
- Tagged Values assigned to the element
- Technology-specific Tagged Values grouped on a separate tab
- Requirements associated with the element, both internal (responsibilities) and external
- Constraints on the element's actions
- Scenarios under which the element operates
- External files associated with the element
- Links (relationships or connectors) in which the element is the source or target

These properties are presented on either a main tab of the 'Properties' dialog or a secondary tab in the panel at the right of the dialog.

## Access

On a diagram or in the Project Browser, select an element and:

Ribbon	Design > Element > Properties > Properties Dialog
Context Menu	Right-click on element   Properties (if 'Prefer Property dialogs' is selected in the Visual Style options) Right-click on element   Properties   Special Action (if 'Prefer Property dialogs' is not selected in the Visual Style options; the option displays the modal dialog for the element type which, in most cases, is the 'Properties' dialog)
Keyboard Shortcuts	Alt+Enter

## Buttons

On any tab of the 'Properties' dialog, at any time, you can click on the buttons at the foot of the dialog and save or clear your changes.

Button	Action
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OK	Click on this button to save your changes and close the 'Properties' dialog.
Cancel	Click on this button to abort your changes and close the 'Properties' dialog.
Apply	<p>Click on this button to save your changes and keep the 'Properties' dialog open, so that you can continue working.</p> <p>It is a good idea to click on this button when you have finished working on a tab and are just about to move on to another tab.</p>
Help	Click on this button to display the Help topic for the tab you are currently working on.

## Notes

- There are several variations of the 'Properties' dialog:
  - The dialog for a Table or Stored Procedure element has slight differences on the 'General' tab, and a 'Table Details' (or 'Stored Procedure Details') tab instead of a 'Details' tab

- The dialog for a Class element of a stereotype other than Table is as shown in the *General Settings* topic
- The dialog for an element of any type other than Class does not have a 'Details' tab
- System Boundaries have a single 'Properties' tab on which you define the element appearance
- The 'Properties' dialog for Wireframe elements automatically opens to either a main 'Wireframe' tab on which you can edit the element rendering directly, or a second-level 'Wireframing Tagged Values' tab (from the General tab) if you define the element rendering by editing the XML for the properties of that element type
- In all cases, the 'Properties' dialog is expandable; you can enlarge it for adding longer entries and clearer reading of the text field values
- The 'Tags' tab of the 'Properties' dialog simply provides the Tagged Values window within the frame of the 'Properties' dialog
- If Tagged Values have been derived from a stereotyped element in a Profile, they are listed on a separate tab having the Profile name; they are still listed on the Tagged Values window, in a separate compartment
- An Object element will show the properties of its classifier, some of which are changed to represent this specific instance of the classifier

# General Settings

The 'General' tab of the element 'Properties' dialog provides the name of the element and any notes that are recorded on it. To the right of the tab are subordinate tabs, the number and type of which depend on the type of element selected. For a Class element, those tabs are:

- 'Main' - defining additional identification and status properties, as described here
- 'Details' - defining the cardinality, concurrency and features (attributes and operations) of the element
- 'Advanced' - defining any high-level properties of the element that might exist; the properties are a function of the element type, and you do not add or remove them but just reset their values
- 'Tags' - defines the Tagged Values of the element; this is the Tagged Values window conveniently integrated with the other element properties; any Technology-specific Tagged Values are grouped on a separate tab

## Access

On a diagram or in the Project Browser, select an element and:


Ribbon	Design > Element > Properties > Properties Dialog
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Keyboard Shortcuts	Alt+Enter
Other	Double-click on element


## General Options & Main tab

Note that for the simple list tabs on the right of the dialog, the selected field name and value are also displayed in full in the panel just above the tab names.

Option	Action
Name	<p>This field displays the element's name which, for a new element, defaults to either:</p> <ul style="list-style-type: none"><li>• &lt;element type&gt;&lt;number of elements of this type already in the Package&gt; (for example, Class3) or</li><li>• A name conforming to the auto-naming/numbering convention you have defined</li></ul> <p>If necessary, overwrite the default name with a different name.</p>
Notes	Type in or edit any notes text associated

	<p>with the element, applying any notes facilities required such as hyperlinks or Glossary terms.</p> <p>You can format the notes text using the Notes toolbar at the top of the field.</p>
Stereotype	<p>(Optional) Type the name of a stereotype for the element, or click on the  button to the right of the field and use the 'Stereotype Selector' dialog to select one.</p>
Alias	<p>(Optional, for elements other than an Object element) Type in an alias or alternative display name for the element.</p>
Status	<p>Click on the drop-down arrow and select the appropriate element management status (such as Approved or Proposed).</p>
Version	<p>Defaults to the value defined in the 'Object Display' options, for the version of the current element.</p> <p>If necessary, type over the field with a different version number or code.</p>
Phase	<p>Defaults to the value defined in the 'Object Display' options, for the phase this element is to be implemented in (for example: 1, 1.1, 2.0, ...).</p>



	If necessary, type over the field with a different phase number or code.
Language	<p>Defaults to the programming language defined for the model (in the 'Default Language for Code Generation' field on the 'Source Code Engineering' page of the 'Preferences' dialog).</p> <p>If this element is required to have a different language, click on the drop-down arrow and select it. If the element is not language-specific, select '&lt;none&gt;'.</p>
Filename	(Optional) If you intend to generate code from the element, click on the  button to the right of the field and create or select the name and location of the file into which the code will be generated.
Package	Identifies the parent Package of the selected element.
Created	Displays the date and time the element was created.
Modified	Displays the date and time the element was most recently modified.

Difficulty	<p>An estimate of the difficulty in meeting the Requirement, Feature, Change or Issue defined by the element; select from:</p> <ul style="list-style-type: none"><li>• Low</li><li>• Medium</li><li>• High</li></ul>
Priority	<p>The relative importance of meeting this Requirement, Change, Issue or Feature compared to other elements of the same type; select from:</p> <ul style="list-style-type: none"><li>• Low</li><li>• Medium</li><li>• High</li></ul>
Author	<p>This field defaults to the user ID of the person who created the element. If necessary, you can type in a different user ID, or click on the drop-down arrow and select one.</p>
Complexity	<p>Click on the drop-down arrow and select the appropriate development complexity (used for project estimation). You normally select from three levels:</p> <ul style="list-style-type: none"><li>• Easy</li><li>• Medium</li><li>• Difficult</li></ul>

	You can change your user defaults to add 'Extreme' and 'Unknown' to this list of options.
Role	(Optional, for an Object element) Type in the role played by the object represented by the element.
Keywords	(Optional) Type in any significant terms that the element might be associated with and that might be filtered on to identify the element in Use Case Metrics and Searches.
GUID	This field displays the Globally Unique Identifier of the element. You can check this GUID and copy it for reference in many of your modeling tasks.

# Details

The 'Details' tab of a Class element 'Properties' dialog helps you to define the structural and processing details for the selected element, and provides direct access to the Features window for defining Attributes and Operations in the element.

## Access


On a diagram or in the Project Browser, select an element and:

Ribbon	Design > Element > Properties > Properties Dialog > General > Details
Keyboard Shortcuts	Alt+Enter > General > Details
Other	Double-click on element : General > Details

## Set element details

Option	Action
Persistence	Click on the drop-down arrow and select the appropriate value (blank, persistent or transient).
Cardinality	<p>Click on the drop-down arrow and select the number of instances of the element that can exist - the value displays on the element in a diagram, in the Name compartment.</p> <p>The format of the options in the selection list is defined in the 'Cardinality' tab of the 'UML Types' dialog.</p>
Scope	Click on the drop-down arrow and select the element's scope ('Public', 'Private', 'Protected', 'Package').
Abstract	Select the checkbox to identify the element as being abstract.
Is Root	Select the checkbox to identify the element as being a root element that cannot be descended from another element.
Is Leaf	Select the checkbox to identify the element as being final, so it cannot be a

	parent for other elements.
Is Specification	Select the checkbox to identify the element as being a specification.
Is Active	Select the checkbox to identify the element as being an Active Class.
Concurrency	Select the appropriate radio button to identify how concurrent Activities should be processed: Sequentially, Guarded, Active or Synchronous.
Collection Classes	<p>Click on this button to define the Collection Classes (for generating code from Association relationships) that apply to this Class only, as the source in an Association relationship where the target role has a multiplicity of 1 or more.</p> <p>This setting overrides the default for the programming language of the Class, set in the 'Preferences' dialog.</p> <p>The 'Collection Classes for Association Roles' dialog displays.</p>
Attributes	<p>Click on this button to define the attributes for the Class.</p> <p>The Features window displays, showing the 'Attributes' tab.</p>

Operations	<p>Click on this button to define the operations for the Class.</p> <p>The Features window displays, showing the 'Operations' tab.</p>
Classifier Behavior	<p>(For a Class, SysML Block or SysML Internal Block element, this field is enabled if the element has a child Interaction, StateMachine or Activity element.) Click on the  icon and select the child element, to indicate that the execution of the element and its diagram define the behavior of the classifier. On the element on a diagram, note that the classifier behavior is indicated by its own compartment of the element.</p>

## Notes

- When launched from an MDG Technology, the Attributes button and Operations button are not available

# Advanced Properties

The 'Advanced' tab displays the advanced properties of the element (where they exist). You can reset the values of these properties.

## Access


On a diagram or in the Project Browser, select an element and:

Ribbon	Design > Element > Properties > Properties Dialog > General > Advanced
Keyboard Shortcuts	Alt+Enter > General > Advanced
Other	Double-click on element : General > Advanced

## Set a value for an advanced (or custom) property

Ste	Action
-----	--------



p	
1	Click on the data field to the right of the property name.
2	<p>Depending on the property, either:</p> <ul style="list-style-type: none"><li>• Type the value in free text</li><li>• Click on the drop-down arrow and select the value from the list, or</li><li>• Click on the  button and search for the required value</li></ul>
3	Click on the Apply button.

# Requirements

You use the 'Requirements' tab of the Responsibilities window or 'Properties' dialog for an element to create requirements that the element is being designed to meet.

Requirements are of two types:

- Internal requirements (responsibilities) and
- External requirements (system requirements, elements connected to the current element by - for example - Realize connectors)

The 'Requirements' tab lists internal requirements, although it provides an option for converting an internal requirement to an external Requirement element. You edit the properties of an external Requirement element through the Properties window for elements.

You can show the internal requirements for an element on a diagram directly, using the element 'Compartment Visibility' function; it is also possible to show inherited requirements in this way.

## Access

On a diagram or in the Project Browser, select an element and:




Ribbon	Design > Element > Responsibilities > Requirements
--------	--

	Design > Element > Properties > Properties Dialog > Requirements
Context Menu	(On a diagram) Right-click on element   Properties   Responsibilities > Requirements
Keyboard Shortcuts	Shift+Alt+R Alt+Enter > Requirements
Other	Double-click on element : Requirements

## Define internal Requirements

Field/Button	Action
Requirement	Type in the name and/or short definition of the requirement. This text will display on the element on a diagram, if the visibility is set to show internal requirements.
Properties	In this panel, click on the 'Value' field against each property, click on the drop-down arrow and select the

	<p>appropriate setting:</p> <ul style="list-style-type: none"><li>• Status - select the current status of the requirement</li><li>• Difficulty - select the value that most closely reflects the difficulty of implementing the current requirement</li><li>• Priority - select the value that best indicates how urgent the requirement is</li><li>• Stability - select the value that provides the best indication of the probability of the requirement - or understanding of the requirement - changing; high stability indicates a low probability of the requirement changing</li><li>• Type - select the value that most accurately reflects the type or function of the requirement; Functional requirements are things that the system must do, such as identify franked, unfranked and total credit for a dividend; Non-functional requirements are things that the system must be, such as reliable or cost effective</li></ul> <p>The 'Last Updated' field shows the date on which the requirement was last changed and saved.</p>
Notes	Type in any additional details or

	<p>comments on the internal requirement.</p> <p>You can format the notes text using the Notes toolbar at the top of the field.</p>
New	<p>On the 'Properties' dialog, click on this button to clear the fields or set them to default values, so that you can create a new internal requirement.</p> <p>On the Responsibilities window, click on the  icon in the window toolbar.</p>
Save	<p>On the 'Properties' dialog, click on this button to save your changes to the currently-selected requirement.</p> <p>On the Responsibilities window, click on the  icon in the window toolbar.</p>
Delete	<p>On the 'Properties' dialog, click on this button to delete the requirement currently selected in the Requirement list.</p> <p>On the Responsibilities window, click on the  icon in the window toolbar.</p>
Requirements	<p>Lists the names of the requirements associated with the current element.</p> <p>On the Responsibilities window, this panel is displayed by clicking on the drop-down arrow at the end of the</p>

'Requirement' field. It lists only the internal requirements on the element.

On the 'Properties dialog both internal and external requirements are listed on the right of the dialog; the external elements are identified by the word 'Yes' in the 'External' column.

If you want to convert an internal requirement to an external Requirement element, right-click on the requirement in the list and select the 'Move External' menu option.

Right-clicking on an external Requirement element name provides the options to locate the element in the Project Browser or in any diagrams that contain it.

# External Requirements

External requirements are those Requirement elements that have been connected to the current element using a Realization connector. By creating the connector from the element to the Requirement, you create an expectation that the element must implement the requirement as part of the system solution.

In Enterprise Architect, linked Requirement elements are shown in the 'Links' tab of the 'Properties' dialog for the element.

Right-click an external requirement in the list and select the 'Locate Related Element' option to highlight the Requirement element in the Project Browser. Press Alt+1 and click on that element to show its properties in the Properties window.

# Constraints

If you need to define the conditions and rules under which an element operates and exists, you can do this by setting Constraints on the element, in conjunction with its responsibilities (internal requirements). Typical constraints are pre- and post-conditions, which indicate things that must be true before the element is created or accessed and things that must be true after the element is destroyed or its action is complete.

You can show the constraints for an element directly on the diagram, using the element 'Compartment Visibility' function; this also reveals any constraints inherited from parent elements.

## Access

On a diagram or in the Project Browser, select an element and:



Ribbon	Start > Explore > Properties > Constraints (Responsibilities window) Start > Explore > Browse > Element Browser > Constraints > Double-click on a constraint (Responsibilities window) Design > Element > Responsibilities > Constraints
--------	--






	Design > Element > Properties > Properties Dialog > Responsibilities > Constraints (Properties dialog)
Context Menu	Right-click on element   Properties   Responsibilities > Constraints
Keyboard Shortcuts	Ctrl+Shift+3 > Constraints (Responsibilities window) Alt+Enter > Constraints ('Properties' dialog) Shift+Alt+C ('Properties' dialog)
Other	Double-click on element : Constraints ('Properties' dialog)

## Define constraints for an element

Constraint	Type the name or value of the constraint.
Type	Click on the drop-down arrow and select the appropriate type (Pre-condition, Post-condition, Process, OCL or

	Invariant).
Status	Click on the drop-down arrow and select the appropriate status.
Notes	Type in any additional details or comments on the constraint. You can format the notes text using the Notes toolbar at the top of the field.
New	<p>(On the 'Properties' dialog) Click on this button to clear the fields ready to create a new constraint.</p> <p>(On the Responsibilities window) Click on the  button in the window toolbar.</p>
Save	<p>(On the 'Properties' dialog) Click on this button to save the constraint data.</p> <p>(On the Responsibilities window) Click on the  button in the window toolbar.</p>
Defined Constraints	<p>This field lists the constraints defined in the element, showing the constraint name, type and status.</p> <p>To display the corresponding 'Constraints' panel in the Responsibilities window, click on the drop-down arrow at the end of the 'Constraint' field.</p>

Delete	<p>(On the 'Properties' dialog) Click on a constraint in the 'Defined Constraints' list and click on this button to immediately remove the constraint from the element.</p> <p>(On the Responsibilities window) Click on the constraint in the 'Constraint' field, or on one of the constraints in the Constraints panel, and click on the  icon in the window toolbar.</p>
 	<p>(If you have two or more constraints in the element.) Click on a constraint in the Defined Constraints list and click on one of these buttons to move the constraint one position up or down in the list.</p> <p>In the Responsibilities window, these buttons can be found (and take action) in the 'Constraints' panel; click on the drop-down arrow at the end of the 'Constraint' field.</p>

# Scenarios

A scenario is a real-world sequence of operations that describes how an element works in real-time. Scenarios can be applied to any element - although generally to Use Cases - to describe functional behavior, business workflows and end-to-end business processes. You create scenarios through the 'Scenarios' tab of either the Responsibilities window or the 'Properties' dialog for the element, which has two internal tabs:

- The 'Textual Description' tab, on which you can create scenarios and write a simple text description of each scenario or of the structure of each scenario
- The 'Structured Specification' tab (the default) through which you can create scenarios or select those you have created elsewhere and, for each scenario:
  - Create a series of steps for each part of the scenario
  - Structure the scenario to show how the basic path diverges into alternate paths and exception paths
  - Generate a number of types of diagram from the structure
  - Generate the structured scenario from an Activity diagram
  - Generate the structured scenario from text on the clipboard; this option has a variation in the 'Textual Description' tab that you can use to translate scenario descriptions created prior to release 8.0 of Enterprise Architect, into structured scenarios in the

latest release



## Access




On a diagram or in the Project Browser, select an element and:

Ribbon	Design > Element > Responsibilities > Scenarios Design > Element > Properties > Properties Dialog > Responsibilities > Scenarios
Context Menu	Right-click on element   Properties   Responsibilities > Scenarios
Keyboard Shortcuts	Ctrl+Shift+3 > Scenarios (Responsibilities window) Alt+Enter > Scenarios ('Properties' dialog) Shift+Alt+S ('Properties' dialog)
Other	Double-click on element > Scenarios

## Using the Textual Description tab

Field/Button	Action
Scenario	<p>Defaults to the name 'Basic Path'. (You usually define the basic path of the scenario first.)</p> <p>If necessary, type in a different name for the scenario (to work on an existing scenario, click on the drop-down arrow and select the name from the list).</p>
Type	<p>Defaults to Basic Path, for the direct steps of the scenario. For subsequent scenarios, click on the drop-down arrow and select either:</p> <ul style="list-style-type: none"><li>• Alternate - an alternative set of steps, in parallel with part of the basic path</li><li>• Exception - the path the scenario follows if a step of the basic path does not produce an appropriate result</li></ul>
Description	<p>Record a textual description of how the user uses the current element.</p> <p>You can format the description text using the Notes toolbar at the top of the field.</p> <p>As well as applying the Notes window facilities, you can also generate a structured specification from the text in</p>

	<p>this field; highlight the text, right-click on it and select the 'Create Structure from Notes' option. Select the appropriate option to create new steps at each line break or new steps at each period (end of a sentence).</p> <p>The text is copied to the 'Structured Specification' tab for the current scenario, either as a new specification or as the continuation of an existing specification. Subsequent changes to the text on the 'Structured Specification' tab are not reflected on the 'Description' tab.</p>
New	<p>Click on this button to clear the data fields so that you can enter data in them to create a new scenario.</p> <p>The Responsibilities window has the alternative option of clicking on the  icon in the window toolbar.</p>
Save	<p>Click on this button to save a new scenario, or changes to an existing scenario.</p> <p>The Responsibilities window has the alternative option of clicking on the  icon in the window toolbar.</p>
Scenarios	<p>This panel displays a list of the scenarios</p>

	defined for this element, and the type of each scenario.
Delete	<p>Click on this button to delete a scenario selected from the Scenarios panel.</p> <p>The Responsibilities window has the alternative option of clicking on the  icon in the window toolbar.</p>
 	<p>(If you have two or more scenarios listed.) Click on a scenario in the 'Scenarios' list and click on one of these buttons to move the scenario one position up or down in the list.</p>

## Notes

- The 'Scenarios' tab does not prevent you from creating more than one basic path, but it would be unusual to define more than one



# Structured Specification Tab

The 'Structured Specification' tab is provided on the 'Scenarios' page of both the element 'Properties' dialog and the Responsibilities window. It offers a wide range of facilities for generating and modifying scenario specifications, which you can use to quickly and easily define the structure, actions and interactions of the scenarios defined for an element such as a Use Case. These scenarios can be the main (basic) path, alternate paths or exception paths.

When you open the 'Structured Specification' tab it defaults to the basic path so that if it does not already exist, you can create it. You can create alternate paths and exception paths as part of the process of adding them to steps of the basic path.

You can also create all three types of scenario path on the 'Textual Description' tab.

# Set Up Scenario Specification

You can create a specification for a scenario in one of a number of ways:

- Enter the specification yourself, as described here
- Generate a specification from an Activity diagram created under a Use Case element
- Generate a specification from the Notes text of the scenario in the 'Text Description' tab
- Generate a specification from text held on the clipboard

## Access

On a diagram or in the Project Browser, select an element and:

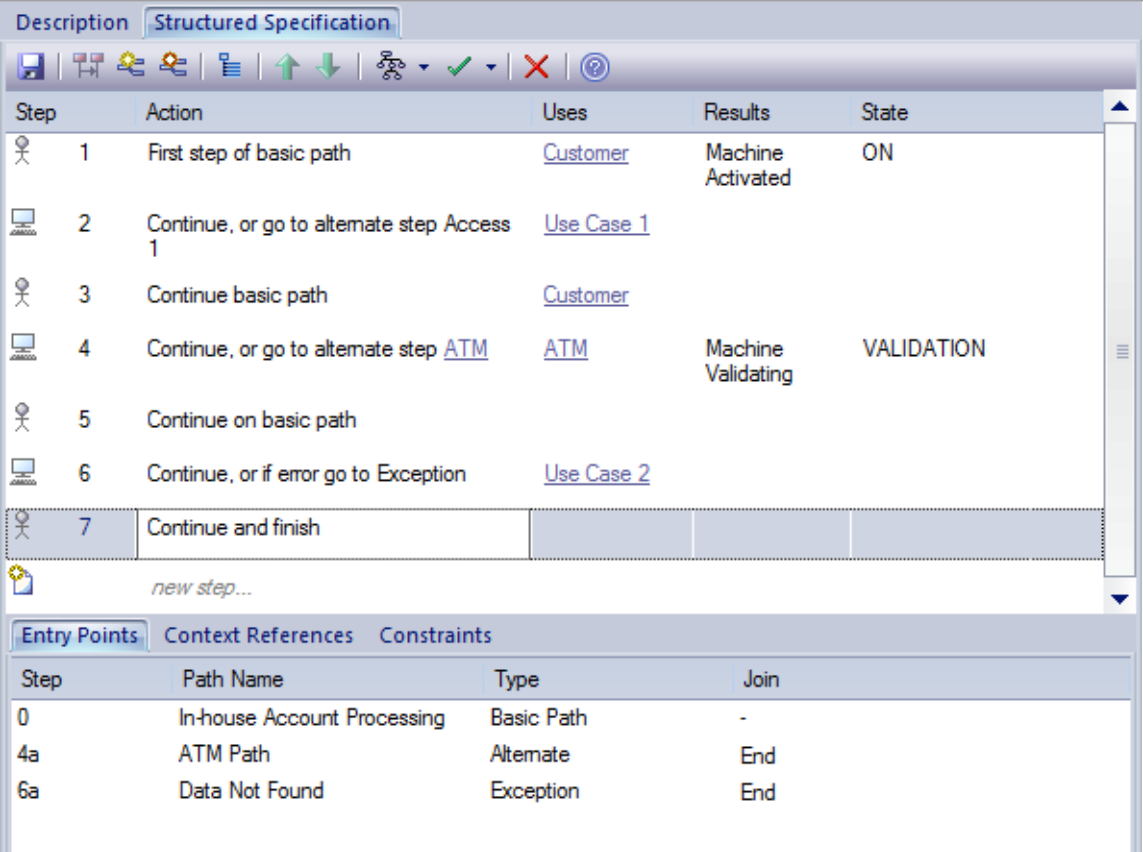

Ribbon	Design > Element > Responsibilities > Scenarios > Structured Specification Design > Element > Properties > Properties Dialog > Responsibilities > Scenarios > Structured Specification
Context Menu	Right-click on element   Properties   Responsibilities > Scenarios > Structured Specification
Keyboard	Ctrl+Shift+3 > Scenarios > Structured

Shortcuts	Specification Alt+Enter > Scenarios > Structured Specification or Shift+Alt+S > Structured Specification
Other	Double-click on element > Scenarios > Structured Specification

## Enter the specification yourself, starting with the basic path

Step	Action
1	In both the 'Scenario' and 'Type' fields, click on the drop-down arrow and select 'Basic Path'.
2	In the new step field in the 'Action' column, type the text of the first step or action.
3	Tab to the 'Uses' column and, if appropriate, type the name of each element used in this step. If the elements are highlighted in blue and underlined, it indicates that they are already listed in the 'Context References' tab.

	You can also manage the list of elements as context references, and add to the list directly; see the <i>Notes</i> .
4	Tab to the 'Results' column and, if appropriate, type the outcome of completing this step.
5	Tab to the 'State' column and, if appropriate, type the name of the state into which the step moves the action.
6	<p>When you move out of the 'Action' column, the next new step field displays underneath.</p> <p>Repeat steps 2 to 5 as many times as is necessary.</p> <p>The 'Structured Specification' tab should now resemble this:</p>

				
	<p>7 Click on the  (Save) icon in the Structured Specification toolbar.</p>			

## Notes

- By default, the steps begin with a user step (indicated by an 'Actor' icon) and alternate between user and system (indicated by a screen icon) steps. However, you can control the responsible entity assigned to a step by typing a keyword within the first 15 characters of the text in the 'Action' column; either 'User' or 'Actor' for a user step, or 'System' for a system step. Once a step has been saved,

you can change the responsible entity by either double-clicking on the icon or right-clicking on the step, and selecting 'Set Step as 'System' or 'Set Step as 'User' as required

- An entry for the basic path displays in the 'Entry Points' tab, as Step 0 with no value in the 'Join' column (the basic path does not rejoin itself)
- The values in the 'Uses', 'Results' and 'State' columns, whilst optional, are significant if you want to generate a diagram from the specification; if you type the name of an element linked to the current element (and listed in the 'Context References' tab), the element name is highlighted and underlined
- In the 'Uses' column, in edit mode, use the 'Manage Uses Context List' context menu option to enable and disable 'Uses' cells as linked element lists as well as text fields, across the whole model; when the feature is enabled, the column shows both context-linked elements and manually-entered text, and when disabled only text entries are listed (the context-linked entries are hidden and deactivated, but not deleted - they are re-activated when the feature is enabled)
- As you develop the scenario, you can move steps to different positions in the scenario, and insert new step lines within the body of the scenario
- You can also create constraints on the element that have an impact on the scenarios
- Repeat this *Set Up Scenario Specification* procedure for each scenario you have created; you can now adapt,

enhance and interrelate the scenario specifications using the facilities of the 'Structured Specification' tab:

- Structured Specification Toolbar
- Item context menu
- Selected Text context menu
- Entry Points context menu
- Floating Toolbar

# Structured Specification Toolbar

In developing a Structured Specification, you can perform a range of operations using the icons on the Structured Specification toolbar.

## Access




On a diagram or in the Project Browser, select an element and:

Ribbon	Design > Element > Responsibilities > Scenarios > Structured Specification Design > Element > Properties > Properties Dialog > Responsibilities > Scenarios > Structured Specification
Context Menu	Right-click on element   Properties > Scenarios > Structured Specification or Right-click on element   Properties   Responsibilities > Scenarios > Structured Specification
Keyboard Shortcuts	Ctrl+Shift+3 > Scenarios > Structured Specification or Alt+Enter > Scenarios > Structured Specification or



	Shift+Alt+S > Structured Specification
Other	Double-click on element > Scenarios > Structured Specification

## Toolbar options

Icon	Action
	Click on this icon to save changes to the scenario specification.
	Click on this icon to return to the basic path specification (if another specification is currently displayed).
	<p>(Enabled when the basic path is displayed - you cannot add an alternate path to another alternate path or an exception path.)</p> <p>Click on this icon to create a branch from the selected step to an alternate path scenario; select the path from the displayed list. If the appropriate scenario does not yet exist, double-click on the new path line and type the scenario name,</p>

then click off the line and back on to it.  
Click on the OK button.


- An entry for this alternate path displays in the 'Entry Points' tab, as 'Step a' of the basic path step it branches from; in the 'Join' column, click on the drop-down arrow and select the number of the step at which action flows back to the basic path, or select 'End' if the path terminates separately from the basic path
- You cannot join the end of the branch - whether alternate or exception - to more than one step of the basic path; if you change the join point of the branch, any duplicates of that branch are updated to remain in synchrony with the join point







Entry Points Context References Constraints			
Step	Path Name	Type	Join
0	In-house Account Processing	Basic Path	-
2a	Access1	Alternate	6
4a	ATM Path	Alternate	End
6a	Data Not Found	Exception	End



(Only enabled when the basic path is displayed - you cannot add an exception path to another exception path or an alternate path.)

Click on this icon to create a branch from

	<p>the selected step to an exception path scenario - select the path from the displayed list. If the appropriate scenario does not yet exist, double-click on the new path line and type the scenario name, then click off the line and back on to it. Click on the OK button.</p> <ul style="list-style-type: none"><li>• An entry for this exception path displays in the 'Entry Points' tab, as 'Step a' of the basic path step it branches from; in the 'Join' column, click on the drop-down arrow and select the number of the step at which action flows back to the basic path, or select 'End' if the path terminates separately from the basic path</li><li>• You cannot join the end of the branch - whether alternate or exception - to more than one step of the basic path; if you change the join point of the branch, any duplicates of that branch are updated to remain in synchrony with the join point</li></ul>
	<p>Click on this icon to display the 'Manage Uses Context List' dialog, which you use to set the 'Uses' column entries to linked context reference lists.</p>

	Click on this icon to move the currently-selected step one place up (including any new step ... entry).
	Click on this icon to move the currently-selected step one place down (including any new step ... entry).
	Click on this icon to display a list of diagrams that you can generate from the scenario; click on the type of diagram that you want to generate.
	Click on this icon to display a list of Test Suites and Test Cases you can generate, based on this Use Case scenario. Click on the test structure you want to generate.
	Click on this icon to delete the selected step from the scenario.
	Click on this icon to display the Help topic for this tab.

# Structured Specification Item Context Menu

You can perform a wide range of operations to create and manage your Structured Specification, using the Structured Specification item context menu.

## Access

On a diagram or in the Project Browser, select an element and:

Ribbon	Design > Element > Responsibilities > Scenarios > Structured Specification : Right-click on item Design > Element > Properties > Properties Dialog > Responsibilities > Scenarios > Structured Specification : Right-click on item
Context Menu	Right-click on element   Properties   Responsibilities > Scenarios > Structured Specification   Right-click on item
Keyboard Shortcuts	Ctrl+Shift+3 > Scenarios > Structured Specification Alt+Enter > Scenarios > Structured

	Specification   Right-click on item or Shift+Alt+S > Structured Specification   Right-click on item
Other	Double-click on element > Scenarios > Structured Specification : Right-click on item

## Item menu options

Option	Action
Create Structure From Clipboard Text	<p>Click on this option to display two sub-options to generate a set of steps from a text description or list captured on the clipboard; a new step is generated:</p> <ul style="list-style-type: none"><li>• After each carriage return in the captured text ('New Line Delimited'), or</li><li>• For each sentence in the text; that is, after each full stop/space/capital letter combination ('Sentence Delimited')</li></ul> <p>If a set of steps is already displayed, it is overwritten by the generated steps.</p>

Create Structure From Generated Activity Diagram	<p>Click on this option to generate a set of steps from an Activity diagram created for a Use Case.</p> <p>If a set of steps is already displayed, it is overwritten by the generated steps.</p>
Add Alternate Path	<p>Click on this option to create a branch from the selected basic path step to an alternate path.</p>
Add Exception Path	<p>Click on this option to create a branch from the selected basic path step to an exception path.</p>
Insert Step	<p>Click on this option to display three sub-options, to insert a <i>new step...</i> line:</p> <ul style="list-style-type: none"><li>• Above the currently-selected step (press Esc to return this new line to the end of the scenario)</li><li>• Below the currently-selected step (press Esc to return this new line to the end of the scenario)</li><li>• At the end of the scenario</li></ul> <p>Shortcut: Shift+Insert or Insert+Ctrl+N</p>
Set Step As 'User'	<p>Click on the appropriate option to switch the entity responsible for performing the action of the selected step between user</p>

Set Step As 'System'	and system.
Link Step to Use Case	<p>Click on this option to display sub-options to:</p> <ul style="list-style-type: none"><li>• Include the actions of an existing Use Case element</li><li>• Extend an existing Use Case element, or</li><li>• Invoke a Use Case as the action of the selected step</li></ul> <p>Selecting the appropriate sub-option displays the 'Select Use Case' dialog, which you use to browse for and select the required Use Case element.</p> <p>The appropriate includes, extends or invokes stereotyped connector is created between the current element and the selected Use Case.</p> <p>For the include and extend actions, any text in the 'Action' field is overwritten by the link to the Use Case; for the invoke action, this link is added to the end of the 'Action' text:</p> <p style="text-align: center;">(Invokes: &lt;Use Case Name&gt;)</p>
Merge With Step	Click on this option to merge the selected step with another.



	<p>A list of the other steps in the scenario displays; click on the step to merge with the selected step.</p>
Move After Step	<p>Click on this option to move the selected step to another position in the scenario.</p> <p>A list of the other steps in the scenario displays; click on the step after which to position the selected step.</p>
Delete	<p>Click on this option to delete the selected step; any subsequent steps are moved up one place.</p> <p>A prompt displays to confirm the deletion. Click on the Yes button.</p>

# Structured Specification Selected Text Context Menu

Further facilities are available in the 'Structured Specification' tab to work with the user-editable text of any part of a specification step. You access these facilities through the item text context menu.

## Access

On a diagram or in the Project Browser, select an element and:

Ribbon	Design > Element > Responsibilities > Scenarios > Structured Specification : Highlight text   Right-click Design > Element > Properties > Properties Dialog > Responsibilities > Scenarios > Structured Specification : Highlight text   Right-click
Context Menu	Right-click on element   Properties > Scenarios > Structured Specification   Highlight text   Right-click or Right-click on element   Properties > Responsibilities > Scenarios > Structured Specification   Highlight text   Right-click

Keyboard Shortcuts	Alt+Enter > Scenarios > Structured Specification   Highlight text   Right-click or Ctrl+Shift+3 > Scenarios > Structured Specification or Shift+Alt+S > Structured Specification   Highlight text   Right-click
Other	Double-click on element > Scenarios > Structured Specification : Highlight text : Right-click

## Text menu options

Option	Action
Create	Click on this option to display two suboptions that you can select to use the highlighted text as the base for either: <ul style="list-style-type: none"><li>• A glossary definition or</li><li>• A new element</li></ul>
Link Step to Use Case	Click on this option to display sub-options to define the actions of the

	<p>selected step by:</p> <ul style="list-style-type: none"> <li>• Including the actions of an existing Use Case element</li> <li>• Extending an existing Use Case element, or</li> <li>• Invoking a Use Case</li> </ul> <p>Selecting the appropriate sub-option displays the 'Select Use Case' dialog, which you use to browse for and select the required Use Case element.</p> <p>The appropriate includes, extends or invokes stereotyped connector is created between the current element and the selected Use Case.</p> <p>For the include and extend actions, any text in the 'Action' field is overwritten by the link to the Use Case; for the invoke action, this link is added to the end of the 'Action' text:</p> <p style="padding-left: 40px;">(Invokes: &lt;Use Case Name&gt;)</p>
Link to existing Element	<p>('Uses' and 'Results' field text only.) Click on this option to create a Realization or Dependency relationship to a Requirement, Feature, Activity, BPMN Task, DMN Decision or other element elsewhere in the model.</p> <p>You select the element and connector</p>

	types from submenu options that then display the 'Select Element' dialog, which you use to browse for and select the required element.
Insert context reference	<p>Click on this option to add a reference to an element stored elsewhere in the model, and create an entry for the element in the 'Context References' tab.</p> <p>Selecting this option displays the 'Select Element' dialog, which you use to browse for and select the required reference element.</p>
Insert glossary definition	<p>Click on this option to insert an existing glossary term at the cursor position. To select the term, double-click on it in the displayed list.</p> <p>When you select the term it is inserted into the field as highlighted and underlined text, which displays the definition when you move the cursor over it. If you highlighted part of the original text, the term overwrites that text.</p>
Manage Uses Context List	<p>(On highlighted text or a specific cursor position in the 'Uses' column.)</p> <p>Click on this option to display the 'Manage Uses Context List' dialog, which</p>

	<p>you can use to:</p> <ul style="list-style-type: none"><li>• Browse to or type in a context reference item</li><li>• Re-sort the list with up and down arrow keys</li><li>• Remove an entry from the list</li><li>• Enable or disable the 'Uses Context List' facility across the model</li></ul> <p>You can resize the dialog to show the full details of context reference items.</p> <p>If you enable the 'Uses Context List' facility, you do not necessarily have to use the dialog to add context list items; you can type or insert an element name from the 'Context References' tab in the 'Uses' column, and that name is added to the 'Uses Context List'.</p> <p>If you disable the 'Uses Context List' facility, the context list items in the 'Uses' column are hidden.</p>
Split Step	<p>Click on this option to split the selected step into two consecutive steps.</p> <p>The option is available only if you highlight a portion of the text in the selected field. The new step takes the highlighted text as its Action text.</p>

Search for <text>	Click on this option to display the Code Editor menu of options for locating the selected text in a number of locations.
Undo	Click on this option to undo any unsaved changes you have just made in the step.
Cut	Select this option to cut the selected text to the clipboard.
Copy	Select this option to copy the selected text to the clipboard.
Paste	Select this option to paste the current contents of the clipboard.
Delete	Select this option to delete the selected text.
Select All	Select this option select all text in the current field.

# Structured Specification Entry Points

## Context Menu

Under the 'Structured Specification' tab, the 'Entry Points' tab shows how the basic path, alternate path and exception path scenarios for the element are organized and interrelated. If an alternate path or exception path has been defined but has not yet been added to the basic path, it is not listed on this tab. You can perform certain operations on the items of the 'Entry Points' tab, using the context menu.

## Access

On a diagram or in the Project Browser, select an element and:

Ribbon	Design > Element > Responsibilities > Scenarios > Structured Specification > Entry Points : Right-click Design > Element > Properties > Properties Dialog > Responsibilities > Scenarios > Structured Specification
Context Menu	Right-click on element   Properties   Responsibilities > Scenarios > Structured Specification > Entry Points : Right-click



Keyboard Shortcuts	Alt+Enter > Scenarios > Structured Specification > Entry Points : Right-click or Shift+Alt+S > Structured Specification > Entry Points : Right-click
Other	Double-click on element > Scenarios > Structured Specification > Entry Points : Right-click

## Entry Points menu options

Option	Action
Edit Path	Click on this option to display the steps of the scenario in the 'Structured Specification' tab, with the first step highlighted.
Join with Step	(Available only if the basic path scenario is displayed in the 'Structured Specification' tab, to join the selected alternate or exception path with the basic path. Not available to change the basic path scenario itself.) Click on this option to highlight the 'Join'

	<p>field and its drop-down arrow. Click on the drop-down to define or change the step number at which the alternate or exception path rejoins the basic path. Select 'End' if the path does not rejoin the basic path steps.</p>
<b>Remove Entry Point</b>	<p>(Available only if the basic path scenario is displayed in the 'Structured Specification' tab, to delete a junction with the basic path. Not available to delete any part of the basic path scenario itself.)</p> <p>Click on this option to delete the relationship between the selected path and the basic path, and remove the entry from the 'Entry Points' tab.</p> <p>A prompt displays to confirm the deletion. Click on the Yes button to delete the junction.</p>

## Notes

- You can switch focus between the 'Entry Points' tab and the 'Structured Specification' tab by pressing Alt+Q



# Structured Specification Floating Toolbar

Wherever a reference to another element exists on the 'Scenario' tab (that is, where the text is highlighted and underlined), if you move the cursor over the element name a short floating toolbar displays. You can select the icons on this toolbar to:

- Display the element's 'Properties' dialog
- Locate the element in its parent diagram
- Locate the element in the Project Browser

# Generate Diagrams

When you have created a structured scenario, you can generate any of these diagrams from it:

- Activity
- With ActivityParameter
- With Action
- With Action Pin
- Rule Flow
- State
- Sequence
- Robustness


## Access

On a diagram or in the Project Browser, select an element and:

Ribbon	Design > Element > Responsibilities > Scenarios > Structured Specification Design > Element > Properties > Properties Dialog > Responsibilities > Scenarios > Structured Specification
Context Menu	Right-click on element   Properties   Responsibilities > Scenarios > Structured

	Specification
Keyboard Shortcuts	Alt+Enter > Scenarios > Structured Specification or Ctrl+Shift+3 > Scenarios > Structured Specification or Shift+Alt+S > Structured Specification
Other	Double-click on element > Scenarios > Structured Specification

## Generate the required diagram

Step	Action
1	Create the scenario structure on the 'Structured Specification' tab.
2	Click on the  ('Generate Diagram') icon in the toolbar on the tab.
3	Click on the type of diagram to generate. Enterprise Architect generates the diagram and notifies you that generation is complete. Click on the

OK button and then close the 'Properties' dialog to review the diagram.

If the diagram being generated already exists under the selected element, a prompt displays to overwrite or synchronize with that diagram.

Select the appropriate radio button to:

- Overwrite the existing diagram (delete the existing diagram and elements, and create a new diagram and elements) or
- Synchronize the elements in the existing diagram with the scenario steps (however, Sequence and Robustness diagrams cannot be synchronized)

## Notes

- The 'Synchronize elements in existing diagram' option enables the 'Preserve Diagram Layout' checkbox, which you can select to preserve the existing arrangement of elements and connectors on the diagram; any new elements are added to the diagram in the default position, and you manually position them in the diagram as required; if you do not select the checkbox, the diagram is recast in the default layout  
It is recommended that you uncheck the 'Preserve Diagram Layout' checkbox if you are synchronizing elements with scenario steps:

- When new steps have been added or existing steps have been deleted or moved within the Use Case
- For the first time in a Use Case that has been imported from XMI with the 'Strip GUIDs' option selected
- For the first time in a Use Case that has been copied and pasted in the Project Browser, or
- For the first time in a Use Case whose containing Package has been copied and pasted in the Project Browser




# Generate Activity Diagram

When you create a scenario on an element, and then generate an Activity diagram from the scenario, an Activity is generated as a child of the selected element to act as a container for the diagram.

- Each scenario step is modeled as an Activity
- The values of the Uses, Results and State columns for each step are added as memo Tagged Values of the corresponding Activity

## Access

On a diagram or in the Project Browser, select an element and use one of these access methods to display the 'Structured Specification' tab, then click on  and select 'Activity'.

Ribbon	Design > Element > Responsibilities > Scenarios > Structured Specification Design > Element > Properties > Properties Dialog > Responsibilities > Scenarios > Structured Specification
Context Menu	Right-click on element   Properties   Responsibilities > Scenarios > Structured Specification

Keyboard Shortcuts	Alt+Enter > Scenarios > Structured Specification or Ctrl+Shift+3 > Scenarios > Structured Specification or Shift+Alt+S > Structured Specification
Other	Double-click on element > Scenarios > Structured Specification

## Example

The screenshot displays the Sparx Systems software interface. The top menu bar includes 'General', 'Requirements', 'Constraints', 'Scenarios', 'Files', 'Links', and 'Templates'. The 'Scenarios' tab is active, showing a 'Scenario:' dropdown set to 'In-house Account Processing' and a 'Type:' dropdown set to 'Basic Path'. Below this, the 'Structured Specification' tab is selected, displaying a table with the following data:

Step	Action	Uses	Results	State
1	Customer inserts ATM-card into ATM	ATM-Card	Initiate Transaction	START

Below the table, a UML diagram shows a 'Start' node (a black circle) with an arrow pointing to a rounded rectangle labeled 'Customer inserts ATM-card into ATM'. To the right of the diagram, a 'Tagged Values' window is open, showing the following data for the selected activity:

Tag	Value
result	<memo>*
state	<memo>*
step_guid	{F95E88CD-5B44-4faa-8C7D-FF66CC1ABE0...}
trigger	User
uses	<memo>*

At the bottom of the 'Tagged Values' window, the 'result' is listed as 'Initiate Transaction'.

## Diagram Types

There are three additional variations of the Activity diagram that you can generate.

Diagram	Detail
Activity with ActivityParameter	<ul style="list-style-type: none"><li>• The values of the Uses and Results columns are modeled as ActivityParameters</li><li>• The ActivityParameters are added to the Project Browser and not to the diagram</li><li>• The value of the State column is added as a Tagged Value of each Activity</li></ul>
Activity with Action	<ul style="list-style-type: none"><li>• The scenario steps are modeled as Actions</li><li>• The values of the Uses, Results and State columns are added as Tagged Values of each Action</li></ul>
Activity with ActionPin	<ul style="list-style-type: none"><li>• The scenario steps are modeled as Actions</li><li>• The values of the Uses and Results columns are modeled as Input Pins and Output Pins respectively</li><li>• ActionPins are added to the Project</li></ul>

	<p>Browser and not to the diagram</p> <ul style="list-style-type: none"><li>• The value of the State column is added as a Tagged Value of each Action</li></ul>
--	---

# Generate RuleFlow Diagram

When you create a scenario on an element and then generate a RuleFlow diagram, a Rule Flow Activity is created as a child of the selected element, to act as a container for the diagram.

- The scenario steps are modeled as RuleTasks
- The values of the Uses, Results and State columns are added as Tagged Values of the RuleTasks

## Access

On a diagram or in the Project Browser, select an element and use one of these access paths to display the 'Structured Specification' tab, then click on  and select 'RuleFlow'.

Ribbon	Design > Element > Responsibilities > Scenarios > Structured Specification Design > Element > Properties > Properties Dialog > Responsibilities > Scenarios > Structured Specification
Context Menu	Right-click on element   Properties   Responsibilities > Scenarios > Structured Specification
Keyboard	Alt+Enter > Scenarios > Structured

Shortcuts	Specification or Ctrl+Shift+3 > Scenarios > Structured Specification or Shift+Alt+S > Structured Specification
Other	Double-click on element > Scenarios > Structured Specification

# Generate StateMachine Diagram

When you create a scenario on an element and then generate a StateMachine diagram, a StateMachine is created as a child of the selected element to act as a container for the diagram.

- Each value in the 'State' column is modeled as a State
- The scenario steps become the Transition connectors between the States
- The values of the 'Uses' and 'Results' columns are added as Tagged Values of the Transition connectors

## Access

On a diagram or in the Project Browser, select an element and use one of these access paths to display the 'Structured Specification' tab, then click on  and select 'State'.

Ribbon	Design > Element > Responsibilities > Scenarios > Structured Specification Design > Element > Properties > Properties Dialog > Responsibilities > Scenarios > Structured Specification
Context Menu	Right-click on element   Properties   Responsibilities > Scenarios > Structured Specification

Keyboard Shortcuts	Alt+Enter > Scenarios > Structured Specification or Ctrl+Shift+3 > Scenarios > Structured Specification or Shift+Alt+S > Structured Specification
Other	Double-click on element > Scenarios > Structured Specification

## Example

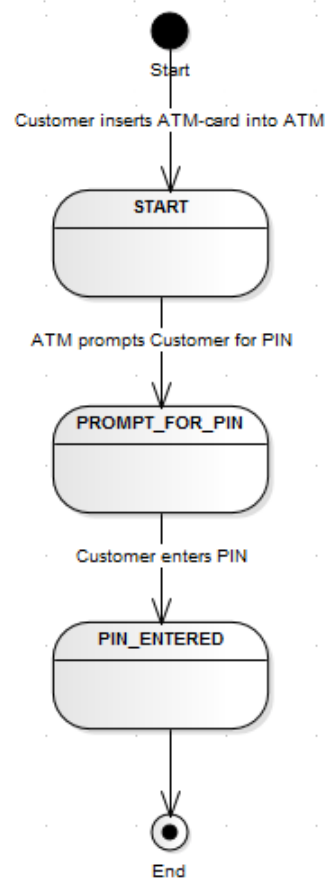


General Requirements Constraints Scenarios Files Links Templates

Scenario: In-house Account Processing Type: Basic Path

Description Structured Specification


Step	Action	Uses	Results	State
1	Customer inserts ATM-card into ATM	ATM-Card	Initiate Transaction	START
2	ATM prompts Customer for PIN			PROMPT_FOR_PIN
3	Customer enters PIN	Customer		PIN_ENTERED



# Generate Sequence Diagram

When you create a scenario on an element and then generate a Sequence diagram, an Interaction is created as a child of the selected element to act as a container for the diagrams - the Basic, Alternate and Exception paths are each modeled as a separate Sequence diagram under the Interaction.

## Access

On a diagram or in the Project Browser, select an element and use one of these access paths to display the 'Structured Scenario' tab, then click on  and select 'Sequence'.

Ribbon	Design > Element > Responsibilities > Scenarios > Structured Specification Design > Element > Properties > Properties Dialog > Responsibilities > Scenarios > Structured Specification
Context Menu	Right-click on element   Properties   Responsibilities > Scenarios > Structured Specification
Keyboard Shortcuts	Alt+Enter > Scenarios > Structured Specification or Ctrl+Shift+3 > Scenarios > Structured

	Specification or Shift+Alt+S > Structured Specification
Other	Double-click on element > Scenarios > Structured Specification

## Notes

- All the elements involved in the scenario should be identified in the 'Context Reference' tab; that is, relationships must already exist between the scenario parent element and the other elements named in the scenario
- Each Context Reference element named in a scenario step is modeled as a Lifeline
- The step itself becomes the Message between an originator and its destination(s)
- The first Context Reference element in a step is treated as the originator
- The subsequent Context Reference element(s) become the destination(s)
- Because the diagram generator acts on element names in the step, you should avoid using the element names as normal text; for example, in step 1 in the example dialog, the term ATM-Card is interpreted as a reference to the

ATM element, and two 'Customer inserts ATM-Card into ATM' messages are generated for the step (to avoid confusion, in the diagram the first Message has been deleted)

- If the 'Show Sequence Numbering' checkbox on the 'Diagram Sequence' page of the 'Preferences' dialog is not selected, the Message name on the Sequence diagram is prefixed by the step number, as shown in the example diagram; if the checkbox is selected, the message sequence number is shown instead of the step number
- The values of the 'Uses', 'Results' and 'State' columns are added as Tagged Values of the Message

## Example

General Requirements Constraints Scenarios Files Links Templates

Scenario: In-house Account Processing Type: Basic Path

Description Structured Specification

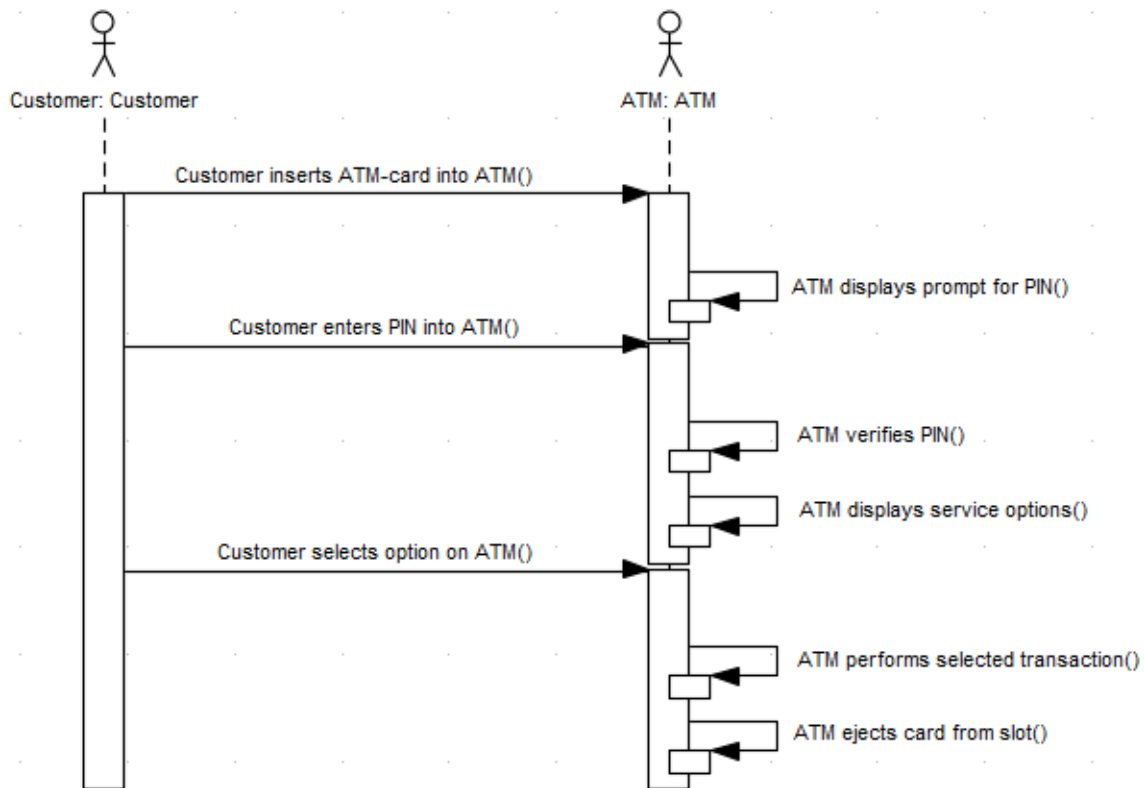
Step Action Uses Results State

- 1 Customer inserts ATM-card into ATM
- 2 ATM displays prompt for PIN
- 3 Customer enters PIN into ATM
- 4 ATM verifies PIN
- 5 ATM displays service options
- 6 Customer selects option on ATM
- 7 ATM performs selected transaction
- 8 ATM ejects card from slot

new step...

Entry Points Context References Constraints

Name	Type	Connection	Comment	Package
ClassLibX	Class	Generalization		Class View
ATM	Actor	Association		Class View
ClassLib_TestCase1	UseCase			Class View
RefTable	Class	Association		Class View
Customer	Actor	Association		Class View



# Generate Robustness Diagram

When you create a scenario on an element and then generate a Robustness diagram, a Collaboration is created as a child of the selected element to act as a container for the Robustness diagram.

## Access

On a diagram or in the Project Browser, select an element and use one of these access paths to display the 'Structured Specification' tab, then click on  and select 'Robustness'.

Ribbon	Design > Element > Responsibilities > Scenarios > Structured Specification Design > Element > Properties > Properties Dialog > Responsibilities > Scenarios > Structured Specification
Context Menu	Right-click on element   Properties   Responsibilities > Scenarios > Structured Specification
Keyboard Shortcuts	Alt+Enter > Scenarios > Structured Specification or Ctrl+Shift+3 > Scenarios > Structured Specification or

	Shift+Alt+S > Structured Specification
Other	Double-click on element > Scenarios > Structured Specification




## Notes

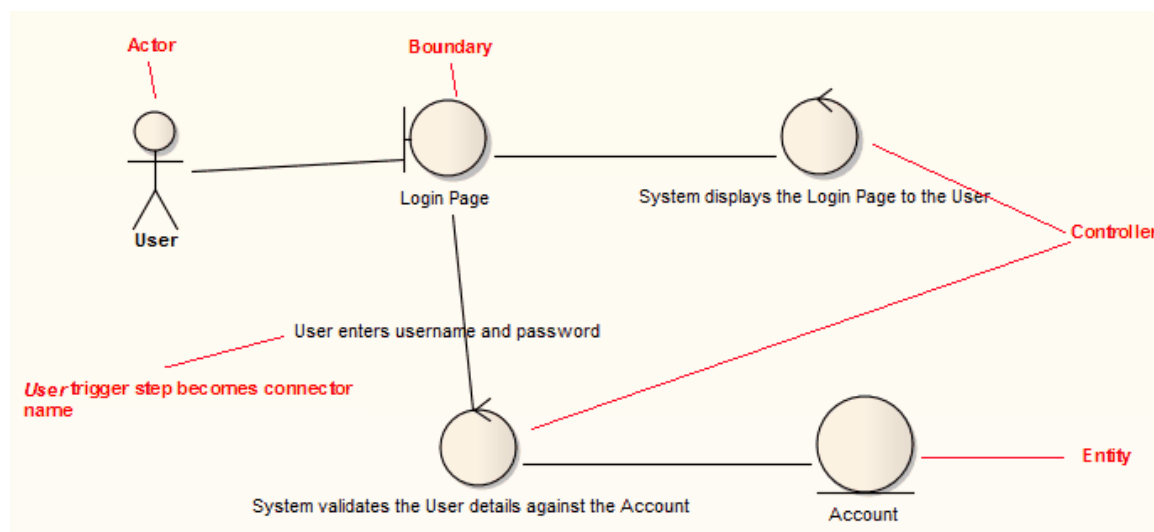
- All the elements involved in the scenario should be identified in the 'Context Reference' tab; that is, relationships must already exist between the scenario parent element and the other elements named in the scenario
- Any values in the 'Uses', 'Results' and 'State' columns are ignored and not represented in the diagram
- Each UI element in a step becomes a Boundary element; a Dependency relationship is created from this Boundary element to the UI element (this connector is not shown on the diagram)
- Each Actor referenced in a step is dropped into the Robustness diagram as a simple link
- Each Class referenced in a step is dropped into the Robustness diagram as a simple link, and is given the stereotype entity
- Each step with a System trigger becomes a Controller; alternate/exception path Controllers are displayed with a red background color



- Each step with a User trigger becomes the name of the Association between Controllers

## Example

Step	Action
 1	System displays the <a href="#">Login Page</a> to the <a href="#">User</a>
 2	<a href="#">User</a> enters username and password
 3	System validates the <a href="#">User</a> details against the <a href="#">Account</a>



# Generate Scenario From Activity Diagram

You can generate a range of diagrams from a scenario in an element. Conversely, you can also generate a structured scenario within an element from an Activity diagram, reverse engineering the steps from the diagram elements (effectively either regenerating the scenario within the Use Case, or transferring a scenario into another Use Case).

## Access

On a diagram or in the Project Browser, select an element and use one of these access paths to display the 'Structured Specification' tab, then right-click on a space and select the 'Create Structure From Generated Activity Diagram' option.

Ribbon	Design > Element > Responsibilities > Scenarios > Structured Specification or Design > Element > Properties > Properties Dialog > Responsibilities > Scenarios > Structured Specification
Context Menu	Right-click on element   Properties   Responsibilities > Scenarios > Structured Specification

Keyboard Shortcuts	Alt+Enter > Scenarios > Structured Specification or Ctrl+Shift+3 > Scenarios > Structured Specification or Shift+Alt+S > Structured Specification
Other	Double-click on element > Scenarios > Structured Specification

## Generate a scenario from an Activity diagram

Step	Action
1	On the 'Select an Activity (generated from a UseCase Scenario) containing the Diagram' dialog, search for and select the Activity containing the required diagram.
2	Click on the OK button. A prompt displays to remind you that any existing scenario steps will be deleted.
3	Click on the Yes button.

	<p>The system validates the diagram (displaying the results in the 'Scenario Generation' tab of the System Output window) and, if the diagram is valid, generates the scenario steps in the 'Structured Specification' tab.</p>
--	---

## Notes


- The source Activity diagram must be generated from another Use Case scenario
- This facility does not operate on the enhanced Activity diagrams generated from a Use Case - those generated with ActivityParameters, Actions and Action Pins

# Generate Test Cases

When you have defined a scenario, you can generate one of a number of Test Cases from it, including:

- A Test Suite - Horizontal Layout
- A Test Suite - Vertical Layout
- An Internal Test Case or
- An External Test Case

## Access

On a diagram or in the Project Browser, select an element and use one of these access paths to display the Structured Specification tab, then click on  and select the testcase type.

Ribbon	Design > Element > Responsibilities > Scenarios > Structured Specification or Design > Element > Properties > Properties Dialog > Responsibilities > Scenarios > Structured Specification
Context Menu	Right-click on element   Properties   Responsibilities > Scenarios > Structured Specification
Keyboard	Alt+Enter > Scenarios > Structured

Shortcuts	Specification or Ctrl+Shift+3 > Scenarios > Structured Specification or Shift+Alt+S > Structured Specification
Other	Double-click on element > Scenarios > Structured Specification

## Test Cases Generated

Test Case	Detail
Test Suite - Horizontal Layout	<p>A Test Case element is created, which acts as a container for the created diagram and Test Suite elements.</p> <p>The basic path and each alternate and exception path is represented by a Test Case element. Each step in the basic, alternate and exception paths is represented by a Test element.</p> <p>A diagram is created under the container Test Case element, to which the Test Case and Test elements are added.</p> <p>The elements are displayed on the diagram in a matrix-like format, with the</p>

	<p>basic path and its steps forming the first column followed by the alternate and exception paths.</p> <p>Note that the name of each created Test Case and Test element is truncated to 25 characters.</p>
Test Suite - Vertical Layout	<p>A Test Case element is created, which acts as a container for the created diagram and Test Suite elements.</p> <p>The basic path and each alternate and exception path is represented using a Test Case element. Each step in the basic, alternate and exception paths is represented by a Test element.</p> <p>A diagram is created under the container Test Case element, to which the Test Case and Test elements are added.</p> <p>The elements are displayed on the diagram in a single column with the basic path and its steps at the top followed by each alternate and/or exception path and its steps.</p>
Internal Test Case	<p>A test is generated for the basic path and each alternate and exception path in the scenario, and added to the selected element.</p> <p>In addition, for each step in the basic,</p>

	<p>alternate and exception paths that has a value in the 'Results' column, a test is generated and added to the selected element.</p> <p>A diagram is created under the selected element, to which that element and a Note (showing the element's Structured Specification) is added.</p> <p>The created tests are displayed in the Test Scripts compartment of the selected element on the diagram. Another way to view these tests is to click on the element and display the Testing window.</p> <p>These generated tests are written to the Scenario Class Type of the Testing window; you can change the tests to another test-type if required.</p>
External Test Case	<p>A Test Case element is created, linked to the selected element using the Trace connector.</p> <p>A diagram is created under this Test Case element, to which the selected element, the Test Case element and a Note (showing the element's Structured Specification) is added.</p> <p>The created tests are displayed in the Test Scripts compartment of the Test Case element on the diagram.</p>



A test case is generated and added to the Test Case element for the basic path, and for each alternate and exception path.

In addition, for each step in the basic, alternate and exception paths that has a value in the 'Results' column, a test is generated and added to the Test Case element.

You can review the tests within the Test Case element using the Testing window, as for Internal Test Cases.

## Context References Tab

As you create a structured specification on the 'Scenarios' page of the Responsibilities window for the element, you can use the 'Context References' tab to create and display a list of all elements that are either:

- Connected to the current element by any connector, on the current diagram or another, or
- Defined as a cross reference (or custom reference) on the current element

## Access

On a diagram or in the Project Browser, select an element, then use any of the methods outlined here to display the 'Select Element' dialog. Use the 'Select Element' dialog to locate and select the required cross reference element or elements. For each cross reference you can also use context menu options to delete the entry in the list, or to open the 'Comment' field so that you can add or edit comment text.

For each element in the 'Context References' list, wherever the name of that element appears in the structured specification, the name is highlighted and underlined; press the Ctrl key and click twice on the highlighted name to view the element 'Properties' dialog.

Ribbon	Design > Element > Responsibilities >
--------	---------------------------------------

	<p>Scenarios &gt; Structured Specification &gt; Context References : Right-click on space &gt; Add Context Reference</p> <p>Design &gt; Element &gt; Properties &gt; Properties Dialog &gt; Responsibilities &gt; Scenarios &gt; Structured Specification &gt; Context References : Right-click on space &gt; Add Context Reference</p>
Context Menu	<p>Right-click on element   Properties   Responsibilities &gt; Scenarios &gt; Structured Specification &gt; Context References : Right-click on space   Add Context Reference</p>
Keyboard Shortcuts	<p>Alt+Enter &gt; Scenarios &gt; Structured Specification   Context References : Right-click on space   Add Context Reference or</p> <p>Ctrl+Shift+3 &gt; Scenarios &gt; Structured Specification   Context References : Right-click on space   Add Context Reference or</p> <p>Shift+Alt+S &gt; Structured Specification   Context References : Right-click on space   Add Context Reference</p>
Other	<p>Double-click on element &gt; Scenarios &gt; Structured Specification   Context</p>

	References : Right-click on space   Add Context Reference
--	--

# Scenario Constraints Tab

The 'Structured Specification Constraints' tab is a simple link to the 'Constraints' page of the main element 'Properties' dialog. It lists existing constraints; if you select the toolbar icons to add or edit a constraint, control switches to the element 'Constraints' page.

## Access

On a diagram or in the Project Browser, select an element and:

Ribbon	Design > Element > Responsibilities > Scenarios > Structured Specification > Constraints or Design > Element > Properties > Properties Dialog > Responsibilities > Scenarios > Structured Specification > Constraints
Context Menu	Right-click on element   Properties   Responsibilities > Scenarios > Structured Specification > Constraints
Keyboard Shortcuts	Alt+Enter > Scenarios > Structured Specification   Constraints or

	Ctrl+Shift+3 > Scenarios > Structured Specification   Constraints or Shift+Alt+S > Structured Specification   Constraints
Other	Double-click on element > Scenarios > Structured Specification > Constraints

# Associated Files


An element can be linked to one or more files external to the repository, using the 'Files' tab of either the Element Properties window or the element's 'Properties' dialog. Having created the link, you can open the file and read its content from this tab.

## Access

On a diagram or in the Project Browser, select an element and:

Ribbon	Start > Explore > Properties > Properties > Files Design > Element > Properties > Properties > Files Design > Element > Properties > Properties Dialog > Files
Keyboard Shortcuts	Alt+Enter > Files Shift+Alt+F
Other	Double-click on element > Files

## Manage File Links

Option	Action
File Path	<p>Displays the directory path and name of the file currently selected in the 'Files' list.</p> <p>To add a link to a file, click on the  button to display the 'Locate Files' browser and locate and click on the appropriate file name. Then click on the OK button.</p>
Type	<p>Click on the drop-down arrow and select the appropriate value to identify the file path as a local directory path or a web address.</p>
Last Write	<p>Displays the date and time the file was last updated.</p>
Size	<p>Displays the size of the file.</p>
Notes	<p>Type in any comments or notes on the link to the file.</p>
New	<p>Click on this button to clear the data entry fields so that you can add a new file link.</p>



Save	Click on this button to save any new or changed details on a linked file.
Files	Displays the list of linked files. Click on a file to select it.
Launch	Click on this button to open the selected file. Local files open in their default application and web files open in the default browser.
Delete	Click on this button to remove the link to the associated file. The link is deleted from the list immediately.

## Notes

- Linked files are a good way to link elements to additional documentation and/or source code
- You can also insert hyperlinks to other files, in diagrams, and launch them directly from the diagram

# Links

The 'Links' tab of the element 'Properties' dialog provides a list of all relationships that the current element is a partner in.

## Access

On a diagram or in the Project Browser, select an element and:

Ribbon	Design > Element > Properties > Properties Dialog > Links
Keyboard Shortcuts	Alt+Enter > Links Shift+Alt+L
Other	Double-click on element > Links

## Links Facilities

Facility	Detail
Relationship	The 'Relationships' panel lists the

Features	<p>relationships this element has, showing the:</p> <ul style="list-style-type: none"><li>• Elements that this element is related to</li><li>• Stereotype (if any) of each related element</li><li>• Type of each related element</li><li>• Type of each connection or relationship</li><li>• Stereotype (if any) of the connector</li></ul>
Links Page	<p>From the 'Links' tab you can perform operations on a relationship, by right-clicking on the relationship to display the context menu.</p> <p>To:</p> <ul style="list-style-type: none"><li>• Display the 'Properties' dialog for a relationship, click on 'Relationship Properties'</li><li>• Highlight the related element in the Project Browser, click on 'Locate Related Element'</li><li>• Delete the relationship from the model and all diagrams, click on 'Delete relationship'; the system prompts you to confirm the deletion, click on the Yes button to do so</li></ul>

# The Features Window

The Features window is a versatile and seamless tool for creating and editing the features of the selected element. The window has a number of tabs that help you to view, create, delete and manage:

- Attributes
- Operations and, for State elements, operation behaviors
- Reception elements
- On a State element, Internal Triggers
- For a Database Table element, Columns and Constraints
- Structural elements, such as the Parts and Properties added to elements
- Edge-mounted elements (Interaction Points) such as ActionPins and Ports that form the primary interaction points of complex, composite elements
- Entry Points and Exit Points (Connection Points) on a State element

The Features window can be used in combination with the Properties Window and Notes window to define some or all of the properties of a feature and, depending on the parent element type, a range of other windows such as the Element Browser, Responsibilities window and Tagged Values window. All these windows automatically refresh to show the information for the object you have just clicked on, and you can flow between them without opening and closing them. You can very quickly define a range of properties,

features and characteristics for an element, and equally quickly work through a number of elements to define a structure in the model.

# The Element Browser

As you develop an element in your model, you can define a range of added-on properties of that element through the appropriate dialogs, pages and tabs. It is possible to neatly summarize all of these properties for a selected element, using the Element Browser. The properties listed - where they exist in the element - are grouped by type and include:

- Operations
- Attributes
- Linked Features (Linked Operations and Attributes)
- Tagged Values
- Constraints
- Requirements (internal)
- Attached Files
- Relationships
- Scenarios
- Maintenance items (sub-grouped as Defects, Changes, Issues and Tasks)
- Testing items (sub-grouped as Unit, Integration, System, Acceptance, Scenario and Inspection tests)
- Project Management items (sub-grouped as Resource Allocation, Effort, Risk and Metrics records)

These property types are all listed by default. If you do not want to show any particular type, you can filter the list.

1. Right-click on the Element Browser and select the

'Navigation options' command, to display the 'Select Visible' dialog.

2. Clear the check box against each property type to hide.

3. Click on the OK button.

Having listed the appropriate properties, you can also perform a number of operations on them, including dragging and dropping many of them onto other elements.

## Access

Ribbon	Design > Element > Properties > Element Browser Show > Portals > Window > Explore > Element Browser Start > Explore > Browse > Element Browser
Keyboard Shortcuts	Alt+9

## Options

Option	Action
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Display element 'Properties' dialog	Double-click on the element name at the top of the dialog (the root node).
Add items of a specific type	<p>Right-click on the property type name and select the 'Add New &lt;object&gt;' option. (This option is not applicable to Relationships or Linked Features, which cannot be created without using information external to the selected element.)</p> <p>The appropriate window or dialog displays, or the element 'Properties' dialog displays on the appropriate page. Add new or edit existing items as necessary.</p> <p>For example, if you right-click on the <i>Attributes</i> folder and select the 'Add New Attributes' option, the Features window displays at the 'Attributes' tab, and you can add to or edit the attributes in the element.</p>
Edit specific items	<p>Expand the appropriate folder and double-click on the required item.</p> <p>The 'Properties' dialog, docked window or view displays with the focus on the</p>



	<p>selected item. You can also go on to select and edit other items within the window or dialog.</p>
<p>Drag a relationship onto a diagram</p>	<p>Click on the relationship in the Element Browser and drag it onto the diagram.</p> <p>If the element at one or both ends of the relationship is not already on the diagram, those elements are also added to the diagram.</p> <p>If the relationship is already on the diagram, but hidden, it becomes visible again.</p> <p>Alternatively:</p> <ul style="list-style-type: none"><li>• Right-click on the <i>Relationships</i> folder name and select the 'Place All Related Elements in Diagram' option, or</li><li>• Right-click on the relationship and select the 'Place Related Elements in Diagram' option</li></ul>
<p>Hide/Show a Relationship in the current diagram</p>	<p>Right-click on the relationship in the Element Browser and select the 'Hide Relationship' or 'Show Relationship' option, as appropriate.</p>
<p>Display the 'Properties' dialog of the</p>	<p>Right-click on the relationship in the Element Browser and select the 'View</p>

other element in the relationship	Related Element Properties' option.
Locate the related element in the Project Browser	Right-click on the relationship in the Element Browser and select the 'Locate Related Element' option.
Locate the related element in other diagrams	Right-click on the relationship in the Element Browser and select the 'Find in all Diagrams' option.
Open an associated file	<p>Double-click on the required file path within the <i>Files</i> folder.</p> <p>If the file can:</p> <ul style="list-style-type: none"> <li>• Be opened within Enterprise Architect, the file opens on a separate tab in the Diagram View workspace</li> <li>• Not be opened within Enterprise Architect, the file opens in the default Windows viewer/editor for the file type</li> </ul>
Display the source code for a feature	Right-click on an attribute or operation in the <i>Attributes</i> or <i>Operations</i> folder or in the <i>Linked Features</i> folder, then click on

	<p>the 'View Source Code' option.</p> <p>Alternatively:</p> <ul style="list-style-type: none"><li>• Click on the attribute or operation and press Ctrl+E, or</li><li>• In the <i>Linked Features</i> folder, double-click on the attribute or operation</li></ul> <p>If no code has been generated for the selected feature, nothing happens.</p> <p>If code has been generated for the feature, the code is displayed. The source code viewer in which the source code displays depends on which editor you select as the default, either for the project as a whole or for a specific programming language; if you select the Enterprise Architect internal editor, the code displays in the Source Code Viewer with the cursor positioned on the selected feature.</p>
Add a property to another element	<p>Click on the property in the Element Browser and drag it onto the other element in a diagram. The properties you can do this for are:</p> <ul style="list-style-type: none"><li>• Attributes</li><li>• Operations</li><li>• Constraints</li><li>• Requirements</li></ul>

	<ul style="list-style-type: none"><li>• Tagged Values</li><li>• Maintenance Items</li><li>• Test Items</li></ul>
Attach a Recording Marker to an Operation	Right-click on the operation and select the 'Visual Analyzer   Set Breakpoint' option, and the option to set the required type of recording marker.

# The Document Window

The Document window has two tabs or pages, each of which supports the development and use of an important area of documentation of your model.

- The 'Dynamic Document' tab (the default) helps you to instantly generate a document on a selected element using one of a range of templates, to immediately display the information you require in the most appropriate structure and format; the document can be printed, but is not stored electronically - it is dynamically generated for the current element every time you select the tab and the template  
The 'Dynamic Document' tab is also the screen for displaying the information from the elements defined in a Reading List Artifact
- The 'Linked Document' tab provides several quick methods of checking elements for Linked Documents, and for reviewing the documents that exist; it also provides searches to locate and list any elements with Linked Documents in the model, and any elements that have Linked Documents that have been recently modified

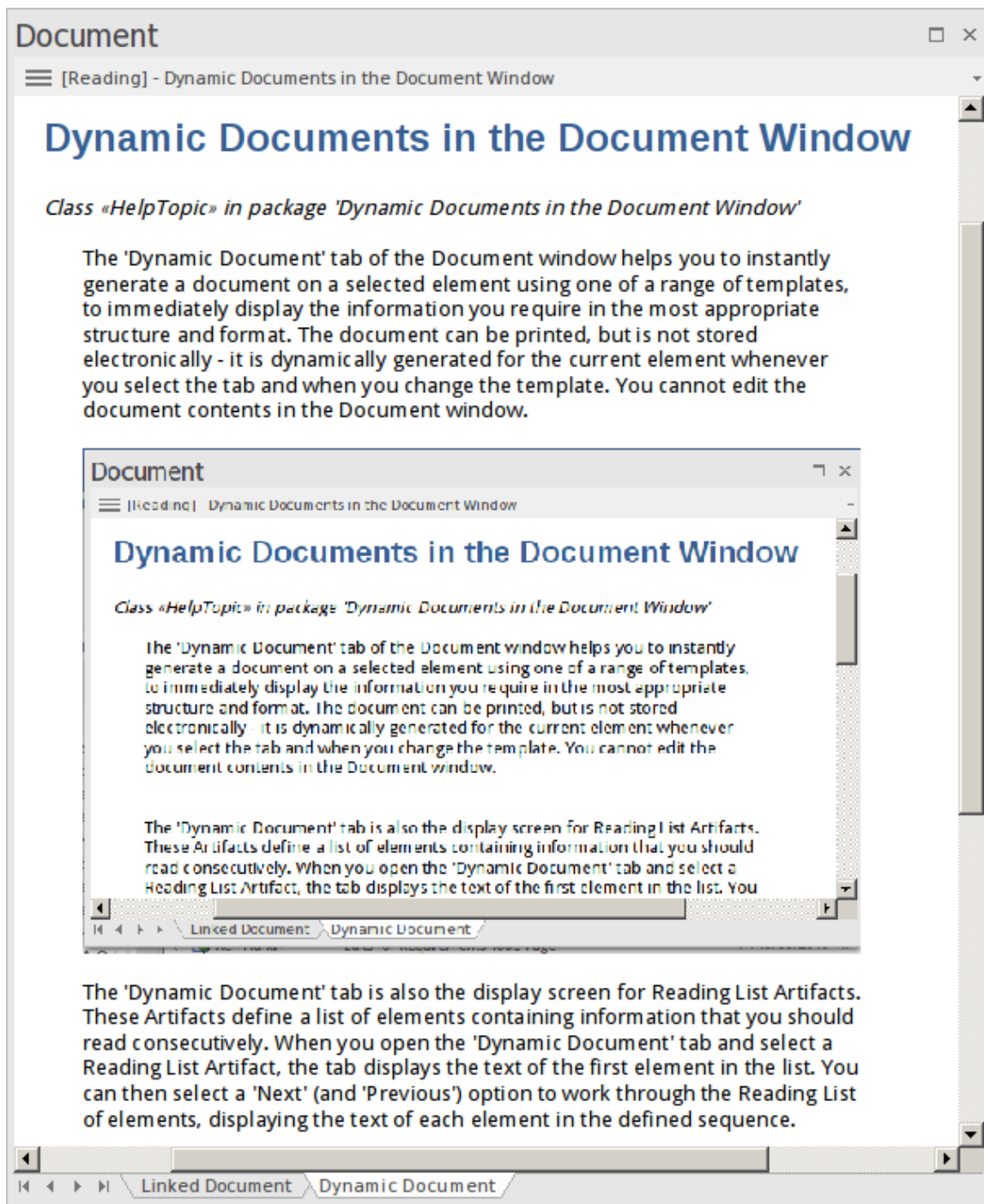
## Access

Ribbon	Start > Explore > Properties > Linked Document, or
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	<b>Show &gt; Portals &gt; Window &gt; Properties &gt; Document</b>
--	--

## Dynamic Documents in the Document Window

The 'Dynamic Document' tab of the Document window helps you to instantly generate a document on a selected element, using one of a range of templates to immediately display the information you require in the most appropriate structure and format. The document can be printed, but is not stored electronically - it is dynamically generated for the current element whenever you select the tab and when you change the template. You cannot edit the document contents in the Document window.



The 'Dynamic Document' tab is also the display screen for Reading List Artifacts. These Artifacts define a list of elements containing information that you should read consecutively. When you open the 'Dynamic Document' tab and select a Reading List Artifact, the tab displays the text of the first element in the list. You can then select a 'Next'



(and 'Previous') option to work through the Reading List of elements, displaying the text of each element in the defined sequence.

## Access

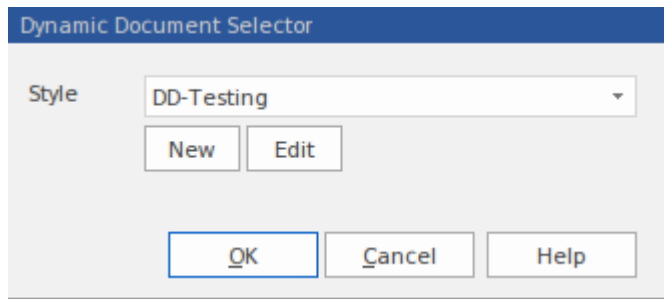
Ribbon	Start > Explore > Properties > Linked Document > Dynamic Document, or Show > Portals > Window > Document
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## Using the Dynamic Document tab

Initially, when you open the Document window at the 'Dynamic Document' tab, the window displays the Notes text from the currently-selected element, using the default Dynamic Document style sheet.

If you want to display information for a different aspect of the element:

1. Click on the '[Reading] - <element name>' header
2. Click on the 'Select Dynamic Style' option. The 'Dynamic Document Selector' dialog displays.



3. Click on the drop-down arrow in the 'Style' field and select one of the system-provided styles. These are designed to display information for specific aspects of relevant elements, such as Testing or Development.
4. Click on the OK button. The document is refreshed to show the required information in an appropriate format.

If the system-provided style templates do not support your requirements, you can quickly create your own style templates. A style template consists of one or more command lines, each of which defines an element type (or all element types) and the document template to apply to the generated document. The document template can be:

- A system-provided template, or
- A system-provided fragment, or
- A user-defined template, or
- A user-defined fragment

Information on setting up a style template is provided in the *Manage Dynamic Documents* section.

## Manage Dynamic Documents

Task	Description
Create Document Templates	<p>Document templates are held in the Resources window (Start &gt; View &gt; Explore &gt; Browse &gt; Resources) in the <i>Document Generation</i> folder. Whilst you can select existing system or user templates and template fragments for your dynamic document style template, you can also create new document templates or fragments specifically for dynamic documents. You could create these in the <i>Templates</i> or <i>Fragments</i> sub-folders of the <i>User Templates</i> folder, or you could create a separate sub-folder just for the dynamic document templates. Whether you select existing templates or create new ones, you must enable the <i>Elements</i> section in each template or fragment you use.</p> <p>You would start to create the new document templates by either:</p> <ul style="list-style-type: none"><li>• Right-clicking on the <i>Templates</i> sub-folder (or other sub-folder) name in the <i>User Templates</i> folder and selecting the 'Create Template' option, or</li><li>• Opening the 'Generate Documentation' dialog, clicking on the 'Templates' tab,</li></ul>

	<p>and then clicking on the New button</p> <p>In either case, the 'New Document Template' dialog displays, on which you specify the template name, type, source and group before going on to define the template contents.</p>
Create Style Templates	<p>Style templates are also held in the Resources window, in the <i>Document Generation &gt; Dynamic Documents Styles</i> folder.</p> <p>You can create a new style template:</p> <ul style="list-style-type: none"> <li>• Via the 'Dynamic Document Selector' dialog - click on the New button</li> <li>• Via the Resources window - right-click on the <i>Dynamic Documents Styles</i> folder name and select the 'Create Dynamic Document Style' option</li> </ul> <p>A prompt displays to enter the style template name; type the name in and click on the OK button. The 'Dynamic Style' dialog displays, in which you type the style definitions, in the format:</p> <p style="padding-left: 40px;">&lt;element name&gt;:&lt;stereotype&gt;:&lt;document template name&gt;</p> <p>If there is no stereotype, the format is:</p> <p style="padding-left: 40px;">&lt;element name&gt;::&lt;document template</p>

name>

The <element name> is an IF argument, to state that if the 'Dynamic Document' tab is opened for an element of the defined type, the specified document template (or fragment) is used to format its documentation. If you want to use a specific template for information from an element of unspecified type (that is, a *defined* default) you would type:

Default::<document template name>

You could also apply the *system* default template for displaying information from an element of unspecified type, by just having the specified element statements with no 'Default' statement at the end.

In this example, one template is defined to display information when the selected element is a Use Case, another for information from elements used by Project Support, a third for information from elements used in Database Engineering, and a fourth (a defined default) for information from any other kind of element.

UseCase::DD-UseCase

	<p>Change::DD-Support</p> <p>Feature::DD-Support</p> <p>Issue::DD-Support</p> <p>Requirement::DD-Support</p> <p>Risk::DD-Support</p> <p>Task::DD-Support</p> <p>Class:Table:DD-DB Table</p> <p>Class:view:DD-DB SQL Element</p> <p>Class:dbsequence:DD-DB SQL Element</p> <p>Class:function:DD-DB SQL Element</p> <p>Class:procedure:DD-DB SQL Element</p> <p>Class:stored procedure:DD-DB SQL Element</p> <p>Class:trigger function:DD-DB SQL Element</p> <p>Class:functions:DD-DB SQL Element as Ops</p> <p>Class:sequences:DD-DB SQL Element as Ops</p> <p>Class:stored procedures:DD-DB SQL Element as Ops</p> <p>Class:procedures:DD-DB SQL Element as Ops</p> <p>Class:package:DD-DB SQL Element</p>
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	<p>as Ops</p> <p>Artifact:sqlquery:DD-DB SQL Query</p> <p>Default::DD-Basic</p>
Apply Style Templates	<p>Having created a style template in the Resources window, you can immediately apply it to the information you display in the 'Dynamic Document' tab.</p> <p>As explained in the <i>Using the Dynamic Document Tab</i> section, you click on the [Reading] header and on the 'Select Dynamic Style' option, and then click on the drop-down arrow in the 'Style' field. Your new style template will be listed with the system templates and other user-defined templates.</p> <p>Click on the style template to apply in the 'Dynamic Document' tab, and then on the OK button.</p> <p>The selected style will be applied to all documents shown in the 'Dynamic Document' tab until you specifically change it again.</p>
Increase or reduce magnification	<p>By default, the 'Dynamic Document' tab displays text as if it were printed on an A4 sheet. This is 100% zoom. If you want to change the display magnification,</p>

	<p>click on the [Reading] header and select the 'Fixed Zoom' option. This provides a small set of magnification options - '75%', '100%', '125%', '150%' and '200%'. It also provides a 'Custom' option; if you select this, a small dialog displays in which you type the percentage magnification you prefer, between 10% and 500%.</p> <p>When you click on the option, or the OK button on the small dialog, the selected magnification is applied to the display. The zoom factor remains set after you close the Document window, and is applied when you re-open the window until you specifically change the zoom.</p>
Display or hide page outline	<p>The Document window defaults to displaying information within the framework of a page, but you can toggle to a full-screen display by clicking on the [Reading] header and selecting the 'Toggle Page Border' option.</p>
Scroll through elements	<p>In the 'Dynamic Document' tab, you can display the information from a set of elements in sequence, using the 'Next' and 'Previous' options from the [Reading] header context menu. If you have</p>



	<p>selected a:</p> <ul style="list-style-type: none"><li>• Reading List Artifact element, the 'Next' and 'Previous' options display the information from the next or previous element in the <i>reading list</i>, wherever they might be in the model</li><li>• Other type of element, the 'Next' and 'Previous' options display the information from the next or previous element in the parent element or Package, as listed in the Project Browser; the options cannot scroll outside the containing object</li></ul>
Edit Style Templates	<p>You can edit a style template:</p> <ul style="list-style-type: none"><li>• In the Resources window by right-clicking on the template name and selecting the 'Edit Dynamic style' option, or</li><li>• In the Document window by displaying the 'Dynamic Document Selector' dialog, selecting the style and clicking on the Edit button</li></ul> <p>In either case, the 'Dynamic Style' dialog displays, and you can delete or change the statements as necessary. Right-click on a line of text to display a context menu providing basic editing options.</p>

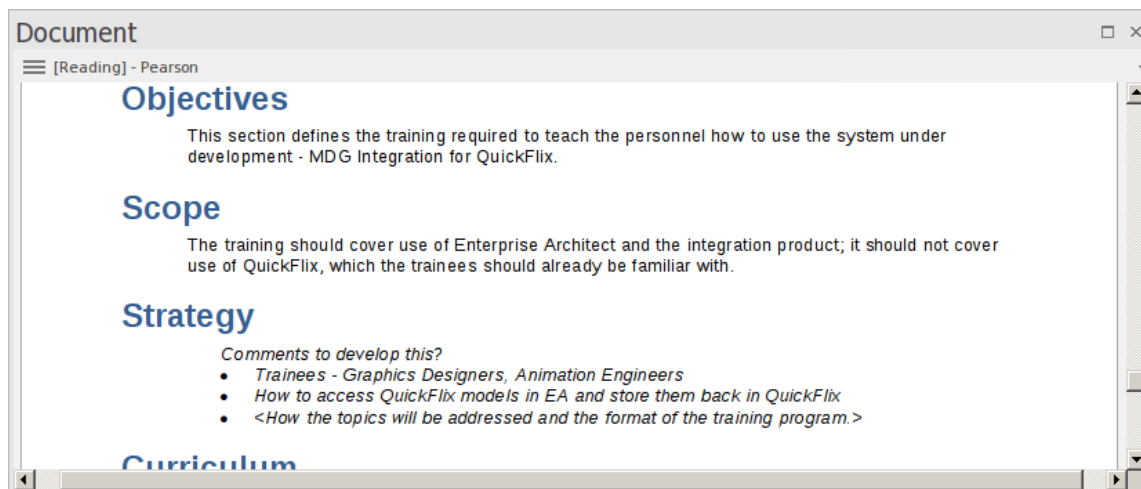
<b>Refresh the Display</b>	<p>To update the display with any changes made to the information within the selected element, click on the [Reading] header and select the 'Refresh' option.</p> <p>The 'Dynamic Document' tab with the 'Refresh' option is a useful tool for developing a document. You review the element's information in the Document window, make any changes you think appropriate within the element, then select the 'Refresh' option to immediately update the 'Dynamic Document' tab to show the changes. You can therefore check how a document generated from the element would look, as you develop it.</p>
<b>Print the document</b>	<p>If you want to print a hard copy of the element's information, simply click on the [Reading] header and select the 'Print' option. The contents of the Document window are sent to the system default printer</p>

# Linked Documents in the Document Window

The 'Linked Document' tab of the Document window provides several quick methods of checking elements for Linked Documents, and for reviewing the documents that exist. It also provides searches to locate and list any elements with Linked Documents in the model, and any elements that have Linked Documents that have been recently modified.

When you click on an element in the Project Browser, a diagram or an element list - such as the results of a search - the 'Linked Document' tab displays the name of the selected element and, if it has a Linked Document, the content of that document. If the element does not have a Linked Document, the content panel is blank. If you click on another element, the window updates immediately to show the element name and Linked Document (if any) of that element. You can therefore quickly scan a number of elements to check whether they have Linked Documents, and/or review the documents you locate. The 'Linked Document' tab provides options for reviewing the Linked Document, including switching to an Edit mode so that you can create or update the document.

Note that there are many options for creating a Linked Document via the Linked Document Editor, which is an alternative method. See the *Edit Linked Documents* Help topic.



## Access

Ribbon	Start > Explore > Properties > Linked Document or Show > Portals > Window > Document > Linked Document
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## View Document

When you first open the Document window, it shows the selected element's Linked Document in View (Reading) mode. The element name displays in the menu button at the top of the window, with the prefix 'Reading'. Click on the menu button to access these options:

Option	Description
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Edit Mode	<p>Switches the document into Edit mode and displays the Document Edit ribbon, which provides the facilities for updating the document. If the element does not currently have a Linked Document, you can immediately start typing in the display panel or import a file to create a Linked Document for the element.</p> <p>If the selected element is locked, the menu button displays the text '[Locked] - &lt;element name&gt;', and you cannot edit the Linked Document. Similarly, if you have edited the document but not yet saved the changes, the menu button displays an asterisk in front of the element name: for example, *PersonClass.</p> <p>While in edit mode, the Document window becomes locked to the parent element, and selecting another element or context will not switch the window to a different document. This helps you to move around the model, checking and gathering information without having to close and open the document several times. Once you quit edit mode, the window will again immediately refresh to show the document for whichever element you select. To switch out of Edit mode, click on the menu button and</p>
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	deselect the option.
Lock Element	Locks the element against changes - including changes to the Linked Document. Deselect the option to unlock the element and allow changes.
Reload	Refreshes the content of the displayed document from the last-saved version.
Find in Project Browser	Expands the Project Browser and highlights the Linked Document's parent element.
Find in Diagrams	Opens the diagram containing the Linked Document's parent element, with the element selected. If the element exists in more than one diagram, the 'Element Usage' dialog displays, from which you can select the diagram to open.
Fixed Zoom	Displays a short list of magnifications (as a percentage of 'normal' size) you can select to zoom the document display to, as well as a 'Custom' option that opens a dialog on which you can set any magnification between 10% and 500%. The zoom factor remains set after you close the document, and is applied when

	you re-open the document until you specifically change the zoom.
Toggle Page Border	Switches between full-screen display and page outline display (the default) where the information is shown within the framework of a page border.
Find Elements with Linked Documents	Opens the Find in Project view preloaded with an executed search for elements that have Linked Documents; as you click on an item in the search results, the Document window shows the corresponding Linked Document.
Find Elements with Linked Documents Modified Recently	Opens the Find in Project view preloaded with an executed search for elements that have Linked Documents that have updated within the last seven days (you can re-execute the search with a different number of days); as you click on an item in the search results, the Document window shows the corresponding Linked Document.
Delete Linked Document	Deletes the Linked Document currently displayed in the window. A prompt displays for you to confirm the deletion.

Print	Displays the 'Print' dialog, which you use to configure the print job for printing the Linked Document.
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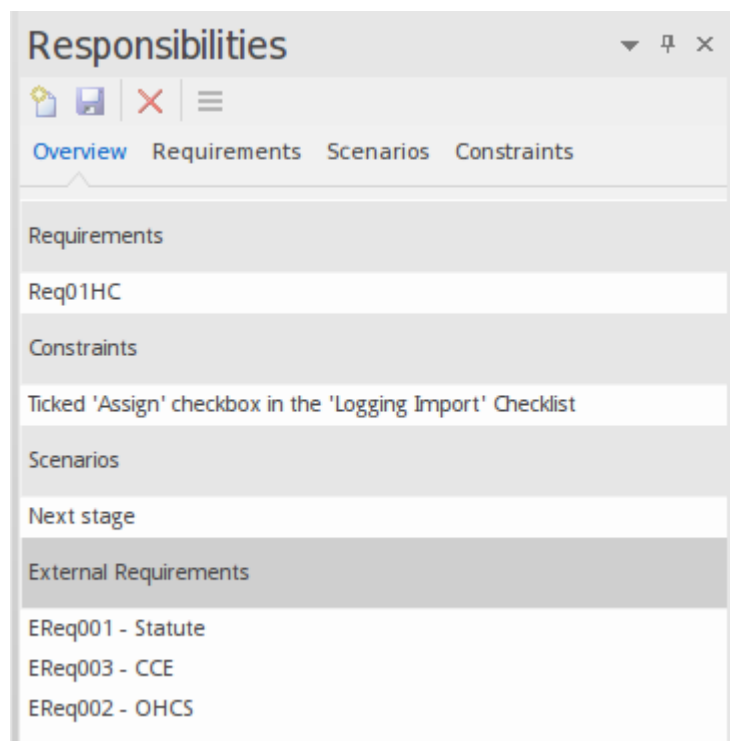


# Responsibilities

The Responsibilities window provides a convenient method of quickly adding, viewing, editing and deleting rules applied to an element. The window shows details of the entities that impose such rules or restrictions on the element, namely:

- The element's scenarios
- The element's internal constraints (not external Constraint notes)
- The element's internal requirements

The window also has an 'Overview' tab that lists all the Requirements, Scenarios and Constraints on the selected element, so that you can quickly see what has been defined and select a specific entity for further examination. If you double-click on an entity, its properties are shown on the appropriate tab of the window. The 'Overview' tab also shows any external Requirement elements connected to the selected element.



## Access

Select the element in the Project Browser or diagram and select one of these options to display the Responsibilities window:

Ribbon	Design > Element > Responsibilities > <entity type> or Overview
Keyboard Shortcuts	Ctrl+Shift+3

## Use of the window

The Responsibilities window is typically used to examine Use Case and Test Case elements, and any other elements that realize an internal Requirement.

For convenience, you can display the window as a dockable window at the edge of your workspace, or as a floating window.

On the 'Overview' tab, you can right-click on one of the external Requirement elements and select to locate it in either the Project Browser or any diagram that contains it. If the element is used in more than one diagram, the 'Element Usage' dialog displays, from which you can select the instance to examine. See the *Show Element Use* Help topic.

## Review an internal requirement, constraint or scenario for an element

Step	Action
1	Select the element in the Project Browser or diagram and select the 'Design > Element > Responsibilities' ribbon option.
2	Double-click on the item to display. The appropriate window tab displays, with the details of the selected

	<p>item in the fields.</p> <p>If there is no item of the required type, and you want to create one, click on the corresponding tab ('Requirements', 'Scenarios' or 'Constraints').</p>
3	<p>The toolbar icons, from left to right, enable you to:</p> <ul style="list-style-type: none"><li>• Add a new item to the current screen (click on the appropriate tab to create an item of a different type)</li><li>• Save the new or edited item</li><li>• Delete the current item</li></ul> <p>You can also add or edit formatted notes in the 'Notes' field, using the Notes toolbar at the top of the field.</p> <p>For a requirement, the drop-down arrow to the right of the 'Requirement' field displays a list of existing internal requirements on the element. If you right-click on a requirement in the list, an option displays for converting the selected internal requirement into an external Requirement element.</p>

## Select <Item> Dialog

The 'Select <Item>' dialog is a multi-purpose browser and search tool for locating model items such as Classifier elements, properties, attributes and behaviors. The <Item> in the dialog title changes to represent the type of item the original operation is working on.

The dialog is called in a range of operations; for example, setting:

- The base type or classifier for an Object, Swimlane or Lifeline
- Classifiers for the return types for operations
- Classifiers for generalization sets
- The Composite diagram for an element
- The Information Item or classifier elements conveyed or realized on an Information Flow
- The associated behavior for a behavior call
- The type and return type for operation parameters
- Activities for State transitions
- Use Case Scenarios
- Pattern element defaults
- Activities from which to generate code
- The values of Tagged Values


## Multiple Selection

Where an operation permits the selection of multiple items, the 'Select <Item>' dialog is automatically enabled to support this; to select the items, press the Ctrl key as you click on each item.

If you want to cancel a selected item, press the Ctrl key and click on the item. If you want to cancel selection of all items, just click on any item without pressing the Ctrl key

Having selected an item, you can continue to expand and browse the hierarchy, and/or search for items; the dialog retains the existing selections until you click on the OK button.

## Select a required item

Step	Action
1	During an operation, when it is necessary to locate an element or feature, click on the  button. The 'Select <Item>' dialog displays.
2	If required, in the 'Go To Namespace' field select a namespace to reduce the scope of the displayed hierarchy. The dialog opens the section of the hierarchy associated with that namespace, and closes all

	previously-open sections associated with other namespaces.
3	<p>You can either:</p> <ul style="list-style-type: none"><li>• Expand the selected area of the hierarchy on the 'Browse' tab, or any other Package, and locate the required item (go to step 5) or</li><li>• Click on the 'Search' tab and, in the 'Find' field, type a partial or complete text string to search for the item</li></ul>
4	<p>On the 'Search' tab, you can filter the search further by selecting the 'Whole Word' and 'Match Case' checkboxes.</p> <p>Each list entry shows the name of the item, the type, any stereotype the item has, the immediate Package in which the item is held, and any successive parent Packages (the Package path).</p> <p>You can either:</p> <ul style="list-style-type: none"><li>• Select the item immediately on the 'Search' tab or</li><li>• Right-click on one item or a group of items and select the 'Locate item(s) in tree' option; this redisplay the 'Browse' tab and highlights each selected item in the &lt;namespace&gt; hierarchy</li></ul>
5	Click on the required item.
6	Click on the OK button.

## Notes

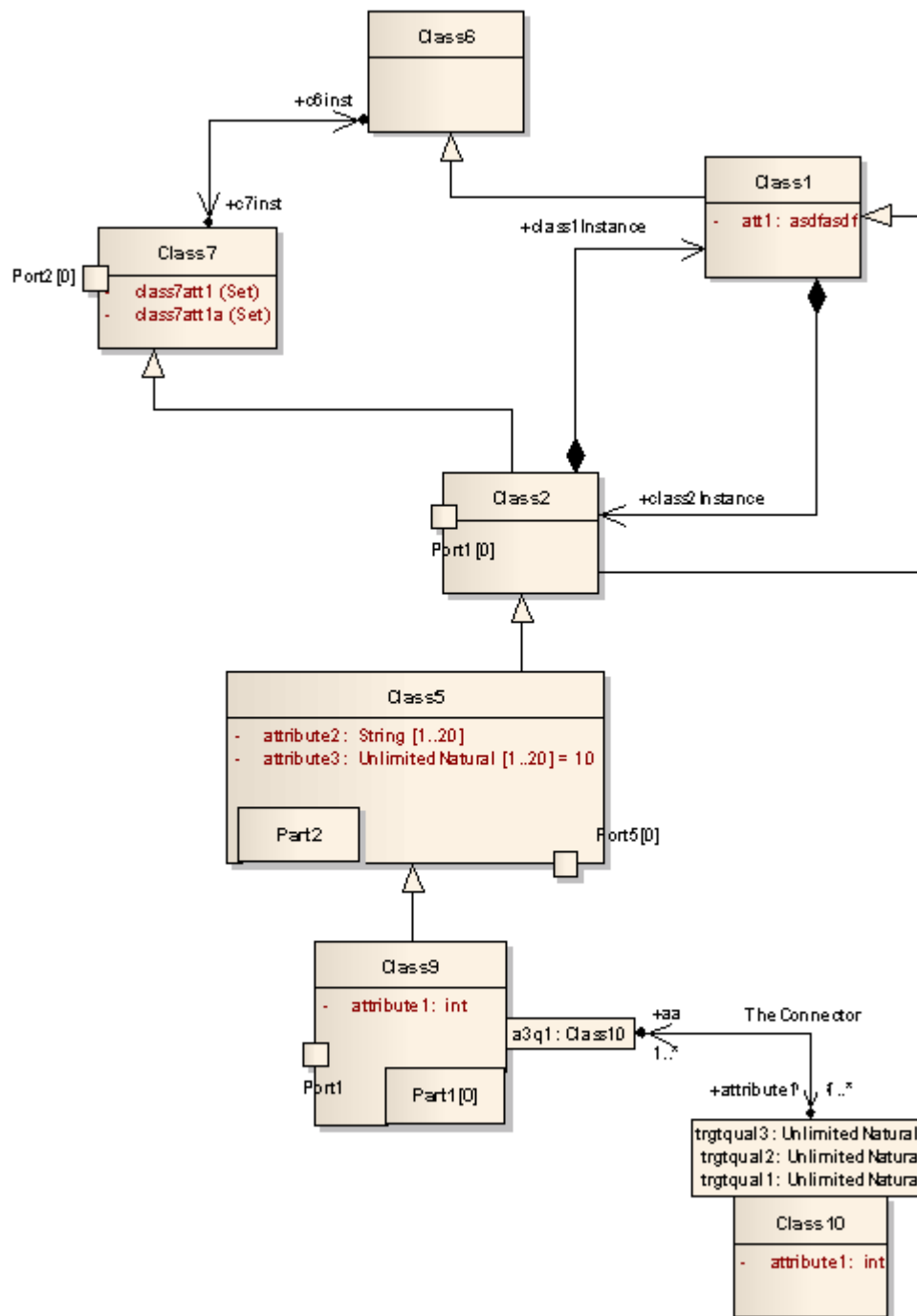
- When you have selected an item, the 'Select <Item>' dialog retains the context and item; next time you display the dialog, if the context is similar the dialog opens to the same Namespace and item - for example, if you have selected an activity for a State transition and you start to do the same for another transition, the dialog opens to the activity you previously selected
- If the context is totally dissimilar, the dialog opens with the Namespace < any > and a collapsed model hierarchy
- If the available items do not meet your requirements, you can create a new item and define the appropriate properties - click on the Add New button; the appropriate 'Add <Item>' dialog displays, on which you define the required item
- The Add New button is not always available, depending on the context and the type of item being searched for



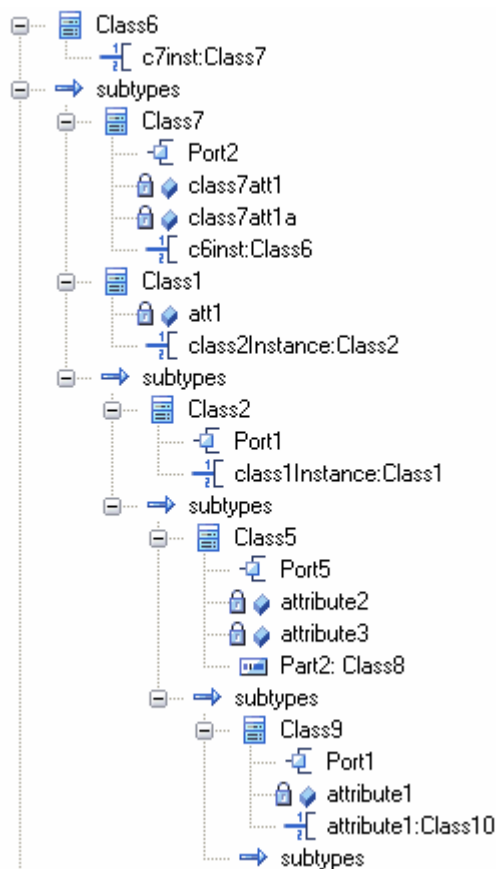
# Select Property Dialog

The 'Select Property' dialog is a specific instance of the 'Select <Item>' dialog; it is used to select Ports, Parts, Attributes and Association Ends as redefined or subsetting properties, from a hierarchical list of Classes and their contained properties in the model. As an example, consider this section of the model:

## Example



This would be represented in the dialog as shown:



Locate and click on the required object to select it, then click on the OK button (to select several objects at once, press and hold Ctrl while you click on each object).

## Notes

- AssociationEnds should be owned by the Class to be listed in the dialog

# Set Feature Dialog

The 'Set Feature' dialog is the 'Set Operation' dialog used to change the operation represented by an Action on a diagram. As the 'Set Operation' or 'Set Attribute' dialog, it is also used to set the 'Value' operation or attribute for Tagged Values of type RefGUID or for the target of a hyperlink in a diagram.

## Locate and select a value operation or attribute

Step	Action
1	The 'Set Operation' (or 'Set Attribute') dialog displays, with the model hierarchy opened at the point at which you selected the original operation or attribute.
2	If required, in the 'In Namespace' field, click on the drop-down arrow and select another model that contains the required operation or attribute. The Package hierarchy for that model displays.
3	Browse through the hierarchy, or use the 'Search' tab to locate the required operation or attribute, then

	double-click on the item to select it.
--	--

# Element Context Menu Operations

You can perform a wide range of operations on element objects on a diagram, such as displaying an element's structural components, displaying or hiding its features on the diagram, and changing the element's appearance. You access these operations through the element context menu. If you are working under a technology such as SysML or BPMN, the menu can also provide options that are specific to that technology.

## Access

Context Menu	Right-click on element on diagram
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## Element Context Menu Options

Option	Action
Specialize	Select this option to access a submenu of enabled Technologies on the system (for example, ArcGIS or TOGAF), each of

	which provides options for performing technology-specific operations on the element.
Collaborate	Select this option to display a short menu of options to exchange electronic notes with team colleagues, in the form of formal Reviews, informal Discussions and, if User Security is enabled, Chats and Model Mail messages on the selected element.
Properties	<p>Select this option to display a submenu of options for displaying different aspects of the properties and features of the element, including the:</p> <ul style="list-style-type: none"><li>• Properties window</li><li>• A special dialog to define unique aspects of certain types of element (the 'Special Action' option); for State Lifeline and Value Lifeline elements, the 'Configure Timeline' dialog displays, and for a Required Interface element, the 'Exposed Interface' dialog displays</li><li>• Notes window</li><li>• Responsibilities window (for Requirements, Scenarios and Constraints)</li></ul>

	<ul style="list-style-type: none"><li>• Tagged Values window</li><li>• Summary window</li><li>• Document window (for Linked Documents)</li></ul>
Features	<p>Select this option to:</p> <ul style="list-style-type: none"><li>• Display the appropriate page of the Features window to add attributes, operations or interaction points (structural elements such as Ports and Parts) to the element; for a Classifier that is the target of a Signal element, you can also add Receptions</li><li>• Override any inherited attribute values set on the element</li><li>• For an Object or State element, add a new instance variable to the element using the 'Define Run State' dialog</li><li>• For elements that can have interfaces, show realized and/or dependent interfaces</li><li>• For Database Table elements, define columns and constraints/indexes</li></ul>
Linked Document	<p>(Corporate, Unified and Ultimate editions) Select this option to create a document linked to the element.</p> <p>Shortcut: Ctrl+Alt+D</p>



Compartment Visibility	Select this option to define the visibility of features and compartments on all selected elements. Shortcut: Ctrl+Shift+Y
Insert Related Elements	Select this option to display the 'Insert Related Elements' dialog, to add elements related to the selected element to the current diagram.
Clone Element as New Version	Select this option to copy the structure of the selected element and paste it into the Project Browser as a new element and contents; a prompt displays for you to enter a version number for the new element, followed by a browser on which you select its parent Package or element.
Advanced	Select this option to open the 'Advanced' sub-menu, which provides options for performing more complex or specialized operations on the element.
New Child Diagram	Select this option to display a submenu, listing - in order: <ul style="list-style-type: none"><li>• Options for creating and displaying the child diagram for a Composite element</li><li>• For classifier elements, options to</li></ul>

	<p>create Activity, Interaction, StateMachine or Rule Flow elements that encompass the appropriate type of child diagram</p> <ul style="list-style-type: none"><li>• Individual types of child diagram (often technology-specific) that you might usually create for this type of element</li><li>• An option to display the 'New Diagram' dialog to add any other type of diagram as the child diagram of this element</li></ul>
New Child Element	<p>Select this option to attach:</p> <ul style="list-style-type: none"><li>• One of a number of types of structural element, such as a Port, Part or Activity Parameter, to the selected element, or</li><li>• A text element to the selected element, documenting a Note, Constraint, Rationale or Problem</li></ul>
Simple Decision Table	<p>This option displays for a selected Activity or Action element. Select it to display a sub-menu providing these options:</p> <ul style="list-style-type: none"><li>• Decision Table - Display, set up and edit the Decision Table for the element</li><li>• Draw as Decision Table (Rules as Columns) - replace the element shape on the diagram with its Decision Table,</li></ul>

	<p>showing the decision rules as columns</p> <ul style="list-style-type: none"> <li>• Draw as Decision Table (Rules as Rows) - replace the element shape on the diagram with its Decision Table, showing the decision rules as rows</li> <li>• Draw as Activity / Action - where an element is rendered as a Decision Table on the diagram, re-display it as the normal element shape</li> </ul> <p>The element is automatically sized to display the rule text; you cannot change the element size manually.</p> <p>If the selected element is a Rule Task element, the submenu option is 'Rule Composer', which invokes the Rule Composer in Business Rule Modeling.</p>
Create Document to Artifact	<p>(On an Artifact element linked to a Report Package or Model Document element). Select this option to generate a virtual document as the Linked Document of the Artifact element. The 'Generate Documentation' dialog displays.</p>
Clear Checklist	<p>Select this option to clear any selected checkboxes in the current Checklist Artifact element.</p>

Checklist Spacing	Select this option to change the spacing between the items in the Checklist Artifact. A short list of spacing options displays, from which you select the required spacing.
Find	Select this option to display the 'Find' submenu, which provides options for: <ul style="list-style-type: none"><li>• Locating the selected element in other diagrams and in the Project Browser, and</li><li>• Setting up cross references (Custom References) to other elements</li></ul>
Copy/Paste	Select this option to display a list offering these options for copying the selected element: <ul style="list-style-type: none"><li>• Copy - copy the element; you can select the 'Paste' option on the diagram context menu to paste the element into the diagram in a number of ways</li><li>• Copy Image to Clipboard - copy the element image to the clipboard; you can use the 'Apply Image from Clipboard' option to recover and use the image elsewhere</li><li>• Apply Image from Clipboard - paste the element image current held in the clipboard into the diagram as the image</li></ul>

	of the currently-selected element; the image is shown as a labeled frame
Appearance	Select this option to display a short menu of options to change and reproduce the appearance of the element.
Behavior	<p>Select this option to display a short submenu, from which you:</p> <ul style="list-style-type: none"><li>• Switch the element between Info View display style and 'normal' UML style</li><li>• Set the element characteristics that are shown in Info View style</li><li>• Toggle the Dockable, Selectable and Printable settings on the element</li><li>• (Where an element has a structured element - such as a Port - shown in an element compartment) bind the Port to the compartment border rather than allowing it to move to any point on the parent element outline</li></ul>
Lock Element	<p>Select this option to lock the element so it cannot be edited; to unlock the element, select 'Lock Element' again.</p> <p>This does not apply in the Corporate, Unified and Ultimate editions when security is enabled; in that situation, use</p>

	the 'Lock' option for model elements.
Z-Order	<p>Select this option to display a short submenu providing options to:</p> <ul style="list-style-type: none"><li>• Move the element further back in the diagram</li><li>• Move the element further forward in the diagram</li><li>• Put the element at the back of the diagram</li><li>• Put the element at the front of the diagram</li></ul>
Type Information	Select this option to display the Help topic describing the type of element you have selected.
Delete <element name>	<p>Select this option to delete the element from the diagram. The element still exists within the model and can be accessed from the Project Browser.</p> <p>Shortcut: Ctrl+D</p>

## Notes

- If you select two or more elements at the same time, you

can perform an operation on all of the selected elements at once; the operations available for multiple selection are provided on a separate context menu

# Selectable, Dockable and Printable Options

The 'Selectable', 'Dockable' and 'Printable' options on the element context menu control several aspects of an element's behavior on a diagram.

## Access

Context menu	On a diagram, right-click on an element and select the 'Behavior' option.
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## Behavior Options

Option	Description
Selectable	Select or deselect this option to toggle whether the element is selectable or not: <ul style="list-style-type: none"><li>• If an element is selectable, you can move it around the diagram and perform right-click context menu operations</li></ul>



	<ul style="list-style-type: none"><li>• If an element is unselectable, you cannot move it around the diagram and the only right-click operation available is to make the element selectable</li></ul> <p>This option has no effect on double-click operations on the element, such as displaying child diagrams or 'Properties' dialogs.</p> <p>An element on a locked diagram is also unselectable - if you click on it, the element outline displays in red.</p> <p>In a diagram, you can filter the display to show selectable or non-selectable elements only.</p>
Dockable	<p>Select this option to align and join two elements either vertically or horizontally, on the current diagram only.</p> <p>Both elements must have the 'Dockable' option selected, and must have the joining edges parallel.</p> <p>As the distance between the elements narrows, the moving element snaps to the edge of the other element.</p> <p>For Activity Partitions, the option is selected by default.</p> <p>Deselecting the 'Dockable' option does not separate the elements; if necessary,</p>

	you can simply move the elements apart again.
Printable	<p>Defaults to selected, so that the element is depicted in any diagrams in reports generated on its parent Package.</p> <p>If you click on the option to deselect it, the element and its connectors will <b>not</b> be visible in any diagrams in reports. You can, however, deselect a report option for an instance of a report to force the display of non-printable elements.</p> <p>Deselecting this option also hides the element and its connectors in the 'Print Diagrams', 'Print to PDF' and 'Save Diagram as Image' operations.</p>

# Advanced Operations on Elements

You can perform a wide range of more specialized functions on an element, specific to the element type and its relationship to other modeling objects.

## Access

Context Menu	Right-click on element on diagram   Advanced
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## Advanced Options

Option	Action
Instance Classifier	(For an instance or Object element) Select this option to set the instance classifier for the element, on the 'Select <Item>' dialog. Shortcut: Ctrl+L
Parent	(For a classifier element that can be generalized) Select this option to set the

	element's parent. Shortcut: Ctrl+I
Show element classifier	Shows or hides the classifier names on Port elements.
Classifier Properties	(For an instance or Object element) Select this option to open the 'Properties' dialog for the classifier of the selected element. Shortcut: Ctrl+Alt+Enter
Change to State (Value) Lifeline	(For a State Lifeline or Value Lifeline element) Select this option to switch one type of Lifeline element to the other.
Set Property Type	(For a Part element) Select this option to browse for and select the element that defines the Part type, using the 'Select <Item>' dialog.
Multiplicity	Select this option to define the multiplicity for the element, using the format defined on the 'Cardinality Values' tab of the 'UML Types' dialog ('Configure > Reference Data > UML Types'). This is the number of instances of the

	element that can exist in a set; the value displays on the element in a diagram, in the 'Name' compartment.
Port Size Customizable	(For a Port element) Select this option to allow users to resize the Port from the default size. If the option is not set, the element size cannot be changed.
Show Element Type	(For a Port or Part element) Select this option to toggle between displaying and hiding the element type, as set using the 'Set Property Type' option or on the 'Property' tab of the element's 'Properties' dialog.
Set Property Values	(For a Part element) Select this option to set the property value for the Part, using the 'Set Property Values' dialog. Shortcut: Ctrl+Shift+R
Edit Extension Points	(For a Use Case element) Select this option to display the 'Use Case Extension Points' dialog, which you use to insert the point at which the behavior should be inserted.
Association Class	(For a Class element) Select this option to connect the Class to a new Association.

Use Rectangle (Circle, Actor) Notation	(For an element that uses non-rectangular notation) Select this option to apply rectangle notation to the element (and switch back again).
Partition Activity	(For an Activity element) Select this option to define an Activity Partition in the element.
Set Object State	(For an Object or instance element) Select this option to set the state of the element based on the child states of its classifier. Shortcut: Ctrl+Shift+S
Override Attribute Initializers	(For a Class element with attributes) Select this option to pre-define initial values for attributes that can be used to override existing defaults. Shortcut: Ctrl+Shift+R
Convert to Instance (Property/Invocation)	Select this option to convert a classifier to an instance, property or invocation, depending on the type of classifier selected (for example, SysML classifiers are always converted to properties).

Convert Linked Element To Local Copy	Select this option to convert the occurrence of the element on the current diagram from a link to the original element to a local copy of the element. A copy of the element is also added to the diagram's parent Package in the Project Browser.
Make Sender/Receiver	(For Send and Receive Event elements) Select this option to toggle the element from a sender to a receiver and vice versa.
Accept Time Event	(For a Receive element) Select this option to change the notation from an Accept Event action to an Accept Time Event action.
Define Concurrent Substates	(For a State element) Select this option to define the set of substates that can be held simultaneously within that composite State.
Use State Label Notation	(For a State object) Select this option to switch to State Label Notation (the element name is displayed on a box on top of the element rather than inside it).
Deep History	(For a History pseudo-State) Select this

	option to change the type of a shallow History pseudo-state to a deep History pseudo-state.
Transform	Select this option to transform the selected element from one domain to another. Shortcut: Ctrl+H
Set Attached Links	(For a Note element) Select this option to attach the element to a connector, or several connectors on the diagram.
Link to Connector Constraints	(For a Note element) Select this option to display the connector type and to list the constraints of the associated connector in the Note element.
Link to Connector Notes	(For a Note element) Select this option to display or hide the text assigned to a connector's 'Notes' field.
Link to Connector Tagged Values	(For a Note element) Select this option to display the connector type and to list the Tagged Values of the associated connector in the Note element.
Link to Diagram	(For a Note element) Select this option to display the diagram notes as the text of



Notes	<p>the Note element.</p> <p>Any current text is deleted and the Note is blocked from being edited other than through the 'Notes' field in the diagram 'Properties' dialog.</p>
Hide (Show) attached links	<p>(For a Memo style or Memo2 style Note element) Select this option to hide or show the Notelink connectors to the elements to which the Note refers.</p>
Vertical Partition	<p>(For an Activity Partition element) Select this option to switch a horizontal Partition to a vertical Partition.</p>
Tagged Value	<p>Select this option to add a Tagged Value to the selected element, through the 'Tagged Value' dialog. The Tagged Values window (if not already open) is also opened so that you can do further work on the Tagged Value, such as create Notes.</p>

## Notes

- Context menus vary between element types, and few of

the menu options shown here are present on all element context menus; 'Tagged Value' is often the only option available

- If an element appearance is overridden by a Shape Script, several of the appearance options are disabled; for example, 'Use Rectangle (Circle) Notation'

# Finding Elements

When you have selected an element on a diagram, you might want to find out where it is held in the model structure, where else it is used in the model, and how to locate it easily in the future. For these operations, you can select the 'Find' submenu.

## Access

Ribbon	Design > Element > Edit > Find in Diagrams Design > Element > Edit > Find in Project Browser
Context Menu	Right-click on element   Find (see <i>Find Options</i> for a description of the sub-menu).
Keyboard Shortcuts	Alt+G (find in Project Browser) Ctrl+U (find in all Diagrams)

## Find Options

When 'Find' is selected from the context menu, a sub-menu is displayed, providing options as described here.

Option	Action
Locate in State Table Locate in State Chart	For a State element, select this option to switch to the alternative diagram display format and highlight the element.
In Project Browser	Select this option to highlight the currently selected element in the Project Browser. Shortcut: Alt+G
Locate Classifier In Project Browser	For an instance or Object, select this option to highlight the classifier for that element in the Project Browser. Shortcut: Ctrl+Alt+G
Locate Operation in Project Browser	For an Action element, select this option to highlight the call operation for that element in the Project Browser. Shortcut: Ctrl+Alt+G
Find in all Diagrams	Select this option to list the other diagrams in which the element is also used, on the 'Element Usage' dialog.

	Shortcut: Ctrl+U
Custom References	Select this option to identify and, if necessary, open the 'Properties' dialog for any elements that are the target of a cross reference from the selected element. Shortcut: Ctrl+J
Add to Favorites	Select this option to add the selected element to the <i>Favorites</i> folder in the Resources window.

# Changing Element Appearance

If you want to modify the appearance of a specific element on a diagram, you can use a range of facilities available through the element context menu on the diagram.

Some of these facilities are also available via the Layout ribbon's Style panel, or through the Format toolbar.

## Access

Ribbon	Layout > Style (changes the appearance of the selected element on the current diagram only)
Context Menu	Right-click on the element on the diagram and select the 'Appearance' option; this displays the 'Element Appearance' sub-menu, described here.
Keyboard Shortcuts	F4 (displays the 'Default Appearance' dialog, described here)
Other	Right-click on the element on a diagram - the Format toolbar is displayed above the context menu. (The Format toolbar changes the

	appearance of the selected element on the current diagram only.)
--	--

## Element Appearance Options

Option	Action
Default Appearance	<p>Click on this option to override the global default appearance of all elements (which you set on the 'Standard Colors' and 'Diagram Appearance' pages of the 'Preferences' dialog) with a different default for just the selected element on all diagrams in which it is used.</p> <p>To change the appearance of the selected element on the current diagram only, use the Format toolbar.</p> <p>Shortcut: F4</p>
Apply Image From Clipboard	<p>Click on this option to paste the image held on the clipboard onto the selected element, as an alternative image.</p> <p>This image is added to the Image Library under an automatically-assigned name. The image can be accessed from and renamed in the Image Manager.</p>

Select Default Image	<p>Click on this option to change the element's appearance to an alternative image, using the Image Manager.</p> <p>This appearance applies to the element on all diagrams in which it is used.</p>
Select Alternate Image	<p>Click on this option to change the element's appearance to an alternative image, using the Image Manager.</p> <p>This appearance applies to the element on the current diagram only.</p> <p>Shortcut: Ctrl+Shift+W</p>
Hide/Show Name Under Image	<p>For an element that has an alternative image, click on this option to hide or redisplay the name label under the element.</p>
Set Font	<p>Click on this option to change the font type, size, color and effects for the text in the element.</p>
Diagram Frame Appearance	<p>For Diagram Frame elements; click on this option to set the appearance of the frame.</p>
Show Labels	<p>For embedded elements, or those with an alternate image that show element</p>



	<p>properties as labels; click on this option to reveal the hidden labels on the element.</p> <p>(The option is not listed if there are no hidden labels.)</p>
Standard Memo Memo (Style 2) Pin Sticky Paperclip	<p>For a Note element, click on one of these options to apply the corresponding image to the element.</p>
Copy Appearance to Painter	<p>Click on this option to copy the default element appearance (set using the 'Default Appearance' option) to the painter.</p> <p>You then paste the default appearance using the 'Paste Appearance' option on the Diagram toolbar.</p>
Copy Image to Clipboard	<p>Click on this option to copy the element image to the clipboard. You can use the 'Apply Image from Clipboard' option to recover and use the image elsewhere.</p>

## Notes

- You can also change the appearance (and other aspects) of several selected elements at once
- Context menus vary between element types, and not all menu options shown here are present on all element context menus; for example, the 'Select Alternate Image' option does not display for a Lifeline element

# Operations on Multiple Elements

It is possible to perform various operations on two or more elements on a diagram at once, either to add the same feature or to standardize the size or orientation of the selected elements. This makes it much faster to update the diagram than if you had to modify each element separately.

To select the required elements, either click and drag the cursor over the group to highlight them, or press Ctrl or Shift as you click on each element separately.

The selected element that is drawn with a hatched border is the context element. The context element is used as the 'master' element when aligning or resizing elements as a set.

The Shift and Ctrl keys toggle selection, so if you want to exclude a selected element from a group, again press the key as you click on the element. The two keys have a slightly different effect when you click on the intersection between two overlapping elements:

- Shift+click toggles selection of the element with the lower Z-order (the element behind or further back than the others)
- Ctrl+click toggles selection of the element with the higher Z-order (the element in front of or further forward than the others)

## Access

Select a set of elements on a diagram, then right-click on one of the selected elements to display a context menu (for format/layout operations, right-click on the element against which to standardize the others - this sets the right-clicked element as the context element). Just note that if you click (not right-click) on an individual element, that element becomes the only selected element; the multiple selection is cleared and you are no longer working on multiple elements. The 'Layout' ribbon's 'Style' panel also provides options for changing appearance related properties for a set of selected elements, while the 'Alignment' panel provides numerous options for aligning and resizing elements.

Ribbon	Layout > Style (changes the appearance of the selected elements on the current diagram only) Layout > Alignment (changes the size or position of the selected elements on the current diagram only)
Context Menu	Right-click on a selected element on a diagram. The context menu for multiple selections displays; this is described here.
Keyboard Shortcuts	F4 (displays the 'Default Appearance' dialog, described here)
Other	Right-click on a selected element on diagram - the Format toolbar is displayed

	<p>above the context menu</p> <p>(Changes the appearance of the selected elements on the current diagram only)</p>
--	--

## Options

Option	Detail
Specialize	<p>Select this option to access a submenu of enabled Technologies on the system (for example, ArcGIS or TOGAF), each of which provides options for performing technology-specific operations on the elements.</p> <p>This option is available in the Professional, Corporate, Unified and Ultimate editions of Enterprise Architect.</p>
Collaborate	<p>This option displays if User Security is enabled. It offers the sub-option of 'Send Message', which opens the 'Create Message' dialog to create and send a model message containing a hyperlink to each of the selected objects.</p>
Align	<p>Select one of these ' Align &lt;point&gt;</p>

	<p>options to align elements against the 'master' element's:</p> <ul style="list-style-type: none"><li>• left edge</li><li>• right edge</li><li>• top edge</li><li>• bottom edge</li><li>• center, vertically or</li><li>• center, horizontally</li></ul> <p>You can also edge-align groups of elements using the Diagram Toolbar; the four alignment buttons are made available when more than one element is selected in a diagram.</p> <p>Shortcut:</p> <p>Ctrl+Alt+Left Arrow</p> <p>Ctrl+Alt+Right Arrow</p> <p>Ctrl+Alt+Up Arrow</p> <p>Ctrl+Alt+Down Arrow</p>
Space Evenly	<p>(For three or more selected elements.)</p> <p>Select this option to automatically even out the spacing between the selected elements, either horizontally or vertically.</p> <p>Shortcut: Alt+- Alt+=</p>
Same Height/Width	<p>Select one of these options to make all the selected elements match the 'master'</p>

	<p>element's height or width, or both.</p> <p>In Use Case diagrams, these options are blocked if the 'Allow elongated Use Cases' option is turned off on the 'Preferences' dialog 'Objects' page.</p>
Compartment Visibility	<p>Select this option to define the visibility of features and compartments on all elements selected on a diagram.</p> <p>Shortcut: Ctrl+Shift+Y</p>
Add Tagged Value	<p>Select this option to add the same Tagged Value to all selected elements.</p>
Autosize	<p>Select this option to automatically resize the selected elements to their default minimum size (element content permitting).</p> <p>Shortcut: Alt+Z</p>
Appearance	<p>Select this option to set the same default appearance and font for all of the selected elements at once.</p> <p>Shortcut: F4</p>
Behavior	<p>Select this option to display a short submenu, from which you:</p> <ul style="list-style-type: none"><li>• Switch the elements between Info</li></ul>

	<p>View display style and 'normal' UML style</p> <ul style="list-style-type: none"><li>• Set the element characteristics that are shown in Info View style</li><li>• Toggle the Dockable, Selectable and Printable settings on the elements</li></ul>
Copy	Select this option to copy the selected elements to the clipboard.
Layout Selected Elements	Select this option to automatically adjust the layout of the selected elements on the diagram.
Delete Selected Elements	Select this option to delete the selected elements from the diagram only. Shortcut: Ctrl+D



# Linked Documents

When you are developing elements in your model, you might want to provide extensive documentation on an element, to provide more structured text than you can create in the element 'Notes' field. In this case, you can create a formatted document that is linked to the element. You can create a Linked Document from scratch, or from one of a range of Linked Document Templates that you define with the Linked Document Template Editor. The Linked Document are held within the model.

## Working with Linked Documents

Task	Detail
Create Linked Documents	<p>You can create a Linked Document either:</p> <ul style="list-style-type: none"><li>• Within a Document Artifact element attached to your model element, or</li><li>• Directly on the model element</li></ul> <p>The advantages of using a Document Artifact to host the Linked Document include:</p> <ul style="list-style-type: none"><li>• Visibility of the Document Artifact and hence Linked Document in the Project Browser</li></ul>

	<ul style="list-style-type: none"><li>• As you can only have one Linked Document in an element, hosting each of several documents in its own Document Artifact and connecting the several Document Artifacts to one model element means that you have broader scope for providing information</li><li>• Similarly, associating several elements with one document by connecting them to the host Document Artifact element means that you can share information rather than duplicating it</li></ul> <p>The advantages of using a Linked Document directly on an element include:</p> <ul style="list-style-type: none"><li>• More tightly binding the content of the document to the element, so there is less ambiguity in what the information refers to</li><li>• More tightly binding the document itself to the element, so there is less risk of the document being changed, moved or deleted without reference to the element it belongs to</li></ul>
Create Linked Document templates	You can base your Linked Document on one of a range of system-provided templates, each of which represents a project document type.

	<p>You can also create and use your own Linked Document templates in the Resources window, within the Document Generation &gt; Linked Document Templates folder.</p>
Edit Linked Documents	<p>You can define the style, format and layout of your Linked Document both in the template from which you create the document and in the document itself. You can edit the Linked Document from a selected element in either the Document Editor or the Document Window.</p>
Create hyperlinks in Linked Documents	<p>Linked Documents are intimately associated with specific elements, but you can also create hyperlinks in the document directly to other elements in the model. Having followed the link, you can perform any normal operation on that element.</p> <p>Similarly, you can create new elements or diagrams to link to.</p> <p>You can also create hyperlinks to other forms of documentation.</p>
Include Linked Documents	<p>Linked Documents, however they are created, are rendered into document reports when you select the 'Linked</p>

in RTF reports	Document' checkbox in the Document Template Designer.
Locate Linked Documents	<p>In diagrams, any element that has a Linked Document is marked with an 'A' symbol in the bottom right corner.</p> <p>You can also use the Model Search facility to search for elements that have Linked Documents, by creating a custom search containing this SQL Query:</p> <pre>SELECT ea_guid AS CLASSGUID, Object_Type AS CLASSTYPE, Name AS Object, Object_Type AS [Type], Stereotype, Author, Scope, Status, Phase, CreateDate, ModifiedDate FROM t_object WHERE t_object.Style LIKE '#WC#MDoc=1#WC#'</pre>
Delete Linked Documents	You can completely remove a Linked Document from an element, or you can remove the contents of the document and replace them with the contents of an external file.

## Notes

- You can create a Document Artifact element to contain a Linked Document in all editions of Enterprise Architect
- You can create and link a document to any UML element in the model, in the Professional, Corporate, Unified and Ultimate editions of Enterprise Architect
- You can work on Linked Documents through the Automation Interface, using the methods `GetLinkedDocument()`, `DeleteLinkedDocument()`, `SaveLinkedDocument(string Filename)` and `LoadLinkedDocument(string Filename)`

# Create Document Artifact

You can create a Document Artifact element to host a Linked Document for another model element. You can either create an appropriate connector between the Document Artifact and the documented element (to indicate how the document impacts the element), or drag the Document Artifact over the model element on the diagram or in the Project Browser so that it becomes a child of the model element.

## Create a Linked Document in a Document Artifact

Step	Action
1	Open the diagram containing the element for which to create the Linked Document.
2	Open the 'Common' page of the Diagram Toolbox. Drag and drop the Document Artifact element icon from the Toolbox into your diagram.
3	Double-click on the Document Artifact element. A default blank-page document opens in the Linked Document Editor, based on the Normal.rtf style

	template.
4	Apply a template and/or continue to develop the Linked Document as described in the <i>Create Linked Document On UML Element</i> topic, from step 2 onwards.

## Notes

- As an alternative, you can create a File Artifact element containing a document file that you have dragged from a file browser onto an Enterprise Architect diagram; see the *Create File Artifacts* Help topic
- There is a limit of one Linked Document per Document Artifact element, but you can provide more than one Linked Document for a model element by linking it to more than one Document Artifact
- This operation is available in all editions of Enterprise Architect
- When you have saved the document, an A symbol displays in the bottom right corner of the element

# Create Linked Document on an Element

If you need to provide more extensive and structured documentation on an element, you can develop this as a formatted document directly linked to the element. You can develop the document from a blank page or using a system template or user-defined template, at several different points in the work area.


## Access

Select an element in the Project Browser, Diagram List, Package Browser, Specification Manager, Model Search or diagram, then use any of the methods outlined here to open the 'Linked Document' tab of the Document window.

Ribbon	Start > Explore > Properties > Linked Document Design > Element > Properties > Linked Document
Keyboard Shortcuts	Ctrl+Alt+D




## Create a Linked Document

Step	Action
1	<p>The 'Linked Document' tab opens in Read mode. Click on the  icon and select the 'Edit Mode' option.</p> <p>The 'Linked Document' tab switches to Edit Mode, and a default blank-page document opens, based on the <i>Normal.rtf</i> style template.</p> <p>The 'Document - Edit' ribbon also displays in the Ribbon Bar.</p>
2	<p>If you do not want to apply a system template or user-defined template, go to step 6.</p> <p>If you do want to base the document on a selected template, select the 'Document - Edit &gt; File &gt; File &gt; New (Clear Document)' ribbon option. A prompt displays for you to confirm that you are clearing the current document; click on the OK button.</p> <p>The 'New Linked Document from Template' dialog displays.</p>
3	<p>In the 'Template' field, click on the drop-down arrow and select the template from which to create the document.</p> <p>This can be either a system-supplied template or a</p>

	template that you have previously created yourself.
4	<p>If you want to display the 'New Linked Document from Template' dialog by default whenever you start to create a Linked Document, select the 'Show this dialog on document creation' checkbox.</p> <p>If you no longer want to display the dialog by default, deselect the checkbox.</p>
5	<p>Click on the OK button.</p> <p>The new Linked Document opens in the 'Linked Document' tab. If you have based the document on a selected template, the document shows the content applied by the template.</p>
6	<p>Enter and format the text of the document, using the facilities of the Document - Edit ribbon.</p>

## Notes

- You can create only one Linked Document on an element; if you need to create more, develop each document within its own Document Artifact element and link these to the model element
- This operation is available in the Professional, Corporate, Unified and Ultimate editions

- When you have saved the document, an  symbol displays in the bottom right corner of the element


# Edit Linked Documents

To develop the contents of a Linked Document, you use the Linked Document Editor. This provides a frame for working on the document, using a wide range of convenient features from the Document Edit Ribbon. These features help you in formatting and editing the document, and adding links from and references to the content of the document. Some editor facilities are duplicated in a right-click context menu for convenience.

## Access

Select an element in the Project Browser, Diagram List, Package Browser, Specification Manager, Model Search or diagram, then use any of the methods outlined here to open the Linked Document.

Ribbon	Show > Portals > Window > Properties > Document Start > Explore > Properties > Linked Document Design > Element > Edit > Edit Linked Document
Context Menu	Right-click   Properties   Linked Document

Keyboard Shortcuts	Ctrl+Alt+D
Other	From the Notes window or from the 'Notes' field of the element 'Properties' dialog, click on the  icon on the Notes toolbar.

## Option Descriptions

The Linked Document Editor option descriptions are grouped according to the actions you are performing.

Action
Creating and importing documents
Configuring the editor page display and formatting tools shown
Incorporating stylesheets, special texts and Tables of Contents Managing the base styles in the Normal.rtf style template file
Moving through, searching and selecting text

Formatting characters and text strings
Formatting paragraphs and text blocks
Inserting tab points
Inserting sections, columns and page breaks, and repaginating
Inserting and editing page headers and footers, and footnotes and endnotes
Inserting tables
Inserting hyperlinks
Inserting images, OLE objects, frames and drawing objects
Printer set up and printing documents
Checking spelling and use of words
Tracking, accepting and rejecting changes to text
Protecting document text from accidental change

Create and refer to definitions of Glossary terms in the Project Glossary (using the 'Create | Glossary Definition' menu option)

## Notes

- Throughout your document editing:
  - To undo one or more immediately previous edits, press Ctrl+Z, or select the 'Undo' context menu option; you can still undo a change even after you have saved the change
  - To redo one or more immediately previous undone edits, press Ctrl+Y, or select the 'Redo' context menu option

# Replace or Delete Linked Documents

If a Linked Document is out of date you can edit the text, or you can:

- Delete the content and replace it from another file, or
- Delete the document altogether

## Access



Click on the element that contains the Linked Document.

Ribbon	Start > Explore > Properties > Linked Document or Show > Portals > Window > Document > Linked Document The Document Window opens at the 'Linked Document' tab, showing the Linked Document on the element.
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## Delete the Linked Document

Step	Action



1	Click on the  icon in the top left of the window, and select the 'Delete Linked Document' option at the end of the menu.
2	A prompt displays for you to confirm the deletion; click on the Yes button.
3	The 'Linked Document' tab of the Document window is cleared, and the  symbol on the element in any diagram is removed. You can now import or create content for another Linked Document on that element, select a different element, or close the Document window and/or move on to other work.

# Create Linked Document Templates

To create a Linked Document, you can open an empty file and add the text and contents as you want. You can also base your Linked Document on a Linked Document template that you either:

- Select from a drop-down list of (initially) system-provided templates in the 'New Linked Document from Template' dialog or
- Create in the 'Linked Document Templates' folder of the Resources window

Linked Document templates that you create are added to the drop-down list on the 'New Linked Document from Template' dialog.

## Access

Open the 'New Document Template' dialog using any of the methods outlined here.

When opened using one of these methods, the 'Template Type' field is set to 'Linked Document Template'.

Ribbon	Start > Explore > Browse > Resources > Document Generation > 'Linked Document Templates' folder > right-click on a <template group> folder > Create Template
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	Show > Portals > Window > Explore > Resources > Document Generation > 'Linked Document Templates' folder > right-click on a <template group> folder > Create Template
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## Create a template

On the 'New Document Template' dialog:

Step	Detail
1	In the 'New template' field, type a name for your template.
2	<p>In the 'Copy template' field, if you want to base the new template on an existing template, click on the drop-down arrow and select the name of the source template.</p> <p>Otherwise leave the field set to 'None'.</p>
3	<p>Click on the OK button.</p> <p>The template opens in the Linked Document Template Editor in the Diagram View. Create and edit the template contents as you need.</p>

4	Save the template (File > Save) and close the editor (✕ in the top right corner of the editor window). The template is immediately available for use.
5	<p>If you want to assign your template to another group, right-click on the template name in the Resources window and select the 'Move' option.</p> <p>The 'Enter the Linked Document Template Group name' dialog displays. In the 'Enter Value' field type a new or existing category name and click on the OK button.</p> <p>The template is immediately transferred to the named group.</p>

## Notes

- You can transport customized Linked Document templates between models, using the 'Configure > Model > Transfer > Export Reference Data' and 'Import Reference Data' ribbon options

# Edit Linked Document Templates

To develop the contents of a Linked Document template, held in the Resources window, you use the Linked Document Template Editor. This opens the Document - Edit ribbon, which provides access to a wide range of convenient features for formatting and editing the template, and for adding links from and references to the content of the documents generated from the template. An in-text context menu also provides editing options for the template.

## Access

Within the Resources window, click on 'Linked Document Templates > (template group) > Right-click on template name | Open'

Ribbon	Start > Explore > Browse > Resources Show > Portals > Window > Explore > Resources
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## Option Descriptions

The Linked Document Template Editor option descriptions are grouped according to the actions you are performing.

Actions
Creating and importing template documents
Configuring the editor display
Incorporating stylesheets, special texts and Tables of Contents Managing the base styles in the Normal.rtf style template file
Moving through, searching and selecting text
Formatting characters and text strings
Formatting paragraphs and text blocks
Inserting tab points
Inserting sections, columns and page breaks, and repaginating
Inserting and editing page headers and footers, and footnotes and endnotes
Inserting tables
Inserting hyperlinks

Checking spelling and use of terms
Tracking, accepting and rejecting changes to text
Protecting template text from accidental change
Inserting images, OLE objects, frames and drawing objects
Printer set up and printing documents

## Notes

- Throughout your template editing:
  - To undo one or more immediately previous edits, press Ctrl+Z, or select the 'Undo' context menu option; you can still undo a change even after you have saved the change
  - To redo one or more immediately previous undone edits, press Ctrl+Y, or select the 'Redo' menu option

# Hyperlink From Linked Document

Within the text of your Linked Document, you can create hyperlinks to other elements in the model, and to web pages, Help files, Model Searches and Team Library documents. When you next open the Linked Document, you can double-click on the hyperlink to open the linked files or to locate and highlight the object in the Project Browser. You can perform all normal operations on the object, including opening any Linked Document that element might have.

## Create hyperlinks

Task	Action
Create Hyperlinks to elements	<p>Click on the element in the Project Browser and drag it into the Linked Document to the position at which to create the hyperlink. The 'Linked Document Editor' automatically creates the hyperlink, using the object name as the hyperlink text. You can edit this text if you prefer.</p> <p>Alternatively:</p> <p>Highlight the link text in the Linked Document, right-click on it and select the 'Create   Link to Existing Element' option.</p>



	<p>The 'Select Classifier' dialog displays, through which you browse for and select the element to link to.</p>
Create hyperlinks to other documents	<p>Highlight the appropriate text and select the 'Create   Hyperlink' context menu option.</p> <p>The 'Hyperlink Details' dialog displays, through which you specify the type of document to link to, and its location. When specifying the object location, you can use full paths or local (path substitution) paths.</p> <p>In some cases you might not want to have normal text as the hyperlink, but the text of the link itself. In this case, do not highlight any text or, in the 'Hyperlink Details' dialog, type any link text in. The system then inserts the address path or the provided text as the link text.</p>

# Create Element From Document

Whilst you can set up hyperlinks from the Linked Document to existing elements and diagrams in the Project Browser, you can also create new elements to illustrate and support information written in the Linked Document. You can create and link to any type of element or diagram, but the facility has specific options for these element types:

- Class
- Requirement
- Issue

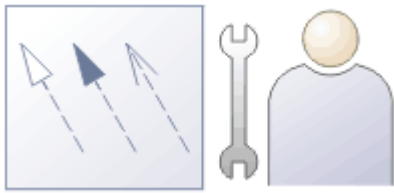
The element or diagram is created in the same Package as the element for which the Linked Document was created. A hyperlink is automatically created in the document to the new object. When you click on the hyperlink, the element or diagram is highlighted in the Project Browser.

## Create element or diagram

Step	Action
1	Open the Linked Document in the model element or Document Artifact element.
2	Enter or select the appropriate text to act as the hyperlink text (such as the element or diagram

	<p>name).</p> <p>Highlight this text and right-click on it; the 'Editor' context menu displays.</p>
3	<p>Select the 'Create   New' menu option, and one of the submenu options. If you select the:</p> <ul style="list-style-type: none"><li>• 'Class', 'Requirement' or 'Issue' option, the corresponding element is immediately created in the Project Browser</li><li>• 'Other' option, the 'New Element' dialog displays; specify the element type and - if appropriate - stereotype, and click on the Create button</li><li>• 'Diagram' option, the 'New Diagram' dialog displays; specify the diagram type and click on the OK button</li></ul>
4	<p>The highlighted text is now a hyperlink to the new object in the Project Browser. Click on the link to highlight the object.</p> <p>You can now edit or expand the element or diagram as required.</p>

# Connectors



Connectors link elements together, and are typically represented as lines on diagrams showing how the elements relate to each other. Making a comparison to natural languages, if the elements are nouns the Connectors are verbs that describe how the nouns relate to each other.

The connector types are defined by the modeling languages or profiles they belong to; for example, Associations and Generalizations are part of the grammar of UML, Sequence Flows and Message Flows are part of the grammar of BPMN, and Allocates and Item Flows are part of the grammar of SysML. Each connector type has a notation that helps modelers recognize the connector and understand its purpose; the types also inform tools such as the Code Templates Framework how to generate resulting models, schemas or programming code.

Connectors can be viewed in a wide range of windows, such as the Relationships Window, the Hierarchy Window, the Relationship Matrix, the Element Browser and the 'Properties' dialog of elements.

# Connector Management Options

If you right-click on a connector in a diagram, one of two connector context menus can display. These provide quick access to some important functions.

## Menus

Menu	Description
Context Menu	<p>The menu is split into up to seven distinct sections:</p> <ul style="list-style-type: none"><li>• Specialize - displays in the first section only if you have Add-Ins installed and registered</li><li>• Properties, including Advanced features</li><li>• Type Specific</li><li>• Style and Appearance</li><li>• Position</li><li>• Type Information - Displays the Enterprise Architect Help topic for this connector type</li><li>• Delete - deletes the connector</li></ul>
Connector	For connectors with Roles, right-clicking

Role Context Menu	<p>a connector within 60 pixels of an end point displays a role-specific context menu that offers three additional menu options:</p> <ul style="list-style-type: none"><li>• 'Source/Target Role...' - opens the connector 'Properties' dialog with the respective role page selected</li><li>• 'Multiplicity' - opens a submenu through which you can set the multiplicity for the role</li><li>• 'Link to Element Feature' - displays a dialog through which you can attach the end of the connector to a specific attribute or operation</li></ul>
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## Notes

- Context menus vary slightly between connector types, and not all menu options are present on all connector context menus; the type-specific menu options are not always included

# Connector Type-Specific Options

The 'Type-Specific' section of the connector context menu is specific to the object, and only appears for a few different connectors. Some examples are described here.

## Connector Options

Connector	Menu Option
Transition	Locate in State Table Action: Switch a StateMachine diagram to a State Table, with the selected Transition cell highlighted on the table.
Transition	Message Action: Set the value of the Message.
Transition	Find Triggers Associated Action: Identify hidden triggers, and locate a trigger in the Project Browser; if there: <ul style="list-style-type: none"><li>• Is one trigger, it is immediately highlighted in the Project Browser</li><li>• Are two or more triggers the 'Element Usage' dialog displays, listing the</li></ul>

	triggers; double-click on the required trigger to highlight it in the Project Browser
Transition	<p>Queue Triggers in Simulation</p> <p>Action: (Available when a simulation is being executed.)</p> <p>Adds the Trigger to the end of the list in the 'Simulation Events' tab of the Breakpoints &amp; Events window, without signalling it.</p>
Transition	<p>Signal Triggers in Simulation</p> <p>Action: (Available when a simulation is being executed.)</p> <p>Adds the Trigger to the 'Simulation Events' tab of the Breakpoints &amp; Events window and signals it at the current step of the simulation, leaving it with the status signalled.</p>
Association	<p>Find Association Class</p> <p>Action: Locate and highlight the Association Class element in the Project Browser.</p>
Aggregation	<p>Set Aggregation to Composite</p> <p>Action: Change the Aggregation to</p>



	Composite.
Aggregation	<p>Set Aggregation to Shared</p> <p>Action: Set the Aggregation to shared; this appears after Set Aggregation to Composite has been selected.</p>
InformationFlow	<p>Find Items Conveyed</p> <p>Action: (Listed only if there are Information Items on the connector.)</p> <p>Locate the Information Item in the Project Browser; if there:</p> <ul style="list-style-type: none"><li>• Is one item, it is immediately highlighted in the Project Browser</li><li>• Are two or more items the 'Element Usage' dialog displays, listing the items; double-click on the required item to highlight it in the Project Browser</li></ul>

## Notes

- Context menus vary slightly between connector types, and not all menu options are present on all connector context menus; the type-specific menu options are not always included



# Manage Connector Properties

The 'Properties' section of the connector context menu provides a small set of options.

## Menu options

Option	Action
<Connector type> Properties	Open the Properties window for the selected connector.
Advanced	Display the Advanced menu.
Attach Note or Constraint	Attach a note or constraint to the connector.

## Notes

- Context menus vary slightly between connector types, and not all menu options are present on all connector context menus; the type-specific menu options are not always included



# Advanced Connector Management Options

The 'Advanced' section of the connector context menu provides a number of options.

## Menu Options

Option	Action
Change Type	Change the connector type.
Change Direction	<p>Keep the ends of the connector the same but change the direction setting. There are four options:</p> <ul style="list-style-type: none"><li>• Unspecified</li><li>• Source -&gt; Destination</li><li>• Destination -&gt; Source</li><li>• Bi-Directional</li></ul>
Reverse Direction	<p>Reverse the ends of the connector; for example, if the connector is an arrow, the arrowhead swaps to the other end.</p> <p>This command maintains the direction of the connector (such as Source -&gt; Destination).</p>

Set Source and Target	Change the source and/or target of the connector.
Specialize Associations	Specify how the properties of this Association specialize the properties of other Associations.
Information Items Conveyed	Add information items to an Information Flow connector.
Information Flows Realized	Realize any information items conveyed on an Information Flow connector between two elements.
Generalization Set	Click on the 'New' option to create a Generalization Set, which enables you to specify the relationship of a group of Generalizations. Each Generalization is a binary relationship that relates a specific Classifier to a more general Classifier (for example, from a Class to its Superclasses). Each Generalization Set defines a particular set of Generalization relationships that describe the way in which a general Classifier (or superclass) can be divided using specific subtypes.

Dependency Stereotypes	Select a stereotype for the Dependency (or Trace, Role Binding, Occurrence or Represents connector).
Extension Points	<p>On an Extend connector between two Use Cases, provides options to:</p> <ul style="list-style-type: none"><li>• Specify which Extension Point (if any) in the target Use Case the connector and its source Use Case relate to</li><li>• Show or hide the Note element that identifies the defined Extension Point</li></ul>

## Notes

- Context menus vary slightly between connector types, and not all menu options are present on all connector context menus; the type-specific menu options are not always included

# Connector Style Options

The 'Style' section of the connector context menu provides a number of options.

## Style Options

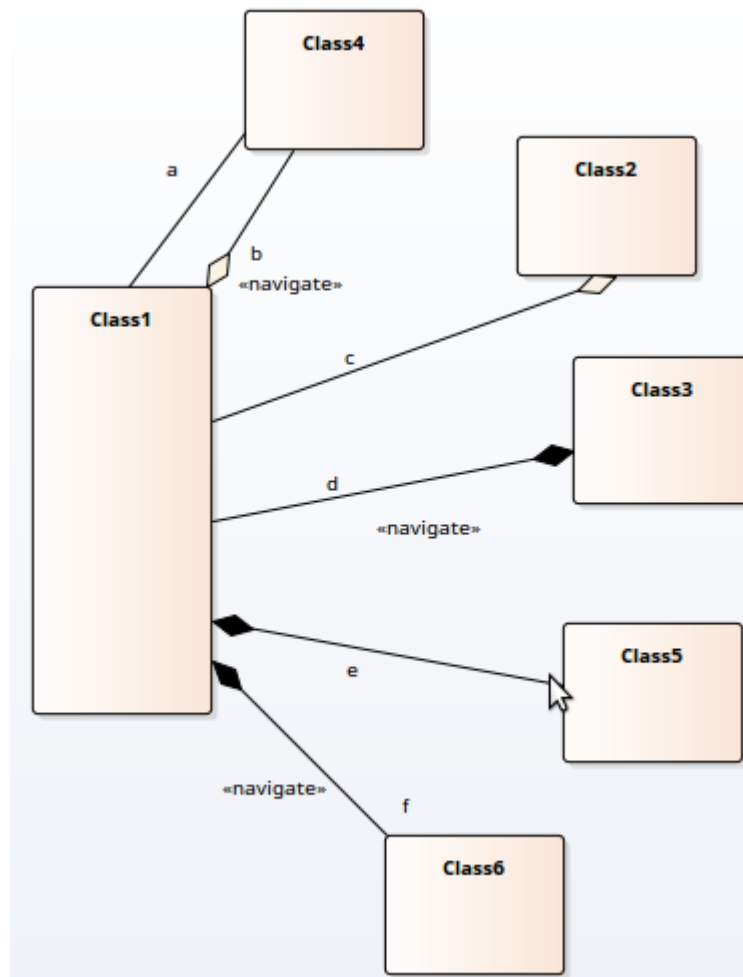
Option	Action
Line Style	<p>Set the connector line style; the options are:</p> <ul style="list-style-type: none"><li>• Direct</li><li>• Auto Routing</li><li>• Custom Line</li><li>• Bezier (not on all diagram types)</li><li>• Tree Style Horizontal or Tree Style Vertical</li><li>• Lateral Horizontal or Lateral Vertical</li><li>• Orthogonal (with Square or Rounded corners)</li></ul>
Apply Line Style on Diagram	<p>Apply the line style of the selected connector to all other connectors on the diagram of the same:</p> <ul style="list-style-type: none"><li>• Type</li><li>• Subtype (including Type) or</li></ul>



- Stereotype (including Type and Subtype)

This helps you apply a style change to one connector to many other connectors on the diagram, in one go.

On this section of a diagram there are six connectors.

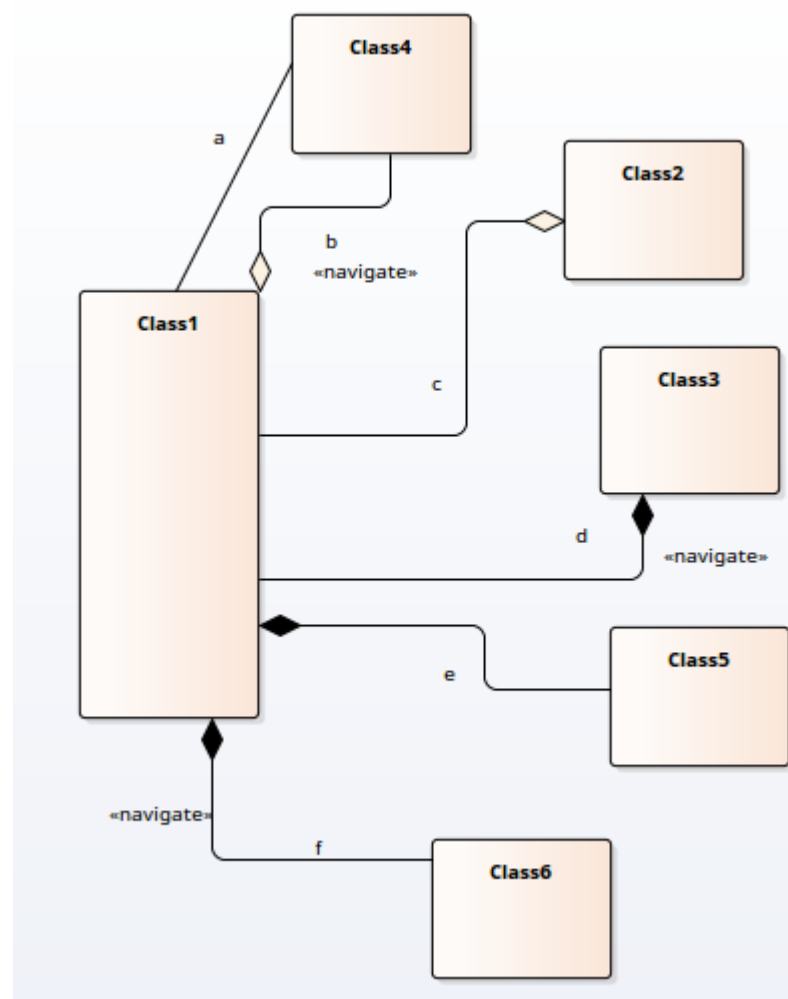


- All connectors except **a** are Aggregation connectors (**a** is an Association)
- Connectors **b** and **c** are the subtype 'weak' Aggregations; connectors **d**, **e** and **f** are 'strong' Aggregations

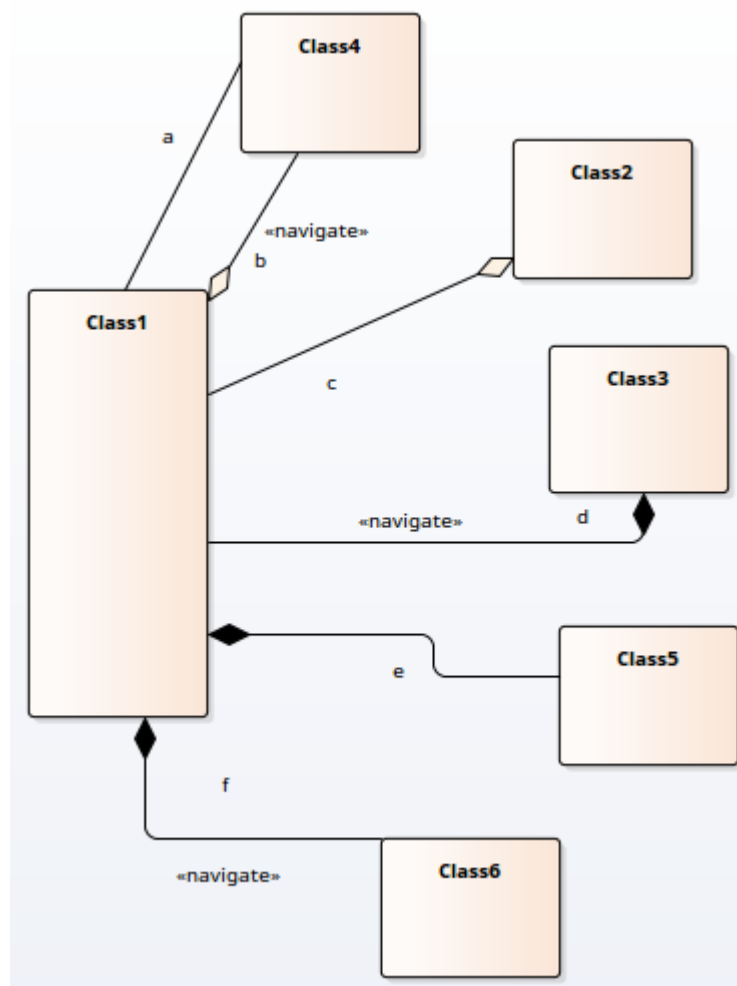
- All connectors are Direct line style
- Connectors **b**, **d** and **f** have the stereotype <<navigate>>

Suppose you change connector **d** to the line style Orthogonal Rounded.

If you right-click on connector **d** and select the 'Connectors of the same Type' option, you should see these changes to the connectors (all connectors, being Aggregations, are now Orthogonal Rounded style except for **a**, which is not the same *type* as the others):

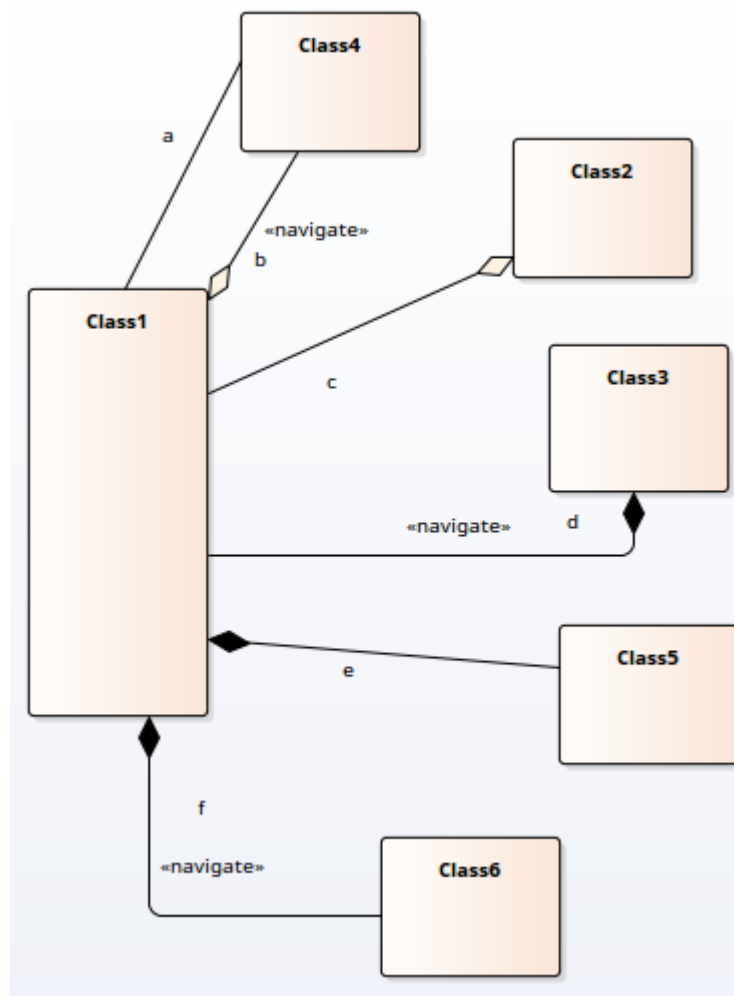


OR, if you right-click on connector **d** and select the 'Connectors of the same SubType' option, you should see these changes to the connectors (only connectors **e** and **f** change because only those two are the same *type* and *subtype* as **d**, being strong Aggregations):



OR, if you right-click on Connector **d** and select the 'Connectors of the same Stereotype' option, you should see these changes to the connectors (connector **f**

changes because it has the same type, subtype and stereotype as **d**; connector **b** is unaffected because it is not the same subtype, and **e** is unaffected because it is not the same stereotype):



Note that the 'Connectors of the same Subtype' option is of value for the small group of connector types that support subtypes, such as Aggregations (Shared or 'weak' and Composite or 'strong') and Dependencies (Trace, Abstraction).

The option only applies if the subtype is

	<p>set from the context menu as part of the process of creating the connector. If the subtype was derived from the nature of the source element, target element and/or base connector, the option does not function.</p>
Pin End(s)	<p>Pin the connector start and/or end to the current position on the target element; a sub-menu displays to offer the options of pinning the start point only, the end point only, or both.</p> <p>Once one or both ends are pinned, a fourth option is available to UNPIN both ends.</p> <p>Some connector line styles (such as the Tree styles) are not compatible with pinning the connector ends; if a pinned connector is changed to one of these styles, the connector ends will be unpinned.</p>
Bend Line at Cursor	<p>Insert an anchor point on the line at the point of the cursor so you can change the shape of the line.</p> <p>Shortcut: Ctrl+Q</p>
Suppress Line	<p>Hide a segment of a connector so that you can view a part of the diagram that it</p>

Segment	<p>crosses.</p> <p>To reverse the change, right-click on the connector and select the 'Show All Line Segments' option.</p>
Straighten Line at Cursor	<p>Remove an anchor point on the line at the point of the cursor.</p> <p>(This is the exact opposite of 'Bend Line at Cursor', and Ctrl+Q toggles the connector point between the options).</p> <p>Shortcut: Ctrl+Q</p>

## Notes

- Context menus vary slightly between connector types, and not all menu options are present on all connector context menus; the type-specific menu options are not always included
- If two connectors cross, the later connector has a 'hoop' at the intersection, indicating that the connectors are crossing

# Connector Appearance Options

The 'Appearance' section of the connector context menu provides a number of options.

## Appearance Options

Option	Action
Appearance	Set the line color and line thickness of the connector.
Visibility	Set connector visibility; see the <i>Visibility Sub-Menu</i> table for sub-menu options.
Tidy Line Angles	Tidy the line angles of a custom connector.

## Visibility Sub-Menu

Option	Action
Hide Connector	Hide the connector. To show the connector again, follow the

	steps in the <i>Hide/Show Connectors</i> topic.
Hide Connector in Other Diagrams	Hide or show the connector in other diagrams.
Hide All Labels	Hide or show all labels attached to the connector.
Set Label Visibility	Hide or show labels attached to the connector, individually.

## Notes

- Context menus vary slightly between connector types, and not all menu options are present on all connector context menus; the type-specific menu options are not always included



# Connector Tasks

This topic identifies the commoner tasks associated with managing model connectors, such as:

- [Connect Elements](#)
- [Connect to Element Feature](#)
- [Connect to a Connector](#)
- [Connector Styles](#)
- [Arrange Connectors](#)
- [Change Connector Type](#)
- [Create Connector in Project Browser](#)
- [Reverse Connector](#)
- [Delete Connectors](#)
- [Hide/Show Connectors](#)
- [Creating Generalization Sets](#)
- [Change the Source or Target Element](#)
- [Relationship Visibility](#)
- [Add a Note to a Connector](#)
- [Tree Style Hierarchy](#)
- [Create Connector in Project Browser](#)
- [Show Uses Arrow Head](#)
- [Set Association Specializations](#)
- [Change Sequence Message Scope](#)

## Notes

- In the Corporate, Unified and Ultimate editions, if security is enabled, you must have 'Update Element' permission to update or delete a connector

# Connect Elements

This topic explains how to connect elements using the appropriate connector types on a diagram.

## Actions

Action	Detail
Connect Elements on a Diagram	<p>The fastest and simplest ways to create connectors are using the Quick Linker and using the Toolbox.</p> <p>To create another connector of the same type as the last connector you used, click on the appropriate source element and press F3.</p>
Selecting Connectors	<p>To select a connector, simply click on it; drag handles display, indicating that the connector is selected.</p> <p>This gives the connector focus for keyboard commands such as 'Delete', and displays connector properties in docked windows such as the Tagged Values window.</p> <p>If there is more than one connector on a diagram, you can cycle through them</p>

	using the arrow keys.
Drag Connectors	<p>You can drag a connector to position it; click on the connector and drag it to where it is to appear - note that there are some limitations on how far or to where you can drag a connector.</p> <p>You can also reattach the end of a connector to a different source or target element.</p>
Connector Properties and Commands	<p>You can double-click on a connector to change properties in the Properties dialog, or press Alt+1 and click on the connector to access the properties in the Properties window.</p> <p>You can also right-click on a connector to display the context menu containing commands to change connector type and direction.</p>
Highlighting Connectors	<p>You can highlight the connectors on a specific element by selecting the element and then pressing and holding the L key - all the connectors issuing from or terminating at that element are highlighted in separate colors. This is a useful feature to apply in conjunction with the context filtering facility on an</p>

	element on a diagram.
Create Connectors Without a Diagram	Sometimes it is useful to create relationships between elements without a diagrammatic representation; you can do this using the Project Browser and the Relationship Matrix.

## Notes

- You can reposition a connector by selecting and dragging the connectors as required
- If a connector has source and target roles, you can attach either end of the connector to a specific attribute or operation in the source or target element
- If required, you can also create a connector between another connector and an element, or between two connectors

## Connect to Element Feature


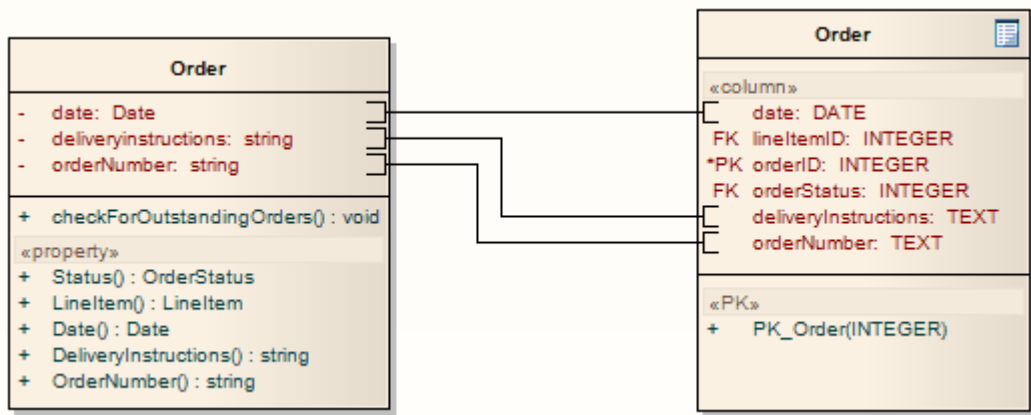
If a connector has source and target roles, you can connect either end of the connector to a specific operation or attribute in the source or target element. This is entirely a visual aid, to indicate which features are significant in the relationship. In code generation or transformation, the link is interpreted as a normal source-element to target-element relationship.

### Notes

- The 'Link to Element Feature' option is not supported for reflexive/self connectors

## Connect the end of the connector to a specific operation or attribute

Step	Action
1	Right-click on the end of the connector joined to the element containing the required feature.
2	Select the 'Link to Element Feature' context menu

	<p>option.</p> <p>The 'Link to Element Feature' dialog displays.</p>
3	<p>In the 'Feature Type' field, click on the drop-down arrow and select the required feature type - 'Attribute' or 'Operation'.</p> <p>The attributes or operations from the element are listed in the 'Feature' field.</p>
4	<p>Click on the required attribute or operation, and click on the OK button.</p> <p>The end of the connector changes to a bracket next to the selected feature.</p> <p></p> <p>You might create a number of feature-to-feature relationships between two elements (such as a Class and a Table that represents the Class data) to produce a diagram similar to this:</p>  <p>You can change the feature to which the connector is attached by following the procedure and selecting the new feature.</p>

You can break the link to the selected feature in any of these ways:

- Work through the procedure, setting the 'Feature Type' to 'None'
- Delete the attribute or operation from the element
- Change the connector type to a type that does not have source and target roles
- Change the connector to a different source or target element that does not contain the feature

Note that reversing the direction of the connector does not break the connector's attachment to the feature.



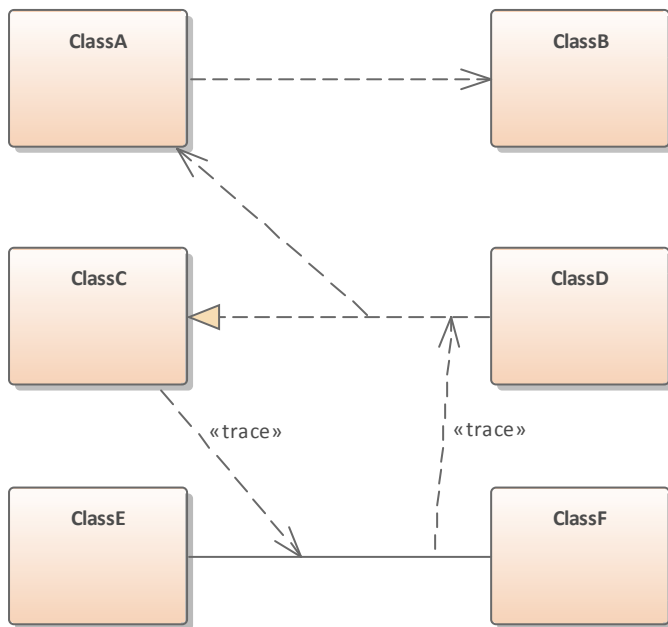
## Connect to a Connector

Under certain circumstances, it can be useful to create a connector that issues or terminates (or both) on another connector. For example, you might create a connector between two elements, and then create a link between that connector and a Requirement element to show that the relationship between the two elements was a predefined specification of the design.

In releases of Enterprise Architect from 13.0 onwards, you can add connectors to other connectors. The linking connector can connect as source and target:

- Two other connectors
- An element and a connector
- A connector and an element

The appearance of each configuration of a connector/connector link is illustrated here:




As you create the connector on another connector, the connector end displays with this circle symbol to indicate that it is on another connector, and to help you position the end accurately.

(Select connector) 

(Move connector end) 

There is effectively no limit to the number of connectors that can issue from or terminate on another connector.

Once you have anchored one connector on another, if you move either end or the whole connector and you have selected the 'Layout > Align >  > Smart Placement' and 'Show smart placement guidelines' options, colored guidelines appear on the diagram. These indicate where the

selected end of the connector is relative to potential anchor points on the currently-anchored connector and others that you might drag past.

## Create a connector on another connector

You can create a connector that issues from or terminates on another connector in the same two ways as you create one on an element; that is:

- Using the Quick Linker arrow or
- Using a connector icon from the Toolbox

Method	Action
Quick Linker	<ol style="list-style-type: none"><li>1. Click on the source connector (or element). A Quick Linker arrow displays at the center point of the line.</li><li>2. Drag the arrow onto another connector or onto an element, to display a short menu of possible connector types; select the appropriate type.</li></ol> <p>You can also drag the Quick Linker arrow into empty space; a short menu of element types displays and you can select to generate an element of one of those types whilst the system automatically creates an appropriate type of connector to it.</p>

Toolbox	<ol style="list-style-type: none"><li>1. Click on the icon for the required connector type.</li><li>2. Click-and-drag from the source connector or element to the target connector or element.</li></ol> <p>Certain connector types are not UML-compliant for linking to another connector, and if you select such types you might get an error message. You can continue to create this type of connector by de-selecting the 'Strict Connector Syntax' option on the 'Links' page of the 'Preferences' dialog (the 'Start &gt; View &gt; Preferences' ribbon option).</p>
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# Add a Note to a Connector

This topic describes how you can connect notes and constraints to graphical relationships.

Notes enable you to provide explanations and further detail for one or more connectors on a diagram, with a visible Note element.

## Add a note or constraint to a connector

Step	Action
1	Right-click on one of the connectors to attach a note to. The context menu displays.
2	Select the 'Attach Note or Constraint' menu option. The 'Link Relations' dialog displays.
3	Select the appropriate radio button in the Link Type panel.
4	Check all the connectors that participate in the set.
5	Click on the OK button to complete the note or

	constraint creation.
6	Use the normal 'Note' dialog to enter the appropriate text for the note or constraint.

## Notes

- The constraint note is drawn slightly differently to a regular note, and has { and } automatically added to visually indicate the constraint form
- As an alternative to the procedure, you can drag the Quick Linker arrow on an existing Note or Constraint, and drag it to the required connector; a Notelink is automatically created to attach the Note or Constraint to the connector

# Arrange Connectors

Connectors between two elements can be moved around the element borders to create a good layout. There is a limit to how much a connector can be moved around, but generally it is very easy to find an acceptable layout. For the best layouts, use the custom line style; this enables you to add as many line points and bends as you require to create a clean and readable diagram.

## Move and arrange connectors on a diagram

Step	Action
1	Click once on the connector to select it.
2	Holding the mouse button down, move the connector in the required direction.
3	To refine the movement, click and hold very near to one end of the connector; this enables a slightly different movement range.
4	To further refine the movement and range, select either a routed, direct or custom line style; each behaves slightly differently.





# Change Connector Type

This topic explains how to change the type of a connector. Note that not all connector types are available depending on the types of the source and target elements.

## Access

Context Menu	Diagram   Right-click on Connector   Advanced   Change Type
--------------	---

## Change a connector type

Step	Action
1	In the 'Connector Type' field, click on the drop-down arrow and select the required connector type.
2	Click on the OK button to apply changes.

# Change the Source or Target Element

After you have created a connector between two elements, you might later want to change either the source or target. Instead of deleting and re-creating the connector, Enterprise Architect enables you to change the source or target. There are two ways of doing this: using the 'Set Source and Target' dialog or using the mouse.

## Using the 'Set Source and Target' dialog

Step	Action
1	Right-click on the connector to open the context menu.
2	Select the 'Advanced   Set Source and Target' menu option. The 'Set Source and Target' dialog displays.
3	Click on the drop-down arrows on the 'From Element' and 'To Element' fields, and select the source and target elements.
4	Click on the OK button to apply changes.

## Using the mouse

Step	Action
1	Click on the connector and position the cursor over the 'handle' at one end.
2	When the cursor changes, click the right mouse button and drag the handle to the new element.

## Notes

- The connector does not actually move until you release the mouse button over the new source or target element; however:
- A dotted line shows where the connector would be during the move
- The solid outline of the nearest element or extension changes to a hatched outline as you move the cursor onto it; this helps you identify where the connector should connect to, if there are many closely-arranged elements, Parts, Ports and other extensions



# Connector Styles

Connectors come in a number of different routing styles. Additionally, if one solid-line connector crosses another, the second one 'jumps' over the first (unless the 'Enable Connector line jumps' option is deselected on the 'Diagram' page of the 'Preferences' dialog). You can also bend a connector to quickly and easily route connectors in the required layout.

## Styles

Style	Description
Direct	<p>A straight line from element A to element B.</p> <p>You can move the line (back and forward, up and down) to a limited degree.</p>
Auto Routing	<p>A vertical and horizontal route from A to B with 90-degree bends.</p> <p>You can move the line to improve the route, but the location and number of bends are not configurable.</p>
Bezier	<p>A smooth curved line from A to B.</p>

	Bezier style is directly available for Data Flow diagram connectors, Mind Mapping connectors, State Flows, State Transitions, Object Flows, and Control Flows.
Custom Line	The most flexible option; you can add one or more line points and bend and push the line into virtually any shape, using the 'Toggle Line Point at Cursor' option.
Tree Style - Vertical Tree Style - Horizontal	A line from element A to B with two right-angle bends, and the end points fixed to selected locations on the elements (Vertical or Horizontal).
Lateral - Vertical Lateral - Horizontal	A line from element A to B with a single right-angle bend, and the end points fixed to selected locations on the elements (Vertical or Horizontal).
Orthogonal - Square Orthogonal - Rounded	<p>You can add one or more line points and bend and push the line into a variety of shapes, using the 'Toggle Line Point at Cursor' option.</p> <p>All line segments thus created are either vertical or horizontal.</p>

## Set the Connector Style

Step	Action
1	Right-click on the connector to change. The context menu displays.
2	Select the 'Line Style' option.
3	From the submenu, select the required style: <ul style="list-style-type: none"><li>• Direct</li><li>• Auto Routing</li><li>• Custom</li><li>• Tree</li><li>• Lateral, or</li><li>• Orthogonal</li><li>• (or Bezier, where appropriate)</li></ul>

## Set the Connector Style (alternative method)

Step	Action
------	--------

p	
1	Select the connector to change.
2	<p>Press these keys to change the style:</p> <ul style="list-style-type: none"><li>• Ctrl+Shift+D for Direct</li><li>• Ctrl+Shift+A for Auto Routing</li><li>• Ctrl+Shift+C for Custom</li><li>• Ctrl+Shift+Z for Bezier (where appropriate)</li></ul>

## Bend a connector

Step	Action
1	Right-click on the connector. The context menu displays.
2	Set the line style to 'Custom Line' (Ctrl+Shift+C); this enables the 'Bend Line at Cursor' option in the context menu.
3	Click on the 'Bend Line at Cursor' option to add a line point. Right-clicking a line point displays the 'Straighten



	Line at Cursor' option, which you can use to remove the line point.
4	Using the mouse, drag the line point to the required position.

## Bend a connector (alternative method)

Step	Action
1	Hold down Ctrl or Shift and click on a point on the connector to create a line point. Ctrl+click also removes a line point.
2	Using the mouse, drag the line point to the required position.

## Tidy line angles (custom connector)

Step	Action

1	Right-click on the connector. The context menu displays.
2	Click on the 'Tidy Line Angles' menu option; this nudges the custom line in horizontal and vertical increments, saving you the time of trying to get a good layout manually.  You can set the 'Tidy Line Angles' option to operate by default; click on the 'Start > View > Preferences' ribbon option to display the 'Preferences' dialog, and select the 'Diagram Behavior' page.

## Suppress individual line segments

Step	Action
1	Right-click on the connector. The context menu displays.
2	Set the line style to 'Custom Line' - press Ctrl+Shift+C.  This enables the 'Suppress Line Segment' option in the context menu.

3	<p>Click on the 'Suppress Line Segment' option to suppress a line between two bend points.</p> <p>The segment you right-clicked on is suppressed.</p>
4	<p>To show the segment again, right-click on the line and click on the 'Show All Line Segments' option.</p> <p>One application for this is to represent the continuation of flow when your diagram crosses the page boundary marker in the Diagram View.</p> <p>When you suppress the line segment that crosses the boundary, the link name (connector properties) displays at both ends of the hidden segment; when you print the diagram on multiple pages, the link name identifies the connection apparently broken by the page boundary.</p>

# Create Connector in Project Browser

You can create a connector from one element to another directly in the Project Browser.

## Connect elements from the Project Browser

Step	Action
1	<p>In the Project Browser, either:</p> <ul style="list-style-type: none"><li>• Right-click on the element to create a connector for, and select the 'Add   Create Link' option, or</li><li>• Select the element, press the Insert key and select the 'Create Link' option</li></ul> <p>The 'Create Link' dialog displays.</p>
2	<p>In the 'Direction' field, click on the drop-down arrow and select the direction of the new connector ('Outgoing' means the selected element is the source).</p>
3	<p>In the 'Link Type' field, click on the drop-down arrow and select the type of connector.</p>
4	<p>In the 'Choose target(s)' list, click on the name of the target.</p>

	(If necessary, in the 'Select Target Type' field click on the drop-down arrow and select a feature to list only elements having that feature).
5	Click on the OK button to create the connector.

## Notes

- You can also reproduce an existing connector between two elements when you paste those elements from the Project Browser into a diagram as instances; an option enables you to copy just the elements, or the relationship as well

# Relationship Visibility

You can change the visibility of individual connectors or relationships on an open diagram.

## Access

Display the 'Set Visible Relations' dialog, using one of the methods outlined here.

Ribbon	Layout > Diagram > Appearance   Set Visible Relationships
Keyboard Shortcuts	Ctrl+Shift+I

## Set relationship visibility

Step	Action
1	On the 'Set Visible Relations' dialog, select the checkbox against each list item to show, and clear the checkbox against each item to hide.

	If you want to display the information in a more readable layout, you can resize the dialog.
2	Click on the OK button to apply the changes.

# Hide/Show Connectors

Connectors/relations that appear in multiple diagrams can be selectively shown or hidden. This makes it easier to read diagrams where elements might have many connectors, but not all are relevant in the context of the current diagram.

## Hide or show a connector in the current diagram

Step	Action
1	Double-click on the required diagram element in the Diagram view. The element 'Properties' dialog displays.
2	Select the 'Links' tab. This lists the connectors linked to the element, whether or not they are hidden on the diagram.
3	Right-click on the connector to hide or show. The context menu displays.
4	Select the 'Show Relation' option to show the hidden connector on the diagram, or the 'Hide Relation'



	<p>option to hide the visible connector.</p> <p>Alternatively, hide a connector by right-clicking on it on the diagram and selecting the 'Visibility   Hide Connector' option; however, you must use the 'Links' tab of the element 'Properties' dialog to show the relationship again.</p>
--	---

## Hide or show a connector in other diagrams

Step	Action
1	<p>Right-click on the connector in the diagram.</p> <p>The context menu displays.</p>
2	<p>Select the 'Visibility   Hide Connector in Other Diagrams' menu option.</p> <p>The 'Set Connector Visibility' dialog displays.</p>
3	<p>If the two connected elements have been included in other diagrams, these diagrams are listed here.</p> <p>In the list, all diagrams for which the checkbox is selected show the connector; deselect the checkbox for any diagrams in which to hide the connector.</p> <p>If you want to display the information in a more</p>

	readable layout, you can resize the dialog. To hide the connector in all of the diagrams listed, click on the Suppress All button.
4	Click on the OK button to save the changes.

## Notes

- Certain elements, such as Requirements, do not have a 'Links' tab in the 'Properties' dialog  
In these cases, open the Relationships window ('Start > Explore > Trace > Relationships') for the element, right-click on the relationship in the list and select the context menu option to hide or show that relationship in the diagram  
Be aware that, in the Corporate, Unified and Ultimate editions with security on, locks on the diagram and elements can make the required option unavailable

# Delete Connectors

This topic explains how to delete a connector from the model. Note that is possible to either hide the connector in one or more diagrams and still retain it in the model, or remove it completely (deletion).

## Delete a Connector

Step	Action
1	<p>Right-click on the connector and select the 'Delete Connector' option.</p> <p>The 'Remove Connector' dialog displays; this dialog provides the options to hide the connector so that it remains functional, or remove the connector completely.</p>
2	<p>Click on the appropriate radio button and click on the OK button.</p> <p>If you select the 'Hide' option, it has the same effect as hiding the connector on the 'Links' tab of the source element 'Properties' dialog, or using the 'Visibility   Hide Connector' context menu option.</p> <p>It also hides the connector on the Relationships window.</p>

## Notes

- The dialog does not display if:
  - You have previously selected the 'Don't ask again' checkbox or
  - On the 'Links' page of the 'Preferences' dialog ('Start > View > Preferences > | Links') the 'Prompt on connector deletes' checkbox is not selected
- Selecting the 'Don't ask again' checkbox also deselects the 'Prompt on connector deletes' checkbox
- Selecting the 'Prompt on connector deletes' checkbox restores the dialog if you have used the 'Don't ask again' checkbox
- If you hide the dialog, the 'Delete Connector' context menu option defaults to the setting you last used on the dialog; make sure that you have selected the right option to default to

# Creating Generalization Sets


A Generalization Set enables you to specify the relationship of a group of Generalizations. Each Generalization is a binary relationship that relates a specific Classifier to a more general Classifier (for example, from a Class to its Superclasses). Each Generalization Set defines a particular set of Generalization relationships that describe the way in which a general Classifier (or superclass) can be divided using specific subtypes.

## Access

Context Menu	Right-click on connector   Advanced   Generalization Set   New
--------------	--

## Create a Generalization Set

Step	Action
1	Select the 'New' menu option. The 'Generalization Set' dialog displays.

2	In the 'Name' field, type the name of the Generalization set; for example, 'Gender'.
3	<p>In the 'Power Type' field, either:</p> <ul style="list-style-type: none"><li>• Type a new power type, or</li><li>• Click on the drop-down arrow or  and select an existing one from the 'Select &lt;Item&gt;' dialog</li></ul>
4	Consider the 'Is Covering' checkbox. If you select this, on a diagram the constraint {complete} will be added to the label of each generalization that is a member of the set. (If you do not select the checkbox, the constraint is regarded as {incomplete} although this is not displayed in the label).
5	Consider the 'Is Disjoint' checkbox. If you select this, on a diagram the constraint {disjoint} will be added to the label of each generalization that is a member of the set. (If you do not select the checkbox, the constraint is regarded as {overlapping} although this is not displayed in the label).
6	In the 'Is Member' column, select the checkbox against each child subtype that is part of this Generalization set.
7	Click on the OK button to save and apply the

	Generalization Set, and to close the dialog.
--	--

# Connector In-place Editing Options

You can edit many of the Enterprise Architect connector labels directly on the diagram. Each label can be bound to a single connector field.

## Put a label in Edit mode

To put a label into Edit mode, either:

- Select the 'Edit Label' option from the context menu, or
- Select a label and press F2

To save the current text to the field, either press the Enter key or deactivate the Edit window.

To cancel edit mode without saving any changes, press Esc.



# Reverse Connector

You can reverse the direction of a connector without having to delete and re-create it. This is helpful if your design changes or you add the connector wrongly to begin with.

## Reverse the direction of a connector

Step	Action
1	Right-click on the incorrect connector.
2	Select the 'Connection Detail   Reverse Direction' context menu option.

# Set Association Specializations

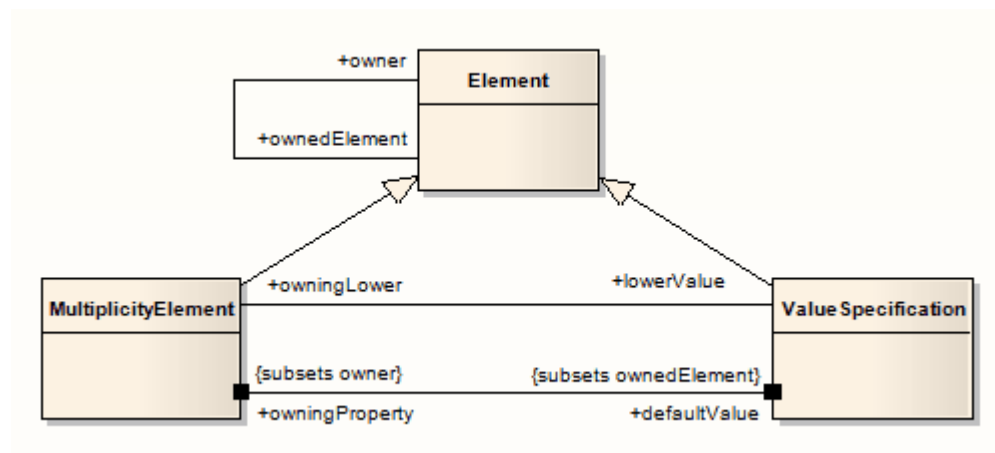
UML enables specialization of properties defined by Associations. Enterprise Architect enables this through the 'Specialize Associations' option in the 'Advanced' section of the context menu for an Association.

A dialog displays, showing all Associations between the two Classes connected by the current Association and their parents.

The left two columns define the source role of the current Association, while the right two define the target role. With this you are able to select the relationships of each end of the properties listed. When a relationship is set then this is drawn at the corresponding end of the connector on any diagram it appears on.

The dialog displays when you select the 'Advanced | Specialize Associations' context menu option on the lowest Association connector in this diagram.

## Example



# Change Sequence Message Scope

A message in a Sequence diagram represents a dynamic interaction from one element to another. Sometimes when you are designing your model you might have to change either the start or end point of a message as the responsibilities of elements change during design. For this reason, Enterprise Architect enables you to change the message scope by setting a new start or end element.

## Change Message Scope

Step	Action
1	Select the message in the Sequence diagram.
2	Right-click on the message to open the context menu.
3	Select 'Advanced   Set Source and Target'.
4	In the pop up dialog, in the 'From Element' and 'To Element' fields, click on the drop-down arrows and select the required elements.
5	Click on the OK button to save changes.

	The message is re-routed to meet your changed requirements.
--	---

# Show Uses Arrow Head

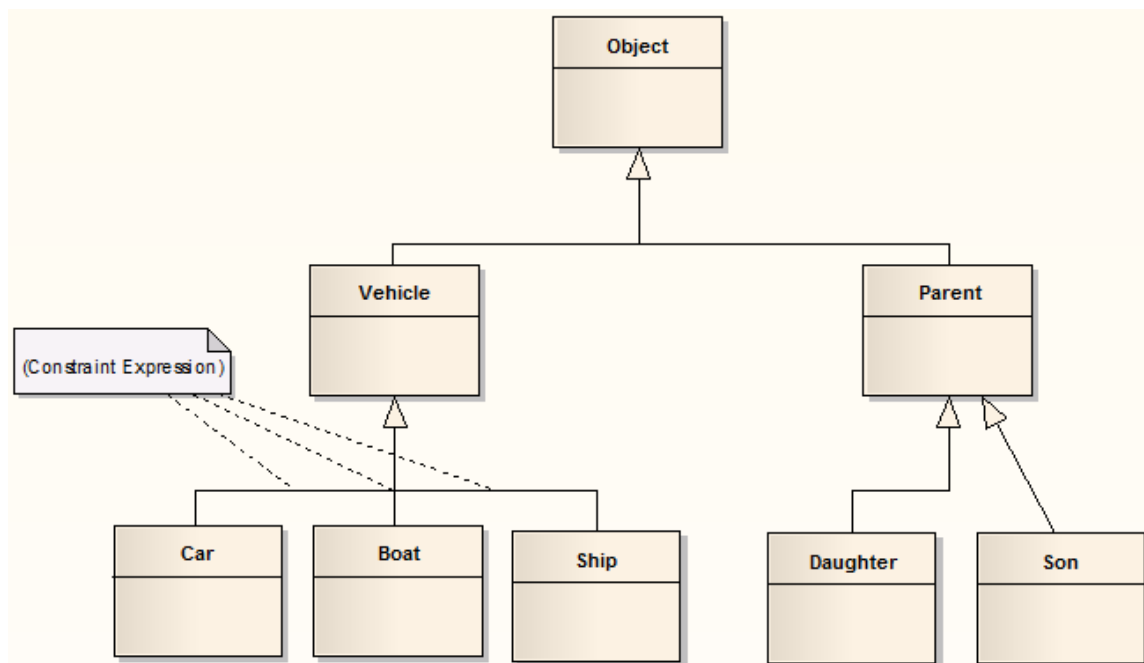
By default the Use connector in Use Cases has no arrow head.

## Generate arrow heads on Use connectors

Step	Action
1	Select the 'Start > View > Preferences > Links' option. The 'Links' page of the 'Preferences' dialog displays.
2	In the 'General' panel, select the 'Show Uses arrowheads' checkbox.
3	Click on the Close button. When you save the Use Case diagram, the Use connectors change to display arrowheads.

# Tree Style Hierarchy

In Enterprise Architect you can create a tree style inheritance diagram using a special form of the Generalization connector, as shown.



## Create a tree style connector

Step	Action
1	Create a normal Generalization between two elements.
2	Right-click on the connector to open the context menu.

3	Select the 'Line Style   Tree Style - Vertical' or the 'Line Style   Tree Style - Horizontal' menu option.
4	<p>Enterprise Architect automatically makes the Generalization layout conform to a specific shape. By adding more Generalization connectors, and checking their Tree Style options, you can achieve the appearance of the example diagram.</p> <p>You can slide the root and child Classes left and right to achieve the required result; Enterprise Architect maintains the conformity of the branch connectors.</p>

## Set this style of connector as default

### Notes

- In the example diagram, the Son -> Parent connector has not yet been put in Tree Style - Vertical style
- This style of diagram provides a clearer layout for inheritance hierarchies and is easy to work with

Step	Action
1	Select the 'Start > View > Preferences > Links'



	<p>option.</p> <p>The 'Links' page of the 'Preferences' dialog displays.</p>
2	<p>Select the 'Generalization link style Default = Tree' checkbox to make this branching style the default style for inheritance connectors.</p>

# Connector Properties

A connector can have a wide range of properties, with some connector types having fewer, simpler properties and others having more and more-complex properties. You edit these properties on either the:

- '<connector type> Properties' dialog or the
- Properties window for the connector

Some properties are visible on a diagram as text labels on or around the connector, and you can change these labels using the 'Label' context menu.

The connector properties are presented on these tabs:

- General
- Advanced properties - on the 'Properties' dialog
- Tags (Tagged Values) - on the 'Properties' dialog
- Source and Target Roles
- Constraints
- Template Bindings

## Access


Ribbon	Start > Explore > Properties > Properties > click on connector in a diagram > Connector (Properties window) Design > Element > Properties >
--------	--

	Properties > click on connector in a diagram > Connector (Properties window)
Context Menu	Right-click on Connector   Properties ('Properties' dialog)
Keyboard	Alt+1 > Connector (Properties window)
Other	Double-click on Connector ('Properties' dialog)

## General Options

These options are available on the 'Connector > General Settings' panel of the Properties window, or the 'General > Main' tab of the 'Properties' dialog.

Option	Action
Name	(Optional) Type a representative name for the connector; this name displays on the diagram.
Notes	('Properties' dialog, Optional) Type any comments you want to record on the connector. You can format the text using

	<p>the Notes toolbar at the top of the field. These notes can be included in searches, reports and documentation, if required.</p>
Type	<p>(Properties window) Displays the connector type selected when creating the connector.</p>
Stereotype	<p>(Optional) Type the name of a stereotype for the connector, or click on the  button and select the stereotype from the 'Stereotype Selector' dialog.</p> <p>If specified, the stereotype is displayed on the diagram and it over-rides the connector type in the report documentation.</p>
Source	<p>Displays the name of the source element for the connector.</p>
Target	<p>Displays the name of the target element for the connector.</p>
Alias	<p>(Optional) Type an alternative name or alias for the connector.</p>
Direction	<p>Displays the direction of the connector. For some connectors (such as an Association), you can change the</p>

	<p>direction: click on the drop-down arrow and select the appropriate direction details - from source to destination, destination to source, bi-directional, or unspecified.</p> <p>Some connectors have arrow heads that depend on this setting, and some connectors are logically dependent on it (such as Inheritance).</p>
Style	<p>Click on the drop-down arrow and select the appropriate connection style; choose from:</p> <ul style="list-style-type: none"><li>• Direct</li><li>• Auto-Routing</li><li>• Custom</li><li>• Tree (Vertical, Horizontal, Lateral Vertical or Lateral Horizontal), or</li><li>• Orthogonal (Square Corners or Rounded Corners)</li></ul> <p>Some connectors can also have the Bezier style, under which the connector follows a smooth curve.</p>
Virtual Inheritance	<p>(For Generalization connectors) Click on the drop-down arrow and select True or False to indicate if inheritance is virtual or not.</p>

Scope	(For Generalization connectors where the child Class is C++..) Click on the drop-down arrow and select the appropriate value for the scope (used for inheritance).
-------	--

## Notes

- Instead of displaying properties on tabs in the 'Properties' dialog, you can display the properties on screen pages selected through a hierarchical list; select the 'Property Sheets use Tree style' checkbox using the 'Start > View > Visual Style' ribbon option
- The 'Binding' tab is displayed for Generalize, Realize, Associate and Template Binding connectors; use this tab to define binding expressions and parameter substitutions for the connector

# Connector Advanced


The connector 'Properties' dialog has an 'Advanced' tab on the 'General' page, which you use to reset the values of any system-defined advanced properties that the connector has.

## Access

Context Menu	Right-click on Connector   Properties > General > Advanced
Other	Double-click on Connector > General > Advanced

## Set a value for a connector's advanced property

Step	Action
1	Click on the data field to the right of the property name.

2	<p>Depending on the property, either:</p> <ul style="list-style-type: none"><li>• Type the value in free text</li><li>• Click on the drop-down arrow and select the value from the list</li><li>• Click on the  button and search for the required value</li></ul>
3	Click on the OK button.



# Connector Tagged Values


You can define Tagged Values for a connector and, for Association and Aggregation connectors, set additional Tagged Values for the source role and/or target role.

You can set these Tagged Values separately on the Tagged Values window but, for convenience, you can also work on them through the connector 'Properties' dialog, which encapsulates the Tagged Values window in the 'Tags' tab.

## Access

Ribbon	Start > Explore > Properties > Tagged Values > click on the connector on the diagram (Tagged Values window)
Context Menu	Right-click on Connector   Properties > General > Tags (connector 'Properties' dialog)
Other	Double-click on Connector > General > Tags (connector 'Properties' dialog)

## Set Tagged Values for the connector

Step	Action
1	Click on the connector type name, Connector Source or Connector Target as required.
2	Either click on the  icon in the toolbar, or press Ctrl+N. The 'Tagged Value' dialog displays.
3	In the 'Tag' field type the tag name, or click on the drop-down arrow and select a predefined Tagged Value type.
4	In the 'Value' field, type the value for the tag.
5	Click on the OK button to save the changes and close the dialog. The Tagged Value is displayed under the object type you selected in step 1.

# Source and Target Role

For certain types of connector, such as Association or Aggregation, the elements at either end of the connector can have defined roles. You define the roles in the:

- Connector 'Properties' dialog, on the 'Role(s)' tab, which has separate panels for the Source and Target role definitions, or
- The Properties window for the connector, on the 'Source' and 'Target' tabs

The field descriptions here are the same for both source and target roles.

## Access


Ribbon	Start > Explore > Properties > Properties > click on connector in a diagram > Source or Target (Properties window) Design > Element > Properties > Properties > click on connector in a diagram > Source or Target (Properties window)
Context Menu	Right-click on Connector   Properties > Role(s) (connector 'Properties' dialog)


Keyboard shortcuts	Alt+1 > click on connector in a diagram > Source or Target (Properties window)
Other	Double-click on Connector > Role(s) (connector 'Properties' dialog)

## Enter Role definitions

Option	Action
<top field>	Type the name of the role assigned to the element.  Alternatively, click on the drop-down arrow and select an attribute name from the opposite element (that is, select the source role name from the names of attributes on the target element, and vice versa).
<second field>	Type any notes required to describe the role.
Multiplicity	
Multiplicity	Click on the drop-down arrow and select

	<p>the required multiplicity for the role (you can edit the possible values of this field on the 'Cardinality' tab of the 'UML Types' dialog).</p> <p>Multiplicity is the range of instances of the role that can be active in the relationship - for example, one employee can be assigned to one or more tasks; for the target role you define the range of instances (such as tasks) that the employee could be assigned to.</p> <p>The values have these formats:</p> <ul style="list-style-type: none"><li>• *, or 0..* - zero, one or many instances</li><li>• 0..n - zero or up to n instances, but no more than n</li><li>• n - exactly n instances</li><li>• n..* - n, or more than n instances</li></ul> <p>You can also define source and target role multiplicity in the corresponding element's attribute properties.</p>
Ordered	Click on the drop-down list and select True or False to indicate whether or not the role is an ordered list.
Allow Duplicates	Click on the drop-down list and select True or False to indicate that the role can contain duplicate elements (relevant only

	<p>if multiplicity is <math>&gt; 1</math>).</p> <p>This field maps to the UML property 'isUnique' (selecting the checkbox maps to the 'isUnique' value of False).</p>
Detail	
Stereotype	<p>(Optional) Type the name of a stereotype that applies to this end of the connector, or click on the  button at the end of the field and select a stereotype from the 'Stereotype Selector' dialog.</p>
Alias	<p>(Optional) Type in an alias for the role.</p>
(Level of) Access	<p>Click on the drop-down arrow and select the appropriate access level for the role.</p>
Navigability	<p>Click on the drop-down arrow and select a value to indicate whether or not this role is navigable (whether non-navigable ends are shown on the diagram depends on the diagram properties).</p>
Aggregation	<p>Click on the drop-down arrow and select a value to indicate the type of aggregation that this role uses.</p>
Scope	<p>Click on the drop-down arrow and select</p>

	a value to indicate the level (instance or classifier) at which this role applies.
Constraints	Type the names of any constraints on the role.
Qualifier(s)	<p>Type the names of any qualifiers or restrictions on the role; separate multiple qualifiers with a semi-colon.</p> <p>Alternatively, click on the  button at the end of the field, and define a new qualifier on the 'Qualifiers' dialog (qualifiers typed into the 'Qualifiers' field are also automatically added to this dialog).</p>
Advanced	
Member Type	Type the name of a role-type that can be used when generating Collection Classes for multiplicity $> 1$ .
Changeable	Click on the drop-down arrow and select a value to indicate whether this role is subject to change.
Containment	Click on the drop-down arrow and select a value to indicate the nature of the containment at the Destination

	(Reference or Value).
Derived	Click on the drop-down arrow and select True or False to indicate whether the role value or values can be computed from other information.
Derived Union	<p>Click on the drop-down arrow and indicate whether the role is derived from the properties that subset it (that is, derived from a strict union of all properties that are constrained to subset it). To change this flag, type 'F' or 'T' in the field, as appropriate.</p> <p>As an example, you might set this field to True for a Class 'Schoolbus' with an attribute 'Passengers [0..48]' that is a derived union with these attributes subsetting it:</p> <ul style="list-style-type: none"><li>• SeatedPassengers [0..36]</li><li>• StandingPassengers [0..10]</li><li>• WheelchairPassengers [0..2]</li></ul>
Owned	<p>Click on the drop-down arrow and select True or False to indicate whether the role is owned by the opposite Class rather than the Association.</p> <p>Selecting True adds a 'dot' to the</p>



	appropriate end of the connector (  ).
--	---

## Notes

- Source role details are displayed at the start end of a connector; if you have drawn the connector the wrong way, correct it by right-clicking on the connector and selecting the 'Reverse Direction' option
- Target role details are displayed at the terminating end of a connector on the diagram

# Connector Constraints

A UML connector can also have associated constraints placed on it. Constraints provide information on the rules and conditions under which a relationship operates. For example, it might be a pre-condition that a customer is of a certain type before an Association connector to an Account is allowed.

You can add the constraints using the 'Constraints' tab in either the connector 'Properties' dialog or the Properties window; the fields are the same.

## Access

Ribbon	Start > Explore > Properties > Properties > click on connector in a diagram > Constraints (Properties window) Design > Element > Properties > Properties > click on connector in a diagram > Constraints (Properties window)
Keyboard	Alt+1 > click on connector in a diagram > Constraints (Properties window)
Context	Right-click on Connector   Properties >

Menu	Constraints (connector 'Properties' dialog)
Other	Double-click on Connector > Constraints (connector 'Properties' dialog)

## Set constraints on a connector

Option	Action
Constraint	Type the name of the constraint.
Type	Click on the drop-down arrow and select the appropriate type of the constraint (such as Pre-condition).
<notes>	Type any explanatory notes you might require on the constraint. You can insert line breaks in the text by pressing Ctrl+Enter.
Save	Click on this button to save the constraint definition. The constraint is added to the 'Defined Constraints' list.

New	Click on this button to clear the dialog fields so that you can enter details of a new constraint.
Defined Constraints	Displays a list of the constraints defined for this connector.
Delete	<p>Click on this button to delete a constraint you have selected in the 'Defined Constraints' list.</p> <p>The constraint is immediately removed from the list.</p>

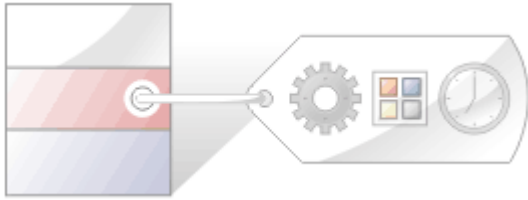
## Notes

- Constraints on an Association connector can be added to further refine the model; constraints detail the business and operational rules for the model

# Binding

Template Binding connectors, and also Generalize, Realize and Associate connectors, have a 'Binding' tab or page on their 'Properties' dialog and in the Properties window. You use this tab to define binding expressions and parameter substitutions for the connector.

# Tagged Values



Tagged Values are additional properties that can be assigned to UML elements and connectors. The UML defines properties such as name and description for elements and connectors, and Enterprise Architect adds a number of additional properties such as status, phase and author, but Tagged Values provide a means of defining your own properties (tags) and their values.

For example, a requirements modeler might want to record the owner of a set of requirements. The UML doesn't specify this property, but it can be easily added as a tag. A tag named Requirement Owner could be created and then each Requirement element could be assigned a value for the owner. This information would also be available in documentation.

Enterprise Architect has enriched the basic concept of Tagged Values with its powerful structured Tagged Value facility. To assist you when entering data, the values can be restricted using user interface controls such as drop down lists, spin controls, date selectors and many more.

Tagged Values are widely used in profiles and technologies to add information that helps guide the presentation of elements or metadata for code or schema generation.

## The Tagged Values window

You can use the Tagged Values window to view and modify Tagged Values for a selected modeling item, either from the current diagram or in the Project Browser. It is a dockable window that you can use to:

- Assign a Tagged Value to an Item
- Modify Tagged Values
- Assign Notes to a Tagged Value
- Perform advanced tag management

## Model Elements and Features with Tagged Values

These model components can use the Tagged Values window as a convenient way to quickly view and modify Tagged Values:

- Elements - display their own tags, along with any inherited values
- Object Instances - display their own tags and those obtained from their classifier
- Ports and Parts - display similar information to objects but show the Port/Part 'Type' instead of a classifier; tags are included for all parents and other structures of the Ports type

- Attributes - display their own tags and those received from attribute type classifiers, with the inclusion of any inherited tags
- Operations - display their own tags
- Connectors - display their own tags

When over-riding an inherited property, the system copies the tag from the parent down to the child element and sets the new value, leaving the original tag unchanged.

## Tagged Values Toolbar Buttons

Using the buttons from the toolbar at the top of the Tagged Values window, you can add, edit, sort, delete and arrange the Tagged Values of model features.



From left to right, the button functions are:

- Show in compartments - displays the Tagged Values in element compartments on diagrams
- Sort and Show Alphabetically - sorts the current Tagged Values alphabetically for the element
- New Tagged Value - adds a new tag, to which you assign a value
- Edit Tagged Value Notes - opens a note in which you type an explanation of the purpose of the Tagged Value
- Delete Tagged Value - removes the currently selected Tagged Value




- Default Tagged Value Types - provides quick access to tag definitions created using the 'Configure > Reference Data > UML Types > Tagged Value Types' option
- Tagged Value Options - provides options to show or hide the fully qualified paths for the Tagged Values in the window, and to show duplicate Tagged Values
- Help - displays information on the use of the Tagged Values window

# Quick Start - Add Tagged Value To Elements

You can quickly add a single Tagged Value to one or more elements within a diagram, using a context menu option.

## Access

Context Menu	On diagram   Select multiple elements   Right-click on one   Add Tagged Value
Other	Click on one or more elements, and click on  icon at right end of the Element toolbar
Keyboard Shortcuts	Ctrl+Shift+T (on single element in Project Browser, or single or multiple elements in diagram)

## Add a Tagged Value to elements

Step	Action
------	--------

p	
1	On the 'Tagged Values' dialog, in the 'Tag' field, type in the tag name. (Do not use the drop-down arrow to select an existing tag type.)
2	In the 'Value' field, type in the value for the tag.
3	Click on the OK button to add your new Tagged Value to the currently selected elements.

## Notes

- To delete the Tagged Value, open the Tagged Values window (Ctrl+Shift+6), click on each element and manually delete the tag from the window
- To add notes to the Tagged Value, in the Tagged Values window click on the Tagged Value name, and click on the Edit Notes button in the tab toolbar; the 'Notes' dialog displays
- The notes are displayed in the lower portion of the Tagged Values window (only if the 'Hide Properties Info Section' checkbox is not selected in the 'Window Behavior' tab of the 'Preferences' dialog - select the 'Start > View > Preferences' ribbon option; if you change the setting of this option, you might have to restart Enterprise Architect

to make the change take effect)

# Assign a Tagged Value to an Item


You can assign Tagged Values to a range of model objects, including elements, object instances, connectors, attributes and operations, using the Tagged Values window. You would probably have the window open already as a docked window, and any object you select becomes the focus of the window; you can then review and add or delete Tagged Values for that object.

## Access

Ribbon	Start > Explore > Properties > Tagged Values Design > Element > Properties > Tagged Values
Keyboard Shortcuts	Ctrl+Shift+6

## Assign a Tagged Value to an item

Ste	Action
-----	--------

p	
1	Select the model feature to which to assign a Tagged Value. This feature becomes the focus of the window.
2	In the Tagged Values window, either click on the  icon or press Ctrl+N. The 'Tagged Value' dialog displays.
3	In the 'Tag' field type the tag name, or click on the drop-down arrow and select the appropriate tag to assign to the item.
4	If appropriate, type a specific value for the tag in the 'Value' field.
5	To confirm selection of the Tagged Value, click on the OK button.

## Notes

- You can also assign a Tagged Value directly to an element in a diagram either by right-clicking on the element and selecting 'Properties| Tagged Value' or by clicking on the element and pressing Ctrl+Shift+T, then

completing the Tagged Value dialog as described

# Assign Notes to a Tagged Value

Once a Tagged Value has been assigned to a model feature, you can add information and notes describing the Tagged Value to the information property of the Tagged Value.

## Access

Ribbon	Start > Explore > Properties > Tagged Values Design > Element > Properties > Tagged Values
Keyboard Shortcuts	Ctrl+Shift+6

## Assign a note to a Tagged Value

Step	Action
1	Open the Tagged Values window.



2	<p>Click on the model feature for which to edit the Tagged Values.</p> <p>Its Tagged Values display in the Tagged Values window.</p>
3	<p>Click on the Tagged Value to add information to.</p>
4	<p>Click on the Edit Tagged Value Notes button or press Ctrl+E.</p> <p>The 'Tagged Value Note' dialog displays.</p>
5	<p>In the 'Note' field, type the information relating to the Tagged Value.</p> <p>Click on the OK button.</p> <p>The information is displayed in the lower portion of the Tagged Values window whenever the Tagged Value is selected.</p>

## Notes

- The notes are displayed in the lower portion of the Tagged Values window only if the 'Hide Properties Info Section' checkbox is not selected in the 'Window Behavior' tab of the 'Preferences' dialog (select the 'Start > View > Preferences' ribbon option); if you change the setting of this option, you might have to restart Enterprise Architect

to make the change take effect

# Modify Tagged Values


Once a Tagged Value has been assigned to a model feature (such as an element or connector), it is possible to edit the values in the Tagged Values window.


## Access

Ribbon	Start > Explore > Properties > Tagged Values Design > Element > Properties > Tagged Values
Keyboard Shortcuts	Ctrl+Shift+6

## Edit Tagged Values

Step	Action
1	Click on the model feature for which to edit the Tagged Values.

	<p>The Tagged Values window shows all of the tags for the selected feature, each with their current value.</p>
2	<p>Edit the fields as appropriate; the information entered can only reflect the value types that have been defined by the tag's Tagged Value Type. There are six types of value field for a Tagged Value:</p> <ul style="list-style-type: none"><li>• 'Open' fields, in which you can type any appropriate value</li><li>• Structured Tags, where you do not directly edit the composite value but expand the tag to show the component tags and edit the component values in 'open' fields; the composite value updates as you click off the component field</li><li>• 'Drop-down list' fields, where you click on the drop-down arrow to select from a discrete list of possible values such as 'M' or 'F', or 'Win', 'Lose' or 'Draw'</li><li>• 'Spin' fields, where you click on up or down arrows in the field to increase or decrease the value within certain limits</li><li>• Checklist fields, where you click on the  button in the field to display the 'Check List' dialog, which lists a set of items that can be selected by ticking the checkbox against each item; if any checkboxes are not selected the value of the tag is 'Incomplete', and when all checkboxes are selected</li></ul>

	<p>the tag value is 'Complete'</p> <ul style="list-style-type: none"><li>• 'Further detail' fields, where you click on the  button in the field to display a dialog in which you enter information (such as notes) or indicate a source of further information (such as a classifier)</li></ul>
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## Notes

- To override a Tagged Value defined in a parent element, edit the value in the 'from <parentname>' compartment of the Tagged Values window; once this has been done the tag is moved into the selected element's Tagged Values - this does not affect the Tagged Values defined in the parent element

## Show Duplicate Tags

Tagged Values are by default set to hide duplicate values. This setting is used to facilitate inherited and overridden tag names.

### Set the Tagged Values window to show duplicate values

Step	Action
1	On the Tagged Values window toolbar, click on the  Options icon.
2	Select the 'Show Duplicate Tags' context menu option.

### Alternatively

Step	Action

1	Select the 'Start > View > Preferences' option. The 'Preferences' dialog displays.
2	From the hierarchical tree, select the 'Objects' item.
3	Select the 'Show Duplicate Tags' checkbox.

## Notes

- In either procedure, to hide duplicate values again deselect the option or checkbox

# Advanced Tag Management

Tagged Values can also be managed within a type hierarchy and with respect to element instances, using the Tagged Values window. It is possible to:

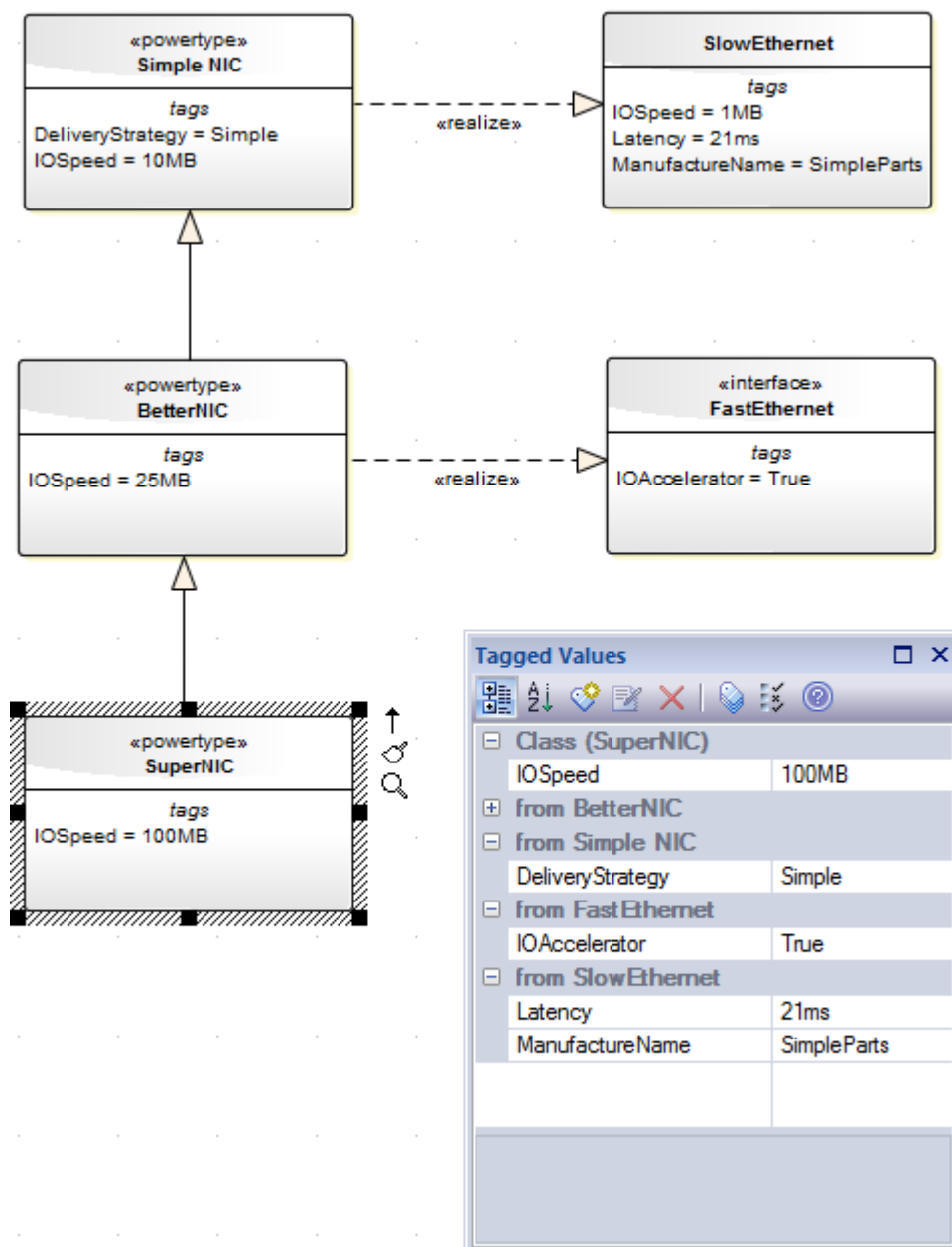
- View Tagged Values inherited from parent Classes or realized interfaces or applied stereotypes
- Override Tagged Values derived from parents or applied stereotypes with a unique value for the current element
- Delete Tagged Values from the current element (if a parent version of the Tagged Value exists, it re-appears in the list after the override is deleted)

For a reference Tagged Value (of type RefGUID), it is also possible to locate and select the object that the Tagged Value refers to, in the Project Browser. Simply right-click on the Tagged Value name in the Tagged Values window and select the 'Find in Project Browser' option.

## Tag Hierarchy

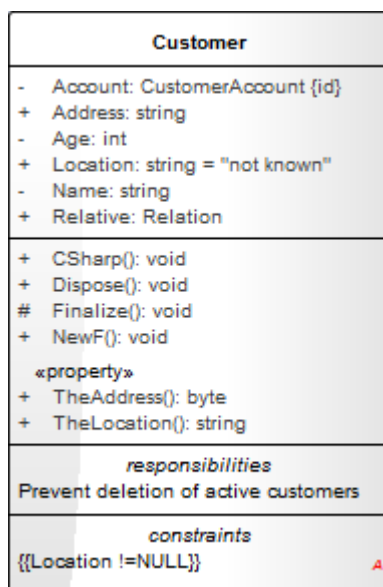
This diagram illustrates a complex tag hierarchy and the way Tagged Values can be either inherited or overridden in specialized Classes to create the final tagged property set for an element. A similar concept applies to instances, where the full tag set is created from the directly owned tags, plus all of those merged in from the classifier's type hierarchy, additional stereotypes and realized interfaces.





# Attributes

Attributes define the properties or internal data elements of an element. Not all element types support attributes, and others have restrictions; for example, attributes of Interfaces must have Public scope. In the Project Browser, elements with attributes (typically Classes) have their attributes listed under the element name, each preceded by a blue box (🔵). When depicted in diagrams, the attributes are listed in the first properties compartment of the element, as shown in this Customer Class example.



Attributes themselves have several important characteristics, such as type, scope (visibility), derivation and notes.

## Access

Ribbon	Design > Element > Features > Attributes
--------	--

	(Features window)
Context Menu	<p>These options display the 'Features' dialog:</p> <ul style="list-style-type: none"> <li>• Right-click element in Project Browser or diagram   Features   Attributes or</li> <li>• Right-click attribute in Project Browser   Properties   Properties</li> </ul> <p>This option displays the Features window:</p> <ul style="list-style-type: none"> <li>• Right-click attribute in Project Browser   Properties   All Features</li> </ul>
Keyboard Shortcuts	F9 ('Features' dialog)
Other	In Project Browser, double-click on an attribute to display the parent element on a diagram

## Maintain Attributes

Action	Detail
Create and	On the 'Attributes' page of the Features

Modify Attributes	window, you create and modify attributes.
Move and Copy Attributes	You can copy or move existing attributes between elements, if the target element also supports attributes.
Define Properties	You can create property implementations specific to your coding languages for each attribute.
Identify Inherited Attributes	The attributes of an element can be inherited from one or more successive parent elements in the model. On a diagram, you can show which attributes are inherited from which 'owning' element in the hierarchy.

## Notes

- Attributes, with Operations, Receptions, Interaction Points and Connection Points, are collectively referred to as Features of an element
- If you are creating many attributes, go to the 'Attribute/Operations' page of the 'Preferences' dialog ('Start > Settings > Preferences > Source Code

Engineering > Attribute/Operations') and de-select the 'After save, re-select edited item' checkbox; now, when you create an attribute and click on the Save button, the 'Attribute' page fields clear ready for you to enter the details of the next attribute - this helps you when you want to create attributes quickly and might not necessarily want to fully define each one as you create it

- If the parent element provides source or target roles for a connector, the connector can be attached to a specific attribute (as a feature)
- An alternative method of creating relationships between elements and attributes is to drag an attribute onto an Activity diagram, which generates an Object element named after the attribute; you then create relationships to and from this Object element

# Create and Manage Attributes

The Features window presents a tab displaying the attributes that you create in an element. When you display the 'Attributes' tab, you can create and manage attributes using the page itself and a context menu of options.

## Access

Ribbon	Design > Element > Features > Attributes
Context Menu	Right-click element in Project Browser or diagram   Features   Attributes ('Features' dialog)
Keyboard Shortcuts	F9 ('Features' dialog)

## Create a New Attribute

Either:



- Click on the *New Attribute...* text and type a name for the new attribute

- Right-click on the panel and select 'Add New' (or press Ctrl+N) or
- Right-click on an existing attribute and select 'Copy as New' (or press Ctrl+C), provide a new name for the attribute and click on the OK button

A new attribute entry displays in the list.

## Edit Attribute Properties

Option	Action
Name	If you want to change the attribute name, click on the field and overwrite it with the new name.
Type	<p>Defaults to 'int'. To change this, overwrite the field or click on the drop-down arrow and click on:</p> <ul style="list-style-type: none"><li>• The required type or</li><li>• '&lt;none&gt;' for no type, or</li><li>• 'Select Type' and browse for the appropriate attribute classifier (you can add a new one if there are no classifiers that suit)</li></ul> <p>The type can be defined by the code language (data type) or by a classifier</p>

	<p>element; when you click on the drop-down arrow, the set of values in the list provides the data types, and the 'Select Type' browser provides the possible classifiers.</p> <p>To add new code language data types that can be displayed in this list, see the <i>Data Types</i> topic.</p>
Scope	Define the attribute as Public, Protected, Private or Package; if necessary, click on the drop-down arrow and select a different scope.
Stereotype	<p>(Optional) Define one or more stereotypes for the attribute; either:</p> <ul style="list-style-type: none"><li>• Type a stereotype name, or</li><li>• Click on the  button and select the stereotype from the 'Stereotype Selector' dialog</li></ul>
Alias	(Optional) Type an alternative name or reference for the attribute.
Initial Value	<p>(Optional) Either:</p> <ul style="list-style-type: none"><li>• Type in a simple initial value, or</li><li>• Click on the  button and construct a more complex value on the Default</li></ul>



	Initial Value window
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## Context Menu options

Right-click on the panel, or on a specific attribute name.

Option	Action
Add New	Add a new attribute to the list, with default values in the dialog fields. Shortcut: Ctrl+N
Copy as New	Copy a selected attribute as a new attribute. Provide a new name for the attribute and click on the OK button. Shortcut: Ctrl+C
Properties Window	Display the Properties window, showing the details for the selected attribute and enabling you to add more-advanced properties and Constraints.
Qualifiers	Add Qualifiers to the selected attribute. The 'Qualifiers' dialog displays.
Restore Sort	If you have used the column header arrows to reorganize the sequence in

Order	which the attributes are displayed, click on this option to redisplay them in the default sequence (alphabetical by name).
Move up	Move the selected attribute one row up the list. Shortcut: Ctrl+Up Arrow
Move down	Move the selected attribute one row down the list. Shortcut: Ctrl+Down Arrow
Field Chooser	Display the 'Field Chooser' dialog, which contains any column headings not currently applied to the page. Drag a column heading from the 'Field Chooser' into the preferred position in the row of column headings. You can also drag the column headings into a different sequence. To return a column heading to the 'Field Chooser', drag it out of the heading row.
Enable Group Box	Show or hide the Group Box, in which you reorganize the list sequence of the attributes according to one or more characteristics.
Toggle Filter	Show or hide the Filter Bar, in which you

Bar	type text strings that the data in the corresponding column must match in order to be listed.
Delete	Immediately delete the selected attribute from the element. Shortcut: Ctrl+Del

## Notes

- By default, the attributes are listed in alphabetical order; before being able to change this sequence with the 'Move Up' and 'Move Down' options, you must deselect the 'Sort Features Alphabetically' checkbox on the 'Objects' page of the 'Preferences' dialog ('Start > View > Preferences > Objects') - the system prompts you to allow it to make this change for you
- You can add Notes on the attribute through the Notes window, which has focus on the attribute while it is selected in the Features window; similarly, you can assign Tagged Values to the attribute through the Tagged Values window


# Attribute Tagged Values

Tagged Values are a convenient means of extending the properties a model element supports, including attributes. Such extensions can then be used by code generators and other utilities to transform UML models into other forms.

## Access

Ribbon	Design > Element > Properties > Tagged Values, click on an attribute Start > Explore > Properties > Tagged Values, click on an attribute
Keyboard Shortcuts	Ctrl+Shift+6

## Add a Tagged Value to an attribute

Step	Action
1	Click on the  button in the window toolbar.

	The 'Tagged Value' dialog displays.
2	In the 'Tag' field, type the tag name or click on the drop-down arrow and select a defined tag.
3	In the 'Value' field type a specific value for the tag. (For some types of Tagged Value, the 'Value' field is grayed out. In this case, continue to step 4 and enter the value against the tag name in the Tagged Values window.)
4	Click on the OK button to confirm the operation. The tag name and value are displayed under the attribute name in the Tagged Values window.

## Notes

- Tagged Values are supported for attributes, operations, objects and connectors
- You can define custom tags by creating a Custom Tagged Value Type

# Properties Window for Attributes

The docked Properties window provides a convenient and immediate way to view and edit common properties of modeling objects, including attributes. When you click on an attribute in the Project Browser or a diagram, the Properties window immediately shows the attribute's properties on the 'Attribute' tab.

You can also swiftly display the properties of other types of object such as elements, connectors and diagrams on the same window without having to open and close separate dialogs.

## Access

Ribbon	<p>After selecting the Properties window using one of these methods, click on the first required attribute.</p> <p>Start &gt; Explore &gt; Properties &gt; Properties</p> <p>or</p> <p>Design &gt; Element &gt; Features &gt; Attributes: right-click on an attribute   Properties window or</p> <p>Show &gt; Portals &gt; Window &gt; Properties &gt; Properties</p>

Keyboard	Alt+1, click on the required attribute
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## General Settings


Field	Description
Name	Displays the name of the selected attribute. If necessary (for example, if it is a place-holder name) overwrite this name with a new name.
Type	Displays the assigned type of the attribute. If necessary, click on the drop-down arrow and select either a different type, or the 'Select Type' option to display the 'Select Type' browser to locate a classifier element as the type.
Stereotype	If the attribute has a stereotype, this field displays the stereotype name. To add or change the stereotype, click on the browse icon and use the 'Stereotype for <attributename>' dialog to select the stereotype from the appropriate profile.
Scope	Displays the scope of the attribute. If you


	need to change the scope, click on the drop-down arrow at the right of the field and select the appropriate value.
Alias	Displays any alternative name or reference for the attribute. If you need to add or change the alias, overwrite the field.
Initial Value	Displays the initial value of the attribute. If you need to add or change the value, overwrite the field.

## Advanced Settings

Field	Description
Containment	Displays the type of containment specified for the attribute. If you need to change this setting, click on the drop-down arrow at the right of the field and select the appropriate value.
Static	The flag indicating if the attribute is a static member; to change this flag, type 'F' or 'T' in the field, as appropriate.



Property	<p>If the attribute has automatic property creation, click on the  button to define how it should be implemented for the programming language you are modeling for.</p> <p>The 'Create Property Implementation' dialog displays.</p>
Const	<p>The flag indicating if this attribute is constant (read-only, blocked from change). To change this flag, type 'F' or 'T' in the field, as appropriate.</p>
Is Literal	<p>(For Enumeration elements.) The flag indicating if the attribute is an enumeration literal. To change this flag, type 'F' or 'T' in the field, as appropriate.</p>
Transient	<p>(For Java code.) The flag indicating whether or not the attribute can change regardless of what the code is performing. To change this flag, type 'F' or 'T' in the field, as appropriate.</p>
Derived	<p>The flag indicating whether the attribute is derived from one or more other attributes; for example, full name can be derived from the last name and first name</p>

	attributes. To change this flag, type 'F' or 'T' in the field, as appropriate.
Derived Union	<p>The flag indicating if the attribute is a derived union (that is, derived from a strict union of all properties that are constrained to subset it). To change this flag, type 'F' or 'T' in the field, as appropriate.</p> <p>As an example, you might set this field to True for a Class 'Schoolbus' with an attribute 'Passengers [0..48]' that is a derived union with these attributes subsetting it:</p> <ul style="list-style-type: none"> <li>• SeatedPassengers [0..36]</li> <li>• StandingPassengers [0..10]</li> <li>• WheelchairPassengers [0..2]</li> </ul>
Is ID	The flag indicating whether the attribute can be used to uniquely identify an instance of the containing Class. To change this flag, type 'F' or 'T' in the field, as appropriate.
Multiplicity	<p>Click on the  button to display the 'Multiplicity' dialog, and define the multiplicity of the attribute.</p> <ul style="list-style-type: none"> <li>• Lower Bound - Type the lower limit to the number of attributes that must be in</li> </ul>

	<p>the collection</p> <ul style="list-style-type: none"><li>• Upper bound - Type the upper limit to the number of attributes allowed in the collection</li><li>• Allow Duplicates - Select the checkbox to indicate that duplicate values are allowed; this field maps to the UML property isUnique, with a value False</li><li>• Multiplicity is Ordered - Select the checkbox to indicate that the collection is ordered</li><li>• OK - Click on this button to save the information and close the dialog</li></ul>
Is Collection	<p>The flag indicating whether the attribute is a collection (array), so that it can contain multiple concurrent values, or a single value. To change this flag, type 'F' or 'T' in the field, as appropriate.</p>
Container Type	<p>If the attribute is a collection, type the name of the container type for the collection.</p>

## Notes

- The Properties window for attributes also has a 'Redefines' tab, which lists any Redefined Property or Subsetted Property added to the selected attribute; click on the appropriate Add button to add or change the properties in the lists, selecting each property from the 'Select Property' dialog
- The window also has a 'Constraints' tab on which you define the constraints on the attribute

# Create Properties


You can configure Enterprise Architect to automatically create properties in the modeled code in any of the programming languages that the system supports. You control property creation from the Properties window for Attributes. Each language has slightly different syntax and generates slightly different results:

- Java and C++ generate get and set functions
- C# and VB.Net create property functions
- Delphi creates get and set functions as well as a specialized Delphi property Tagged Value

## Access

Ribbon	Design > Element > Properties > Properties
Context Menu	Right-click element in Project Browser or diagram   Properties   Properties
Keyboard Shortcuts	Alt+1

## Configure Properties for an attribute

Step	Action
1	In the Project Browser or a diagram, click on the attribute for which to configure property creation. The attribute becomes the focus of the Properties window.
2	Expand the 'Details' section of the 'Attribute' tab, and click on the 'Property' field and on the  button. The 'Create Property Implementation' dialog displays.
3	The 'Language' panel defaults to the radio button for the language defined in the Class properties; however, you can click on any other radio button to select another language for which to configure property creation. Each language enables its own combination of fields in the 'Property Details' panel.
4	The 'Name' field defaults to the name of the attribute. If necessary, you can overtype this with a different name. Select the checkboxes or values from drop-down lists for these fields as required (and if available) to

	<p>define the property for the selected programming language:</p> <ul style="list-style-type: none"><li>• By Ref</li><li>• Stereotype</li><li>• Get Scope</li><li>• Set Scope</li><li>• Published</li><li>• Read</li><li>• Write</li><li>• Abstract</li></ul>
5	<p>Click on the OK button</p> <p>The system generates the required operations and properties to comply with the selected language.</p>

## Notes

- Get and Set functions have the stereotypes «property get» and «property set», making it easy to recognize property functions in the operations compartment of the element on a diagram; you can also hide these specialized functions on a specific diagram, by deselecting the 'Property Methods' checkbox on the 'Features' page of the 'Diagram Properties' dialog, which then makes it easier to view the Classes uncluttered by many get and set methods

- For the Delphi programming language, enable the Tagged Values compartment to see the generated property Tagged Value



# Attribute Constraints

Attributes can have constraints associated with them, which typically indicate such things as maximum value, minimum value and length of field. You define these constraints on the Properties window for attributes.

## Access

Click on the required attribute in a diagram or the Project Browser, and use one of these methods to display the attribute 'Constraints' tab.

Ribbon	Design > Element > Properties > Properties > Constraints Start > Explore > Properties > Constraints
Context Menu	Right-click attribute in diagram or Project Browser   Properties   Properties > Constraints
Keyboard Shortcuts	Alt+1 > Constraints

## Define Constraints

Option	Action
Constraint	Type in the name or action of the constraint.
Type	Click on the drop-down arrow and select the appropriate constraint type.
(Notes)	Type in any comments or notes concerning the constraint.
New	Click on this button to clear any displayed data from the constraint fields, so that you can define a new constraint.
Save	Click on this button to save any new data in the fields, and to clear the fields in preparation for defining another constraint. The saved constraint is added to the top of list in the second 'Constraint' field.
Constraint	Lists the existing constraints on the attribute. If you click on an entry in the list, the constraint details display in the tab fields.
	Click on a constraint in the list and click

Delete	on this button to immediately remove the constraint from the attribute.
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# Display Inherited Attributes

When displaying a Class with attributes in a diagram, you can also show the inherited attributes from all parents in the element's type hierarchy (that is, the element's ancestors).

## Access

Context Menu	Right-click element on diagram   Compartment Visibility
Keyboard Shortcuts	Ctrl+Shift+Y

## Enable Display of Inherited Attributes

In the 'Show Element Compartments' panel, select the 'Inherited Attributes' checkbox.

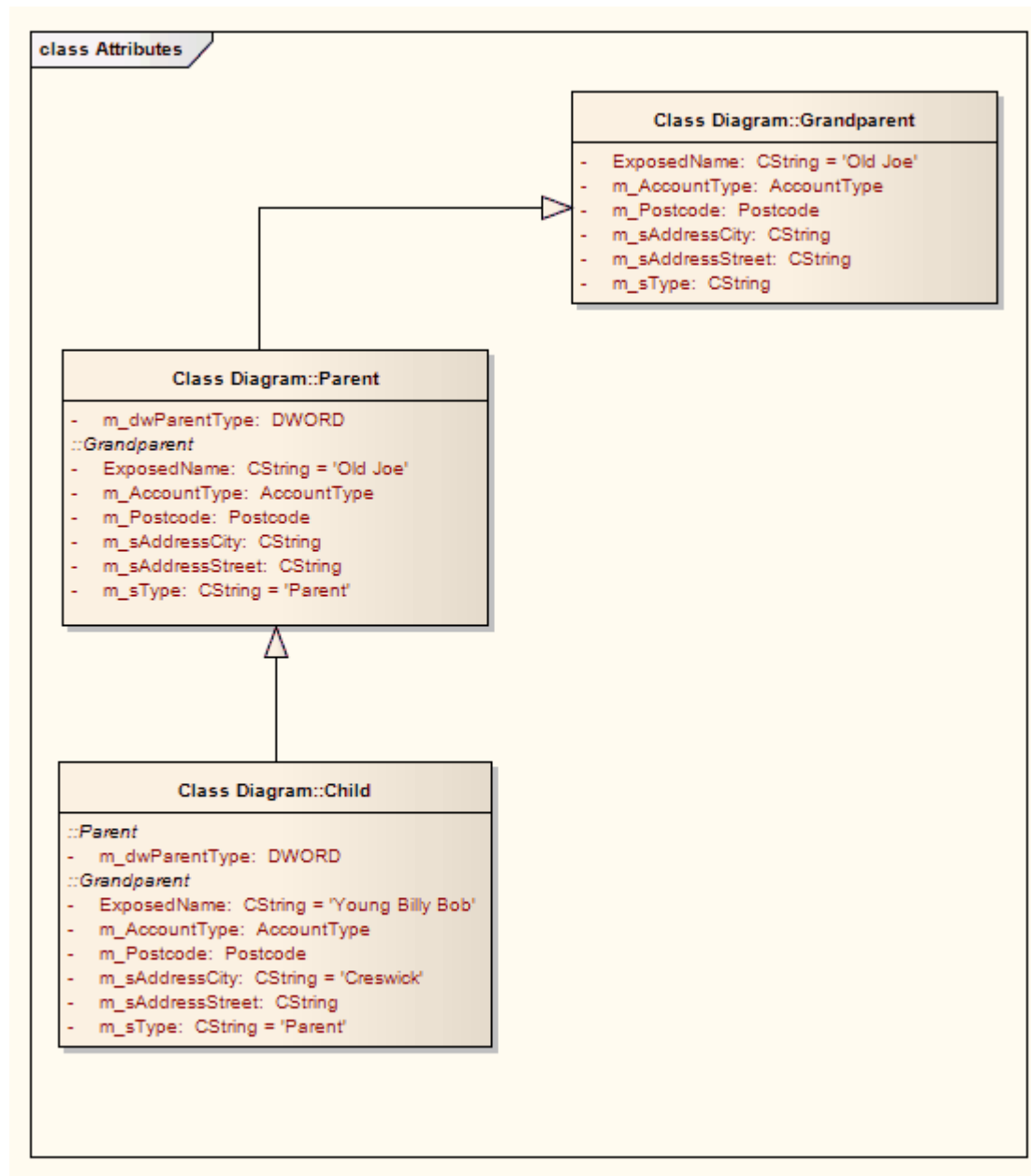
You can also override an inherited attribute's initial value, selecting the 'Features | Override Attribute Initializers' option to display the 'Override Attribute Initializers' dialog.

When you view the inherited attributes, the system merges the list of attributes from all ancestors and applies the

attribute initializers, so that the final child Class displays the correct attribute set and initial values.

Option	Action
Variable	Click on the drop-down arrow and select the variable name.
Operator	Click on the drop-down arrow and select the appropriate operator.
Value	Type a new initial value.
Note	Type in any comments or notes concerning the variable.
OK	Click on this button to save the variable and close the dialog.

## Example



# Create Object From Attribute

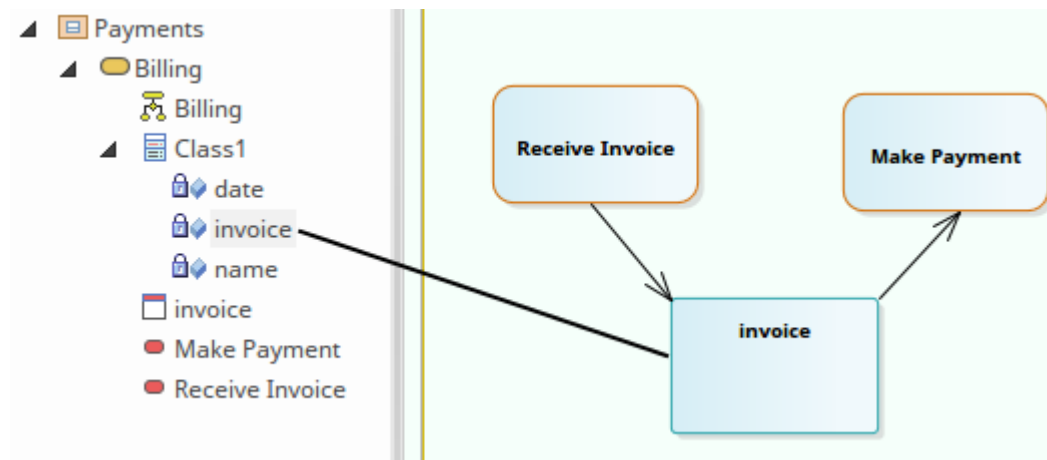
If you drag an attribute from the Project Browser onto an Activity diagram, the attribute generates an Object element of the same name.

This is very useful for creating connectors between elements and specific attributes. For example, a Class element of stereotype <<table>> defines its fields as attributes; Action elements that define the use or update of those fields can then be linked to the appropriate table fields via the attribute Object elements.

## Example

In this example diagram, the invoice Object was generated by dragging the invoice attribute from the Billing Details Class in the Project Browser onto the diagram.

The user then created Object Flow relationships between the Receive Invoice Action element and the invoice element, and between the invoice element and the Make Payment Action element.



## Notes

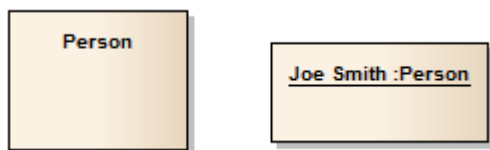
- You can also create this relationship more directly by linking an attribute in an element to another element, or linking two attributes in different elements



# Classifiers and Instances

Some types of element (such as Classes) model classifications, which provide a specification of an abstract concept. For example, the concept of a Building can be represented by a set of Classes that define types of building such as Bungalow, Miner's Cottage, Office Block, Shop and so on. Other types of element (such as Objects) model instances of such classifications, such as 23 High Street Shop or 45 Village Green Cottage. The instance elements represent actual objects in a run-time scenario, based on the specification of the classifier element. For example:

- An Object element represents a man called Joe Smith, as a specific instance of the concept of 'a person' defined by the Class element Person; the object is rendered as a rectangle showing the name of the classifier - if you name the object it becomes <ObjectName>:<ClassifierName> or, in this example, Joe Smith:Person



If you develop a Person Class with attributes such as Age, Name, Address and Sex, and functions such as GetAge and GetName, then when you derive an object from that Class the object takes on all the Person Class behavior and state (as well as inherited state and behavior from the parent elements of the Person Class, if any).

Associating an instance with a classifier greatly increases the descriptive power of the model in capturing the functionality and responsibility of objects and their associated state at run-time. This is a powerful means of moving your model from the analysis phase into detailed design.

## Notes

- An object is an instance of a classifier at runtime, so the object's features are actually those of the classifier; in the context menu for a classified object, if you select the 'Features | Attributes' or 'Operations' menu options, the Features window displays for the classifier, not the object
- Similarly, if you have set the classifier for an object in a Sequence diagram, when you add a message and display its 'Message Properties' dialog, the 'Message' drop-down list is drawn from the operations of the target object's classifier, not from the object itself  
In this way you can associate Sequence diagram objects with Classes and use the defined behavior of the Class to model actual behavior at run time; the same concept applies to Messages for a State Flow connector
- In the 'Message' dialog, you can also select to include messages defined in the inheritance hierarchy of the classifier for the target object

# Classify an Object

Objects can be created and classified in a number of ways. You can define a classifier first and then create instances of that classifier. Alternatively, you might develop several separate objects that turn out to have a similar specification, which you then formally define as a classifier. You would then classify the existing objects as instances of that new classifier.

## Methods of Classifying an object

Method	Detail
Drop Classifier Onto Diagram	<p>Drag an existing classifier element from the Project Browser onto a diagram. Depending on how you configure the 'Drop &lt;element&gt; from Project Browser' dialog, you can create an associated object as an instance, or the instance is automatically generated.</p> <p>If your classifier contains Property elements, you also have the option of adding some or all of these properties to the instance as 'slots'.</p>
Classify	(Where both object and classifier already

<b>Existing Object</b>	<p>exist, separately.)</p> <p>On a diagram, right-click on the object and select the 'Advanced   Instance Classifier' option. (Or click on the object and press Ctrl+L.)</p> <p>The 'Select Classifier' dialog displays. Browse or search through the model for the classifier element to associate with the object, and double-click on it.</p> <p>The object is associated with the classifier and displays the naming convention as described.</p>
<b>Classify new or existing object from classifier Associations</b>	<p>A classifier is usually a component of a model structure, and can have Associations with other classifiers.</p> <p>If an object is classified, any other objects related to that object can be classified by the related elements of the classifier. For example:</p> <ul style="list-style-type: none"><li>• Class A is associated with Class B and Class C</li><li>• Object 1 is classified by Class A</li><li>• If you create an Association between Object 1 and Object 2, the 'Choose an Association Connector' dialog offers the option of setting either Class B or Class C as the classifier of Object 2</li></ul>



# Add Property Slots to Instance

A classifier element can have a range of characteristics that are automatically applied to an instance based on that classifier. You can also, optionally, add any Property elements (Ports, Parts and Expose Interfaces) on the classifier to the instance, as 'slots' for the definition of each Property. This provides some flexibility in creating variations of the design defined in the classifier. For example, models of car might have doors of the same specification, but in a two-door or four-door configuration.

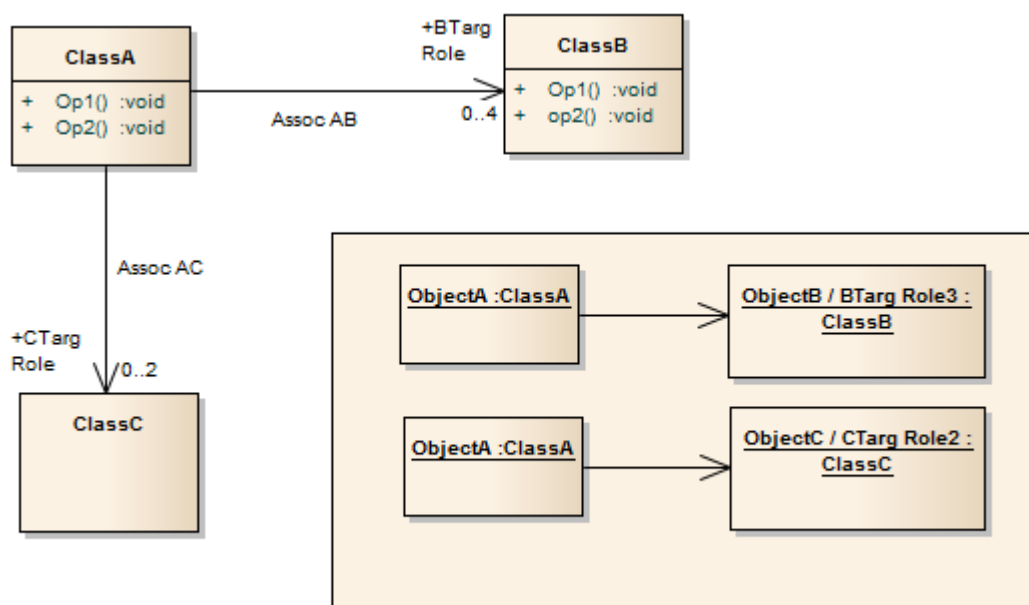
## Add classifier Property elements to an instance

Step	Action
1	Create and save the classifier element with the configuration of Property elements you need.
2	Create or assign an instance of the classifier on your work diagram.
3	Right-click on the instance and select the 'Features' option. The Features window displays at the 'Parts /

	Properties' tab, listing the Property elements defined for the classifier.
4	<p>Select the checkbox against each Property to reproduce in the instance element, and click on the Close button.</p> <p>Each Property element is shown in the top left of the instance; drag the elements into the arrangement you want. The Property element name within the instance is prefixed with a / character.</p>

# Classify Object Via Classifier Associations

When building an instance model from a predefined Class model, Enterprise Architect can assist in setting classifiers and role names for objects involved in a relationship. For example, if ClassA has association relationships with ClassB and ClassC, you can create an instance of ClassA (ObjectA), then draw an association to a new unclassified object and have the choice of selecting ClassB or ClassC as the classifiers of the new object.



## Access

Where you have an existing association between a classified object and an unclassified object, use either method outlined here, to display the 'Choose an Association' dialog.



Context Menu	Right-click on existing Association   Advanced   Instance Classifier
Keyboard Shortcuts	Select the existing Association : Ctrl+L

## Choose an Association Connector dialog

Field/Button	Action
Classifier Name	<p>Displays the name (if defined) of each Association connector issuing from the source object's classifier.</p> <p>If the connector has no name, the value &lt;anonymous&gt; displays.</p>
Association	<p>Represents the source and target classifier elements in each Association connector issuing from the source object's classifier.</p> <p>If you select one of these, the target classifier becomes the classifier for the target object element.</p> <p>Select &lt;none&gt; if you want to create the Association, but not based on the classifier relationships.</p>

<Source Object Name> Role	<p>Identifies any Roles defined in the Association for the source classifier element, according to the source role multiplicity setting; if you select one of these roles, this will become the specific Role for the source object, as shown on the name of the element on the diagram.</p> <p>If the multiplicity is not set, or the upper bound is * (asterisk), just the role name displays in the list.</p>
<Target Object Name> Role	<p>Identifies any Roles defined in the Association for the target classifier, according to the target role multiplicity setting; if you select one of these roles, it will become the specific Role for the target object as shown on the name of the element in the diagram (and on the 'Binding' page of the Association connector 'Properties' dialog).</p> <p>If the multiplicity is not set, or the upper bound is * (asterisk), just the role name displays in the list.</p>
OK	<p>Click on the Association and source and target roles, then click on this button to:</p> <ul style="list-style-type: none"><li>• Create the Association between the two objects based on the relationship</li></ul>

	<p>between the two classifiers, and</p> <ul style="list-style-type: none"><li>• Make the target classifier the classifier for the target object</li></ul> <p>If you selected the &lt;none&gt; entry, a simple Association is created and the target object is unclassified.</p>
Cancel	Cancel the dialog without changing any classifier settings.

## Notes

- When creating a new association or object, the 'Properties' dialog might appear before the 'Choose an Association Connector' dialog; complete any 'Properties' fields as required, and click on the OK button

# Behavior

Enterprise Architect enables you to define an element's behavior through the element's operations and parameters. You can also define the behavior of more specific behavioral elements such as Activities, Interactions, Actions and Interaction Occurrences, through the 'Behavior' tab of the element Properties window.

# Operations

Operations are features of a Class or other element that represent the behavior or services an element supports. For a Customer Class, 'UpdateCustomerName' and 'GetCustomerAddress' can be operations. Operations have several important characteristics, such as type, scope (visibility), static, abstract and notes.

## Access

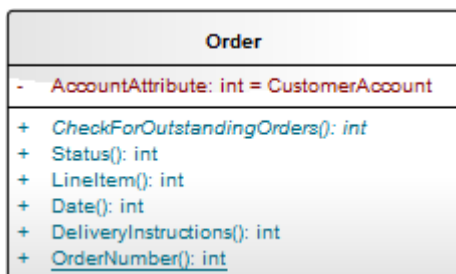
Ribbon	Design > Element > Features > Operations
Context Menu	Right-click element in diagram or Project Browser   Features   Operations or Right-click operation in Project Browser   Properties   Operation List
Keyboard Shortcuts	F10

## Create and Modify Operations

You can create the operations of an element on the 'Operations' tab of the Features window, and modify the basic properties. You use the Properties window for operations to provide more detailed properties of the operations you need for an element.

## Appearance on diagram

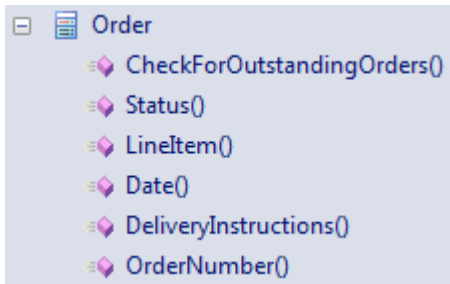
In diagrams, elements with operations (typically Classes) list the operations in a properties compartment, in colored text, as shown.



The text color can be defined on the 'Standard Colors' page of the 'Preferences' dialog. Some characteristics modify the display; for example, static operations display underlined, whilst abstract operations are italicized.

## Appearance in Project Browser

In the Project Browser, operations are listed underneath their parent element name, each preceded by a pink box.



## Notes

- If the parent element provides source or target roles for a connector, the connector can be attached to a specific operation
- You can also drag, copy or move existing operations between elements; this facility is only available if the target element supports operations

# Define Properties of Operations

You create operations for an element on the 'Operations' page of the Features window, and provide a basic set of properties. You can simply create a number of operation names if you want to create operations quickly and not necessarily fully define them as you create them. You provide the more detailed properties of the operations using the Properties window for operations.

Operations of State elements are managed differently - there are three operations (Enter, Do and Exit) that are defined on the 'Behavior' tab of the Features window. This tab displays only when the selected element is a State. Similarly, if the element is a Database Table, the 'Operations' tab is replaced by a 'Constraints/Indexes' tab.

## Access


Ribbon	Design > Element > Features > Operations Design > Element > Properties > Properties and click on an operation in the Project Browser or a diagram
Context Menu	Right-click element in Project Browser or diagram   Features   Operations or



	Right-click operation in Project Browser   Properties   Operation List
Keyboard Shortcuts	F10

## Create and define Operations

Field/Button	Action
Name	Overtyping the <i>New Operation...</i> text to create a new operation, or clicking on the name to edit an existing operation.
Parameters	Lists the parameters that have been defined for this operation on the 'Parameters' tab of the Properties window for Operations.
Return Type	Defaults to 'void'. To change this, overwrite the field or click on the drop-down arrow and click on: <ul style="list-style-type: none"><li>• The required data type returned by the operation, as defined by the code language (data type), or</li><li>• '&lt;none&gt;' for no type (or you can type in</li></ul>

	<p>a value manually if you prefer), or</p> <ul style="list-style-type: none"><li>• 'Select Type' and browse for the appropriate operation classifier (you can add a new one if there are no classifiers that suit)</li></ul> <p>To add new code language data types that can be displayed in this list, see the <i>Data Types</i> topic.</p>
Scope	<p>Click on the drop-down arrow and select one of:</p> <ul style="list-style-type: none"><li>• Public</li><li>• Protected</li><li>• Private</li><li>• Package</li></ul>
Stereotype	<p>(Optional) Define one or more stereotypes for the operation; either:</p> <ul style="list-style-type: none"><li>• Type a stereotype name, or</li><li>• Click on the  button and select the stereotype from the 'Stereotype Selector' dialog</li></ul>
Alias	<p>(Optional) Type an alternative name or reference for the operation.</p>

## Context Menu options

Right-click on the upper panel, or on a specific operation name.

Option	Action
Add New	Add a new operation to the list, with default values in the dialog fields. Shortcut: Ctrl+N
Copy as New	Copy a selected operation as a new operation. Provide a new name for the operation and click on the OK button. Shortcut: Ctrl+C
Properties Window	Display the Properties window for this operation. Shortcut: Alt+1
Restore Sort Order	If you have used the column header arrows to reorganize the sequence in which the operations are displayed, click on this option to redisplay them in the default sequence (alphabetical by name).
Move up	Move the selected operation one row up the list.

	Shortcut: Ctrl+Up Arrow
Move down	<p>Move the selected operation one row down the list.</p> <p>Shortcut: Ctrl+Down Arrow</p>
Field Chooser	<p>Display the 'Field Chooser' dialog, which contains any column headings not currently applied to the page.</p> <p>Drag a column heading from the 'Field Chooser' into the preferred position in the row of column headings. You can also drag the column headings into a different sequence.</p> <p>To return a column heading to the 'Field Chooser', drag it out of the heading row.</p>
Enable Group Box	<p>Show or hide the Group Box, in which you reorganize the list sequence of the operations according to one or more characteristics.</p>
Toggle Filter Bar	<p>Show or hide the Filter Bar, in which you type text strings that the data in the corresponding column must match in order to be listed.</p>
Delete	<p>Immediately delete the selected operation from the element.</p>

	Shortcut: Ctrl+Del
--	--------------------

# Properties Window for Operations

The docked Properties window provides a convenient and immediate way to view and edit common properties of modeling objects, including operations. When you click on an operation in the Project Browser or a diagram, the Properties window immediately shows the operation's properties on the 'Operation' tab. You can also swiftly display the properties of other types of object such as elements, connectors and diagrams on the same window without having to open and close separate dialogs.

The Properties window for operations also has tabs for:

- Parameters
- Behavior
- (Initial) Code
- Redefines
- Preconditions and
- Postconditions

## Access


After selecting the Properties window using one of these methods, click on the first required operation.

Ribbon	Start > Explore > Properties > Properties or
--------	---


	Design > Element > Features > Operations: right-click on an operation   Properties window or Show > Portals > Window > Properties > Properties
Keyboard	Alt+1

## Properties

Property	Description
Name	Displays the name that has been allocated to the operation. If you want to change this, overwrite the text in the field.
Parameters	Lists the parameters that have been defined for this operation on the 'Parameters' tab.
Return	Displays the return type of the operation (defaulting to 'void'). To change this, overwrite the field or click on the drop-down arrow and click on: <ul style="list-style-type: none"><li>• The required data type returned by the operation, as defined by the code</li></ul>

	<p>language (data type) or</p> <ul style="list-style-type: none"> <li>• '&lt;none&gt;' for no type (or you can type in a value manually if you prefer), or</li> <li>• 'Select Type' and browse for the appropriate operation classifier (you can add a new one if there are no classifiers that suit)</li> </ul> <p>To add new code language data types that can be displayed in this list, see the <i>Data Types</i> topic.</p>
Scope	<p>Displays the scope currently set for the operation. If it is necessary to change this, click on the drop-down arrow and select one of:</p> <ul style="list-style-type: none"> <li>• Public</li> <li>• Protected</li> <li>• Private</li> <li>• Package</li> </ul>
Stereotype	<p>(Optional) Displays any stereotypes that have been defined for the operation; if you want to add others, either:</p> <ul style="list-style-type: none"> <li>• Type a stereotype name, or</li> <li>• Click on the  button and select the stereotype from the 'Stereotype Selector' dialog</li> </ul>



Alias	(Optional) Displays any alias that has been defined as an alternative name or reference for the operation. If necessary, overtype this with a different alias.
Concurrency	Displays the concurrency of the operation - Sequential, Guarded or Synchronous. If necessary, click on the drop-down arrow and select a different setting.
Abstract	The flag indicating if this operation is an abstract function. If it is necessary to change this, type T or F in the field to change it to True or False, as appropriate.
Static	The flag indicating if this operation is a static member. If it is necessary to change this, type T or F in the field to change it to True or False, as appropriate.
Modifiers	<p>Click on the  button to display the 'Select Modifiers' dialog, and select the appropriate checkboxes:</p> <ul style="list-style-type: none"> <li>'Pure' - indicates that the method statement is pure virtual syntax. For example:  <pre>virtual void myFunction() = 0;</pre> </li> <li>'Const' - indicates that the return type of the method is constant</li> </ul>

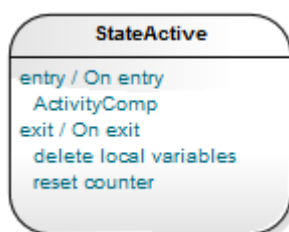
	<ul style="list-style-type: none"><li>• 'Is Query' - indicates that the method does not modify the object</li><li>• 'Return Array' - indicates that the method's returned value is in the form of an array</li><li>• 'Synchronized' - for Java, sets a code engineering flag that relates to multi threading</li></ul>
native	The flag indicating if this operation is a native operation. If it is necessary to change this, type T or F in the field to change it to True or False, as appropriate.

# Operation Behavior

You can define the behavior of an operation in one of two ways:

- As a text description consisting of pseudo-code, structured English or just simple text
- As a reference to a behavior element, such as an Activity or Interaction, or to another operation

You can set an option to show the behavior text or reference on the depiction of the parent element on a diagram. In this State element example, the entry operation applies the behavior of the ActivityComp Activity, whilst the exit behavior is described in simple text.



You can also define initial code to be inserted into an operation Body when that operation is initially generated to file; after that initial generation the code is no longer used and, if other behaviors have been defined, they are applied instead. See the *Initial Code* Help topic.

## Access

Ribbon	Design > Element > Properties >
--------	---------------------------------

	Properties : (in a diagram or the Project Browser, click on the operation) > Behavior
Keyboard Shortcuts	Alt+1 > Behavior

## Set Behavior

Either:

- In the 'Behavior' field, type the text or code description of the behavior, or
- Click on the Element button to display the 'Select Behavior' dialog, then browse for and select the appropriate element or operation; when you click on the OK button, the fully qualified object name displays in the 'Behavior' field

If you want to use initial code, click on the 'Code' tab and enter the code in the field on that tab.

If you want the behavior to be shown on any diagram that the operation appears in, select the 'Show Behavior in Diagram' checkbox.

When you have defined the operation behavior, click on the Save button.

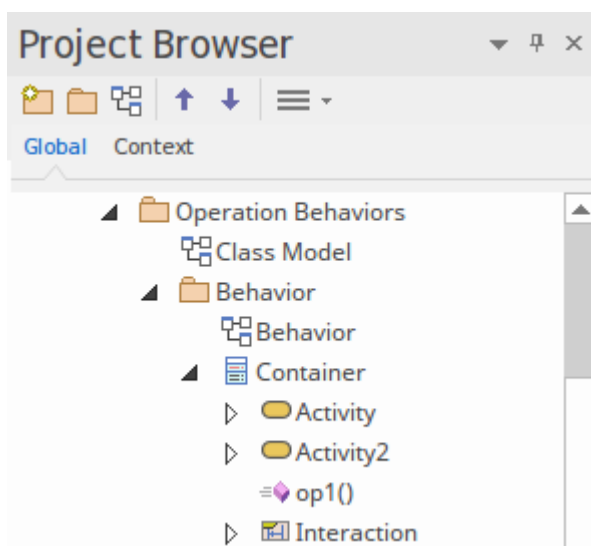
## Delete behavior

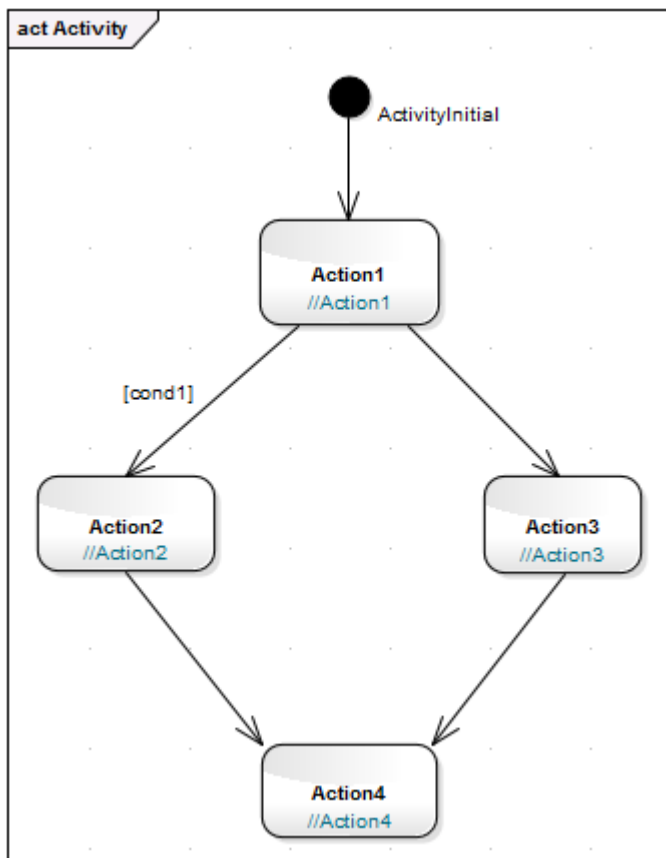
If you have typed in a behavior description in free text, simply select and delete the text.

If you have selected another behavioral object, click on the Element button and select the '<none>' option at the foot of the 'Select Element' hierarchy.

## Example of Associated Behavior

An operation of, for example, a Class can be associated with a behavior elsewhere in the model. The operation is then set as the specification of that associated behavior. In code generation, the behavior of the associated behavioral element is generated as the operation's code; in this illustration, *op1* is associated with the Activity 'Activity'.





The generated code for *op1* is as shown:

```
package Behavior;
public class Container {
    public Container() {
    }

    public void finalize() throws Throwable {
    }

    public void op1() {
        /*Activity element(Activity)'s behavior rendered as
```

```
operation(op1)'s code*/
//Action1;
if (cond1)
{
    //Action2;
}
else
{
    //Action3;
}
//Action4;
}
/*Activity element (Activity) not rendered*/
public void Activity2()
{
    // behavior is an Activity
}

public void Interaction()
{
    // behavior is an Interaction
}
} //end Container
```

## Initial Code

The 'Code' tab is used to enter the code that is inserted into an operation Body when that operation is initially generated to file. After this point, the initial code is no longer referenced during forward code generation and synchronization. This code is most useful when combined with Design Patterns; elements within a Pattern often require the same stub code. The initial code is also useful for ensuring that the generated code can be directly compiled. The language-specific Patterns available from the web site resources include initial code for some of the defined operations; this helps speed up the process of applying Patterns from model to implementation.

By default, the initial code also is not imported into the model during reverse engineering, but you can select to import the code by ticking the 'Include method bodies in model when reverse engineering' checkbox on the 'Source Code Engineering > Attribute/Operations' page of the 'Preferences' dialog.

## Access

Before displaying the Properties window, click on the required operation in the Project Browser or a diagram.

Ribbon	Start > Explore > Properties > Properties
--------	---



	> Code Design > Element > Properties > Properties > Code
Keyboard Shortcuts	Alt+1 > Code

# Redefine Operation and Check for Exceptions

If the parent element of a selected operation is the source element for a Generalize connector, you can configure the operation to redefine an operation in the target element. Also, you can create code in your application to check for an exception and, if one occurs, to switch to the code defined by a Classifier element. You can identify the target operation and/or the classifier element on the 'Redefines' tab of the Properties window for Operations.

## Access

When you have displayed the Properties window, click on operation in a diagram or the Project Browser.

Ribbon	Design > Element > Properties > Properties > Redefines Design > Element > Features > Operations: Right-click on an operation   Properties window > Redefines Start > Explore > Properties > Properties > Redefines
Keyboard Shortcuts	Alt+1 > Redefines

## Tasks

Task	Action
<p>Redefine a target element Operation</p>	<p>Click on the Add button beneath the 'Redefined Operation' panel.</p> <p>The 'Select Operation' dialog displays, showing the operations in the target element.</p> <p>Click on the appropriate operation; if you want to redefine more than one operation in the target element, press Ctrl as you click on each one.</p> <p>Click on the OK button.</p> <p>A statement displays in the 'Redefined Operation' panel, of the format:</p> <pre>&lt;Package&gt;::&lt;Target Element&gt;.&lt;Operation&gt;</pre> <p>On the parent element in a diagram, the Operation compartment shows the complete statement, of the format:</p> <pre>&lt;Operation&gt;:{redefines &lt;Package&gt;::&lt;Target Element&gt;.&lt;Operation&gt;</pre>

	<p>If you want to change the redefined operation(s) at any point, return to the 'Redefines' tab and again click on the Add button, and repeat the process. The original selection is replaced by the new selection.</p>
Identify Exception Classifier	<p>Click on the Add button beneath the 'Raised Exception' panel.</p> <p>The 'Select Classifier' dialog displays; browse or search through the model hierarchy for the appropriate Classifier. Click on the OK button; the name of the parent Package and the Classifier displays in the 'Raised Exception' panel.</p> <p>If you want to change the Classifier at any point, return to the 'Redefines' tab and again click on the Add button, and repeat the process. The original selection is replaced by the new selection.</p>

# Operation Constraints

Constraints define the contractual behavior of an operation, what must be true before they are called (pre-conditions) and what is true after they are called (post-conditions). In this respect they are related to the State model of a Class and can also relate to the guard conditions that apply to a transition. You can define both pre- and post- conditions for an operation.

## Access

Before displaying the Properties window, click on the required operation in a diagram or the Project Browser.

Ribbon	Start > Explore > Properties > Properties > Pre or Post Design > Element > Properties > Properties > Pre or Post
Keyboard Shortcuts	Alt+1 > Pre or Post

## Define Constraints

The fields and options on the 'Pre' and 'Post' tabs of the Properties window are identical. Click on the appropriate tab to define the conditions prior to and following on from the operation behavior.

Option	Action
Pre-Condition: Post-Condition:	Type in the name or effect of the condition.
Type	Click on the drop-down arrow and click on the appropriate condition type.
<notes>	Type in any further explanation or description that is necessary for the condition.
New	Click on this button to clear the fields to define another condition.
Save	Click on this button to save the new or updated condition and to add the changes to the 'Pre-Condition' or 'Post-Condition' list.  This button also clears the data fields so that you can create another condition.

Pre-Condition Post-Condition	<p>Lists the pre-conditions or post-conditions that have been defined for this operation.</p> <p>Click on an item in this list to re-populate the dialog fields with the details, to edit or delete the condition.</p>
Delete	<p>Click on an item in the 'Pre-Condition' or 'Post-Condition' list and click on this button to delete that condition from the operation.</p>

# Operation Tagged Values

Both operations and the parameters assigned to operations can have Tagged Values associated with them. Tagged Values offer a convenient extension mechanism for UML objects, so you can define any tags you need and then assign values to them using this form.


Tagged Values are written to the XMI output, and can be input to other third party tools for code generation or other activities.

## Access

Ribbon	Design > Element > Properties > Tagged Values Start > Explore > Properties > Tagged Values
Keyboard Shortcuts	Ctrl+Shift+T Ctrl+Shift+6

## Add a Tagged Value for an operation



Step	Action
1	Click on the operation or parameter to which to assign the Tagged Value.
2	Click on the  button. The 'Tagged Value' dialog displays.
3	In the 'Tag' field, type the tag name (or select a defined tag from the drop-down list). In the 'Value' field type the initial tag value. (For some types of Tagged Value, the 'Value' field is grayed out. In this case, continue to step 4 and enter the value against the tag name in the Tagged Values window.)
4	Click on the OK button to confirm the operation.

## Notes

- Tagged Values are supported for attributes, operations, objects and connectors
- You can define custom tags using a predefined Tagged Value Type



# Override Parent Operations

You can automatically override methods from parent Classes and from realized Interfaces, using the 'Override Operations/Interfaces' dialog. You can configure the system to display this dialog each time you add a Generalization or Realization connector between Classes, and review their possible operations/interfaces to override/implement.

## Access

Use any of the methods outlined here to display the 'Overrides & Implementations' dialog.

On the dialog, you simply:

- Select the checkbox against each operation or interface to automatically override (or click on the Select All button) and click on the OK button; Enterprise Architect generates the equivalent function definitions in your child Class

To display the dialog automatically, from the Start ribbon, select 'View > Preferences : Links' and select the 'Show Override Operation dialog on new connector' checkbox.

Ribbon	Design > Element > Edit > Overrides and Implementations
Keyboard	Ctrl+Shift+O

<b>Shortcuts</b>	
------------------	--

# Display Inherited Operations

You can configure a selected element in a diagram to display the complete operation set obtained from all ancestors in the element's type hierarchy, as well as those directly owned.

## Access

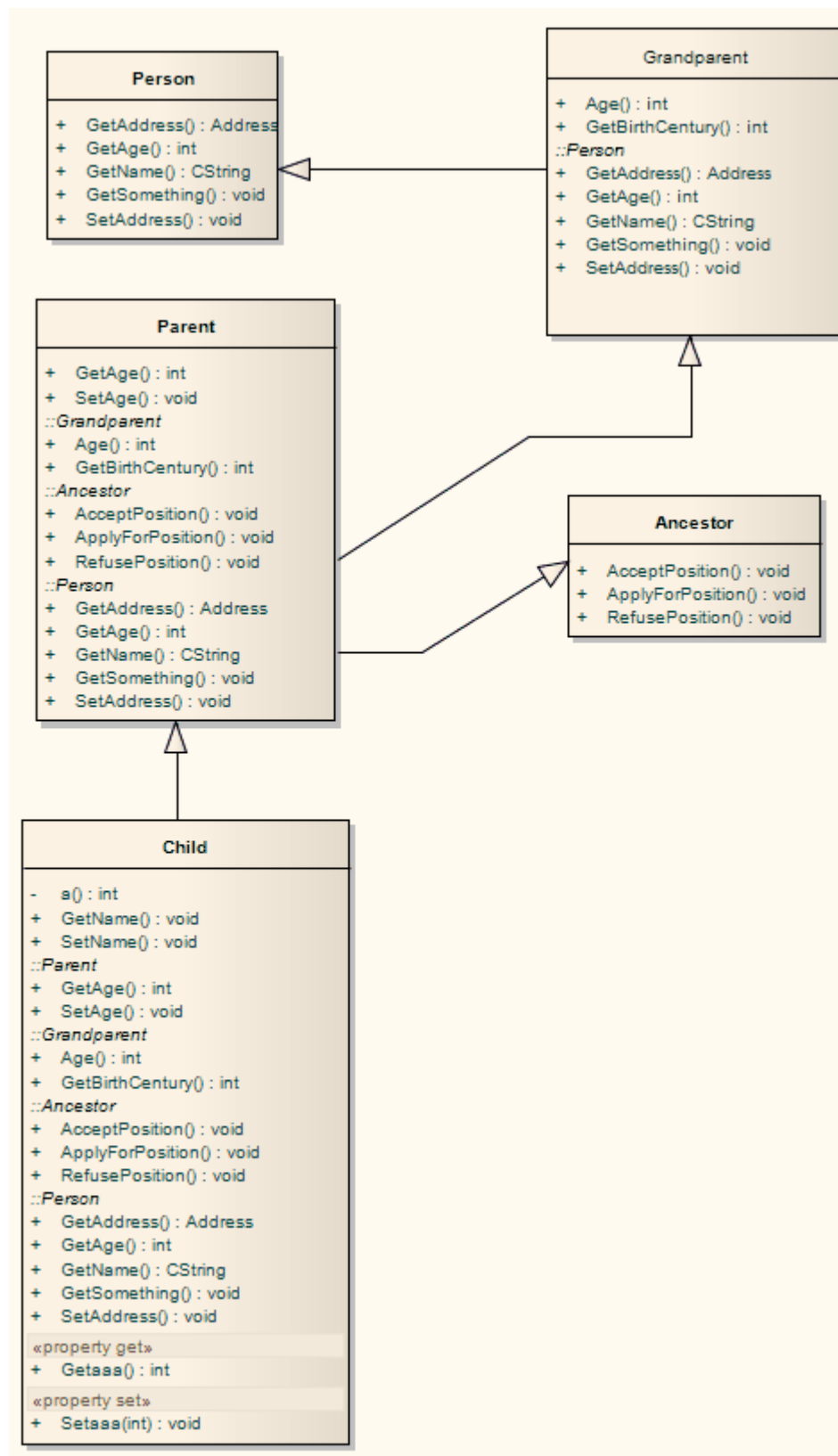
Context Menu	Right-click element on diagram   Compartment Visibility
Keyboard Shortcuts	Ctrl+Shift+Y

## Enable Behavior

On the 'Compartment Visibility' dialog, in the 'Show Element Compartments' panel, select the 'Inherited Operations' checkbox.

## Example

This diagram illustrates the behavior, where it has been enabled for each element in a simple hierarchy. The Child element inherits from all other levels of the hierarchy.





# Interactions and Activities

The behavioral aspects of Interactions and Activities are modeled using the 'Behavior' tab of the Properties window for the element, on which you assign parameters and return types to the elements.

## Access

Select an Interaction or Activity element on a diagram or in the Project Browser, then display the 'Behavior' tab of the Properties window, using any of the methods outlined here.

On the 'Behavior' tab, click on the  button to edit the element's parameters on the 'Parameters tab'. When you create a new parameter using the 'Parameters' tab, it internally creates an Activity Parameter Node for an Activity or an Interaction Parameter for an Interaction.

In the 'Return' field, click on the drop-down arrow and select the return type of the element. Alternatively, click on the  button and use the 'Select Type' dialog to locate the appropriate classifier.

The 'Specification' field is populated automatically when an operation is associated with the Activity as a behavior.

Ribbon	Design > Element > Properties > Properties > Behavior



Keyboard Shortcuts	Alt+1 > Behavior
-----------------------	------------------

# Behavior Calls


A behavior call is the invocation of a behavior. You can represent an invocation with a CallOperation Action (Operation), CallBehavior Action (Activity) or Interaction Occurrence (Interaction) element. You model the properties of the behavior call using the 'Behavior' tab of the Properties window for the element. You use behavior calls to:

- Edit Arguments
- Re-associate the call with a different behavior
- Synchronize the arguments with the parameters in the associated behavior


## Access

Ribbon	Design > Element > Properties > Properties > Behavior
--------	--

## Editing a Behavior Call


Click on the  button at the end of the 'Argument' field to display the 'Arguments' tab and create and delete arguments, relating them to a corresponding parameter in the associated

behavior.

Click on the  button on the 'Behavior' field to re-associate the invocation with a different behavior or to remove any association with the current behavior.

For Interaction Occurrence elements, an 'Interaction Occurrence' panel is displayed as well. It enables you to enter the return value and attribute of the behavior call.

## Associate with Different Behaviors

On the 'Behavior' tab of the Properties window for the Behavior Call element, when you click on the 'Behavior' field  the 'Select Element' or 'Select Operation' dialog displays, listing all available behaviors in the model.

Select '<none>' to remove any existing association between an invocation and a behavior, or select another classifier to re-associate the invocation with a different behavior.

The Synchronize with Parameters button is enabled only if a valid behavior is identified in the 'Behavior' field.

### Access

Ribbon	Design > Element > Properties > Properties > Behavior
--------	--

# Synchronize Arguments

In your project, you can synchronize the parameters and arguments in a behavioral invocation.

On the 'Behavior' tab of the Properties window for the element, click on the Synchronize with Parameters button to synchronize the number of arguments in the invocation element with the number of parameters in the associated behavior.

This automatically creates or deletes arguments based on the number of parameters in the behavior.

If any arguments are to be deleted, Enterprise Architect prompts you to confirm the operation. Click on the Yes button to confirm.

## Access

Ribbon	Design > Element > Properties > Properties > Behavior
--------	--

## Notes

- The Synchronize with Parameters button is enabled only

if the invocation is associated with a valid behavior, as identified in the 'Behavior' field

# Behavior Call Arguments


You define the arguments of a Behavior Call using the 'Arguments' tab of the Properties window for the element.

## Access

Ribbon	Design > Element > Properties > Properties > Arguments
--------	--

## Define the arguments of a Behavior Call

Step	Action
1	In the 'Name' field, type the name of an argument to map to the behavior.
2	In the 'Param' field, click on the drop-down arrow and select a behaviors parameter from the list of parameters associated with the behavior.
3	In the 'Default' field, set any required value.

	<p>Optionally, you can also:</p> <ul style="list-style-type: none"><li>• Assign a stereotype from the 'Stereotype' field drop-down list, or by browsing for one using the  button</li><li>• Provide an alternative name or reference for the argument, in the 'Alias' field, and/or</li><li>• Type in some notes to describe or explain the argument</li></ul>
4	If a diagram is displayed, and if required, select the 'Show in current diagram' checkbox to add an Action Pin on the diagram.
5	Click on the Save button.
6	If appropriate, click on the New button and repeat steps 1 to 5 for another argument:parameter mapping.

## Notes

- If you attempt to map a newly created argument to a parameter that is already associated with a different argument, Enterprise Architect identifies the mapping and prompts you to confirm that you intend to change the association





# Behavior Parameters

The 'Parameters' tab of the Properties window for an operation provides the facilities for defining, editing and extending the parameters of behavioral operations, Activities and Interactions.

## Access

Ribbon	Design > Element > Properties > Properties > Click on the Operation > Parameters
--------	--

# Define Parameters

Within the properties of an operation, Activity or Interaction, you can define parameters to control how that object and its subordinate objects behave.


The order or sequence of the parameters in the object properties is reproduced in code. You can set and manage the order using facilities available within the 'Parameters' tab of the Properties window for an operation.


## Access


Ribbon	Design > Element > Properties > Properties > [select or create an operation] > Parameters
Keyboard Shortcuts	Alt+1   [select or create an operation] > Parameters

## Define the Parameters

The first two fields are in the lower panel of the tab, and the remaining fields are in the upper panel.

Option	Action
Parameter	In the 'Parameter' list, overwrite the <i>New Parameter</i> text with the new parameter name.
Type	<p>Click on the drop-down arrow and click on:</p> <ul style="list-style-type: none"><li>• The required data type of the operation, as defined by the code language (data type) or</li><li>• &lt;none&gt; for no type (or you can type in a value manually if you prefer), or</li><li>• 'Select Type' and browse for the appropriate operation classifier (you can add a new one if there are no classifiers that suit)</li></ul> <p>To add new code language data types that can be displayed in this list, see the <i>Data Types</i> topic.</p>
Default Value	(Optional) Type a default value for the parameter.
Stereotype	(Optional) Type in the appropriate stereotype name, or click on the  button and select one using the Stereotype Selector.

Alias	(Optional) Type an alternative name or reference for the parameter.
Direction	<p>Click on the drop-down arrow and select the way the parameter is passed to a function:</p> <ul style="list-style-type: none"><li>• In = By Value</li><li>• InOut = By Reference</li><li>• Out = Passed By Reference, but only the return value is significant</li><li>• Return = The parameter is a returned value</li></ul>
Fixed Value	Click on the drop-down arrow and select True, even if the parameter is passed by reference.
Multiplicity	<p>Click on the  button to display the 'Multiplicity' dialog, and define the multiplicity of the parameter.</p> <ul style="list-style-type: none"><li>• Lower bound - Type the lower limit to the number of elements that must be in the collection</li><li>• Upper bound - Type the upper limit to the number of elements allowed in the collection</li><li>• Allow Duplicates - Select the checkbox</li></ul>

	<p>to indicate that duplicate values are allowed; this field maps to the UML property <code>isUnique</code>, with a value <code>False</code></p> <ul style="list-style-type: none"><li>• Multiplicity is Ordered - Select the checkbox to indicate that the collection is ordered</li><li>• OK - Click on this button to save the information and close the dialog</li></ul>
Notes	<p>Click on the Selector  button and type any additional notes on the parameter. These notes are unformatted.</p>

## Notes

- To organize parameters into the required sequence, and reorganize the display of information, right-click on the background of the 'Parameter' tab or on a specific parameter and select from the same context menu options as for the 'Operations' tab
- Set the amount of parameter detail to display in a specific diagram using the 'Show Parameter Detail' drop-down list on the 'Features' tab of the 'Diagram Properties' dialog; the setting applies only to the current diagram, and the default is to show the type only
- You can set Tagged Values on a parameter, as well as on

the parent operation

# Parameter Tagged Values

Behavioral parameters of operations, Activities and Interactions can have Tagged Values associated with them. Tagged Values offer a convenient extension mechanism for UML elements; you can define any tags you need and then assign values to them.

Tagged Values are written to the XMI output, and can be input to other third party tools for code generation or other activities.

## Access

Display the Tagged Values window using any of the methods outlined here. Then, in the Project Browser or a diagram, select the object containing the parameter.

Ribbon	Start > Explore > Properties > Tagged Values Design > Element > Properties > Tagged Values Show > Portals > Window > Properties > Tagged Values
Keyboard Shortcuts	Ctrl+Shift+6



## Add a Tagged Value for a parameter

Step	Action
1	The 'Tagged Values' window shows the Tagged Values for the selected object and its parameters. Click on the required parameter in the 'Parameters' section, and click on the New Tags button. The 'Tagged Value' dialog displays.
2	In the 'Tag' field, type the tag name (or select a defined tag from the drop-down list). In the 'Value' field type the initial tag value.
3	Click on the OK button to confirm the Tagged Value.

## Notes

- Tagged Values are supported for attributes, operations, objects and connectors
- Custom tags can be created using a predefined Tagged

## Value Type

# Operation Parameters by Reference

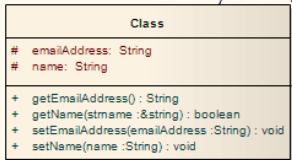
In your project, you can set operational parameters to be passed 'By Reference', as a global setting.



## Access

Ribbon	Start > View > Preferences > Objects > Feature reference indicator
--------	--

## Define Parameters

	<p>You can select to highlight parameters declared as 'Kind: inout' or 'Kind: out' with an additional user-defined prefix or suffix.</p> <p>If you select the 'Highlight References'</p>
---	--

checkbox, you can also indicate whether a prefix or suffix should be used, and the actual reference character to use. In the example image, the '&' character has been set as a prefix.

When you declare a parameter of type 'inout', it is assumed you are passing the parameter by reference rather than by value. If you have elected to highlight references, then this is displayed in the Diagram View.

The example shows that, in the getName operation, the parameter 'strName' is a string reference, and is highlighted using the chosen character and position.

## Notes

- This facility applies to operations only

# Hyperlinks

Hyperlinks are very simple structures, but they add an incredible versatility to both navigation of your model and the provision of information through the various methods of communication within your project. You can create hyperlinks:

- As elements or references in diagrams
- In the text of notes and descriptions in the properties of modeling objects and project management objects
- In the element specifications in the Specification Manager
- In the text of Linked Documents or generated reports, through the document and template editors
- In Model Mails and Team Library postings

In each case, the targets of these hyperlinks might be:

- Packages, elements, diagrams, attributes or operations in the model
- Specific topics in the Enterprise Architect Help
- External files
- Web sites
- Team Library postings
- Diagram images and other graphics
- Commands to initiate operations and processes in Enterprise Architect
- Model Searches to run
- Matrix profiles to display



- Learning Center topics

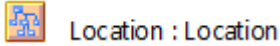
Between any two contexts, the way in which you create the hyperlink and the range of objects you can link to might differ, but the common benefit is that you are providing a wealth of information on a specific point without overburdening:

- The object with a lot of text in one volume
- Yourself in having to re-create and maintain the information in every instance of its use
- Your readers with too much information at once

## Table of Methods

Create a Hyperlink	Description
As an element on a diagram	<p>To create a Hyperlink element on a diagram and assign a target object to it, either:</p> <ul style="list-style-type: none"><li>• Drag the 'Hyperlink' icon onto the diagram from the 'Common' page of the Diagram Toolbox, or</li><li>• Click on the icon in the 'UML Elements' Toolbar and then click on the diagram</li></ul> <p>You provide the text of the link directly on the diagram, then double-click on the</p>

	<p>element to display the element 'Hyperlink Details' dialog on which you identify the type of target object, the target itself and any other necessary properties of the link. Note that initially the link text is held in the 'Alias' field and can be edited there, but if you select certain types of target object (such as another diagram) the link text is read from the 'Notes' field and the 'Alias' field is disabled.</p> <p>After you have defined the target object, double-clicking on the element executes the link; to edit the element's properties, right-click on it and select the 'Properties' option. For most type of link, the element displays as shown here:</p> <p> <a href="#">Java Code File</a></p> <p>Certain types of link, however, have their own icon; for example, a Hyperlink element linking to a diagram or a link to a Help topic (.</p>
<p>On a diagram to another diagram</p>	<p>To create a link to another diagram on the current diagram:</p> <ol style="list-style-type: none"><li>1. Drag the target diagram on to the current (host) diagram. The 'Select Type' dialog displays.</li><li>2. Select the 'Hyperlink' option and click on the OK button.</li></ol>

	<p>The final hyperlinked diagram should now have a link referencing the target diagram, resembling this:</p>  <p>The link will open (in this case) the 'Location' diagram in the 'Location' Package. The target diagram name is written to the element 'Notes' field, and you can edit this field in the element properties to an alternative link text.</p> <p>A hyperlink to a diagram, whether created by this method or by dragging the 'Hyperlink' icon onto the diagram, has a different icon to the standard Hyperlink element icon, although in all other respects it is the same type of element.</p> <p>(If the hyperlink displays as a Sub Activity, select the 'Start &gt; View &gt; Preferences &gt; Diagram &gt; Behavior' ribbon option and deselect the 'Use Automatic SubActivities' checkbox.)</p>
On a diagram to a file	<p>To create a hyperlink on a diagram to an external file, simply click on the file in a file list (such as Windows Explorer) or on your Desktop and drag it onto the diagram.</p> <p>A short context menu displays with two options - 'Hyperlink' and 'Artifact'. Click</p>



	<p>on the 'Hyperlink' option to create the hyperlink on the diagram.</p> <p>The link is effective immediately, and you can right-click on it to add or change properties as necessary.</p> <p>Files of most types - including .sql and .ddl - are opened within the appropriate Enterprise Architect code editor.</p>
On a diagram to a Script	<p>You can create a hyperlink on a diagram to execute a script. Simply drag the required script from the Execution Analyzer window onto the diagram. A context menu displays, from which you select whether the script to be executed is a Build, Test, Run, Debug or Deploy script. The hyperlink is effective immediately; when you click on it, the script executes.</p>
As an Action element on a diagram	<p>Drag an Action element from the 'Activity' page of the Toolbox onto the diagram; a context menu displays (if not, hold Ctrl as you drag the Action onto the diagram).</p> <p>Select the 'Other' option; the 'New Action' dialog displays, with the 'Other' radio button selected.</p> <p>Click on the drop down arrow on the text</p>

	<p>field in the 'Select Kind' panel, and click on the 'Hyperlink' option.</p> <p>Click on the OK button; the Hyperlink Action element displays on the diagram.</p> <p>Right-click on the element and select the 'Advanced   Set Hyperlink' menu option; the 'Hyperlink Details' dialog displays.</p> <p>Set the hyperlink's properties.</p>
From Notes to a specific element	<p>Within the text of the 'Notes' field of an object's 'Properties' dialog, or in the Notes window, you have three options for creating a hyperlink to another element:</p> <ul style="list-style-type: none"><li>• Right-click on a highlighted text string and select the 'Create   Link to Existing Element' option, to link to an element anywhere in the model</li><li>• Right-click on a highlighted text string and select the 'Create   New Element from Selection' option, to create a new element in the same Package and link to it; the name of the element is the highlighted text</li><li>• Click on the 'Hyperlink' icon in the 'Notes' toolbar to display the in-text 'Hyperlink Details' dialog, select 'Element' in the 'Type' field, and select the existing element to link to; the element name forms the link text in the</li></ul>

	'Notes' text, at the cursor position
In Notes/Description text	In a 'Notes', 'Description' or similar text field, you can also click on the 'Hyperlink' icon in the 'Notes' toolbar to create links to a range of types of object other than 'Element'. You can use full paths or local (path substitution) paths, and you can either select or type the link text, or leave the text blank to use the link address as the text.
Within the Specification Manager	As you build the specification of an element and create Notes text to describe it, you can add hyperlinks to a wide range of target objects to support and enhance the specification. Highlight the link text, right-click on it and select the 'Create   Hyperlink' option. The 'Hyperlink Details' dialog displays, on which you specify the target object type and the object itself.
In a report document	When you generate a report on a section of your model, the Document Generator either: <ul style="list-style-type: none"><li>• Activates any hyperlink in that part of the model and includes the linked object (generally a diagram image) in the report, or</li></ul>

	<ul style="list-style-type: none"><li>• Displays the hyperlink as a reference to the linked object (most other links)</li></ul> <p>You can, however, add other hyperlinks directly to either the generated report or the report template, to display material external to the model; namely a web page, Enterprise Architect Help topic, or a document file. To do this, you right-click on the appropriate point in the report and select the 'Insert   Hyperlink' option; then specify the access path of the object to link to.</p>
Within a Linked Document	<p>When you have created a Linked Document for an element, you can add hyperlinks in the text of that document to other elements in the model, and to web pages, Help files, Model Searches and Team Library Forums. When you next open the Linked Document you can double-click on the hyperlink to open the linked files or to locate and highlight the object in the Project Browser.</p> <p>To create a link to an element, you can simply drag the element from the Project Browser into the document.</p> <p>Alternatively, right-click in the text and, for an element, select the 'Create  Link to Existing Element' option or, for links to</p>

	other objects, select the 'Create   Hyperlink' option.
In a Team Library post	The Team Library facility provides a number of options for creating links out of dragged objects or specifically providing link text and a link address within a document or post. The 'Resources' folder underneath a Team Library Post consists entirely of links you create to objects of relevance to the post.
In a Model Mail	<p>When you are using Model Mail to discuss a modeling object or supporting information, you can add a hyperlink to your text to open the object that you are discussing.</p> <p>A quick way to create a hyperlink is to select the modeling object in the Project Browser, place the cursor at the appropriate position in your message text, click on the Insert Quick Link button and select the name of the modeling object. The hyperlink to the object is immediately created at the cursor position.</p> <p>If you need to search for the modeling object, or you want to link to a different type of target such as a file, Model</p>

Search or Team Library message, click on:

- The 'Hyperlink' icon in the toolbar or
- The Insert Quick Link button and select the 'Other' option

The 'Hyperlink Details' dialog displays.  
Use this to create the required link.

# Hyperlink Target Objects

Some of the hyperlink facilities in Enterprise Architect are filtered to create a link between two specific types of object. Other facilities, however, give you a choice of types of target object with minor variations in the information you provide to identify the target. The widest variety of target types is available from the:

- Element 'Hyperlink Details' dialog displayed when you create a Hyperlink element on a diagram, and
- In-text 'Hyperlink Details' dialog displayed when you create a hyperlink in the element Notes, either from the Notes Toolbar or in the Specification Manager

The in-text 'Hyperlink Details' dialog does not prompt for the link text, so you either highlight a word or phrase in the text to act as the link text before you create the hyperlink, or you allow the name or path of the linked object to become the link text.

Most hyperlinks can only be actioned within the diagram or element in which they are created, but links to diagram images and Image Manager images are also actioned within a generated report and actually show the linked image.

## Identify Target Objects


This table provides instructions for specifying the target object of a hyperlink, for each of the available types of

object, using either of the two 'Hyperlink Details' dialogs.

Link to	Action
An attribute	<p>In the 'Type' field, click on the drop-down arrow and click on 'Attribute'. The 'Set Attribute' browser displays, in which you locate and click on the required attribute. Click on the OK button to return to the 'Hyperlink Details' dialog, and again to create the hyperlink.</p> <p>If you activate the link, the attribute is highlighted in the Project Browser.</p>
A source path	<p>In the 'Type' field click on the drop-down arrow and click on 'Browse for File'. A file browser opens, from which you select the source directory containing a number of files that the user might want to open. Click on the OK button to return to the 'Hyperlink Details' dialog, and again to create the hyperlink.</p> <p>If a user activates the link, a 'Locate File' dialog displays at the specified source directory, and the user can select any of the files in that directory to open within Enterprise Architect or a registered external application.</p>



<p>An element image</p>	<p>In the 'Type' field, click on the drop-down arrow and click on 'Element Image'. The 'Select an Element' browser displays, in which you locate and click on the required image-stereotyped Artifact element.</p> <p>Click on the OK button to return to the 'Hyperlink Details' dialog, and again to create the hyperlink.</p> <p>If you activate the link, the element 'Properties' dialog opens. In a generated report, the element image displays instead of the link.</p>
<p>A diagram</p>	<p>In the 'Type' field, click on the drop-down arrow and click on 'Diagram'. The 'Select Classifier' browser displays, in which you locate and click on the required diagram. You can search for the diagram by name in a specific namespace in the model, or across the whole model.</p> <p>Click on the OK button to return to the 'Hyperlink Details' dialog, and again to create the hyperlink.</p> <p>If you activate the link, the diagram opens. In a generated report, an in-text link acts as a simple reference to the diagram.</p>

A diagram image	<p>In the 'Type' field, click on the drop-down arrow and click on 'Diagram Image'. The 'Select Classifier' browser displays, in which you locate and click on the required diagram. You can search for the diagram by name in a specific namespace in the model, or across the whole model. Click on the OK button to return to the 'Hyperlink Details' dialog, and again to create the hyperlink.</p> <p>If you activate the link, the diagram opens. In a generated report, an image of the diagram displays instead of the link.</p>
An Enterprise Architect command	<p>In the 'Type' field, click on the drop-down arrow and click on 'EA Command'. In the unlabelled 'Address' field, click on the drop-down arrow and select the required command from the list. If the command is not part of the default set, click on the drop-down arrow in the second field and select the technology that provides the command. For some commands you might have to provide further parameters, in which case the  button displays; click on this button and complete the resulting dialog.</p> <p>Click on the OK button to create the hyperlink.</p>

	<p>If you activate the link, the system actions the command and displays the resulting screen, dialog or message.</p>
An element	<p>In the 'Type' field, click on the drop-down arrow and click on 'Element'. The 'Select Element' browser displays, in which you locate and click on the required element. Click on the OK button to return to the 'Hyperlink Details' dialog, and again to create the hyperlink.</p> <p>If you activate the link on a diagram, the element is highlighted in the Project Browser.</p> <p>If you activate an in-text hyperlink, the system will act on the element according to its type, with the same result as if you double-click on the element in the Project Browser. For example, if you click on the hyperlink to a Document Artifact element, the document, specification or matrix that the Artifact represents opens; if you click on a hyperlink to a Chart element, its 'Properties' dialog opens at the chart 'Source' page.</p>
A file	<p>'File' is the default setting for the 'Type' field.</p> <p>In the 'Address' field, type or paste the</p>


	<p>file path and file name to access, or click on the  button to browse for the file. (If you click on the 'Type' drop-down arrow and select 'File', the browser displays automatically.)</p> <p>Click on the OK button to create the hyperlink.</p> <p>If you click on a link created through the in-text 'Hyperlink Details' dialog, the file opens in an editor. In the element 'Hyperlink Details' dialog you can specify whether the file will be opened for editing or just for viewing.</p>
A Help topic	<p>In the 'Type' field, click on the drop-down arrow and click on 'Help'. In the 'Address' field, type or copy the <b>.htm</b> file name of the Enterprise Architect Help topic to link to; for example, <i>add_a_legend.htm</i>. You can get this address by displaying the Help topic and copying the contents of the address field at the top of the screen.</p> <p>Click on the OK button to create the hyperlink.</p> <p>If you activate the link, the Help topic opens from the Sparx Systems website.</p>
An Image Manager	<p>In the 'Type' field, click on the drop-down arrow and click on 'Image Manager'. The</p>


Image	<p>'Image Manager' dialog displays, in which you locate and click on the required image name.</p> <p>Click on the OK button to return to the 'Hyperlink Details' dialog, and again to create the hyperlink.</p> <p>If you activate the link, the View Image window displays, showing the selected image. In a generated report, the image is also displayed instead of the link.</p>
A Learning Center topic	<p>In the 'Type' field, click on the drop-down arrow and click on 'Learning Center'. The path of the default Learning Center topic (<i>Use the Learning Center</i>) displays in the 'Address' field. Click on the 'arrow-head' symbols in the path to display the contents of each child section and browse to the topic you want to link to.</p> <p>Click on the OK button to create the hyperlink.</p> <p>If you activate the link, the Learning Center view opens, displaying the topic.</p>
A Relationship Matrix profile	<p>In the 'Type' field, click on the drop-down arrow and click on 'Matrix'. The 'Select a Matrix Profile' dialog displays; click on the drop-down arrow and on the required profile name.</p>

	<p>Click on the OK button to return to the 'Hyperlink Details' dialog, and again to create the hyperlink.</p> <p>If you activate the link, the Relationship Matrix displays with all fields set according to the selected profile.</p>
An Operation	<p>In the 'Type' field, click on the drop-down arrow and click on 'Operation'. The 'Set Operation' browser displays, in which you locate and click on the required operation.</p> <p>Click on the OK button to return to the 'Hyperlink Details' dialog, and again to create the hyperlink.</p> <p>If you activate the link, the operation is highlighted in the Project Browser.</p>
A Package	<p>In the 'Type' field, click on the drop-down arrow and click on 'Package'. The 'Find Package' browser displays, in which you locate and click on the required Package.</p> <p>Click on the OK button to return to the 'Hyperlink Details' dialog, and again to create the hyperlink.</p> <p>If you activate the link, the Package is highlighted in the Project Browser.</p>
A Model	<p>In the 'Type' field, click on the drop-down</p>

Search	<p>arrow and click on 'Search'. The 'Select a Search' dialog displays, in which you specify the search term, the search category that contains the search, and the name of the search itself.</p> <p>Click on the OK button to return to the 'Hyperlink Details' dialog, and again to create the hyperlink.</p> <p>If you activate the link, the Find in Project view displays with the results of the executed search.</p>
A Simulation	<p>In the 'Type' field, click on the drop-down arrow and click on 'SimRun'.</p> <p>Click on the OK button to create the hyperlink.</p> <p>If you activate the link, a suite of Simulation windows display, and a simulation is executed on the current diagram.</p>
A Team Library Posting	<p>In the 'Type' field, click on the drop-down arrow and click on 'Team Document'. The 'Select a Topic to Link' browser displays, in which you locate and click on the required review document.</p> <p>Click on the OK button to return to the 'Hyperlink Details' dialog, and again to create the hyperlink.</p>

	<p>If you activate the link, the Team Document view displays, showing the Linked Document. The Team Library window also displays, showing where the document came from and providing the opportunity to select and display related documents.</p>
A web site	<p>In the 'Type' field, click on the drop-down arrow and click on 'Web Site'. In the 'Address' field, type or paste the web address of the site.</p> <p>Click on the OK button to create the hyperlink.</p> <p>If you activate the link, the selected web page displays in a separate window.</p>

## Notes

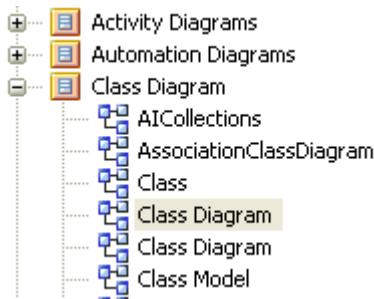
- To activate a Hyperlink element, double-click on it; to activate an in-text link, press Ctrl as you click on it
- When creating a hyperlink, for most target objects the system automatically opens a browser to populate the 'Address' field; when you edit the hyperlink, use the  icon at the end of the field to display the browser and change the target object



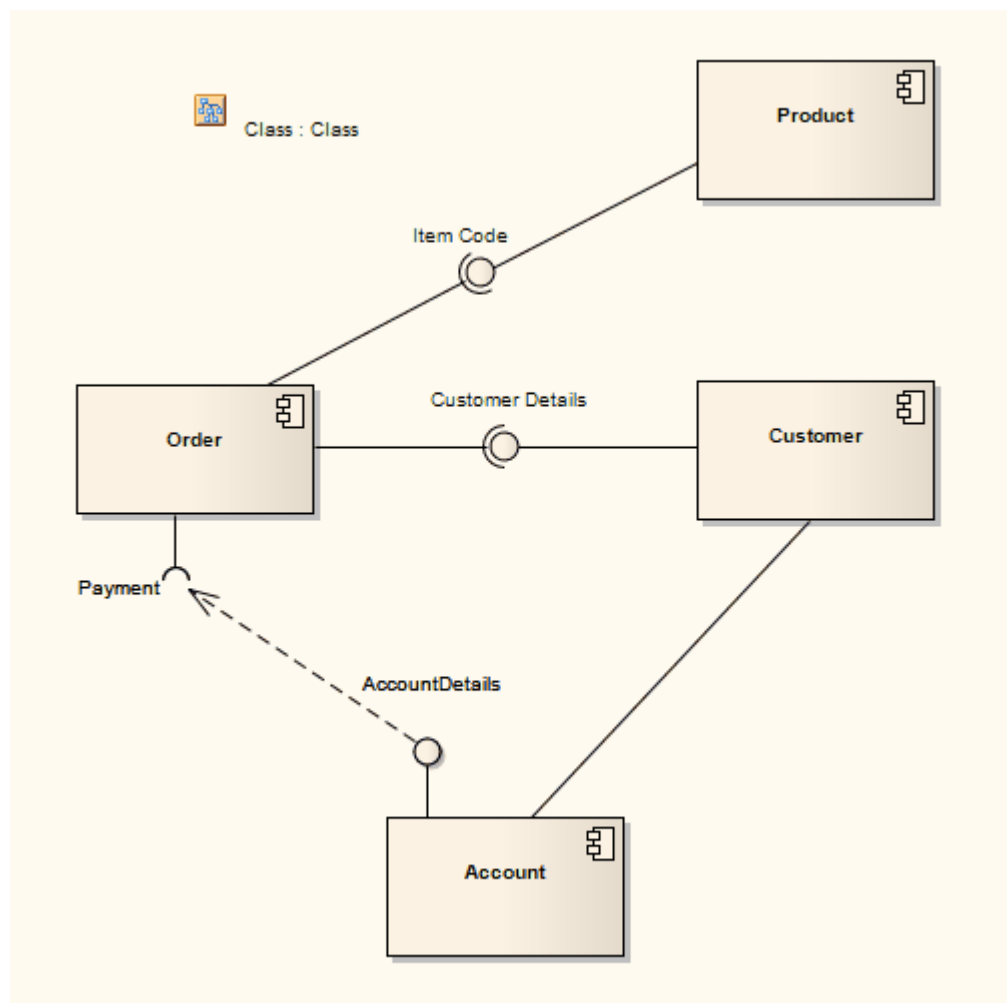


# Hyperlinks Between Diagrams

## Create a hyperlink between diagrams

Step	Action
1	<p>Open the diagram in which to display the hyperlink to another diagram.</p> <p>From the Project Browser select the diagram you want to create a hyperlink to:</p>  <p>The screenshot shows a Project Browser with a tree structure. The root node is 'Activity Diagrams', which has a sub-node 'Automation Diagrams'. Under 'Automation Diagrams', there is a 'Class Diagram' folder. This folder is expanded, showing a list of diagrams: 'AICollections', 'AssociationClassDiagram', 'Class', 'Class Diagram' (highlighted), 'Class Diagram', and 'Class Model'.</p>
2	<p>Drag the diagram on to the current diagram.</p> <p>The 'Select Type' dialog displays.</p>
3	<p>Select the 'Hyperlink' option and click on the OK button.</p> <p>The final hyperlinked diagram should resemble this diagram, where the 'Class' diagram is the diagram to which the 'Product Order' diagram hyperlinks (notice that the hyperlink icon is different).</p>

## Example



## Notes

- If the hyperlink appears as a Sub Activity, select the 'Start > View > Preferences > Diagram > Behavior' option and deselect the 'Use Automatic SubActivities' checkbox



# In-place Editing Options

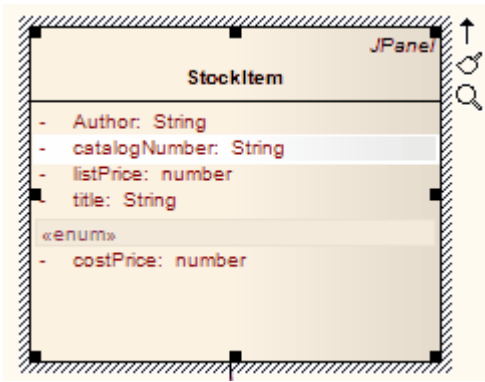
This topic explores the tasks that can be performed using in-place editing of elements on a diagram in Enterprise Architect. The tasks include:

- [In-place Editing Tasks](#)
- [Edit Element Item Name](#)
- [Edit Feature Stereotype](#)
- [Edit Feature Scope](#)
- [Edit Attribute Keyword](#)
- [Edit Operation Parameter Keyword](#)
- [Insert Operation Parameter](#)
- [Edit Parameter Kind](#)
- [Edit Custom Compartment](#)
- [Insert New Feature](#) (Attribute or Operation)
- [Insert Maintenance Feature](#)
- [Insert Testing Features](#)
- [In-place Editing Tasks](#)

# In-place Editing Tasks

This topic explains how to edit and work with some properties of an element directly in the diagram.

## Use In-place Editing Options

Step	Action
	Open the diagram containing the element.
	<p>Click on the element, and on the item to manipulate within the element.</p> <p>The item line is highlighted in a lighter shade (the default is white), to indicate that it has been selected.</p>  <p>The diagram shows a class named <b>StockItem</b> inside a container labeled <i>JPanel</i>. The class has several attributes: <code>- Author: String</code>, <code>- catalogNumber: String</code> (highlighted), <code>- listPrice: number</code>, and <code>- title: String</code>. Below these is an enumeration section marked <code>«enum»</code> with the attribute <code>- costPrice: number</code>. The container <i>JPanel</i> has standard Java Swing window controls (up arrow, maximize, close) in the top right corner.</p>
	Edit and manipulate the items in the element, either by pressing the appropriate keyboard keys or by right-clicking on the highlighted item and

	<p>choosing a task from the 'Element Items' context menu.</p> <p>The available commands are listed in this table. Not all options are available for every type of item.</p>
--	---

## Options

Menu option...	Action
Extensions	Display a submenu of extension products; click on one to display a further menu of operations to perform within the selected product.
Edit Selected	Change the name, scope or stereotype of the element or element item. Shortcut: F2
Insert New After Selected	Insert a new item in the element. Shortcut: Insert key
View	Display the dialog containing details of

Properties	the element. Shortcut: Enter key
Find in Project Browser	Locate the item in the Project Browser.
Open in Specification Manager	If the element is a Package element, and the selected item is a subPackage, you can select this option to open and edit the subPackage in the Specification Manager.
Add Attribute	Add an attribute to the element. Shortcut: Ctrl+Shift+F9
Add Operation	Add an operation to the element. Shortcut: Ctrl+Shift+F10
Add Other	Insert a feature on the specific element item, such as Maintenance features and Testing features. Shortcut: Ctrl+F11
Delete Selected from Model	Delete the selected item from the model. Shortcut: Delete key
View Source	Display the source code for the element,



code	in the default external editor. Shortcut: F12
Visual Analyzer	Set a breakpoint on a highlighted operation (including a breakpoint, start recording marker, end recording marker or stack auto-capture marker.)
Set Type	Set a classifier type for the selected item. Shortcut: Ctrl+L
Navigate Diagram Selection	Navigate the diagram between elements without having to use the mouse. Shortcut: Ctrl+Shift+arrow
Highlight Element	Toggle element highlight option on and off. Shortcut: Shift+Enter

## Keys

Other keyboard options that are available while editing element attributes or operations in a diagram include:

Shortcut	Description

Enter key	Accept current changes.
Ctrl+Enter	Accept current changes and open a new slot to add a new item.
Esc	Abort the edit, without save.
Tab key or Shift+Tab	Move the cursor between segments of a feature definition.
Shift+F10	Display the context menu for in-place editing.
Ctrl+Shift+Space	Invoke the 'Select <Item>' dialog.
Ctrl+Space	Display an autocompletion list for a feature classifier.

## Notes

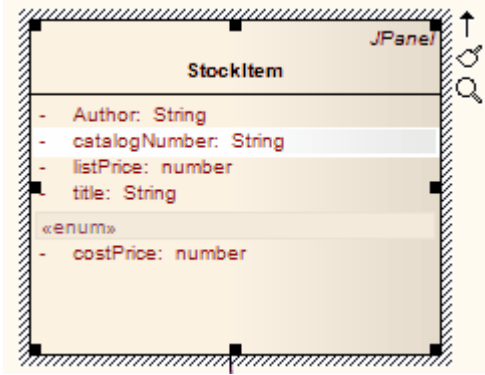
- Where an in-place editing menu command has a keyboard alternative, if the selected item happens to be off-screen when you press the keys, the diagram automatically scrolls to show the whole element, so that you can see what you are changing

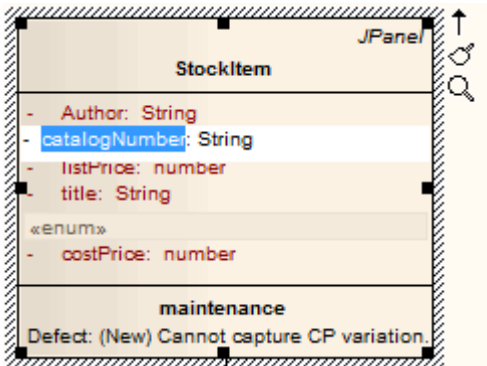


# Edit Element Item Name

You can edit the name of an element, operation or attribute directly on the diagram using in-place editing.

## Edit element or feature name

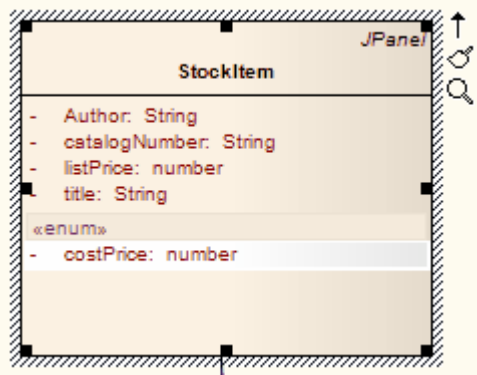
Step	Action
1	Open the diagram containing the element.
2	<p>Click on the element and on the name to change within the element.</p> <p>The item line is highlighted in a lighter shade (the default is white), to indicate that it has been selected.</p> 
3	<p>Right-click on the item.</p> <p>The context menu displays.</p>
	Select the 'Edit Selected' menu option, or

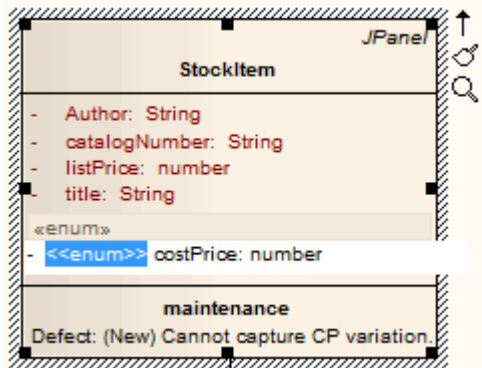
4	<p>press F2 to enable you to edit the item directly from the diagram.</p> <p>The name of the attribute or operation is highlighted.</p>
5	<p>Delete or type over the name.</p> 
6	<p>Press the Enter key to accept the change, or Esc to cancel the change.</p>

# Edit Feature Stereotype

You can use in-place editing to edit a feature stereotype directly on a diagram.

## Change the stereotype of an operation or attribute

Step	Action
	Open the diagram containing the element.
	<p>Click on the element, and on the item to edit within the element.</p> <p>The item line is highlighted in a lighter shade (the default is white), to indicate that it has been selected.</p>  <p>The diagram shows a class named 'StockItem' inside a 'JPanel' container. The class has several attributes: 'Author: String', 'catalogNumber: String', 'listPrice: number', 'title: String', and 'costPrice: number'. The 'costPrice: number' attribute is highlighted with a lighter shade, indicating it has been selected for editing. There is also an '«enum»' section below the main attributes.</p>
	<p>Right-click on the item.</p> <p>The context menu displays.</p>

	<p>Select the 'Edit Selected' menu option (or press F2) to enable you to edit the attribute or operation directly from the diagram.</p> <p>The name of the item is highlighted.</p>
	<p>Move the cursor to the position before the name or within the existing attribute or operation stereotype (denoted by «stereotype name»).</p> 
	<p>Delete or type over the previous name to change the stereotype name of the attribute or operation.</p>
	<p>Press the Enter key to accept the change or Esc to cancel the change.</p>

## Notes

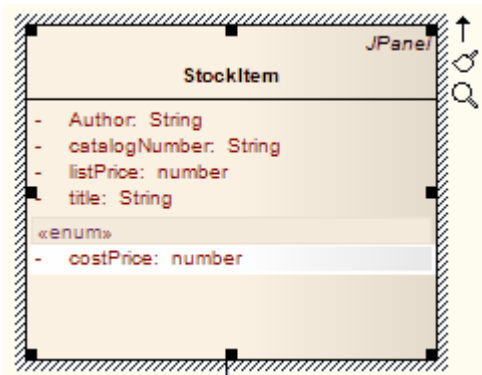
- You can assign multiple stereotypes by including a comma-separated list inside the stereotype markers

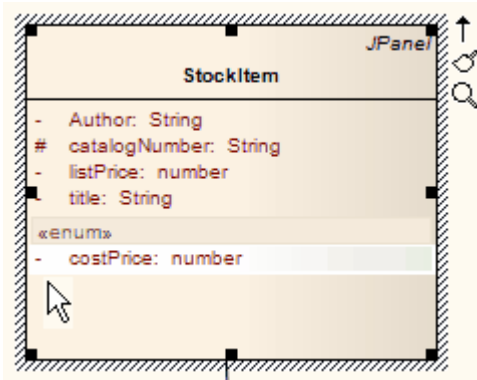


# Edit Feature Scope

You can rapidly edit the scope of an attribute or operation directly on a diagram, using in-place editing.

## Change the scope of a feature

Step	Action
	Open the diagram containing the element.
	<p>Click on the element and on the item to edit within the element.</p> <p>The item line is highlighted in a lighter shade (the default is white), to indicate that it has been selected.</p> 
	<p>Right-click on the item.</p> <p>The context menu displays.</p>
	Select the 'Edit Selected' menu option (or

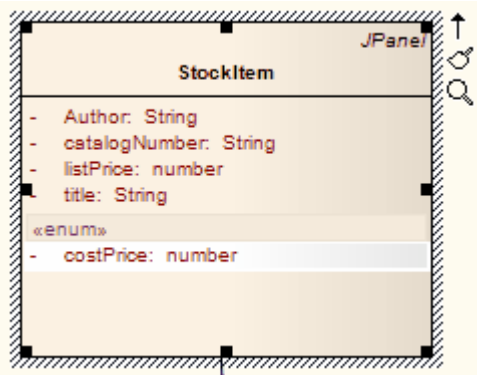
	<p>press F2) to enable you to edit the attribute or operation directly from the diagram.</p> <p>The name of the item is highlighted.</p>
	<p>Move the cursor to the scope of the item and delete the previous entry.</p>  <p>The diagram shows a class named 'StockItem' inside a 'JPanel' container. The class has attributes: 'Author: String' (private), 'catalogNumber: String' (protected), 'listPrice: number' (private), and 'title: String' (private). It also has an enumeration 'costPrice: number' (private). A mouse cursor is pointing at the 'costPrice' attribute. The diagram is surrounded by a dashed border with handles at the corners and midpoints.</p>
	<p>Reassign the entry by typing in one of these symbols:</p> <ul style="list-style-type: none"><li>• + indicates that the scope is Public</li><li>• - indicates that the scope is Private</li><li>• ~ indicates that the scope is Package</li><li>• # indicates that the scope is Protected</li></ul>
	<p>Press the Enter key to save the change, or Esc to cancel the change.</p> <p>The diagram is updated to reflect the changes (also see the catalogNumber attribute in the screen illustrations).</p>



# Edit Attribute Keyword

You can add features such as attribute keywords and classifiers directly to an element, using the Element Keywords and Classifiers menu. This enables you to rapidly assign details element item by element item, directly from a diagram.

## Add Features directly to an element

Step	Action
	In Enterprise Architect, open the diagram containing the element.
	<p>Click on the element, and on the attribute to edit within the element.</p> <p>The item line is highlighted in a lighter shade (the default is white), to indicate that it has been selected.</p> 

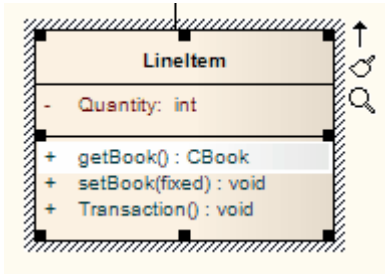
	<p>Right-click on the item.</p> <p>The context menu displays.</p>
	<p>Select the 'Edit Selected' menu option (or press F2) to enable you to edit the attribute directly from the diagram.</p> <p>The name of the attribute is highlighted.</p>
	<p>Right-click on the attribute name to display the context menu.</p>
	<p>From the context menu, you can:</p> <ul style="list-style-type: none"><li>• Change the attribute classifier to static or fixed - select the 'static' or 'fixed' menu options as appropriate; the diagram is updated to reflect the changes</li><li>• Display the Class properties - click on the 'Goto Definition' menu option; Enterprise Architect locates the Class in the Project Browser and opens its 'Properties' dialog</li></ul> <p>If the data type is a raw data type, Enterprise Architect displays the message: <i>The data type is a raw data type.</i></p>



# Edit Operation Parameter Keyword

You can directly edit operation classifiers by element, using the in-place editing menu. This enables you to rapidly assign parameter keywords.

## Directly edit operation classifiers by element

Step	Action
	Open the diagram containing the element.
	<p>Click on the element, and on the operation to edit within the element.</p> <p>The item line is highlighted in a lighter shade (the default is white), to indicate that it has been selected.</p> 
	<p>Right-click on the item.</p> <p>The context menu displays.</p>
	Select the 'Edit Selected' menu option (or

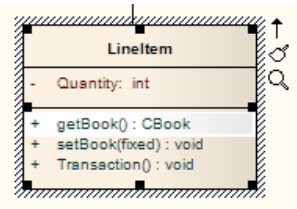
	<p>press F2) to enable you to edit the operation directly from the diagram.</p> <p>The name of the operation is highlighted.</p>
	<p>Right-click on the data type of a parameter to display the context menu.</p>
	<p>From the context menu you can:</p> <ul style="list-style-type: none"><li>• Change the operation classifier by clicking on the appropriate menu option - 'static', 'isquery', 'abstract' or 'fixed'; the diagram is updated to reflect the changes</li><li>• Display the Class properties - click on the 'Goto Definition' menu option</li></ul> <p>If the data type is 'Class', Enterprise Architect locates the Class in the Project Browser and opens its 'Properties' dialog</p> <p>If the data type is a raw data type, Enterprise Architect displays the message <i>This data type is a raw data type</i></p> <p>If the data type is not defined in the model, the message is: <i>The data type is not defined in the model</i></p>



# Edit Parameter Kind

You can edit operation parameter kinds such as (in), (inout) and (out) directly from a diagram element by element, using the Element Keywords and Classifiers menu. This enables you to rapidly assign the parameter directly from a diagram.

## Edit operation parameter kinds directly from a diagram

Images	Action
	1. In Enterprise Architect, open the diagram containing the element.
	2. Click on the element, and on the operation to edit within the element. The item line is highlighted in a lighter shade (the default is white), to indicate that it has been selected.
	3. Right-click on the item. The context menu displays.
	4. Select the 'Edit Selected' menu option (or press F2) to enable you to edit the

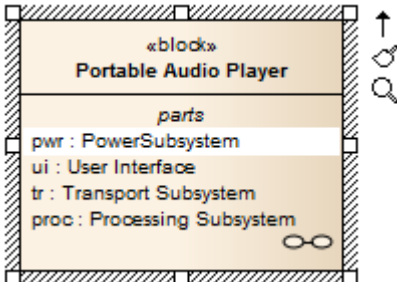
	<p>item directly from the diagram.</p> <p>The name of the item is highlighted.</p>
	<p>5. Right-click on the item name to display the context menu.</p>
	<p>6. Select the appropriate menu option for the parameter kind value: (in), (inout) and (out).</p> <p>The diagram is updated to reflect the change.</p>

## Edit Custom Compartment

Items listed within a Custom Compartment can also be in-place edited. They have a similar in-place editing menu as other compartment items such as Operations and Attributes within a Class.

For example: a SysML Block element can have a Parts custom compartment. In-place editing can be performed upon the Parts listed within this compartment.

## In-place edit an item in a Custom Compartment

Step	Action
1	Open the diagram containing the element.
2	<p>Click on the element and on the item to change within the custom compartment.</p> <p>The item line is highlighted in a lighter shade (the default is white), to indicate that it has been selected.</p> 

3	Right-click on the item. The context menu displays.
4	Select the 'Edit Selected' menu option, or press F2 to enable you to edit the item directly from the diagram. The name of the item is highlighted.
5	Delete or type over the name.
6	Press the Enter key to accept the change, or Esc to cancel the change.

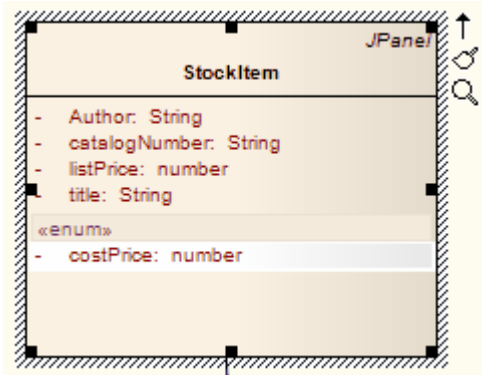
## Notes

- Custom Compartments such as Parts and Ports within a SysML Block also provide a Set Type command on the right-click menu to set the classifier type of the selected item.

# Insert New Feature

You can insert a new element feature directly on a diagram, using in-place editing.

## Add attributes and operations to a Class diagram element

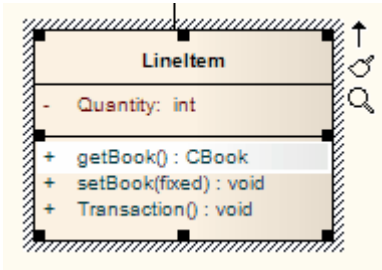
Step	Action
	In Enterprise Architect, open the diagram containing the element.
	<p>Click on the element and, within the element, on the item after which to insert the operation or attribute.</p> <p>The item line is highlighted in a lighter shade (the default is white), to indicate that it has been selected.</p> 
	Either press the Insert key or right-click

	<p>on the selected element item to display the context menu, and select the 'Insert New After Selected' menu option</p> <p>Enterprise Architect inserts a new data line in the diagram, underneath the selected item.</p>
	<p>Type in the relevant information for the attribute or operation.</p> <p>Use the Tab key and Tab+Shift keys to move the cursor through the segments of the attribute or operation, and select the classifier from either the:</p> <ul style="list-style-type: none"><li>• Autocompletion list (press the Ctrl+Space keys) or</li><li>• Select &lt;Item&gt; dialog (press the Ctrl+Shift+Space keys)</li></ul>
	<p>Press the Enter key to accept the change or Esc to cancel the change.</p> <p>The diagram is updated to reflect the changes.</p>

# Insert Operation Parameter

You can add operation parameters to an operation through the in-place editing options, using hotkey commands or menu shortcuts.

## Add parameters to operations in a Class diagram element

Step	Action
	Open the diagram containing the element.
	<p>Click on the element, and on the operation to update within the element. The item line is highlighted in a lighter shade (the default is white), to indicate that it has been selected.</p> 
	Press F2, or right-click on the selected item and select the 'Edit Selected' option.

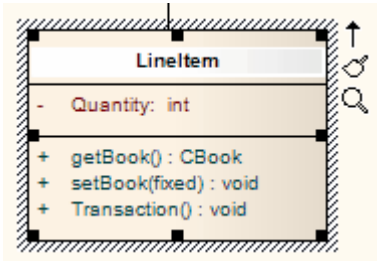
	<p>Move the cursor inside the parameter brackets and type the parameter name, followed by a colon (for example, bks: for a vector containing books).</p>
	<p>Give the parameter a type. Place the cursor after the colon at the end of the name and add the classifier; either:</p> <ul style="list-style-type: none"><li>• Press Ctrl+Space to invoke the classifier autocompletion list</li><li>• Press Ctrl+Shift+Space to select a classifier from the 'Select &lt;Item&gt;' dialog or</li><li>• Click the right mouse button to display the inline editing options context menu and select the 'Insert Classifier' option</li></ul> <p>The 'Select &lt;Item&gt;' dialog displays.</p>
	<p>Press the Enter key to accept the change or Esc to cancel the change. The diagram is updated to reflect the changes.</p>

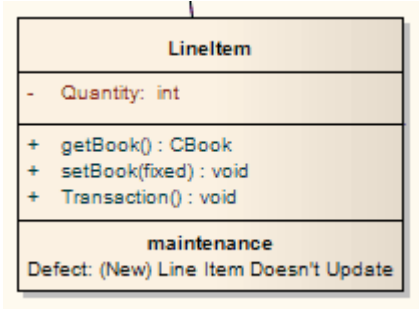


# Insert Maintenance Feature

You can quickly insert a new maintenance item directly on a diagram, using in-place editing.

## Assign maintenance details directly to an element from a diagram

Step	Action
	Open the diagram containing the element.
	<p>Click on the element name.</p> <p>The name is highlighted in a lighter shade (the default is white), to indicate that it has been selected.</p> 
	<p>Either press Ctrl+F11 or right-click on the highlighted name and select the 'Add Other' option.</p> <p>The 'Insert Feature' dialog displays.</p>

	<p>Click on the appropriate radio button option to associate the required maintenance feature with the element item.</p>
	<p>Click on the OK button.</p> <p>The '&lt;Maintenance Feature&gt; details for &lt;element&gt;' dialog displays.</p>
	<p>Complete the fields to define the maintenance activity, and then click on the Apply button.</p> <p>To create a subsequent maintenance activity of this type, click on the New button.</p>
	<p>When you have defined all of the maintenance activities of this type, click on the OK button.</p> <p>The maintenance details are added to the element.</p> 

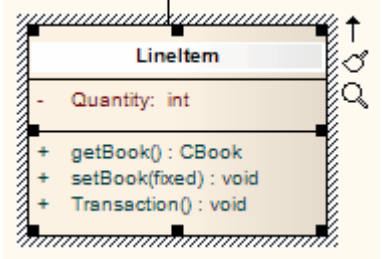
## Notes

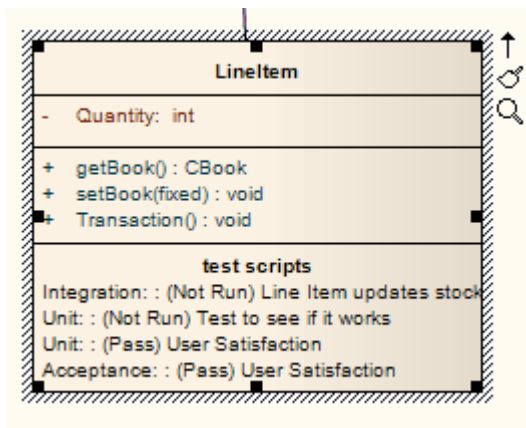
- To ensure that the maintenance items are visible in the diagram element, as shown in step 7, select the 'Maintenance' checkbox on the 'Elements' tab of the 'Diagram Properties' dialog

# Insert Testing Features

You can add test records such as Unit, Integration, System, Acceptance, Inspection and Scenario tests directly to an element displayed on a diagram.

## Add testing features to an element directly from a diagram

Step	Action
	Open the diagram containing the element.
	<p>Click on the element.</p> <p>The element name is highlighted in a lighter shade (the default is white), to indicate that it has been selected.</p> 
	<p>Either press Ctrl+F11 or right-click on the highlighted name and select the 'Add Other' option</p> <p>The 'Insert Feature' dialog displays.</p>

	<p>Click on the appropriate radio button option to associate the required testing feature with the element.</p>
	<p>Click on the OK button.</p> <p>The Testing window opens, showing the appropriate panel for the type of test selected.</p>
	<p>Complete the fields to define the test activity, and then click on the Save icon in the window toolbar.</p> <p>The test is added to the element.</p>
	<p>To create a subsequent test activity of this type, click on the 'New' icon.</p> <p>To add items for other types of test, click on the appropriate tab.</p>  <p>The screenshot shows a UML class diagram for 'LinelItem'. The class has a private attribute '- Quantity: int' and three public methods: '+ getBook() : CBook', '+ setBook(fixed) : void', and '+ Transaction() : void'. Below the methods is a section titled 'test scripts' containing three test entries: 'Integration: : (Not Run) Line Item updates stock', 'Unit: : (Not Run) Test to see if it works', and 'Unit: : (Pass) User Satisfaction'. The bottom entry is also labeled 'Acceptance: : (Pass) User Satisfaction'. The diagram is enclosed in a dashed border with a search icon and an upward arrow on the right side.</p>

## Notes

- To ensure that the test items are visible in the diagram element, as shown in step 7, select the 'Testing' checkbox on the 'Elements' tab of the 'Diagram Properties' dialog

## Non-printable Elements

When you intend to generate a report that depicts diagrams from your model, you might decide that you do not want to show certain elements on a diagram in the report. You might have, for example:

- Notes and Text elements containing short pieces of information or explanations
- Artifact elements containing standards or instructions in Linked Documents
- Any other element that is not relevant to the purpose or subject of the report

You can exclude such elements (with their connectors) from being printed in any depiction of the diagram in a report, by manipulating the 'Printable' status of each non-relevant element. Conversely, you can force the inclusion of these non-printable elements in the printed diagram, by turning off the 'Hide non-printable objects' option in report generation.

## Configure the Printable Attribute

All elements added to a diagram have the status 'Printable' by default. To turn this off and make an element non-printable (or turn it back on again) right-click on the element and click on the 'Printable' option.

You can turn this option on or off for multiple elements, by

selecting the elements and right-clicking on one of them to display the context menu, then clicking on the option.

## Activate Printable Option for Reports

You can control the printing of non-printable elements on depictions of diagrams in reports, through the 'Options' page of the 'Document Generation' dialog.

Option	Action
Using in Ad Hoc Reports	Select the parent Package or element for the diagram, and press F8; set up your report generation parameters as required. On the 'Options' page, the 'Hide non-printable objects' checkbox defaults to selected, to omit all elements that have the 'Printable' option turned off from depictions of diagrams in the report. If you want to include non-printable elements in the diagrams in the report, click on the checkbox to clear it.
Using in Document Templates	The 'Hide non-printable objects' option is a global, registry, setting and cannot be turned off in document templates or in document generation through the Automation Interface.



## Notes

- Turning off the 'Printable' option for an element also hides the element and its connectors when you print the diagram, print to PDF and save an image of the diagram

# Properties Window

The docked Properties window provides a convenient and immediate way to view and edit common properties of modeling objects such as diagrams, elements, attributes, operations, receptions and connectors. When you click on an object in the Project Browser or a diagram, the Properties window immediately shows the object's properties, and you can swiftly display the properties of different types of object - element, then attribute, connector and diagram - on the same window without having to open and close separate dialogs.


Each iteration of the window shows the commonest properties, such as name, object type, author and parent Package, and a series of tabs appropriate to the specific type of object displayed. You can select values from drop-down lists and work through short chains of property or parameter dialogs directly from the Properties window. Your work with modeling objects becomes quick, precise, comprehensive and convenient, through the use of a single area of your work space.

## Access

Ribbon	Start > Explore > Properties > Properties
Keyboard	

Shortcuts	Alt+1
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## Notes

- When you click on a field name, a brief explanation of that field displays at the bottom of the Properties window, unless you have selected the 'Hide Properties Info Section' checkbox on the 'Window Behavior' page of the 'Preferences' dialog
- If you click on the field value for an editable field, either a drop-down arrow or a  button displays that enables you to select or browse for a different value; one of the values offered might display a more advanced list or a dialog for adding new objects or selecting multiple objects, as the 'Stereotype' field does
- When you have made changes to the Properties window, click on the Save icon to apply those changes to the model
- The Properties window has a 'Hamburger' icon that, when you click on it, provides a number of options that are available when you are displaying the window for an element

## Notes

Notes are textual descriptions that can be added to an element, diagram, feature or connector in Enterprise Architect. They provide valuable information that describes the entity being modeled. Many newcomers to modeling are not aware that these textual descriptions are core to many of the modeling languages including UML, BPMN and SysML; without them the model would be hard to understand and remain opaque. A well-formed note is unambiguous and doesn't contain redundant information that has been entered in other properties of the entity.

The notes can be formatted using the Notes Toolbar, conveniently located above the 'Notes' field. This formatting can be carried through to documentation generated from the model, and includes such markup as italics, bolding, bullets and hyperlinks. Glossary Terms and model elements can also be referenced from the 'Notes' field. There are also convenient keyboard shortcuts available for quick editing in the 'Notes' field.

Notes can be accessed in the Notes Window, which can be docked anywhere in the application, or through the 'Properties' dialog for an element, feature, connector or diagram. Many experienced modelers have the Notes window visible and when they select an entity in a diagram, the Project Browser or another window that object immediately becomes the focus of the window and they can view, create or edit the notes. As you type text into the

Notes window, the number of characters of text contained in the field is displayed in the left-hand end of the Status bar.

The title of the Notes window reflects the type of object you have selected. If you are looking at the notes of an element, the window has the title 'Element Notes'; if you have selected a diagram, the window has the title 'Diagram Notes', and so on.

## Access

Ribbon	Start > Explore > Properties > Notes Design > Element > Properties > Notes
Context Menu	Right-click on model element   Properties   Notes
Keyboard Shortcuts	Ctrl+Shift+1

## Notes Context Menu options

Option	Action
Create	Click on this option to create a Project

<b>Glossary Definition</b>	<p>Glossary definition, with the Glossary term taken from the selected 'Notes' text.</p> <p>To create the Glossary entry:</p> <ol style="list-style-type: none"><li>1. If suitable Notes text is available, highlight the text to use as the Glossary definition and press Ctrl+C to copy it.</li><li>2. Highlight the text to use as the Glossary term, right-click on it and select the menu option; the 'Glossary Detail' dialog displays, with the selected text in the 'Term' field.</li><li>3. If you have copied some definition text, paste it into the 'Meaning' field; otherwise type a suitable definition of the term in this field.</li><li>4. In the 'Type' field, select the appropriate term type.</li><li>5. Click on the Apply button to save the new Glossary definition.</li></ol> <p>The term displays in the 'Notes' text as a Ctrl+click hyperlink, which displays the Glossary definition of the term in the 'Glossary Detail' dialog.</p> <p>Once you have created a Glossary definition, here or elsewhere in the model, you can add the Glossary term anywhere in the text of the Notes window (or 'Notes' field of a dialog) where, again,</p>
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	<p>it becomes a Ctrl+click hyperlink to the definition. Either:</p> <ul style="list-style-type: none"><li>• Simply type the term in the text, or</li><li>• If you are not certain of the term or have multiple definitions:<ol style="list-style-type: none"><li>1. Move the cursor to the point in the text at which to insert the term.</li><li>2. Press Ctrl+Space; the Glossary Term Selection window displays.</li><li>3. Double-click on the term to insert it in the text.</li></ol></li></ul>
Create   New Element from Selection	<p>Click on this option to create a new element in the model, the name of which is taken from the selected Notes text.</p> <ol style="list-style-type: none"><li>1. Click on the option.</li><li>2. The 'New Element' dialog displays, with the 'Name' field pre-filled with the selected text.</li><li>3. Set the element type and other options as necessary, then click on the Create button. (You can also select an option on the dialog to add the element to the diagram.)</li><li>4. The system creates the element, adds it to the model (and diagram) and creates a hyperlink to it from the selected Notes text.</li></ol>

<p>Create   Element on Diagram</p>	<p>Click on this option to create a new element in the model, and explicitly in the diagram also, with its name taken from the selected Notes text. This option does not make the selected text a hyperlink to the element.</p> <ol style="list-style-type: none"><li>1. Click on the option.</li><li>2. The 'Toolbox Shortcut' menu displays for the diagram type. If necessary, click on the 'Other' option and select from a different set of element types.</li><li>3. Click on the required element type and then click on the diagram. A new element is created at the cursor position, with the selected text as the element name.</li></ol>
<p>Create   Link to Existing Element</p>	<p>Click on this option to create a hyperlink from the selected Notes text to an existing element in the model.</p> <ol style="list-style-type: none"><li>1. Click on the option.</li><li>2. The 'Select Classifier' dialog displays. Locate and select the required element, and click on the OK button.</li><li>3. The selected Notes text becomes a hyperlink to the element. The target element name and Notes text remain unchanged and do not necessarily</li></ol>



	mirror each other.
Search for <'selected'>	<p>Click on this option to display a subset of the functions of the common Code Editor menu 'Search' option, to locate a text string outside the element.</p> <p>In a 'Notes' field (not in the Notes window) you can perform a search of the text for a text string:</p> <ul style="list-style-type: none"><li>• Press Ctrl+F and specify the text string and the direction of search</li><li>• Press F3 to locate more instances of the word in a forward search, or Ctrl+F3 in a backwards search</li></ul>
Undo Cut Copy Paste Delete Select All	These six options provide simple functions for editing the Notes text.

## Keyboard Options For Notes

Option	Description
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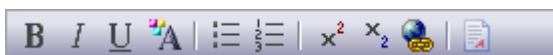
Switch text orientation	<p>Hold Ctrl, press Shift</p> <p>Description: On a line of text, right-justifies or left-justifies the paragraph in which that line occurs.</p> <p>Use the keys on the left of the alphanumeric keyboard to left-justify the text; use the keys on the right of the keyboard to right-justify the text.</p>
Insert Date and Time	<p>F5</p> <p>Description: Inserts the current date and time at the cursor position, in the format:</p> <p style="text-align: center;">DD/MM/YYYY HH:MM:SS AM (or PM)</p> <p>For example:</p> <p style="text-align: center;">22/12/2016 3:39:50 PM</p>
Spell check Notes text	<p>F7</p> <p>Description: Performs a simple spell check on the Notes text.</p>
Undo changes	<p>Ctrl+Z</p> <p>Description: Reverses the last change made to the Notes text.</p>
Redo changes	<p>Ctrl+Y or</p> <p>Ctrl+Shift+Z</p>

	<b>Description:</b> Re-applies the last reversed change to the Notes text.
<b>Copy</b>	<b>Ctrl+C</b> <b>Description:</b> Copies a highlighted Notes text string to the Enterprise Architect buffer.
<b>Paste</b>	<b>Ctrl+V</b> <b>Description:</b> Pastes a copied or cut text string from the Enterprise Architect buffer into the Notes text.
<b>Cut</b>	<b>Ctrl+X</b> <b>Description:</b> Removes a highlighted Notes text string and places it in the Enterprise Architect buffer.

# Notes Toolbar

Although it is not an independent toolbar that you can pin to the screen top or sides, or float in your work area, the Notes toolbar appears in many places across Enterprise Architect in the 'Notes', 'Description' and 'History' fields in, for example, the:

- Element and connector 'Properties' dialogs
- Feature 'Properties' dialog
- Diagram 'Properties' dialog
- 'Hyperlink Details' dialog
- Testing window descriptions
- Notes window
- 'Glossary Detail' dialog
- Construct window
- Responsibilities window



## Options

The options of this toolbar operate on selected text and any new text continuing from the formatting. The options (with some keyboard shortcuts) are, from left to right:

- Make text bold (Ctrl+B)
- Make text italic (Ctrl+I)

- Underline text (Ctrl+U)
- Change the font color of the text
- Insert list bullet points (Ctrl+.) (full stop)
- Insert list numbering (Ctrl+1)
- Make text superscript
- Make text subscript
- Insert a hyperlink - this displays the 'Hyperlink Details' dialog, on which you specify the type of hyperlink and type in or browse for the location of the target of the hyperlink
- Create a new Linked Document for the element, or edit an existing one

## Notes

- If the toolbar is displayed but grayed out, the text field is read-only and cannot be edited; other long text fields in Enterprise Architect might not have the toolbar, in which case the Notes facility is not available for those fields
- You can create a Project Glossary term and definition from text in any field that has the Notes toolbar

# Model Glossary

The Project Glossary enables you to set up a list of defined terms for your project, review the technical and business terms already defined for a model, add to the list, delete or change items, apply reporting styles to terms of specific types, and filter the list to exclude by type.

## Access

Ribbon	Publish > Tools > Glossary
Keyboard Shortcuts	Alt+2

## Project Glossary functionality

Tasks
<p>Add, delete and modify the Project Glossary entries through either the:</p> <ul style="list-style-type: none"><li>• Glossary View, or</li><li>• 'Glossary' dialog</li></ul>

Separate glossary items by type; for example, Business terms and Technical terms.

Define Markup Styles to apply to terms of specific types where they occur in generated document reports

Save the glossary in Rich Text format for inclusion as part of a larger project document.

Create glossary terms and definitions from text in the Notes window, or from any 'Notes' or 'Description' fields that have the Notes toolbar.

Insert existing glossary terms into any other 'Notes' fields.

## Notes

- In the Corporate, Unified and Ultimate editions of Enterprise Architect, if security is enabled you must have 'Manage Glossary' permission in order to create, update or delete Glossary items; if security is not enabled, you can manage Glossary items without any permissions
- You might include a Glossary Report in your project requirements or functional specifications documents
- You can transport glossary definitions and glossary style

mark-ups between models, using the 'Configure > Model > Transfer > Export Reference Data' and 'Import Reference Data' ribbon options



# Project Glossary View

The Project Glossary view displays the glossary terms already defined for your model. You can use this View to:

- Add glossary terms
- Assign a Markup Style to a glossary term Type, to print in a documentation report any terms of that Type in that style
- Modify glossary terms
- Filter the display to show terms of a specific Type only
- Change a definition Type for all terms of that Type
- Print the displayed list of terms
- Delete glossary terms

You can also select, copy and paste (Ctrl+C and Ctrl+V) some or all of your Glossary entries to an external text editor or spreadsheet tool. The text is copied in CSV format.

## Access

Use one of the methods described in the table, to display the Glossary view.

Within the Glossary view, right-click on an entry and select the appropriate option for the operation you intend to perform (as listed); if you select the:

- 'Add New' or 'Modify Selected' options, the 'Glossary Detail' dialog displays; complete the fields as indicated in


the *Glossary Detail Fields* table

- 'Assign Markup Styles' option the 'Glossary Markup' dialog displays, on which you assign display styles to terms of each existing term Type; the style is applied when you generate an RTF report containing the glossary terms
- 'Rename type' option, the 'Rename Glossary Type' dialog displays on which you enter the alternative Type name (either another of the existing Types or a new Type); when you click on the OK button, all entries of the original Type are changed to the new Type
- 'Set term filter' option, the 'Term Type Filter' dialog displays on which you enter the Type of glossary term to list; when you click on the OK button, only items of that Type are shown on the Glossary view
- 'Remove term filter' option, the Glossary view refreshes to show glossary items of all Types
- 'Print List' option, the 'Print' dialog displays on which you define the printing parameters; when you click on the OK button, the currently-displayed list prints out
- 'Delete' option, a prompt displays to confirm the deletion; click on the Yes button to remove the term from the Glossary

Ribbon	Publish > Tools > Glossary > Glossary View
Keyboard	Alt+2

Shortcuts	
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## Glossary Detail Dialog Fields

Field	Action
Term	(Mandatory) Type the term to include in the glossary.
Type	<p>(Mandatory) Select the required Type.</p> <p>If you require a different glossary Type, click on the  button and specify the name of the new Type.</p> <p>This field applies the Type only to the selected term; you can rename a Type for all terms of that Type, using the context menu.</p> <p>Further discussion of the 'Type' field is provided in <i>The Glossary Dialog</i> Help topic.</p>
Meaning	<p>Type the definition or description of the term.</p> <p>If necessary, format the text of this description using the Notes toolbar at the</p>

	top of the field.
New	Clear the dialog fields so that you can define a new Glossary term.
Apply	Save the new or updated glossary entry.
Delete	Delete the entry. A prompt displays to confirm the deletion; click on the Yes button to remove the term from the glossary.

## Notes

- In the Corporate, Unified and Ultimate editions of Enterprise Architect, if security is enabled you must have 'Manage Glossary' permission in order to create, update or delete Glossary items; if security is not enabled, you can manage Glossary items without any permissions
- You can re-sequence, filter and group the glossary items in the list using the List Header facilities

## Glossary Styles

When you are defining your Glossary terms, you can also define a documentation style to apply to terms of a specific Term Type. When you generate RTF, PDF or DOCX documents those terms are shown in the defined color, font and/or emphasis. This applies a visual key to the Glossary terms of each Type, and makes it easier for the reader to recognize all the terms for which they can obtain a definition or explanation.

You apply the glossary styles through the 'Generate Documentation' dialog (as described in the *Generate Documentation* Help topic). You should not set up glossary styles in a model from which you generate only HTML reports; the HTML report generator does not apply glossary styles.

## Configure Glossary Styles

You configure Glossary styles within a Glossary Style Sheet, using the 'Glossary Markup' dialog; you display this dialog from the Glossary View. For each Glossary Term Type, you define one style in the Style Sheet, using the standard CSS style definition language. This is an example of two style definitions in a style sheet:

```
.paragraph {
```

```
font-family: courier;  
font-size: 16px;  
font-weight: italic;  
color: #FF0000;  
background: none;  
text-transform: capitalize;  
}  
.language-term {  
font-family: arial;  
font-size: 14px;  
font-weight: bold;  
color: #800000;  
background: none;  
text-transform: capitalize;  
}
```

## Access

Ribbon	Publish > Tools > Glossary > Glossary View > Right-click > Assign Markup Styles
Keyboard Shortcuts	Alt+2 > Right-click > Assign Markup Styles

## Define Styles

Assign one style to each of the Glossary Term Types, which have been defined on the 'Glossary' dialog.

Option	Action
Term	This column lists the existing Term Types in the Glossary.
Style Name	<p>This column identifies the style assigned to each Term Type. If no style has been assigned, the field is blank.</p> <p>To assign or switch the style, double-click on the row, type the style name on the 'Input' prompt and click on the OK button. If the name contains more than one word, link the words with hyphens.</p> <p>The new style name is added to the top of the 'CSS' panel.</p>
CSS	<p>Between the parentheses under the style name, type in or copy/paste the new style definition, or edit an existing definition.</p> <p>The styles are created one after another</p>

	within the single style sheet for the Glossary.
OK	Click on this button to save changes to the style definitions and close the dialog.

## Using Glossary Styles

You use Glossary Styles to identify and highlight Glossary terms in your printable reports, and to indicate what kinds of term they might be. You can also use the terms as place-holders for more complex text strings in the term definitions, so that the report generator substitutes the text string for the place-holder term. Both text formatting and text substitution are enabled by selecting options on the 'Generate Documentation' dialog (click on a Package or element and press F8).

## Configure Reporting for Glossary Styles

You can apply glossary styles to your RTF, PDF or DOCX documentation through the 'Generate Documentation' dialog (select 'Publish > Report > Documentation > Generate Rich Text Documentation').



Task	Action
Using the Markup Style	<p>Select the Markup Glossary Terms checkbox to apply, in the generated report, any styles applied to any Glossary terms through the 'Notes' text of an element.</p> <p>A style is applied to a Glossary term according to its Glossary Term Type.</p>

## Notes

- You can copy the Glossary Style Sheet between models as reference data, using the 'Configure > Model > Transfer > Export Reference Data' and 'Import Reference Data' ribbon options

# The Glossary Dialog

Using the 'Glossary' dialog, you can create, maintain and delete definitions of terms used in your project, as a Glossary. When reviewing the Glossary terms, you can filter the list to display terms of a specific Type.


The term Type also acts as a key for substituting the description of any term of that Type for the term itself, so that in a report the terms 'Corp', 'Uni' and 'Ult' would be replaced by the descriptions 'Corporate', 'Unified' and 'Ultimate', respectively.

## Access

Ribbon	Publish > Tools > Glossary > Edit
--------	-----------------------------------

## Maintain Glossary Terms

Field	Action
Glossary Term	Type the term to include in the glossary.

<b>Glossary Type</b>	<p>(Mandatory) Every Glossary term must be assigned to a Type, so that you can:</p> <ul style="list-style-type: none"><li>• Filter terms by Type</li><li>• Search for terms of specific Type</li><li>• Assign a format and style to terms of a Type to indicate that a glossary definition has been attached to a word in the text; terms of different Types would be distinguished by their respective styles</li><li>• Replace all terms of a specific Type with the text string in their 'Description' field (see the <i>Substituting Descriptions for Terms</i> section later in this topic)</li></ul> <p>When you first start to create a Glossary, there are no Types defined in your model. You create the Types that are most appropriate to your work environment, by clicking on the  button and, on the 'New Glossary Type' prompt, entering the name of the new Type. The names that you invent for the Types would be whatever is meaningful to the people compiling and using the Glossary.</p> <p>In the simplest of Glossaries you might have just one Type, simply to assign a style to it so that terms are identified as being defined in the Glossary. In larger, more complex Glossaries you might have</p>
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	<p>different Types to group - for example - Business terms, System terms and Project-Specific terms.</p> <p>When the Types you require have been created, and you are defining a term, click on the drop-down arrow and select the appropriate Type.</p> <p>This field applies the Type only to the selected term; you can rename a Type for <i>all</i> terms of that Type using the Glossary view.</p>
Description	<p>(Mandatory) Type the definition or description of the term.</p> <p>If necessary, format the text of this description using the Notes toolbar at the top of the field.</p>
Limit Display To	<p>Click on the drop-down arrow and select the appropriate glossary type to filter the 'Type   Term' list and show entries of that type only.</p> <p>Select the '&lt;All&gt;' option to display all glossary entries.</p>
New	<p>Click on this button to clear the dialog fields so that you can define a new Glossary term.</p>

Type   Term	Review the list of defined glossary terms; click on an entry to edit it in the dialog fields.
Save	Click on this button to save the new or updated glossary entry.
Delete	Click on this button to delete the entry selected from the 'Type   Term' list.
Report	Click on this button to generate and print a glossary report.

## Substituting Descriptions for Terms

You can use the Type of Glossary entries to replace all terms of that Type in a report with the text string in the 'Description' field for each term. For example, you might define a Type of 'Abbreviation' and use that Type for a number of terms such as Co, Bus and Corp, with the respective descriptions of Company, Business and Corporation; when you generate a report, the text Co, Bus and Corp will be replaced with the corresponding description.

You apply the glossary term substitution through the 'Generate Documentation' dialog - select the 'Publish >

## Report > Documentation > Generate Rich Text

Documentation' ribbon option - as described in the *Generate Documentation* Help topic. (This is separate from generating a report on the Glossary itself.)

1. On the 'Generate' page, select the 'Markup Glossary Terms' checkbox
2. In the 'Use Glossary Substitution' field, click on the drop-down arrow and select the term Type. (You can only substitute for terms of one Type at a time.)

When you generate the report, for all glossary terms of the specified Type, wherever a term occurs in the report it will be replaced by its description.

You should not set up term substitution in a model from which you generate only HTML reports; the HTML report generator does not substitute descriptions.

## Notes

- In the Corporate, Unified and Ultimate editions of Enterprise Architect, if security is enabled you must have 'Manage Glossary' permission in order to create, update or delete Glossary items; if security is not enabled, you can manage Glossary items without any permissions

## Generate a Report

You can generate a rich text format (RTF) file of your model's glossary, which you can either print or attach to any other appropriate document file.

The file can contain all glossary entries, or just those of selected Types.

### Access

Ribbon	Publish > Tools > Glossary > Edit : Report
--------	---

## Generate an RTF report of the Project Glossary

Step	Action
1	In the 'Filename' field, type or select a filename for the glossary.
2	In the 'Heading' field, type a suitable heading for the

	glossary.
3	In the 'Include Glossary Items' panel, select the checkbox for each Type of glossary entry to include. To select all types of entry, click on the Select All button.
4	If necessary, to define the page setup for the report, click on the Page Setup button and complete the 'Page Setup' dialog.
5	If you want to substitute certain system-defined words for others that might be more meaningful to your readers, or print the whole report in another language, click on the Language button and define your output on the 'Customize RTF Language' dialog.
6	To include page breaks, select the 'Page break between sections' checkbox.
7	Click on the Generate button to generate the report.
8	Click on the View button to open the report.



# Glossary Report Output Sample

An example of the output from a Glossary report is shown here:

## **Glossary**

### **Business Terms**

#### *Accounting Periods*

A defined period of time whereby performance reports can be extracted (normally 4 week periods).

#### *Customer*

A person or a company that requests an entity to transport goods on their behalf.

### **Technical Terms**

#### *Association*

A relationship between two or more entities. Implies a connection of some type - for example, one entity uses the services of another, or one entity is connected to another over a network link.

## ***Component Model***

The component model provides a detailed view of the various hardware and software components that make up the proposed system. It shows both where these components reside and how they inter-relate with other components. Component requirements detail what responsibilities a component has to supply functionality or behavior within the system.

## ***Deployment Model***

A model of the system as it is physically deployed.

## ***Extends Relationship***

A relationship between two Use Cases in which one Use Case 'extends' the behavior of another. Typically this represents optional behavior in a Use Case scenario - for example a user might optionally request a list or report at some point in a performing a business Use Case.

# Editing Documents and Templates

Within Enterprise Architect you can create various documents from templates, and you can create customized templates to help tailor the documents to the needs and standards of your organization. You can create Linked Documents, Linked Document Templates and Document (Report) Templates, amongst others. In each case, selecting to create or edit the document opens the Document-Edit ribbon, which provides a wide range of editing and formatting facilities that you can use to develop your documentation. This section explains how to perform various editing tasks using the ribbon.

Each type of document can also have its own context menu of additional options, and the editing window might also have an option toolbar. These facilities are described in the topics specific to the type of document.

## Access

Ribbon	Create or edit a document or template file; the Document - Edit ribbon displays automatically
--------	---

## Option Descriptions

The descriptions of the Document - Edit ribbon options are grouped according to the actions you are performing.

Actions
Creating and importing documents
Configuring the editor page display and formatting tools shown
Moving through, searching and selecting text
Formatting characters and text strings
Formatting paragraphs and text blocks
Inserting tab points
Inserting sections, columns and page breaks, and repaginating
Incorporating stylesheets, special texts and Tables of Contents Managing the base styles in the Normal.rtf style template file
Inserting and editing page headers and footers, and

footnotes and endnotes
Inserting tables
Inserting hyperlinks
Inserting images, OLE objects, frames and drawing objects
Printer set up and printing documents
Checking spelling and use of words
Tracking, accepting and rejecting changes to text
Protecting document text from accidental change
Create and refer to definitions of Glossary terms in the Project Glossary (using the 'Create   Glossary Definition' menu option)

## Notes

- Throughout your document editing:
  - To undo one or more immediately previous edits, press Ctrl+Z, or select the 'Undo' context menu

option; you can still undo a change even after you have saved the change

- To redo one or more immediately previous undone edits, press Ctrl+Y, or select the 'Redo' context menu option

# File Control

The 'File' panel of the 'Document Edit' ribbon provides a number of options for changing and saving a document report file contents as a complete file as well as for setting page layout options, such as margins, and for printing the document.

## Access

Ribbon	Document-Edit > File > File > [options]
--------	---

## File control options

To	Action
Import a file	Select the option 'Document-Edit > File > File > Import File'. This imports the contents of an existing document into the current file. The file type in the dialog defaults to .RTF, but you can import files in a number of other formats. Click on the drop-down arrow and select the required

	<p>file type.</p> <p>The 'Import File' option is useful when creating documents from existing documents external to Enterprise Architect, such as your own corporate standards templates and, in conjunction with the 'New' option, of updating the document from the external file.</p>
Export a Document file	<p>Select the option 'Document-Edit &gt; File &gt; File &gt; Save As (Export to File)'. This saves your document to an external document file.</p> <p>The 'Export' option is useful for saving a specific template or document to be imported into another project.</p>
Clear a file for redesign	<p>Select the option 'Document-Edit &gt; File &gt; File &gt; New (Clear Document)'. This clears the existing contents of the document.</p> <p>If you have made any unsaved changes to the file, the editor prompts you to save them. If you want to protect those changes, click on the Yes button to display a browser screen and select a file path and file name to save the changes to. This is a method of clearing out an existing document for redesign. As you</p>



	do not change the name, all references to it simply go to the changed content.
Roll back changes to previous version	Select the option 'Document-Edit > File > File > Reload from Repository' to roll back the file contents to the previously-saved version.
Save changes	Select the 'Document-Edit > File > Save' icon to save the file contents to the current file.
Save Template	<p>Applicable to the Document Template Designer and Linked Document template editor.</p> <p>The key combination Ctrl+Shift+S invokes the 'Save As' command to save a template contents under a new name, which you are prompted to type in. This command is not available when editing a document - see '<i>Export a Document file</i>' instead.</p>
Close the file and editor	Click on the cross at the right of the document tab or in the top right corner of the Document Window.

## Print options

When you are editing a document or template, you can manage print jobs within the Document Editor. You can select from options to define the page layout, text to be printed and number of copies, and to check the appearance of the printing before actually submitting the print job.

To	Action
Set the page margins for viewing and printing the document	<p>Select the option 'Document-Edit &gt; File &gt; File &gt; Page Layout'.</p> <p>The 'Page Parameters' dialog displays, on which you can define the left, right, top and bottom page margins in inches.</p> <p>The 'Top' and 'Bottom' margins define how much space is set aside to contain header and footer text.</p> <p>In the 'Header distance from the Page Top' and 'Footer distance from the Page Bottom' fields, type the separation of the header and footer text from the edge of the paper.</p>
Set the parameters for the print run	<p>Select the option 'Document-Edit &gt; File &gt; File &gt; Printer Setup', or press Ctrl+Shift+P.</p> <p>The 'Setup Page' dialog displays for the default printer, which you would have</p>

	<p>selected on the Windows 'Control' panel. You can simply confirm or reselect the core parameters such as page size, paper source and page orientation, or click on the Properties button to define more advanced settings such as use of a watermark, duplex printing and print resolution.</p>
Print your document	<p>Select the option 'Document-Edit &gt; File &gt; File &gt; Print Preview', or press Ctrl+P. The 'Print' dialog displays, on which you can select the pages to print and the number of copies, and initiate the print task.</p> <p>You can also choose to print only a selected part of the file. To do this, highlight the required text before selecting the 'Print' option. You can print a highlighted block of:</p> <ul style="list-style-type: none"><li>• Lines, or</li><li>• Characters</li></ul>
Preview document before printing	<p>Select the option 'Document-Edit &gt; File &gt; File &gt; Print Preview' to display the document as it would appear when printed.</p> <p>The editor displays either one page or two - toggle the display by clicking on</p>

the One Page button or Two Pages button. Scroll to further pages using the scroll bar.

By default the preview rectangle is sized to fit the current window; you can use the 'Fitted' field to enlarge or shrink the size of the displayed pages as required.

Click on the Print button to display and use the 'Print' dialog.

To return to editing mode click on the Edit button, or on the 'Document-Edit > File > File > Print Preview' menu option again.

# Editor Display Options

Within the Document Editor, to help you edit the document contents you can configure the page display and the formatting tools visible, using the 'View' menu options in the 'File' panel of the 'Document-Edit' ribbon.

## Access

Ribbon	Document-Edit > File > View > [options]
--------	---

## Editing tools and options

Menu Option	Action
Page Layout Mode	Select the option 'Document-Edit > File > View > Page Layout Mode'. Toggles the text display between page layout and full window layout.
Borderless Mode	Select the option 'Document-Edit > File > View > Borderless Mode'. Toggles the display of page borders, allowing the

	document to occupy the entire display area.
Horizontal Ruler	<p>Select the option 'Document-Edit &gt; File &gt; View &gt; Horizontal Ruler'. Displays or hides the ruler at the top of the page.</p> <p>The ruler shows tab stops and paragraph indentation marks; you can also use it to create or delete tab stops.</p>
Vertical Ruler	<p>Select the option 'Document-Edit &gt; File &gt; View &gt; Vertical Ruler'. Displays or hides the ruler against the left edge of the page.</p> <p>The ruler indicates the depth of the top and bottom margins of the page.</p>
Status Ribbon	<p>Select the option 'Document-Edit &gt; File &gt; View &gt; Status Ribbon'. Displays or hides the status ribbon at the bottom of the editing panel.</p> <p>The status ribbon displays the current page number, line number and column number; it also indicates the current insert/overtyping mode (at the left end of the ribbon).</p>
Hidden Text	Select the option 'Document-Edit > File > View > Status Ribbon'. Shows or hides 'hidden' text.

	<p>Text formatted with the 'Hidden' option is shown with a dotted underline; when the 'Hidden Text' option is turned off, the hidden text is not visible and the normal text closes up to single character or line spacing.</p>
Field Names	<p>Select the option 'Document-Edit &gt; File &gt; View &gt; Field Names'.</p> <p><b>Applicable to all document editing:</b></p> <p>If you have inserted any data fields and values, the 'Field Names' option toggles between displaying field names in the text and displaying the field values.</p> <p><b>Applicable to the Document Template Designer:</b></p> <p>As you develop your custom document template, you right-click on sections to insert field markers and select the 'Insert Fields' option. The 'Field Names' option makes the 'Insert Fields' option available.</p>
Hyperlink Cursor	<p>Select the option 'Document-Edit &gt; File &gt; View &gt; Hyperlink Cursor'.</p> <p>Applicable to the Document Template Designer and Linked Document Template Editor:</p> <p>Toggles the cursor icon when you 'mouse over' a hyperlink, between your default</p>

	image (usually a line or arrow) and a 'pointing hand'.
Page Header/Footer	Select the option 'Document-Edit > File > View > Page Header/Footer'. Displays or hides the text of page headers and footers. To edit the header or footer text, select the option 'Document-Edit > Edit > Edit > Page Header/Footer'.
Zoom	Select the option 'Document-Edit > File > Fixed Zoom'. A short menu displays, from which you can select from a range (10% to 200%) of percentages of normal size by which to shrink or enlarge the display of the document content. The menu also has a 'Custom' option that you can select to display the 'Zoom Parameter' dialog, on which you define the percentage you need, between 10% and 500%.



# Styles, Special Text & Table of Contents

Using the Document Editor, you can define character-based styles and paragraph-based styles.

- A character style constitutes a set of character formatting attributes and is applied to a character string
- A paragraph style constitutes both a set of character formatting attributes and a set of paragraph formatting attributes, and is applied to one or more paragraphs

You can also include special, structured text in the document, such as page number, date and time, table of contents and text input fields.

Every custom template or document you create is automatically based on the Normal.rtf template file. This provides default styles, numbering and other base formats, which you can change using the Document Editor facilities and save either as a specific document, template or document report Stylesheet.

## Access

Ribbon	Select options from the 'Document Edit' ribbon bar.
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## Editing Styles

To	Action
Create and edit styles	<p>Select the option 'Document-Edit &gt; Edit &gt; Edit &gt; Edit Style'. The 'Edit Stylesheet' dialog displays.</p> <p>Select the appropriate radio button to define a paragraph style or a character style.</p> <p>If you want to update an existing style, select that style from the list box. If you want to create a new style, select the 'Create a new style' checkbox, and type a name in the 'Style Name' field. Short style names are best, but you can type in long names if necessary.</p> <p>To begin defining the style properties, click on the OK button.</p> <p>You can use the ruler, toolbar or context menu selections to modify the style properties; for an existing stylesheet item, these also reflect the currently-selected properties.</p> <p>After you have defined the required style, you set it by either selecting the</p>

	<p>'Document-Edit &gt; Edit &gt; Edit &gt; Edit Style' menu option again or clicking anywhere in the document:</p> <ul style="list-style-type: none"><li>• If you modified an existing stylesheet item, the document automatically reflects the updated style</li><li>• If you created a new stylesheet item, you can apply the style to highlighted text by selecting the 'Document-Edit &gt; Font &gt; Font &gt; Style' or 'Document-Edit &gt; Paragraph &gt; Paragraph &gt; Style' ribbon options</li></ul>
Update the standard styles used	<p>Right-click on the document and select 'Update Styles &gt; [select Stylesheet to update]'</p> <ul style="list-style-type: none"><li>• Re-import the standard styles from Normal.rtf, into the current document, or</li><li>• Apply one of the system-supplied standard Stylesheets to the document</li></ul> <p>A submenu displays from which you select the appropriate style source. This is useful for maintaining consistency of styles across all your documents, including such things as numbering formats.</p>
Edit the	This option operates specifically on the

hyperlink style	<p>style of any hyperlinks you want to create.</p> <p>Select the option 'Document-Edit &gt; Font &gt; Font &gt; Hyperlink', then select the font, font size and emphasis (bold, italic) you want to apply. You cannot remove the hyperlink underline or change the color from blue.</p> <p>Select the option 'Document-Edit &gt; Font &gt; Font &gt; Hyperlink' again to set the style. When you create a hyperlink from this point onwards, the link text will be in the style you have set. Links created before you changed the style remain in the earlier style.</p>
Apply character styles	<p>Highlight the text to be styled and select the option 'Document-Edit &gt; Font &gt; Font &gt; Style'; the 'Select a Style' dialog displays, from which you select the character style to apply.</p> <p>Alternatively, select a character style from the drop-down list in the 'Font' panel of the 'Document-Edit' ribbon.</p>
Apply paragraph styles	<p>Highlight the text to be styled and select the option 'Document-Edit &gt; Paragraph &gt; Paragraph &gt; Style'; the 'Select a Style' dialog displays, from which you select</p>

	<p>the paragraph style to apply.</p> <p>Alternatively, select a paragraph style from the drop-down list in the 'Font' panel of the 'Document-Edit' ribbon.</p>
Clear unused lists from the template or document	<p>Select the option 'Document-Edit &gt; File &gt; Manage &gt; Remove Unused Lists'.</p> <p>The system prompts you to confirm removal of the lists when the file is saved. Click on the Yes button.</p> <p>When you have list formats such as for bullet or numbered lists in the file, and you have reversed or otherwise not used them, the formatting instructions for applying these lists to the text remain in the file. You can see this when you set up the list and then toggle the bullets or numbering on and off.</p> <p>If you select the 'Remove Unused Lists' option, when you save the file the unused format instructions are removed from the file, reducing the number of list formats maintained in the file and reducing file size.</p>
Insert date and time fields	<p>At the point in the text at which to insert the current date and/or time field, select the option 'Document-Edit &gt; Edit &gt; Insert &gt; Date and Time'.</p>

	<p>The 'Insert Current Date/Time' dialog displays, from which you can select the required date and time format. You can insert the date or time fields separately, or as a combined field.</p> <p>The date and time are automatically updated whenever the page text is refreshed (that is, clicked on).</p>
Insert a table of contents	<p>Edit the 'Table of Contents' level styles (TOC 1 to TOC 9) as required, using the option 'Document-Edit &gt; Edit &gt; Edit &gt; Edit Style'. Add at least one 'Heading n' style to the document.</p> <p>Move the cursor to the point at which to insert the Table of Contents, and select the option 'Document-Edit &gt; Edit &gt; Insert &gt; Table of Contents'. A small dialog displays in which you specify the highest and lowest Table of Contents levels to apply in the table in this document; when you have specified the levels, click on the OK button. If there are corresponding headings within the specified range, the Table of Contents displays; otherwise, the line remains blank.</p> <p>To create a Table of Contents heading that displays in the generated document, type the appropriate text at least one line</p>

	<p>above the inserted list and define the style as required - use a Heading style to include the heading itself in the Table of Contents, otherwise use a non-heading style.</p> <p>The Table of Contents is automatically generated and updated whenever generation or repagination occurs.</p>
Insert your own data fields	<p>Move the cursor to the point at which to insert the data field and select the option 'Document-Edit &gt; Edit &gt; Insert &gt; Data Field' menu option.</p> <p>The 'Data Field Parameters' dialog displays, in which you enter the field name and the data value. Wherever you insert the data field, the values are automatically updated with the most recent data value you enter.</p>
Insert your own text entry field	<p>You insert text entry fields so that anyone using the document can type in their own text in response to either a lead-in sentence or the field name itself.</p> <p>Move the cursor to the point at which to insert the text entry field and type in any lead-in text you want to use. Then select the option 'Document-Edit &gt; Edit &gt; Insert &gt; Text Input Field'.</p>

	<p>The 'Input Field Parameters' dialog displays, in which you enter:</p> <ul style="list-style-type: none"> <li>• The field name</li> <li>• The initial value to display as a default</li> <li>• The maximum length of the field</li> <li>• The text font in which to display the text</li> </ul> <p>You can also specify whether or not the field has a border.</p> <p>For example: <i>Hello</i> <input type="text" value="Type your name here"/></p> <p>If you insert a text entry field in a template, any document generated from the template shows the typed entry as normal text, not boxed.</p>
<p>Insert a selectable checkbox</p>	<p>You insert checkboxes in a document so that the users of the document can mark the item represented by the box. The checkbox can be selected and deselected in a document, a template and a document generated from a template.</p> <p>Move the cursor to the point at which to insert the checkbox and select the option 'Document-Edit &gt; Edit &gt; Insert &gt; Checkbox Field'.</p> <p>The 'Checkbox Field Parameters' dialog displays, in which you enter:</p> <ul style="list-style-type: none"> <li>• The field name (which does not display</li> </ul>



	<p>in the text)</p> <ul style="list-style-type: none"> <li>• Whether the checkbox defaults to selected</li> <li>• The size of the checkbox</li> </ul> <p>Click on the OK button.</p>
Insert a selection (drop-down) field	<p>You insert selection fields in a document so that the users of the document can select one of the items presented in a drop-down list.</p> <p>Move the cursor to the point at which to insert the checkbox and select the option 'Document-Edit &gt; Edit &gt; Insert &gt; Selection Field'.</p> <p>The 'Selection Field Parameters' dialog displays, in which you enter:</p> <ul style="list-style-type: none"> <li>• The field name</li> <li>• The options to present in the drop-down list (separated by the   character)</li> <li>• The value from this list to display as a default</li> </ul> <p>Click on the OK button.</p>
Insert a non-breaking space	<p>Move the cursor to the point at which to insert the non-breaking space and select the 'Insert   Non-breaking Space' menu option.</p>

Insert a non-breaking dash	Move the cursor to the point at which to insert the non-breaking dash and select the 'Insert   Non-breaking Dash' menu option.
Insert an optional hyphen	Move the cursor to the point at which to insert the hyphen and select the 'Insert   Optional Hyphen' menu option.
Insert a Project Constant	<p>(For Document Report templates.)</p> <p>You can create Project Constants to insert a specific text string wherever you place the flag for that string. You can therefore design a report containing many instances of that string, but create and edit the actual value in one place - on the 'Project Constants' tab of the 'Generate Report' dialog.</p> <p>Right-click at the point at which you want to insert the Constant (flag), and select the 'Project Constants   &lt;flag name&gt;' option. The Constant displays at that point in the template, and when the report is generated the flag is replaced by its defined value.</p> <p>You can insert a Project Constant anywhere in the template - in the text body, section headings, headers, footers,</p>

	<p>endnotes or footnotes. Project Constants are available to any template in the model.</p>
<p>Define level numbering in generated document</p>	<p>(Used in the Document Template Editor.)</p> <p>Select the option 'Document-Edit &gt; Edit &gt; Edit &gt; Lists and Overrides'.</p> <p>Set up the numbering list and the list overrides.</p> <p>Apply the numbering list to the headings set for Packages and elements, using paragraph numbering.</p>
<p>Use double-byte characters</p>	<p>Select the option 'Document-Edit &gt; Edit &gt; Edit &gt; Inline Ime'.</p> <p>Double-byte characters are, broadly, complex characters used in languages such as Japanese, Chinese, and Cyrillic.</p> <p>With this menu option, you can use both single-byte characters and double-byte characters in your text, without having to switch to an external Input Method Editor (IME) application.</p>

# Manage Page Counting

As you set up the document structure, especially if you divide the document up into sections, you can insert page counts, insert and reset page numbers, and repaginate the document to update the page number, page count and Table of Contents.

## Access

Ribbon	<p>Document-Edit &gt; Edit &gt; Insert &gt; Page Number</p> <p>Document-Edit &gt; Edit &gt; Insert &gt; Page Count</p> <p>Document-Edit &gt; Edit &gt; Edit &gt; Repaginate</p>
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## Insert the page number

Position the cursor at the point at which to display the page number, and select the option 'Document-Edit > Edit > Insert > Page Number'.

The page number is displayed in gray.

## Insert the page count

Position the cursor at the point at which to display the total number of pages in the document, and select the option 'Document-Edit > Edit > Insert > Page Count'. The page count is displayed in gray.

## Repaginate the document

Select the option 'Document-Edit > Edit > Edit > Repaginate'.

The 'Page Number' and 'Page Count' fields and the Table of Contents are all updated.

# The Normal.rtf Style Template

Every custom template or document you create is automatically based on the 'Normal.rtf template' file. This is an external file that provides default styles, numbering and other base formats, such as the default list numbering, MasterList. You can edit the Normal.rtf file to apply your own default styles to the documents and templates you create. You also have the options of:

- Editing selected styles within a template, so that reports or documents created from that template always have those different styles
- Using the standard Stylesheets or creating custom Stylesheets, to optionally apply to any document report you generate independent of the template you are using

The Normal.rtf template is stored in %APPDATA%\Sparx Systems\EA\RTF Templates.

## Edit Normal.rtf

Step	Action
1	Open the Document Template Designer and create a new template called, for example, Normal.
2	Select the 'Document-Edit > File > File > Import

	File' menu option to import the Normal.rtf file into the Normal template.
3	Modify the Normal template style definitions as you want, and remove any text before you save the template.
4	Export the modified template ('Document-Edit > File > File > Save As (Export to File))' back into the Normal.rtf file in the <i>RTF Templates</i> folder. The modified styles will be applied to all documents and templates you create from now on.

## Notes

- You must not edit the SSbookmark style; this defines the section styles and must be preserved
- A related feature in the Document Editor is the 'Update Styles' context menu option, which you select to update an existing template to reflect any changes to Normal.rtf, or to apply a standard Stylesheet to the template

# Scroll, Search and Select Text

In the Document Editor, you can move the cursor through the template or document using either the keyboard or the mouse. Alternatively, you could move the cursor to a position in the file by searching for a text string.

Having positioned the cursor on the required text, you can then highlight and manipulate it with various options, in addition to the standard 'mouse-click-and-drag' and the 'Ctrl+X', 'Ctrl+C' and 'Ctrl+V' keys.

## Cursor Positioning

Scroll Using	Options
Keyboard Keys	<p>Press:</p> <ul style="list-style-type: none"><li>• Ctrl+Left Arrow to move to the previous word</li><li>• Ctrl+Right Arrow to move to the next word</li><li>• Ctrl+Up Arrow to move to the first column of the current line (if not already on the first column) or the first column of the previous line</li><li>• Ctrl+Down Arrow to move to the first column of the next line</li></ul>



	<ul style="list-style-type: none"><li>• F10 to display the 'Jump to line number' dialog; type in a line number to jump to, and click on the OK button</li></ul>
Mouse	<p>To perform various scrolling functions, click on the vertical or horizontal scroll bars. These functions are available when the scroll bars have been enabled by the startup parameters.</p> <p><b>Vertical Scroll Bar:</b> To scroll the screen up or down by one line, click on the arrows on either end.</p> <p>To scroll the screen up by one page, click above the elevator (the block within the scroll bar); similarly, to scroll the screen down by one page, click below the elevator.</p> <p>You can also scroll the screen up or down by dragging the elevator in the appropriate direction.</p> <p><b>Horizontal Scroll Bar:</b> To scroll the screen left or right by one column, click on the arrow on the appropriate end of the bar; to scroll the screen left or right by half a screen, click on the bar on the appropriate side of the elevator.</p> <p>You can also scroll the screen left or right by dragging the elevator along the bar in the appropriate direction.</p>

## Text Search

When you search for a text string, the dialog for specifying the search details does not persist on the screen, so you can simply use keyboard keys or a menu option to continue the search without obscuring text behind a dialog.

To	Action
Find first instance of a text string	<p>Select the option 'Document-Edit &gt; Edit &gt; Search &gt; Search', or press F5.</p> <p>The 'Search String Parameters' dialog displays. Specify:</p> <ul style="list-style-type: none"><li>• The term to search for</li><li>• Whether to search from the start of the file or forwards or backwards from the current cursor position, and</li><li>• Whether the search should exactly match the case of the search term</li></ul> <p>The editor searches for the first instance of the specified character string as defined by the parameters.</p>
Find next instance of a	Select the option 'Document-Edit > Edit > Search > Search Forward', or press

text string	<p>Ctrl+F.</p> <p>The editor searches forwards through the file for the next instance of the previously specified text string, and highlights it.</p>
Find previous instance of a text string	<p>Select the option 'Document-Edit &gt; Edit &gt; Search &gt; Search Backward', or press Ctrl+Shift+F.</p> <p>The editor searches backwards through the file for the next instance of the previously specified text string, and highlights it.</p>
Replace a text string	<p>Select the option 'Document-Edit &gt; Edit &gt; Search &gt; Replace', or press F6.</p> <p>The 'Replace String Parameters' dialog displays, in which you specify:</p> <ul style="list-style-type: none"><li>• The text string to locate</li><li>• The text string to replace it with</li><li>• Whether to search the whole document or just a highlighted block of text</li><li>• Whether to confirm each replacement before making the change</li></ul> <p>If you want to confirm replacement, a prompt displays for each occurrence of the search term to confirm or skip replacing that occurrence.</p>

## Text Selection

To	Action
Highlight a word	Double-click on the word.
Highlight a line	Move the cursor onto the line and press F8.
Delete a line	Press Shift+F9 to delete the current line; the remaining lines close up.
Paste special objects	<p>Select the option 'Document-Edit &gt; Edit &gt; Edit &gt; Paste Special'; the 'Paste Special' dialog displays, listing the appropriate data type formats for inserting the copied object.</p> <p>Click on the Paste button to embed the data into your application, or click on the Paste Link button to create a link to the original file.</p> <ul style="list-style-type: none"><li>• 'Native Object Format' - If available, this is the first format in the list box; you can edit data in this format using the original application, by</li></ul>

	<p>double-clicking the object</p> <ul style="list-style-type: none"><li>• 'Formatted Text' - A text format; this option offers the most suitable format if the data is pasted from another text output application, as the font and formatting attributes are reproduced accurately</li><li>• 'Unformatted Text' - Another text format; this option pastes the text without retaining the formatting information</li><li>• 'Picture Format' - The data is available in Picture format; you can later edit the object, by double-clicking on it and invoking the Microsoft MS Draw application This format is preferable to the Bitmap and the Device Independent Bitmap formats</li><li>• 'Device Independent Bitmap' and 'Regular Bitmap' formats - The data is available in bitmap formats; you can later edit the object, by double-clicking on it and invoking the Microsoft MS Draw application The editor converts these formats into the Picture format before calling the drawing application</li></ul>
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## Format Text

When you create a document template or document, the default character or text styles are already defined, as they are derived directly from the Normal.rtf style template file. Within the document you can edit any of these character styles or apply individual formatting to text strings as you require.



When you change the format of existing text, any new characters you type immediately after that text automatically assume the formatting characteristics you have applied.

## Access




Ribbon	Highlight the text to which to apply the format, then select options from the 'Font' panel of the 'Document-Edit' ribbon bar.
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## Text formatting options

To	Action
Apply	Highlight the text to which to apply the

character format	<p>format, and use one or more of these menu options or key combinations.</p> <p>From the 'Font' panel of the 'Document-Edit' ribbon, choose:</p> <ul style="list-style-type: none"> <li>•  or 'Font   Normal', or press Alt+0</li> <li>• <b>B</b> or 'Font   Bold', or press Ctrl+B</li> <li>• <i>I</i> or 'Font   Italic', or press Ctrl+I</li> <li>• <u>U</u> or 'Font   Underline', or press Ctrl+U</li> <li>• <u>U</u> ▾   'Double Underline', or 'Font   Double Underline', or press Ctrl+D</li> <li>• <math>\times_2</math> or 'Font   Subscript', or press Alt+5</li> <li>• <math>\times^2</math> or 'Font   Superscript', or press Alt+4</li> <li>• <del>abc</del> or 'Font   Strike', or press Alt+6 (puts a line through the text)</li> <li>• <del>abc</del> ▾   'Double Strike', or 'Font   Double Strike'</li> <li>• <b>Aa</b> ▾   lowercase</li> <li>• <b>Aa</b> ▾   UPPERCASE</li> <li>• Font   All Caps</li> <li>• Font   Small Caps</li> </ul> <p>To reset any character format, highlight the text and select the option  or 'Font   Normal', or press Alt+0.</p>
Change font typeface and	Highlight the text to change and select the required typeface from the 'Font'



point size	<p>drop-down list in the 'Font' panel of the 'Document-Edit' ribbon bar. Select the required point size from the 'Size' drop-down list, beside the 'Font' list.</p> <p>Alternatively, select the option 'Document-Edit &gt; Font &gt; Font &gt; Fonts'. The 'Font Selection' dialog displays, from which you select the required typeface and point size. Click on the OK button.</p>
Change character style	<p>Highlight the text to change and select the required character style from the 'Style' drop-down list in the 'Font' panel of the 'Document-Edit' ribbon bar.</p> <p>Alternatively, select the option 'Document-Edit &gt; Font &gt; Font &gt; Style'. The 'Select a Style' dialog displays, listing the currently-defined character styles in the template stylesheet. Select the required style and click on the OK button.</p>
Change the color of text, background (permanent highlight) or underline	<p>Highlight the text to change and select one or more of these options, as required:</p> <ul style="list-style-type: none"> <li>• Document-Edit &gt; Font &gt; </li> <li>• Document-Edit &gt; Font &gt; </li> <li>• Document-Edit &gt; Font &gt;  &gt; Underline Color</li> </ul>

	<p>In each case, the 'Color' dialog displays, through which you can select or define the required color.</p> <p>When you have selected a color, click on the OK button.</p>
Change character spacing	<p>Normal character spacing (the space between characters) is 20 twips; if you want to change this (or return to it), highlight the text to adjust, and select the option 'Document-Edit &gt; Font &gt; Font &gt; Spacing'. The 'Character Spacing' dialog displays.</p> <p>Select the radio button to expand or compress spacing, or to return to normal spacing; if you are changing from normal spacing, enter the number of twips to set the spacing to.</p> <p>Click on the OK button.</p>
Change horizontal scaling	<p>Highlight the text to change and select the option 'Document-Edit &gt; Font &gt; Font &gt; Horizontal Scaling'.</p> <p>The 'Horizontal Character Scaling' dialog displays. Enter a percentage value for the amount of scaling required (valid values are 10 to 999 inclusive), then click on the OK button. The text (both characters and spaces) is scaled horizontally, by the</p>

	specified amount.
Hide text	<p>Hidden text is not displayed on the screen or printer, but remains in the document and is not deleted.</p> <p>Highlight the text to hide and select the option 'Document-Edit &gt; Font &gt; Font &gt; Hidden', or press Ctrl+H.</p> <p>The highlighted text is not displayed and the rest of the text closes up.</p> <p>To view hidden text, select the option 'Document-Edit &gt; File &gt; View &gt; Hidden Text'; you can then make the text normal again by highlighting it and deselecting the option 'Document-Edit &gt; Font &gt; Font &gt; Hidden'.</p>
Create a box around text	<p>Highlight the text to box and select the 'Font   Boxed' menu option; this creates a broken-line border around the selected text.</p>
Protect text	<p>Highlight the line, block or section of text to be protected, and select the option 'Document-Edit &gt; Font &gt; Font &gt; Protect'.</p> <p>The selected text is displayed in a gray font, and cannot be edited.</p> <p>To release the text for editing again, highlight it and reselect the option</p>

	<p>'Document-Edit &gt; Font &gt; Font &gt; Protect'. You can select and release a portion of the protected text; the remainder stays protected.</p> <p>Note: If the ribbon option is unavailable, or the text is not faded, it means that you have not removed the protection lock. (See <i>Protect Document Contents</i>.)</p>
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# Create Tables

Within any document report, you can present information using simple tables with any number of rows and columns. In a report template, it is also possible to render a model section as a table, defined with any number of columns but with only two rows. You can either add your own text to the tables, or populate the table cells with fields that extract information from your model.

## Access

Ribbon	Document-Edit > Paragraph > Table > [option]
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## Create and format a table

To	Action
Insert a table in the document	Position the cursor on the point in the text to create the table, and select the option 'Document-Edit > Paragraph > Table > Insert Table'.

	<p>The 'New Table Parameters' dialog displays, in which you specify the number of table rows and columns. For a model section table in a report template you can accept the default values of two rows and three columns. Click on the OK button.</p> <p>Your table might be invisible; if so, select the option 'Document-Edit &gt; Paragraph &gt; Table &gt; Show Gridlines' to reveal the table and cell borders in dotted lines. These lines are for guidance in creating the document, and do not display on the printed document. You can add printable borders using other context menu options. The editor initially creates a table with cells of equal width across the page; you can change the cell width by dragging the cell borders using the mouse, or using other context menu options.</p>
Insert a new row above the current row	Click on a row and then select the option 'Document-Edit > Paragraph > Table > Insert Row'.
Insert a new column to the left of the	Click on a column and then select the option 'Document-Edit > Paragraph > Table > Insert Column'.

current column	
Merge cells	<p>Highlight the cells to merge and select the option 'Document-Edit &gt; Paragraph &gt; Table &gt; Merge Cells'.</p> <p>The width and/or height of the resulting cell is the sum of the widths and/or the sum of the heights of the merged cells.</p> <p>You can merge cells across a row, down a column, and in a block spanning both rows and columns.</p>
Split a cell	<p>Select the cell to split and select the option:</p> <ul style="list-style-type: none"> <li>• 'Document-Edit &gt; Paragraph &gt; Table &gt; Split Cell Horizontally' to split the selected cell into two cells of equal width within the column</li> <li>• 'Document-Edit &gt; Paragraph &gt; Table &gt; Split Cell Vertically' to split the cell into two cells of equal height, doubling the height of the whole row</li> </ul> <p>Any text in the original cell is assigned to the first cell, and the second cell is created empty.</p>
Delete cells	<p>Select the cells to delete and select the option 'Document-Edit &gt; Paragraph &gt;</p>

	<p>Table &gt; Delete Cells'.</p> <p>The 'Delete Table Cells' dialog displays, on which you specify whether to delete:</p> <ul style="list-style-type: none"><li>• Cells - deletes the highlighted cells; realign the column and/or row after doing this</li><li>• Columns - deletes the column or columns containing the highlighted cells, or</li><li>• Rows - deletes the row or rows containing the highlighted cells</li></ul> <p>If you delete all cells in a table, the table itself is automatically deleted.</p>
Position the table on the page	<p>Click on any part of the table and select the option 'Document-Edit &gt; Paragraph &gt; Table &gt; Row Position'.</p> <p>The 'Table Row Alignment' dialog displays, on which you select a radio button to left-justify, center or right-justify the table on the page.</p> <p>Leave the 'All Rows in the Table' checkbox selected.</p> <p>This menu option has greater effect if the table is narrower than the page or text column.</p>
Set the height	Highlight the rows to adjust and select



of a row, or all rows	<p>the option 'Document-Edit &gt; Paragraph &gt; Table &gt; Row Height'.</p> <p>The 'Row Height Parameters' dialog displays; you can select to:</p> <ul style="list-style-type: none"><li>• Allow the row height to be determined automatically</li><li>• Set a minimum row height, or</li><li>• Set an exact row height</li></ul> <p>If you are setting the height, type the value in twips.</p> <p>You can apply the setting to the selected rows only, or select the 'Apply to all rows in the current table' checkbox to set the height of all rows in the table.</p>
Add a header row	<p>Select the top row of the table, and then select the option 'Document-Edit &gt; Paragraph &gt; Table &gt; Header Row'. Apply any heading text, settings and formatting to the highlighted row.</p> <p>In the document or compiled report, the heading row is repeated at the top of the columns each time the table flows on to a new page. In a report, if the heading row is populated with the values from field names, the heading rows on subsequent pages reflect the values from that first row.</p>

	<p>This option operates on the single row at the top of the table, and not on multiple rows. If you edit the table and add a row to the top of the table to act as a new header, selecting the menu option on the new row clears the previous setting.</p>
<p>Keep row text together if it continues over a page</p>	<p>Select the rows to protect (preferably all rows in the table) and select the option 'Document-Edit &gt; Paragraph &gt; Table &gt; Keep Row Together'.</p> <p>If the row continues over the end of the page, the whole row is moved to the top of the next page.</p>
<p>Set the text flow in the table rows</p>	<p>Select the rows and select the option 'Document-Edit &gt; Paragraph &gt; Table &gt; Row Text Flow'.</p> <p>The 'Table Text Flow' dialog displays, on which you select a radio button to set the text flow in the rows to:</p> <ul style="list-style-type: none"><li>• Left to right</li><li>• Right to left</li><li>• Default</li></ul> <p>You can apply the text flow to just the selected rows, or select the 'Apply to all rows in the current table' checkbox to set the text flow for all rows in the table.</p>

	<p>This option also moves the selected rows over to the appropriate side of the page or column.</p>
<p>Set the width of selected cells</p>	<p>Select the cells to act on and select the option 'Document-Edit &gt; Paragraph &gt; Table &gt; Cell Width'.</p> <p>The 'Set Cell Width' dialog displays, on which you set the width of the cells and the margin between the text and the left and right sides of each cell, both in twips. You can apply the settings to:</p> <ul style="list-style-type: none"> <li>• All cells in the table</li> <li>• The selected cells only</li> <li>• The complete column or columns containing the selected cells, or</li> <li>• The complete row or rows containing the selected cells</li> </ul>
<p>Define the width of the cell borders</p>	<p>Select the cells to act on and select the option 'Document-Edit &gt; Paragraph &gt; Table &gt; Cell Border Width'.</p> <p>The 'Set Cell Border' dialog displays, on which you set the width of the lines at any or all of the top, bottom, left and right of the selected cells. If you want the border to enclose:</p> <ul style="list-style-type: none"> <li>• The selected cells as a block, select the</li> </ul>

	<p>'Draw outline border around the selected cells' checkbox</p> <ul style="list-style-type: none"> <li>• Each selected cell separately, leave the checkbox unselected</li> </ul> <p>You can also set the margin between the text in each cell and the left and right borders, in twips, and apply all the settings to:</p> <ul style="list-style-type: none"> <li>• All cells in the table</li> <li>• The selected cells only</li> <li>• The complete column or columns containing the selected cells, or</li> <li>• The complete row or rows containing the selected cells</li> </ul>
Define the color of the cell borders	<p>Select the cells to act on and select the option 'Document-Edit &gt; Paragraph &gt; Table &gt; Cell Border Color'.</p> <p>The 'Set Cell Border Color' dialog displays, on which you set the color of each of the lines at the top, bottom, left and right of a cell, or all of the cell borders at once.</p> <p>You can apply the settings to:</p> <ul style="list-style-type: none"> <li>• All cells in the table</li> <li>• The selected cells only</li> <li>• The complete column or columns containing the selected cells, or</li> </ul>

	<ul style="list-style-type: none"> <li>• The complete row or rows containing the selected cells</li> </ul>
Define the degree of shading on the cell color	<p>Select the cells to act on and select the option 'Document-Edit &gt; Paragraph &gt; Table &gt; Cell Shading'.</p> <p>The 'Cell Shading Parameters' dialog displays, in which you type the shading percentage.</p> <p>Shading is the intensity of the cell background color, expressed as a percentage, and is uniform across the selected cells. If the cells have no colored background, a shading of 0% is white. For colored backgrounds, 0% is the color initially set. In all cases, a shading of 100% is black.</p> <p>You can apply the setting to:</p> <ul style="list-style-type: none"> <li>• All cells in the table</li> <li>• The selected cells only</li> <li>• The complete column or columns containing the selected cells, or</li> <li>• The complete row or rows containing the selected cells</li> </ul>
Define the background color of the	<p>Select the cells to act on and select the option 'Document-Edit &gt; Paragraph &gt; Table &gt; Cell Color'.</p>

cell	<p>The 'Cell Color Parameters' dialog displays. Click on the Set Color button to display the 'Color' dialog, on which you select a basic color or define a more specific color.</p> <p>When you have selected the color, click on the OK button.</p> <p>You can apply the setting to:</p> <ul style="list-style-type: none"><li>• All cells in the table</li><li>• The selected cells only</li><li>• The complete column or columns containing the selected cells, or</li><li>• The complete row or rows containing the selected cells</li></ul>
Vertically align text in cells	<p>Select the cells to act on and select the option 'Document-Edit &gt; Paragraph &gt; Table &gt; Cell Vertical Align'.</p> <p>The 'Cell Vertical Alignment' dialog displays, on which you select to align the text in the selected cells by the top, center or bottom of the cell or the baseline of the lowest top line of text.</p> <p>Text in a table defaults to being aligned with the top of the cell and, as you type it in, it scrolls downwards. You can change this alignment to the center or bottom of the cell so that text scrolls out from the</p>

	<p>center or up from the bottom of the cell.</p> <p>If you have special formatting - such as 'before-paragraph' spacing - you can align the text to the base of the lowest first line (the baseline), so that text in a row of cells is aligned with the special formatted text rather than with the top or bottom of the cell. If the special formatting is changed or removed, the text remains aligned.</p> <p>You can apply the setting to:</p> <ul style="list-style-type: none"><li>• All cells in the table</li><li>• The selected cells only</li><li>• The complete column or columns containing the selected cells, or</li><li>• The complete row or rows containing the selected cells</li></ul>
Rotate the text of a cell to display vertically	<p>Select the cells to act on and select the option 'Document-Edit &gt; Paragraph &gt; Table &gt; Cell Rotate Text'.</p> <p>The 'Cell Text Rotation' dialog displays, on which you select to display text vertically up the cell, vertically down the cell or, if the text is already vertical, horizontally across the cell,</p> <p>Text in a table defaults to running horizontally across the cell from left to</p>

	<p>right, and scrolling down the cell from top to bottom. You can change the text position so that the text is rotated through 90 degrees to display:</p> <ul style="list-style-type: none"><li>• From top to bottom, scrolling across the cell from right to left, or</li><li>• From bottom to top, scrolling across the cell from left to right</li></ul> <p>If the text is running horizontally, you can type as much as you need - the row height increases to accommodate the text. If the text is running vertically, you adjust the row height and column width manually to accommodate your text.</p> <p>You can apply the setting to:</p> <ul style="list-style-type: none"><li>• All cells in the table</li><li>• The selected cells only</li><li>• The complete column or columns containing the selected cells, or</li><li>• The complete row or rows containing the selected cells</li></ul>
Select a column	<p>Click on a cell and select the option 'Document-Edit &gt; Paragraph &gt; Table &gt; Select Current Column'.</p> <p>The whole column is highlighted and selected for further formatting.</p>



Show gridlines	Show or hide grid lines for the current table. Note that, for printing purposes, 'Border Width' must be set to a non-zero value.
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## Notes

- Under some circumstances, a table in a generated report might repeat the header row rather than the output row; if this occurs, create another row in the table between the header row and the output row, and leave this blank

# Format Paragraphs

When you create a document template or document the default paragraph styles are already defined, as they are derived directly from the Normal.rtf style template file. Within the document you can edit any of these paragraph styles or apply individual formatting to text blocks as you need.

Each formatting option operates on the current paragraph, or on a highlighted block of text.

## Access

Ribbon	<p>Document-Edit &gt; Paragraph &gt; Paragraph &gt; [options]</p> <p>There is also a range of icons in the 'Paragraph' panel of the 'Document-Edit' ribbon, that provide direct access to commonly used paragraph formatting options</p>
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## Paragraph formatting options

To	Action
Clear all paragraph formatting	Select the 'Paragraph   Normal' menu option. All paragraph formatting applied to the current paragraph or selected text will be removed.
Center text	Select the 'Paragraph   Center' menu option, or press Alt+8.
Right-justify text	Select the 'Paragraph   Right Justify' menu option, or press Alt+9.
Justify both sides of text	Select the 'Paragraph   Justify Both' menu option.
Double Space	Select the 'Paragraph   Double Space' menu option to put a double line space between paragraphs.
Indent paragraph left	Select the 'Paragraph > Indent Left' menu option, or press Alt+L. Select the option again to increase the indent. To reduce or cancel the indent, click on the 'Decrease Indent' icon in the Ribbon.

Indent paragraph right	Select the 'Paragraph   Indent Right' menu option or press Alt+R. Select the option again to increase the indent.
Create hanging indent	Select the 'Paragraph   Hanging Indent' menu option, or press Alt+T. Select the option again to increase the indent of all lines below the first.
Keep paragraph lines together	Select the 'Paragraph   Keep Together' menu option. The editor attempts to keep all lines within the paragraph on the same page.
Keep paragraphs together	Select the 'Paragraph   Keep with Next' menu option. The editor attempts to keep the last line of the current paragraph and the first line of the next paragraph on the same page.
Prevent 'widow' and 'orphan' lines	Select the 'Paragraph   Widow/Orphan Control' menu option. The editor attempts to avoid having: <ul style="list-style-type: none"><li>• the first line of the paragraph on the previous page ('widow' line)</li><li>• the last line of the paragraph on the</li></ul>

	next page ('orphan' line)
Start text on new page	Move the cursor to the point at which to start the new page, and select the 'Paragraph   Page Break Before' menu option.
Insert border and shading for text block	<p>Select the 'Paragraph   Border and Shading' menu option.</p> <p>The 'Paragraph Box Parameters' dialog displays, on which you specify:</p> <ul style="list-style-type: none"> <li>• Which sides of the box to display (including a line between text lines)</li> <li>• Whether the lines are thick or doubled</li> <li>• The degree of gray shading behind the text</li> <li>• The color of the lines</li> </ul>
Define line spacing	<p>Select the 'Paragraph   Paragraph Spacing' menu option.</p> <p>The 'Paragraph Spacing Parameters' dialog displays, on which you specify the line spacing and the point spacing before and after lines.</p> <p>Alternatively, to just set double line spacing, select the 'Paragraph   Double Space' menu option.</p>

Set a background color for text space	<p>Select the 'Paragraph   Background Color' menu option.</p> <p>The 'Color' dialog displays, on which you select the background color.</p> <p>The editor highlights the full width of the page in that color, for the selected lines.</p>
Create a bulleted list	<p>Select the 'Paragraph   Bullet' menu option.</p> <p>The editor formats the lines into a simple bullet list.</p> <p>If you want to indent the list (or a part of it) further, select the 'Paragraph   Increase Level' menu option. If you have increased the indent but now want to decrease it, select the 'Paragraph   Decrease Level' option.</p>
Create a numbered list	<p>Highlight the required lines of text and select the 'Paragraph   Numbering' menu option.</p> <p>The editor formats the lines into a simple numbered list.</p> <p>To create multiple-level numbered lists, see <i>Set the list characters</i>.</p>
Apply numbering to	(Used in the 'Document Template Editor'.)

paragraphs	<ol style="list-style-type: none"> <li>1. Set up a numbering list and overrides ('Document-Edit &gt; Edit &gt; Edit &gt; List and Overrides &gt; Create List Item' and 'Create List Override').</li> <li>2. Apply the numbering levels to the template sections ('Document-Edit &gt; Paragraph &gt; Paragraph &gt; List Numbering').</li> </ol>
Apply a paragraph style from the template stylesheet	<p>Select the 'Paragraph   Style' menu option.</p> <p>The 'Select a Style' dialog displays, listing the currently-defined paragraph styles in the template stylesheet.</p> <p>Select the required style and click on the OK button.</p>
Set text flow in document	<p>To set the text flow for:</p> <ul style="list-style-type: none"> <li>• A highlighted block of text, select the 'Document-Edit &gt; Paragraph &gt; Paragraph &gt; Text Flow' ribbon option; the 'Paragraph Text Flow' dialog displays</li> <li>• The entire document, select the 'Document-Edit &gt; Edit &gt; Document Text Flow' menu option; the 'Document Text Flow' dialog displays</li> </ul> <p>In either case, select the required text flow direction and click on the OK</p>

	<p>button. The options are:</p> <ul style="list-style-type: none"><li>• Left to right</li><li>• Right to left</li><li>• Default</li></ul> <p>The 'Default' action depends on the language setting of the system; for example, if the system language is Hebrew or Chinese, the default text flow is right to left.</p>
Paragraph Marker	<p>Displays or hides the various space markers in the text, such as:</p> <ul style="list-style-type: none"><li>• The paragraph marker at the end of each paragraph</li><li>• The Tab indicators between tabbed blocks of text, and</li><li>• The blank character marker between words</li></ul> <p>This option is useful when working with page-formatted text that is structured using both style definitions and key-strokes.</p>
Set the list characters	<p>When you have set up your bulleted or numbered list elements, you can toggle between the list character options using the drop-down arrow icon just to the left of the bullet list icon on the lower toolbar</p>



	<p>of the document template editor.</p> <p>When you click on this icon, you are prompted to select between a single-level list format and a multiple-level list format. When you select one of these options, you then make a further selection between:</p> <ul style="list-style-type: none"><li>• Single-level: Arabic numerals, Roman numerals, upper-case letters and lower-case letters</li><li>• Multiple-level: Arabic numerals, Roman numerals and bullet symbols</li></ul>
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# Define Document Sections

Using the Document Editor, you can partition your text into separate sections, present the text in a section in columnar format, and set different page orientations and printing for each section. A multiple section document is useful to:

- Change the presentation and format of the text for different areas of information
- Change between portrait and landscape orientation for different parts of the document
- Vary the page margins from one page to another

## Access

Ribbon	Document-Edit > Edit > Insert > Insert Break > Section Break
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## Create a section

Select the 'Insert | Insert Break | Section Break' menu option. This creates a new section on a new page.

The section break is represented by a dotted line; if this is not visible, click on the  icon in the 'Paragraph' panel of

the 'Document-Edit' ribbon.

The 'Section Break' menu option is not effective when 'Edit Page Header/Footer' is active, because editing control passes to the header and footer bands away from the body of the document.

## Set section properties

Section properties apply to all the document content following the section break, up to the next section break line.

Select the option 'Document-Edit > Edit > Edit > Edit Section' to display the 'Section Parameters' dialog. Complete each panel to set up the section as you require.

To	Action
Set number of columns in a section	<p>The 'Number of Columns' field defaults to '1', to present the text as a normal page of text (effectively a single column).</p> <p>To structure the text in two or more columns on a page:</p> <ul style="list-style-type: none"><li>• In the 'Number of Columns' field, type the number of columns to divide the text into across the page</li><li>• In the 'Space Between the Columns' field, type the separation of the</li></ul>

	<p>columns, in inches</p> <ul style="list-style-type: none"><li>• If you want to separate the columns with a vertical line, select the 'Line Between Columns' checkbox</li></ul> <p>When you close the dialog, the text is displayed in the selected number of columns of equal width, across the page. The text wraps at the edge of the column and, when it reaches the foot of the page, continues at the top of the next column.</p>
Start section on new page	<p>If you want to insert a page break before the new section, select the 'Start Section on New Page' checkbox.</p> <p>If you also want to adjust the page numbering so that the new section starts at a specific page, select the 'Restart Page Number at' checkbox and type the page number.</p> <p>The section start page will often be 1, but this facility is also useful for inserting another document of a constant number of pages between, for example, an introduction and a technical section.</p>
Set text direction	<p>Set the direction of the text flow within the section by selecting the appropriate radio button.</p>

Set page orientation	Set the page orientation within the section by selecting the appropriate radio button.
Set paper size for section	<p>Select a standard paper size for the pages of the section.</p> <p>Alternatively, you can scroll down the list and select the 'Custom Size' option, and then define the page width and height, in inches.</p> <p>You can also define special page margins by selecting the option 'Document-Edit &gt; File &gt; File &gt; Page Layout'.</p>
Set paper source	<p>The 'Paper Source' selections both default to 'Auto Select', so that the pages of the section print from whatever paper trays have paper available.</p> <p>If you are printing on paper from a specific tray, or are manually feeding paper to the printer for this section, select the appropriate option. You can select different options for the first page of the section and subsequent pages of the section.</p>

## Delete a section break

Move the cursor onto the labeled Section Break line and press the Delete key.

When you delete a section break, the section properties of the preceding section now apply to the document content following the deleted line.

# Set Tabs

Using the Document Editor, you can define left, right, center and decimal tab points to define the positions of text strings and columns across the page. A paragraph or highlighted block of text can have as many as twenty tab points, which apply to every line of the selected text.

If you do not set tab points, the Tab key moves the cursor to default tab points at 0.5-inch intervals.

## Access

Ribbon	<p>Select 'Document-Edit &gt; Paragraph', then choose one of:</p> <ul style="list-style-type: none"><li>• Set Tab</li><li>• Clear Tab</li><li>• Clear All Tabs,</li></ul> <p>or click on the ruler at the top of the page.</p>
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## Create and Clear Tab Points

Operation	Detail
Using the ruler	<p>If the ruler is not visible, select the option 'Document-Edit &gt; File &gt; View &gt; Horizontal Ruler'.</p> <p>To create a:</p> <ul style="list-style-type: none"><li>• Left tab, click on the required tab position on the ruler; the left tab is indicated on the ruler by an 'L' shape</li><li>• Right tab, right-click on the required tab position on the ruler; the right tab is indicated on the ruler by a reversed 'L' shape</li><li>• Center tab, press Shift and click on the required tab position on the ruler; the center tab is indicated on the ruler by an inverted 'T' shape</li><li>• Decimal tab, press Shift and right-click on the required tab position on the ruler; the decimal tab stop is indicated on the ruler by an inverted 'T' shape with a dot on the right hand side This tab is for numbers with a decimal point; numbers scroll left from the tab until you type the point, then numbers scroll right.</li></ul> <p>To move a tab position, click on the tab symbol on the ruler and drag it to the new</p>



	position.
Using the Set Tab menu option	<p>The 'Paragraph &gt; Set Tab' menu option displays the 'Set a Tab Position' dialog, on which you select from a set of radio buttons to specify the tab type.</p> <p>The dialog provides two advantages over the ruler; you can:</p> <ul style="list-style-type: none"><li>• Set the tab position with more precision and with a clear value (in inches) that you can duplicate</li><li>• Select from a set of radio buttons to add or remove a dotted, broken or solid line preceding the tab point</li></ul> <p>Click on the OK button to save the settings.</p>
Clearing a single tab point	<p>Highlight the block of text and select the 'Paragraph   Clear Tab' menu option.</p> <p>The 'Clear a Tab Position' dialog displays.</p> <p>Select the tab to clear and click on the OK button.</p>
Clearing all tab points for a text block	<p>Select the block of text and select the 'Paragraph   Clear All Tabs' menu option.</p>

## Notes

- The option 'Document-Edit > File > Manage > Snap To Grid' affects the movement of the tabs (and the paragraph indentation markers) on the ruler; when you select this option, the movements of the tab markers are locked on to an invisible grid at intervals of 1/16 inch (half a ruler division)

# Manage Page Breaks


As you set up the document structure, you might want to insert a page or column break to force a specific part of the document content to start on a new page or column.

## Access

Ribbon	Document-Edit > Edit > Insert > Insert Break > Page Break, or Document-Edit > Edit > Insert > Insert Break > Column Break
Keyboard Shortcuts	Ctrl+Enter (page break)

## Force a page break

Select the option 'Document-Edit > Edit > Insert > Insert Break > Page Break', or press Ctrl+Enter.

The forced page break is indicated by a labeled solid line; if this is not visible, click on the  icon, in the 'Paragraph' panel of the 'Document-Edit' ribbon.

## Create a column break

Move the cursor to the appropriate point in the column text and select the option 'Document-Edit > Edit > Insert > Insert Break > Column Break'. The break is indicated by a labeled 'dot and dash' line.

Normally in a multiple column section, the text flows from the end of one column to the top of the next column; a column break forces the text to the next column before the current column is completely filled.

## Delete a break

A page break or column break is indicated by a labeled line. To delete the break, move the cursor onto this line and press the Delete key.

# Insert Headers, Footers, Footnotes and Endnotes

When creating a document report or template, you can include page headers, footers, endnotes and footnotes. You switch options on to create and edit these items, and then switch these options off again to protect the entries. While you are creating headers and footers, you can also continue to edit the body of the document. You can create headers and footers:

- To apply throughout the document
- Separately for each section that you might create in your document
- Separately for the first page of the document and for the subsequent pages (for example, to leave no header and footer text on the title page of the document)
- Separately for left-hand and right-hand pages

## Header and footer options

To	Action
Create the page header and footer	Select the option 'Document-Edit > Edit > Edit > Page Header/Footer > Edit Page Header/Footer'. A dotted line marks off the header area at

	<p>the top of the page and the footer area at the bottom of the page. This dotted line is at a position that is set using the 'Page Setup' dialog ('Document-Edit &gt; File &gt; File &gt; Page Layout').</p> <p>Within each of these two areas, a paragraph marker displays to indicate where the text will sit relative to the top and bottom edges of the paper. This position is also defined on the 'Page Setup' dialog.</p> <p>You can type in any kind of free-form or formatted text and insert icons as you prefer. You would normally work well within the defined areas for the header and footer, but if the text exceeds the area, the dotted lines simply move to accommodate the text.</p>
Edit or delete the page header and footer text	Select the option 'Document-Edit > Edit > Edit > Page Header/Footer > Edit Page Header/Footer', move the cursor to the text and make any changes required. If you need to, delete the text altogether.
Create separate header and footer for the	Select the option 'Document-Edit > Edit > Edit > Page Header/Footer > Edit Page Header/Footer' to access the header and footer text spaces.

initial page of the document	<p>Select the option 'Document-Edit &gt; Edit &gt; Edit &gt; Page Header/Footer &gt; First Page Header/Footer' and either:</p> <ul style="list-style-type: none"><li>• The 'Create First Page Header' option, or</li><li>• The 'Create First Page Footer' option</li></ul> <p>A paragraph marker displays at the top or bottom of the first page of the document. If you want specific text to display on the first page of the document, type it in and format it.</p> <p>Alternatively, leave the spaces blank so that the first page has no header or footer text.</p>
Display the common document header and footer on the initial page	<p>If you have created a separate initial page header and/or footer and now want to display the same header and footer text on the initial page as is shown on subsequent pages of the document, you specifically delete the 'first page header/footer' assignment.</p> <p>Select the option 'Document-Edit &gt; Edit &gt; Edit &gt; Page Header/Footer &gt; Edit Page Header/Footer' to access the header and footer text spaces.</p> <p>Select the option 'Document-Edit &gt; Edit</p>

	<p>&gt; Edit &gt; Page Header/Footer &gt; First Page Header/Footer' and either:</p> <ul style="list-style-type: none"> <li>• The 'Delete First Page Header' option or</li> <li>• The 'Delete First Page Footer' option</li> </ul> <p>The 'first page' assignment and text are removed from the first page header and/or footer spaces.</p>
Create separate header and footer for left-hand pages	<p>Select the option 'Document-Edit &gt; Edit &gt; Edit &gt; Page Header/Footer &gt; Edit Page Header/Footer' to access the header and footer text spaces.</p> <p>Select the option 'Document-Edit &gt; Edit &gt; Edit &gt; Page Header/Footer &gt; Left Page Header/Footer' and either:</p> <ul style="list-style-type: none"> <li>• The 'Create Left Page Header' option, or</li> <li>• The 'Create Left Page Footer' option</li> </ul> <p>Scroll to the nearest left-hand page and in the header or footer space type in any kind of free-form or formatted text and insert icons as you require.</p> <p>This text displays on every left-hand page in the section or, if there are no sections, in the document.</p> <p>Format your document to put left-hand page information on pages with left-hand</p>



	<p>headers and footers. For example, in English language documents, even-numbered pages are usually left-hand pages.</p>
Create separate header and footer for right-hand pages	<p>Select the option 'Document-Edit &gt; Edit &gt; Edit &gt; Page Header/Footer &gt; Edit Page Header/Footer' to access the header and footer text spaces.</p> <p>Select the option 'Document-Edit &gt; Edit &gt; Edit &gt; Page Header/Footer &gt; Right Page Header/Footer' and either:</p> <ul style="list-style-type: none"><li>• The 'Create Right Page Header' option, or</li><li>• The 'Create Right Page Footer' option</li></ul> <p>Scroll to the nearest right-hand page and in the header or footer space type in any kind of free-form or formatted text and insert icons as you require.</p> <p>This text displays on every right-hand page in the section or, if there are no sections, in the document.</p> <p>Format your document to put right-hand page information on pages with right-hand headers and footers. For example, in English language documents, odd-numbered pages are usually right-hand pages, and sections such as Title, Introduction and Table of Contents</p>

	start on right-hand pages.
Delete left or right page headers and footers	<p>Select the option 'Document-Edit &gt; Edit &gt; Edit &gt; Page Header/Footer &gt; Edit Page Header/Footer' to access the header and footer text spaces.</p> <p>Select the option 'Document-Edit &gt; Edit &gt; Edit &gt; Page Header/Footer &gt; &lt;side&gt; Page Header/Footer' (where &lt;side&gt; is either Left or Right) and either:</p> <ul style="list-style-type: none"><li>• The 'Delete &lt;side&gt; Page Header' option, or</li><li>• The 'Delete &lt;side&gt; Page Footer' option</li></ul> <p>You are prompted to confirm the deletion; click on the Yes button.</p> <p>Left and Right page headers or footers balance each other. If you create one, the system responds as if the other exists but is blank. If you delete one, the system responds as if the other is the 'common' header/footer for the section, and all page headers now contain that remaining text.</p>
Close and protect headers and footers	<p>Select the option 'Document-Edit &gt; Edit &gt; Edit &gt; Page Header/Footer &gt; Edit Page Header/Footer' to access the header and footer text spaces again, and check that you cannot move the cursor into the header and footer spaces.</p>

## Footnote and Endnote options

To	Action
Create a footnote	<p>Move the cursor to the position at which to insert the footnote marker, and select the option 'Document-Edit &gt; Edit &gt; Insert &gt; Footnote/Endnote &gt; Footnote'.</p> <p>The 'Footnote' dialog displays. In the:</p> <ul style="list-style-type: none"><li>• 'Footnote Marker' field type the marker you want to use, such as a number, asterisk, hash or letter of the alphabet, or any text string of up to 10 characters</li><li>• 'Footnote Text' field, type the text of the footnote</li><li>• 'Superscript Footnote Marker' field, leave the checkbox selected to display the marker as a superscript, or clear the checkbox to display the marker in the same format as the preceding text</li></ul> <p>Click on the OK button; the editor inserts the footnote marker at the current cursor location and displays the marker and text at the bottom of the page, above the page footer space.</p>

<p>Edit footnote text</p>	<p>Select the option 'Document-Edit &gt; Edit &gt; Edit &gt; Edit Footnote/Endnote &gt; Edit Footnote text'.</p> <p>The marker and text of each footnote displays in the document text where the marker was originally inserted, highlighted by a broken underline.</p> <p>Locate the text and make the required changes. These changes are immediately reflected in the footnote text at the bottom of the page.</p> <p>When you have finished editing footnote text, click again on the option 'Document-Edit &gt; Edit &gt; Edit &gt; Edit Footnote/Endnote &gt; Edit Footnote text'; the footnote text is no longer shown in the document text.</p>
<p>Create an endnote</p>	<p>Move the cursor to the position at which to insert the endnote marker, and select the option 'Document-Edit &gt; Edit &gt; Insert &gt; Footnote/Endnote &gt; Endnote'.</p> <p>The 'Endnote Parameters' dialog displays. In the:</p> <ul style="list-style-type: none"><li>• 'Endnote Marker' field type the marker you want to use, such as a number or letter of the alphabet, or any text string of up to 10 characters</li></ul>

	<ul style="list-style-type: none"><li>• 'Endnote Text' field, type the text of the endnote</li><li>• 'Superscript Endnote Marker' field, leave the checkbox selected to display the marker as a superscript, or clear the checkbox to display the marker in the same format as the preceding text</li></ul> <p>Click on the OK button; the editor inserts the endnote marker at the current cursor location and displays the marker and text at the end of the section or, if there are no sections, at the end of the document.</p>
Edit endnote text	<p>Select the option 'Document-Edit &gt; Edit &gt; Edit &gt; Edit Footnote/Endnote   Edit Endnote text'.</p> <p>The marker and text of each endnote displays in the document text where the marker was originally inserted, highlighted by a broken underline.</p> <p>Locate the text and make the required changes; these changes are immediately reflected in the endnotes at the end of the section or document.</p> <p>When you have finished editing endnote text, click again on the option 'Document-Edit &gt; Edit &gt; Edit &gt; Edit Footnote/Endnote   Edit Endnote text'; the endnote text is no longer shown in the</p>

	document text.
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## Notes

- You can create and edit headers and footers whether the option 'Document-Edit > File > View > Page Layout Mode' is switched on or switched off; this option makes no difference

# Insert Hyperlinks

Within a document, you can insert hyperlinks to display material held outside the document, such as external documents, Help topics or web pages.

## Access

Ribbon	Document-Edit > Edit > Insert > Hyperlink
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## Insert hyperlinks

To insert a hyperlink, right-click on the point in the text at which to create it and select the option 'Document-Edit > Edit > Insert > Hyperlink'; the 'Insert Hyperlink' dialog displays.

In the 'Link Text' field, type the text to be hyperlinked and, in the 'Link Code' field, type or paste the:

- Web page URL
- Help topic file name or
- External file path and name

To capture the Help topic file name and path, right-click on

the displayed topic and copy the file name and path from the address field at the top of the screen.

Click on the OK button; the hyperlinked text displays in the document. Edit the sentence to accommodate the link text.

To display the web page, Help page or external document:

- Linked in a document, double-click on the link
- Linked in a report template, compile the report and click on the hyperlink in the report

In a Team Library document, you can also insert hyperlinks to related objects in the model.



# Insert Images, Objects and Frames

In creating your document or template, you might want to embed or display images and other objects in the text, to insert external information and/or structure the text and graphics on a page. You could insert, for example:

- An image in the text or as background to the text
- A link to an image
- An Object Linking and Embedding (OLE) object, which you create and edit using an external application
- A frame - a rectangular border within the text that can contain separate text and pictures, and that the existing text flows around
- A drawing object - a rectangle, text box or line that can sit over the existing text
- Another document file

Having inserted an object, you can subsequently move, edit or delete it.

## Insert items

To	Action
Insert a picture in the document	You can insert a picture bitmap or Windows metafile in your document as either an embedded picture or a link to

	<p>the external picture file.</p> <p>Position the cursor at the point at which to insert the picture, and select either:</p> <ul style="list-style-type: none"><li>• 'Document-Edit &gt; Edit &gt; Insert &gt; Embed Picture' (F8) or</li><li>• 'Document-Edit &gt; Edit &gt; Insert &gt; Link Picture'</li></ul> <p>A browser dialog displays, through which you select the picture to insert in the document; the picture is shown at the current cursor location.</p> <p>The embedded picture is saved within the document; only the filename of the linked picture is saved with the document, which is a better option if you intend to edit the picture over time.</p>
Embed an OLE object in the text	<p>Position the cursor at the point at which to embed the object, and select the 'Document-Edit &gt; Edit &gt; Insert &gt; OLE Object' menu option.</p> <p>The 'Insert Object' dialog displays, listing the applications that are available to create the object.</p> <p>When you select an application, the editor launches it and you create the object; when you save the application, the editor inserts an icon or view that</p>

	<p>represents the inserted object.</p> <p>You can also use the option 'Document-Edit &gt; Edit &gt; Edit &gt; Paste Special' to import OLE objects, provided that the object is available in the clipboard.</p> <p>You can later edit the object using the application, by double-clicking on the object or by selecting the option 'Document-Edit &gt; Edit &gt; Edit &gt; Edit OLE Object'.</p>
Change the size and alignment of an embedded picture	<p>Click on the picture and select the option 'Document-Edit &gt; Edit &gt; Edit &gt; Edit Picture'; the 'Edit Current Picture' dialog displays, through which you can change the height and width of the picture, in inches.</p> <p>You can also align the top, middle, or bottom of the picture with the baseline of any text on the same line as the picture, or offset the bottom of the picture from that baseline by any number of twips.</p>
Insert a background or watermark picture for the document	<p>Select the option 'Document-Edit &gt; File &gt; Manage &gt; Watermark Picture'; a browser dialog displays, through which you select the graphic file to insert as a watermark. The picture occupies the entire text area,</p>

pages (document report templates)	<p>and is displayed as a washed-out image. If you choose an image that is already washed-out, no watermark is displayed at all.</p> <p>To remove the watermark image, deselect the option 'Document-Edit &gt; File &gt; Manage &gt; Watermark Picture'.</p>
Insert a document File	<p>Position the cursor at the point at which to insert the file, and select the option 'Document-Edit &gt; Edit &gt; Insert &gt; Insert RTF File'.</p>
Embed a frame at the cursor position	<p>Select the option 'Document-Edit &gt; Edit &gt; Insert &gt; Frame'.</p> <p>The border of the frame displays, with the cursor at the top left corner. You can change the size of the frame by clicking on the border and dragging the small black 'handles'.</p>
Embed a drawing object at the cursor position	<p>Select the option 'Document-Edit &gt; Edit &gt; Insert &gt; Drawing Object'.</p> <p>The 'Select Drawing Object Type' dialog displays, on which you select the radio button for either a:</p> <ul style="list-style-type: none"><li>• Text Box</li><li>• Rectangle or</li></ul>

	<ul style="list-style-type: none"><li>• Line</li></ul> <p>Click on the OK button; the selected object displays, overlaid on the existing document content. If required, you can change the size of the object by clicking on the border and dragging the small black 'handles'.</p> <p>You can also change the appearance and the relationship of the object to the document text.</p>
Move the frame or drawing object	<p>Click on the outline of the frame or drawing object and then move the cursor just outside the outline so that the cursor changes to a plus-shape.</p> <p>Drag the plus shape (and hence the outline) to the new position.</p>
Edit the border, background and impact on document text of a drawing object	<p>Select the drawing object by clicking on its outline, then select the option 'Document-Edit &gt; Edit &gt; Edit &gt; Edit Frame/Drawing Object &gt; Edit Drawing Object'.</p> <p>The 'Line and Fill attributes' dialog displays.</p> <p>Select the options to define:</p> <ul style="list-style-type: none"><li>• Whether to display a border line and, if so, your preferred border thickness,</li></ul>

	<p>type and color</p> <ul style="list-style-type: none"><li>• Whether the object is transparent or filled and, if filled, the fill color</li><li>• The wrapping behavior of the text outside the object:<ul style="list-style-type: none"><li>- 'Wrap Through' causes the document text to flow through the diagram object so that they overlap each other</li><li>- 'No Wrap' causes the document text to skip over the object, so that the text resumes below the object</li><li>- 'Wrap Around the Object' causes the document text to flow around the object, into a column on one side or the other of the object, or on both sides; if you move the object across the page, the editor tends to leave a wider margin before it starts to wrap text to the left of the object</li></ul></li><li>• The Z Order of the object, so that if there is an overlap the object either lies in front of the document text (Z-order = 1) or behind the document text (Z Order = &gt;1)</li></ul>
Insert text	Click inside the outline and type the text

<p>into the frame, text box or rectangle</p>	<p>at the cursor position. The text wraps at the right hand side of the box and, for a:</p> <ul style="list-style-type: none"><li>• Frame, extends the bottom border of the box</li><li>• Text box and rectangle, overflows the bottom of the box but is still associated with the box and not with the 'normal' text of the document; to enclose all lines adjust the height manually to enclose the text</li></ul> <p>If you change the width of the outline, any text inside the outline is automatically wrapped to adjust to the new width.</p>
<p>Rotate text to display it vertically in the frame or text box</p>	<p>Select the option 'Document-Edit &gt; Edit &gt; Edit Frame/Drawing Object &gt; Rotate Text'. The 'Text rotation' dialog displays; select the radio button for the text direction you want to apply:</p> <ul style="list-style-type: none"><li>• 'Horizontal' (default) - the text flows from the top left corner of the box across the width of the box, wrapping at the right border and scrolling downwards</li><li>• 'Top to Bottom' - the characters are rotated through 90 degrees to flow from the top right corner of the box downward, wrapping at the bottom</li></ul>

	<p>edge of the box and scrolling right to left</p> <ul style="list-style-type: none"><li>• 'Bottom to Top' - the characters are rotated through 90 degrees to flow from the bottom left corner of the box upward, wrapping at the top edge of the box and scrolling left to right</li></ul> <p>If the text is running horizontally, you can type as much as you need - the box height increases to accommodate the text. If the text is running vertically, and it flows outside the box, you adjust the box height and width manually to accommodate your text.</p> <p>Click on the OK button to apply the change.</p>
Insert a picture into a frame or drawing object text box	<p>Click inside the outline and either insert the picture as previously explained, or copy and paste it at the cursor position. If the frame or text box contains only the picture, the picture size is automatically adjusted to as nearly fill the outline as possible without distorting the image. If you change the width or height of the box, the picture is adjusted to completely fill the outline; you continue manually adjusting the outline to reduce the distortion of the image.</p>



<p>Lock a frame or drawing object to a point on the page</p>	<p>You can fix the position of the outline to a specific point so that as you enter and format the text the outline maintains its position relative to that point.</p> <p>The default position is relative to the first character of the paragraph, in which case the outline moves on the page with any change that affects the position of the paragraph.</p> <p>You can also fix the position relative to either the:</p> <ul style="list-style-type: none"><li>• Top edge of the page or</li><li>• Top margin of the page</li></ul> <p>In these cases, if the document text on the page is adjusted it flows past the outline.</p> <p>Click on the outline and select the option 'Document-Edit &gt; Edit &gt; Edit &gt; Edit Frame/Drawing Object &gt; Vertical Base Position' menu option.</p> <p>The 'Object Position' dialog displays. Select the radio button for the locking point you prefer:</p> <ul style="list-style-type: none"><li>• 'Top of the Page'</li><li>• 'Top Margin'</li><li>• 'Current Paragraph'</li></ul> <p>Click on the OK button to apply the lock.</p>

<p>Delete a frame or drawing object</p>	<p>Click on the outline and press the Delete key.</p> <p>The editor prompts you to confirm the deletion; click on the Yes button.</p> <p>This deletion is reversible - press Ctrl+Z or select the option 'Document-Edit &gt; Edit &gt; Edit &gt; Undo'.</p>
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# Checking Text

In developing a document or template, you would probably want to spell-check the text that you have entered; for example, to make sure that 'boiler-plate' text is correct, as it will be used many times in many reports. In the Document Editor you can both spot-correct a word from a context-sensitive list, or run a spell checker over the whole document. You can also check the use of a word against an online thesaurus, to see if there is a more precise term or to check the opposite meaning of the word.

## Access

Ribbon	Document-Edit > Edit > Spell Check > [options]
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## Check Spelling

To	Action
Spot-correct a word	Select the option 'Document-Edit > Edit > Spell Check > Auto Spell Checking'.

	<p>When the 'Auto Spell Checking' option is on, the Document Editor automatically checks the spelling of all typed or pasted text in the document (but not field names or generated text). Words that are apparently spelt incorrectly are underlined in red.</p> <p>Right-click on an underlined word; a short list displays, containing the correct spelling of the assumed word and a selection of other words that this word might have been intended to be. Click on:</p> <ul style="list-style-type: none"><li>• One of the words, to use it in place of the misspelt word</li><li>• The 'Ignore All' option to use the word as it is in this context</li><li>• The 'Add' option to add the word to the suggested list of spellings/other words</li></ul> <p>You might be using a language for which there is no spelling dictionary installed, or text that contains a high proportion of new terms, in which case you might not want to have the auto spell function underlining all the text. You can turn it off by selecting the 'Other   Auto Spell' option again.</p>
Run the spell checker over	Select the option 'Document-Edit > Edit > Spell Check > Spell Check'.

the whole document	<p>The 'Check Spelling' dialog displays, identifying the first apparent spelling mistake in the document.</p> <p>You might want to modify the things that the Spell Checker identifies as errors; click on the Options button to tailor the operation of the checker.</p> <p>Having tailored the spell checker, respond to each of the possible errors that it highlights in your document.</p> <p>When you have acted on all the words presented by the Spell Checker (or clicked on the Cancel button) a status message displays identifying the number of words picked up and the number of those words you have corrected. Click on the OK button.</p>
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## Run Thesaurus

To	Action
Access the Thesaurus	<p>Select a word in the text, then select the option 'Document-Edit &gt; Edit &gt; Spell Check &gt; Thesaurus'.</p> <p>The 'Thesaurus' dialog displays, showing</p>

	<p>the:</p> <ul style="list-style-type: none"><li>• Selected word</li><li>• Word-categories the word belongs to, in the 'Categories' panel</li><li>• List of synonyms for the word within the first category (words that have the same meaning as the selected word) in the 'Synonyms' panel</li></ul> <p>If there are several categories, click on each one to display the synonyms within each category.</p>
Display antonyms	<p>If you want to display the antonyms for the word (the opposite meanings of the word), select the Antonyms checkbox.</p> <p>The Antonyms title displays in the Categories panel, with the word-categories for the opposite of the selected word listed underneath.</p> <p>Click on a category name to list the antonyms in that category, in the Synonyms panel.</p>
Check for homonyms	<p>A homonym is a word that sounds similar to another and can be confused with it. For example, 'Sympathy' might be confused with 'Empathy' or 'Symphony'.</p> <p>If you want to check that you have not</p>

	<p>chosen a sound-alike word by mistake, click on the Suggest button.</p> <p>The 'Suggestions' dialog displays, listing possible sound-alike words. If you want to use one of those words, or check for another with the same meaning, click on the Look up button.</p> <p>The 'Thesaurus' dialog refreshes with the new word you have selected.</p>
Search for new terms	<p>If you want to examine a totally different word, in the 'Term' field type the new word and click on the Look up button.</p> <p>The display changes to show the synonyms (and antonyms) of the new word.</p>
Change to a synonym	<p>Click on a synonym (or an antonym, if required) in the list, and click on the OK button.</p> <p>The word in the text changes to the selection.</p>

# Track Changes

In a team environment, two or more people might work on developing documents and/or templates. You might, therefore, need to review each other's work, or just be able to see what changes another person has made to the file. In the Document editor, you can turn on change tracking to highlight the changes you make to the text.

## Access

Ribbon	Document-Edit > Edit > Edit > Track Changes > [options]
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## Tracking options

To	Action
Turn tracking on	Select the option 'Document-Edit > Edit > Edit > Track Changes > Enable Tracking'. Any changes made after Tracking is turned on are immediately highlighted:



	<ul style="list-style-type: none"><li>• Inserted text - printed in a different color</li><li>• Deleted text - struck through with a single colored line</li><li>• Formatting changes - indicated by a colored dotted underline</li></ul> <p>A change bar is also inserted in the page or column margin to indicate the line on the page on which the change was made.</p> <p>If you mouse over a highlighted change, a tool-tip displays the type of change, the name of the person who made the change, and the date and time the change was made.</p>
Turn tracking off	<p>Select the option 'Document-Edit &gt; Edit &gt; Edit &gt; Track Changes &gt; Enable Tracking' again.</p> <p>Any changes made after Tracking was turned on remain highlighted, but changes made after tracking was turned off are not highlighted.</p>
Hide changes	<p>If you want to review the document as it is, without the highlighted changes, but you do not want to lose the changes or highlighting, select the option 'Document-Edit &gt; Edit &gt; Edit &gt; Track Changes &gt; Hide Changes'.</p>

	<p>The highlighted additions and deletions are hidden, and the remaining text closes up. Format changes are not hidden.</p> <p>To expose the hidden changes, click on the option 'Document-Edit &gt; Edit &gt; Edit &gt; Track Changes &gt; Hide Changes' again.</p>
Locate changes	<p>Select the option 'Document-Edit &gt; Edit &gt; Edit &gt; Track Changes &gt; Find Next Change' or 'Document-Edit &gt; Edit &gt; Edit &gt; Track Changes &gt; Find Previous Change' to search the text and place the cursor on the next or previous change made, respectively.</p>
Respond to change	<p>If you want to assess each change and act on your decision, select the option:</p> <ul style="list-style-type: none"><li>• 'Document-Edit &gt; Edit &gt; Edit &gt; Track Changes &gt; Accept Change' to confirm the change, or</li><li>• 'Document-Edit &gt; Edit &gt; Edit &gt; Track Changes &gt; Reject Change' to reverse the change to the original text or format</li></ul> <p>In either case, the change tracking markings are removed. You can make further changes if necessary.</p>
Accept all changes	<p>If you are not assessing each change, for example if you just want to see what a</p>

	<p>colleague has done before making your own changes, you can accept all changes across the document in one action.</p> <p>Select the option 'Document-Edit &gt; Edit &gt; Edit &gt; Track Changes &gt; Accept All Changes'.</p>
Reject all changes	<p>If you are not assessing each change, but just want to reverse all changes across the document in one action, select the option 'Document-Edit &gt; Edit &gt; Edit &gt; Track Changes &gt; Reject All Changes'.</p> <p>A prompt displays for you to confirm the action; click on the Yes button.</p> <p>You might do this if, for example, you or a colleague have edited the wrong version of a document or acted on a technical change that was itself reversed.</p>

# Protect Document Contents

When you have created a document, or some important text within a document, you might want to protect it from being edited or deleted so that it is safe from accidental change.

The Document Editor defaults to locking against protection, so you first turn off the lock and then protect either the whole document or a selected block of text. Once protection is set, neither you nor any other user can change the text without specifically removing the protection.

## Access

Ribbon	Document-Edit > File > Manage > Text Selection Lock Document-Edit > Font > Font > Protect Document-Edit > File > Manage > Protect Document
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## Protect text

To	Action

<p>Enable text protection</p>	<p>By default, the Text Selection Lock is enabled.</p> <p>Select the option 'Document-Edit &gt; File &gt; Manage &gt; Text Selection Lock' to disable this option.</p> <p>You can now set protection on your text.</p> <p>To re-enable the protection lock and prevent protection of further text, select the option 'Document-Edit &gt; File &gt; Manage &gt; Text Selection Lock' again.</p> <p>The text that you have already protected, however, remains protected and cannot be edited until you or another user specifically removes the protection. You cannot remove protection from this text until you turn off the protection lock again.</p>
<p>Protect text</p>	<p>Highlight the line, block or section of text to be protected, and select the option 'Document-Edit &gt; Font &gt; Font &gt; Protect'.</p> <p>The selected text is displayed in a gray font, and cannot be edited.</p> <p>If the menu option is unavailable, or the text is not faded, it means that you have not removed the protection lock.</p> <p>To release the text for editing again, highlight it and reselect the option 'Document-Edit &gt; Font &gt; Font &gt; Protect'.</p>

	You can select and release a portion of the protected text; the remainder stays protected.
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## Protect a document

Within the document or template, select the option 'Document-Edit > File > Manage > Protect Document'.

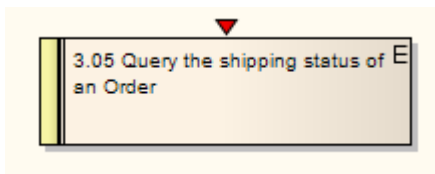
The entire document is protected.

An exception is protecting a template in the Document Template Designer. As you select checkboxes in the 'Sections' panel, section markers are still added to the 'Content' panel. You cannot, however, add fields or text between the markers.

To release the document for editing again, reselect the option 'Document-Edit > File > Manage > Protect Document'.

# Bookmarks

A bookmark is a visual clue that something is different about an element; it is represented by a small red triangle (or red Delta symbol) that displays above the element in the diagram or Model Search.



You can assign any meaning to the bookmark as is appropriate to your model.

You can bookmark:

- Single elements manually, or
- All elements in a Package automatically when they assume a defined status

## Bookmark Options

Option	Action
Bookmark a selected element in a diagram	Either: <ul style="list-style-type: none"><li>• Press Shift+Space, or</li><li>• Select the 'Design &gt; Element &gt; Edit &gt; Bookmark' ribbon option</li></ul>

Clear a bookmark on a selected element	Use either of the two options again.
Bookmark Multiple Elements in a Package	<p>Project Browser   Right-click on Package   Contents   Bookmarks</p> <p>The 'Manage Bookmarks' dialog displays, which you can use to automatically bookmark any elements (and, if required, their children) in the Package that have:</p> <ul style="list-style-type: none"><li>• New changes defined in the Maintenance window</li><li>• New defects defined in the Maintenance window, and/or</li><li>• Test scripts defined in the Testing window</li></ul> <p>This is useful to highlight elements that have additional project information.</p>
Clear all elements of bookmarks	<p>To clear all bookmarks:</p> <ul style="list-style-type: none"><li>• Throughout the current Package, click on the Clear All button on the 'Manage Bookmarks' dialog</li><li>• In the current diagram, select the bookmarked elements and then press Shift+Space</li></ul>



## Notes

- You should reload the project to update it with the new or cleared bookmarks
- The Find in Project window provides the facility to search based on bookmarked elements

