



Enterprise Architect

User Guide Series

Building Models

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Table of Contents

Building Models	9
Views	10
Add Views	11
Rename Views	12
Delete Views	13
Packages	14
Add a Package	15
Open Package in the Project Browser	17
Rename a Package	18
Copy a Package	19
Drag a Package Onto a Diagram	21
Show or Hide Package Contents	22
Delete a Package	23
Model Wizard	24
Templates	27
Customize Model Content	31
Diagrams	33
Diagram View	34
Format Toolbar	36
Context Filter a Diagram	39
The Pan & Zoom Window	40
Diagram Tabs	41
Switch Between Views	43
Diagram Toolbox	45
Toolbox Appearance Options	49
Toolbox Shortcut Menu	52
Add Multiple Elements	54
Common Page	57
Use Case Toolbox	59
Class Toolbox	60
Object Toolbox	62
Composite Toolbox	63
Communication Toolbox	64
Interaction Toolbox	65
Timing Toolbox	66
State Toolbox	67
Activity Toolbox	68
Component Toolbox	70
Deployment Toolbox	71
Profile Toolbox	72
Metamodel Toolbox	73
Analysis Toolbox	74
Custom Toolbox	75
Requirements Toolbox	76
Maintenance Toolbox	77
User Interface Toolbox	78
WSDL Toolbox	80

XML Schema Toolbox	81
Data Modeling Toolbox	82
Test Domain Toolbox	83
XML Transformation Toolbox	84
Set Diagram Properties	85
General Tab	86
Configure Diagram Display	88
Define Element Characteristics	92
Features Tab	94
Connectors Tab	96
Theme Tab	98
Diagram Context Menu	100
Insert Elements and Connectors	103
Advanced Diagram Submenu	104
The Quick Linker	105
Create New Elements	107
Create Connectors	108
Working In Diagrams	109
Add New Diagrams	111
Insert Diagram Properties Note	112
Drop Elements from Project Browser	113
Drop Packages	116
Copy And Paste Diagram Element	117
Z Order Elements	118
Move/Copy Elements To & From Floating Diagrams	119
Move Elements In Diagram Sections	121
Autosize Elements	122
Virtual Connector Ends	123
Locate Related Elements	126
Manage Object Labels	127
Hide/Show Labels	129
Show Realized Interfaces of Class	130
Open Package From Diagram	132
Feature Visibility	133
Undo Last Action	136
Redo Last Action	137
Pan and Zoom a Diagram	138
Diagram Navigation Hotkeys	139
View Last and Next Diagram	140
Change Diagram Type	141
Scale Image to Page Size	142
Set Up Diagram Page	143
Lock Diagram	145
Copy (Duplicate) Diagram	146
Copy Image to Disk	148
Copy Image to Clipboard	149
Delete Diagrams	150
Diagram Filters	151
Work With Diagram Filters	154
Diagram List	158
Layout Diagrams	160

Circular/Elliptical Layout	162
Box Layout	166
Per Page Layout	168
Digraph Layout	170
Spring Layout	171
Neaten Layout	173
Converge/Diverge Layout	175
Fan Relations Layout	177
Auto Route Layout	179
Lay Out a Diagram Automatically	180
Chain Diagram Layouts	184
Swimlanes	186
Swimlane Details	188
Swimlanes Matrix	189
Diagram Legends	192
Create Legends	194
Legend Properties	196
Legend Key	198
Image Assets	202
Using the Image Manager	204
Create Custom Diagram Background	207
Import Image Library	208
Print Preview	210
Elements	211
Element Facilities	212
Create Elements	214
Add Elements Directly To Packages	215
Set Auto Naming and Auto Counters	217
Apply Auto Naming to Existing Elements	219
Set Element Templates Package	222
Set Element Font	225
Move Elements Within Diagrams	227
Copy Elements Between Diagrams	229
Move Elements Between Packages	231
Copy Elements Between Packages	233
Copy Features Between Elements	234
Move Features Between Elements	235
Highlight Context Element	236
Insert Related Elements	238
Make Linked Element a Local Copy	240
Change Element Type	241
Set an Element's Default Appearance	242
Align Elements	244
Resize Elements	246
Create Notes and Text	248
Link Note to Internal Documentation	250
Delete Elements from Diagram and Model	252
Customize Visibility of Elements	254
Set Up Cross References	255
Show Element Use	257
Manage Structural Elements	259

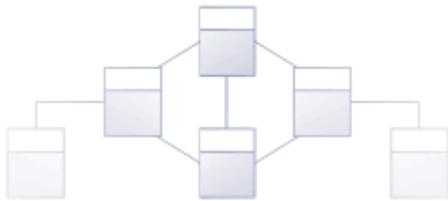
Set Element Parent	261
Composite Elements	263
Show Structural Elements In Composite Diagram	266
Visual Representation	268
Element Icons	269
Compartment	270
Info view Style	271
Element Property Displays	273
Properties Dialog	274
General Settings	276
Details	278
Advanced Properties	280
Requirements	281
External Requirements	283
Constraints	284
Scenarios	286
Structured Specification Tab	288
Set Up Scenario Specification	289
Structured Specification Toolbar	292
Structured Specification Item Context Menu	294
Structured Specification Selected Text Context Menu	296
Structured Specification Entry Points Context Menu	299
Structured Specification Floating Toolbar	301
Generate Diagrams	302
Generate Activity Diagram	304
Generate RuleFlow Diagram	306
Generate State Machine Diagram	307
Generate Sequence Diagram	309
Generate Robustness Diagram	312
Generate Scenario From Activity Diagram	314
Generate Test Cases	316
Context References Tab	318
Scenario Constraints Tab	319
Associated Files	320
Links	322
Templates	323
Properties Window	324
The Element Browser	325
Element Scenarios & Requirements	328
Select <Item> Dialog	330
Select Property Dialog	332
Set Feature Dialog	334
Element Context Menu Operations	335
Advanced Operations on Elements	339
Finding Elements	342
Changing Element Appearance	344
Operations on Multiple Elements	346
Notes	349
Notes Toolbar	352
Linked Documents	353
Create Document Artifact	355

Create Linked Document on an Element	356
The Document Window	358
Edit Linked Documents	360
Replace or Delete Linked Documents	362
Create Linked Document Templates	363
Edit Linked Document Templates	365
Hyperlink From Linked Document	367
Create Element From Document	368
Connectors	369
Connector Management Options	370
Connector Type-Specific Options	371
Manage Connector Properties	373
Advanced Connector Management Options	374
Connector Style Options	375
Connector Appearance Options	376
Connector Tasks	377
Connect Elements	378
Connect to Element Feature	379
Add a Note to a Connector	381
Arrange Connectors	382
Change Connector Type	383
Change the Source or Target Element	384
Connector Styles	385
Create Connector in Project Browser	388
Relationship Visibility	389
Hide/Show Connectors	390
Delete Connectors	392
Generalization Sets	393
Connector In-place Editing Options	394
Reverse Connector	395
Set Association Specializations	396
Change Sequence Message Scope	397
Show Uses Arrow Head	398
Tree Style Hierarchy	399
Connector Properties	401
Connector Advanced	403
Connector Tagged Values	404
Source and Target Role	405
Connector Constraints	408
Binding	409
Tagged Values	410
Quick Start - Add Tagged Value To Elements	412
Assign a Tagged Value to an Item	413
Assign Notes to a Tagged Value	414
Modify Tagged Values	415
Show Duplicate Tags	417
Advanced Tag Management	418
Attributes	420
Create and Manage Attributes	422
Attribute Details	425
Create Properties	427

Attribute Tagged Values	429
Attribute Constraints	430
Display Inherited Attributes	431
Create Object From Attribute	433
Classifiers and Instances	434
Classify an Object	435
Add Property Slots to Instance	436
Classify Object Via Classifier Associations	437
Behavior	439
Operations	440
Define Properties of Operations	442
Operation Details	445
Operation Behavior	447
Initial Code	450
Redefine Operation and Check for Exceptions	451
Operation Constraints	453
Operation Tagged Values	455
Override Parent Operations	456
Display Inherited Operations	457
Interactions and Activities	459
Behavior Calls	460
Associate with Different Behaviors	461
Synchronize Arguments	462
Behavior Call Arguments	463
Behavior Parameters	464
Define Parameters	465
Parameter Tagged Values	467
Operation Parameters by Reference	468
Hyperlinks	469
Hyperlink Target Objects	473
Hyperlinks Between Diagrams	476
In-place Editing Options	478
In-place Editing Tasks	479
Edit Element Item Name	482
Edit Feature Stereotype	483
Edit Feature Scope	485
Edit Attribute Keyword	487
Edit Operation Parameter Keyword	488
Edit Parameter Kind	489
Edit Custom Compartment	490
Insert New Feature	491
Insert Operation Parameter	492
Insert Maintenance Feature	493
Insert Testing Features	495
Non-printable Elements	497
Model Glossary	498
Project Glossary View	499
Glossary Styles	501
The Glossary Dialog	504
Generate a Report	506
Glossary Report Output Sample	507

Editing Documents and Templates	508
File Control	510
Editor Display Options	513
Styles, Special Text & Table of Contents	515
Manage Page Counting	519
The Normal.rtf Style Template	520
Scroll, Search and Select Text	521
Format Text	524
Create Tables	527
Format Paragraphs	532
Define Document Sections	535
Set Tabs	537
Manage Page Breaks	539
Insert Headers, Footers, Footnotes and Endnotes	540
Insert Hyperlinks	544
Insert Images, Objects and Frames	545
Checking Text	549
Track Changes	551
Protect Document Contents	553
Spell Checking	555
Select Spell Checker Options	556
Use Languages Other Than English	558
Using the Spell Checker	559
Correcting Words	560
Bookmarks	561

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

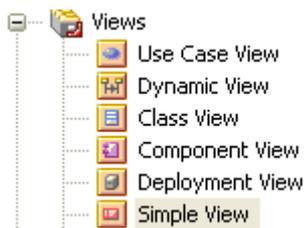
The top-level Packages in a model (below the project root nodes) can be created as Views, which are simply used to structurally partition and extend the model according to specific requirements and modeling techniques, such as Component View or Dynamic View. These Views have the same concept as the Simple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

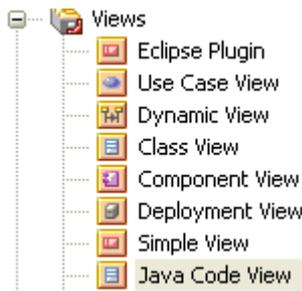
- Use Case View - containing Use Case diagrams and Analysis diagrams
- Dynamic View -containing Activity diagrams, Communication diagrams, Sequence diagrams and State Machine diagrams
- Class View - containing Class diagrams, Code Engineering and Data Models
- Component View - containing Component diagrams
- 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

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

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

Create a View

Field/Option/Button	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	If the model root node is under version control, this checkbox displays, defaulted to selected. If you do not want the new View to also be under version control, deselect the checkbox.
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	If you have selected the 'Confirm Deletes' option in the Project Browser section of the 'Tools Options General' dialog page, the system displays a warning that child elements are to be deleted. <ul style="list-style-type: none">• To delete the View and its contents, click on the Yes button.• To cancel the deletion, click on the No button.

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, hierarchical models can be constructed 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. They 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 **Baselines**, **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, Business and Software Engineering, Systems Engineering 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 > New
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

Field/Option/Button	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, overtype 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 Only	Select this radio button if you want to just 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	Click on this button to create the Package in the Project Browser . If you selected the 'Select and Apply Model Pattern' radio button, the Model

	<p>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
- In a multi-user environment, other users do not see the change until they 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, double-click on the Package name; the element's 'Properties' dialog displays.

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**

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 > Manage > Properties
Menu	Element 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

- Alternatively, highlight the Package to rename, and press **F2**
- 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	<p>In the Project Browser, right-click on the Package and select the 'Copy / Paste Copy Package to Clipboard' option (or click on the Package and press Ctrl+C).</p> <p>The 'Copy 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"> • A Package with the same name as the pasted Package, the pasted Package name has the suffix - Copy • 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 the Package accumulate in the target parent Package) <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"> • Clicking twice on it and editing the name in the Project Browser, or • Double-clicking on it and editing the name in the 'Properties' dialog

Notes

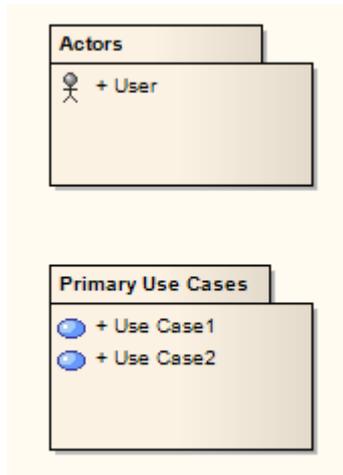
- You cannot paste a Package into a parent Package that is locked by another user or that is checked in; the 'Paste...' option is grayed out in the context menu
- This procedure is effectively the same as exporting and importing the Package XMI file, with the 'Strip GUIDs' checkbox selected

- 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 'Options' dialog
- You can also move a Package to a different part of the model, in the same way as moving an element

Drag a Package Onto a Diagram

You can drag a Package element from the **Project Browser** onto the current diagram, to show an icon of the Package containing a list of the Package contents. This is a useful feature to help organize the display and documentation of models.

In this illustration, note the child Actor and Use Case icons.



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 > Manage > Properties > Elements
Menu	Diagram 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 .

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** 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 has three tabs:

- **Model Patterns** - from which you can create basic models that you can develop further as components of your project
- **Application Patterns** - from which you can generate starter projects including model information, code and build scripts for one of 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**

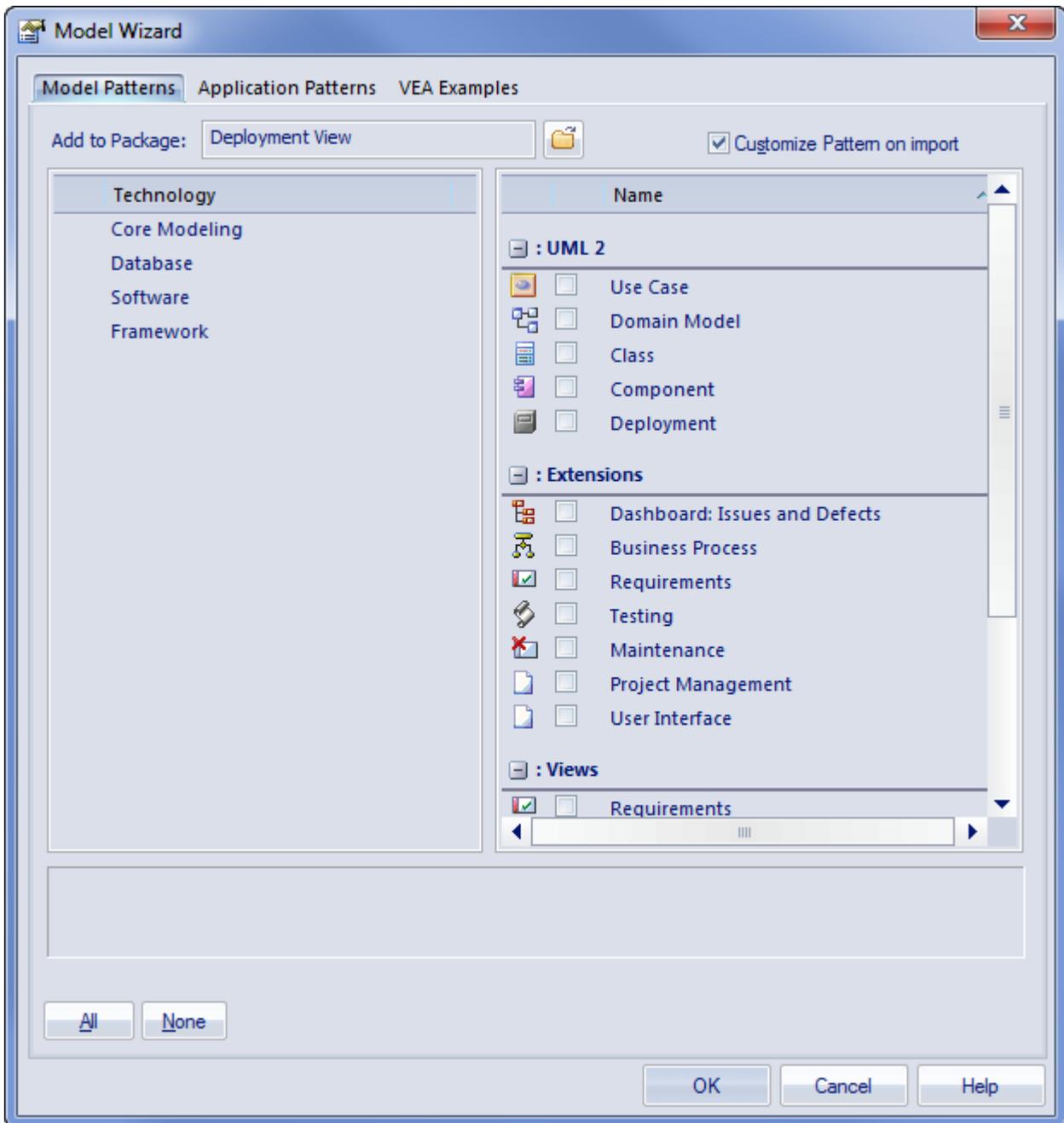
This description covers the use of the 'Model Patterns' tab. See the *Learn more* list for links to information on the other two tabs.

Access

Automatically displays when creating a new project; otherwise

Ribbon	Design > Package > Model Wizard
Menu	Package New
Context Menu	Right-click on Package Add a Model using Wizard
Keyboard Shortcuts	Ctrl + Shift + M
Other	Project Browser caption bar menu > New Model from Pattern

Generate a New Model



Field/Button	Action
Add to Package	<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 OK button, 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>

	If you do not select the checkbox, all Packages in each Pattern will be imported into the model.
Technology	<p>Lists the technologies integrated with or imported into Enterprise Architect, which provide Model Patterns specific to the technology.</p> <p>If you are a Technology Developer, you can create and import your own MDG Technology and distribute custom Model Patterns from that technology, through the Model Wizard; the name of your technology displays in this list for your users to select to access the technology Patterns.</p> <p>You can also use the Model Wizard to create these MDG Technologies, by selecting the Framework technology and the MDG Technology Builder patterns. These create a Model Package containing templates that you can use to generate the technology and a set of Profiles.</p> <p>Click on the required technology to list the associated Model Patterns in the 'Name' panel.</p>
Name	<p>Lists the Model Patterns provided by the selected technology.</p> <p>For example, the Core Modeling technology supports core UML modeling for:</p> <ul style="list-style-type: none"> • Basic UML 2 - Model Patterns for general purpose, 'diagram type' UML modeling, generating extensive model structures • Extensions - Model Patterns for the extended application of UML modeling • Simple UML Views - Model Patterns for 'view' oriented modeling, generating an appropriate Package with an empty diagram, eliminating the need to delete unwanted sections of boilerplate structure These are slightly different from the basic Views that you can create instead of Model Packages, under the model root node <p>Click on the check box for each model type you want to create in your project.</p>
All	Click on this button to select all of the Model Patterns listed in the 'Name' panel.
None	Click on this button to clear all Model Patterns selected in the 'Name' panel.
OK	<p>Click on this button to generate the model structures for your project.</p> <p>The structures are added to the Project Browser and can be expanded and worked on immediately.</p>
Cancel	Click on this button to abort the creation of model structures.

Notes

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

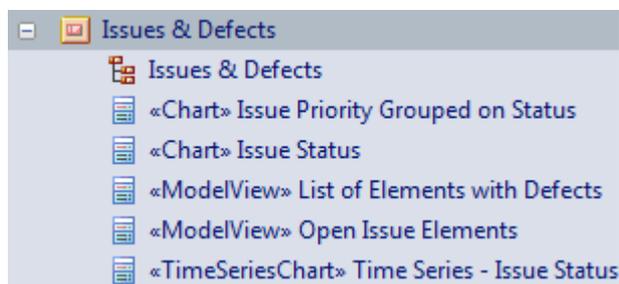
Templates

Model templates generated by Enterprise Architect are designed to assist in the creation of projects and models for both new and experienced users.

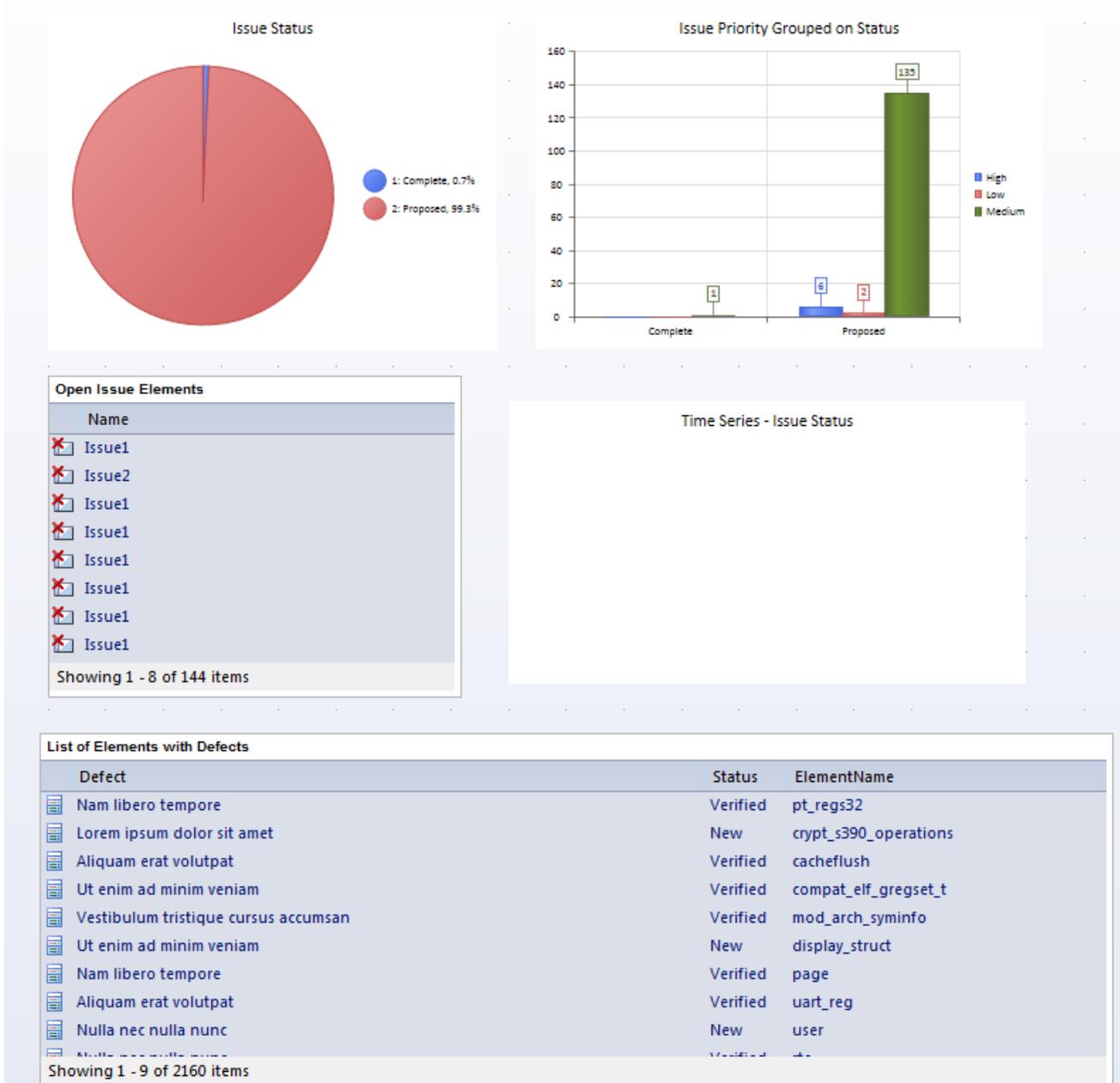
The templates are provided through the **Model Wizard**, for a wide range of model types available under the technologies integrated with or imported into Enterprise Architect; for example, Basic UML 2, Core Extensions, BPMN, SysML, ArcGIS, NIEM 3 and Database Engineering.

Each template provides a framework of Packages, diagrams, representative elements and connectors on which to build a model appropriate to your purpose. These can include overview diagrams that provide an introduction to the terminology and icons used in the model templates, and a quick guide to the concepts important to the templates and how they are applied in Enterprise Architect. This information can be provided either in Note elements or via hyperlinks to the Enterprise Architect Help and Sparx Systems or external resources.

In this illustration, the 'Dashboard: Issue Elements & Defects' template has been selected from the Core Modeling technology. It generates a skeleton model in the **Project Browser** and a set of charts for reporting on Issues and Defects in the model, ready to key into your project structure.



Dashboard - Issue Elements & Defects



Template Groups

Templates are available for a number of model types and to support various project activities. In the **Model Wizard** they are grouped according to type or activity under the technology that provides them. This table describes some of the technologies and groups from which you can select one or more templates; to be listed in the Model Wizard, the technology must be enabled in the 'Extensions | MDG Technologies' dialog.

Technology	Grouping and Templates
Core Modeling	Provides templates for the core UML models, for extensions of these models, and for the alternative Views of the model structures. As examples, these groups contain templates for: <ul style="list-style-type: none"> UML 2 Class, Use Case and Component models

	<ul style="list-style-type: none"> • Dashboard, Business Process, User Interface and Requirements extensions • Analysis, Dynamic and Logical Views <p>There is some overlap between the types, allowing you to address similar modeling concepts in a different type of structure.</p>
BPMN	<p>Provides a set of BPMN model templates for whichever version of BPMN you have loaded. For example, for BPMN 2.0 the templates are:</p> <ul style="list-style-type: none"> • BPEL 2.0 • Business Process • Choreography • Collaboration and • Conversation
SysML	<p>Provides a set of SysML model templates for whichever version of SysML you have loaded. For example, for SysML 1.4 the templates are:</p> <ul style="list-style-type: none"> • Primitive Value Types library • Unit and Quantity Kind library • Control Values library
Business	<p>Can hold several groups of templates, depending on which business modeling technologies you are using. Provides templates for:</p> <ul style="list-style-type: none"> • Business Rules • Archimate • Data Flow Diagrams • Erikson-Penker diagrams • Mind Mapping • Strategic Modeling • UMM 2.0 • Web Modeling • Whiteboard diagrams
Database	<p>Holds templates for all the supported DBMSs that you might want to create a data model for. It also provides an Entity Relationship Diagram template.</p>
Software	<p>Holds templates for modeling user/software interfaces, such as for Win 32 UI, SPEM and Wireframing.</p>
Services	<p>Provides templates for SoaML and SOMF.</p>
Geospatial	<p>Provides templates for ArcGIS and GML.</p>
Frameworks	<p>Holds templates for the range of frameworks and standards that can be integrated with Enterprise Architect, such as:</p> <ul style="list-style-type: none"> • TOGAF • Zachman Framework • GRA-UML • NIEM • NIEM 3.0

	<ul style="list-style-type: none">• ODM• UPCC <p>This technology also provides templates for the MDG Technology Builder, which you can use to create your own technologies.</p>
Others	Currently holds templates for technologies that have not been grouped with the previously-listed sets, such as UPDM 2.0 and UBL.

Learn more

- [Manage MDG Technologies](#)

-

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 > Model Wizard > Select 'Customize Pattern on import' : OK button
Menu	Package New Select 'Customize Pattern on import' : OK button
Context Menu	Project Browser Right-click on a Package node Add a Model using Wizard Select 'Customize Pattern on import' : OK button
Keyboard Shortcuts	Ctrl + Shift + M Select 'Customize Pattern on import' : OK button
Other	Project Browser caption bar menu New Model from Pattern Select 'Customize Pattern on import' : OK button

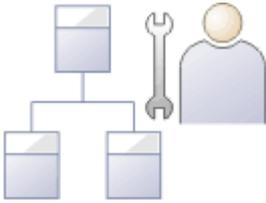
Select Package(s) dialog

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

Notes

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

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 a wide range of other languages and technologies.

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

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

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	Double-click on the diagram name or Select the diagram node and press Enter
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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"> • A horizontal 'chevron' icon to display or hide the Diagram Toolbox; the Toolbox itself is unchanged, whether it is docked, floating, expanded or for the current diagram type, it is simply hidden or displayed If you hide the Toolbox and change to a different diagram type, when you show the Toolbox it is appropriate to the new diagram type but otherwise unchanged • Icon and text label for the diagram type • Diagram name • A vertical 'chevron' icon to display or hide the 'Format' Toolbar • A drop-down arrow that lists the currently-open diagrams; click on: <ul style="list-style-type: none"> - A diagram name to switch to that diagram - Options to redisplay the hidden Start Page, Model Default diagram (if defined) or User Default diagram (if defined) - The window 'close cross'; click on this to close the displayed diagram
Format Toolbar	<p>Underneath the Caption Bar is the Format Toolbar, which you can use to apply a wide range of functions to the format and appearance of the elements in your diagram.</p> <p>You can hide or reveal this toolbar by clicking on the 'chevron' icon in the Caption Bar (third icon from the right).</p>
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</p>

	operate, and where the representation of the model structure can be changed to a Gantt chart or Diagram List format.
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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 the tab containing a diagram into a floating window, using the 'Window' menu
- 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

Format Toolbar

As you add elements and connectors to a diagram, you might want to group or differentiate these objects by adjusting their appearance or position on the diagram, or by filtering the diagram to show only certain elements. You can make a number of changes to an element's appearance and then capture these changes as a named style, which you can then apply to other elements on the same diagram or on a different diagram. All of these options are available through the diagram Format Toolbar, which automatically displays at the top of every diagram.



You can hide or recover this toolbar by clicking on the  or  icons in the Caption Bar at the top of the **Diagram View**.

You can also temporarily display an abbreviated Format Toolbar beside an element or connector. For:

- Elements, select one or more elements on the diagram and click on the 'paintbrush' icon beside the element (and, for multiple selected elements, the  icon)
- Connectors, right-click on the connector; the Format Toolbar appears above the context menu

Options

Option	Action
Set Font	Select this icon to set the text font, style, size and effects for the selected element(s) using the 'Font' dialog.
Text Color	Click on the drop-down arrow to set the text color for the selected element(s). This option overrides the color setting of the 'Set Font' option.
Fill Color	Click on the drop-down arrow to set the fill color of the selected element(s). This setting takes precedence over all other fill color settings, such as default appearance, Template element appearance, stereotype default color and Shape Script color. If you set the fill color to Default and the element has a stereotype with a fill color defined, the element takes the stereotype default rather than the Standard Color default.
Line Color	Click on the drop-down arrow to set the line color of the selected connector or the border of the selected element. This setting overrides any line color set through the element 'Default Appearance' or 'Connector Appearance' dialogs.
Line Width	Use the 'spinner' arrows to set the line width of the selected connector or the border of the selected element; choose a value between 1 (thinnest) and 5 (thickest).
Apply Style	Click on this icon to apply a style to the selected elements or connector. The style is either: <ul style="list-style-type: none"> • Captured using the 'Get Style' option or • The style currently displayed in the 'Style List' field
Get Style	Select this icon to capture the current style of the selected element or connector.

Style List	<p>Click on the drop-down arrow and select a style from the list, to immediately apply to the selected elements or connector.</p> <p>To save a style to this list, use the 'Save Style' option.</p>
Save Style	<p>Having selected an element or connector, click on the down arrow and select the appropriate option:</p> <ul style="list-style-type: none"> • 'Save as New Style' - save the style of the element or connector to the 'Style List' as a new style; type the name of the style when prompted to do so • 'Save Style' - save the (updated) style of the selected element or connector under its current style name in the 'Style List' • 'Refresh List' - refresh the 'Style List' with any changes to the existing styles • 'Delete Current Style' - delete the defined style of the selected element or connector from the 'Style List'
Align Left	<p>(Activated when multiple elements are selected.)</p> <p>Click on this icon to align the selected elements on the left border of the last-selected element.</p> <p>Shortcut: Ctrl+Alt+Left Arrow</p>
Align Right	<p>(Activated when multiple elements are selected.)</p> <p>Click on this icon to align the selected elements on the right border of the last-selected element.</p> <p>Shortcut: Ctrl+Alt+Right Arrow</p>
Align Tops	<p>(Activated when multiple elements are selected.)</p> <p>Click on this icon to align the selected elements on the top edge of the last-selected element.</p> <p>Shortcut: Ctrl+Alt+Up Arrow</p>
Align Bottoms	<p>(Activated when multiple elements are selected.)</p> <p>Click on this icon to align the selected elements on the bottom edge of the last-selected element.</p> <p>Shortcut: Ctrl+Alt+Down Arrow</p>
Bring to Top	<p>Click on this icon to move the selected element(s) in front of other elements; that is, to the top of the Z order.</p>
Send To Back	<p>Click on this icon to move the selected element(s) behind other elements; that is, to the bottom of the Z order.</p>
Layout Diagram	<p>Click on the drop-down arrow and select a layout to auto-layout the diagram in that arrangement.</p> <p>You can also filter a standard layout to arrange the elements according to a selected characteristic. To do this, click on the 'Configure Layouts' option in the drop-down list.</p>
Diagram Properties	<p>Click on this icon to display the diagram 'Properties' dialog.</p> <p>Shortcut: F5</p>
Delete Selected	<p>Click on this icon to delete the selected element(s).</p> <p>Shortcut: Ctrl+D</p>

<p>Filter diagram elements by Name</p> <p>Context Filter</p>	<p>Use this field and icon to filter the elements in the diagram simply according to name or alias. (A more comprehensive diagram filtering facility is also available, through the Diagram Filters window.)</p> <p>To activate the field, click on the 'Context Filter' icon. If this icon is not selected, the field remains grayed out. If you:</p> <ul style="list-style-type: none"> • Do not type any text in the field, you can filter the diagram to show all elements related to a selected element • Type text, the diagram is filtered according to the text and settings as described here <p>Type the first few characters or all of the text string that forms the name of the elements to show normally. All elements that do not have names that match this string are grayed out.</p> <p>For example, if you type REQ, all elements with a name beginning with REQ are visible, whilst all other elements are grayed out.</p> <p>By typing in the full name of an element, you can mute everything on the diagram except that one element, thereby showing exactly where it is on the diagram.</p> <p>The filter also searches on aliases if the 'Use Alias if Available' option is set on the diagram properties 'Diagram' tab. If the 'Alias only' option is set on the 'Options > Diagram Behavior' page, the filter is on the alias text instead of the name, and if the 'Alias and Name' option is set, the filter shows elements that have the text string in either the alias or name.</p>
<p>Add or Remove Buttons</p>	<p>Click on the drop-down arrow at the far right of the toolbar to:</p> <ul style="list-style-type: none"> • Display or hide icons currently defined for the toolbar, or • Customize the toolbar to include other icons, to initiate commands found on other toolbars or totally new commands <p>(As an example, ten options on the Format toolbar are also found on the Diagram toolbar, which contains other options that could be duplicated here).</p>

Notes

- To set the global appearance of all elements throughout a model, use the 'Options' dialog; select the 'Tools | Options' menu option, then select 'Standard Colors' and 'Diagram | Appearance' from the options tree
- To override the global appearance and define a default appearance of a selected element (or several selected elements) on all diagrams on which it occurs, set the Default Appearance for that element; right-click the element and choose the 'Appearance | Default Appearance' option

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 background > Context Filtering Show > Window > Diagram Filters : right-click background > Context Filtering
Menu	Diagram > Visual Filters : right-click background > Context Filtering
Context Menu	Right-click diagram background > Context Filtering

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 **Esc**
- 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 background or 'Diagram Filters' window, it overrides the Diagram Filters settings; to use the Diagram Filters again, toggle the 'Context Filtering' option off
- When you enable the option using the diagram Format Toolbar, it activates the '**Filter** Diagram elements by Name' field; if you type text in that field the diagram is filtered according to the text value, but if you leave the field blank the diagram can be filtered according to the relationships of each selected element
- 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

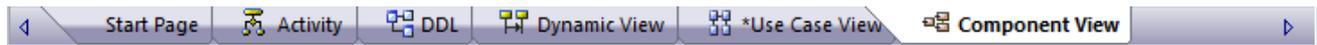
Ribbon	Layout > Tools > Pan and Zoom
Menu	Diagram Pan & Zoom
Keyboard Shortcuts	Ctrl + Shift + N

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	<p>The toolbar provides these functions (in order):</p> <ul style="list-style-type: none"> • Zoom In • Zoom Out • Zoom to fit diagram • Zoom to fit page • Zoom to 100% • Zoom Slider
Use	<p>Open the required diagram.</p> <p>Move the cursor onto the shaded box inside the Pan & 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 diagram 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 'Visual Styles' 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>'	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. This also refreshes the diagram or view from the repository, to show any changes made by other users in a shared model.
Float	Select this option to convert the diagram or view into a floating window that you can move around your screen(s). An alternative is to simply click on the selected tab and drag it off the 'Diagram Tabs' row. You could use this option to display and work on several diagrams at the same time. To restore a floating view to a tab in the Diagram View , right-click on its Caption Bar and select the 'Tabbed Document' option.
Close '<tab name>'	Select this option to close the selected diagram or view; the system prompts you to save any changes. You can also close the tab by clicking the middle mouse button/scroller.

Close All	Select this option to close all open diagrams and views; the system prompts you to save any unsaved changes.
Close All Except '<tab name>'	Select this option to close all diagrams and views except for '<tab name>'; the system prompts you to save any unsaved changes.
Close All <view type>	(Where several views of the same type can be opened at the same time, such as diagrams, report documents, or text editors.) Select this option to close all views of the same type as the selected tab, leaving views of other types still open.
Hide	(Start Page only) Select this option to hide the Start Page. To redisplay the Start Page, use the drop-down menu at the top right of the Diagram View , or select the 'Window Show Start Page' menu option.

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

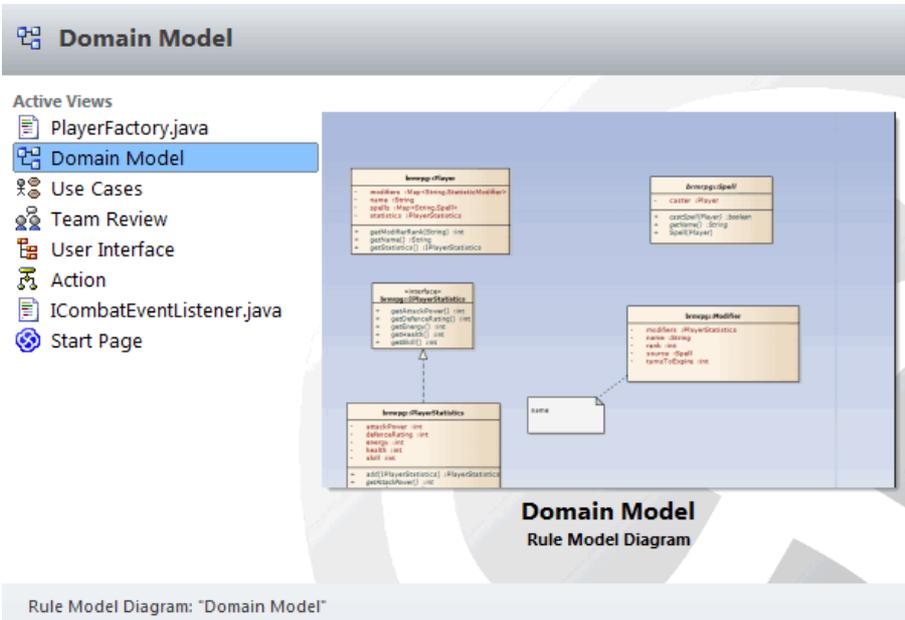
Switch Between Views

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
<p>Selecting a different view</p>	 <p>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.</p> <p>Details of the selected view are displayed on the right hand side of the screen, and include:</p> <ul style="list-style-type: none"> • A preview thumbnail of the view, and • A description of the view and its contents <p>Continue holding the Ctrl key to keep the window open; to move the selection cursor:</p> <ul style="list-style-type: none"> • Down the list of views, press the Tab key • Up the list, press the Shift+Tab keys

	Alternatively, use the arrow keys.
Activating a view	<p>To activate a view in the Diagram View, either release the Ctrl key or press the Enter key; alternatively, click the left mouse button 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.

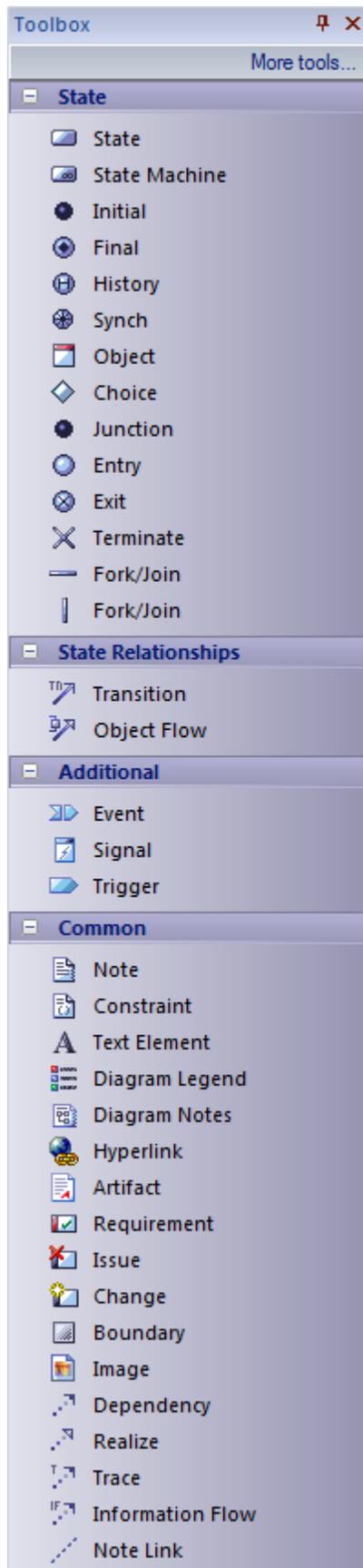
Within the Toolbox, related elements and connectors are organized into pages, each page containing the elements or connectors used for a particular type of diagram. The diagrams include standard UML diagrams, Enterprise Architect Extended diagrams, and diagrams customized for any MDG Technologies and 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, though some combinations might not represent valid UML.

Access

Ribbon	Design > Diagram > Toolbox
Menu	Diagram > Toolbox
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



Options

Option	Detail
Display specific pages	<p>To display specific pages in the Toolbox, click on the More Tools button at the top of the Toolbox and then on either the 'UML' or 'Extended' menu option, or on one of the customized/MDG options.</p> <p>The 'UML' option lists the 13 standard UML diagram types; select one of these to display the Toolbox pages for that type.</p> <p>The 'Extended' option lists a number of diagram types or model types that have been extended from the core UML types. Select one of these to display the Toolbox pages for that type.</p> <p>A number of pages might display, but these generally include:</p> <ul style="list-style-type: none"> • <type> Elements • <type> Relationships • Common and • Artifacts <p>If you select the <default> option, you display only the 'Common' page.</p>
Customize the Toolbox	You can customize the Toolbox display by pinning pages within the Toolbox, or by adding MDG Technologies and UML Profiles to the Toolbox.

Create elements and connectors 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, click on More tools and select the appropriate diagram type as explained above.</p>
2	Click on the required item; for example, the Class element or Associate relationship.
3	For element items, click anywhere on the diagram to place the new element.
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 create.</p>
5	Edit the element properties or connector properties, as required.

Notes

- Dropping a Package element 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 from the Toolbox onto the unstereotyped element in the diagram; for example, you can stereotype a Class by dragging a Table element or a Profiled Class element onto it
- As you drag the stereotyped element, 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 element 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.

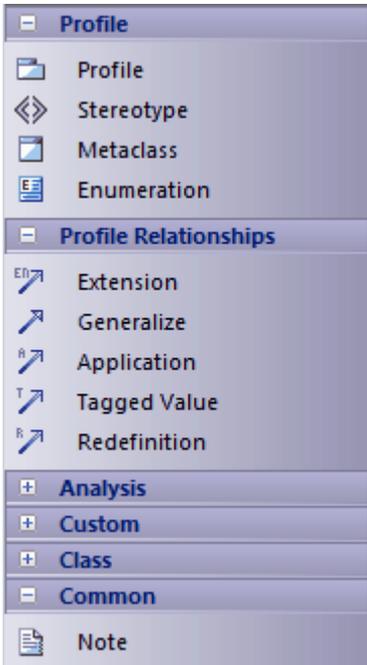
Access

Other	Right-click on a Toolbox page background
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Options

Option	Detail
Hide or Show element or relationship labels	<p>Select the 'Hide Labels' (or 'Show Labels') context menu option. 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>
Pinning pages to display all the time	<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 '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 1.3 Technology the Active technology for your work login.</p>
Unpinning pages	<p>To unpin the page so that it displays only in its own Toolbox group, select the 'Unpin from Toolbox' context menu option.</p>
Collapsing pages	<p>To collapse a page to just show the heading (<type> elements, <type> Relationships or Common), click on the 'minus' box at the left of the page heading; alternatively, right-click on the page and select the 'Collapse the current branch' option.</p> <p>To expand the page again, click on the heading.</p>

Tailor Toolbox to list all required pages at once

Step	Instruction
1	Click on the 'Set Toolbox Visibility' context menu option. The 'Pinned Toolbox Pages' dialog displays.
2	By default, the dialog lists the element pages only, in the order: UML pages, Extended pages, MDG Technology pages. To include the corresponding relationship pages, select the 'Show Relationship Pages' checkbox at the bottom of the dialog.
3	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.
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 into a diagram, you can do so using the 'Toolbox' shortcut menu instead of employing the full graphical Toolbox. The menu provides options to select:

- Elements specific to the current diagram type
- Relationships specific to the current diagram type
- Elements and relationships from any pages pinned in the Toolbox
- Multiple elements at once, of types appropriate to the diagram or selected Toolbox page
- Common elements and relationships
- Elements and connectors for other diagram types

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	<p>Either:</p> <ul style="list-style-type: none"> • Click on the diagram background and press the Insert key or Space bar • Press and hold Ctrl or Shift and right-click on the diagram background • Right-click on the diagram background and select the 'New Element or Connector' option • On the UML Element Toolbar, click on the 'New Element' icon <p>The shortcut menu displays, listing the current diagram-type elements and connectors.</p>
3	<p>If necessary, to list elements and connectors for a different diagram type, select the 'Other', 'Common' or 'Artifact' options, or a pinned Toolbox page option.</p> <p>If you want to create a group of elements in one go, select the 'Create Multiple Elements' option to display the 'Create Multiple Elements' dialog. (Not available if you display the menu using the 'New Element or Connector' context menu option, or the UML Element Toolbar.)</p>
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 final menu in the sequence offers the 'Activate <Type> Toolbox' option at the top; this opens and activates the corresponding page in the Toolbox, if the Toolbox is visible.</p>

Notes

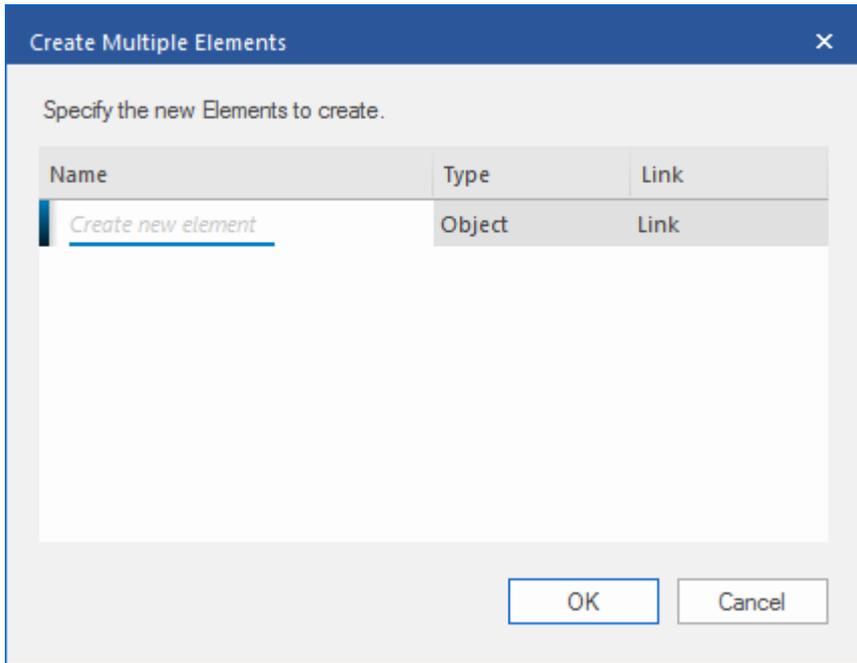
- As with the Toolbox itself, if an MDG Technology:
 - Is active
 - Automatically pins Toolbox pages, and
 - Duplicates UML or Extended pages

The pinned Technology pages override and replace the pinned UML or Extended pages in the initial 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:

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

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	In the 'Type' column, click on the drop-down arrow at the right of the field and select the required element type. 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).
3	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. 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.
4	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. 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.
5	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. 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. 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).
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

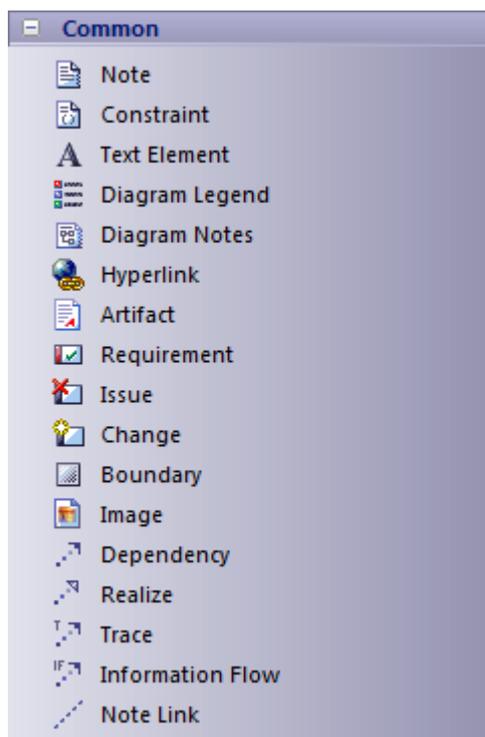
Right-click on an item in the list, to display the context menu.

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	<p>Place the selected element name in Edit mode, to be typed over with a different name.</p> <p>You can also change the name, element Type and 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 Names 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

Elements	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 border 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	A Requirement element captures the details of a system requirement.
 Issue	An Issue element represents an item of concern (that may or may not occur) or a failure to meet a defined requirement in the current system.
 Change	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.
 Boundary	A System Boundary element is a non-UML element used to define conceptual boundaries.
 Image	An Image is a System Boundary element that has automatically has a Alternate Image defined.

Common Connectors

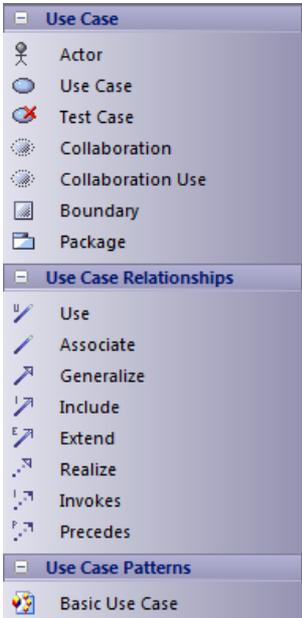
Connectors	Description
 Dependency	Dependency relationships are used to model a wide range of dependent relationships between model elements.
 Realize	A source object implements or Realizes its destination object.
 Trace	The Trace relationship is a specialization of an Abstraction, connecting model elements 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.

Use Case Toolbox

The Use Case Toolbox is 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"> • Invokes indicates that Use Case A, at some point, causes Use Case B to happen • Precedes indicates that Use Case C must complete before Use Case D can begin <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 <name> to Diagram' dialog and click on the OK button).</p>

Notes

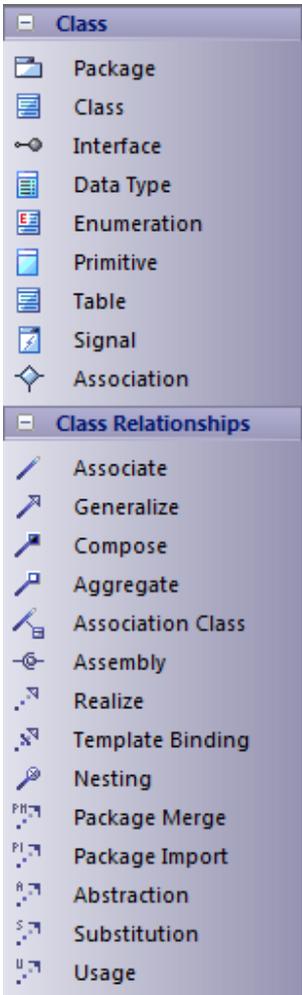
- To add an element to the currently-open diagram, click on the appropriate icon and drag it into position on the diagram; set an element name and other properties as prompted
- To add a relationship, click on the appropriate icon, then click on the start element in the diagram and drag to the end element

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 UML Elements and UML Connectors 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 complex relationships between three or more elements.</p>

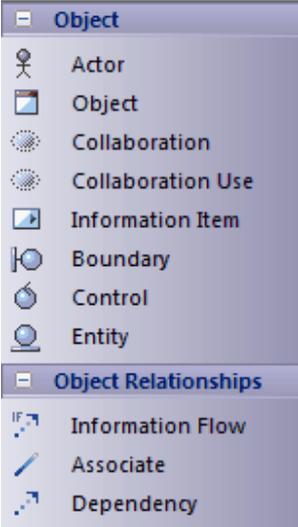
Notes

- 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>

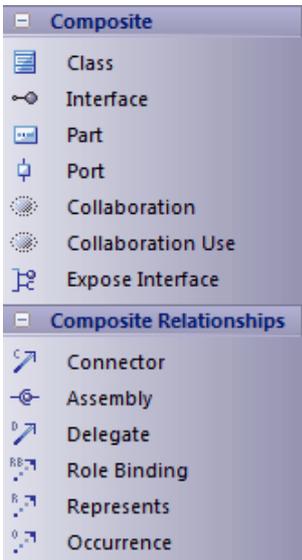
Notes

- 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>The screenshot shows a vertical list of UML elements and relationships in a toolbox. The elements are grouped into two sections: 'Composite' and 'Composite Relationships'. The 'Composite' section includes Class, Interface, Part, Port, Collaboration, Collaboration Use, and Expose Interface. The 'Composite Relationships' section includes Connector, Assembly, Delegate, Role Binding, Represents, and Occurrence. Each element is accompanied by a small icon representing its UML symbol.</p>	<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

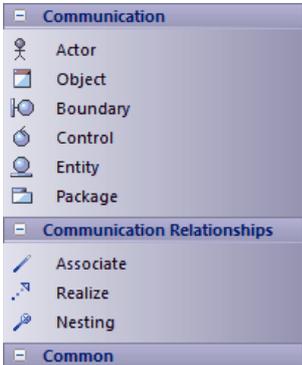
- To add an element to the currently-open diagram, click on the appropriate icon and drag it into position on the diagram; set an element name and other properties as prompted
- To add a relationship, click on the appropriate icon, then click on the start element in the diagram and drag to the end element

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 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>

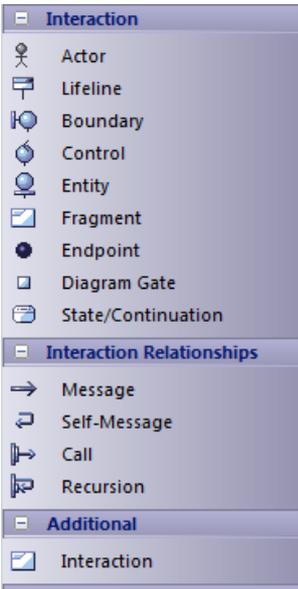
Notes

- 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

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 knowledge in a system.</p>

Notes

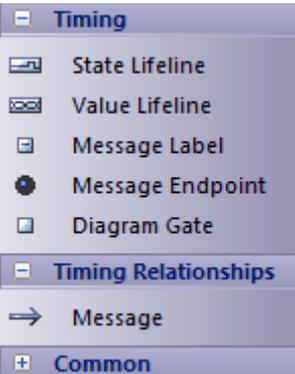
- The Interaction element supports the capture of Interaction diagrams through the **Project Browser** and diagram context menus; you cannot capture these diagrams by dragging the element onto a diagram
- The 'Fragment' icon creates Combined Fragment elements
- Message, Self Message and Call are described 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>The screenshot shows a vertical list of toolbox items. At the top is a 'Timing' folder icon. Below it are: 'State Lifeline' (lifecycle line icon), 'Value Lifeline' (lifecycle line with value icon), 'Message Label' (message line icon), 'Message Endpoint' (circle icon), 'Diagram Gate' (square icon), another 'Timing Relationships' folder icon, 'Message' (arrow icon), and 'Common' (plus icon).</p>	<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>

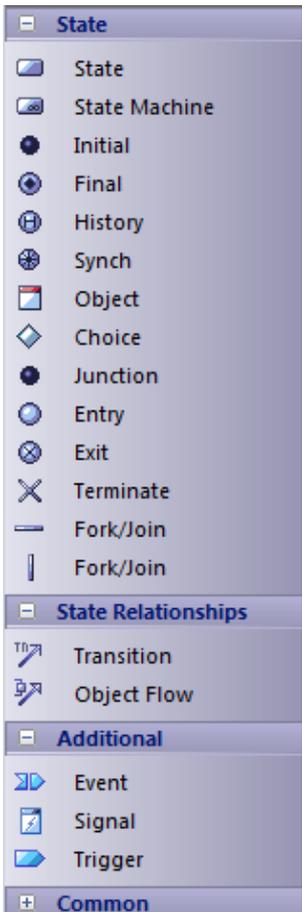
Notes

- 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 State Machine 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>The screenshot shows a vertical list of icons and labels for the State Toolbox. The items are grouped into sections: 'State' (State, State Machine, Initial, Final, History, Synch, Object, Choice, Junction, Entry, Exit, Terminate, Fork/Join), 'State Relationships' (Transition, Object Flow), 'Additional' (Event, Signal, Trigger), and 'Common'.</p>	<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>Event is used to create a basic Send element (the default) or Receive element on the State Machine diagram.</p>

Notes

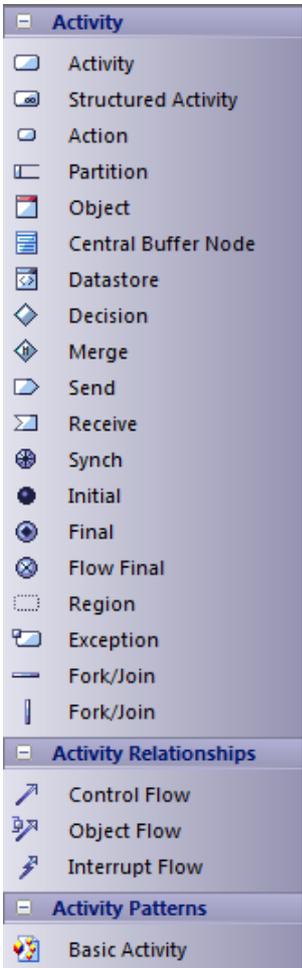
- To add an element to the currently-open diagram, click on the appropriate icon and drag it into position on the diagram; set an element name and other properties as prompted
- To add a relationship, click on the appropriate icon, then click on the start element in the diagram and drag to the end element

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>The screenshot shows the Activity Toolbox with the following categories and items:</p> <ul style="list-style-type: none"> Activity <ul style="list-style-type: none"> Activity Structured Activity Action Partition Object Central Buffer Node Datastore Decision Merge Send Receive Synch Initial Final Flow Final Region Exception Fork/Join Fork/Join Activity Relationships <ul style="list-style-type: none"> Control Flow Object Flow Interrupt Flow Activity Patterns <ul style="list-style-type: none"> Basic Activity 	<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 <name> to Diagram' dialog and click on the OK button).</p>

Notes

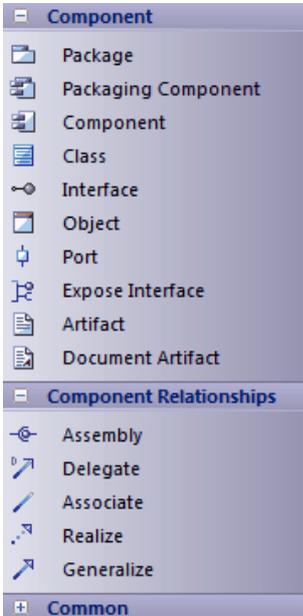
- To add an element to the currently-open diagram, click on the appropriate icon and drag it into position on the diagram; set an element name and other properties as prompted
- To add a relationship, click on the appropriate icon, then click on the start element in the diagram and drag to the end element

Component Toolbox

The Component Toolbox provides 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>The screenshot shows a hierarchical list of UML elements and relationships. The 'Component' section includes Package, Packaging Component, Component, Class, Interface, Object, Port, Expose Interface, Artifact, and Document Artifact. The 'Component Relationships' section includes Assembly, Delegate, Associate, Realize, and Generalize. A 'Common' section is also visible at the bottom.</p>	<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 in a diagram but behaves as a Package in the Project Browser.</p>

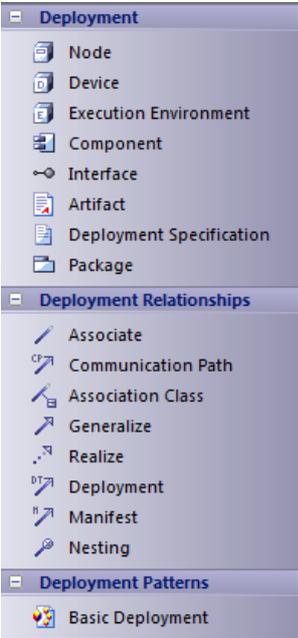
Notes

- 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 <name> to Diagram' dialog and click on the OK button).</p>

Notes

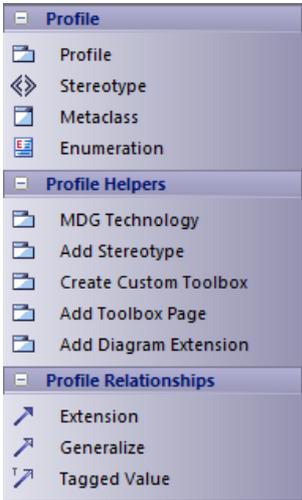
- To add an element to the currently-open diagram, click on the appropriate icon and drag it into position on the diagram; set an element name and other properties as prompted
- To add a relationship, click on the appropriate icon, then click on the start element in the diagram and drag to the end element

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 screenshot shows a hierarchical menu structure. Under 'Profile', there are icons for Profile, Stereotype, Metaclass, and Enumeration. Under 'Profile Helpers', there are icons for MDG Technology, Add Stereotype, Create Custom Toolbox, Add Toolbox Page, and Add Diagram Extension. Under 'Profile Relationships', there are icons for Extension, Generalize, and Tagged Value.</p>	<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 Stereotypes that have been defined in the Profile.</p> <p>Profile Helpers are templates and dialogs that help you create, respectively:</p> <ul style="list-style-type: none"> • 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 <p>An Extension relationship shows that a Stereotype extends a Metaclass; all Stereotypes must extend either:</p> <ul style="list-style-type: none"> • 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) <p>A Generalize relationship shows that one Stereotype specializes a more general Stereotype; the more general Stereotype must still extend a Metaclass.</p> <p>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</p>

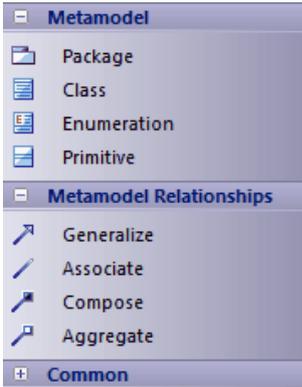
Notes

- 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

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>

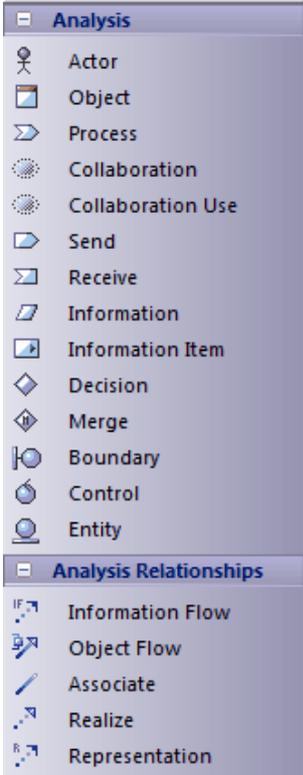
Notes

- 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>The screenshot shows the Analysis Toolbox interface. It is divided into two main sections: 'Analysis' and 'Analysis Relationships'. The 'Analysis' section contains the following elements: Actor (stick figure icon), Object (rectangle icon), Process (arrow icon), Collaboration (dotted circle icon), Collaboration Use (dotted circle with arrow icon), Send (arrow icon), Receive (arrow icon), Information (rectangle with arrow icon), Information Item (rectangle with arrow icon), Decision (diamond icon), Merge (diamond with arrow icon), Boundary (circle with vertical line icon), Control (circle with arrow icon), and Entity (circle with arrow icon). The 'Analysis Relationships' section contains: Information Flow (arrow with 'IF' label), Object Flow (arrow with 'OF' label), Associate (line with arrow icon), Realize (line with arrow icon), and Representation (line with arrow icon).</p>	<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 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>

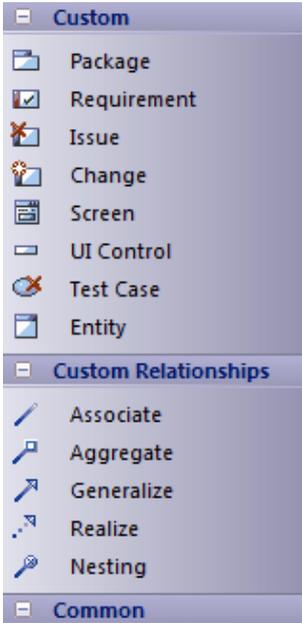
Notes

- 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
 <p>The screenshot shows a vertical list of icons and labels for the Custom Toolbox. The items are grouped into sections: 'Custom' (Package, Requirement, Issue, Change, Screen, UI Control, Test Case, Entity), 'Custom Relationships' (Associate, Aggregate, Generalize, Realize, Nesting), and 'Common'.</p>	<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> <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.</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 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.</p> <p>A UI Control likewise can be used to express GUI controls.</p> <p>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.</p> <p>Entity - use of this element is deprecated - it was originally intended to take the role now supplied by the Table element.</p>

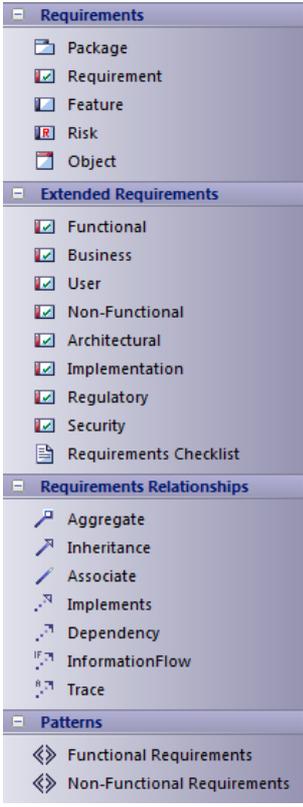
Notes

- 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

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 a tree view of the Requirements Toolbox. It is divided into four main sections: <ul style="list-style-type: none"> Requirements: Package, Requirement, Feature, Risk, Object. Extended Requirements: Functional, Business, User, Non-Functional, Architectural, Implementation, Regulatory, Security, Requirements Checklist. Requirements Relationships: Aggregate, Inheritance, Associate, Implements, Dependency, InformationFlow, Trace. Patterns: Functional Requirements, Non-Functional Requirements. </p>	<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 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>  <p>The screenshot shows a green-bordered box titled "Checklist1" containing a list of ten properties, each with an unchecked checkbox: <ul style="list-style-type: none"> Atomic Attainable Cohesive Complete Current Independent Modifiable Traceable Unambiguous Verifiable </p> <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.</p> <p>A Risk element represents an identified risk to the project.</p> <p>You can also add structures of Functional and Non-Functional Requirements to your diagram, each with a Checklist, using the two Requirements Patterns.</p>

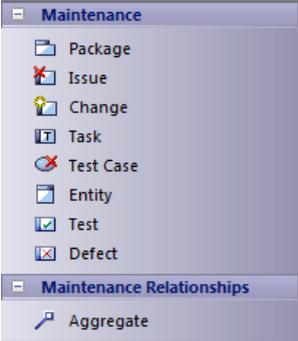
Notes

- 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

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 UML Elements and UML Connectors 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 the parent element, and monitor the tasks on diagram Gantt charts.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p>

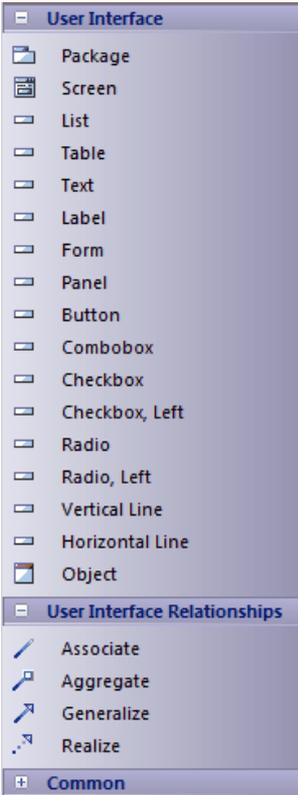
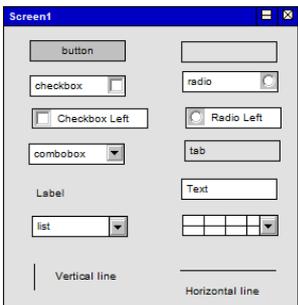
Notes

- 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

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 a toolbox with two main sections. The top section, 'User Interface', contains icons for Package, Screen, List, Table, Text, Label, Form, Panel, Button, Combobox, Checkbox, Checkbox, Left, Radio, Radio, Left, Vertical Line, Horizontal Line, and Object. The bottom section, 'User Interface Relationships', contains icons for Associate, Aggregate, Generalize, and Realize. A 'Common' section is also visible at the bottom.</p>	<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>
 <p>The screenshot shows a 'Screen' element containing various UI control elements: a button, a text field, a checkbox, a radio button, a 'Checkbox Left' control, a 'Radio Left' control, a combobox, a tab, a label, a text field, a list, a vertical line, and a horizontal line.</p>	<p>This diagram illustrates each type of UI Control element from the Toolbox, within a Screen element.</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

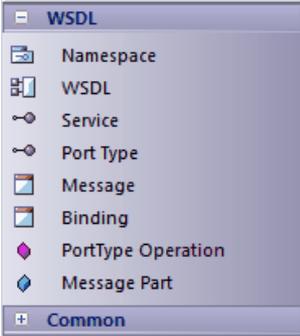
end element

- 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.</p> <p>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>

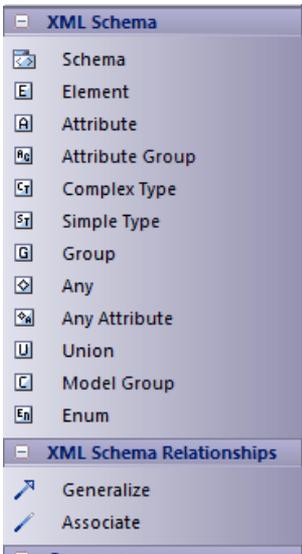
Notes

- 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
 <p>The screenshot shows a software toolbox with a tree view. The root is 'XML Schema'. Under it are several categories: 'XML Schema' (expanded), 'XML Schema Relationships', and 'Common'. The 'XML Schema' category contains icons and labels for: Schema, Element, Attribute, Attribute Group, Complex Type, Simple Type, Group, Any, Any Attribute, Union, Model Group, and Enum. The 'XML Schema Relationships' category contains icons and labels for Generalize and Associate. The 'Common' category is partially visible at the bottom.</p>	<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>

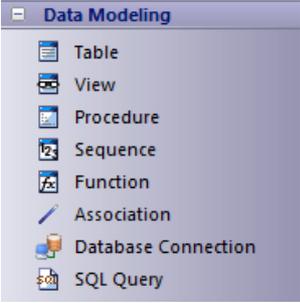
Notes

- 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"> • Table defines a database table • View represents a database view • Procedure represents database (or Stored) procedures • Sequence represents a database Sequence • Function represents a database Function • 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 When you drop this icon onto the diagram the system prompts you to indicate whether to create the connection for an Access database, a Firebird database or an ODBC database 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 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) After you have defined the data source, when you double-click on the element the Database Builder view opens for the current database model • 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)

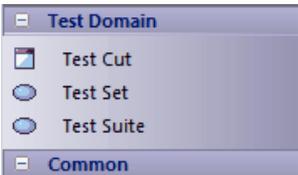
Notes

- 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>

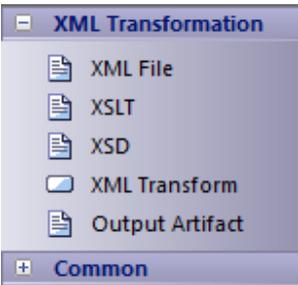
Notes

- 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>The image shows a software toolbox with a blue header 'XML Transformation'. Below the header are six items, each with a small icon: 'XML File' (document icon), 'XSLT' (document icon), 'XSD' (document icon), 'XML Transform' (document icon with a blue highlight), 'Output Artifact' (document icon), and 'Common' (document icon with a plus sign).</p>	<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 Activity that performs the transformation.</p> <p>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.</p> <p>The elements can be connected to each other using Trace connectors.</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

Set Diagram Properties

You can set several properties of a diagram using the 'Diagram Properties' dialog. Some properties influence the display of the diagram and some are logical attributes that appear in the documentation.

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

- Right-click on the required diagram in the **Project Browser** and select the 'Properties' context menu option
- 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 'Diagram | Properties' menu 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.

Notes

- In the Corporate, Business and Software Engineering, Systems Engineering 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 'Options' 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 > Manage > Properties > General Layout > Diagram > Manage > Properties > General
Main Menu	Diagram Properties General
Context Menu	Right-click diagram in Project Browser Properties General Right-click background of open diagram Properties General

Set Diagram Properties

Field/Option/Button	Action
Name	Defaults to the name of the parent Package, as the name of the diagram. If necessary, overtype the field with a different diagram name. You can change the diagram name in this field whenever necessary.
Author	Defaults to the name of the person who created the diagram. If necessary, overtype 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.
Version	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. To update the version number, overtype the field.
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 which have been cloned to match the diagram and Package structure and which are still the same version as the source. 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. The filter takes effect when you click on the OK button .
Stereotype	(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.

	You can define stereotypes to select here using the 'Project Settings UML Types' menu option, selecting the 'Stereotypes' tab 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.
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.

Notes

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

Configure Diagram Display

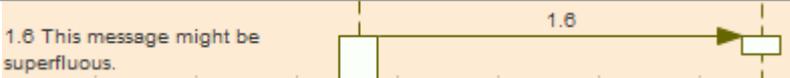
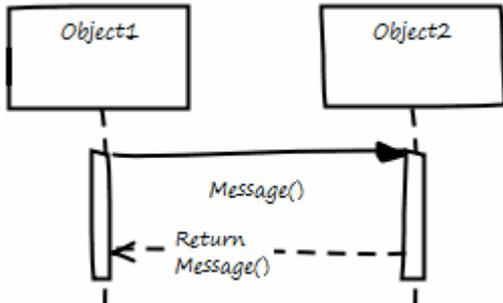
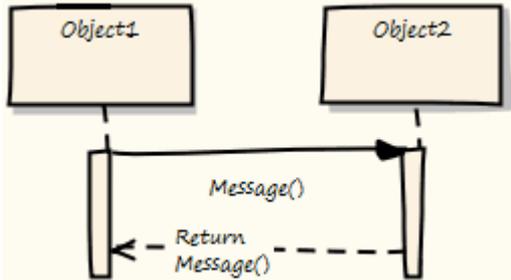
A diagram can show or hide information, and represent it in different ways depending on how you configure the display characteristics. You can maintain your display configuration using the diagram 'Properties' dialog ('Diagram' tab).

Access

Ribbon	Design > Diagram > Manage > Properties > Diagram Layout > Diagram > Manage > Properties > Diagram
Menu	Diagram 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

Field/Option/Button	Action
Use Alias if Available	Select this checkbox to display the element alias as the element's name, wherever the alias is specified.
Show Additional Parents	Select this checkbox to show 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	Select this checkbox to show diagram details in a note in the top left corner of the diagram. <div data-bbox="518 1624 782 1729" data-label="Text"> <pre>Name: Location Package: External factors Version: 1.0 Author: rchester</pre> </div> Deselect the option to hide the diagram details.
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.

	
<p>Whiteboard Mode</p>	<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>
<p>Disable fully scoped object names</p>	<p>Select this checkbox to disable the use of fully scoped object names for elements in this diagram.</p> <p>This option hides the 'Namespace::element Name' if 'Show Namespace' is selected, but not the '(from 'Namespace')' label.</p> <p>The effect of this option is disabled if 'Fully Qualified Namespace' is also selected.</p>
<p>Hand Drawn</p>	<p>Select this checkbox to display the diagram contents as if they had been roughly drawn by hand.</p> 
<p>Show Namespace</p>	<p>Select this checkbox to show the namespace of each element on the diagram.</p>  <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')'</p>

	<p>label under the element.</p> <div style="text-align: center;">  <p><i>(from Business Rules Model::Business Domain Model)</i></p> </div>
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>
Always Open as Element List	Select this checkbox to always display 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.
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 the Clear button.</p>
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	<p>This facility is enabled when the selected diagram in the 'Diagram Properties' 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</p>

	<p>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>
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

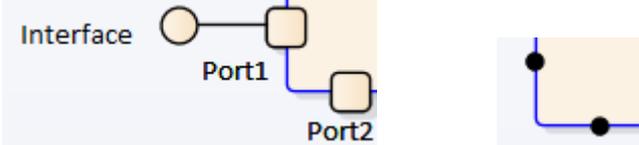
Define Element Characteristics

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 check boxes on the 'Elements' tab of the diagram 'Properties' dialog (and, conversely, which to hide by clearing their check boxes). 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 > Manage > Properties > Elements Layout > Diagram > Manage > Properties > Elements
Menu	Diagram Properties Elements
Context Menu	Right-click diagram in Project Browser Properties Elements Right-click background of open diagram Properties Elements

Set Component Display Options

Field/Option/Button	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.
Collapse Embedded Elements	<p>Reduces embedded elements to black dots on the parent element border, on the current diagram. Each black dot represents one embedded element or one hierarchy of elements; for example, a Port with an Interface collapses to one dot.</p> 

	<p>This simplifies the information presented by the diagram, when the embedded elements are currently not the focus of interest.</p> <p>You can move the dot representing an embedded element, but you cannot create new embedded elements or connectors involving embedded elements on the diagram whilst this option is in use.</p>
Show Data Model Owner	<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>
Show Element Property String	<p>Select this checkbox to show the advanced property string for all elements; for example, {leaf}.</p>
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"> • Attributes • Operations • Tags (Tagged Values) • Requirements • Constraints • Testing (Testing Scripts) • Maintenance (Maintenance Scripts) • Package Contents • Notes <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 default, select the value <none> from the drop-down list.</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>

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 > Manage > Properties > Features Layout > Diagram > Manage > Properties > Features
Menu	Diagram Properties Features
Context Menu	Right-click diagram in Project Browser Properties Features Right-click background of open diagram Properties Features

Define the display of features on the diagram

Field/Option/Button	Action
Show Qualifiers and Visibility Indicators	Select this checkbox to show the qualifiers and visibility indicators of each feature on the diagram. Qualifiers include such things as the 'derived' symbol (/) and the public key symbol (PK). Visibility indicators include such things as +, -, # and ~, which indicate the scope of access of the item (such as an attribute, operation or role).
Show Stereotypes	Select this checkbox to show the stereotypes of all features that have them. Deselect the checkbox to hide the stereotypes.
Show Property String	Select this checkbox to show the advanced property string for all element features, for example, {readOnly}.
Show Operation Return Type	Select this checkbox to display the return data type of each operation.
Suppress Brackets for Operations Without Parameters	Select this checkbox to suppress brackets on operations that have no parameters; that is, Opn; rather than Opn();.
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">• None - No details shown• Type Only - Show the type of parameter only• Full Details - Show all details of each parameter• Name Only - Show the name of the parameter only
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.

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 > Manage > Properties > Connectors Layout > Diagram > Manage > Properties > Connectors
Menu	Diagram Properties Connectors
Context Menu	Right-click diagram in Project Browser Properties Connectors Right-click background of open diagram Properties Connectors

Define connector appearance

Field/Option/Button	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	Click on the drop-down arrow and select the required connector notation: <ul style="list-style-type: none"> • UML 2.1 - use the standard UML 2.1 notation for connectors • Information Engineering - use the Information Engineering (IE) connection style • IDEFX1 - use the Integrated Definition Methods IDEFX1 connection style

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.

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 > Manage > Properties > Theme Layout > Diagram > Manage > Properties > Theme
Menu	Diagram 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	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.
Font	Select the check box to apply the 'User Font Face' and 'Font Size' settings assigned to the selected theme on the 'Appearance' page of the model 'Preferences' dialog. Deselect the check box to apply the font from the global theme on the 'Preferences' dialog.
Color	Select the check box 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. Deselect the check box to apply the colors from the global theme on the 'Preferences' dialog.
Line Thickness	Select the check box 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. Deselect the check box to apply the line widths from the global theme on the 'Preferences' dialog.
Gradient	Select the check box to apply the gradient of the diagram background color and element fill color, as assigned to the selected theme on the 'Gradients and

	<p>Background' page of the model 'Preferences' dialog.</p> <p>Deselect the check box to apply the gradients from the global theme on the 'Preferences' dialog.</p>
Background Image	<p>Select the check box to apply the diagram background image assigned to the selected theme on the model 'Preferences' dialog.</p> <p>Deselect the check box to apply the image from the global theme on the 'Preferences' dialog.</p>
Element Shadows	<p>Select the check box to apply the element shadow setting ('on' or 'off') and color assigned to the selected theme on the model 'Preferences' dialog.</p> <p>Deselect the check box 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>

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 can select options from the diagram context menu.

Access

Context Menu	Right-click on diagram background
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Options

Option	Action
Extensions	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 diagram. This option is available in the Professional, Corporate and Extended editions of Enterprise Architect.
Scripts	Select this option to list the scripts available for execution directly from the diagram. The option is not listed if there are no diagram scripts available.
Properties	Select this option to display and/or edit the diagram properties, using the 'Diagram Properties' dialog.
New Element or Connector	Select this option to add an element or connector to the diagram, by selection from a context-sensitive list.
Insert Other Element	Select this option to locate an existing element using the 'Select Element' dialog, and insert it into the diagram as a linked element.
Synchronize Structural Elements	Select this option to show, on a SysML Internal Block diagram, all structural elements (such as Ports and Parts) relating to the Block that owns this diagram. This command will also generate Properties defined by existing Association connectors.
Hide Diagram Frame Show Diagram Frame	The elements on the diagram are automatically enclosed in a Diagram Frame having the name of the Block element that owns the diagram. Click on these options to hide and redisplay this Diagram Frame. This option applies to these diagram types when the diagram is a composite diagram: <ul style="list-style-type: none"> • SysML Internal Block • SysML Activity • SysML Parametric • SysML State Machine • UML State Machine

Advanced	Select this option to access the options for more advanced operations, such as comparing the diagram to a Baseline or creating a working set Artifact.
Paste Element(s) as Link Paste Element(s) as New	Select these options to paste copied elements into the diagram as links or as new elements.
Paste Image from Clipboard	Select this option to paste an image held on the clipboard into the diagram. Shortcut: Ctrl+Shift+Insert
Switch to List View	Select this option to display the diagram contents as a Diagram List instead of as a pictorial diagram.
Switch to Gantt View	Select this option to display the diagram contents as a Gantt chart instead of as a pictorial diagram.
Statechart Editor	For a State Machine diagram, select this option to switch the current format of the diagram to: <ul style="list-style-type: none"> • Diagram • Table (State-Next State) • Table (State-Trigger) or • Table (Trigger-State)
Swimlanes, Matrix	Select this option to add or modify Swimlanes or a Swimlanes Matrix on the diagram.
Context Filtering	Select this option to toggle context filtering within the diagram view. By default, this will highlight the currently selected element and related elements within the diagram while making all other elements appear faded into the background. Context Filtering by name or alias can also be applied using the Format Toolbar.
Make all Elements Selectable	Select this option to make all the elements on the diagram selectable. If an element is: <ul style="list-style-type: none"> • Selectable, you can move it around the diagram and perform right-click context-menu operations • Unselectable, you cannot move it around the diagram and the only right-click operation available is to make the element selectable This option has no effect on double-click operations on the element, such as displaying child diagrams.
Modify Element Z Order	Select this option to re-sequence overlapping objects in the diagram. This option both: <ul style="list-style-type: none"> • Numbers the objects in the diagram by Z-order, in red, and • Lists the objects by Z-order in the 'Modify Z Order' dialog In the dialog, you select the required object and move it up or down in the Z-order using the Up and Down Arrow keys , each click on an Arrow key changes the Z-order by 1. When you select the object in the list, that object is also selected on the diagram and its Z-order number is shown in blue. Click on the OK button to save your changes. On the 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.
Lock Diagram	Select this option to lock the diagram to protect it from inadvertent changes. This does not apply in the Corporate, Business and Software Engineering, Systems Engineering and Ultimate editions if security is enabled, in which case you lock the model elements.
Find in Project Browser	Select this option to locate the current diagram in the Project Browser . Shortcut: Shift+Alt+G
Import from source file(s)	Select this option to import, or reverse engineer, source code (the option is not available in the Desktop edition).
Import DB schema from ODBC	Select this option to import database tables from an ODBC data source (the option is not available in the Desktop edition).
Save Current Changes	Select this option to save any changes to the current diagram. Shortcut: Ctrl+S
Execute Simulation	Select this option to list and select from three further options for performing a model simulation on a behavioral diagram: <ul style="list-style-type: none"> • 'Interpreted simulation' - Perform dynamic execution of a simulation (Corporate and Extended Editions) • 'Manual simulation' - Step through a simulation manually (the only option available in the Professional edition) • 'Using Script' - If simulation scripts exist for the diagram, list the scripts available; if no scripts exist, the option does not display
Help	Select this option to view the Help on this type of diagram.

Notes

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

Insert Elements and Connectors

When you click on the 'Diagram | New Element or Connector' context menu option, a list of elements and connectors displays. This is the 'Toolbox Shortcut menu'.

Structure

The 'Toolbox Shortcut' menu is divided into sections:

- Other - expands to offer options to select elements and connectors from diagram types other than either the current diagram type or pinned Toolbox pages
- The expanded list of elements and connectors for the current diagram type
- Collapsed lists of elements and connectors for pages that have been pinned in the Toolbox; if an MDG Technology:
 - is active
 - automatically pins Toolbox pages, and
 - has pages that redefine UML or Extended pagesthen the MDG Technology pages override the UML or Extended pages, which are not shown
- At the end:
 - Common expands to display a list of the common elements and connectors, and
 - Artifact expands to display a list of the different types of Artifact element you can create

Notes

- The list of elements and connectors also displays on the diagram if you press **Ctrl** or **Shift** as you right-click the mouse, or if you press **Spacebar** or **Insert** while the cursor is on the diagram

Advanced Diagram Submenu

You can perform a number of advanced tasks and operations on a diagram and its contents. To access and initiate these operations, you can select options from the diagram 'Advanced' submenu.

Access

Context Menu	Right-click on diagram background Advanced
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Options

Option	Action
Compare Diagram to Baseline	Select this option to perform a comparison of the diagram layout against a version from a previously saved baseline. This option can be used to roll back individual changes made to the diagram since the baseline was created.
Save as Profile	Select this option to save the current diagram as a Profile.
Create Working Set Artifact	Select this option to create a Working Set Artifact on the diagram, to define a Working Set that includes an instruction to open the diagram.
Set Theme	Select this option to set the Theme to apply to all diagrams that you display in the model. The 'Options' dialog displays, at the 'Diagram Themes' page.

The Quick Linker

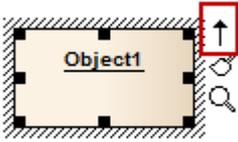
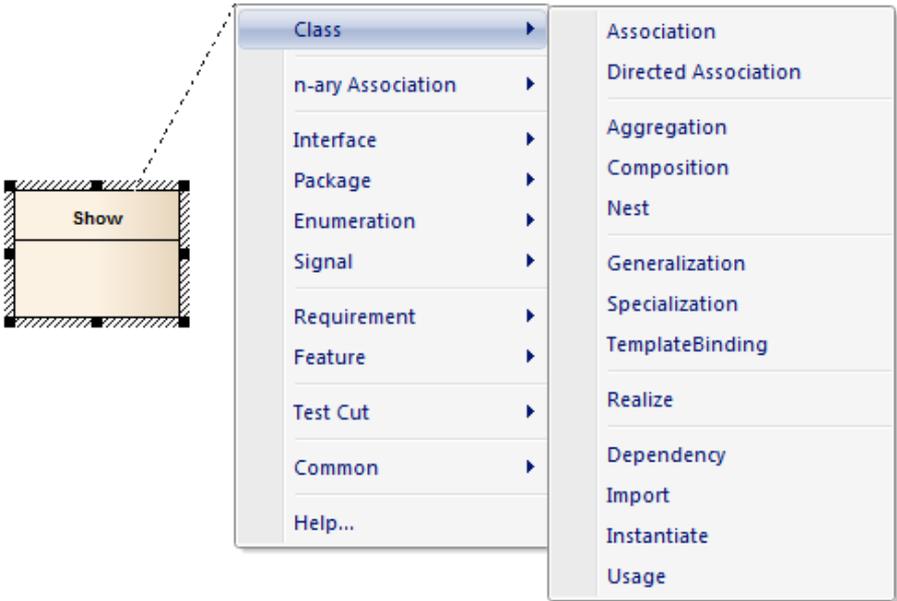
If you want to create new elements and connectors quickly on a diagram, you can use the Quick Linker on an initial element to guide you in creating related elements and connectors of the appropriate types, without having to weigh up the full range of options from the **Diagram Toolbox**.

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.

There are two methods of accessing the Quick Linker menus.

Access

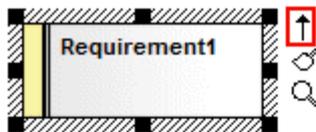
Action	Detail
Click on Quick Linker Arrow	<p>When you click on an element in a diagram, the Quick Linker arrow is displayed at the upper right corner of the element:</p>  <p>Click on this arrow and drag it in the direction in which you want to create the new connector and element. When you release the mouse button, the element menu displays. When you select an element type, the connector menu displays.</p> 

	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 as above. 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

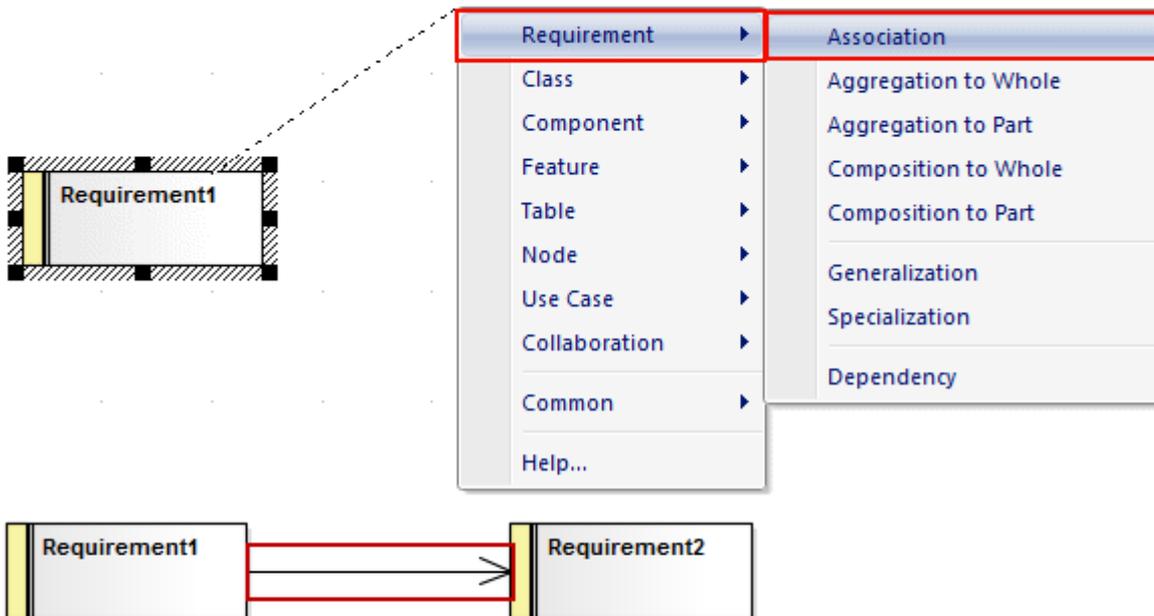
- When using the Ctrl+Shift+<arrow key> method on a Sequence diagram, you cannot use the Up or Down keys; the Right and Left keys create a connector to a Lifeline element
- When using the Ctrl+Shift+<arrow key> method on a Timing diagram, you cannot use the Right or Left keys
- If the connectors and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



Click, drag and release

Choose element and connector type



The elements and connectors 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 target elements and connectors for that initial element; you can create other target elements and connectors by selecting them from the appropriate Toolbox page.

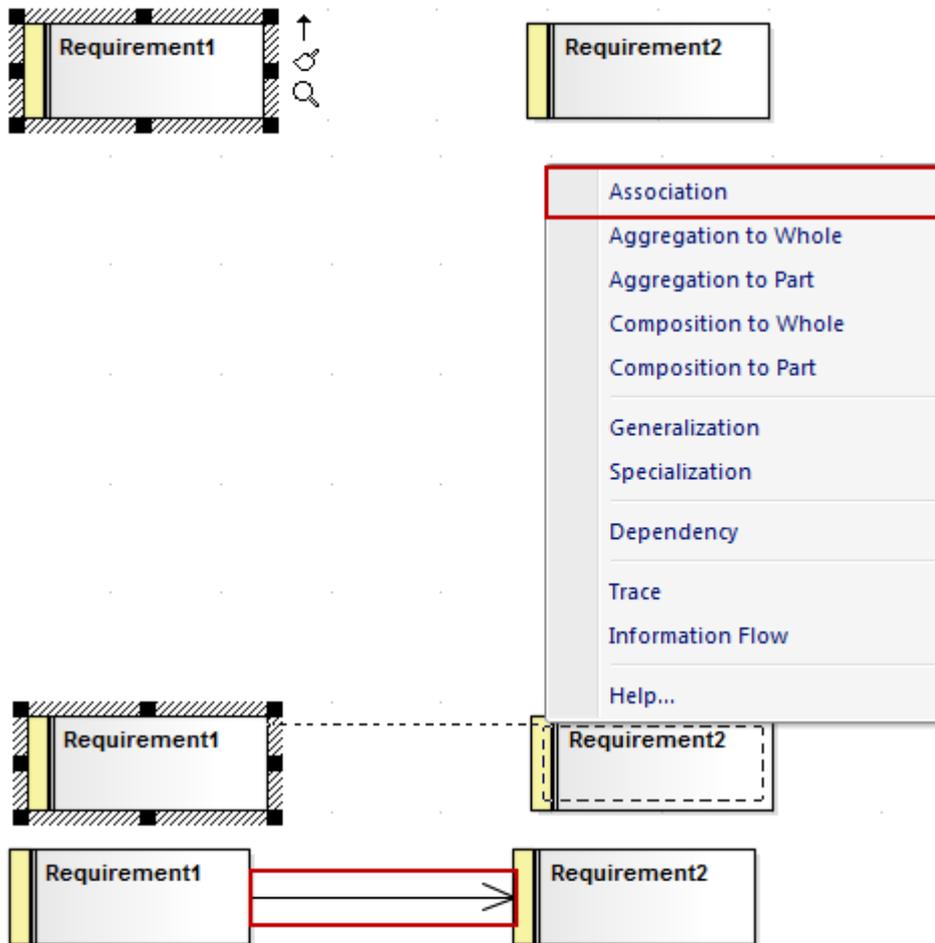
Certain types of element - such as Action and Artifact - are available in a range of subtypes. You can select which subtype to create by holding down the **Ctrl** key as you select the main element type and connector. For an:

- 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

- For rapid modeling, you can suppress the element 'Properties' dialog when creating new elements; see the option 'Tools | Options | Objects: Edit Object on New'
- 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
Create 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.
Add new elements and connectors 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.
Copy 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, Business and Software Engineering, Systems Engineering 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"> • In the Project Browser toolbar, click on the  icon, or • Right-click to open the context menu and select the 'Add Diagram' (Package) or 'Add Add Diagram' (element) option, or • Press the Insert key and select the 'Add Diagram' menu option <p>The 'New Diagram' dialog displays.</p>
3	<p>The 'Package' field defaults to the name of the selected Package in the Project Browser. If necessary, click on the  button and select a different Package to create the diagram under.</p> <p>(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	The 'Diagram' field defaults to the name of the selected Package or element; if necessary, type a different name for the new diagram.
5	<p>In the 'Select From' panel, click on the appropriate technology or category for the diagram.</p> <p>The 'Diagram Types' panel displays a list of the diagram types for the selected category.</p>
6	In the 'Diagram Types' panel, click on the type of diagram to create.
7	<p>Click on the OK button to create your new diagram.</p> <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.</p>

Notes

- In the Corporate, Business and Software Engineering, Systems Engineering 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 > Manage > Show Property Note
Menu	Diagram Add Diagram Property Note
Other	Drag the Diagram Notes icon from the Common page of the Toolbox onto the diagram Click on the Diagram Properties Note icon in the UML Elements toolbar and click on the diagram

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 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

Field/Option/Button	Action
Drop as	<p>Click on the drop-down arrow and select one of the drop types:</p> <ul style="list-style-type: none"> • 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 • Lifeline - (On Sequence diagrams) Drop a copy of the element as a separate Lifeline element, classified by the original element • 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 • Invocation - Drop a copy of a State Machine or Activity element as an invocation of the source element; the resulting element is a State object or Action - respectively - with the source element as its classifier • Property - Drop a copy of the element as a separate Object instance • 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 • 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 <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 child elements (for example, if it is a composite element or nested element, or contains embedded elements) this field contains the value 'Select'. Either:</p> <ul style="list-style-type: none"> • Leave this value as is, so that when you click on the OK button the 'Structural Elements' dialog displays, from which you can select the child elements to reproduce with the pasted element, or • Click on the drop-down arrow and select: <ul style="list-style-type: none"> - 'None' to not reproduce any child elements - 'All' to reproduce all child elements on the original element, or - 'Based on Instance <diagram names>' to reproduce the configuration of child elements on an instance of the original element on another diagram, if there are any other instances <p>The resulting Object element is created large enough to display the selected child elements laid out neatly within the Object border.</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 settings for each element.</p>
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 > Behavior' page of the 'Options' 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.</p> <p>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 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.</p>
OK	Click on this button to complete the drop operation and close the dialog.
Cancel	<p>Click on this button to cancel the drop operation and close the dialog.</p> <p>If you have selected multiple elements, the first-selected element is not dropped, but the remainder are.</p>

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

Drop Packages

When you drag a Package element from the **Project Browser** onto the current diagram, you can drop it into the diagram as one of a number of different objects, by simple selection from a menu.

Access

Other	Drag existing Package(s) from the Project Browser onto the diagram
-------	---

Select Drop options

Field/Option/Button	Action
Package element	Drop the Package as an element representing the Package in the Project Browser (a simple link): in this case any changes to the Package are reflected in all diagrams in which it is shown.
Report Specification linked to package	Drop the Package as a Report Specification linked to the Package; a Report Specification is a stereotyped Document Artifact element from which you can generate a report and view the report as a linked document of that element.
Graph based on package contents	Drop the Package as a Pie Chart or Bar Chart that you can edit to graphically represent some aspect of the Package content.
Matrix profile	Drop the Package as a Matrix Specification object.
Package as List	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.

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"> • Right-click and select the 'Copy' option ('Edit Copy' for single elements), or • Press Ctrl+C, or • Click on the 'Copy' icon () in the Default Tools toolbar

Paste diagram elements

Step	Instruction
1	Open the diagram to paste into.
2	Either: <ul style="list-style-type: none"> • Click on the Paste button () in the Default Tools toolbar, or • Right-click on the diagram background to open the diagram context menu
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 over and which underneath. 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)

Access

Ribbon	Layout > Alignment > choose either 'Bring to Front' or 'Send to Back'
Context Menu	Right-click on Element Z-Order : Select the appropriate option to reposition the selected element.

Notes

- This option enables you to change the Z order of a single element approximately in relation to the rest of the diagram; you can also select the 'Modify Z Order' option from the diagram context menu, to review and adjust the Z Order of each element on the diagram precisely relative to each other element
- 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

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

- Press **Alt**, click on the diagram, and drag the cursor to move everything beyond the cursor in the direction of the movement

As you move the cursor either vertically or horizontally, a line 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, both vertical and horizontal lines display to create a quadrant, and everything within the quadrant 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

Menu	Element Appearance Autosize
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

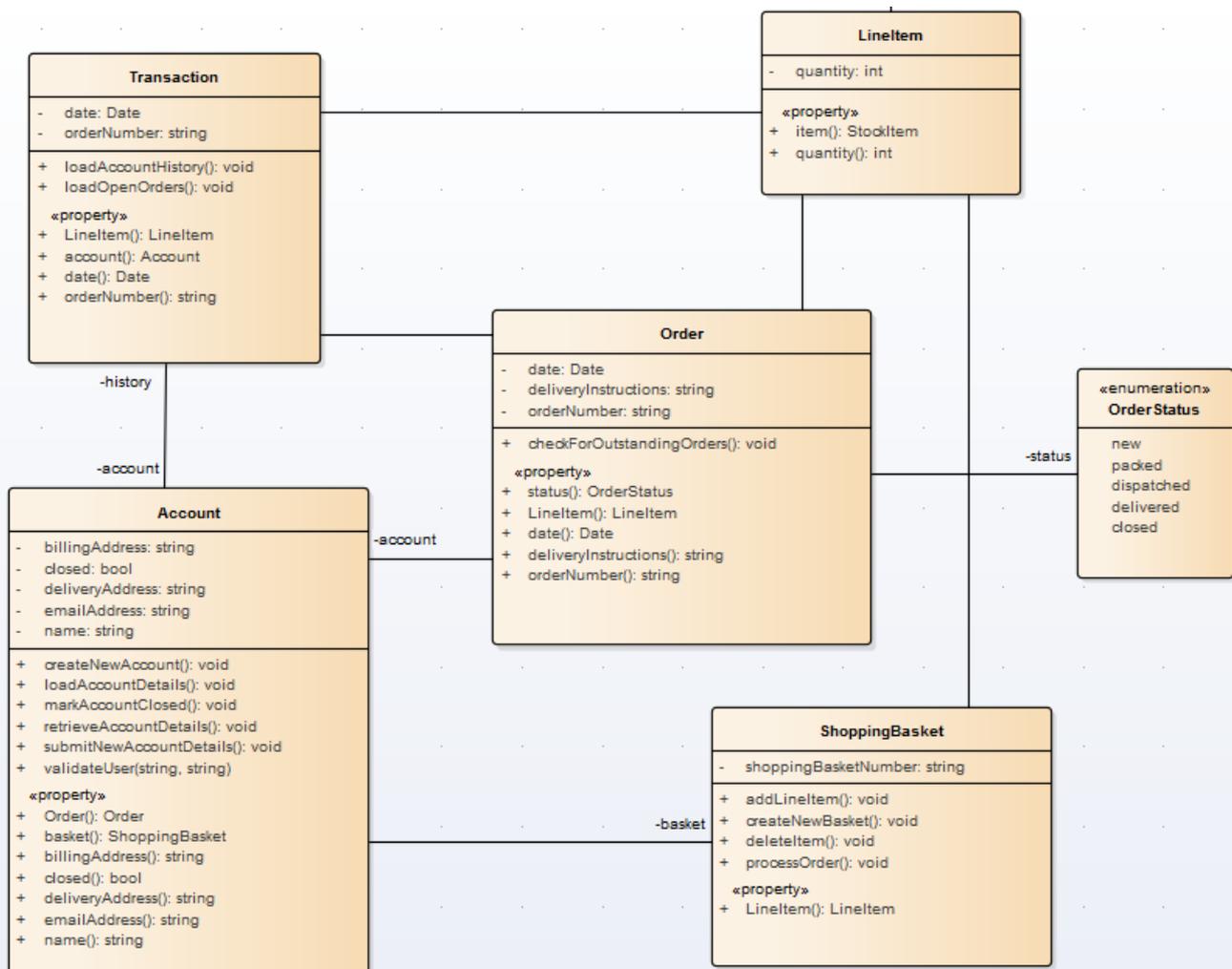
Virtual connector ends assist you to simplify complex diagrams containing many elements with multiple connectors, supporting good layout strategies that minimize crossed relationship lines and group related elements accordingly. They are highly effective when the element of interest is:

- 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.

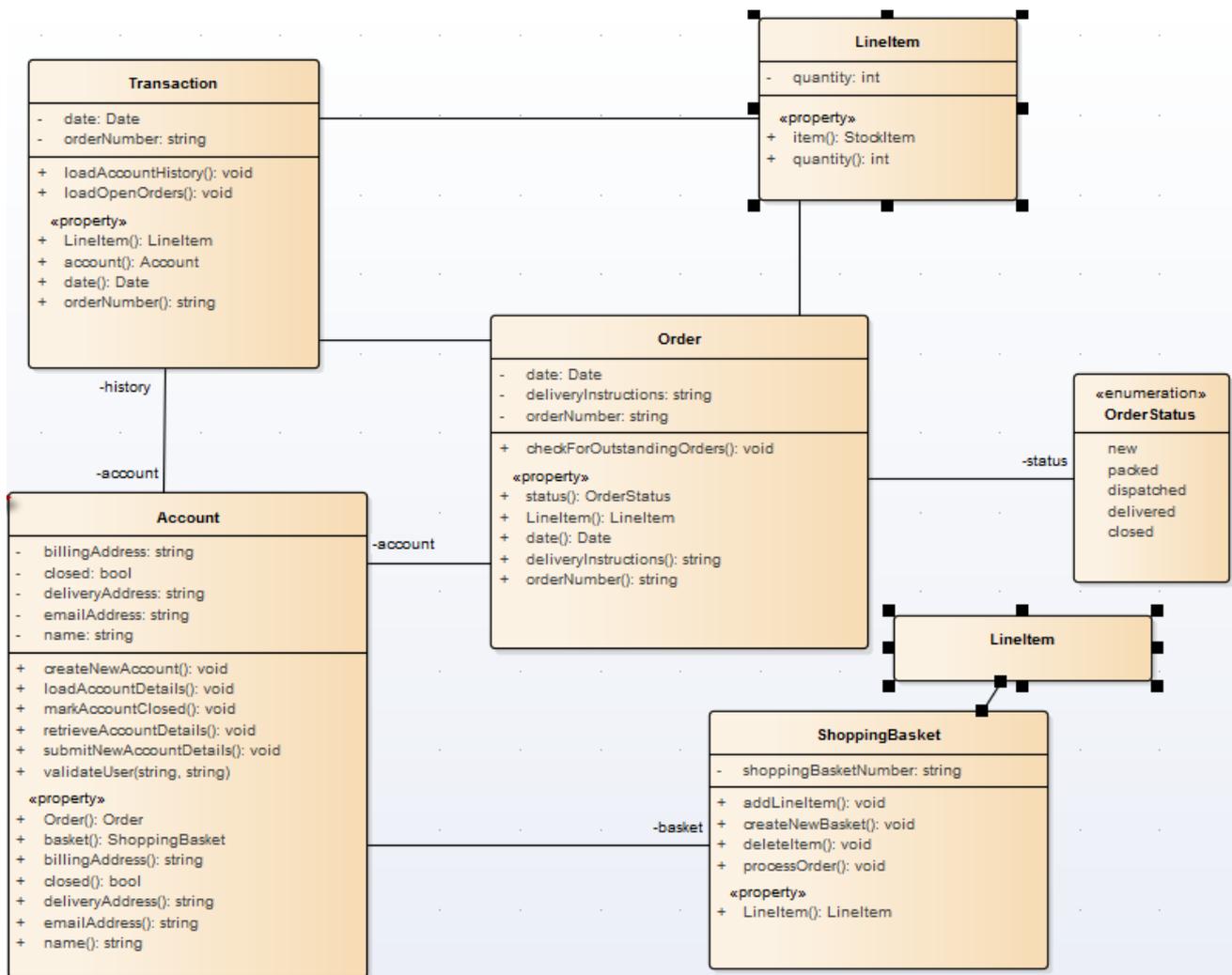
To achieve this, you right-click on the connector that you want to keep the element on, and select to virtualize the appropriate connector end (source or target). The system adds a simple rectangle containing the element name and with the element fill color to the connector end, with no other connectors on it.

Consider this example:



The diagram is relatively simple but still quite large, and the connector between the **ShoppingBasket** and **Linelltem** 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 **Linelltem** 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 the mouse on that point.

Access

Ribbon	Show > Window > Relationships Start > Windows > Relationships
Menu	Element 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

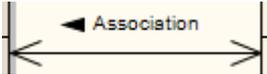
You can format and hide these labels using the 'Labels' context menu.

Access

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

Options

Option	Action
Edit Label	(Connector Labels only.) Select this option to display the text within a small editing box, with the cursor within the text. Delete or add text as appropriate. Shortcut: F2
Set Label Color	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.
Hide Label	Select this option to hide the label on the diagram; to reveal the label again: <ul style="list-style-type: none"> • For an element label, right-click on the element and select the 'Appearance Show labels' option • 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 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.
Bold	Select this option to display the label text in bold.
Label Rotation	(For embedded elements and connectors.) 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.
Text Alignment	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.
Direction	(Connector labels only.)

	<p>Select this option to set or clear a small arrow on the 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
--------------	--

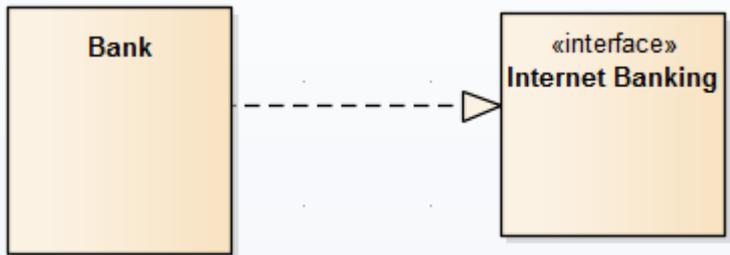
Hide or display labels on a connector

Step	Action
1	On the 'Label Visibility' dialog: <ul style="list-style-type: none">• Select the checkbox against each label to show, and• Clear the checkbox against each label to hide
2	Click on the OK button . The diagram displays the connector with the selected labels shown.

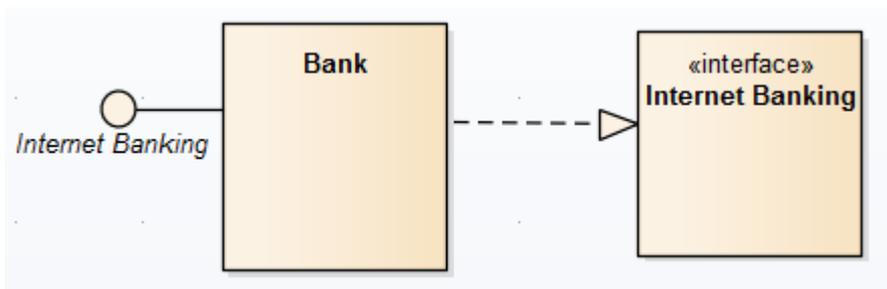
Show Realized Interfaces of Class

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.

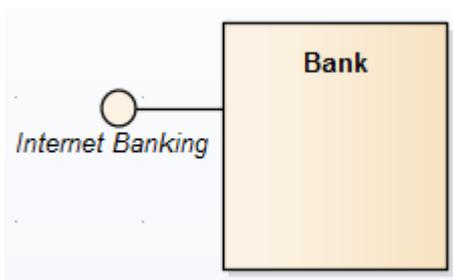
Consider this example:



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 & Properties | 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

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

Menu	Element Feature Visibility
Context Menu	Right-click element Features & Properties Feature and 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.
Show and Custom	<p>Use these to show or hide specific operations or attributes.</p> <p>If you select the 'Show' checkbox, the Custom button displays the 'Show Features in Diagram' dialog; if you deselect the checkbox, the button displays the 'Suppress Features in Diagram' dialog.</p> <p>The two dialogs are identical. Select the checkboxes of specific features to show or hide on the element in the diagram.</p> <p>You can also use the:</p> <ul style="list-style-type: none"> • Filter by Scope' drop-down arrow to filter the list to show only features that have a specific scope • All button to select all operations or attributes in the list • None button to clear the checkboxes against all selected operations or attributes in the list <p>The 'Show' checkbox, if selected, overrides the selections to display attributes or operations in the element, other than those specifically selected in the 'Show Features in Diagram' dialog.</p>

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"> • '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 • 'Wrap Features' radio button (so that any long features are wrapped onto multiple lines) or • 'Truncate Features' radio button (so that long features are not displayed in full)
Inherited Features	<p>If you want to display inherited attributes and/or operations as well as directly owned ones, select one or both of the 'Show Attributes' and 'Show Operations' checkboxes.</p>
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.</p> <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.</p> <p>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:</p> <pre><Profile>::<Stereotype>::<Tagged Value name>=<Value></pre> <p>For example:</p> <pre>BPMN::Activity::Activity Type = Task</pre> <p>You can display an informal internal or composite diagram of child elements such as Ports, Parts and Classes within a compartment of the parent element, by selecting the 'Structured Compartment' checkbox. The Structured Compartment acts as a container for the child elements; Classes cannot be dragged out of the compartment, and Ports and Parts are confined to the borders of the compartment.</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 'Show Notes' checkbox to display, in the 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 chars' 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 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> <p>You can also select the 'Render Formatted Notes' checkbox to display the text on the diagram as formatted using the 'Notes' field toolbar.</p>
	<p>Select the checkbox if you want to hide the object runstate of the element on the</p>

Runstate	diagram.
Type	(Available for Ports and Parts only.) Select the checkbox if you want to display the element type.
OK	Click on this button to save your settings. The diagram redisplay with the appropriate level of feature visibility.

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

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
Menu	Edit > 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
Menu	Edit > Redo
Keyboard Shortcuts	Ctrl + Y
Other	Click on the Redo button in the Default Tools toolbar - 

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:

- 'Diagram | Zoom' menu options 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%. Alternatively, select the 'Zoom In' or 'Zoom Out' options from the 'Diagram | Zoom' menu.

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

- Click on the  ('Zoom to 100%') button
- Select the 'Diagram | Zoom | Zoom to 100%' menu option
- 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	(If no element is selected) Select the element with the highest Z-Order number - the furthest forward in the diagram (If an element is selected) Move focus to the element with the next-highest Z Order number (moving back into the diagram)
Shift+click or Ctrl+click	Add the clicked element to the current selection
Ctrl+Shift +drag	Pan the diagram
Alt+G	Locate the item in the Project Browser and highlight it

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
Menu	Diagram Advanced Change Type

Change a diagram type

Step	Action
1	On the 'Change Diagram Type' dialog, in the 'Select From' panel, click on the appropriate technology or category containing the new type for the diagram. The 'Diagram Types' panel displays a list of the diagram types for the selected category.
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

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 > Manage > Properties > Diagram: Advanced
Menu	Diagram 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	Select from these options as required: <ul style="list-style-type: none"> • 'None': select to print on as many pages as the diagram image covers • 'Scale to 1 page': select to scale the diagram image to fit on the currently selected page • '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 • 'Page Setup': click to select the page size and alignment

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 > Manage > Properties > Diagram
Menu	Diagram 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	On the 'Page Setup' panel, click on the Advanced button . The 'Print Advanced' dialog displays.
3	Click on the Page Setup button . The 'Page Setup' dialog displays. As you adjust the settings on this dialog, the page icon at the top illustrates the effects of your changes.
4	In the 'Size' field, click on the drop-down arrow and select an appropriate page size.
5	In the Orientation panel click on the radio button for the orientation of the page to print.
6	In the Margins panel, type the required left, right, top and bottom page margins for the diagram, in inches.
7	Click on the OK button on the 'Page Setup' dialog, the 'Print Advanced' dialog, and the 'Diagram Properties' dialog, in turn. 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.

Notes

- You can set the default paper size for new diagrams on the 'Diagram' page of the 'Options' dialog (select the 'Tools | Options | Diagram' menu option); once the paper size is set there, all new diagrams have that as the default size

- In the Corporate, Business and Software Engineering, Systems Engineering and Ultimate editions of Enterprise Architect, if security is enabled you must have 'Update Diagrams' permission to change diagram page setup

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, Business and Software Engineering, Systems Engineering 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

Ribbon	<p>Select a diagram in the Project Browser then, Design > Diagram > Manage > Copy Diagram</p> <p>Select a Package or an Element in the Project Browser then, Design > Diagram > Manage > Paste Diagram</p>
Context Menu	<p>Right-click on diagram in Project Browser Copy/Paste Copy Diagram then,</p> <p>Right-click on Package Copy/Paste Paste Diagram or Right-click on Element Copy/Paste Paste Diagram</p>
Keyboard Shortcuts	<p>Copy the diagram then,</p> <p>Select package > Ctrl + V or Select element > Ctrl + V</p>

Duplicate a diagram

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

	All connectors are also copied between diagram elements where appropriate.
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Notes

- In the Corporate, Business and Software Engineering, Systems Engineering 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

Copy 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 (256 color bitmap)
- GIF image
- Windows Enhanced Metafile (standard metafile)
- Windows Placeable Metafile (older style metafile)
- PNG format
- JPG
- TGA

Access

Ribbon	Publish > Documentation > Save Image > Save to File
Menu	Diagram Save as Image
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
- 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 'Options' dialog ('Tools | Options | General').

Access

Ribbon	Open diagram then, Publish > Documentation > Save Image > Save to Clipboard
Menu	Open diagram then, Diagram Copy Image to Clipboard
Keyboard Shortcuts	Open diagram then, Ctrl + B

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

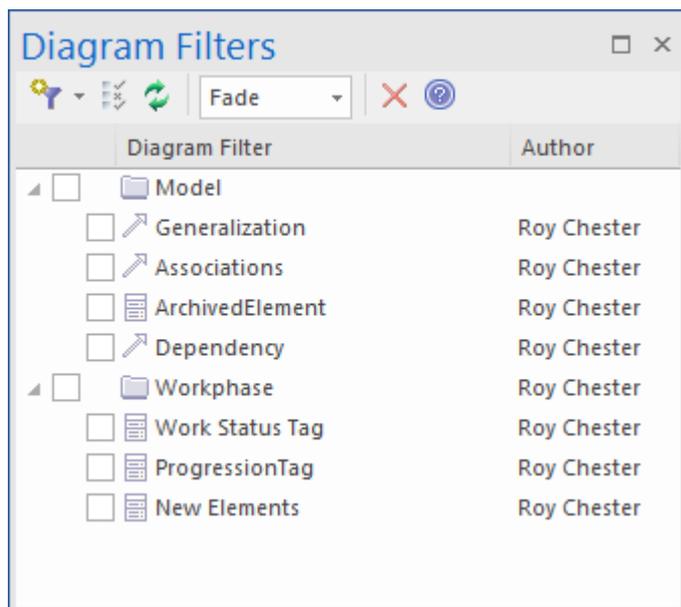
Context Menu	Project Browser Right-click on diagram name Delete '<diagram name>' A confirmation prompt displays. Click on the Yes button to confirm the deletion.
Keyboard Shortcuts	Select diagram in Project Browser Ctrl + Del A confirmation prompt displays. Click on the Yes button to confirm the deletion.

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, Business and Software Engineering, Systems Engineering 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 Show > Window > Diagram Filters
Menu	Diagram Diagram Filters

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	<p>You create and define as many filters as you require, setting up each filter by 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"> • Mute the excluded items in Gray Scale, or Fade the display color • Hide the excluded items completely, or • Select and highlight (with a hashed line) the included items
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 would apply this logic:</p> <p>Does 'Name' contain string 'Class'? If 'No', apply effect; if 'Yes', take no action.</p> <p>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.</p> <p>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</p>

	again almost immediately by re-applying the filter.
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Work With Diagram Filters

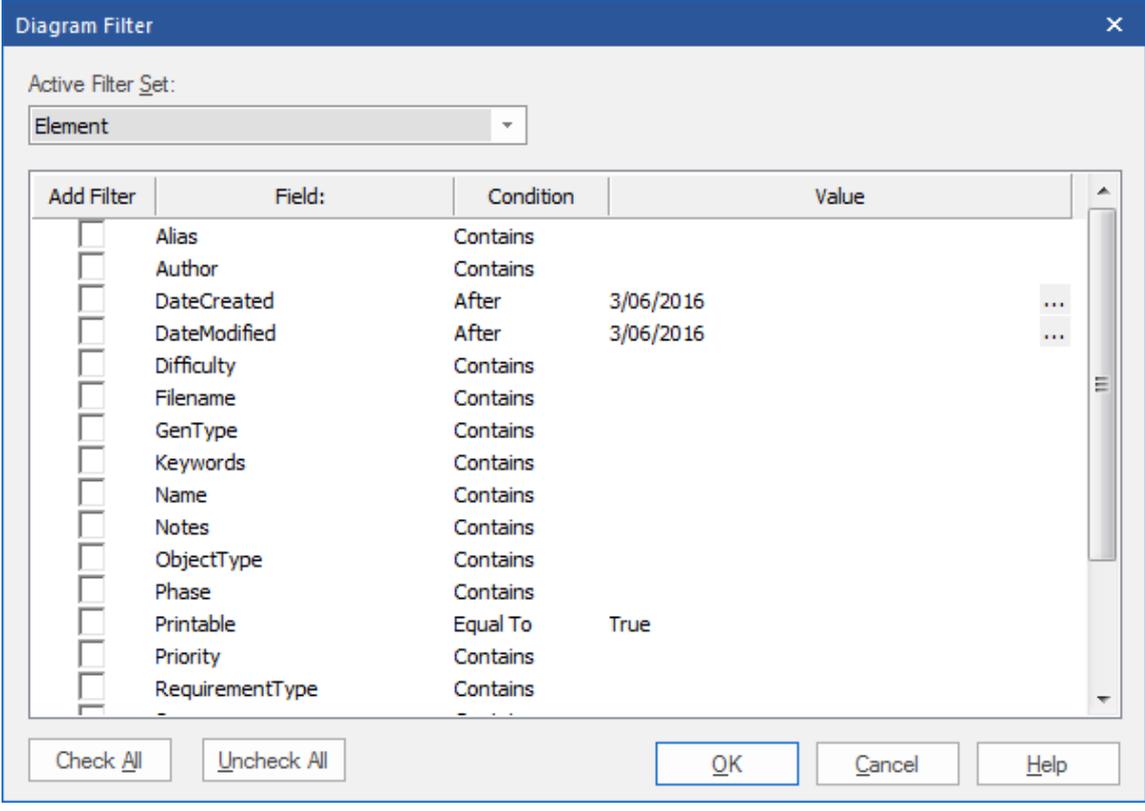
You can modify the display of objects on a diagram using Diagram Filters, which you create and use through the **Diagram Filters window**. This window is dockable, so you can move it around or 'fix' it next to the **Diagram View** while you activate, deactivate and edit the filters.

Access

Ribbon	Layout > Tools > Diagram Filters or Show > Window > Diagram Filters
Menu	Diagram Diagram Filters

Create a single filter to be applied to your diagrams

Step	Action
1	Perform one of these actions: <ul style="list-style-type: none">On the Diagram Filter toolbar, click on the 'New Filter' icon - the first on the leftRight-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	<p>In the 'Active Filter Set' field, either:</p> <ul style="list-style-type: none"> • Use the default value of 'Element' or • Click on the drop-down arrow and select 'Connector' or 'TagValue' <p>The body of the dialog displays a list of properties of elements, connectors or Tagged Values.</p>
4	<p>Scroll through the properties to filter on, and select the checkbox against each property you require.</p>
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	<p>For each property, double-click on the 'Value' field and type or select any specific value to filter on.</p>
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	<p>In the Diagram Filters window toolbar, click on the drop-down arrow next to the Filter icon and select the 'New Filter Grouping' option.</p>

	The 'Create New Diagram Filter Grouping' dialog displays.
2	In the 'Enter Filter Name' field, type the name of the filter group, and click on the OK button . 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.
3	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. 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.

Other Operations

Operation	Detail
Edit a Filter	To edit an existing filter on the Diagram Filters window , either: <ul style="list-style-type: none"> • Double-click on the filter name • Click on the filter name and select the 'Properties' icon from the toolbar (the second icon from the left), or • Right-click on the name and select the 'Properties' option 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.
Change the name of the Filter or Filter Group	Right-click on the name and select the 'Change Name' option. The appropriate 'Create New Diagram Filter ...' dialog displays. Type over the existing name with the new name, and click on the OK button .
Define how filters in a group combine	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 all the selected filters in the group before being operated on. You can change this to an OR relationship, where the object must satisfy the criteria of any 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): <ol style="list-style-type: none"> 1. Right-click on the filter group name and select the 'Properties' option. The 'Set logical operator for Filter Grouping' dialog displays. 2. In the 'Operator' field, click on the drop-down arrow and select the required value - OR or AND. 3. Click on the OK button.
Set Effect of Filters	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: <ul style="list-style-type: none"> • Fade - display all items that do not match the filter criteria in a pale version of the diagram background color • Gray Scale - display all items that do not match the filter criteria in pale gray • Hide - conceal all items that do not match the filter criteria

	<ul style="list-style-type: none"> • Select - select and highlight (with a hashed line) all those items that do match the filter criteria <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 check box 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"> • Click on the 'Reload Filters' icon in the toolbar (third option from the left), or • Right-click on the list panel and select the 'Reload Filters' option
Copy or Move a Filter between Filter Groups	<p>To add an existing filter to another Filter 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.</p> <p>You cannot move a Filter Group or add one group to another.</p>
Toggle between Diagram Filters and Context Filtering	<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 or the diagram background itself and select the 'Context Filtering' option.</p> <p>To re-enable the Diagram Filter effects, display the Diagram Filters window or diagram context menus again and deselect the 'Context Filtering' option.</p>
Delete a Filter	<p>To remove a filter or filter group from the Diagram Filters window, either:</p> <ul style="list-style-type: none"> • Click on the filter name and click on the Delete icon in the toolbar, or • Right-click on the filter name and select the 'Delete Filter' option <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 > List View
Menu	Diagram Alternate Views List View
Context Menu	Right-click on Diagram background View as List Project Browser Right-click on Diagram View Diagram As View as List
Keyboard Shortcuts	Ctrl + Alt + R (opens a new view, as a list)

Topics

Topic	Detail
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"> • 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 • Apply a diagram filter for elements (the Fade, Gray Scale and Hide modes reduce the number of elements listed; Select mode has no effect) • Change the sequence of columns, by dragging column headers left or right
Display Element Properties	Double-click on the element entry.
Select Items	Select: <ul style="list-style-type: none"> • an element by clicking on it • 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

	<ul style="list-style-type: none"> • several individual elements by holding Ctrl as you click on them • a range of elements by holding Shift as you click on the first and last in the range
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 (documentation)	Notes are shown underneath the element. To add or edit notes, click on the item 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"> • The Model Hierarchy format and hence does not have the  button in the toolbar • The  toggle button • The  toggle button <p>The Diagram List does have these additional context menu options:</p> <ul style="list-style-type: none"> • Diagram View - show the elements of the selected diagram as a diagram instead of as the Diagram List • Gantt View - show the list as a Gantt chart of resource allocations • Diagram Properties - display the 'Diagram Properties' dialog for the diagram

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
Menu	Diagram Diagram Layout
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 Control 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"> • Circle/Ellipse • Box • Per Page • Digraph • Spring • Neaten • Converge/Diverge • Fan Relations • Auto Route <p>The layout type determines the fields presented in the window, therefore the appropriate fields are described separately for each layout type.</p>

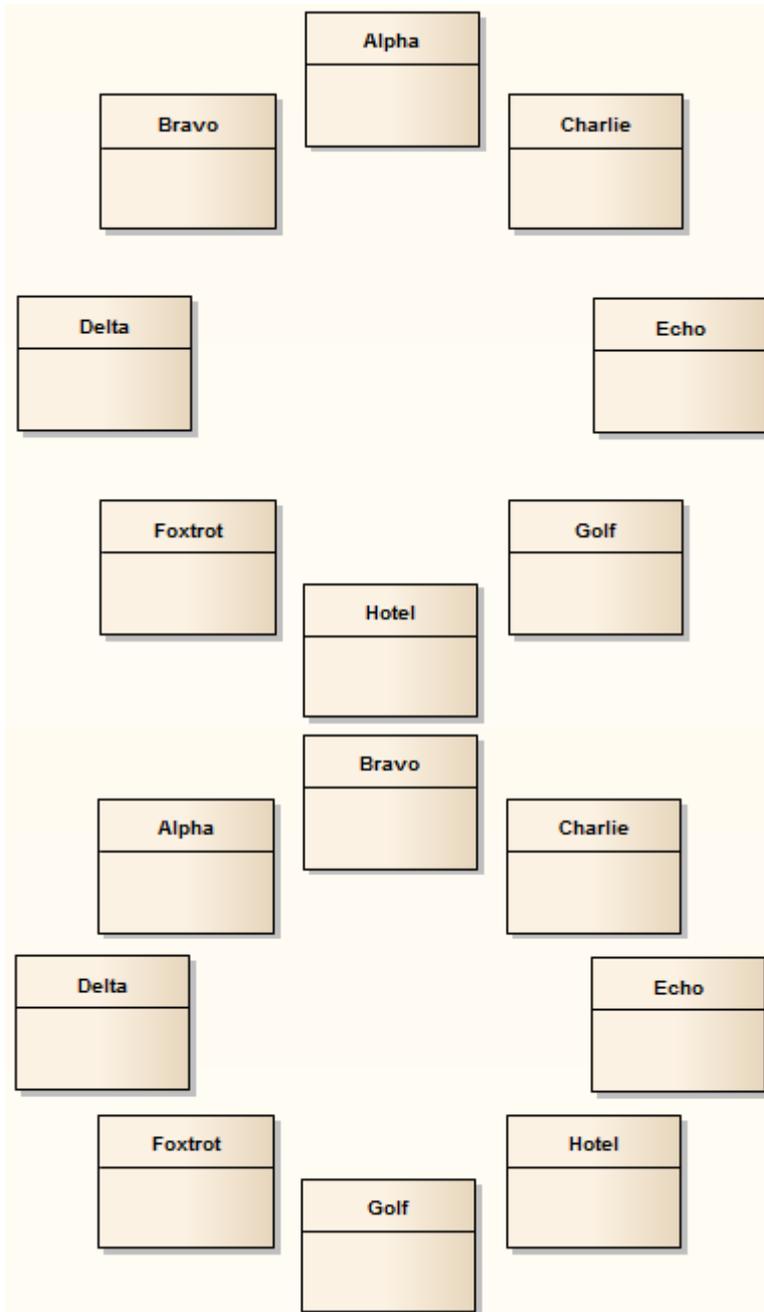
	<p>If you want to apply a sequence or chain of diagram layouts to a diagram, select either:</p> <ul style="list-style-type: none">• The appropriate system-defined chain name, or• The name of a chain you have created yourself <p>You can create and modify a 'Layout Chain' by clicking on the  button in 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

- 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

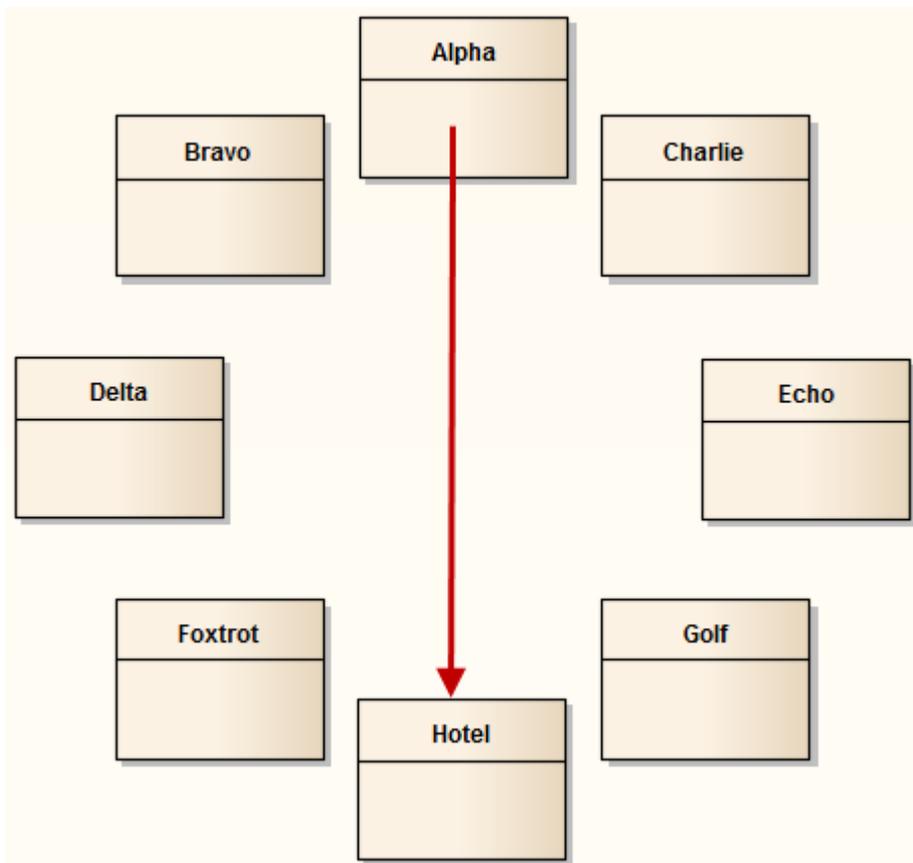
Circular/Elliptical Layout

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 Layout Diagrams procedure, and at step 2 select either Circle or Ellipse as required.
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"> • 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) • Area (Ascending) - elements are passed to the specified layout in order of the screen space they occupy, smallest to largest • Area (Descending) - elements are passed to the specified layout in order of the screen space they occupy, largest to smallest • Name (Ascending) - elements are passed to the specified layout in alphanumeric order, based on the element name • Name (Descending) - elements are passed to the specified layout in reverse alphanumeric order, based on the element name • Element Type - elements are grouped by type (for example, Class, Use Case) and in alphanumeric order within the group by name
3	<p>Under the 'Placement' option, select either:</p> <ul style="list-style-type: none"> • 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 • Circular - the elements are placed in the required order, clockwise around the perimeter of the circle or ellipse, as in Diagram B
4	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 Diagram C.

Diagram B - Circular Layout

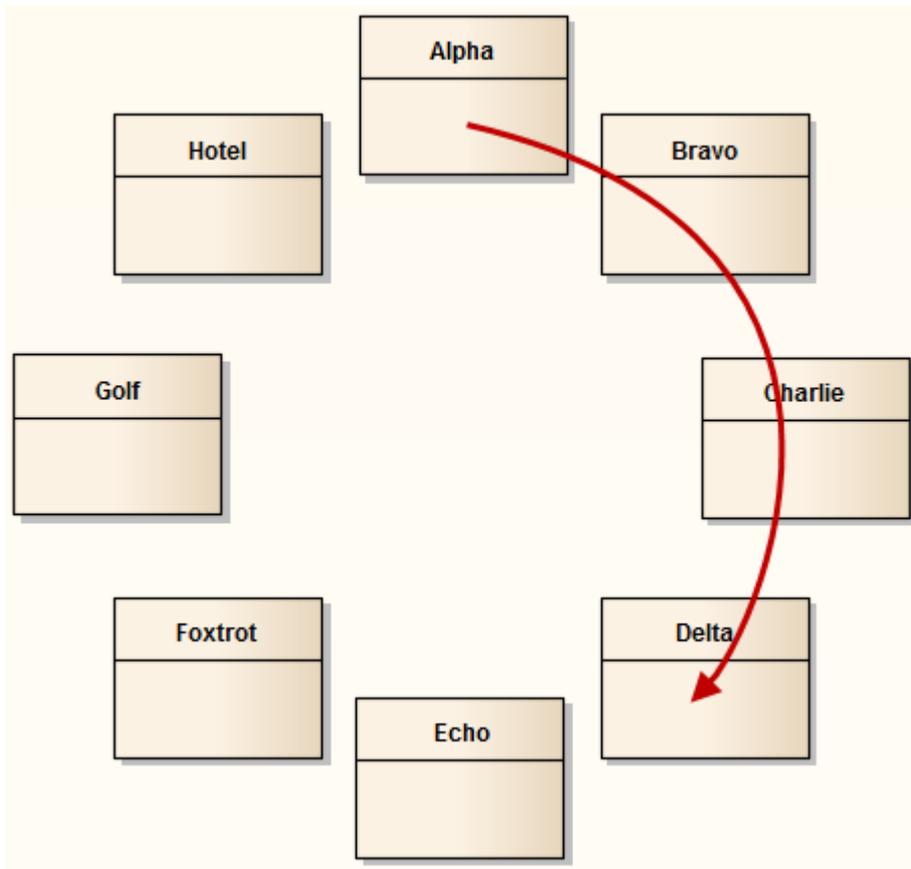
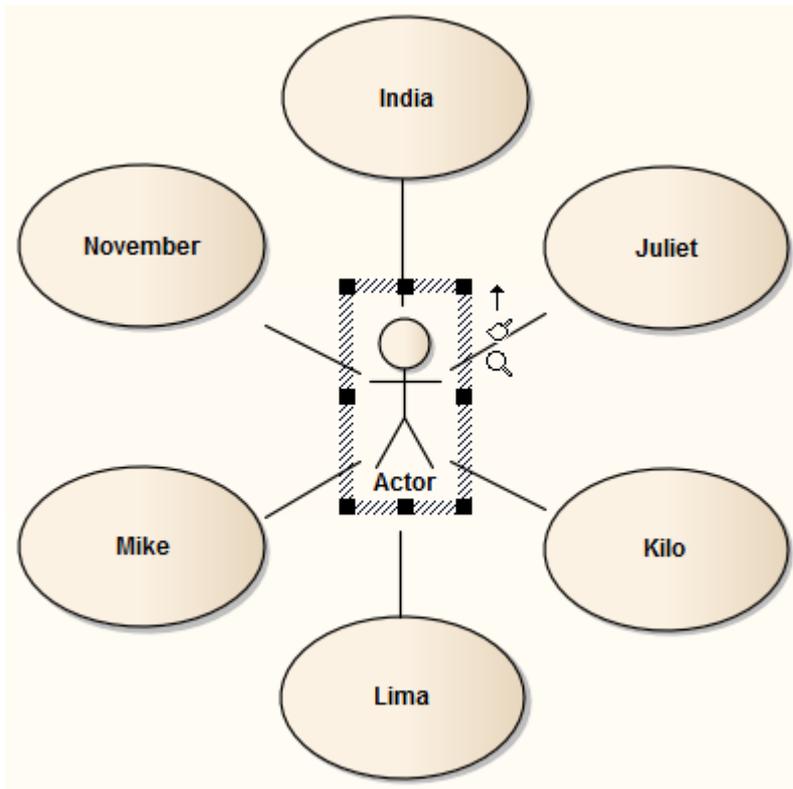
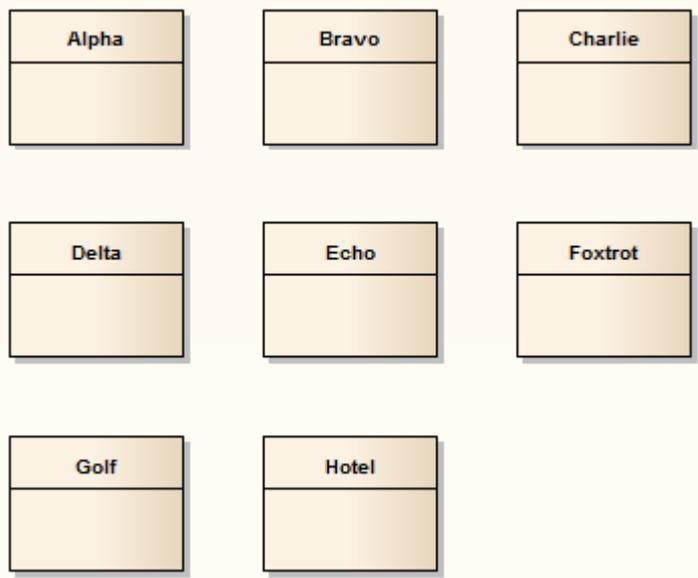


Diagram C - Center Focused Element



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 Layout Diagrams 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"> • 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) • Area (Ascending) - elements are passed to the specified layout in order of the screen space they occupy, smallest to largest • Area (Descending) - elements are passed to the specified layout in order of the screen space they occupy, largest to smallest • Name (Ascending) - elements are passed to the specified layout in alphanumeric order, based on the element name • Name (Descending) - elements are passed to the specified layout in reverse alphanumeric order, based on the element name • Element Type - elements are grouped by type (for example, Class, Use Case) and in alphanumeric order within the group by name
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">• 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)• Specify distribution: Manually define the width of the box, in columns
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.



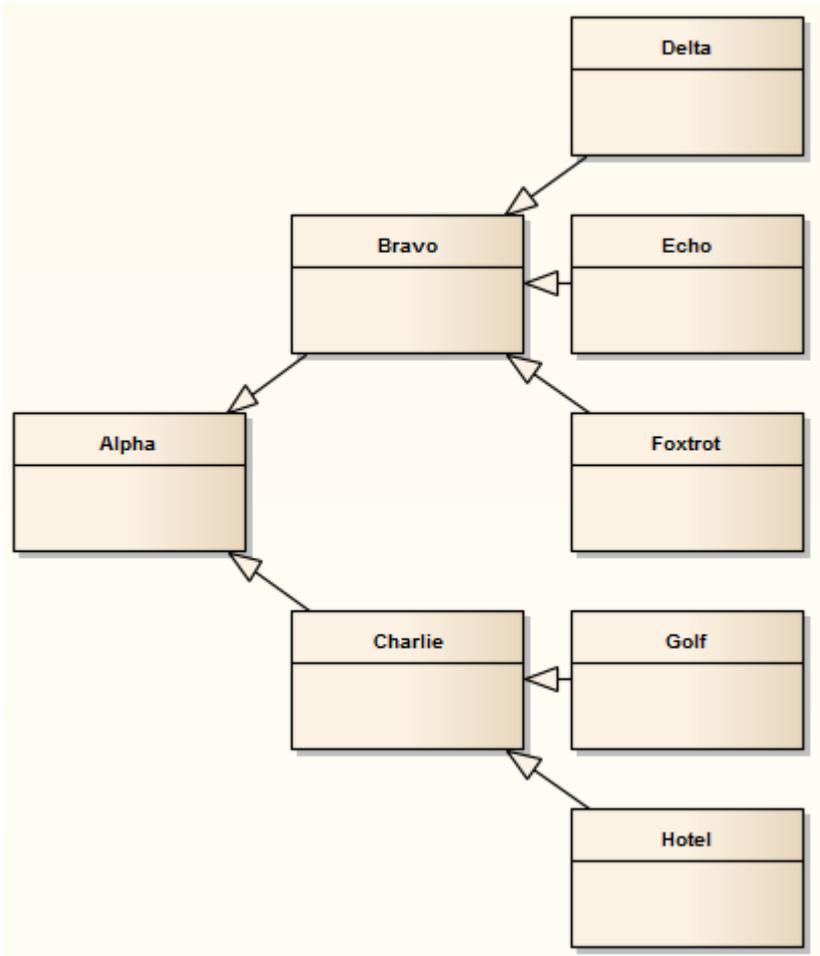
Invoke the Per Page layout

Step	Action
1	Follow the general Layout Diagrams 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"> • 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) • Area (Ascending) - elements are passed to the specified layout in order of the screen space they occupy, smallest to largest • Area (Descending) - elements are passed to the specified layout in order of the screen space they occupy, largest to smallest • Name (Ascending) - elements are passed to the specified layout in alphanumeric order, based on the element name

	<ul style="list-style-type: none">• Name (Descending) - elements are passed to the specified layout in reverse alphanumeric order, based on the element name• Element Type - elements are grouped by type (for example, Class, Use Case) and in alphanumeric order within the group by name
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">• Automatically distribute: automatically calculate the optimum number of cells, taking into consideration the largest horizontal and vertical element edges• Specify distribution: manually enter the per page grid dimensions
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

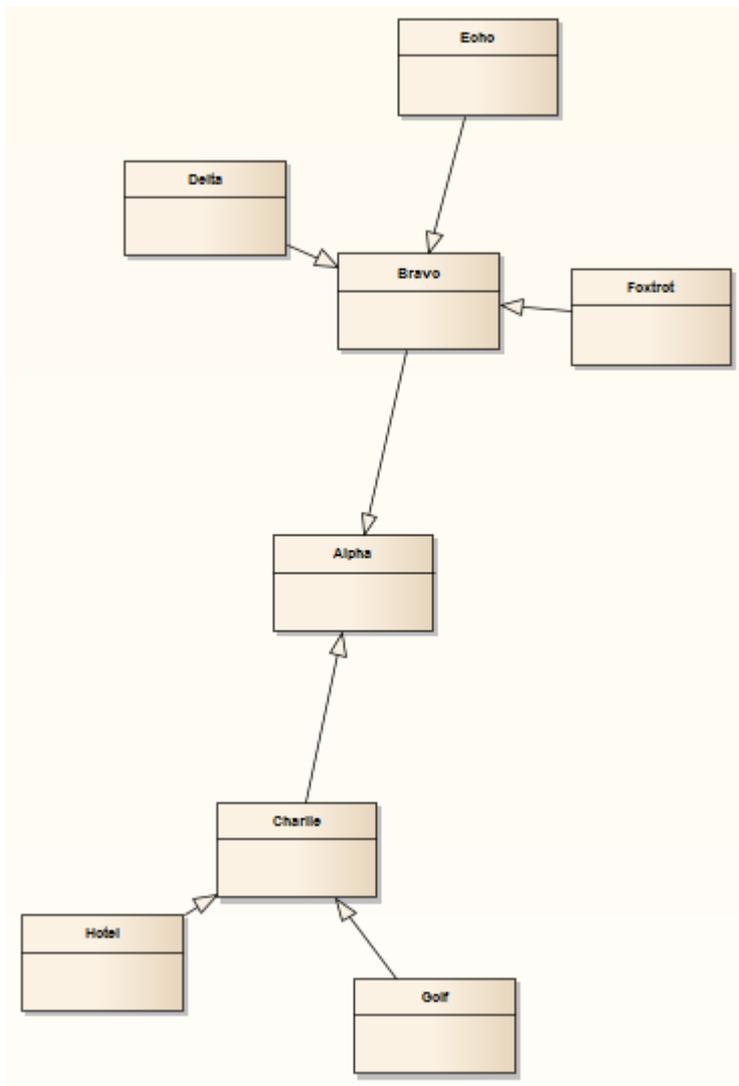
The Digraph layout arranges the selected elements into a directed graph ('digraph' for short). The Digraph attempts to highlight the hierarchy of the elements while keeping the direction of all connectors pointing to the same edge of the diagram.



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.



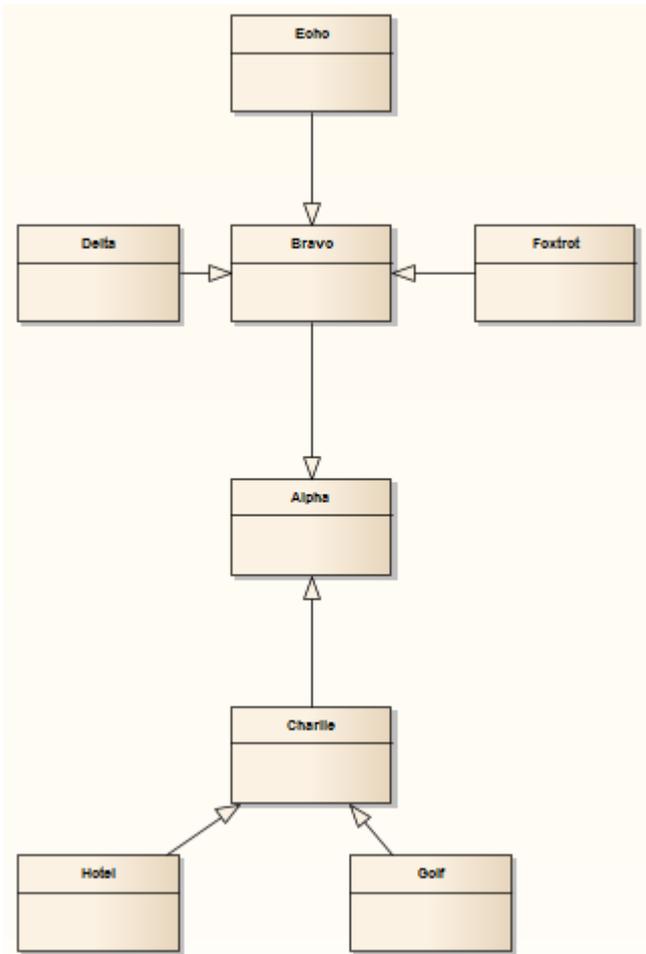
Invoke the Spring layout

Step	Action
1	Follow the general Layout Diagrams procedure, and at step 2 select Spring.
2	In the 'Iterations' field, type the number of iterations, or rounds, to perform to reach the final layout. 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.
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 look like this:



Invoke the Neaten layout

Step	Action
1	Follow the general Layout Diagrams procedure, and at step 2 select Neaten.
2	In the 'Threshold (px)' field type the separation, in pixels, up to which elements are considered to be in the same row or column. 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.
3	In the 'Column Snap' field, click on the drop-down arrow and select the appropriate alignment for elements in the same column: <ul style="list-style-type: none"> • Left - elements are aligned with the left edge of the left-most element in the column • Center - elements are aligned with the vertical center of the center-most element in the column

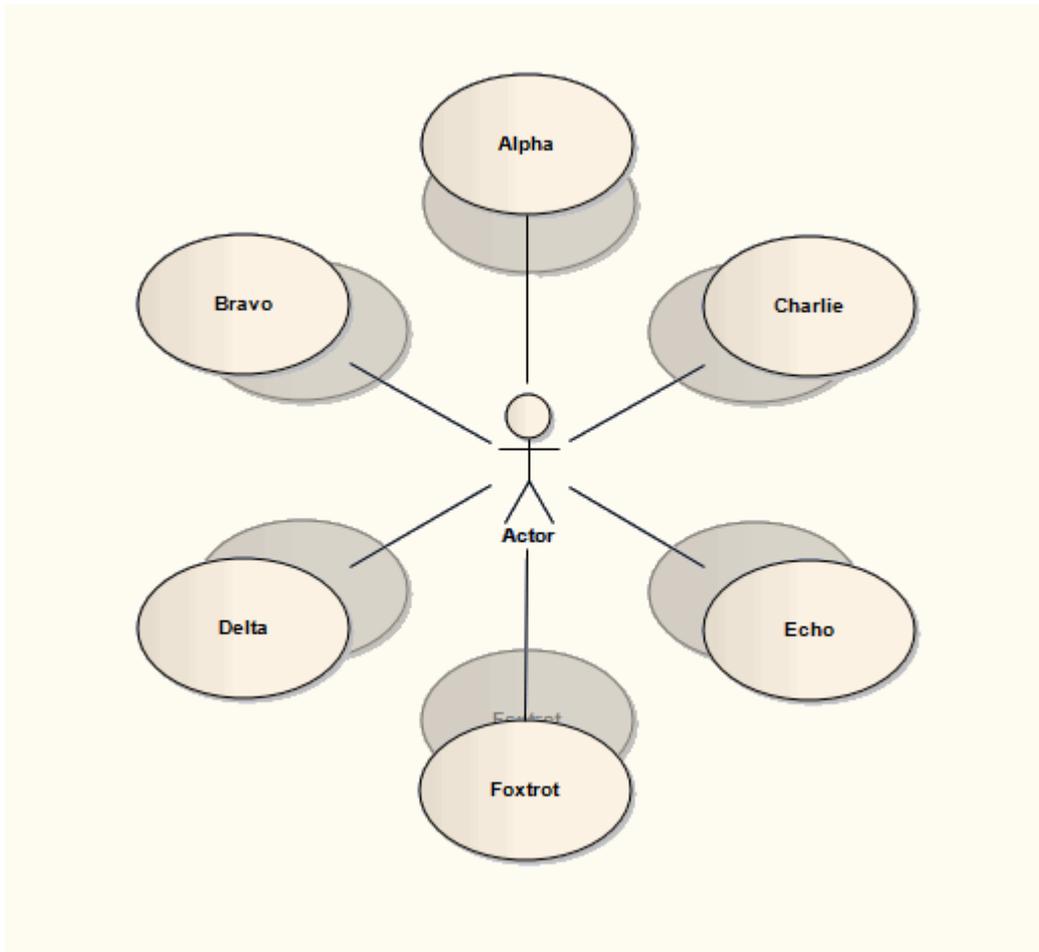
	<ul style="list-style-type: none">• Right - elements are aligned with the right edge of the right-most element in the column
4	<p>In the 'Row Snap' field, click on the drop-down arrow and select the appropriate alignment for elements in the same row:</p> <ul style="list-style-type: none">• Top - elements are aligned with the top edge of the highest element in the row• Center - elements are aligned with the horizontal center of the center-most element in the row• Bottom - elements are aligned with the bottom edge of the lowest element in the column

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.



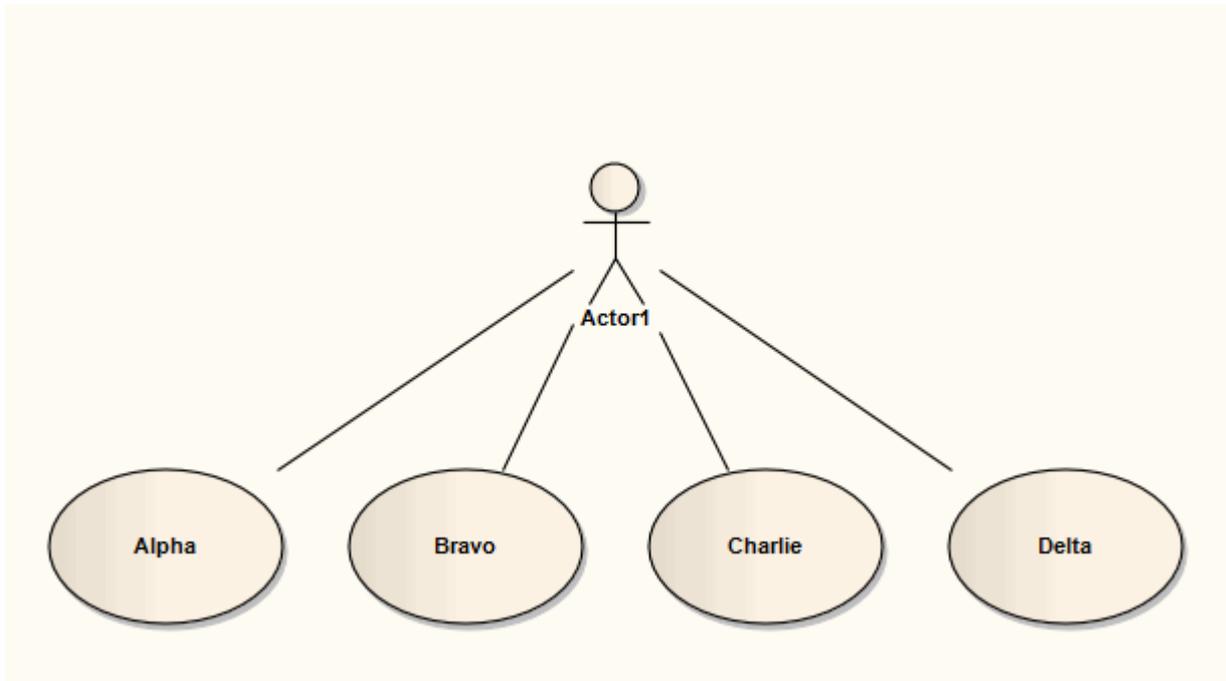
Invoke the Converge/Diverge layout

Step	Action
1	Follow the general Layout Diagrams procedure, and at step 2 select Converge/Diverge.
2	Select the radio button for the required direction of the layout: <ul style="list-style-type: none"> Converge - attracts the set of selected elements to the center point Diverge - repels the set of selected elements from the center point
3	Set the Amount (%) slider to the required percentage. A smaller percentage provides finer control of the change in layout. 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.

	In the Converge layout, the element moves towards the center point; in the Diverge layout the element moves further away from the center point.
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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.



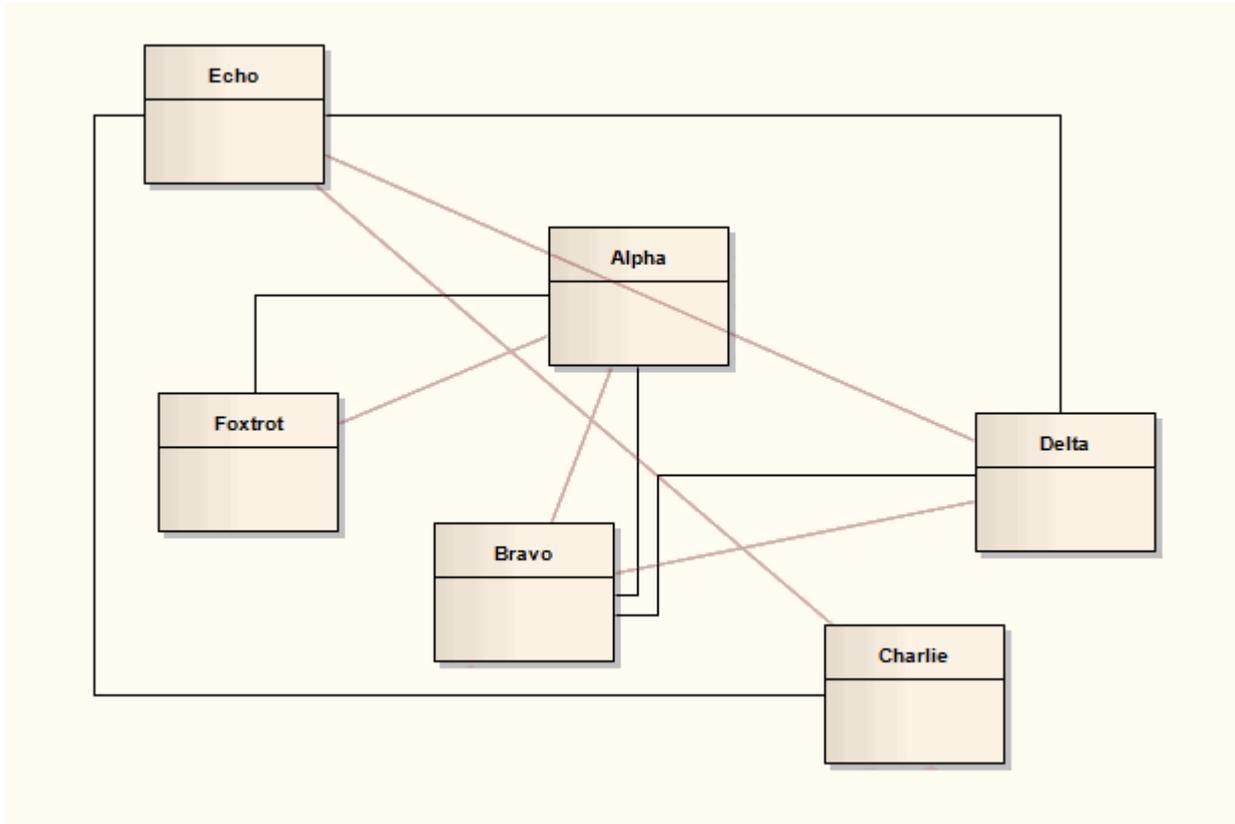
Invoke the Fan Relations layout

Step	Action
1	Open the Layout Tools window; either: <ul style="list-style-type: none"> • Select the 'Diagram Diagram Layout' menu option, or • Right-click on the main toolbar and select the '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	Click on the drop-down arrow in the 'Sort By' field and select the required sort parameter. The options are: <ul style="list-style-type: none"> • '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) • 'Area (Ascending)' - elements are passed to the specified layout in order of the screen space they occupy, smallest to largest • 'Area (Descending)' - elements are passed to the specified layout in order of the screen space they occupy, largest to smallest • 'Name (Ascending)' - elements are passed to the specified layout in alphanumeric order, based on the element name • 'Name (Descending)' - elements are passed to the specified layout in reverse alphanumeric order,

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

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 Layout Diagrams procedure, and at step 2 select Auto Route.
2	In the 'Cell Size (px)' field, type the effective connector separation in pixels. 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.
3	In the 'Element Margin' field, type the separation between connector segments and element borders, in pixels.

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"> Design > Diagram > Manage > Properties > Diagram: Set Layout Style or Layout > Diagram > Manage > Properties > Diagram: Set Layout Style
Menu	<p>To configure settings:</p> <ul style="list-style-type: none"> Diagram Properties > Diagram: Set Layout Style <p>To apply layout:</p> <ul style="list-style-type: none"> Diagram Layout Diagram
Context Menu	<p>To configure settings:</p> <ul style="list-style-type: none"> Right-click on diagram Properties > Diagram: Set Layout Style
Other	<p>To configure settings:</p> <ul style="list-style-type: none"> Double-click background of diagram > Diagram: Set Layout Style <p>To apply layout:</p> <ul style="list-style-type: none"> diagram toolbar:  Auto Layout

Apply Layout Configurations

Options/Buttons	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"> Greedy - to use the Greedy Cycle Removal algorithm, which minimizes the number of connectors reversed Depth First Search - to use the Depth 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

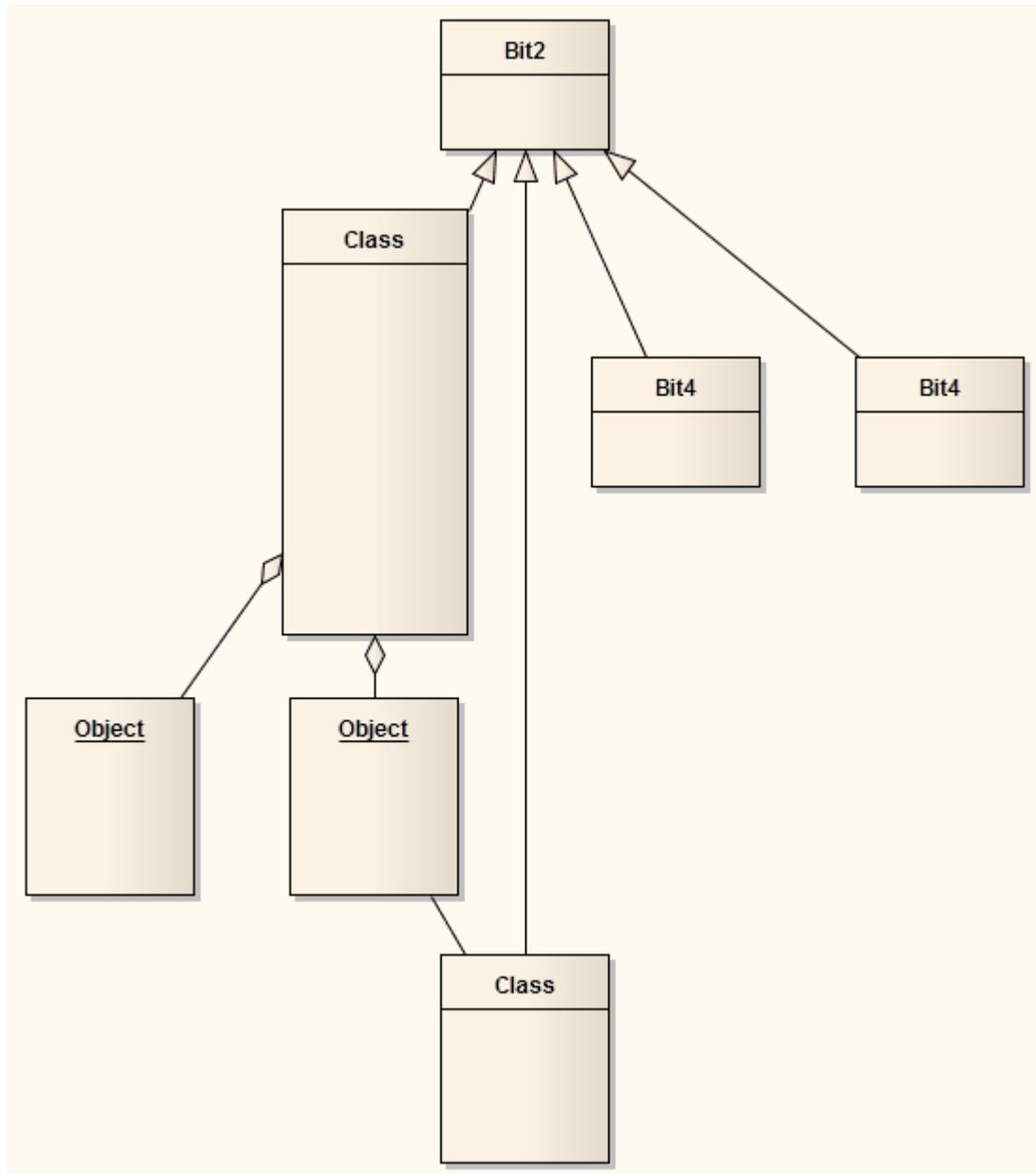
	complex diagrams, but produces a more natural layout than the Greedy algorithm
Crossing Reduction Options	<p>These options determine the length of time the routine searches for ways of reorganizing the layout to avoid crossed relationships:</p> <ul style="list-style-type: none"> • Iterations - Type the number of iterations to be used during cycle removal (more than 8 does not usually provide any improvement) • Aggressive - Select this checkbox to use an aggressive (detailed and time-consuming) crossing reduction step
Layering Options	<p>These settings determine how elements are organized in layers during layout. Select:</p> <ul style="list-style-type: none"> • Longest Path Sink - to use the Longest Path Sink Layering algorithm, where the final target elements (sinks, which have no relationships issuing from 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 • 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 • 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
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"> • Layer Spacing - Type the default number of logical units between layers of elements (vertical spacing) • Column Spacing - Type the default number of logical units between elements within a layer (horizontal spacing)
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"> • 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) • 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 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) • 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)
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	Select this checkbox to apply the diagram layout settings to all diagrams in the project. If you later define different settings and select this checkbox, the new settings override all those saved previously.
OK	Click on this button to save your settings.

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 above 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: 
Menu	Diagram Diagram Layout: 
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"> • Click on the New Chain button and type in a new chain name (and click on the OK button) or • Click on the drop-down arrow and select the name of an existing chain to edit <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 overtype 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 the fields as appropriate and click on the OK button.</p> <p>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.</p> <p>(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' dialog.

Access

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

Options

Field/Option/Button	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.
Font Color	Click on the drop-down arrow and select the color in which to display all Swimlane text. If the color you require is not shown, click on the Other button and either select from a wider range of standard colors or define a custom color.
A	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. If you also change the text color here, it overrides the setting of the 'Font Color' field.
Line Color	Click on the drop-down arrow and select the color in which to display all Swimlane borders. If the color you require is not shown, click on the Other button and either select from a wider range of standard colors or define a custom color.
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.

Bold Font	Select this checkbox to display all Swimlane text in bold.
Hide Classifier	Select this checkbox to block all Swimlane classifier names from being shown on the diagram.
Hide Names	Select this checkbox to block all Swimlanes names from being displayed on the diagram.
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.
Swimlanes	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).
New	Click on this button to begin defining a new Swimlane for the diagram. The 'Swimlane Details' dialog displays, on which you provide the name, classifier and background color of the Swimlane.
Hand (Up)	Click on this button to move a selected 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.
Modify	Click on this button to change the name, classifier or background color of a selected Swimlane. The 'Swimlane Details' dialog displays.
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.
OK	Click on this button to save and apply your changes, and close the dialog.
Cancel	Click on this button to abort your changes, and close the dialog.

Notes

- If you set a background color for a swimlane, it takes on the same shading profile as the main diagram background

Swimlane Details

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

Access

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

Options

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

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.

Access

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

Options

Field/Option/Button	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 #	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. 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.
Color	Click on the drop-down arrow and select the color in which to display the text in the heading, row or column title. If the color you require is not shown, click on the Other button and either select from a wider range of standard colors or define a custom color.
Font	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. If you also change the text color here, it overrides the setting of the 'Color' field (above).
Hidden	Select this checkbox to hide the corresponding Matrix header, row or column Title text on the diagram.
	Click on the drop-down arrow and select 'Heading', 'Column' or 'Row' to apply your

Type	field settings to the Matrix heading cell, a column heading or a row title, respectively.
Back Color	Click on the drop-down arrow and select the color in which to display the heading cell, row or column background. If the color you require is not shown, click on the Other button and 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	Click on the drop-down arrow and select: <ul style="list-style-type: none"> • An existing Profile to override the current contents of the dialog • '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>)
Model Profiles: Save	Click on this button to save the current dialog contents as a new Profile. A prompt displays for you to assign a name to the Profile.
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	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. The columns are listed in the order in which they are displayed, left to right, on the diagram. The rows are listed in the order in which they are displayed, top to bottom, on the diagram.
Hand (Up)	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. When you save the changes, on the diagram the selected column or row is moved left or up one place.
Hand (Down)	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. When you save the changes, on the diagram the selected column or row is moved right or down one place.
New	Click on this button to clear the dialog fields so that you can add a new column or row item to the Matrix.

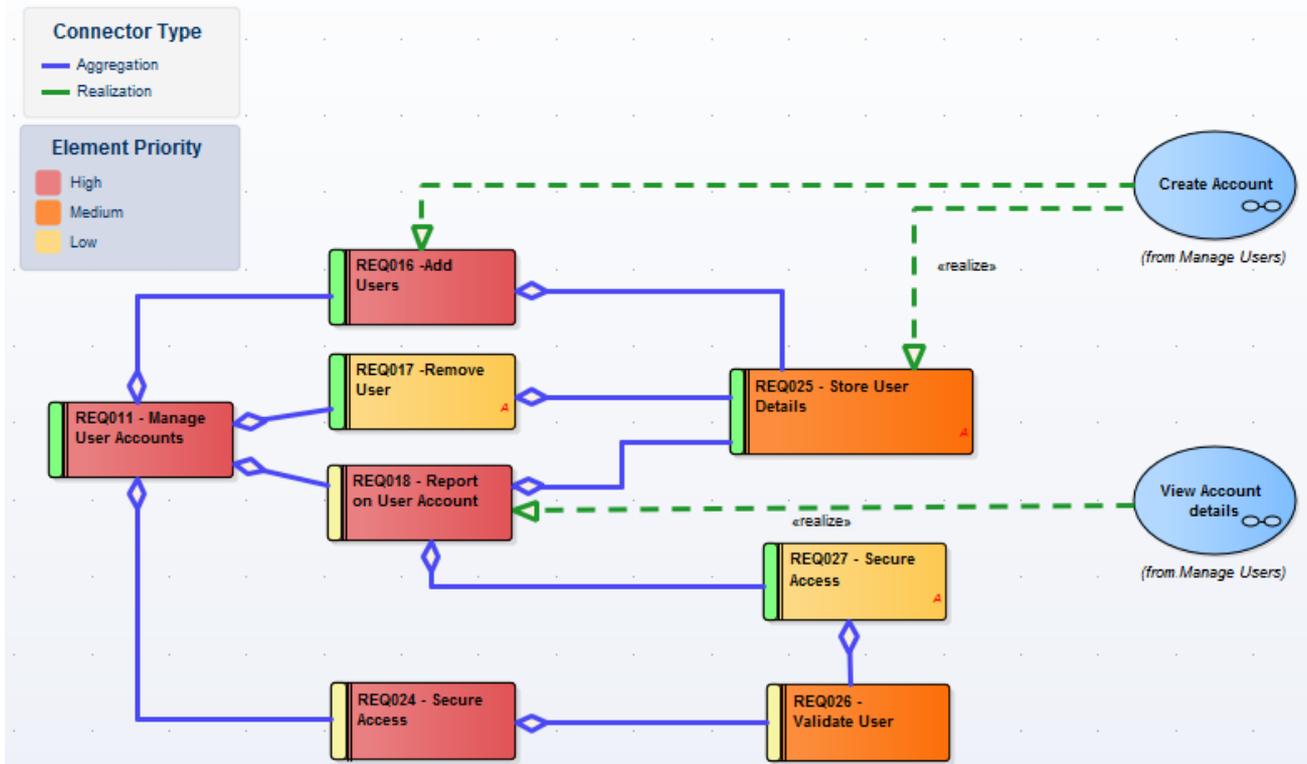
Copy	Click on this button to copy a selected item from the list so that you can give it a new Title 1 and edit it as a new item. If you change the item, it is added to the list when you click on the Save button .
Delete	Click on this button to delete a selected item from the list. The column or row is removed from the list and diagram, which both close up.
OK	Click on this button to save and apply your changes, and close the dialog.
Cancel	Click on this button to abort your changes, and close the dialog.

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 'Export Reference Data' and 'Import Reference Data' menu 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.



From version 12.1 of Enterprise Architect, Legends have taken on additional capabilities, including the ability to auto color elements in different ways and according to different rules and filters. The next sections detail the mechanics of setting up your Legend, but first a quick overview.

Simple Legend

Simple Legends are the kind that 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

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 cover 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 'Options' dialog, 'Standard Colors' page.

Access

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

Ribbon	Design > Element > Manage > Properties: Style Options
Menu	Element Properties: Style Options
Context Menu	Right-click on Legend element Properties: Style Options
Other	Double-click Legend element: Style Options

Define properties of a Legend

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

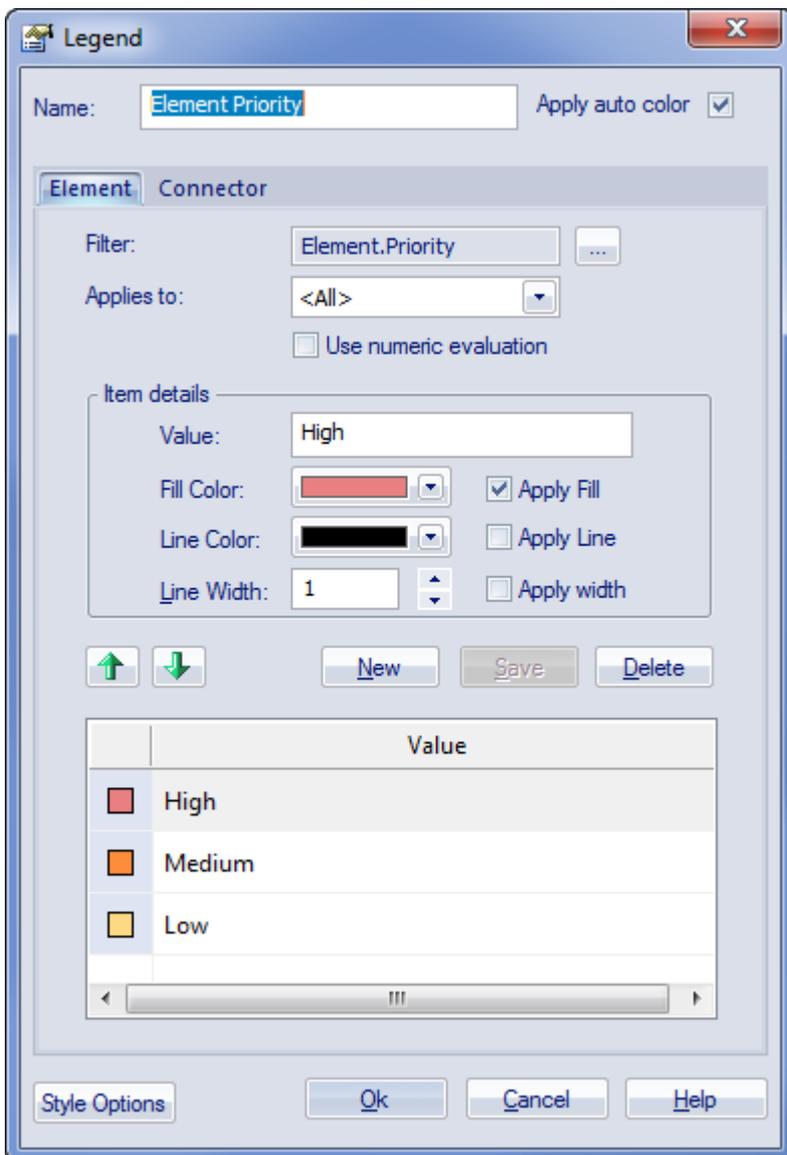
Legend Key

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 legend properties dialog for a legend element can be displayed using any of the methods outlined below.



Ribbon	Design > Element > Manage > Properties
Menu	Element Properties
Context Menu	Right-click on Legend element Properties

Other	Double-click the Legend element
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Add a Legend to a diagram

Field/Option/Button	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' 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"> • 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 • 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 <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	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 connector, select <All>.
Use numeric evaluation	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). The 'Apply auto color' checkbox must be selected for this checkbox to take effect.
Value	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: <ul style="list-style-type: none"> • .. (inclusive range); for example, 3..6 colors objects with the property having a value of 3, 4, 5 or 6 • < (less than); for example, <4 colors objects with the property having a value

	<p>of 1, 2 or 3</p> <ul style="list-style-type: none"> • > (greater than); for example, >4 colors objects with the property having a value of 5 or greater • = (equal to); for example, =5 colors objects with the property having a value of 5 and only 5 • n (single number on its own, same as equal to) • 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 <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 Other 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 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 Other 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"> • Overtyping the line thickness value with a different value (between 1 and 5), or • Clicking on the 'spinner' arrows to increase or decrease the thickness
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, simply drag an 'Image Asset' artifact from the diagram toolbox onto a diagram - you will be prompted to choose an image file, or 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 images can then be used as Alternate 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 EA. A context menu will display; select the option 'Image Asset'.

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 is displayed (showing only Image Assets).
3	Browse through the model and select the required Image Asset.
4	Click on OK.

Select an Image Asset as an Alternate 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 is displayed (showing only Image Assets).
2	Browse through the model and select the required Image Asset.
3	Click on OK.

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'.

When the Image Asset is displayed on a diagram as the image, double-clicking will display the element's Properties dialog.

When the Image Asset is referenced by a hyperlink, hover the mouse over the hyperlink to display a floating toolbar that includes a 'View Properties' button, which displays the 'Properties' dialog for the referenced element.

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 and Down cursor 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
Menu	Project Settings Images Click on element Element Appearance Select Alternate Image
Context Menu	Right-click on an element within a diagram Appearance Select Alternate Image (Ctrl+Shift+W) or Right-click on an element within a diagram Appearance Select Default Image
Keyboard Shortcuts	After selecting 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. 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. If you continue, a prompt displays for you to enter the new filename.
Add New	Click on this button to display options for importing images from a file system or

	<p>from the clipboard.</p> <ul style="list-style-type: none"> 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 From Clipboard - select this option to download the image from the clipboard into the Image Manager (not via a diagram) <p>Internally, the images are stored in .png or metafile format to conserve space. You can also add images by:</p> <ul style="list-style-type: none"> Importing a library of alternative images from the Sparx Systems website Copying the Image Library from another model using the 'Export Reference Data' and 'Import Reference Data' facilities, and 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 <p>If necessary, you can change the file name using the 'Rename' option. 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. Shortcut: Alt+U</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. 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. 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, Business and Software Engineering, Systems Engineering and Ultimate editions of Enterprise Architect, if security is enabled you must have 'Configure Images' permission to configure alternative element 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 'Export Reference Data' and 'Import Reference Data' 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	Right-click on the Boundary element and select Z-Order Send to Bottom. This places the Boundary behind all other elements on the diagram.
5	Either: <ul style="list-style-type: none"> • Press Ctrl+Shift+W, or • Right-click on the Boundary and select Appearance Alternate Image
6	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.
7	Click on the OK button .

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 Appearance | Apply Image From Clipboard

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

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	Either: <ul style="list-style-type: none"> • Press Ctrl+Shift+W, or • Right-click the selected element and select Appearance Select Alternate Image
4	On the ' Image Manager ' dialog, in the 'Loaded Images' panel, click on the appropriate image name and then on the OK button . The element appearance changes to the selected image.

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

Print Preview

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

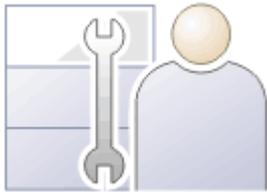
Access

Ribbon	 > Print Preview Publish > Documentation > Print Diagram > Print Preview Document-Edit > File > File > Print Preview
Menu	File Print Preview

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.

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	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. 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.
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.

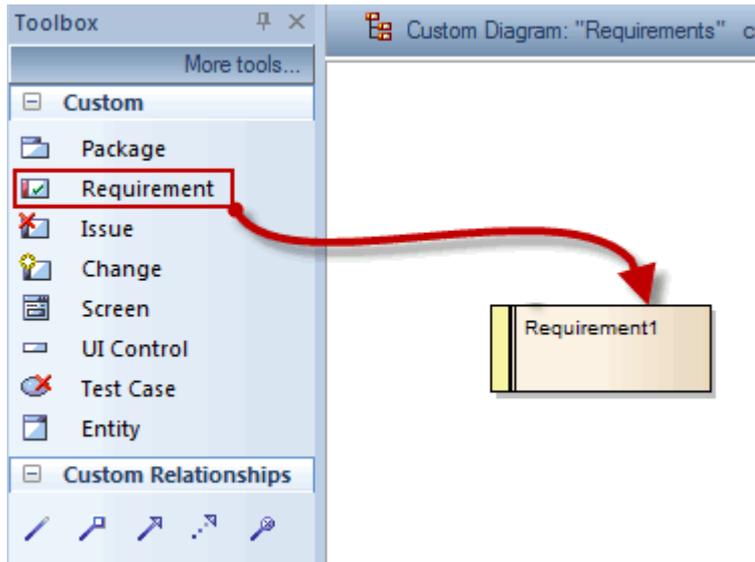
Write External Descriptions for Elements	One aspect of modeling is to describe and document the purpose and use of an element in the context of a particular diagram. You can provide such documentation in the form of Note or Text elements displayed with and connected to the elements they describe. The 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, Business and Software Engineering, Systems Engineering and Ultimate editions of Enterprise Architect, if security is enabled you must have Update Element permission to update element properties or delete an 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 'Options' 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

- 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 > New > Add New Element
Context Menu	Right-click on Package Add Element
Keyboard Shortcuts	With a package selected in the Project Browser : Ctrl + M In a diagram, press M
Other	Project Browser caption bar menu New Element

Add an element to a Package

Field/Option/Button	Action
Name	Type the name of the element.
Auto	As an alternative to typing in the name, click on this button to insert predefined auto-counter text. If you already have some text in the 'Name' field, it is over-written by the auto-counter text.
Type	Click on the drop-down arrow and select the required element type from the list. The list of element types is derived from the diagram or technology shown in the 'Toolset' field.
Toolset	Shows the current UML diagram type, Profile, Add-In or MDG Technology within which you are creating the element.
Toolset (button)	If the Toolset is not appropriate for the type of element you want to create, click on this button and select the required diagram type or technology. The <default> 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. The selected technology is displayed in the 'Toolset' field.
Stereotype	If required, either type the stereotype name or click on the drop-down arrow and select the stereotype. This field is not available if the element you are creating is an extended element

	that already has a stereotype.
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"> • the element is created in the top left corner of the diagram, and • the dialog remains open <p>If you accessed the dialog by clicking on the 'New Element' icon in the Project Browser toolbar, 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 clicking on the 'New Element' icon in the Project Browser toolbar.</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 (see *Learn more*).

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
Menu	Project Settings Auto Names and Counters

Set up auto naming for an element type

Field/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	Select the checkbox to apply auto naming to each new element of the specified type, on creation. 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 (<element type><n>).
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 dialog, but are not applied to new elements of that type. The default element naming convention takes effect (<element type><n>).</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"> • If the user creates an element on a diagram, such as from the Diagram Toolbox or Quicklinker, the element is automatically assigned the defined name and/or Alias • 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 • If the user already has some text in the 'Name' or 'Alias' field, it is over-written by the auto-counter text <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

Context Menu	Right-click on Package Advanced Apply Auto Naming to Elements
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Apply Auto-naming to elements

Field/Option	Action
Current Name	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. 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. 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.
Name Preview	Initially shows the elements' current names. When you select the checkbox against each element, the name changes to show the effect of applying the auto-naming conventions to it.
Alias Preview	Initially shows the elements' current Aliases. When you select the checkbox against each element, the Alias changes to show the effect of applying the auto-naming conventions to it.
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	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: MyPrefix00001MySuffix Original Name
Overwrite current Name with Auto Name	Click on this radio button to set the new element names to the auto-name text only. That is, of this structure:

	MyPrefix00001MySuffix
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	Click on this button to immediately define automatic naming conventions for an element type if: <ul style="list-style-type: none"> You want to change the conventions for the element type, or The element type that you want to apply auto-naming to has no conventions (and is therefore not listed on the dialog) 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.
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

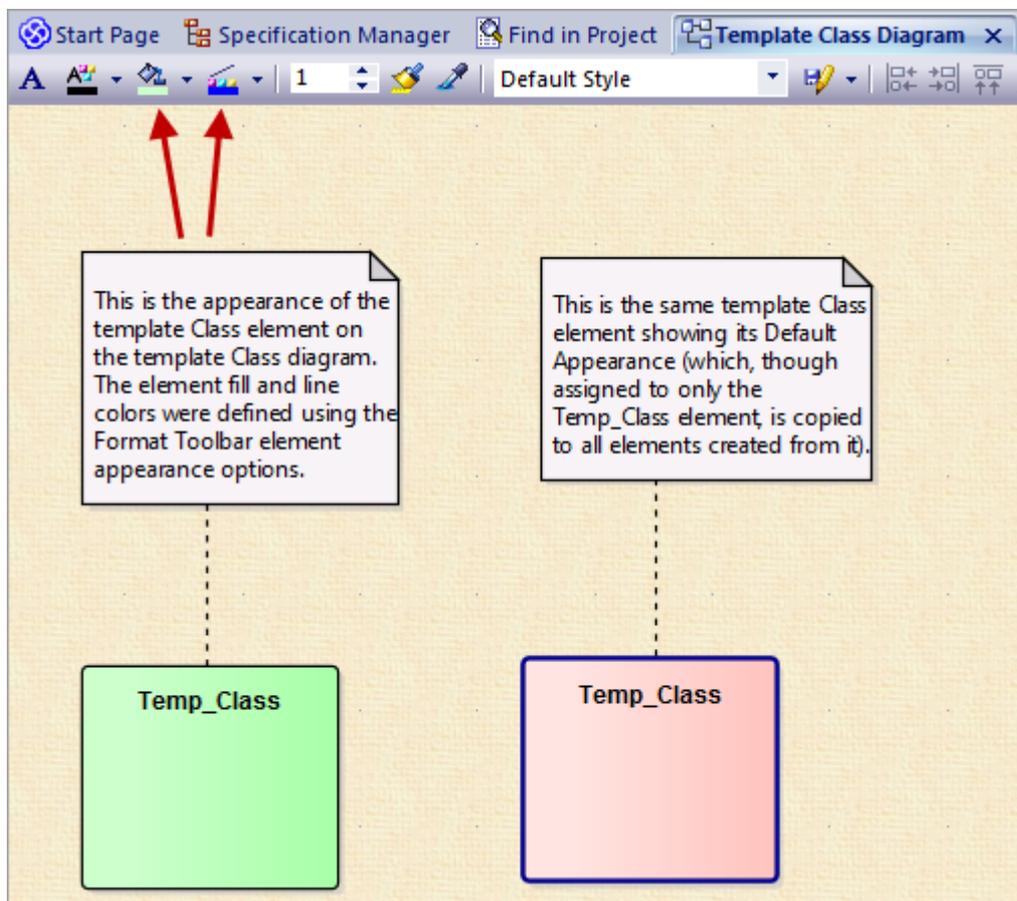
In building up a model, you might want to represent or emphasize certain characteristics of elements in the appearance of those elements, or select particular display options as standard. For example, you could make new Interface elements a different default color to new Class elements, ensure all new Activity Partitions are vertical rather than horizontal, or set a specific group of display options for new Use Case diagrams.

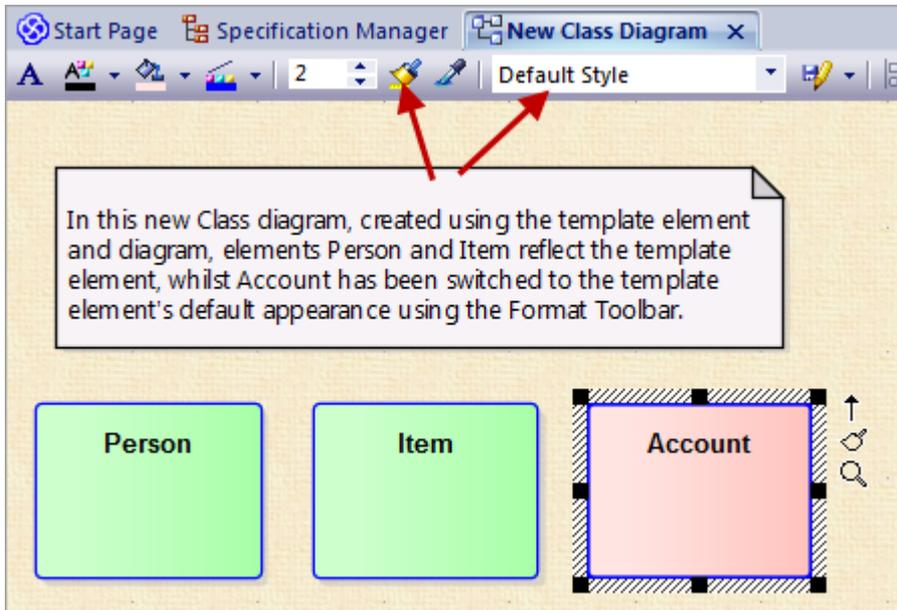
To do this, you create an element or a diagram with all the characteristics you require, and store it in an **Element Templates Package**; the system then checks this Package:

- Whenever you create a new diagram, or
- Whenever you start to create an element using the **Diagram Toolbox**

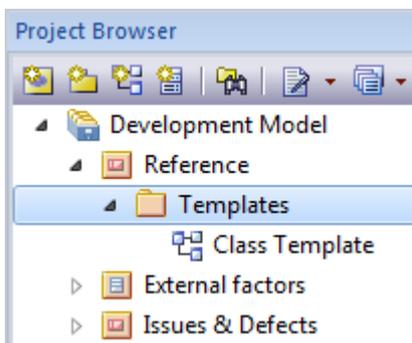
When you are creating a new diagram, the system checks for the diagram type in the Templates Package and, if it finds that diagram type, will copy the display options of the template diagram into the new diagram.

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 'Project Settings Project Template Package' menu option to set the templates as the default element templates. The Find Package window displays.

5	<p>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).</p> <p>Now each new element or diagram you add to your project is created with the settings from the appropriate template element or diagram.</p>
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Notes

- In the Corporate, Business and Software Engineering, System Engineering 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 through the Format Toolbar, or 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 'Options' 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

Ribbon	Layout > Style >  (Set Font)
Menu	Element Appearance Set Font (when an element is selected in a diagram)
Context Menu	Right-click on element Appearance Set Font
Other	Right-click on element Format Toolbar  (Set Font)

Font Dialog Options

Field/Button	Action
Font	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. This setting affects all text in the selected element except for the Note compartment text.
Font Style	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. This setting affects all text in the selected element except for the Note compartment text.
Size	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. Alternatively, type the font size directly into the field. This setting affects all text in the selected element.
Strikeout	Select this checkbox to show the element text with a line through it. (This checkbox is not currently available.)
Underline	Select this checkbox to show the element text with an underline.
Color	Click on the drop-down arrow and click on a color in the list. (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.)
Script	If Western script is not appropriate for the element text, click on the drop down arrow and select a different script type.
Sample	Review the combined effects of the settings you have selected.
OK	Click on this button to save your changes.

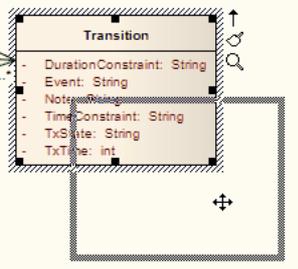
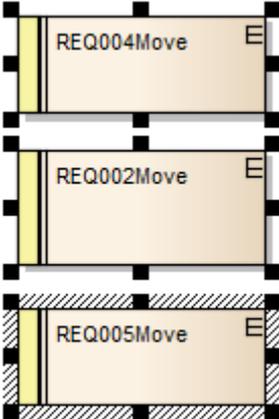
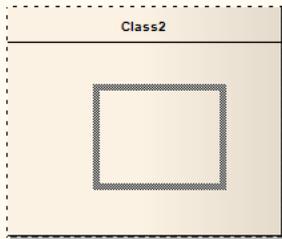
Notes

- 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"> 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) Hold down Shift and press the appropriate arrow keys to move the element or group of elements by small increments in the arrow direction
<p>Align Elements</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"> The 'Align...' options in the right-click context menu or The Alignment buttons on the Diagram toolbar 
<p>Confirm Possible Nest Elements</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"> Drag a Signal element over a Class; because a Class element can nest a Signal, the Signal element is encapsulated Drag a Class element over a Signal element; because a Signal cannot nest a Class, the Class element is not encapsulated <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"> If the nest element can accept the selected element, the nest element border changes to a dashed line If the border does not change, the selected element cannot be encapsulated within the nest element

Notes (on Adding nesting element to nest)

- The 'Support for Composite Objects' checkbox must be selected on the 'Objects' page of the 'Options' dialog (select 'Tools | Options | Objects'); 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
- If you have selected the 'Structured Compartment' checkbox on the 'Feature and Compartment Visibility' dialog, the nesting element is confined to the Structured Compartment and cannot be dragged out until the checkbox is deselected again

Copy Elements Between Diagrams

On a diagram, if you have created a structure of elements such as a State Machine, you might want to copy that structure onto another diagram as a new set of elements without losing the organization of the structure. In doing this, you can change any of the element names within the structure and still preserve the relative nesting of the elements.

You can also cut multiple elements from one diagram and paste them into another, and simply paste an element or elements as links to the original elements. If you cut elements from a diagram, the elements are not cleared from the source diagram until they are pasted into the target diagram.

Access

Ribbon	<p>With element(s) selected in source diagram:</p> <ul style="list-style-type: none"> Layout > Diagram > Edit > Copy <p>With input focus on target diagram:</p> <ul style="list-style-type: none"> Layout > Diagram > Edit > Paste as Link or Layout > Diagram > Edit > Paste as New
Keyboard Shortcuts	<p>With element(s) selected in source diagram:</p> <ul style="list-style-type: none"> Ctrl + C <p>With input focus on target diagram:</p> <ul style="list-style-type: none"> Shift + Insert (Paste as Link) Ctrl + Shift + V (Paste as New)

Complete the Paste Element(s) as New Dialog

Field/Option	Action
Original Element Name	Each element name defaults to selected, to be inserted in the target diagram. If you want to omit an element from the copied structure, clear the checkbox against it.
New Element Name	If you want to give a copied element a new name, delete the current name and type in the new name.
Include Connectors	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. 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

- If you want to copy a single element, click on it and select the Edit | Copy menu option
- 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

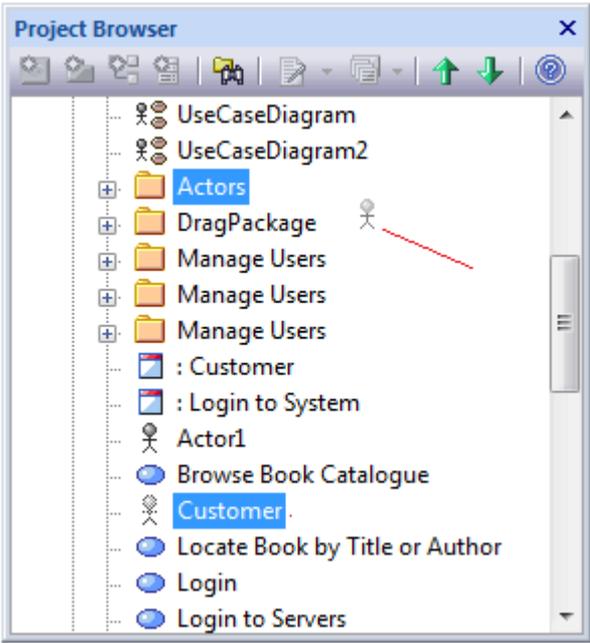
Move Elements Between Packages

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. The cut element is listed as a child of the selected element or Package, in the Project Browser .

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> <ul style="list-style-type: none"> • 'Copy Element(s) to Clipboard' (for multiple elements) • 'Copy / Paste Copy Element(s) to Clipboard' (for a single element) <p>Alternatively, click on a selected element and press Ctrl+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 press Ctrl+V.</p> <p>The 'Pasting Element(s) from Clipboard' dialog briefly displays while the paste operation completes.</p> <p>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.</p> <p>If the target Package already contains:</p> <ul style="list-style-type: none"> • 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 - Copy 2, - Copy3 and so on, as copies of the element accumulate in the target Package) <p>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.</p>

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

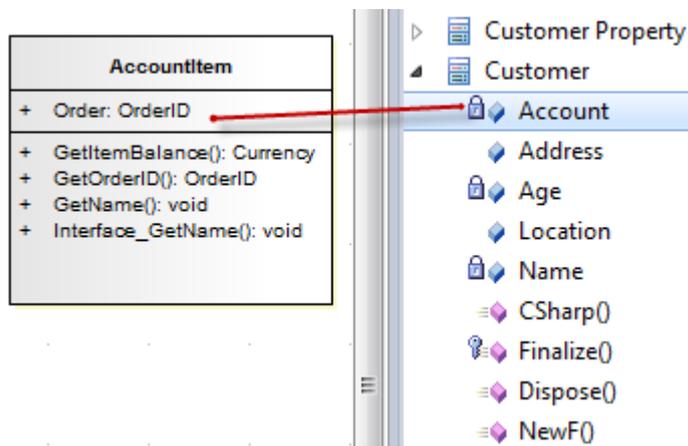
Copy Features Between Elements

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.

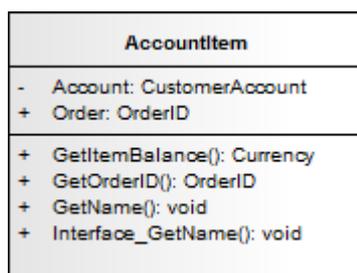
Copy a single element feature

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.



Notes

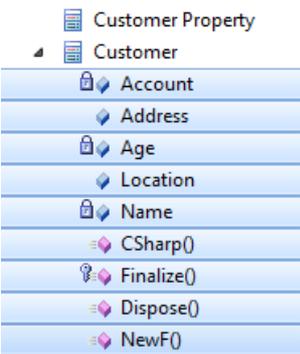
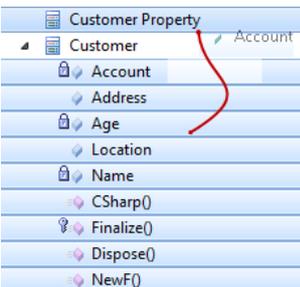
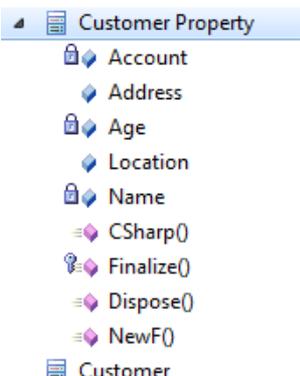
- You can also select and copy multiple features at the same time; you simply press **Ctrl** or **Shift** as you select the features in the element in the **Project Browser**, drag them onto the diagram and drop them into the target element (you cannot copy multiple features from the **Element Browser**)

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.

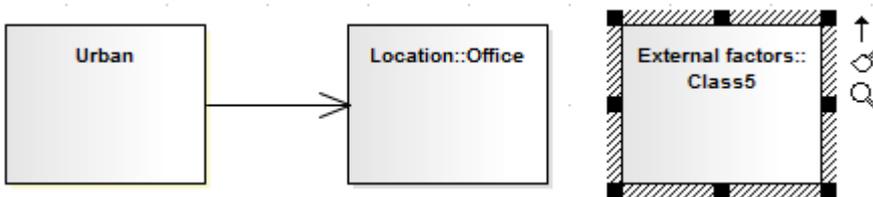
Images	Action
	<p>In the Project Browser, click on the attribute or operation to move from the source element.</p> <p>If you are moving several features at once, while you click on the features hold down:</p> <ul style="list-style-type: none"> • Ctrl (several individual features) or • Shift (the first and last features in a range)
	<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) displays under the cursor during the move; however all of the selected features are moved.</p>
	<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 below, then select the 'Always Highlight Context Element' checkbox on the 'Diagram Behavior' page.

Ribbon	Start > Workspace > Preferences > Preferences > Diagram > Behaviour: Always Highlight Context Element
Menu	Tools Options Diagram Behavior: Always Highlight Context Element

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 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:

Ribbon	Design > Element > Insert Related
Context Menu	Right-click on element Insert Related Elements

Define selection criteria to insert related elements

Field/Button	Action
Connector types	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. To limit the inserted elements to those connected by specific relationship types, select the checkbox against each of those types of connector. To deselect a selected checkbox, click on it again.
Element types	Display the types of element to which the selected element and, if more than one level of relationship is selected, its related elements are connected. To limit the inserted elements to those of specific types, select the checkbox against each of those types. To deselect a selected checkbox, click on it again.
Link Direction	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 <All> for either direction.
Limit to Namespace	Restrict the inserted elements to those from a specific Package; select the namespace from which the elements are to come. Select <None> for elements in any namespace.

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 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> <p>If no elements have been added, this option has no effect; elements have to be added for the system to adjust the layout.</p>
OK	<p>Click on this button to add the selected elements to the diagram and close the dialog.</p>

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

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
--------------	---

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	Design > Element > Manage > Change Type Show > Window > Properties : In the Type field of the Properties window , click on the Browse button Start > Windows > Properties : In the Type field of the Properties window, click on the Browse button
Menu	Elements Advanced Change Type

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

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 'Options' 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

Menu	Element Appearance Default Appearance
Context Menu	Right-click on element Appearance Default Appearance
Keyboard Shortcuts	F4 or Ctrl + Shift + E

Options

Field/Option/Button	Action
Background Color	<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"> • An element-specific definition from the Format Toolbar, or • A color defined in a Shape Script and applied through a stereotype <p>If you want to use a color that is not available, click on the Other button and define the required color.</p>
Border Color	<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 Other button and define the required color.</p>
Border Width	<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>
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 from a limited number of font colors and effects on this dialog.</p>

Font Color	Click on the drop-down arrow and select the font color to apply to the text of the element. If you want to use a color that is not available, click on the Other button and define the required color.
Reset to defaults	(Optional) Click on this button to reset all appearance settings to the system default values.
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 Format toolbar
- 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 'Options' 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 'Options' 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 overridden by 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

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"> Layout > Alignment > <alignment button>
Context Menu	Select a set of elements, then right-click on a selected element and choose: <ul style="list-style-type: none"> Align Left Align Right Align Top Align Bottom Align Centers Vertically or Horizontally Space Evenly Across or Down
Keyboard Shortcuts	Select a set of elements (ensuring that the 'context' element is correctly set), then <ul style="list-style-type: none"> Ctrl+Alt+Left Arrow (align left) Ctrl+Alt+Right Arrow (align right) Ctrl+Alt+Up Arrow (align top) Ctrl+Alt+Down Arrow (align bottom) Alt + '=' (space evenly across) Alt + '⇓' (space evenly down)

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.

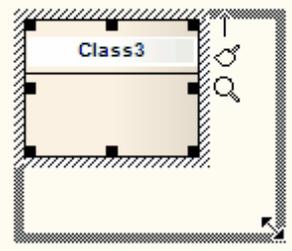
Notes

- 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

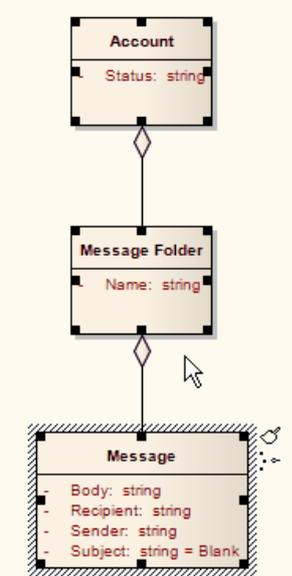
Resize Elements

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>resizeelement</p> 	<p>Select an element or group of elements in the diagram view, then:</p> <ul style="list-style-type: none"> • (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) • Press and hold Ctrl and use the Arrow keys to resize elements by increments; to make elements: <ul style="list-style-type: none"> - Wider - press Ctrl+Right Arrow - Narrower - press Ctrl+Left Arrow - Taller - press Ctrl+Down Arrow - Shorter - press Ctrl+Up Arrow • Autosize selected element(s) to their default size using 'Element Appearance Autosize', or by pressing Alt+Z <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>resizeelementselected</p> 	<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 dimensions of the other selected objects.</p> <p>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.</p> <p>The steps are:</p> <ol style="list-style-type: none"> 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"> • Diagram Toolbox Common page > Drag Note or Text icon onto diagram - drag the Quicklinker arrow from the new Note element to connect to the element being annotated. • UML Elements Toolbar > Click on the 'New Note' icon, then click on the diagram - drag the Quicklinker arrow from the new Note element to connect to the element being annotated. • Drag the Quicklinker arrow from an element into an empty space on the diagram > Common > Note

Complete a Note or Text element

The element displays on the diagram.

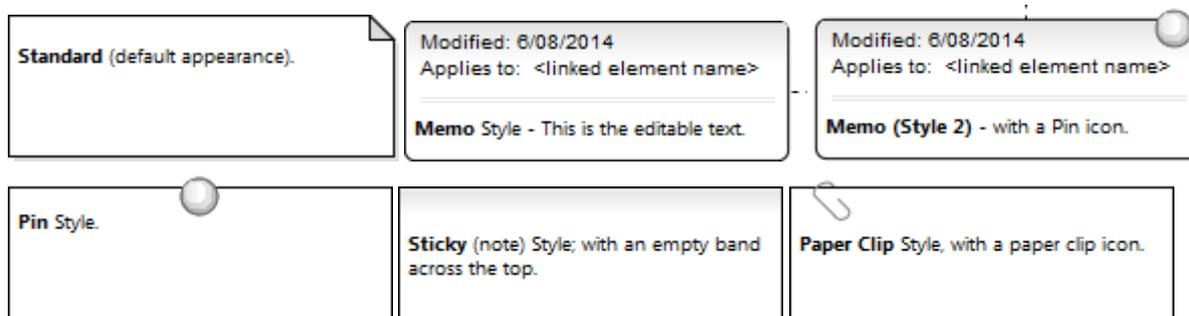
If, on the 'Objects' page of the 'Options' dialog, the 'Edit Object On New' checkbox is deselected, the **Notes window** displays, and you can type the element text within it. To display the text in the element, click on the element.

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

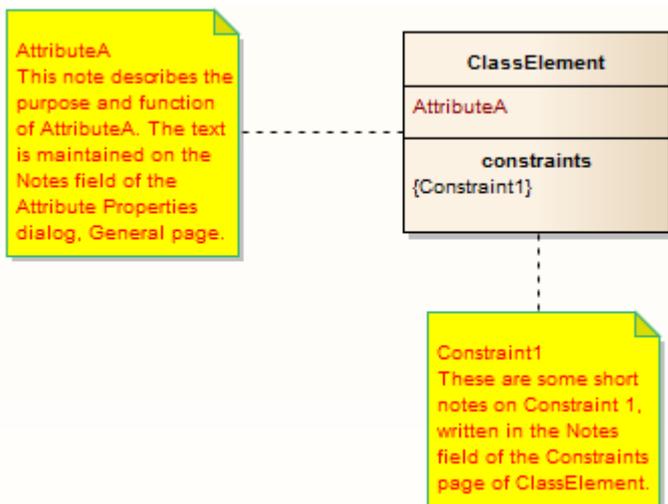
- You can also create a Note or Text element by clicking on the **New Note** or **New Text Element** icon on the UML Elements toolbar and clicking on the diagram
- When you have created your Note or Text element, you can leave it free-standing to display information on the diagram, or you can connect 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	Select the menu option 'Element Edit Features Inline 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 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	<p>Right-click on the Note Link to display the context menu, and select 'Link this Note to an Element Feature'.</p> <p>The 'Link note to element feature' dialog displays.</p>
5	<p>In the 'Feature Type' field, click on the drop-down arrow and select the type of feature to link to.</p> <p>The 'Feature' list now shows the features of the selected type in the element.</p>
6	<p>In the Feature list, click on the specific feature to link to, and click on the OK button.</p> <p>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.</p>

Connect a Note element to the diagram Notes text

Step	Action
1	Open the diagram.
2	Select the 'Diagram Properties' menu option, type an appropriate description in the 'Notes' field, then click on the OK button .
3	<p>Drag the 'Note' icon onto the diagram, from the 'Common' page of the Toolbox.</p> <p>The 'Notes' dialog displays.</p> <p>Simply click on the OK button.</p>
4	<p>Right click the Note element and select 'Advanced Link to Diagram Note'.</p> <p>The Note now automatically shows the contents of the diagram's 'Notes' field, and is automatically updated with any changes to this field.</p>

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"> • Press the Delete key or Ctrl+D, or • 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	Either: <ul style="list-style-type: none"> • Press the Delete key or Ctrl+D, or • Right-click and select 'Delete selected elements' The elements are immediately deleted from the diagram, but not from the model. There is no prompt to confirm the deletion.

Delete an element from the model

Step	Action
1	Either: <ul style="list-style-type: none"> • In the Project Browser, right-click on the element to delete and select 'Delete <element name>', or • In the diagram or Project Browser, click on the element to delete and press Ctrl+Delete

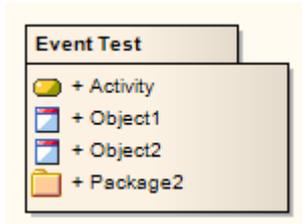
	A confirmation prompt displays.
2	<p>Click on the Yes button.</p> <p>The element is completely removed from all diagrams in which it has been used, and from the model. If you delete an element in this way, you delete all its properties, child objects and connectors as well.</p>

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"> • Each element individually (click on the Yes button), or • All the elements together (click on the Yes to all button) <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 > Workspace > Preferences > Preferences > Objects: Advanced
Menu	Tools Options Objects: Advanced

Display Hidden Elements

Step	Action
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 or to a diagram 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 or diagram.
2	In the Project Browser , right-click on the target element or diagram (the object of the cross reference) and select: <ul style="list-style-type: none"> • 'Add Custom Reference' (for a target diagram) • 'Add Add Custom Reference' (for a target element) The 'Set up references' dialog displays.
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	Either: <ul style="list-style-type: none"> • Select 'Element Advanced Custom References', or • Press Ctrl+J, or • Right-click on the element and select 'Find Custom References' The 'Custom References' dialog displays, showing a list of elements that have been set as cross references for the selected element.
3	Optionally, open the 'Properties' dialog for a referenced element by clicking on it and clicking on the Open button . Similarly, open a referenced diagram by clicking on 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 and/or diagrams in the **Project Browser**, and from another element on the diagram to different elements and diagrams 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

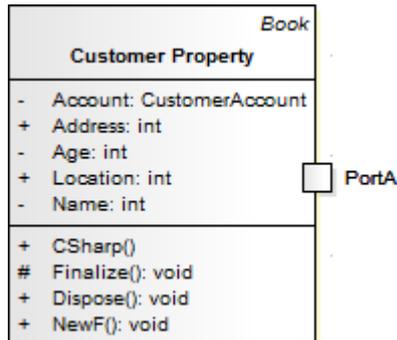
This table provides the instructions for locating occurrences - uses - of different types of object.

Object Type	Action
Element	<p>In the Project Browser, right-click on the element and select the '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 'Find in all Diagrams' option.</p> <p>On a diagram, right-click on the Package and select the 'Find Find in all Diagrams'</p>

	<p>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"> • The names of the elements to which the image has already been applied • The name of the diagram on which each instance of the image has been used • The Image Manager image ID for the image (a hidden column) • The Diagram ID (DID) for each diagram (a hidden column) • The Object ID for each element on which the image has been used (a hidden column) <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 <<extend>> 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 <<extend>> connector shows a small circle attached to a Note element that identifies which extension point it 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 '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 State Machine 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 Browser.</p>
(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 - or embedded - elements 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 cannot exist by themselves, they must be part of a parent element.



Access

Ribbon	Design > Element > Manage > Structural Elements
Context Menu	Right-click on element in diagram Structural Elements

Create and manage Structural Elements

Field/Button/Option	Action
Show Owned/Inherited	The 'Structural Elements' dialog lists the structural or embedded 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.
New	<p>Click on this button to create a new embedded 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>If you want to go straight on to create another embedded element when you save the current one, de-select the 'Close dialog on OK' checkbox. You can add as many embedded elements as you need.</p> <p>Click on the OK button. The embedded element is now listed on the 'Structural Elements' dialog and is depicted on the primary element, as in the Class/Port example above.</p>

Defined Elements	<p>Review the definition of each structural element currently associated with the selected parent element. If you have selected the 'Show Owned/Inherited' checkbox, the list will 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 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	<p>Click on these buttons to select (All) or clear (None) the checkboxes against all listed elements.</p>
Redefine	<p>If you want an inherited structural element to have different properties from the original structural element on the parent's classifier, click on that element's entry in the list and click on this button.</p> <p>A duplicate structured element is created in the list and on the diagram, where the Owner of the structured element is the parent element and not its classifier. You can now modify that duplicate element.</p> <p>(The Redefine button 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 button.</p> <p>The 'Modify Embedded Element' dialog displays, which is almost identical to the 'Insert New Embedded Element' dialog; edit the field values as necessary.</p> <p>On the 'Modify...' dialog the Advanced button is enabled; click on this button to display the element 'Properties' dialog and 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 'Modify Embedded Element' dialog.</p> <p>(The Modify button 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), click on that element's entry in the list and click on this button. The element is immediately deleted.</p>
Close	<p>Click on this button to save all changes and close the dialog.</p>

Notes

- The name of an embedded element displays on the diagram as a label, which you can edit using the 'Labels' context menu

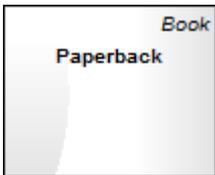
Set Element Parent

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 > Manage > Parents and Interfaces
Context Menu	Right-click on element in diagram Advanced Parent
Keyboard Shortcuts	Ctrl + I

Set an element parent

Field/Button/Option	Action
Type	<p>Click on the drop-down arrow and select the type of relationship to set (Implements or Generalizes) from the list.</p> <p>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"> Type in the parent or interface name, or 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)
Accept classifier even if not in model	If the parent element does not currently exist in the model, select this checkbox to protect the reference to a non-existent element.
Add	<p>If you do not use the Choose button, click on this button to add the relationship to 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"> 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

	<p>message displays</p> <ul style="list-style-type: none">• 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
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 'Options' dialog

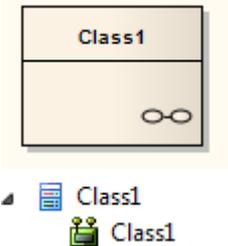
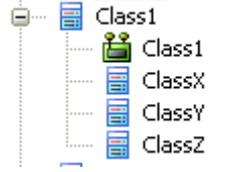
Composite Elements

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	With an element selected in the Project Browser : Design > Diagram > New : Select diagram type> Composite Structure
Context Menu	Right-click element in diagram New Child Diagram Composite Structure Diagram or Right-click element in Project Browser Add Composite Structure Diagram

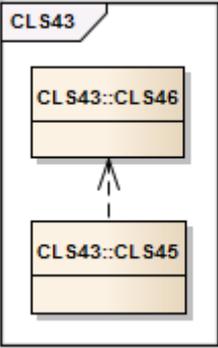
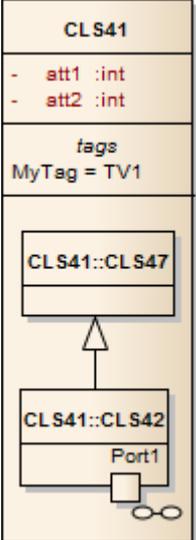
Make an element composite

Images	Step / Action
	<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"> The small icon in the bottom right hand corner of the element shape, indicating that this is now a composite element The icon against the child diagram name in the Project Browser, indicating that this diagram was created as a child of the composite element
	<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 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 and select the 'New Child Diagram Select Composite Diagram' option. The 'Select a Diagram' 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 icons</p>

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"> 1. Right-click on the element to open the context menu. 2. Select the 'New Child Diagram Show Composite Diagram in Frame' option. <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, 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"> 1. Right-click on the element to open the context menu. 2. Select the 'New Child Diagram Show Composite Diagram in Compartment' option. <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 Structure Diagram**' 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

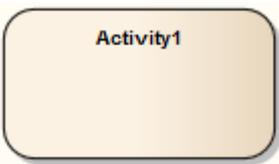
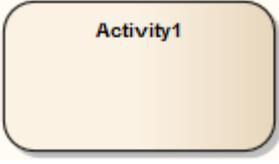
Show Structural Elements In Composite Diagram

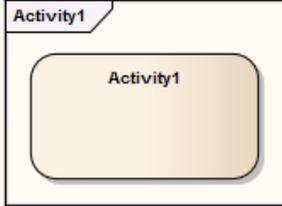
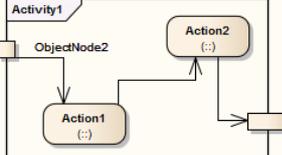
A Composite element shows the external relationships of the element with other components of the model and, via a child diagram, its own internal structure. You cannot normally add structural (embedded) elements to the representation of this internal structure; however, this procedure describes a modified process through which you can add embedded elements to the child diagram.

Embedded elements include:

- ActivityParameter
- RequiredInterface
- ActionPin
- Port
- EntryPoint
- ExpansionNode
- ObjectNode
- ProvidedInterface
- ExitPoint
- Part

Include embedded elements in a child composite diagram

Images	Step / Action
	Create the element to set as a Composite element. For example, a Class, Activity, or SysML Block .
	Right-click on the element in the diagram and select the 'New Child Diagram Composite Structure Diagram' option. The element redisplay with a small icon in the bottom right hand corner, indicating that this is now a Composite element.
	Double-click on the Composite element to access the child diagram that it points to.
	From the Project Browser , drag the Composite element itself onto the child Composite diagram, and paste it in as a Link.
	Right-click on the element in the diagram, and select the 'New Child Diagram Show Composite Diagram in Frame' option.

 <p>The diagram shows a rectangular frame labeled 'Activity1' in the top-left corner. Inside the frame is a rounded rectangular shape, also labeled 'Activity1'.</p>	<p>The element redisplay with a labeled frame around it.</p>
 <p>The diagram shows a rectangular frame labeled 'Activity1' in the top-left corner. The interior of the frame is empty.</p>	<p>Press Ctrl+S to save the diagram. Right-click on the diagram tab and select the 'Reload <diagram name>' option. The diagram redisplay with just the frame showing. This frame represents the original composite element.</p>
 <p>The diagram shows a rectangular frame labeled 'Activity1' in the top-left corner. Inside the frame, there are several elements: 'ObjectNode2' (a small square), 'Action1 (-)' (a rounded rectangle), and 'Action2 (-)' (a rounded rectangle). Arrows indicate relationships: one from ObjectNode2 to Action1, one from Action1 to Action2, and one from Action2 to a small rectangular node on the right side of the frame.</p>	<p>Populate the frame with the appropriate internal elements, including the structured elements that attach to the frame itself.</p>

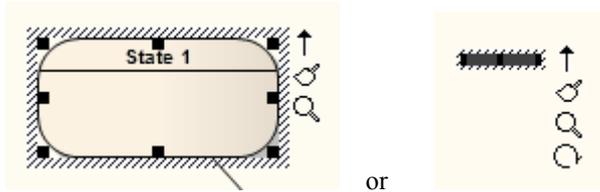
Visual Representation

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 Quicklinker arrow, as shown.



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 'Options' dialog.

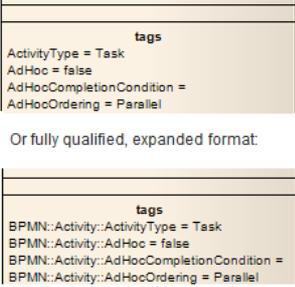
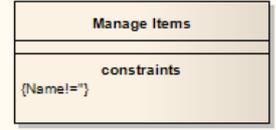
Icon Use

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 the Format toolbar, to change the appearance of the element.
	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.
	Indicates that the Interaction Fragment currently contains messages; in this state you can: <ul style="list-style-type: none"> • Move the fragment vertically, but not horizontally; all elements and messages below the fragment move up or down by the same amount • Resize the fragment to larger than the contained messages/elements, but not smaller 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.
	Indicates that the Interaction Fragment can be moved independently of the Messages or other elements contained within the fragment. This is the default condition when you first create the fragment. You can click on the icon to toggle to 'contains messages' mode (above).

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, constraints and tests.

Compartment Types

Images	Remarks
 <p>tags</p> <p>ActivityType = Task AdHoc = false AdHocCompletionCondition = AdHocOrdering = Parallel</p> <p>Or fully qualified, expanded format:</p> <p>tags</p> <p>BPMN:Activity:ActivityType = Task BPMN:Activity:AdHoc = false BPMN:Activity:AdHocCompletionCondition = BPMN:Activity:AdHocOrdering = Parallel</p>	<p>Tags Compartment</p> <p>Detail: 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>
 <p>Manage Items</p> <p>responsibilities</p> <p>Responsibility00023 Responsibility00024</p>	<p>Responsibilities Compartment</p> <p>Detail: The responsibilities compartment shows a list of responsibilities as entered on the 'Requirements' page of the element 'Properties' dialog.</p>
 <p>Manage Items</p> <p>constraints</p> <p>{Name!=""}</p>	<p>Constraints Compartment</p> <p>Detail: The Constraints compartment shows a list of element constraints as entered in the 'Constraints' page of the element 'Properties' dialog.</p>

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

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.

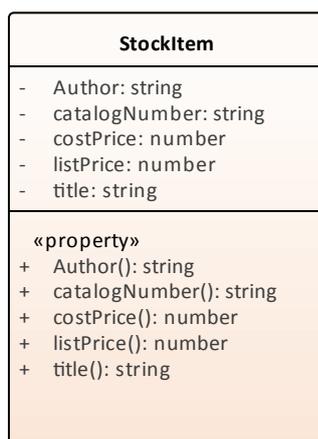
Access

Context Menu	Right-click element Info view Enabled Right-click element Info view Visible Properties
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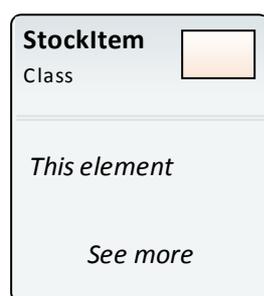
Description

When you enable Info view on an element, the element is rendered as a rounded rectangle, divided into two. In the:

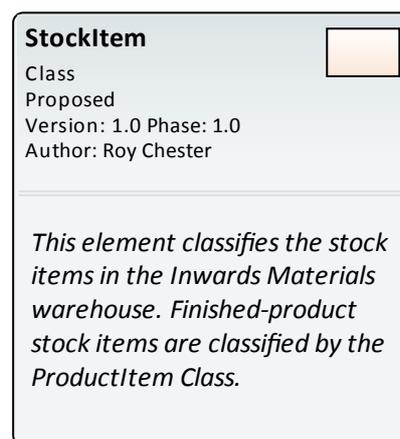
- Top half, on the left, the element name, type and stereotype display; on the right a small image of the element's native shape displays
- Bottom half, at least some of the element's notes display; if there are more notes than can show in the available space, the text *See more* displays at the bottom, in which case you can expose more of the notes text by dragging the 'expansion handles' to resize the element



Info view disabled



Info view enabled



Info view enabled, all properties visible, expanded display

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' 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 choose 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. None of those five

properties are shown on the element when Info view is disabled.

To customize the properties shown:

1. Right-click on the element and select the 'Info view | Visible 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 'Tools | Options > Diagram > Appearance > Use Element Group Style' option is selected 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
- If you do not want to show the element icon in the top right corner of the Info view display, you can hide the icon; right-click on the element, select the 'Info view | Visible Properties' option and, on the 'Visible Properties' dialog, clear the checkbox against the 'Icon' option

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
Properties Dialog - 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.
Properties Window - 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.
Element Browser - 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.
Scenarios & Requirements 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 Dialog

The element 'Properties' dialog helps you to define and review a wide range of properties of an 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
- Template Parameters and Bindings

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 > Manage > Properties
Menu	Element Properties
Context Menu	Right-click on Element Properties
Keyboard Shortcuts	Alt + Enter
Other	Double-click on Element

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
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	Click on this button to save your changes and keep the 'Properties' dialog open, so

	<p>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	<p>Click on this button to display the Help topic for the tab you are currently working on.</p>

Notes

- The 'Properties' dialog automatically displays when you drop a new element onto a diagram; you can suppress this display of the dialog by deselecting the 'Edit Object on New' checkbox on the 'Objects' page of the 'Options' dialog
- 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
 - Port and Part elements have a 'Property' tab
 - Activity elements have a 'Behavior' tab, and Action and Invocation elements (depending on their type) have other tabs such as 'Effect', 'Trigger' and 'Call' tabs
 - Action Pins have a 'Pin' 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 top-level 'Wireframe' tab on which you can edit the element rendering directly, or a second-level 'Wireframing Tagged Values' tab (see the note on Tagged Values for stereotyped elements) 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 four subordinate tabs:

- '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
- Technology-specific Tagged Values grouped on a separate tab

Access

On a diagram or in the **Project Browser**, select an element and:

Ribbon	Design > Element > Manage > Properties Design > Element > Manage > Specific Properties Page > General
Menu	Element Properties
Context Menu	Right-click on Element Properties or Right-click on Element Properties Page General
Keyboard Shortcuts	Alt + Enter
Other	Double-click on Element

General Options

Field/Option/Button	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"> • <element type><number of elements of this type already in the Package> (for example, Class3) or • A name conforming to the auto-naming/numbering convention you have defined <p>If necessary, over-type the default name with a different name.</p>
Notes	<p>Type in or edit any notes text associated 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	(Optional, for elements other than an Object element) Type in an alias or alternative display name for the element.
Scope	Click on the drop-down arrow and select the element's scope ('public', 'private', 'protected', 'package').
Complexity	Click on the drop-down arrow and select the appropriate development complexity (used for project estimation). You normally select from three levels: <ul style="list-style-type: none"> • Easy • Medium • Difficult You can change your user defaults to add 'Extreme' and 'Unknown' to this list of options.
Version	Defaults to the value defined in the 'Object Display' options, for the version of the current element. If necessary, type over the field with a different version number or code.
Phase	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, ...). If necessary, type over the field with a different phase number or code.
Language	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 'Options' dialog). 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 '<none>'. 
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.
Author	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.
Status	Click on the drop-down arrow and select the appropriate element management status (such as Approved or Proposed).
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 the element 'Properties' dialog helps you to define the structural and processing details for the selected Class element, and provides direct access to the 'Features' dialog for defining Attributes and Operations in the element.

Access

On a diagram or in the **Project Browser**, select an element and:

Ribbon	Design > Element > Manage > Properties > General > Details Design > Element > Manage > Specific Properties Page > General > Details
Menu	Element Properties > General > Details
Context Menu	Right-click on Element Properties > General > Details or Right-click on Element Properties Page General > Details
Keyboard Shortcuts	Alt + Enter : General > Details
Other	Double-click on Element : General > Details

Set element details

Field/Option/Button	Action
Persistence	Click on the drop-down arrow and select the appropriate value (blank, persistent or transient).
Cardinality	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. The format of the options in the selection list is defined in the 'Cardinality' tab of the 'UML Types' dialog.
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	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. This setting overrides the default for the programming language of the Class, set in the 'Options' dialog. The 'Collection Classes for Association Roles' dialog displays.
Attributes	Click on this button to define the attributes for the Class. The 'Features' dialog displays, showing the 'Attributes' tab.
Operations	Click on this button to define the operations for the Class. The 'Features' dialog displays, showing the 'Operations' tab.

Notes

- When launched from an MDG Technology, the Attributes and Operations buttons 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 > Manage > Properties > General > Advanced Design > Element > Manage > Specific Properties Page > General > Advanced
Menu	Element Properties > General > Advanced
Context Menu	Right-click on Element Properties > General > Advanced or Right-click on Element Properties Page General > Advanced
Keyboard Shortcuts	Alt + Enter : General > Advanced
Other	Double-click on Element : General > Advanced

Set a value for an advanced (or custom) property

Step	Action
1	Click on the data field to the right of the property name.
2	Depending on the property, either: <ul style="list-style-type: none"> • Type the value in free text • Click on the drop-down arrow and select the value from the list, or • Click on the  button and search for the required value
3	Click on the Apply button .

Requirements

You use the 'Requirements' tab of the element 'Properties' dialog 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 Realize connectors)

The 'Requirements' tab lists both types, although you edit the properties of the external Requirement elements through their own element 'Properties' dialog.

You can show the internal requirements for an element on a diagram directly, using the element 'Feature and 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 > Manage > Properties > Requirements Design > Element > Manage > Specific Properties Page > Requirements
Menu	Element Properties > Requirements
Context Menu	Right-click on Element Properties > Requirements or Right-click on Element Properties Page Requirements
Keyboard Shortcuts	Alt + Enter : Requirements Shift + Alt + R
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.
Notes	Type in any additional details or comments on the internal requirement. You can format the notes text using the Notes toolbar at the top of the field.
Properties	In this panel, click on the 'Value' field against each property, click on the drop-down arrow and select the appropriate setting: <ul style="list-style-type: none"> • Status - select the current status of the requirement • Difficulty - select the value that most closely reflects the difficulty of implementing the current requirement • Priority - select the value that best indicates how urgent the requirement is

	<ul style="list-style-type: none"> • 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 • 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 <p>The 'Last Updated' field shows the date on which the requirement was last changed and saved.</p>
New	Click on this button to clear the fields or set them to default values, so that you can create a new internal requirement.
Save	Click on this button to save your changes to the currently-selected requirement.
Delete	Click on this button to delete the requirement currently selected in the Requirement list.
List	<p>Lists the requirements associated with the current element. For each requirement, the list shows:</p> <ul style="list-style-type: none"> • The requirement's name/short description • The requirement type, and • Whether the requirement is an external Requirement element <p>The external Requirement element can be an internal requirement that has been converted to an external one, or an independent external Requirement that has then been connected to the current element.</p> <p>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.</p>

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 'Requirements' tab of the element 'Properties' dialog, but they are marked external and cannot be directly edited (on selection, the property fields are grayed out).

Double-click an external requirement in the list to activate the 'Properties' dialog for the associated Requirement element, where you can view and modify the requirement details and check the requirement hierarchy details.

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 Feature and 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	Design > Element > Manage > Properties > Constraints Design > Element > Manage > Specific Properties Page > Constraints
Menu	Element Properties > Constraints
Context Menu	Right-click on Element Properties > Constraints or Right-click on Element Properties Page Constraints
Keyboard Shortcuts	Alt + Enter : Constraints Shift + Alt + C
Other	Double-click on Element : Constraints

Define constraints for an element

Field/Button	Description
Constraint	Type the 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	<ul style="list-style-type: none"> 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	Click on this button to clear the fields ready to create a new constraint.
Save	Click on this button to save the constraint data.
Defined Constraints	This field lists the constraints defined in the element, showing the constraint name, type and status.

Delete	Click on a constraint in the Defined Constraints list and click on this button to immediately remove the constraint from the element.
updownhands	(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.

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 the element 'Properties' dialog, which has two internal tabs:

- The '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 '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 > Manage > Properties > Scenarios Design > Element > Manage > Specific Properties Page > Scenarios
Menu	Element Properties > Scenarios
Context Menu	Right-click on Element Properties > Scenarios or Right-click on Element Properties Page Scenarios
Keyboard Shortcuts	Alt + Enter : Scenarios Shift + Alt + S
Other	Double-click on Element : Scenarios

Using the Description tab

Field/Button	Action
Scenario	Defaults to the name Basic Path. (You usually define the basic path of the scenario first.) 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).
Type	Defaults to Basic Path, for the direct steps of the scenario. For subsequent scenarios, click on the drop-down arrow and select either: <ul style="list-style-type: none"> • Alternate - an alternative set of steps, in parallel with part of the basic path

	<ul style="list-style-type: none"> Exception - the path the scenario follows if a step of the basic path does not produce an appropriate result
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 this field; highlight the text, right-click on it and select the 'Create Structure from Notes' option.</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, with a new step created at each carriage return.</p> <p>Subsequent changes to the text on the 'Structured Specification' tab are not reflected on the 'Description' tab.</p>
New	Click on this button to clear the data fields so that you can enter data in them to create a new scenario.
Save	Click on this button to save a new scenario, or changes to an existing scenario.
Scenarios	This panel displays a list of the scenarios defined for this element, and the type of each scenario.
Delete	Click on this button to delete a scenario selected from the Scenarios panel.
updownhands 	(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.

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
- All the functions available on the 'Scenarios' tab are also available through the Scenarios & Requirements window; use the **Browse Element** icon in the window toolbar to list and select the scenarios for the element

Structured Specification Tab

The 'Structured Specification' tab 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 paths on the 'Description' tab, or in the Scenarios & Requirements window.

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 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 > Manage > Properties > Scenarios > Structured Specification or Design > Element > Manage > Specific Properties Page > Scenarios > Structured Specification
Menu	Element Properties > Scenarios > Structured Specification
Context Menu	Right-click on Element Properties > Scenarios > Structured Specification or Right-click on Element Properties Page Scenarios > Structured Specification
Keyboard Shortcuts	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	When you move out of the 'Action' column, the next new step field displays underneath.

Repeat steps 2 to 5 as many times as is necessary.

The 'Structured Specification' tab should now resemble this:

Step	Action	Uses	Results	State
1	First step of basic path	<u>Customer</u>	Machine Activated	ON
2	Continue, or go to alternate step Access 1	<u>Use Case 1</u>		
3	Continue basic path	<u>Customer</u>		
4	Continue, or go to alternate step ATM	<u>ATM</u>	Machine Validating	VALIDATION
5	Continue on basic path			
6	Continue, or if error go to Exception	<u>Use Case 2</u>		
7	Continue and finish			

Step	Path Name	Type	Join
0	In-house Account Processing	Basic Path	-
4a	ATM Path	Alternate	End
6a	Data Not Found	Exception	End

7

Click on the  (Save) icon in the Structured Specification toolbar.

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 > Manage > Properties > Scenarios > Structured Specification or Design > Element > Manage > Specific Properties Page > Scenarios > Structured Specification
Menu	Element Properties > Scenarios > Structured Specification
Context Menu	Right-click on Element Properties > Scenarios > Structured Specification or Right-click on Element Properties Page Scenarios > Structured Specification
Keyboard Shortcuts	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, then click off the line and back on to it.</p> <p>Click on the OK button.</p> <ul style="list-style-type: none"> 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

	<p>point</p> <table border="1" data-bbox="518 273 1428 504"> <thead> <tr> <th colspan="4">Entry Points</th> </tr> <tr> <th>Step</th> <th>Path Name</th> <th>Type</th> <th>Join</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>In-house Account Processing</td> <td>Basic Path</td> <td>-</td> </tr> <tr> <td>2a</td> <td>Access1</td> <td>Alternate</td> <td>6</td> </tr> <tr> <td>4a</td> <td>ATM Path</td> <td>Alternate</td> <td>End</td> </tr> <tr> <td>6a</td> <td>Data Not Found</td> <td>Exception</td> <td>End</td> </tr> </tbody> </table>	Entry Points				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
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	<p>(Only enabled when the basic path is displayed - you cannot add an exception path to another exception path or an alternate path.)</p> <p>Click on this icon to create a branch from 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.</p> <p>Click on the OK button.</p> <ul style="list-style-type: none"> 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 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 																								
	<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>																								
	<p>Click on this icon to move the currently-selected step one place up (including any new step ... entry).</p>																								
	<p>Click on this icon to move the currently-selected step one place down (including any new step ... entry).</p>																								
	<p>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.</p>																								
	<p>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.</p>																								
	<p>Click on this icon to delete the selected step from the scenario.</p>																								
	<p>Click on this icon to display the Help topic for this tab.</p>																								

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 > Manage > Properties > Scenarios > Structured Specification > Right-click on item or Design > Element > Manage > Specific Properties Page > Scenarios > Structured Specification > Right-click on item
Menu	Element Properties > Scenarios > Structured Specification Right-click on item
Context Menu	Right-click on Element Properties > Scenarios > Structured Specification Right-click on item or Right-click on Element Properties Page Scenarios > Structured Specification Right-click on item
Keyboard Shortcuts	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	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: <ul style="list-style-type: none"> After each carriage return in the captured text ('New Line Delimited'), or For each sentence in the text; that is, after each full stop/space/capital letter combination ('Sentence Delimited') If a set of steps is already displayed, it is overwritten by the generated steps.
Create Structure From Generated Activity Diagram	Click on this option to generate a set of steps from an Activity Diagram created for a Use Case. If a set of steps is already displayed, it is overwritten by the generated steps.
Add Alternate Path	Click on this option to create a branch from the selected basic path step to an alternate path.
Add Exception Path	Click on this option to create a branch from the selected basic path step to an exception path.

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"> • Above the currently-selected step (press Esc to return this new line to the end of the scenario) • Below the currently-selected step (press Esc to return this new line to the end of the scenario) • At the end of the scenario <p>Shortcut: Shift+Insert or Insert Ctrl+N</p>
Set Step As 'User' Set Step As 'System'	<p>Click on the appropriate option to switch the entity responsible for performing the action of the selected step between user and system.</p>
Link Step to Use Case	<p>Click on this option to display sub-options to:</p> <ul style="list-style-type: none"> • Include the actions of an existing Use Case element • Extend an existing Use Case element, or • Invoke a Use Case as the action of the selected step <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>(Invokes: <Use Case Name>)</p>
Merge With Step	<p>Click on this option to merge the selected step with another.</p> <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 > Manage > Properties > Scenarios > Structured Specification Highlight text Right-click or Design > Element > Manage > Specific Properties Page > Scenarios > Structured Specification Highlight text Right-click
Menu	Element Properties > 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 Page Scenarios > Structured Specification Highlight text Right-click
Keyboard Shortcuts	Alt + Enter : Scenarios > Structured Specification Highlight text Right-click 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"> • a glossary definition or • a new element
Link Step to Use Case	Click on this option to display sub-options to define the actions of the selected step by: <ul style="list-style-type: none"> • Including the actions of an existing Use Case element • Extending an existing Use Case element, or • Invoking a Use Case Selecting the appropriate sub-option displays the 'Select Use Case' dialog, which you use to browse for and select the required Use Case element. The appropriate includes, extends or invokes stereotyped connector is created between the current element and the selected Use Case.

	<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>(Invokes: <Use Case Name>)</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 or other element elsewhere in the model.</p> <p>You select the element and connector types from submenu options that then display the 'Select Element' dialog, which you use to browse for and select the required element.</p>
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 you can use to:</p> <ul style="list-style-type: none"> • Browse to or type in a context reference item • Re-sort the list with up and down arrow keys • Remove an entry from the list • Enable or disable the 'Uses Context List' facility across the model <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>	<p>Click on this option to display the Code Editor menu of options for locating the selected text in a number of locations.</p>
Undo	<p>Click on this option to undo any unsaved changes you have just made in the step.</p>
Cut	<p>Select this option to cut the selected text to the clipboard.</p>
Copy	<p>Select this option to copy the selected text to the clipboard.</p>
Paste	<p>Select this option to paste the current contents of the clipboard.</p>

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 > Manage > Properties > Scenarios > Structured Specification > Entry Points > Right-click or Design > Element > Manage > Specific Properties Page > Scenarios > Structured Specification > Entry Points > Right-click
Menu	Element Properties > Scenarios > Structured Specification Entry Points Right-click
Context Menu	Right-click on Element Properties > Scenarios > Structured Specification Entry Points Right-click or Right-click on Element Properties Page 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' 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.
Remove Entry Point	(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>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 > Manage > Properties > Scenarios > Structured Specification or Design > Element > Manage > Specific Properties Page > Scenarios > Structured Specification
Menu	Element Properties > Scenarios > Structured Specification
Context Menu	Right-click on Element Properties > Scenarios > Structured Specification or Right-click on Element Properties Page Scenarios > Structured Specification
Keyboard Shortcuts	Alt + Enter : 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:

Ribbon	Design > Element > Manage > Properties > Scenarios > Structured Specification :  Activity or Design > Element > Manage > Specific Properties Page > Scenarios > Structured Specification :  Activity
Menu	Element Properties > Scenarios > Structured Specification :  Activity
Context Menu	Right-click on Element Properties > Scenarios > Structured Specification :  Activity or Right-click on Element Properties Page Scenarios > Structured Specification :  Activity
Keyboard Shortcuts	Alt + Enter : Scenarios > Structured Specification :  Activity or Shift + Alt + S > Structured Specification :  Activity
Other	Double-click on Element : Scenarios > Structured Specification :  Activity

Example

The screenshot displays the 'Scenarios' tab in the software. At the top, there are tabs for 'General', 'Requirements', 'Constraints', 'Scenarios', 'Files', 'Links', and 'Templates'. The 'Scenario' dropdown is set to 'In-house Account Processing' and the 'Type' dropdown is 'Basic Path'. Below this is a 'Description' section with a 'Structured Specification' sub-tab and a toolbar with various icons. A table below the toolbar has columns for 'Step', 'Action', 'Uses', 'Results', and 'State'. The first row contains: Step '1', Action 'Customer inserts ATM-card into ATM', Uses 'ATM-Card', Results 'Initiate Transaction', and State 'START'. To the left of the table is a diagram showing a 'Start' node (a black circle) with an arrow pointing down to a rounded rectangular box containing the text 'Customer inserts ATM-card into ATM'. To the right of the diagram is a 'Tagged Values' window. This window has a toolbar and a list of tagged values for the activity 'Activity (Customer inserts ATM-card into ATM)'. The values are: result '<memo>*', state '<memo>*', step_guid '{F95E88CD-5B44-4faa-8C7D-FF66CC1ABE0...}', trigger 'User', and uses '<memo>*'. At the bottom of the window, there is a 'result' section with the text '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"> The values of the Uses and Results columns are modeled as ActivityParameters The ActivityParameters are added to the Project Browser and not to the diagram The value of the State column is added as a Tagged Value of each Activity
Activity with Action	<ul style="list-style-type: none"> The scenario steps are modeled as Actions The values of the Uses, Results and State columns are added as Tagged Values of each Action
Activity with ActionPin	<ul style="list-style-type: none"> The scenario steps are modeled as Actions The values of the Uses and Results columns are modeled as Input Pins and Output Pins respectively ActionPins are added to the Project Browser and not to the diagram The value of the State column is added as a Tagged Value of each Action

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:

Ribbon	<p>Design > Element > Manage > Properties > Scenarios > Structured Specification :  RuleFlow or</p> <p>Design > Element > Manage > Specific Properties Page > Scenarios > Structured Specification :  RuleFlow</p>
Menu	<p>Element Properties > Scenarios > Structured Specification :  RuleFlow</p>
Context Menu	<p>Right-click on Element Properties > Scenarios > Structured Specification :  RuleFlow or</p> <p>Right-click on Element Properties Page Scenarios > Structured Specification :  RuleFlow</p>
Keyboard Shortcuts	<p>Alt + Enter : Scenarios > Structured Specification :  RuleFlow or</p> <p>Shift + Alt + S > Structured Specification :  RuleFlow</p>
Other	<p>Double-click on Element : Scenarios > Structured Specification :  RuleFlow</p>

Generate State Machine Diagram

When you create a scenario on an element and then generate a State Machine 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:

Ribbon	Design > Element > Manage > Properties > Scenarios > Structured Specification :  State or Design > Element > Manage > Specific Properties Page > Scenarios > Structured Specification :  State
Menu	Element Properties > Scenarios > Structured Specification :  State
Context Menu	Right-click on Element Properties > Scenarios > Structured Specification :  State or Right-click on Element Properties Page Scenarios > Structured Specification :  State
Keyboard Shortcuts	Alt + Enter : Scenarios > Structured Specification :  State or Shift + Alt + S > Structured Specification :  State
Other	Double-click on Element : Scenarios > Structured Specification :  State

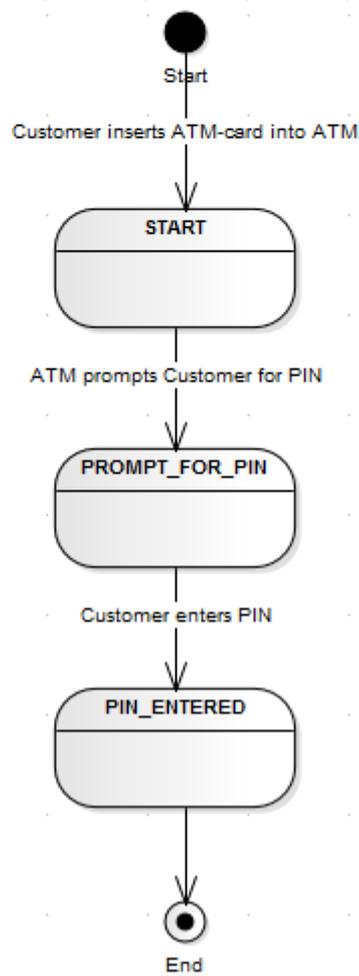
Example

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:

Ribbon	<p>Design > Element > Manage > Properties > Scenarios > Structured Specification :  Sequence or</p> <p>Design > Element > Manage > Specific Properties Page > Scenarios > Structured Specification :  Sequence</p>
Menu	<p>Element Properties > Scenarios > Structured Specification :  Sequence</p>
Context Menu	<p>Right-click on Element Properties > Scenarios > Structured Specification :  Sequence or</p> <p>Right-click on Element Properties Page Scenarios > Structured Specification :  Sequence</p>
Keyboard Shortcuts	<p>Alt + Enter : Scenarios > Structured Specification :  Sequence or</p> <p>Shift + Alt + S > Structured Specification :  Sequence</p>
Other	<p>Double-click on Element : Scenarios > Structured Specification :  Sequence</p>

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 'Options' 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.

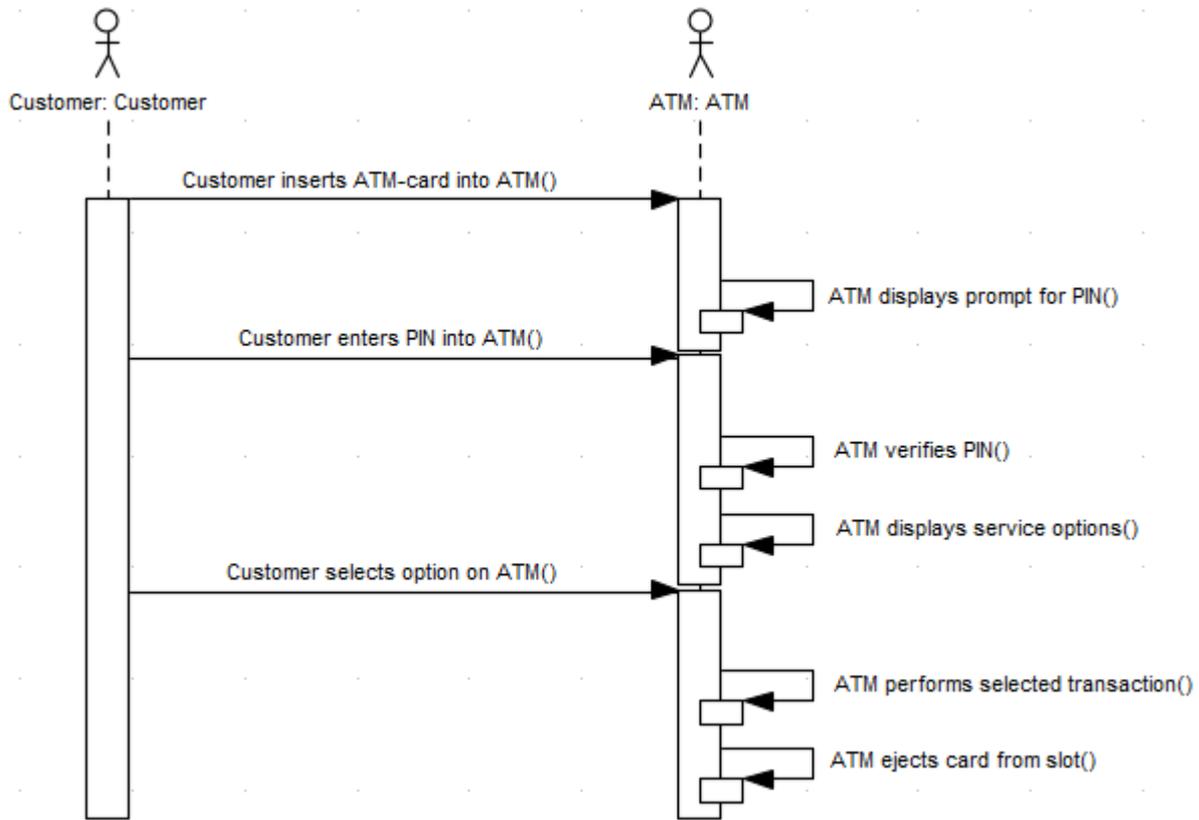
- The values of the 'Uses', 'Results' and 'State' columns are added as **Tagged Values** of the Message

Example

The screenshot displays the 'Structured Specification' view of a scenario. The scenario is 'In-house Account Processing' and the type is 'Basic Path'. The scenario table lists 8 steps, with step 3 highlighted. The 'Uses' column for step 3 is linked to the 'ATM' actor in the 'Context References' table below. The 'Context References' table lists several elements, including 'ATM' as an Actor associated with 'ClassLibX'.

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...			

Name	Type	Connection	Comment	Package
ClassLibX	Class	Generalization		Class View
ATM	Actor	Association		Class View
ClassLib_TestCase 1	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:

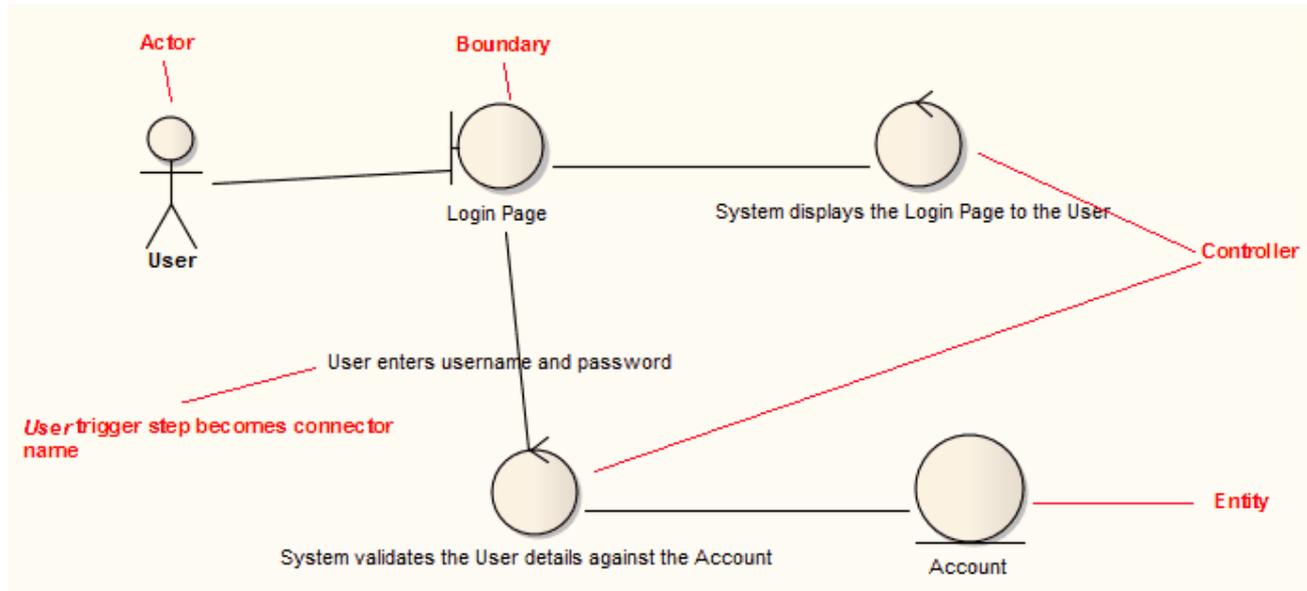
Ribbon	Design > Element > Manage > Properties > Scenarios > Structured Specification :  Robustness or Design > Element > Manage > Specific Properties Page > Scenarios > Structured Specification :  Robustness
Menu	Element Properties > Scenarios > Structured Specification :  Robustness
Context Menu	Right-click on Element Properties > Scenarios > Structured Specification :  Robustness or Right-click on Element Properties Page Scenarios > Structured Specification :  Robustness
Keyboard Shortcuts	Alt + Enter : Scenarios > Structured Specification :  Robustness or Shift + Alt + S > Structured Specification :  Robustness
Other	Double-click on Element : Scenarios > Structured Specification :  Robustness

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 Login Page to the User
2	User enters username and password
3	System validates the User details against the Account



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:

Ribbon	Design > Element > Manage > Properties > Scenarios > Structured Specification > Right-click on space > Create Structure From Generated Activity Diagram or Design > Element > Manage > Specific Properties Page > Scenarios > Structured Specification > Right-click on space > Create Structure From Generated Activity Diagram
Menu	Element Properties Scenarios > Structured Specification Right-click on space Create Structure From Generated Activity Diagram
Context Menu	Right-click on Element Properties > Scenarios > Structured Specification Right-click on space Create Structure From Generated Activity Diagram or Right-click on Element Properties Page Scenarios > Structured Specification Right-click on space Create Structure From Generated Activity Diagram
Keyboard Shortcuts	Alt + Enter : Scenarios > Structured Specification Right-click on space Create Structure From Generated Activity Diagram or Shift + Alt + S > Structured Specification Right-click on space Create Structure From Generated Activity Diagram
Other	Double-click on Element : Scenarios > Structured Specification Right-click on space Create Structure From Generated Activity Diagram

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 . 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.

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:

Ribbon	Design > Element > Manage > Properties > Scenarios > Structured Specification :  <testcase type> or Design > Element > Manage > Specific Properties Page > Scenarios > Structured Specification :  <testcase type>
Menu	Element Properties > Scenarios > Structured Specification :  <testcase type>
Context Menu	Right-click on Element Properties > Scenarios > Structured Specification :  <testcase type> or Right-click on Element Properties Page Scenarios > Structured Specification :  <testcase type>
Keyboard Shortcuts	Alt + Enter : Scenarios > Structured Specification :  <testcase type> or Shift + Alt + S > Structured Specification :  <testcase type>
Other	Double-click on Element : Scenarios > Structured Specification :  <testcase type>

Test Cases Generated

Test Case	Detail
Test Suite - Horizontal Layout	A Test Case element is created, which acts as a container for the created diagram and Test Suite elements. 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>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 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, 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> <p>A test case is generated and added to the Test Case element for the basic path, and for each alternate and exception path.</p> <p>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.</p> <p>You can review the tests within the Test Case element using the Testing window, as for Internal Test Cases.</p>

Context References Tab

As you create a structured specification on the 'Scenarios' page of the element 'Properties' dialog, 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 below 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 **Ctrl** and click twice on the highlighted name to view the element 'Properties' dialog.

Ribbon	Design > Element > Manage > Properties > Scenarios > Structured Specification > Context References > Right-click on space > Add Context Reference or Design > Element > Manage > Specific Properties Page > Scenarios > Structured Specification > Context References > Right-click on space > Add Context Reference
Menu	Element Properties > Scenarios > Structured Specification Context References Right-click on space Add Context Reference
Context Menu	Right-click on Element Properties > Scenarios > Structured Specification Context References Right-click on space Add Context Reference or Right-click on Element Properties Page Scenarios > Structured Specification Context References Right-click on space Add Context Reference
Keyboard Shortcuts	Alt + Enter : Scenarios > Structured Specification Context References Right-click on space Add Context Reference or Shift + Alt + S > Structured Specification Context References Right-click on space Add Context Reference
Other	Double-click on Element : Scenarios > Structured Specification

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 > Manage > Properties > Scenarios > Structured Specification > Constraints or Design > Element > Manage > Specific Properties Page > Scenarios > Structured Specification > Constraints
Menu	Element Properties > Scenarios > Structured Specification Constraints
Context Menu	Right-click on Element Properties > Scenarios > Structured Specification Constraints or Right-click on Element Properties Page Scenarios > Structured Specification Constraints
Keyboard Shortcuts	Alt + Enter : 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 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	Design > Element > Manage > Properties > Files Design > Element > Manage > Specific Properties Page > Files
Menu	Element Properties > Files
Context Menu	Right-click on Element Properties > Files or Right-click on Element Properties Page Files
Keyboard Shortcuts	Alt + Enter : Files Shift + Alt + F
Other	Double-click on Element : Files

Manage File Links

Field/Option/Button	Action
File Path	Displays the directory path and name of the file currently selected in the 'Files' list. 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 to return to the element 'Properties' dialog.
Type	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.
Last Write	Displays the date and time the file was last updated.
Size	Displays the size of the file.
Notes	Type in any comments or notes on the link to the file.
New	Click on this button to clear the data entry fields so that you can add a new file link.
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 > Manage > Properties > Links Design > Element > Manage > Specific Properties Page > Links
Menu	Element Properties > Links
Context Menu	Right-click on Element Properties > Links or Right-click on Element Properties Page Links
Keyboard Shortcuts	Alt + Enter : Links Shift + Alt + L
Other	Double-click on Element : Links

Links Facilities

Facility	Detail
Relationship Features	<p>The Relationships panel lists the relationships this element has, showing the:</p> <ul style="list-style-type: none"> • Elements that this element is related to • Stereotype (if any) of each related element • Type of each related element • Type of each connection or relationship • Stereotype (if any) of the connector
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"> • Display the 'Properties' dialog for a relationship, click on 'Relationship Properties' • Highlight the related element in the Project Browser, click on 'Locate Related Element' • 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

Templates

If you are working with Parameterized Classes or Binding Classes, you can use the 'Templates' tab of the Class's 'Properties' dialog to define:

- The Parameterized Class template parameters and
- The Binding expressions on a Binding Class

Access

Open the 'Templates' page of the element's Properties dialog, using any of the methods outlined below.

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	Design > Element > Manage > Properties > Templates Design > Element > Manage > Specific Properties Page > General > Templates
Menu	Element Properties > Templates
Context Menu	Right-click on Element Properties > Templates or Right-click on Element Properties Page General > Templates
Keyboard Shortcuts	Alt + Enter : Templates
Other	Double-click on Element : Templates

Properties Window

The **Properties window** provides a convenient way to view (and in some cases edit) common properties of elements. When an element is selected, the Properties window shows the element's name, stereotype, version, author, dates and other pertinent information.

Access

Ribbon	Start > Windows > Properties
Menu	View Properties
Keyboard Shortcuts	Alt + 1

Topics

Topic	Detail
Properties Sections	<p>The Properties window is divided into three expandable sections:</p> <ul style="list-style-type: none">• <Element type> Settings - for the basic element details• Project - for general housekeeping settings• Advanced - only active for generalizable elements

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 'General' page of the 'Options' dialog
- If you click on the field value for an editable field, a drop-down arrow displays that enables you to select 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

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
- Internal Requirements (Responsibilities)
- 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)

Having listed these properties, you can also perform a number of operations on them, including dragging and dropping many of them onto other elements.

Access

Ribbon	Show > Window > Element Browser Start > Explore > Element Browser
Menu	Element Browser
Keyboard Shortcuts	Alt + 9

Options

Option	Action
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	Right-click on the property type name and select the 'Add New <object>' option. (This option is not applicable to Relationships or Linked Features, which cannot be created without using information external to the selected element.) The appropriate window or dialog displays, or the element 'Properties' dialog displays on the appropriate page. Add new or edit existing items as necessary. For example, if you right-click on the <i>Attributes</i> folder and select the 'Add New Attributes' option, the '<element name> Features' dialog displays at the 'Attributes'

	tab, and you can add to or edit the attributes in the element.
Edit specific items	Expand the appropriate folder and double-click on the required item. The 'Properties' dialog, docked window or view displays with the focus on the selected item. You can also go on to select and edit other items within the window or dialog.
Drag a relationship onto a diagram	Click on the relationship in the Element Browser and drag it onto the diagram. 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. If the relationship is already on the diagram, but hidden, it becomes visible again. Alternatively: <ul style="list-style-type: none"> • Right-click on the <i>Relationships</i> folder name and select the 'Place All Related Elements in Diagram' option, or • Right-click on the relationship and select the 'Place Related Elements in Diagram' option
Hide/Show a Relationship in the current diagram	Right-click on the relationship in the Element Browser and select the 'Hide Relationship' or 'Show Relationship' option, as appropriate.
Display the Properties dialog of the other element in the relationship	Right-click on the relationship in the Element Browser and select the 'View 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	Double-click on the required file path within the <i>Files</i> folder. If the file can: <ul style="list-style-type: none"> • Be opened within Enterprise Architect, the file opens on a separate tab in the Diagram View workspace • Not be opened within Enterprise Architect, the file opens in the default Windows viewer/editor for the file type
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 the 'View Source Code' option. Alternatively: <ul style="list-style-type: none"> • Click on the attribute or operation and press Ctrl+E, or • In the <i>Linked Features</i> folder, double-click on the attribute or operation If no code has been generated for the selected feature, nothing happens. 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.
Add a property to another element	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: <ul style="list-style-type: none"> • Attributes

	<ul style="list-style-type: none">• Operations• Constraints• Requirements• Tagged Values• Maintenance Items• Test Items
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.

Element Scenarios & Requirements

The **Scenarios & Requirements** 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 responsibilities or requirements

Access

Ribbon	Design > Element > Scenarios > Manage Scenarios
Menu	Tools Scenario Builder
Keyboard Shortcuts	Ctrl + Shift + 3

Topics

Topic	Detail
Usage	<p>The Scenarios & Requirements window is typically used to examine Use Case and Test Case elements, and any other elements that realize an external Requirement.</p> <p>For convenience, you can display the window as either a dockable window around the edge of your workspace, or as a view in the center of your workspace (in which the Scenarios, Constraints and Requirements are shown on separate tabs).</p> <p>Use the  icon in the window toolbar to toggle between these display options.</p>

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 Scenarios & Rules menu option. The Scenarios & Requirements window displays.
2	Either: <ul style="list-style-type: none"> • Click on the required item in the list panel on the left of the window, or • If the Element Browser is not already displayed, click on the  icon and select the required item from the <i>Constraints</i>, <i>Requirements</i> or <i>Scenarios</i> folder

	The appropriate screen displays, with the details of the selected item in the fields.
3	<p>The toolbar icons, from left to right, enable you to:</p> <ul style="list-style-type: none">• Add a new rule to the current screen (click on the appropriate folder to create an item of a different type)• Save the new or edited item• Save the current (edited) item as a new item• Delete the current item• Sort the contents of the selected folder into alphabetical order• ('Print' icon unavailable)• Display the Element Browser window, or highlight the current item in the Element Browser window• Switch between a docked window display and a workspace view display <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>The list panel also provides a context menu that provides options for adding a new item to a folder, deleting the selected item or, for a requirement, converting an internal responsibility 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 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 **Ctrl** as you click on each item.

If you want to cancel a selected item, press Ctrl and click on the item.

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	You can either: <ul style="list-style-type: none"> • 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 • Click on the 'Search' tab and, in the 'Find' field, type a partial or complete text string to search for the item
	On the 'Search' tab, you can filter the search further by selecting the 'Whole Word' and 'Match Case'

4	<p>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">• Select the item immediately on the 'Search' tab or• 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 <namespace> hierarchy
5	Click on the required item.
6	Click on the OK button .

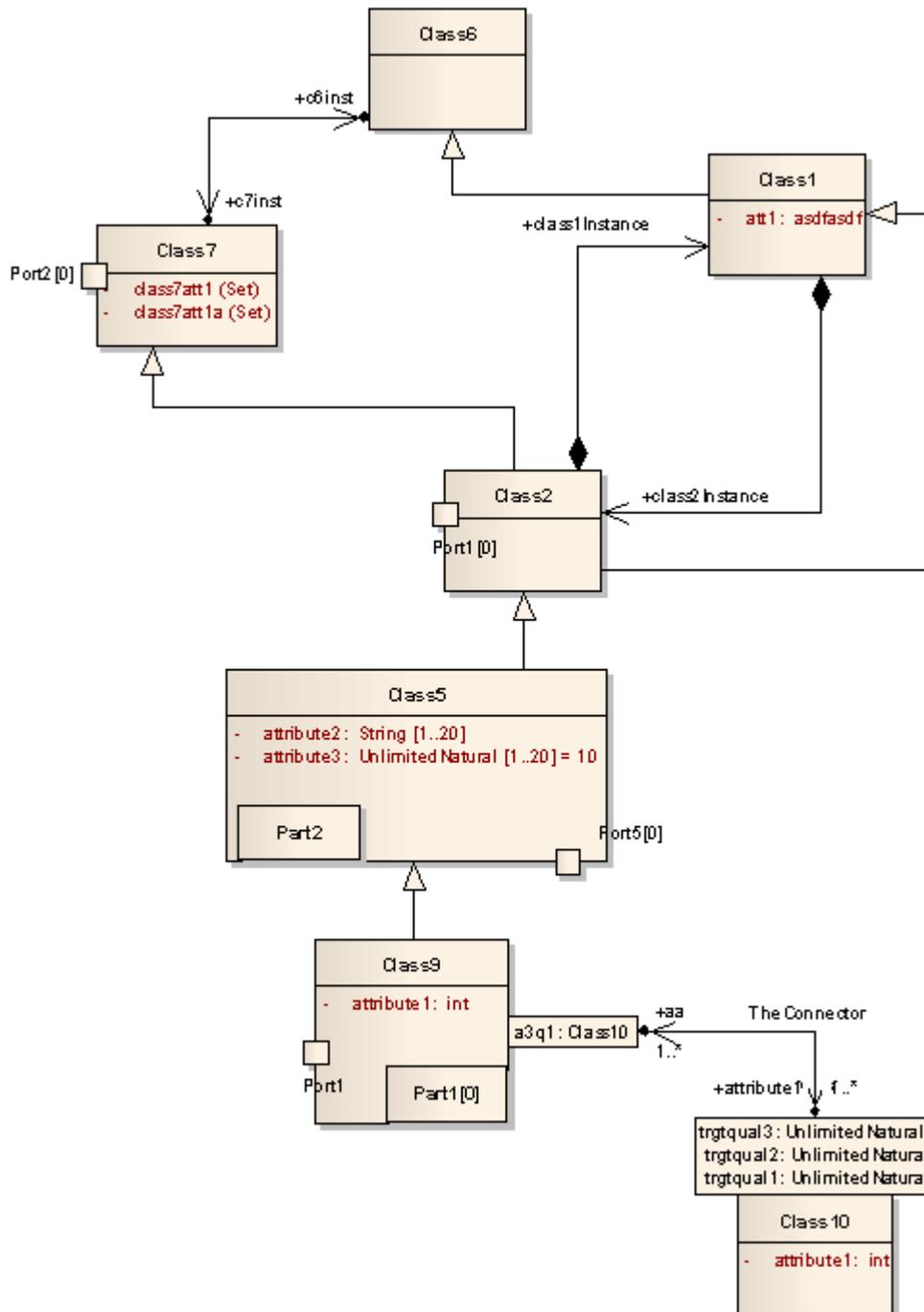
Notes

- 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

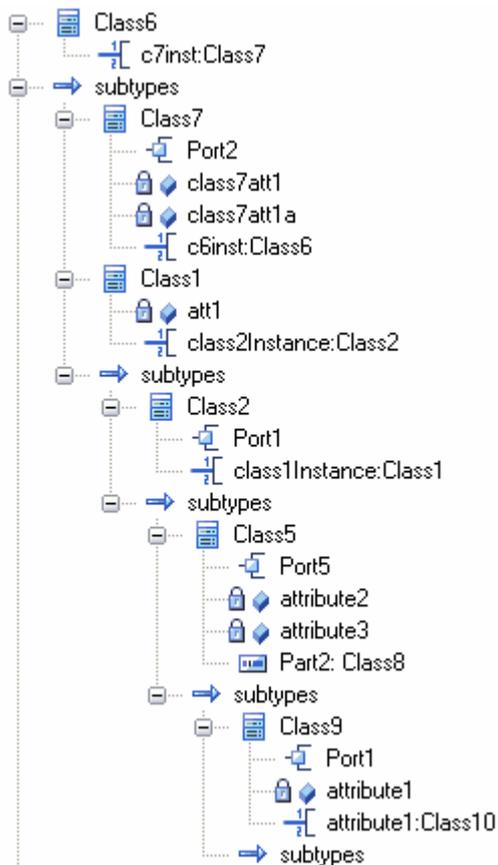
Select Property Dialog

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 subsetted 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
Extensions	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. This option is available in the Professional, Corporate and all Extended editions of Enterprise Architect.
Properties	Select this option to open the 'Properties' dialog for the selected element. For State Lifeline and Value Lifeline elements, the 'Configure Timeline' dialog displays. For a Required Interface element, the 'Exposed Interface' dialog displays. Shortcut: Alt+Enter
Properties Page	Select this option to display a list of the common pages of the 'Properties' dialog. Click on one of the page names to open the element 'Properties' dialog with that page exposed.
Other Properties	For State Lifeline, Value Lifeline and Required Interface elements, select this option to display the 'Properties' dialog for the selected element. Shortcut: Ctrl+Shift+G
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 Element	Select this option to attach: <ul style="list-style-type: none"> • One of a number of types of structural element, such as a Port, Part or Activity Parameter, to the selected element, or • A text element to the selected element, documenting a Note, Constraint, Rationale or Problem
New Child Diagram	Select this option to display a submenu, listing - in order: <ul style="list-style-type: none"> • Individual types of child diagram (often technology-specific) that you might

	<p>usually create for this type of element</p> <ul style="list-style-type: none"> • For classifier elements, options to create Activity, Interaction, State Machine or Rule Flow elements that encompass the appropriate type of child diagram • Options for creating and displaying the child diagram for a Composite element • An option to display the 'New Diagram' dialog to add any other type of diagram as the child diagram of this element
Features and Properties	<p>Select this option to add attributes and/or operations to the element, through the 'Attributes' (F9) or 'Operations' (F10) pages of the 'Features' dialog, or to override any inherited attribute (Ctrl+Shift+R) values set on the element.</p> <p>For an Object or State element you can add a new instance variable to the element using the 'Define Run State' dialog.</p> <p>For elements that can have interfaces, you can also select to show realized and/or dependent interfaces (Ctrl+Shift+Y).</p> <p>You also have the option of opening the 'Feature and Compartment Visibility' dialog to define which features and feature properties to display on the element, and which element compartments.</p>
Structural Elements	<p>Select this option to display the 'Structural Elements' dialog, for managing the structural elements (such as Provided Interfaces, Ports and Activity Parameters) attached to the selected element.</p> <p>Shortcut: Ctrl+Shift+B</p>
Insert Related Elements	<p>Select this option to display the 'Insert Related Elements' dialog, to add elements related to the selected element to the current diagram.</p>
Decision Table	<p>For a selected Activity or Action element, select this option to display, set up and edit the Decision Table for the element.</p>
Draw as Decision Table (Rules as Columns)	<p>For a selected Activity or Action, replace the element shape on the diagram with its Decision Table, showing the decision rules as columns.</p> <p>The element is automatically sized to display the rule text; you cannot change the element size manually.</p>
Draw as Decision Table (Rules as Rows)	<p>For a selected Activity or Action, replace the element shape on the diagram with its Decision Table, showing the decision rules as rows.</p> <p>The element is automatically sized to display the rule text; you cannot change the element size manually.</p>
Draw as Activity Draw as Action	<p>Where an element is rendered as a Decision Table on the diagram, replace it with the normal element shape.</p>
Rule Composer	<p>For a Rule Task element, select this option to invoke the Rule Composer in Business Rule Modeling.</p>
Create (or Edit) Linked Document	<p>(Corporate, Business and Software Engineering, Systems Engineering and Ultimate editions) Select this option to create a document linked to the element.</p> <p>Shortcut: Ctrl+Alt+D</p>
Delete Linked Document	<p>Select this option to delete an existing linked document for the element.</p>
Generate Documentation	<p>Select this option to generate a range of reports and other documents on the</p>

	<p>element.</p> <p>Shortcut: F8</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.</p>
Find	<p>Select this option to display the 'Find' submenu, which provides options for:</p> <ul style="list-style-type: none"> • Locating the selected element in other diagrams and in the Project Browser, and • Setting up cross references (Custom References) to other elements
Appearance	<p>Select this option to display a short menu of options to change and reproduce the appearance of the element.</p>
Code Engineering	<p>Select this option to display a submenu showing options to:</p> <ul style="list-style-type: none"> • Generate source code for the selected element (forward engineer), (Shortcut: F11) • Generate DDL for a Table, Procedure or View Class • Reverse engineer source code for the selected element, (Shortcut: F7) <p>You can also synchronize Class elements from the source code via the Project Browser, and reverse engineer or forward engineer model Packages and code to synchronize them and incorporate changes made in one but not in the other.</p> <ul style="list-style-type: none"> • View source code in the source code editor, on an element for which it has been generated, (Shortcut: F12) • On a Class for which code has been generated, prepare the Class for Execution Analysis by (Shortcut: Ctrl+Shift+J): <ul style="list-style-type: none"> - Creating workbench variables from the selected Class - Marking up a process for the Class or - Marking up the Class for recording
Lock Element	<p>Select this option to lock the element so it can't be edited; to unlock the element, select 'Lock Element' again.</p> <p>This does not apply in the Corporate, Business and Software Engineering, Systems Engineering and Ultimate editions when security is enabled; in that situation, use the 'Lock' option for model elements.</p>
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 not 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>
Selectable	<p>Select or deselect this option to toggle whether the element is selectable or not:</p> <ul style="list-style-type: none"> • If an element is selectable, you can move it around the diagram and perform right-click context menu operations • 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 <p>This option has no effect on double-click operations on the element, such as</p>

	<p>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, you can simply move the elements apart again.</p>
Z-Order	<p>Select this option to display a short submenu providing options to:</p> <ul style="list-style-type: none"> • Move the element further back in the diagram • Move the element further forward in the diagram • Put the element at the back of the diagram • Put the element at the front of the diagram
UML Help	<p>Select this option to display the Help topic describing the type of element you have selected.</p>
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

- Context menus vary between element types; for example, the 'Code Engineering' option does not display for a Use Case element
- 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

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 ('Project Settings 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 Notes	(For a Note element) Select this option to display the diagram notes as the text of the Note element. Any current text is deleted and the Note is blocked from being edited other than through the 'Notes' field in the diagram 'Properties' dialog.
Hide (Show) attached links	(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.
Vertical Partition	(For an Activity Partition element) Select this option to switch a horizontal Partition to a vertical Partition.
Tagged Value	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.

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 > Manage > Find in Diagrams Design > Element > Manage > Find in Project Browser
Context Menu	Right-click on Element Find (see 'Find Options' below for description of 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 below.

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.
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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 element on diagram Appearance (displays the Element Appearance sub-menu, described below)
Keyboard Shortcuts	F4 (displays the Default Appearance dialog, described below)
Other	Right-click on element on diagram - the Format toolbar is displayed above the context menu (changes the appearance of the selected element on the current diagram only)

Element Appearance Options

Option	Action
Default Appearance	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 'Options' dialog) with a different default for just the selected element on all diagrams in which it is used. To change the appearance of the selected element on the current diagram only, use the Format toolbar. Shortcut: F4
Apply Image From Clipboard	Click on this option to paste the image held on the clipboard onto the selected element, as an alternative image. 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 .
Select Default Image	Click on this option to change the element's appearance to an alternative image, using the Image Manager . This appearance applies to the element on all diagrams in which it is used.
Select Alternate Image	Click on this option to change the element's appearance to an alternative image, using the Image Manager . This appearance applies to the element on the current diagram only. Shortcut: Ctrl+Shift+W

Hide/Show Name Under Image	For an element that has an alternative image, click on this option to hide or redisplay the name label under the element.
Set Font	Click on this option to change the font type, size, color and effects for the text in the element.
Shape	For System Boundary elements; click on this option to change the element outline to a rectangle, rounded rectangle or ellipse shape.
Diagram Frame Appearance	For Diagram Frame elements; click on this option to set the appearance of the frame.
Show Labels	For embedded elements, or those with an alternate image that show element properties as labels; click on this option to reveal the hidden labels on the element. (The option is not listed if there are no hidden labels.)
Standard Memo Memo (Style 2) Pin Sticky Paperclip	For a Note element, click on one of these options to apply the corresponding image to the element.
Copy Appearance to Painter	Click on this option to copy the default element appearance (set using the 'Default Appearance' option) to the painter. You then paste the default appearance using the 'Paste Appearance' option on the Diagram toolbar.
Copy Image to Clipboard	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.

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** 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.

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 clicked element as the context element).

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 diagram (displays the context menu for multiple selections, described below)
Keyboard Shortcuts	F4 (displays the Default Appearance dialog, described below)
Other	Right-click on a selected element on diagram - the Format toolbar is displayed above the context menu (changes the appearance of the selected elements on the current diagram only)

Options

Option	Detail
Extensions	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. This option is available in the Professional, Corporate and Extended editions of Enterprise Architect.
Align	Select one of these options to align elements against the 'master' element's: <ul style="list-style-type: none"> • left edge • right edge • top edge

	<ul style="list-style-type: none"> • bottom edge • center, vertically or • center, horizontally <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.) 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' 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 'Options' dialog 'Objects' page.</p>
Feature and Compartment Visibility	<p>Select this option to define the visibility of features and compartments on all selected elements.</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>
Make Non-Selectable	<p>Select this option to make the selected elements on the diagram non-selectable.</p> <p>To make the elements selectable again, either:</p> <ul style="list-style-type: none"> • Right-click on individual elements and click on the 'Selectable' option, or • Right-click on the diagram background and select the 'Make All Elements Selectable' option
Printable	<p>Defaults to selected, so that the selected elements are depicted in any diagrams in reports generated on their parent Package(s).</p> <p>If you click on the option to deselect it, the elements will not be visible in any diagrams in reports. You can, however, deselect a report option for a report to force the display of the 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>
Dockable	<p>Select this option to turn the 'Docking' feature on or off for the selected elements.</p> <p>When two elements are dockable, they can be moved together to automatically join</p>

	along their common edge.
Code Generation	(For Class elements) Select this option to either: <ul style="list-style-type: none">• Generate code for the selected elements together, or• Synchronize code and model for each of the selected elements Shortcut: Shift+F11 Ctrl+R
Transform	Select this option to transform the selected elements using a transformation template in a single operation. Shortcut: Ctrl+H
Generate Documentation	Select this option to generate a single document report on the selected elements. (Do not, in this instance, use the F8 key.)
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

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 will 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 they can view, create or edit these textual descriptions.

Access

Ribbon	Show > Window > Notes Start > Windows > Notes
Menu	View Notes
Context Menu	Right-click on model entity Properties (displays Notes field in Properties dialog)
Keyboard Shortcuts	Ctrl + Shift + 1

Notes Context Menu options

Option	Action
Create Glossary Definition	<p>Click on this option to create a Project 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"> 1. If suitable Notes text is available, highlight the text to use as the Glossary definition and press Ctrl+C to copy it. 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. 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. 4. In the 'Type' field, select the appropriate term type. 5. Click on the Apply button to save the new Glossary definition. <p>The term displays in the 'Notes' text as a roll-over hyperlink which, when you move the cursor over it, displays the Glossary definition of the term.</p> <p>Once you have created a Glossary definition, here or elsewhere in the model, you</p>

	<p>can add the Glossary term anywhere in the text of the Notes window (or 'Notes' field of a dialog) where, again, it becomes a rollover hyperlink to the definition. Either:</p> <ul style="list-style-type: none"> • Simply type the term in the text, or • If you are not certain of the term or have multiple definitions: <ol style="list-style-type: none"> 1. Move the cursor to the point in the text at which to insert the term. 2. Press Ctrl+Space; the 'Glossary Term Selection' window displays. 3. Double-click on the term to insert it in the text.
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"> 1. Click on the option. 2. The 'New Element' dialog displays, with the 'Name' field pre-filled with the selected text. 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.) 4. The system creates the element, adds it to the model (and diagram) and creates a hyperlink to it from the selected Notes text.
Create Element on Diagram	<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"> 1. Click on the option. 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. 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.
Create Link to existing element	<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"> 1. Click on the option. 2. The 'Select Classifier' dialog displays. Locate and select the required element, and click on the OK button. 3. The selected Notes text becomes a hyperlink to the element. The target element name and Notes text remain unchanged and do not necessarily 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"> • Press Ctrl+F and specify the text string and the direction of search • Press F3 to locate more instances of the word in a forward search, or Ctrl+F3 in a backwards search
Undo Cut Copy Paste	<p>These six options provide simple functions for editing the Notes text.</p>

Delete	
Select All	

Keyboard Options For Notes

Option	Function Key
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: DD/MM/YYYY HH:MM:SS AM (or PM)</p> <p>For example: 12/06/2015 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 Ctrl+Shift+Z</p> <p>Description: Re-applies the last reversed change to the Notes text.</p>
Copy	<p>Ctrl+C</p> <p>Description: Copies a highlighted Notes text string to the Enterprise Architect buffer.</p>
Paste	<p>Ctrl+V</p> <p>Description: Pastes a copied or cut text string from the Enterprise Architect buffer into the Notes text.</p>
Cut	<p>Ctrl+X</p> <p>Description: Removes a highlighted Notes text string and places it in the Enterprise Architect buffer.</p>

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
- Features 'Properties' dialog
- Diagram 'Properties' dialog
- 'Hyperlink Details' dialog
- **Testing window** descriptions
- **Notes window**
- 'Glossary Detail' dialog
- 'Assigned Resources' dialog
- **Project Management windows**
- Scenarios & Requirements 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
- For any Notes text that is displayed on a diagram, you must select the 'Render Formatted Notes' checkbox on the 'Feature and Compartment Visibility' dialog in order to reproduce the formatting
- You can create a **Project Glossary** term and definition from text in any field that has the Notes toolbar

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 documents 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"> • Within a Document Artifact element attached to your model element, or • Directly on the model element <p>The advantages of using a Document Artifact to host the linked document include:</p> <ul style="list-style-type: none"> • Visibility of the Document Artifact and hence linked document in the Project Browser • 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 • 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 <p>The advantages of using a linked document directly on an element include:</p> <ul style="list-style-type: none"> • More tightly binding the content of the document to the element, so there is less ambiguity in what the information refers to • 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
Create linked document templates	<p>You can base your linked document on one of a range of system-provided templates, each of which represents a project document type.</p> <p>You can also create and use your own linked document templates in the Resources window, within the Document Generation > 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 in RTF reports	<p>Linked documents, however they are created, are rendered into document reports when you select the Linked Document checkbox in the Document Template</p>

	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, Business and Software Engineering, Systems Engineering 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 Create Linked Document On UML Element, from step 2 onwards.

Notes

- 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; it is the sole method of creating a linked document in the Desktop edition
- 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 below, to open the **Linked Document** window.

Ribbon	Show > Window > Document Start > Windows > Document Design > Element > Manage > Edit Linked Document
Menu	Element Linked Document
Context Menu	Right-click (Create) Linked Document
Keyboard Shortcuts	Ctrl + Alt + D

Create a linked document

Step	Action
1	A default blank-page document opens in the Linked Document Editor, based on the <i>Normal.rtf</i> style template. The 'New Linked Document from Template' dialog might display, depending on whether you have previously selected the 'Show this dialog on document creation' checkbox. In this case, go to step 3.
2	If you do not want to apply a system template or user-defined template, go to step 6. If you do want to base the document on a selected template, click on the  icon in the editor toolbar. A prompt displays for you to confirm that you are clearing the current document; click on the OK button . The 'New Linked Document from Template' dialog displays.
3	In the 'Template' field, click on the drop-down arrow and select the template from which to create the document. This can be either a system-supplied template or a template that you have previously created yourself.
4	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. If you no longer want to display the dialog by default, deselect the checkbox.
5	Click on the OK button . The new linked document opens in the Linked Document Editor. If you have based the document on a selected template, the document shows the content applied by the template.

6	Enter and format the text of the document, using the facilities of the Linked Document Editor.
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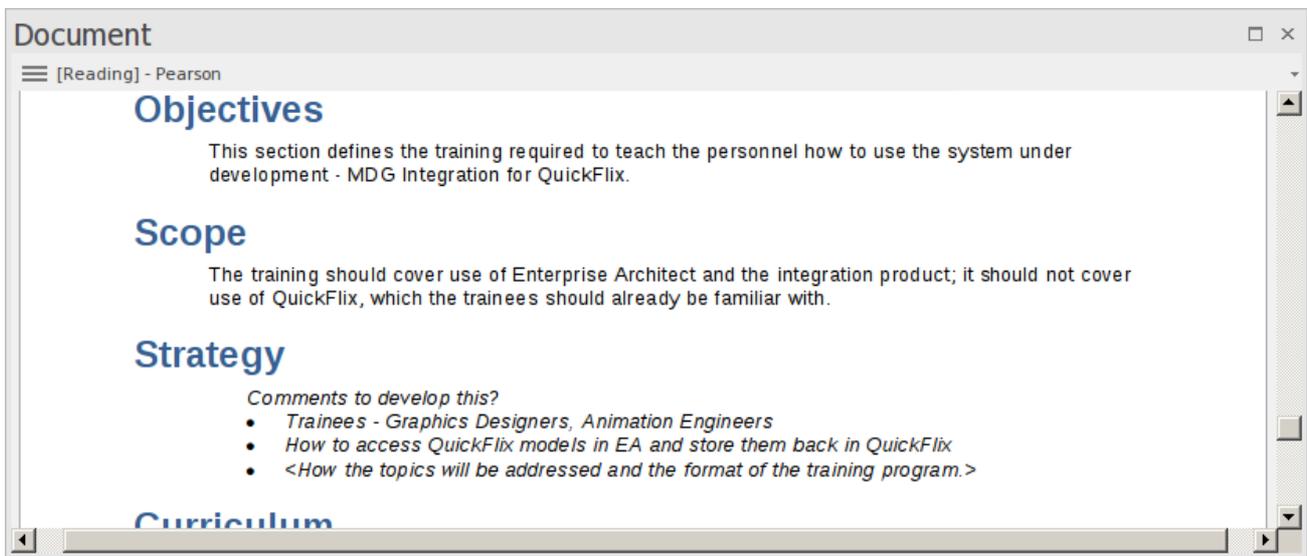
Notes

- 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, Business and Software Engineering, System Engineering and Ultimate editions
- When you have saved the document, an A symbol displays in the bottom right corner of the element

The Document Window

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 Document Window 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 Document Window provides options for reviewing the Linked Document, including switching to an Edit mode so that you can create or update the document.



Access

Ribbon	Start > Windows > Document, or Show > Window > 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:

Edit Document	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. While in edit mode, the Document window becomes locked to the parent element,
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	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 deselect the option.
Reload	Refreshes the content of the displayed document from the last-saved version.
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.
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.
Print	Displays the 'Print' dialog, which you use to configure the print job for printing the Linked Document.

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 below to open the Linked Document.

Ribbon	Show > Window > Document Start > Windows > Document Design > Element > Manage > Edit Linked Document
Menu	Element Linked Document
Context Menu	Right-click (Edit) 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.

Actions
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 setup 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

Replace the document content

Step	Action
1	Either: <ul style="list-style-type: none">• Right-click on the element and select the 'Edit Linked Document' menu option, or• Click on the element and press Ctrl+Alt+D The linked document opens in the 'Linked Document Editor'.
2	Click in the body of the document and press Ctrl+A to select all the document text.
3	Press the Delete key .
4	Select the 'File > Import File' ribbon option. The Windows 'Open' dialog displays, in which you can browse for the file to import into the document.
5	Click on the Save icon in the Linked Document Editor toolbar.

Delete the linked document

Step	Action
1	Right-click on the element in the Project Browser or diagram, and select the 'Delete Linked Document' option.
2	A prompt displays for you to confirm the deletion; click on the Yes button .

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 below.

When opened using one of these methods, the 'Template Type' field is set to 'Linked Document Template'.

Ribbon	Start > Explore > Resources > 'Linked Document Templates' folder > right-click on a <template group> folder > Create Template Show > Window > Resources > 'Linked Document Templates' folder > right-click on a <template group> folder > Create Template
Menu	View Resources 'Linked Document Templates' folder right-click on <template group> folder Create Template

Create a template

On the 'New Document Template' dialog:

Step	Detail
1	In the 'New template' field, type a name for your template.
2	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. Otherwise leave the field set to 'None'.
3	Click on the OK button . The template opens in the Linked Document Template Editor in the Diagram View . Create and edit the template contents as you need.
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	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. 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 . The template is immediately transferred to the named group.

Notes

- You can transport customized linked document templates between models, using the 'Export Reference Data' and 'Import Reference Data' 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 > Resources Show > Window > Resources
Menu	View Resources

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 setup 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 Review 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**. You can perform all normal operations on the object, including opening any linked document that element might have.

Create hyperlinks

Task	Action
<p>Create Hyperlinks to elements</p>	<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. The 'Select Classifier' dialog displays, through which you browse for and select the element to link to.</p>
<p>Create hyperlinks to other documents</p>	<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 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:

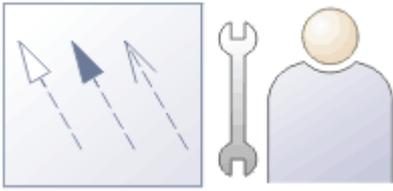
- Class
- Requirement
- Issue

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 name). Highlight this text and right-click on it; the 'Editor' context menu displays.
3	Select the 'Create New' menu option, and one of the submenu options. If you select the: <ul style="list-style-type: none"> • 'Class', 'Requirement' or 'Issue' option, the corresponding element is immediately created in the Project Browser • 'Other' option, the 'New Element' dialog displays; specify the element type and - if appropriate - stereotype, and click on the Create button • 'Diagram' option, the 'New Diagram' dialog displays; specify the diagram type and click on the OK button
4	The highlighted text is now a hyperlink to the new object in the Project Browser . Click on the link to highlight the object. You can now edit or expand the element or diagram as required.

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. This provides 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"> • Extensions - displays in the first section only if you have Add-Ins installed and registered • Properties • Type Specific • Advanced • Style • Appearance • UML Help - Displays the Enterprise Architect Help topic for this connector type • Delete - delete the connector with this option
Connector Role Context Menu	<p>For connectors with Roles, right-clicking 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"> • 'Source/Target Role...' - opens the connector specification dialog with the respective role page selected • 'Multiplicity' - opens a submenu through which you can set the multiplicity for the role • 'Link to Element Feature' - displays a dialog through which you can attach the end of the connector to a specific attribute or operation

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	<p>Locate in State Table</p> <p>Action: Switch a State Machine diagram to a State Table, with the selected Transition cell highlighted on the table.</p>
Transition	<p>Message</p> <p>Action: Set the value of the Message.</p>
Transition	<p>Find Triggers Associated</p> <p>Action: Identify hidden triggers, and locate a trigger in the Project Browser; if there:</p> <ul style="list-style-type: none"> • Is one trigger, it is immediately highlighted in the Project Browser • Are two or more triggers the 'Element Usage' dialog displays, listing the 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 & 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 & 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 Composite.</p>
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">• Is one item, it is immediately highlighted in the Project Browser• 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
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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

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
Set Source and Target	Change the source and/or target of the connector.
Change Type	Change the connector type.
Change Direction	Keep the ends of the connector the same but change the direction setting. There are four options: <ul style="list-style-type: none"> • Unspecified • Source -> Destination • Destination -> Source • Bi-Directional
Reverse Direction	Reverse the ends of the connector; for example, if the connector is an arrow, the arrowhead swaps to the other end. This command maintains the direction of the connector (such as Source -> Destination).
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.
Dependency Stereotypes	Select a stereotype for the Dependency (or Trace, Role Binding, Occurrence or Represents connector).
Extension Points	On an Extend connector between two Use Cases, provides options to: <ul style="list-style-type: none"> • Specify which Extension Point (if any) in the target Use Case the connector and its source Use Case relate to • Show or hide the Note element that identifies the defined Extension Point

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"> • Direct • Auto Routing • Custom • Bezier • Tree (Horizontal, Vertical, Lateral Horizontal or Lateral Vertical) • Orthogonal (with Square or Rounded corners)
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>
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 Segment	<p>Hide a segment of a connector so that you can view a part of the diagram that it 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 next 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 details some of the tasks associated with managing model connectors, such as:

- [Connect Elements](#)
- [Connect to Element Feature](#)
- [Connector Styles](#)
- [Arrange Connectors](#)
- [Change Connector Type](#)
- [Create Connector in Project Browser](#)
- [Reverse Connector](#)
- [Delete Connectors](#)
- [Hide/Show Connectors](#)
- [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, Business and Software Engineering, System Engineering 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 using the arrow keys.</p>
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, or right-click to display the context menu containing commands to change connector type and direction.</p> <p>You can also highlight the connectors on a specific element; select the element and press and hold 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 element on a diagram.</p>
Create Connectors Without a Diagram	<p>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.</p>

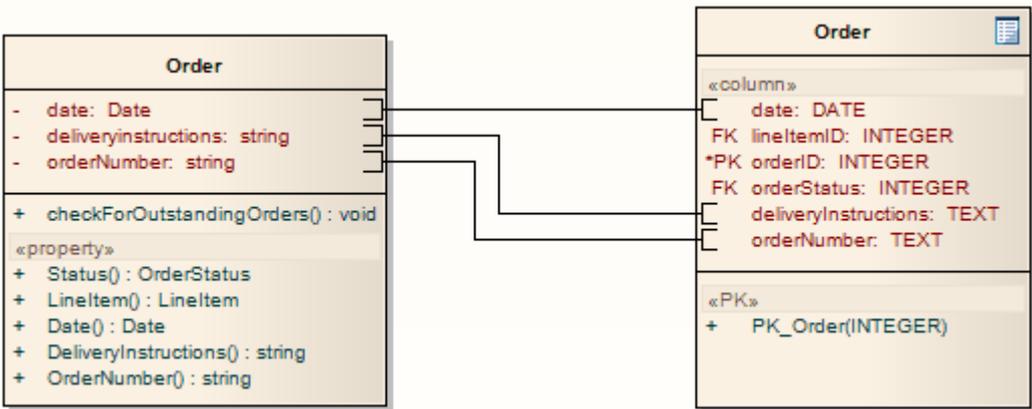
Notes

- 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

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.

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 option. The 'Link to Element Feature' dialog displays.
3	In the 'Feature Type' field, click on the drop-down arrow and select the required feature type - 'Attribute' or 'Operation'. The attributes or operations from the element are listed in the 'Feature' field.
4	<p>Click on the required attribute or operation, and click on the OK button. The end of the connector changes to a bracket next to the selected feature.</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 above procedure and selecting the new feature.</p> <p>You can break the link to the selected feature in any of these ways:</p> <ul style="list-style-type: none"> • Follow 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 <p>Note that reversing the direction of the connector does not break the connector's attachment to the feature.</p>

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 above, 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 Change Type Change Type
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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 mouse 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 'Options' dialog). You can also bend a connector to quickly and easily route connectors in the required layout.

Styles

Style	Description
Direct	A straight line from element A to element B. You can move the line (back and forward, up and down) to a limited degree.
Auto Routing	A vertical and horizontal route from A to B with 90-degree bends. You can move the line to improve the route, but the location and number of bends are not configurable.
Bezier	A smooth curved line from A to B. 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	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. All line segments thus created are either vertical or horizontal.

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"> • Direct

	<ul style="list-style-type: none"> • Auto Routing • Custom • Tree • Lateral, or • Orthogonal • (or Bezier, where appropriate)
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Set the Connector Style (alternative method)

Step	Action
1	Select the connector to change.
2	Press these keys to change the style: <ul style="list-style-type: none"> • Ctrl+Shift+D for Direct • Ctrl+Shift+A for Auto Routing • Ctrl+Shift+C for Custom • Ctrl+Shift+Z for Bezier (where appropriate)

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 'Tools Options' menu option to display the 'Options' 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	Click on the 'Suppress Line Segment' option to suppress a line between two bend points. The segment you right-clicked on is suppressed.
4	To show the segment again, right-click on the line and click on the 'Show All Line Segments' option. One application for this is to represent the continuation of flow when your diagram crosses the page boundary marker in the Diagram View . 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.

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">• Right-click on the element to create a connector for, and select the 'Add Create Link' option, or• Select the element, press the Insert key and select the 'Create Link' option <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 this 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> <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).</p>
5	<p>Click on the OK button to create the connector.</p>

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 below.

Menu	Diagram Visible Relations
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' option to hide the visible connector. 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.

Hide or show a connector in other diagrams

Step	Action
1	Right-click on the connector in the diagram. The context menu displays.
2	Select the 'Visibility Hide Connector in Other Diagrams' menu option. The 'Set Connector Visibility' dialog displays.
3	If the two connected elements have been included in other diagrams, these diagrams are listed here. 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. If you want to display the information in a more 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 ('Element | 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, Business and Software Engineering, System Engineering 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 it 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	Right-click on the connector and select the 'Delete Connector' option. The 'Remove Connector' dialog displays; this dialog provides the options to hide the connector so that it remains functional, or remove the connector completely.
2	Click on the appropriate radio button and click on the OK button . 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. It also hides the connector on the Relationships window.

Notes

- The dialog does not display if:
 - You have previously selected the 'Don't ask again' checkbox or
 - On the 'Links' page of the 'Options' dialog ('Tools | Options | 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

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 (e.g. 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	In the 'Power Type' field, either: <ul style="list-style-type: none"> Type a new power type, or Click on the drop-down arrow or  and select an existing one from the 'Select <Item>' dialog
4	Check the 'IsMember' column for the child subtypes that are part of this Generalization set.

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

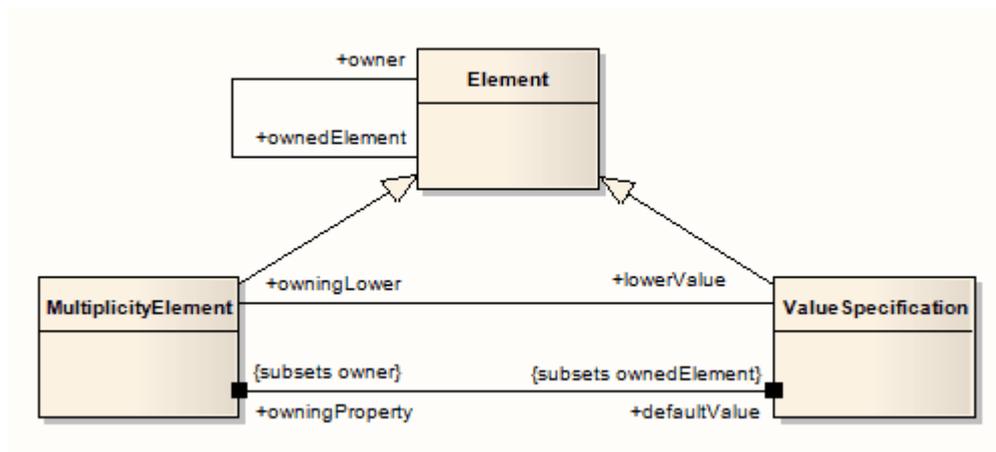
UML enables specialization of properties defined by Associations. Enterprise Architect enables this through the 'Specialize Associations' option in the 'Advanced' section of the context menu for an Association.

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

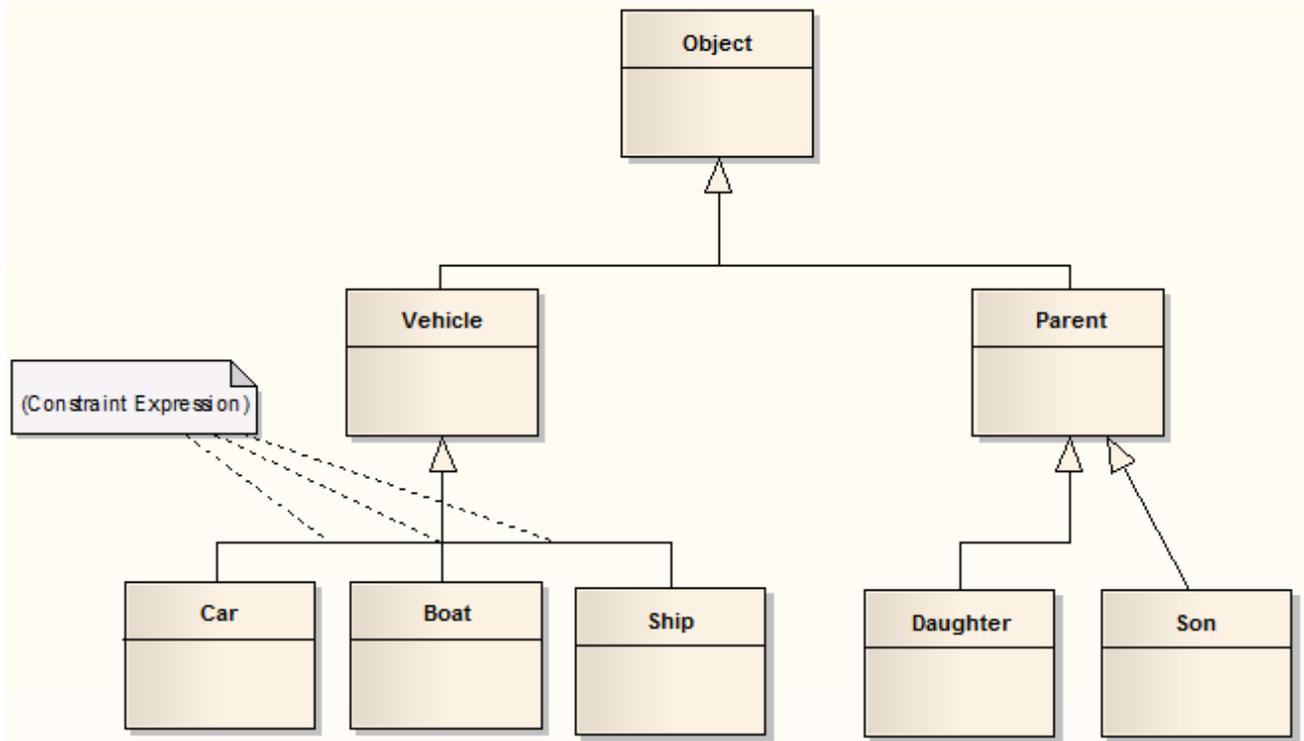
By default the Use connector in Use Cases has no arrow head.

Generate arrow heads on Use connectors

Step	Action
1	Select the 'Tools Options Links' menu option. The 'Links' page of the 'Options' 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	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 diagram above. 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.

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 'Tools Options Links' menu option. The 'Links' page of the 'Options' dialog displays.
2	Select the 'Generalization link style Default = Tree' checkbox to make this branching style the default style for inheritance connectors.

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 the '<connector type> Properties' dialog. 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 properties on the dialog are presented on these tabs:

- General
- Advanced properties
- **Tagged Values**
- Source and Target Roles
- Constraints

Access

Context Menu	Right-click on Connector Properties
Other	Double-click on Connector

General Tab Options

Field/Option/Button	Action
Name	(Optional) Type a representative name for the connector; this name displays on the diagram.
Notes	(Optional) Type any comments you want to record on the connector. You can format the text using the Notes toolbar at the top of the field. These notes can be included in searches, reports and documentation, if required.
Connector Properties Panel	
Source	Displays the name of the source element for the connector.
Target	Displays the name of the target element for the connector.
Alias	(Optional)Type an alternative name or alias for the connector.
Direction	Click on the drop-down arrow and select the appropriate direction details: from source to destination, destination to source, bi-directional, or unspecified. Some connectors have arrow heads that depend on this setting, and some connectors are logically dependent on this (such as Inheritance).
Style	Click on the drop-down arrow and select the appropriate connection style; choose

	<p>from:</p> <ul style="list-style-type: none"> • Direct • Auto-Routing • Custom • Tree (Vertical, Horizontal, Lateral Vertical or Lateral Horizontal), or • Orthogonal (Square Corners or Rounded Corners) <p>Some connectors can also have the Bezier style, under which the connector follows a smooth curve.</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>
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	<p>(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).</p>

Notes

- Instead of displaying properties on tabs in the dialog, you can select the 'Property Sheets use Tree style' checkbox through the 'View | Visual Styles' menu to display the properties on screen pages selected through a hierarchical list
- Generalize, Realize, Associate and Template Binding connectors also have a 'Binding' tab, on which you define binding expressions and parameter substitutions for the connector

Connector Advanced

You use the 'Advanced' tab of the 'General' page to reset the values of any system-defined advanced properties that the connector has.

Access

Context Menu	Right-click on Connector Properties > Advanced
Other	Double-click on Connector > 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	Depending on the property, either: <ul style="list-style-type: none">• Type the value in free text• Click on the drop-down arrow and select the value from the list• Click on the  button and search for the required value
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 might set these Tagged Values separately on the Tagged Values window but, for convenience, you can continue working in the connector 'Properties' dialog, which encapsulates the Tagged Values window in the 'Tags' tab.

Access

Context Menu	Right-click on Connector Properties > Tags
Other	Double-click on Connector > Tags

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 name 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.

The 'Role(s)' tab has two identical panels, one for each of the Source and Target role definitions. The field descriptions here apply to both panels.

Access

Context Menu	Right-click on Connector Properties > Role(s)
Other	Double-click on Connector > Role(s)

Enter Role definitions

Field/Option/Button	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 the required multiplicity for the role (you can edit the possible values of this field on the 'Cardinality' tab of the 'UML Types' dialog). 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. The values have these formats: <ul style="list-style-type: none"> • *, or 0..* - zero, one or many instances • 0..n - zero or up to n instances, but no more than n • n - exactly n instances • n..* - n, or more than n instances You can also define source and target role multiplicity in the corresponding element's attribute properties.
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

	<p>contain duplicate elements (relevant only if multiplicity is > 1).</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>
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 a value to indicate the level (instance or classifier) at which this role applies.</p>
Constraints	<p>Type the names of any constraints on the role.</p>
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	<p>Type the name of a role-type that can be used when generating collection Classes for multiplicity > 1.</p>
Changeable	<p>Click on the drop-down arrow and select a value to indicate whether this role is subject to change.</p>
Containment	<p>Click on the drop-down arrow and select a value to indicate the nature of the containment at the Destination (Reference or Value).</p>
Derived	<p>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.</p>
Derived Union	<p>Click on the drop-down arrow and select True or False to indicate whether the role is derived from the properties that subset it.</p>
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 appropriate end of the connector (.</p>

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 selecting the 'Reverse Direction' option from the connector context menu
- Destination 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.

Access

Context Menu	Right-click on Connector Properties > Constraints
Other	Double-click on Connector > Constraints

Set constraints on a connector

Field/Button/Action	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	Click on this button to delete a constraint you have selected in the 'Defined Constraints' list. The constraint is immediately removed from the list.

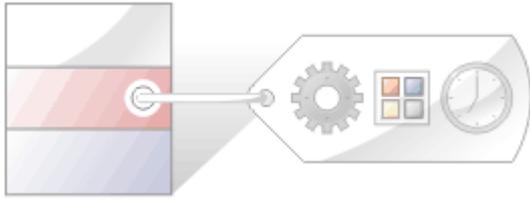
Notes

- Constraints on an Association connector can be added to further refine the model; constraints detail the business and operational rules for the model

Binding

Generalize, Realize, Associate and Template Binding connectors have a 'Binding' tab or page on their 'Properties' dialog. 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 Architects 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 in the Project | Settings menu
- 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

Learning Center topics

- **Alt+F1** | Enterprise Architect | Getting Started | Basic Tasks | Add A **Tagged Value**

Quick Start - Add Tagged Value To Elements

You can add a **Tagged Value** to one or more elements within a diagram, using a context menu option. You can also use the Current Element toolbar, on which the last button is a shortcut to the 'Add Tagged Value' option.

To delete the Tagged Value you must open the 'Properties' dialog for each element, go to the '**Tagged Values**' tab and manually delete the item. There is currently no shortcut to delete tags from multiple elements simultaneously.

To add notes to the Tagged Value, in the element 'Properties' dialog go to the 'Tagged Values' tab, click on the Tagged Value name, and click on the **Edit Notes button** in the tab toolbar. The 'Notes' dialog displays.

Any Notes text you enter also displays in the 'Info' section at the bottom of the Tagged Values window.

Access

Context Menu	On diagram Right-click single element Advanced Tagged Value On diagram Select multiple elements Right-click on one Add Tagged Value
Keyboard Shortcuts	Ctrl + Shift + T

Add a Tagged Value to elements

Step	Action
1	On the ' Tagged Values ' dialog, in the 'Tag' field, type in the tag name.
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.

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 > Windows > Tagged Values Show > Window > Tagged Values
Menu	View Tagged Values
Keyboard Shortcuts	Ctrl + Shift + 6

Assign a Tagged Value to an item

Step	Action
1	Select the model feature to which to assign a Tagged Value . This feature becomes the focus of the window.
2	In the Tagged Value 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 by clicking on the element and either selecting Element | Advanced | Add Tagged Value or pressing **Ctrl+Shift+T**, and completing the Tagged Value dialog as described above

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 > Windows > Tagged Values Show > Window > Tagged Values
Menu	View Tagged Values
Keyboard Shortcuts	Ctrl + Shift + 6

Assign a note to a Tagged Value

Step	Action
1	Select the Tagged Values menu option. The Tagged Values window displays.
2	Click on the model feature for which to edit the Tagged Values . Its Tagged Values display in the Tagged Values window.
3	Click on the Tagged Value to add information to.
4	Click on the Edit Tagged Value Notes button or press Ctrl+E . The 'Tagged Value Note' dialog displays.
5	In the 'Note' field, type the information relating to the Tagged Value . Click on the OK button . The information is displayed in the lower portion of the Tagged Values window whenever the Tagged Value is selected.

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 > Windows > Tagged Values Show > Window > Tagged Values
Menu	View 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 . The Tagged Values window shows all of the tags for the selected feature, each with their current value.
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.</p> <p>There are six types of value field for a Tagged Value:</p> <ul style="list-style-type: none"> • 'Open' fields, in which you can type any appropriate value • 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 • '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' • 'Spin' fields, where you click on up or down arrows in the field to increase or decrease the value within certain limits • 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 the tag value is 'Complete' • '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)

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 'Tools Options' menu option. The 'Options' 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 check box

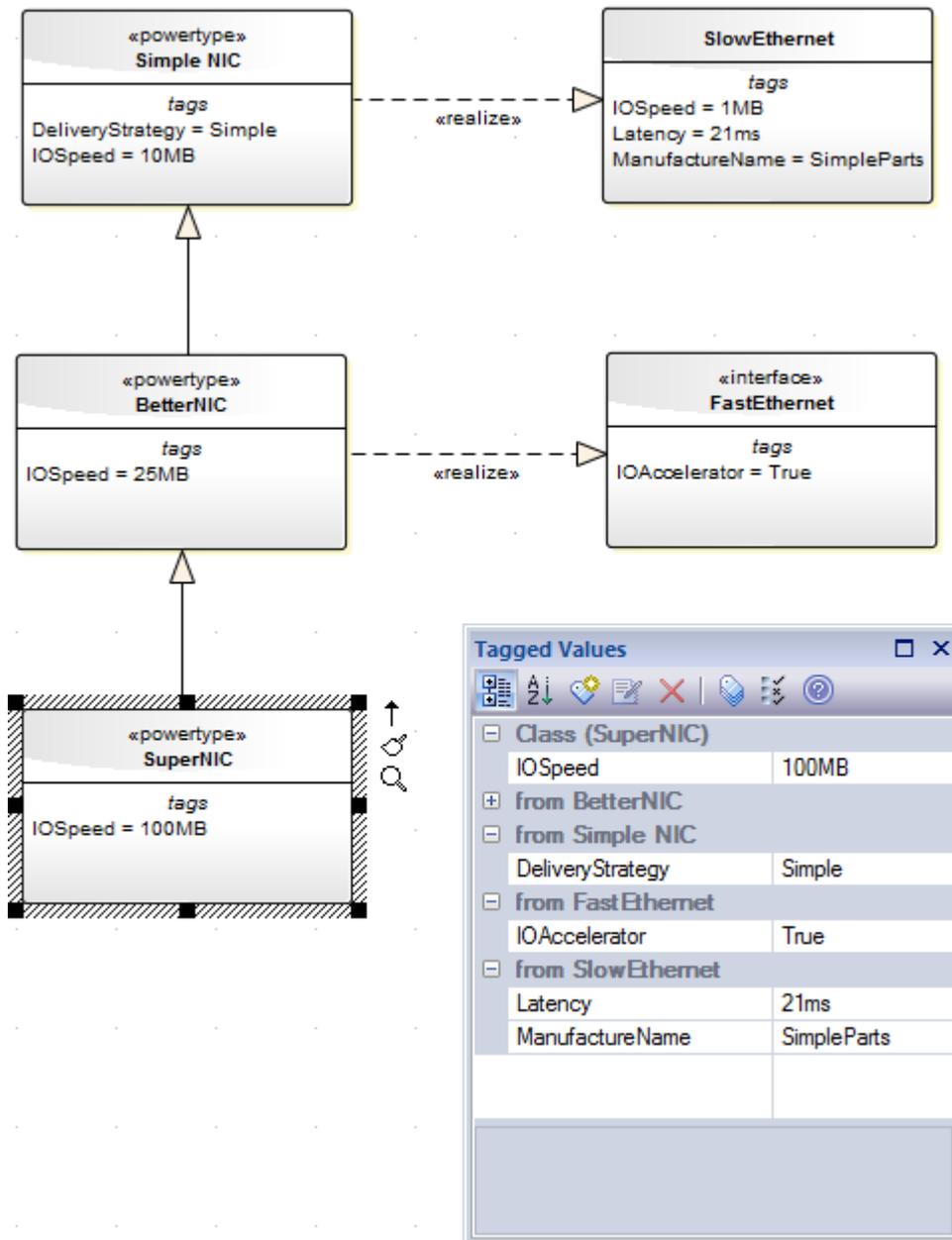
Advanced Tag Management

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)

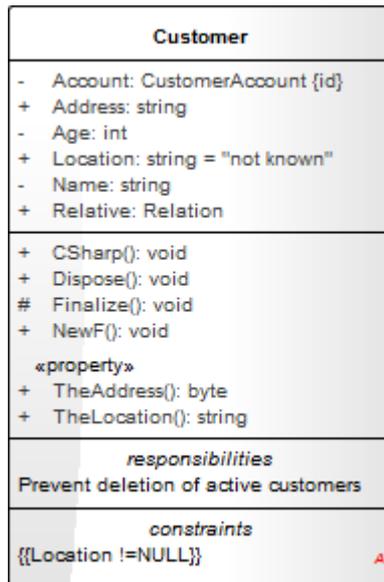
Tag Hierarchy

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 > Attributes
Context Menu	Right-click element in diagram Features and Properties Attributes or Right-click element in Project Browser Attributes Right-click attribute in Project Browser Attribute Properties
Keyboard Shortcuts	F9
Other	In Project Browser , double-click on an Attribute

Maintain Attributes

Action	Detail
Create and Modify Attributes	On the 'Attributes' page of the '<element name> Features' dialog, you create and modify attributes using the various panels and tabs.
	You can copy or move existing attributes between elements, if the target element

Move and Copy Attributes	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, are collectively referred to as Features of an element
- If you are creating many attributes, go to the 'Attribute/Operations' page of the 'Options' dialog ('Tools | Options | 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' dialog has a page each for the attributes and operations that you create in an element. When you display the 'Attributes' page, you can create and manage attributes using the panels and tabs of the page, and a context menu on the main panel.

Access

Ribbon	Design > Element > Attributes
Context Menu	Right-click element in diagram Features and Properties Attributes or Right-click element in Project Browser Attributes
Keyboard Shortcuts	F9

Create a New Attribute

Either:

- Click on the *New Attribute...* text and type a name for the new attribute
- Right-click on the top 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

Field/Option/Button	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"> • The required type or • '<none>' for no type, or • 'Select Type' and browse for the appropriate attribute classifier (you can add a new one if there are no classifiers that suit) <p>The type can be defined by the code language (data type) or by a classifier 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	(Optional) Define one or more stereotypes for the attribute; either: <ul style="list-style-type: none"> Type a stereotype name, or Click on the  button and select the stereotype from the 'Stereotype Selector' dialog
Alias	(Optional) Type an alternative name or reference for the attribute.
Initial Value	(Optional) Either: <ul style="list-style-type: none"> Type in a simple initial value, or Click on the (...) button and construct a more complex value on the Default Initial Value window
Attribute <name> panel	In the fields of this panel, define the detailed properties of the selected attribute.
Notes Tab	Enter any comments and discussion you want to record on the attribute; you can format the notes text using the Notes toolbar at the top of the field. You can also perform a range of operations on the Notes text, using the 'Notes' context menu.
Constraints tab	Define any constraints associated with the attribute.
Redefines tab	On this tab, identify any redefined and/or subsetted properties of the attribute, using the 'Select Property' dialog. Click on the Add button for each type of property to display the dialog and define the property. Click on a property and on the Delete button to remove it from the appropriate list.
Tagged Values tab	On this tab, define any Tagged Values that the attribute has.
Close	Click on this button to close the 'Features' dialog, saving all information you have recorded in it.

Context Menu options

Right-click on the upper 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
Qualifiers	Add Qualifiers to the selected attribute. The 'Qualifiers' dialog displays.

Restore Sort Order	If you have used the column header arrows to reorganize the sequence in 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 Bar	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.
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, you must deselect the 'Sort Features Alphabetically' checkbox on the 'Objects' page of the 'Options' dialog ('Tools | Options | Objects') - the system prompts you to allow it to make this change for you

Attribute Details

On the 'Attributes' page of the 'Features' dialog, you can define a number of important properties of an attribute using the properties list in the bottom left of the dialog.

Access

Ribbon	Design > Element > Attributes
Context Menu	Right-click element in diagram Features and Properties Attributes or Right-click element in Project Browser Attributes
Keyboard Shortcuts	F9

Define Properties

Field	Action
Containment	Type the name of the containment type, or click on the drop-down arrow and select a standard type (By Reference, By Value or Not Specified).
Static	Click on the drop-down arrow and select True or False to indicate whether the attribute is a static member.
Property	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. The 'Create Property Implementation' dialog displays.
Is Literal	(For Enumeration elements) Click on the drop-down arrow and select True or False to indicate whether the attribute is an enumeration literal. In the Attributes compartment on the diagram, the enumeration literals are listed separately, above the normal attributes (check that the 'Stereotype' field for the normal attribute is not set to 'enum').
Transient	(For Java code) Click on the drop-down arrow and select True or False to indicate whether the attribute can change regardless of what the code is performing.
Derived	Click on the drop-down arrow and select True or False to indicate 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 attributes.
Is ID	Click on the drop-down arrow and select True or False to indicate whether the attribute can be used to uniquely identify an instance of the containing Class.
Multiplicity	Click on the  button to display the 'Multiplicity' dialog, and define the

	<p>multiplicity of the attribute.</p> <ul style="list-style-type: none">• Upper bound - Type the upper limit to the number of elements allowed in the collection• Allow Duplicates - Select the checkbox to indicate that duplicate values are allowed; this field maps to the UML property isUnique, with a value False• Multiplicity is Ordered - Select the checkbox to indicate that the collection is ordered• OK - Click on this button to save the information and close the dialog
Is Collection	Click on the drop-down arrow and select True or False to indicate whether the attribute is a collection (array), so that it can contain multiple concurrent values, or a single value.
Container Type	Type the name of the container type for the collection.

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 'Attributes' page of the 'Features' dialog. 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 > Attributes
Context Menu	Right-click element in diagram Features and Properties Attributes or Right-click element in Project Browser Attributes
Keyboard Shortcuts	F9

Configure Properties for an attribute

Step	Action
1	In the list of attributes, click on the attribute for which to configure property creation.
2	In the lower left panel of the dialog page, 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 define the property for the selected programming language: <ul style="list-style-type: none"> • By Ref • Stereotype • Get Scope • Set Scope • Published • Read • Write

	<ul style="list-style-type: none">• Abstract
5	Click on the OK button The system generates the required operations and properties to comply with the selected language.

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 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 > Attributes > Tagged Values
Context Menu	Right-click element in diagram Features and Properties Attributes > Tagged Values or Right-click element in Project Browser Attributes > Tagged Values
Keyboard Shortcuts	F9 > Alt + V

Add a Tagged Value to an attribute

Step	Action
1	Click on the  button. 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.
4	Click on the OK button to confirm the operation. The tag name and value are displayed under the attribute in the 'Tagged Values' tab.

Notes

- **Tagged Values** are supported for attributes, operations, objects and connectors
- You can define custom tags by creating a Custom **Tagged Value Type**

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 within the attribute properties.

Access

Ribbon	Design > Element > Attributes > Constraints
Context Menu	Right-click element in diagram Features and Properties Attributes > Constraints or Right-click element in Project Browser Attributes > Constraints
Keyboard Shortcuts	F9 > Alt + T

Define Constraints

Field/Option/Button	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 at the bottom of the 'Constraints' tab.
Delete	Click on a constraint in the list and click on this button to immediately remove the constraint from the attribute.

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 (ancestors).

Access

Context Menu	Right-click element on diagram Features & Properties Feature and Compartment Visibility
Keyboard Shortcuts	Ctrl + Shift + Y

Enable Display of Inherited Attributes

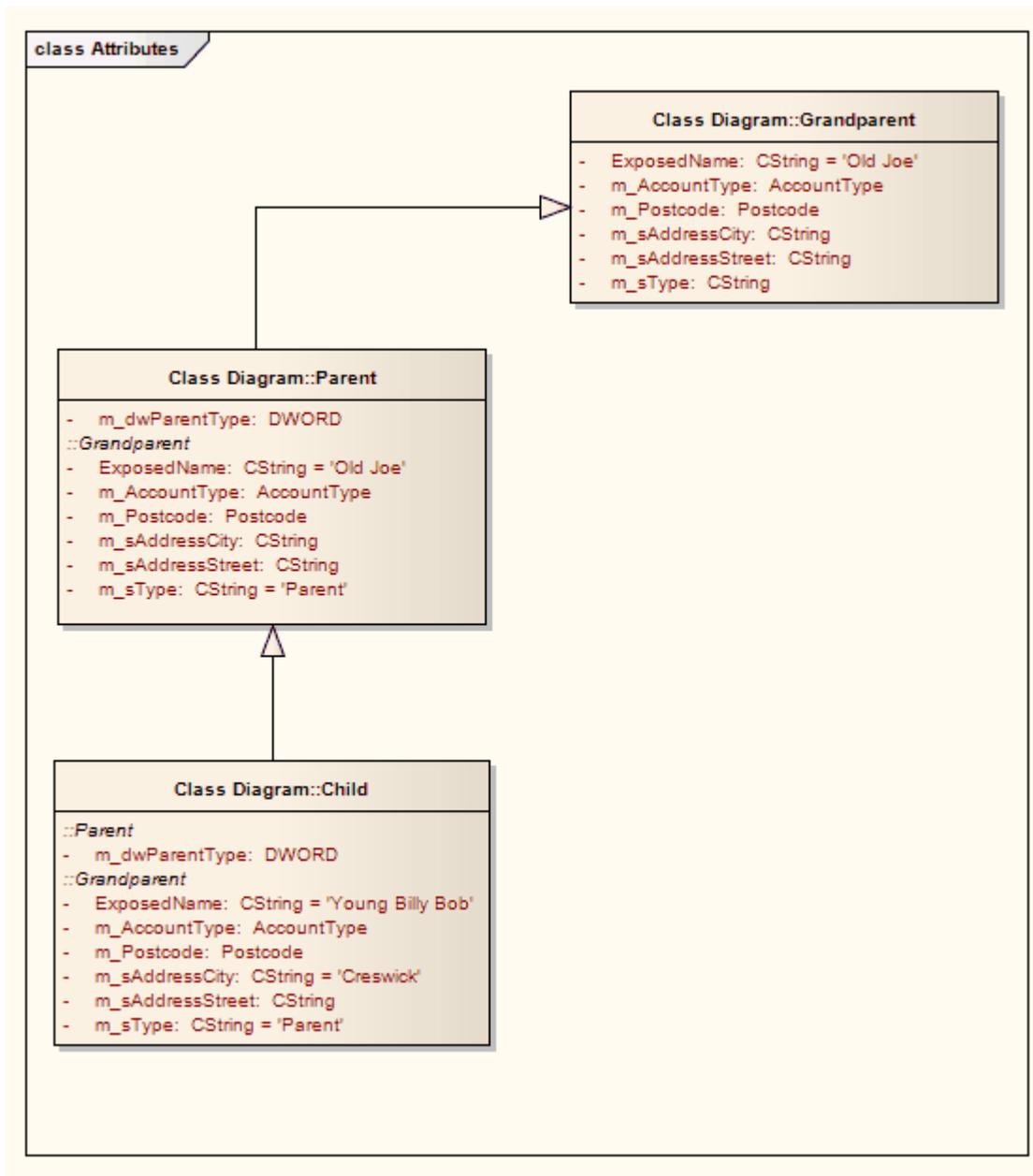
In the 'Inherited Features' panel, select the 'Show Attributes' checkbox.

You can also override an inherited attribute's initial value, selecting the 'Features & Properties | 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.

Field/Option/Button	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

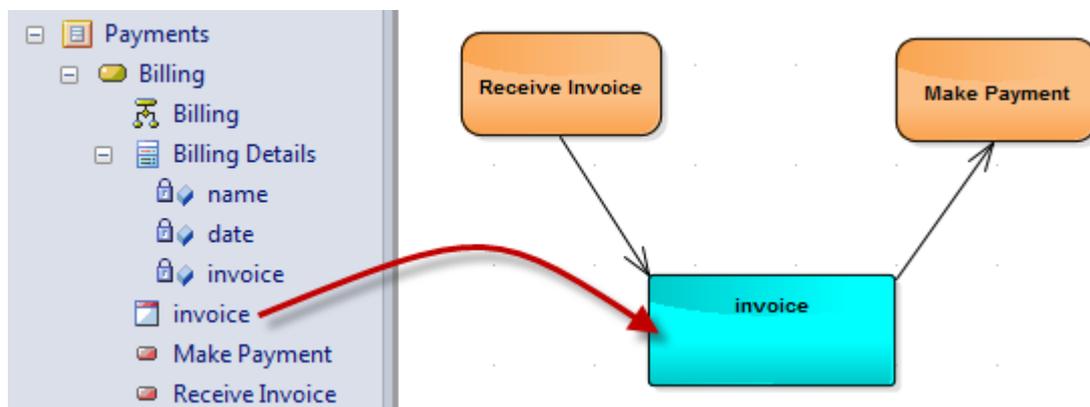
If you drag an attribute from the **Project Browser** onto an Activity diagram, the attribute generates an Object element of the same name.

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.



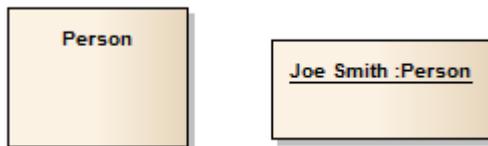
Notes

- 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 Person's parent elements, 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 'Attributes' or 'Operations' menu options, the 'Features' dialog 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 <element> 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 Existing Object	<p>(Where both object and classifier already 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 described above.</p>
Classify new or existing object from classifier Associations	<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"> • Class A is associated with Class B and Class C • Object 1 is classified by Class A • 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

Add Property Slots to Instance

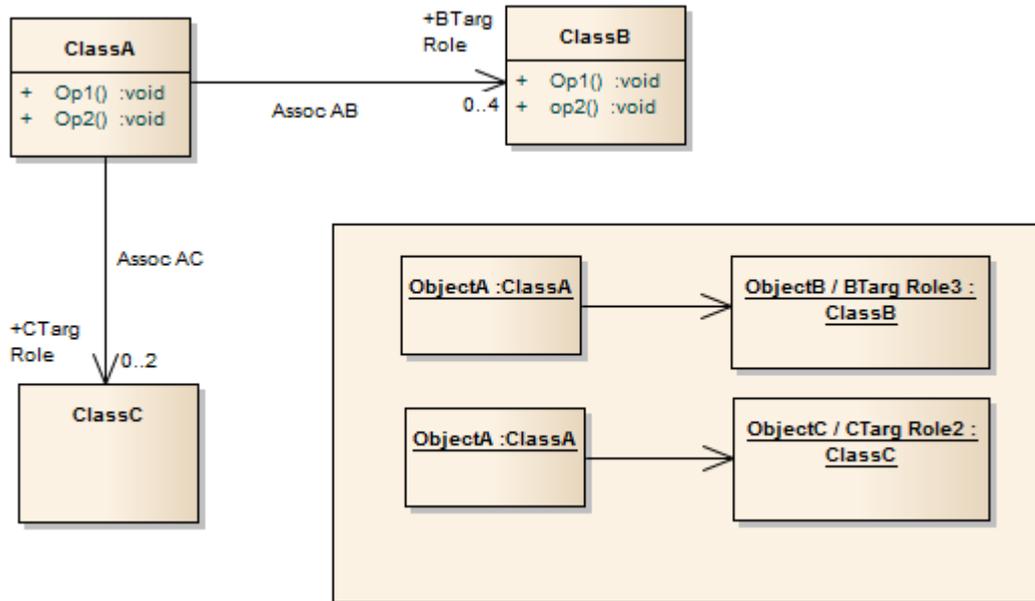
A classifier element can have a range of characteristics that are automatically applied to an instance based on that classifier. You can also, optionally, add any Property elements (Ports, Parts and Expose Interfaces) on the classifier to the instance, as 'slots' for the definition of each Property. 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 'Structural Elements' option. The 'Structural Elements' dialog displays, listing the Property elements defined for the classifier.
4	Select the check box against each Property to reproduce in the instance element, and click on the Close button . 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.

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 below, 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	Displays the name (if defined) of each Association connector issuing from the source object's classifier. If the connector has no name, the value <anonymous> displays.
Association	Represents the source and target classifier elements in each Association connector issuing from the source object's classifier. If you select one of these, the target classifier becomes the classifier for the target object element. Select <none> if you want to create the Association, but not based on the classifier

	relationships.
<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"> • Create the Association between the two objects based on the relationship between the two classifiers, and • Make the target classifier the classifier for the target object <p>If you selected the <none> 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' and 'Call' tabs of the element 'Properties' dialogs.

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 > Operations
Context Menu	Right-click element in diagram Features and Properties Operations or Right-click element in Project Browser Operations or Right-click operation in Project Browser Operation Properties
Keyboard Shortcuts	F10
Other	In Project Browser , double-click on an Operation

Create and Modify Operations

You create and modify the operations of an element on the 'Operations' tab of the 'Features' dialog. This tab itself contains panels and tabs that you can use to completely define the operations you need for an element.

Appearance on diagram

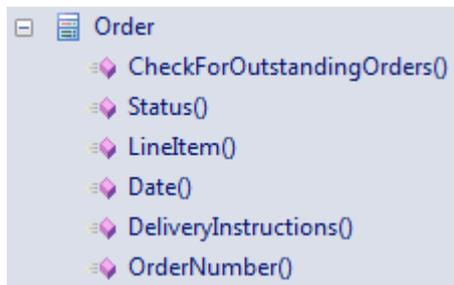
In diagrams, elements with operations (typically Classes) list the operations in the second properties compartment, in colored text, as shown.

Order	
-	<i>AccountAttribute: int = CustomerAccount</i>
+	<i>CheckForOutstandingOrders(): int</i>
+	<i>Status(): int</i>
+	<i>LineItem(): int</i>
+	<i>Date(): int</i>
+	<i>DeliveryInstructions(): int</i>
+	<i>OrderNumber(): int</i>

The default text color is dark green, as in the example. 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 and modify the operations of an element on the 'Operations' tab of the 'Features' dialog. This tab itself contains panels and tabs that you can use to completely define the operations you need for an element. You can, however, simply create a number of operation names if you want to create operations quickly and not necessarily fully define them as you create them.

Access

Ribbon	Design > Element > Operations
Context Menu	Right-click element in diagram Features and Properties Operations or Right-click element in Project Browser Operations or Right-click operation in Project Browser Operation Properties
Keyboard Shortcuts	F10
Other	In Project Browser , double-click on an Operation

Create and define Operations

Field/Button	Action
Name	Overtyping the <i>New Operation...</i> text to create a new operation, or click on the name to edit an existing operation.
Parameters	Lists the parameters that have been defined for this operation on the 'Parameters' tab.
Return Type	(This option is not shown for State or State Machine elements.) Defaults to 'void'. To change this, overtype the field or click on the drop-down arrow and click on: <ul style="list-style-type: none"> The required data type returned by the operation, as defined by the code language (data type) or '<none>' for no type (or you can type in a value manually if you prefer), or 'Select Type' and browse for the appropriate operation classifier (you can add a new one if there are no classifiers that suit) To add new code language data types that can be displayed in this list, see the <i>Data Types</i> topic.
Action	Define the action of the operation: do, exit or entry. (Displayed for operations of State or State Machine elements.)
Scope	Click on the drop-down arrow and select one of: <ul style="list-style-type: none"> Public

	<ul style="list-style-type: none"> • Protected • Private • Package
Stereotype	<p>(Optional) Define one or more stereotypes for the operation; either:</p> <ul style="list-style-type: none"> • Type a stereotype name, or • Click on the  button and select the stereotype from the 'Stereotype Selector' dialog
Alias	(Optional) Type an alternative name or reference for the operation.
Method <operation name> panel	Define the detailed properties of the selected operation.
Parameters tab	Define parameters to modify how the operation takes action.
Notes tab	<p>Enter any comments and discussion you want to record on the operation; you can format the notes text using the Notes toolbar at the top of the field.</p> <p>You can also perform a range of operations on the Notes text, using the 'Notes' context menu.</p>
Behavior tab	Define the behavior or functionality of the operation.
Redefines tab	<p>(Optional) In a Generalize relationship, configure the selected operation to redefine an operation in the target element.</p> <p>You can also set up the operation to check for an exception, and at that point switch control to a specified Classifier.</p>
Pre tab	Define pre-conditions that modify the action of the operation.
Post tab	Define post-conditions that modify the action of the operation.
Tagged Values tab	Define any Tagged Values that the operation has.
Close	Click on this button to close the 'Features' dialog, saving all information you have recorded in it.

Context Menu options

Right-click on the upper panel, or on a specific operation name.

Option	Action
Add New	<p>Add a new operation to the list, with default values in the dialog fields.</p> <p>Shortcut: Ctrl+N</p>
Copy as New	<p>Copy a selected operation as a new operation. Provide a new name for the operation and click on the OK button.</p> <p>Shortcut: Ctrl+C</p>

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	Move the selected operation 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 operations according to one or more characteristics.
Toggle Filter Bar	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.
Delete	Immediately delete the selected operation from the element. Shortcut: Ctrl+Del

Notes

This helps you when you want to create operations quickly and might not necessarily want to fully define each one as you create it

Operation Details

In defining the behaviors of the model elements you create, you can also define how the operations translate into methods in code. For this, you set options on the 'Method <operation name>' panel of the 'Operations' tab of the 'Features' dialog.

Access

Ribbon	Design > Element > Operations
Context Menu	Right-click element in diagram Features and Properties Operations or Right-click element in Project Browser Operations or Right-click operation in Project Browser Operation Properties
Keyboard Shortcuts	F10
Other	In Project Browser or in a diagram, double-click on an Operation

Define Detailed Properties

Field/Option/Button	Action
Concurrency	Click on the drop-down arrow and select the concurrency of the operation - Sequential, Guarded or Synchronous.
Virtual	If the operation's language is set to C++, click on the drop-down arrow and map to the C++ Virtual keyword. Otherwise this option is 'Abstract'. (This option is not shown for State or State Machine elements.)
Abstract	Pertaining to an abstract function. Click on the drop-down arrow and set to True or False . (This option is not shown for State or State Machine elements.)
Static	Indicate whether the operation is a static member. Click on the drop-down arrow and select True or False . (This option is not shown for State or State Machine elements.)
Modifiers	Click on the  button to display the 'Select Modifiers' dialog, and select the appropriate checkboxes: <ul style="list-style-type: none"> 'Pure' - indicates that the method statement is pure virtual syntax. For example: virtual void myFunction() = 0; 'Const' - indicates that the return type of the method is constant 'Is Query' - indicates that the method does not modify the object

	<ul style="list-style-type: none">• 'Return Array' - indicates that the method's returned value is in the form of an array• 'Synchronized' - for Java, sets a code engineering flag that relates to multi threading <p>(These options are not shown for State or State Machine elements.)</p>
Advanced	Click on the drop-down arrow and select True for each coding convention to assign as a Tagged Value on the operation (corresponding to a coding keyword).

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.

Access

Ribbon	Design > Element > Operations > Behavior
Context Menu	Right-click element in diagram Features and Properties Operations Behavior or Right-click element in Project Browser Operations Behavior or Right-click operation in Project Browser Operation Properties Behavior
Keyboard Shortcuts	F10 > Alt + B
Other	In Project Browser , double-click on an Operation 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 **Initial Code button** and enter the code on the 'Initial Code' screen.

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**.

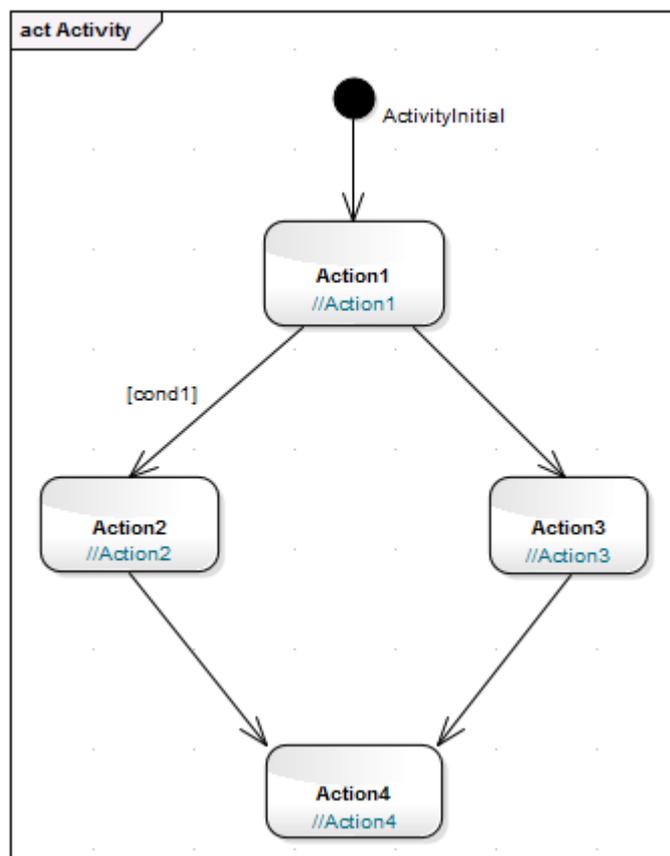
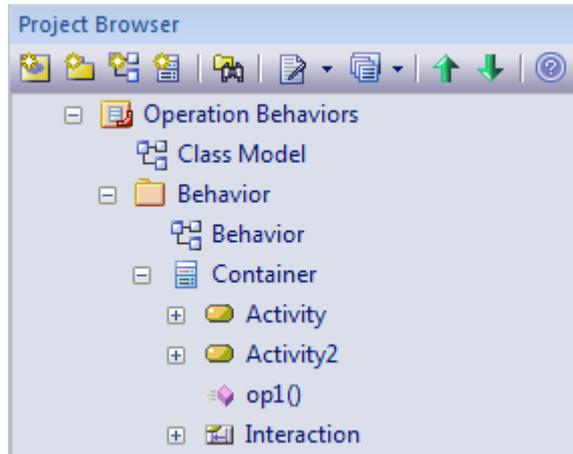
Delete behavior

If you have typed in a behavior description in free text, simply 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 'Initial Code' screen 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 is directly compilable. The language-specific UML 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 'Options' dialog.

Access

Project Browser | Right-click on Operation | Operation Properties > Behavior: Initial Code

On the 'Initial Code' screen, type in the code to use on initial generation. When you have finished entering code, click on the **OK button**.

On the 'Behavior' tab, the **Initial Code button** shows an asterisk (*) indicating that initial code exists for the operation.

Ribbon	Design > Element > Operations > Behavior : Initial Code
Context Menu	Right-click element in diagram Features and Properties Operations Behavior : Initial Code or Right-click element in Project Browser Operations Behavior : Initial Code or Right-click operation in Project Browser Operation Properties Behavior : Initial Code
Keyboard Shortcuts	F10 > Alt + B : Initial Code
Other	In Project Browser , double-click on an Operation Behavior : Initial 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.

Access

Ribbon	Design > Element > Operations > Redefines
Context Menu	Right-click element in diagram Features and Properties Operations Redefines or Right-click element in Project Browser Operations Redefines or Right-click operation in Project Browser Operation Properties Redefines
Keyboard Shortcuts	F10 > Alt + R
Other	In Project Browser , double-click on an Operation Redefines

Tasks

Task	Action
Redefine a target element Operation	<p>Click on the operation, and 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><Package>::<Target Element>.<Operation></pre> <p>On the parent element in a diagram, the Operation compartment shows the complete statement, of the format:</p> <pre><Operation>:{redefines <Package>::<Target Element>.<Operation></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 operation and 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.</p> <p>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</p>

	again click on the Add button, and repeat the process. The original selection is replaced by the new selection.
--	---

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

Ribbon	Design > Element > Operations
Context Menu	Right-click element in diagram Features and Properties Operations or Right-click element in Project Browser Operations or Right-click operation in Project Browser Operation Properties
Keyboard Shortcuts	F10
Other	In Project Browser , double-click on an Operation

Define Constraints

The fields and options on the 'Pre' and 'Post' tabs of the dialog are identical. Click on the appropriate tab to define the conditions prior to and following on from the operation behavior.

Field/Option/Button	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	Lists the pre-conditions or post-conditions that have been defined for this operation. Click on an item in this list to re-populate the dialog fields with the details, to edit or delete the condition.
Delete	Click on an item in the Pre-Condition or Post-Condition list and click on this button to delete that condition from the operation.

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 like 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 > Operations Tagged Values
Context Menu	Right-click element in diagram Features and Properties Operations Tagged Values or Right-click element in Project Browser Operations Tagged Values or Right-click operation in Project Browser Operation Properties Tagged Values
Keyboard Shortcuts	F10 > Alt + V
Other	In Project Browser , double-click on an Operation Tagged Values

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 New Tagged Value 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.
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 below 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 'Workspace > Preferences > Preferences : Links' and select the 'Show Override Operation dialog on new connector' checkbox.

Ribbon	Design > Element > Manage > Overrides and Implementations
Menu	Element Structure Overrides and Implementations
Keyboard Shortcuts	Ctrl + Shift + O

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

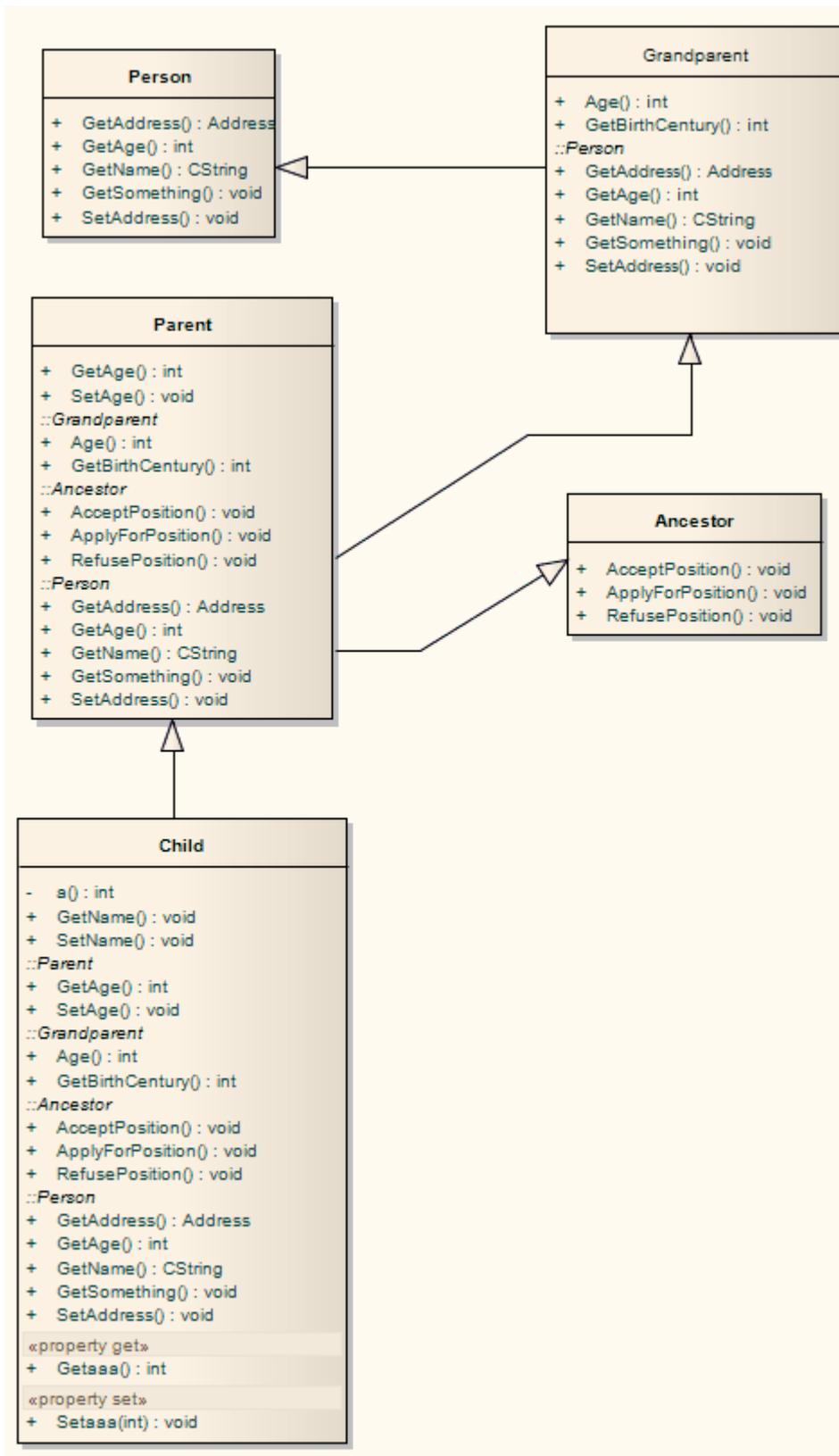
Menu	Element Feature Visibility
Context Menu	Right-click on element on diagram Features and Properties Feature & Compartment Visibility
Keyboard Shortcuts	Ctrl + Shift + Y

Enable Behavior

On the 'Feature and Compartment Visibility' dialog, in the 'Inherited Features' panel, select the 'Show 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 element's 'Properties' dialog, 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' page of the element's 'Properties' dialog, using any of the methods outlined below.

On the 'Behavior' page of the dialog, click on the **Edit Parameters button** to edit the element's parameters. When you create a new parameter using the dialog, 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 'Select Behavior'  button and use the 'Select Type' screen 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 > Manage > Properties > Behavior
Menu	Element Properties > Behavior
Context Menu	Right-click on Activity Element Properties > Behavior
Keyboard Shortcuts	Alt + Enter > Behavior
Other	Double-click on Element > 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 'Call' tab of the element 'Properties' dialog. 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

Editing a Behavior Call

Click on the **Edit button** to create and delete arguments, and relate them to a corresponding parameter in the associated behavior.

Click on the (...) (Select Behavior) button to re-associate the invocation with a different behavior or to remove any association with the current behavior.

The 'Interaction Occurrence' panel is displayed only for Interaction Occurrence elements. It enables you to enter the return value and attribute of the behavior call.

Associate with Different Behaviors

On the 'Call' tab of the 'Behavior Call Properties' dialog, when you click on the  button the 'Select Element' 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.

Synchronize Arguments

In your project, you can synchronize the parameters and arguments in a behavioral invocation.

On the 'Call' tab of the element 'Properties' dialog, 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.

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' dialog, which you display by clicking on the **Edit button** on the 'Call' tab of the element 'Properties' dialog.

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 'Parameters' field, click on the drop-down arrow and select a behaviors parameter from the list of parameters associated with the behavior.
3	In the 'Value' field, set any required value.
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

Within the 'Operations' tab of the 'Features' dialog, you have a number of facilities for defining, editing and extending the parameters of behavioral operations, Activities and Interactions.

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 'Parameter' tab of the object 'Features' dialog.

Access

Ribbon	Design > Element > Operations > [select or create an operation] > Parameters
Menu	Element Operations [select or create an operation] > Parameters
Context Menu	Right-click on element Features & Properties Operations [select or create an operation] > Parameters
Keyboard Shortcuts	F10 [select or create an operation] > Parameters

Define the Parameters

Field/Option/Button	Action
Parameter	Overtyping the New Parameter text with the new parameter name.
Type	<p>Click on the drop-down arrow and click on:</p> <ul style="list-style-type: none"> The required data type of the operation, as defined by the code language (data type) or <none> for no type (or you can type in a value manually if you prefer), or Select Type and browse for the appropriate operation classifier (you can add a new one if there are no classifiers that suit) <p>To add new code language data types that can be displayed in this list, see the Data Types 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"> In = By Value

	<ul style="list-style-type: none"> • InOut = By Reference • Out = Passed By Reference, but only the return value is significant • Return - Indicates that the parameter is a returned value
Fixed Value	Click on the drop-down arrow and select True , even if the parameter passed by reference.
Multiplicity	Click on the Selector  button to display the 'Multiplicity' dialog, and specify the multiplicity of the parameter.
Notes	Click on the Selector  button and type any additional notes on the parameter. These notes are unformatted.

Define Multiplicity

Field/Option	Action
Lower bound	Type a lower limit to the number of elements allowed in the collection.
Upper bound	Type an upper limit to the number of elements allowed in the collection.
Allow Duplicates	Select the checkbox if you want to allow duplicates. This maps to the UML property 'isUnique', with the value False .
Multiplicity is Ordered	Select the checkbox if you want to indicate that the collection is ordered.
OK	Click on this button to save the changes and close the dialog.

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' panel
- 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 like 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 below. Then, in **Project Browser** or **Diagram**, select the object containing the parameter.

Ribbon	Start > Windows > Tagged Values Show > Window > Tagged Values
Menu	View Tagged Values
Keyboard Shortcuts	Ctrl + Shift + 6
Other	On diagram or Project Browser Double-click object containing parameter > Tagged Values

Add a Tagged Value for a parameter

Step	Action
1	The ' Tagged Values ' tab 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 > Workspace > Preferences > Preferences > Objects > Feature reference indicator
Menu	Tools Options Objects > Feature reference indicator

Define Parameters

Image	Detail
parambyreference3	<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' 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.</p> <p>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.</p> <p>The example shows that, in the getName operation, the parameter 'strName' is a string reference, and is highlighted using the chosen character and position.</p>

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 Review** 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 Review 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"> • Drag the 'Hyperlink' icon onto the diagram from the 'Common' page of the Diagram Toolbox, or • Click on the icon in the 'UML Elements' Toolbar and then click on the diagram <p>You provide the text of the link directly on the diagram, then double-click on the 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 the link text is read from the 'Notes' field.</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> Java Code File</p>

	<p>Certain types of link, however, have their own icon; for example, a Hyperlink element linking to a diagram and a link to a Help topic (.</p>
On a diagram to another diagram	<p>To create a link to another diagram on the current diagram:</p> <ol style="list-style-type: none"> 1. Drag the target diagram on to the current (host) diagram. The 'Select Type' dialog displays. 2. Select the 'Hyperlink' option and click on the OK button. <p>The final hyperlinked diagram should now have a link referencing the target diagram, like this:</p> <p> Location : Location</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 'Tools Options Diagram Behavior' menu 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 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). 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 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. 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"> • 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 • 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

	<ul style="list-style-type: none"> 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 '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	<p>When you generate a report on a section of your model, the Document Generator either:</p> <ul style="list-style-type: none"> Activates any hyperlink in that part of the model and includes the linked object (generally a diagram image) in the report, or Displays the hyperlink as a reference to the linked object (most other links) <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 Review 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. Alternatively, right-click in the text and, for an element, select the 'Create Link to Existing Element' option or, for links to other objects, select the 'Create Hyperlink' option.</p>
In a Team Review post	The Team Review 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 Review 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 Search or Team Review message, click on either:</p> <ul style="list-style-type: none"> The 'Hyperlink' icon in the toolbar or The Insert Quick Link button and select the 'Other' option <p>The 'Hyperlink Details' dialog displays. Use this to create the required link.</p>

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
A file	<p>'File' is the default setting for the 'Type' field.</p> <p>In the 'Address' field, type or paste the 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>
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.</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 attribute is highlighted in the Project Browser.</p>
A diagram	<p>In the 'Type' field, click on the drop-down arrow and click on 'Diagram'. The 'Select a Diagram' browser displays, in which you locate and click on the required diagram. You can filter the browser to show all diagrams in the model or only those of a small number of specific types.</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 a Diagram' browser displays, in which you locate and click on the required diagram. You can filter the browser to show all diagrams in the model or only those of a small number of specific types.</p> <p>Click on the OK button to return to the 'Hyperlink Details' dialog, and again to</p>

	<p>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.</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 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 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 .htm 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 Image	<p>In the 'Type' field, click on the drop-down arrow and click on 'Image Manager'. The '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</p>

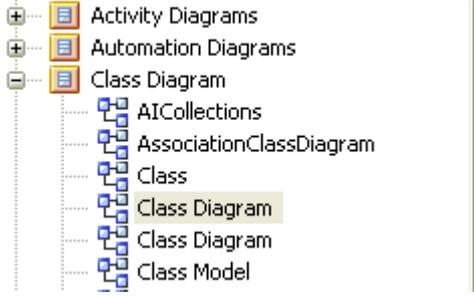
	<p>profile name.</p> <p>Click on the OK button to return to the 'Hyperlink Details' dialog, and again to create the hyperlink.</p> <p>If you activate the link, the Relationship Matrix displays with all fields set according to the selected profile.</p>
An Operation	<p>In the 'Type' field, click on the 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 Search	<p>In the 'Type' field, click on the drop-down 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 Team Review Posting	<p>In the 'Type' field, click on the drop-down arrow and click on 'Team Review'. 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 Review view displays, showing the linked document. The Team Review 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

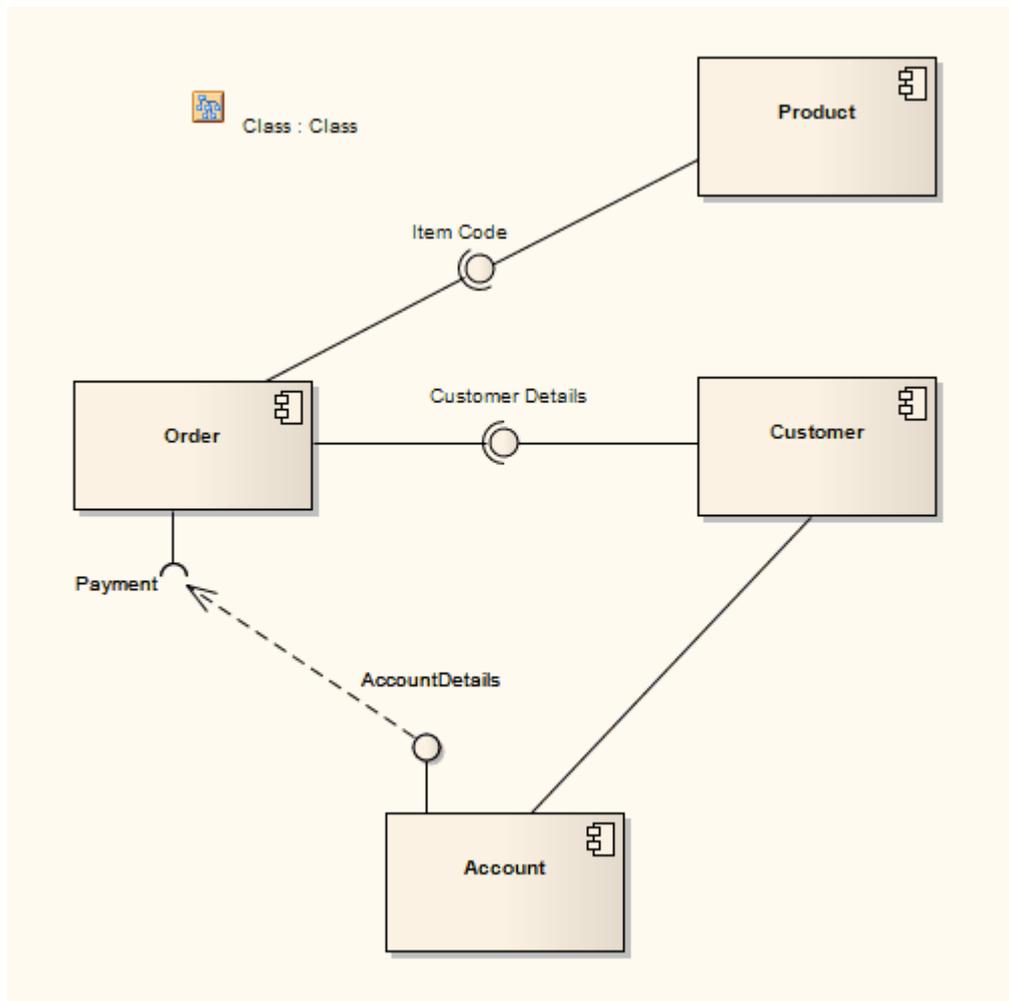
- To activate a Hyperlink element, double-click on it; to activate an in-text link, press **Ctrl** as you click on it
- When creating a hyperlink, for most target objects the system automatically opens a browser to populate the 'Address' field; when you edit the hyperlink, use the  icon at the end of 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 tree view of diagrams. The root node is 'Activity Diagrams', which is expanded to show 'Automation Diagrams' and 'Class Diagram'. The 'Class Diagram' folder is expanded to show 'AICollections', 'AssociationClassDiagram', 'Class', 'Class Diagram', 'Class Diagram', and 'Class Model'. The 'Class Diagram' item is highlighted with a yellow background.</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 'Tools | Options | Diagram | Behavior' menu option and deselect the 'Use Automatic SubActivities' checkbox

In-place Editing Options

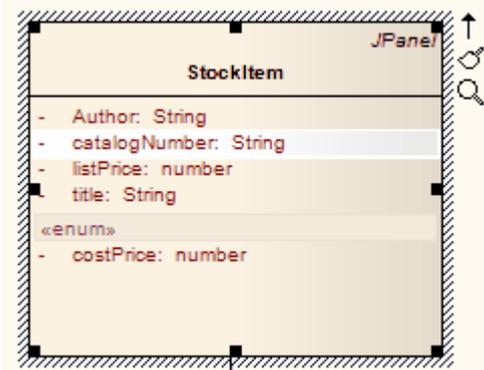
This topic explores the tasks that can be performed using in-place editing of elements on a diagram in Enterprise Architect. The tasks include:

- [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>Edit and manipulate the items in the element, either by pressing the appropriate keyboard keys or by right-clicking on the highlighted item and 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 Properties	Display the dialog containing details of 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 code	Display the source code for the element, 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.

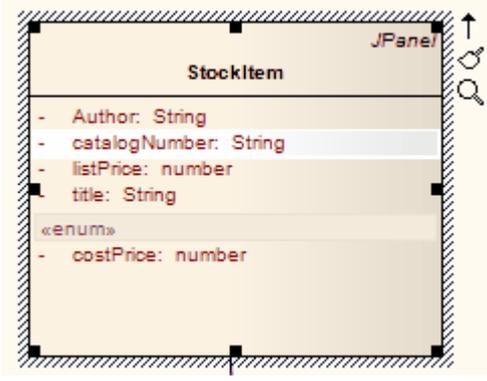
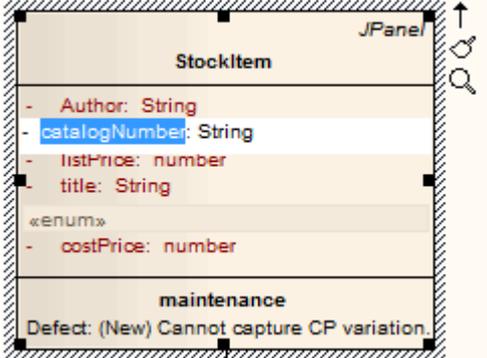
Notes

- 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.

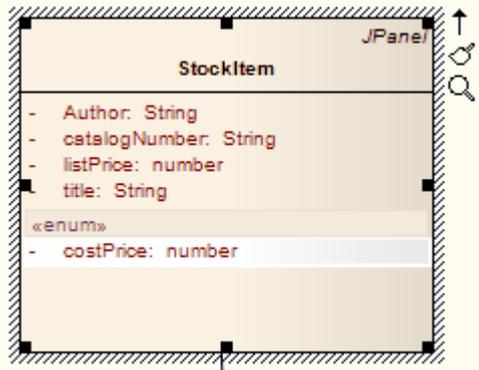
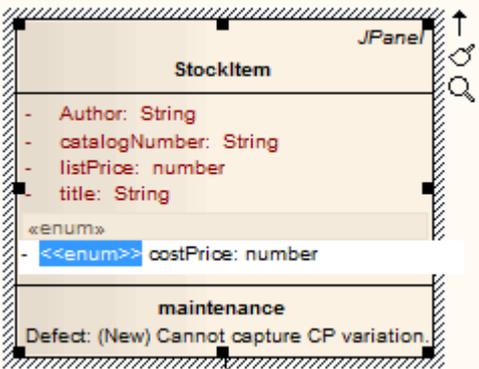
Edit element or feature name

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>
4	<p>Select the 'Edit Selected' menu option, or 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	Press the Enter key to accept the change, or Esc to cancel the change.

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>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> 
	Delete or type over the previous name to change the stereotype name of the attribute or operation.

	Press the Enter key to accept the change or Esc to cancel the change.
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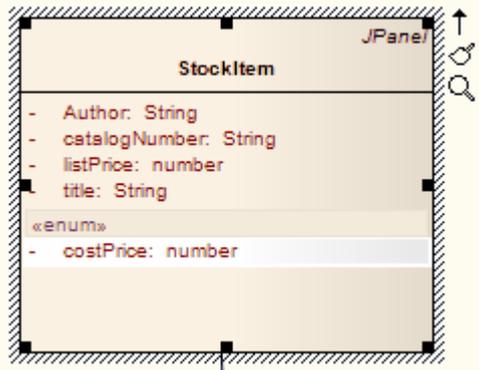
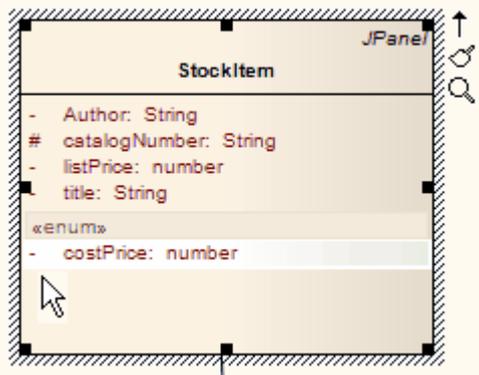
Notes

- 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

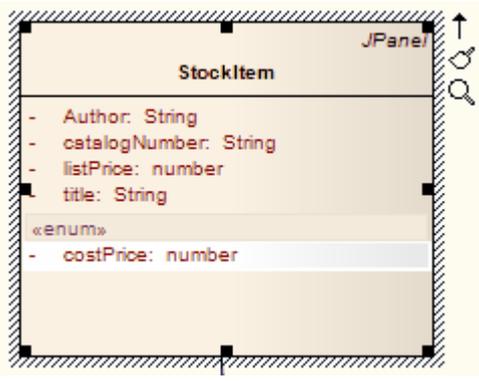
Step	Action
	Open the diagram containing the element.
	<p>Click on the element and on the item to edit within the element.</p> <p>The item line is highlighted in a lighter shade (the default is white), to indicate that it has been selected.</p> 
	<p>Right-click on the item.</p> <p>The context menu displays.</p>
	<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 scope of the item and delete the previous entry.</p> 
	<p>Reassign the entry by typing in one of these symbols:</p> <ul style="list-style-type: none"> • + indicates that the scope is Public • - indicates that the scope is Private

	<ul style="list-style-type: none">• ~ indicates that the scope is Package• # indicates that the scope is Protected
	<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.

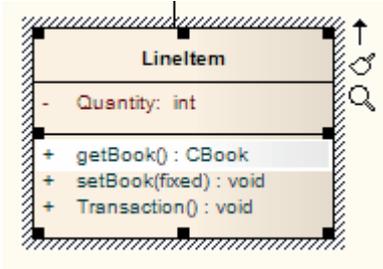
Add Features directly to an element

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. 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. 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. 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"> • 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 • 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 <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.

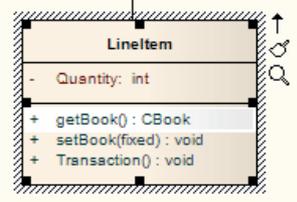
Directly edit operation classifiers by element

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>
	<p>Select the 'Edit Selected' menu option (or 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"> • Change the operation classifier by clicking on the appropriate menu option - 'static', 'isquery', 'abstract' or 'fixed'; the diagram is updated to reflect the changes • Display the Class properties - click on the 'Goto Definition' menu option <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

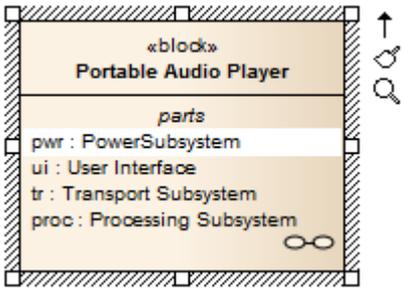
Images	Action
	<ol style="list-style-type: none"> <li data-bbox="517 595 1270 624">1. In Enterprise Architect, open the diagram containing the element.
	<ol style="list-style-type: none"> <li data-bbox="517 665 1414 768">2. Click on the element, and on the operation to edit within the element. The item line is highlighted in a lighter shade (the default is white), to indicate that it has been selected.
	<ol style="list-style-type: none"> <li data-bbox="517 916 820 987">3. Right-click on the item. The context menu displays.
	<ol style="list-style-type: none"> <li data-bbox="517 1030 1382 1133">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.
	<ol style="list-style-type: none"> <li data-bbox="517 1173 1187 1202">5. Right-click on the item name to display the context menu.
	<ol style="list-style-type: none"> <li data-bbox="517 1243 1394 1346">6. Select the appropriate menu option for the parameter kind value: (in), (inout) and (out). The diagram is updated to reflect the change.

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	<p>Right-click on the item.</p> <p>The context menu displays.</p>
4	<p>Select the 'Edit Selected' menu option, or press F2 to enable you to edit the item directly from the diagram.</p> <p>The name of the item is highlighted.</p>
5	Delete or type over the name.
6	Press the Enter key to accept the change, or Esc to cancel the change.

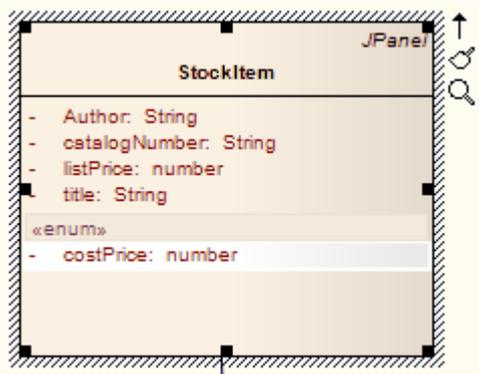
Notes

- 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.

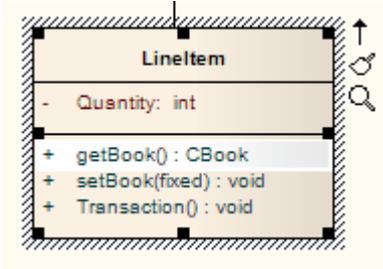
Add attributes and operations to a Class diagram element

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> 
	<p>Either press the Insert key or right-click 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"> • Autocompletion list (press the Ctrl+Space keys) or • Select <Item> dialog (press the Ctrl+Shift+Space keys)
	<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.

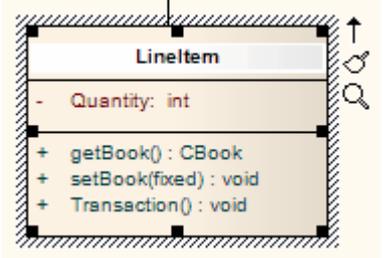
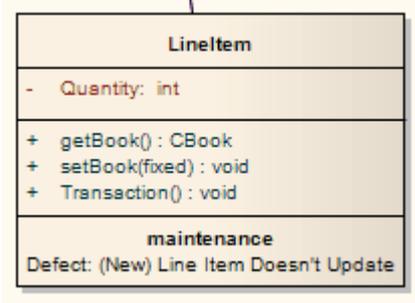
Add parameters to operations in a Class diagram element

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.
	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>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"> • Press Ctrl+Space to invoke the classifier autocompletion list • Press Ctrl+Shift+Space to select a classifier from the 'Select <Item>' dialog or • Right-click the mouse to display the inline editing options context menu and select the 'Insert Classifier' option <p>The 'Select <Item>' 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. 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. The 'Insert Feature' dialog displays.</p>
	Click on the appropriate radio button option to associate the required maintenance feature with the element item.
	<p>Click on the OK button. The '<Maintenance Feature> details for <element>' dialog displays.</p>
	<p>Complete the fields to define the maintenance activity, and then click on the Apply button. 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. The maintenance details are added to the element.</p> 

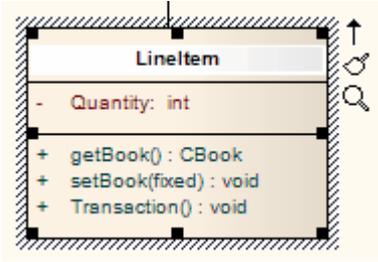
Notes

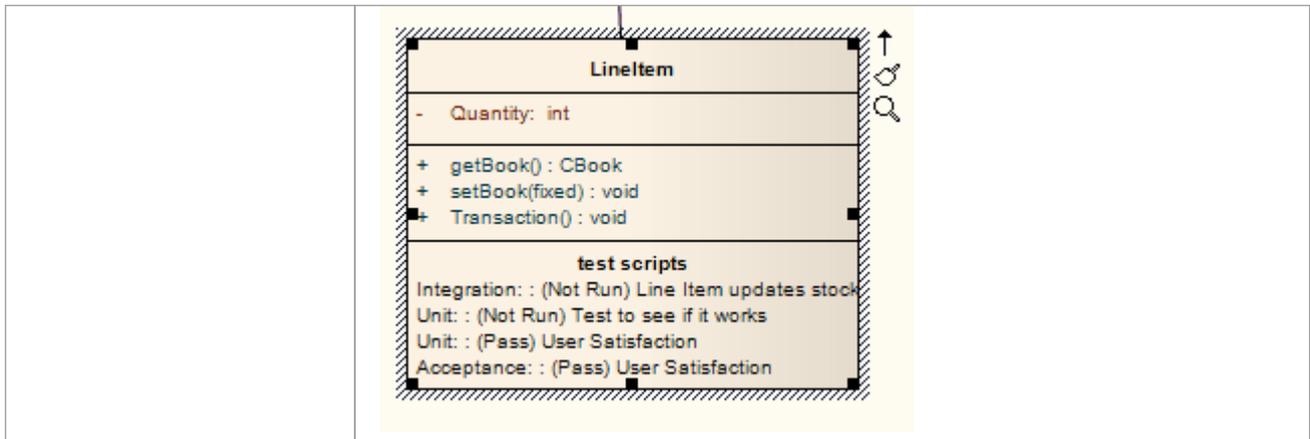
- To ensure that the maintenance items are visible in the diagram element, as shown in step 7, select the 'Maintenance' checkbox on the 'Elements' tab of the 'Diagram Properties' dialog

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>
	Click on the appropriate radio button option to associate the required testing feature with the element.
	<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>



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	<p>Select the parent Package or element for the diagram, and press F8; set up your report generation parameters as required.</p> <p>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.</p> <p>If you want to include non-printable elements in the diagrams in the report, click on the checkbox to clear it.</p>
Using in Document Templates	<p>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.</p>

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

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 > Documentation > Glossary
Menu	Project Glossary
Keyboard Shortcuts	Alt + 2

Project Glossary functionality

Tasks
Add, delete and modify the Project Glossary entries through either the: <ul style="list-style-type: none"> • Glossary View, or • 'Glossary' dialog
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, Business and Software Engineering, System Engineering 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 Export Reference Data and Import Reference Data

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

Access

Use one of the methods described in the table below, 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 one 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 > Documentation > Glossary
Menu	Project Glossary
Keyboard Shortcuts	Alt + 2

Glossary Detail 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>
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 top of the field.</p>
New	Clear the dialog fields so that you can define a new Glossary term.
Apply	Save the new or updated glossary entry.
Delete	<p>Delete the entry.</p> <p>A prompt displays to confirm the deletion; click on the Yes button to remove the term from the glossary.</p>

Notes

- In the Corporate, Business and Software Engineering, System Engineering 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.

The term type also acts as a key for substituting the meaning of any term of that type for the term itself. For example, if you select a term type of 'edition', in a report the terms 'Corp', 'BSE', 'SysE' and 'Ult' would be replaced by the meanings 'Corporate', 'Business and Software Engineering', 'Systems Engineering' and 'Ultimate', respectively.

You apply the glossary styles and meaning substitution through the 'Generate Documentation' dialog. You should not set up term substitution in a model from which you generate HTML reports; the HTML report generator does not apply glossary styles, nor does it substitute meanings.

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

Use one of the methods described below to display the Glossary view, then:

Right-click within the Glossary view > Assign Markup Styles

Ribbon	Publish > Documentation > Glossary
Menu	Project Glossary
Keyboard Shortcuts	Alt + 2

Define Styles

Assign one style to each of the Glossary Term Types, which have been defined on the 'Glossary' dialog.

Field/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	Between the parentheses under the style name, type in or copy/paste the new style definition, or edit an existing definition. The styles are created one after another 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.

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>
Using Substitutions	<p>(Available if the 'Markup Glossary Terms' checkbox is selected.)</p> <p>In the 'Use Glossary Substitution' field, click on the drop-down arrow and select a term type. For all glossary terms of that type, wherever a term occurs in the report it will now be replaced by its meaning.</p>

Notes

- You can copy the Glossary Style Sheet between models as reference data, using the 'Export Reference Data' and 'Import Reference Data' 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.

Access

Ribbon	Publish > Documentation > Glossary > Edit
Menu	Package Documentation Glossary

Maintain Glossary terms

Field/Option	Usage
Glossary Term	Type the term to include in the glossary.
Glossary Type	(Mandatory) Click on the drop-down arrow and select the required type. If you require a new glossary type, click on the  button and specify the name of the new type. This field applies the type only to the selected term; you can rename a type for all terms of that type, using the Glossary view.
Description	(Mandatory) Type the definition or description of the term. If necessary, format the text of this description using the Notes toolbar at the top of the field.
Limit Display To	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. Select the '<All>' option to display all glossary entries.
New	Click on this button to clear the dialog fields so that you can define a new Glossary term.
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.

Notes

- In the Corporate, Business and Software Engineering, System Engineering 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 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 > Documentation > Glossary > Edit : Report
Menu	Package Documentation Glossary : 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 and language for the report, click on the Page Setup and/or Language buttons.
5	To include page breaks, select the 'Page break between sections' checkbox.
6	Click on the Generate button to generate the report.
7	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 setup 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 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 an RTF file	<p>Select the option 'Document-Edit > File > File > Import File'. This imports the contents of an existing document into the current file.</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 > File > File > 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 > File > File > 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.</p> <p>This is a method of clearing out an existing document for redesign. As you do not change the name, all references to it simply pick up the changed content.</p>
Roll back changes to previous version	<p>Select the option 'Document-Edit > File > File > Reload from Repository' to roll back the file contents to the previously-saved version.</p>
Save changes	<p>Select the 'Document-Edit > File > Save' icon to save the file contents to the current file.</p>
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	<p>Click on the cross at the right of the document tab or in the top right corner of the</p>

	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 > File > File > 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 > File > File > Printer Setup', or press Ctrl+Shift+P.</p> <p>The 'Setup Page' dialog displays for the default printer. , which you would have selected on the Windows 'Control' panel.</p> <p>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 > File > File > Print Preview', or press Ctrl+P.</p> <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"> • Lines, or • Characters
Preview document before printing	<p>Select the option 'Document-Edit > File > File > 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 the One Page button or Two Pages button. Scroll to further pages using the scroll bar.</p> <p>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.</p> <p>Click on the Print button to display and use the 'Print' dialog.</p> <p>To return to editing mode click on the Edit button, or on the 'File Print Preview' menu option again.</p>

Learning Center topics

- **Alt+F1** | Enterprise Architect | Reporting | RTF Templates | **Filter** Elements
- Alt+F1 | Enterprise Architect | Reporting | RTF Templates | Filter Connectors

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	Select the option 'Document-Edit > File > View > Horizontal Ruler'. Displays or hides the ruler at the top of the page. The ruler shows tab stops and paragraph indentation marks; you can also use it to create or delete tab stops.
Vertical Ruler	Select the option 'Document-Edit > File > View > Vertical Ruler'. Displays or hides the ruler against the left edge of the page. The ruler indicates the depth of the top and bottom margins of the page.
Status Ribbon	Select the option 'Document-Edit > File > View > Status Ribbon'. Displays or hides the status ribbon at the bottom of the editing panel. 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).
Hidden Text	Select the option 'Document-Edit > File > View > Status Ribbon'. Shows or hides 'hidden' text. 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.
Field Names	Select the option 'Document-Edit > File > View > Field Names'. Applicable to all document editing: 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>Applicable to the Document Template Designer:</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 > File > View > 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 image (usually a line or arrow) and a 'pointing hand'.</p>
Page Header/Footer	<p>Select the option 'Document-Edit > File > View > Page Header/Footer'. Displays or hides the text of page headers and footers.</p> <p>To edit the header or footer text, select the option 'Document-Edit > Edit > Edit > Page Header/Footer'.</p>
Zoom	<p>Displays the 'Zoom Parameter' dialog, on which you select the appropriate percentage of normal size by which to shrink or enlarge the display of the document content.</p> <p>The range of possible zoom percentages is from 10 to 200.</p>

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

Select options from the 'Document Edit' ribbon bar.

Editing Styles

To	Action
Create and edit styles	<p>Select the option 'Document-Edit > Edit > 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 'Edit Edit Style' menu option again or clicking anywhere in the document:</p> <ul style="list-style-type: none"> • If you modified an existing stylesheet item, the document automatically reflects the updated style • If you created a new stylesheet item, you can apply the style to highlighted text by selecting the 'Font Style' or 'Paragraph Style' menu options
Update the standard styles used	<p>Right-click on the document and select 'Update Styles > [select Stylesheet to update]'</p> <ul style="list-style-type: none"> • Re-import the standard styles from Normal.rtf, into the current document, or • Apply one of the system-supplied standard Stylesheets to the document <p>A submenu displays from which you select the appropriate style source.</p> <p>This is useful for maintaining consistency of styles across all your documents, including such things as numbering formats.</p>
Edit the hyperlink style	<p>This option operates specifically on the style of any hyperlinks you want to create.</p>

	<p>Select the option 'Document-Edit > Font > Font > 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 > Font > Font > Hyperlink' again to set the style.</p> <p>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 > Font > Font > 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 > Paragraph > Paragraph > Style'; the 'Select a Style' dialog displays, from which you select 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 > File > Manage > 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 > Edit > Insert > 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 > Edit > Edit > 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 > Edit > Insert > 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 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 > Edit > Insert > 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 > Edit > Insert > Text Input Field'.</p> <p>The 'Input Field Parameters' dialog displays, in which you enter:</p> <ul style="list-style-type: none"> • The field name • The initial value to display as a default • The maximum length of the field • The text font in which to display the text <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>
Insert a selectable checkbox	<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 > Edit > Insert > Checkbox Field'.</p> <p>The 'Checkbox Field Parameters' dialog displays, in which you enter:</p> <ul style="list-style-type: none"> • The field name (which does not display in the text) • Whether the checkbox defaults to selected • The size of the checkbox <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 > Edit > Insert > Selection Field'.</p> <p>The 'Selection Field Parameters' dialog displays, in which you enter:</p> <ul style="list-style-type: none"> • The field name • The options to present in the drop-down list (separated by the character) • The value from this list to display as a default <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	<p>Move the cursor to the point at which to insert the non-breaking dash and select the 'Insert Non-breaking Dash' menu option.</p>

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 <flag name>' 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, endnotes or footnotes. Project Constants are available to any template in the model.</p>
Define level numbering in generated document	<p>(Used in the Document Template Editor.)</p> <p>Select the option 'Document-Edit > Edit > Edit > 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>
Use double-byte characters	<p>Select the option 'Document-Edit > Edit > Edit > 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	Document-Edit > Edit > Insert > Page Number Document-Edit > Edit > Insert > Page Count Document-Edit > Edit > Edit > Repaginate
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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

Access

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 'File Import' 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 ('File Export') 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 'File | Update Styles' 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

Learning Center topics

- **Alt+F1** | Enterprise Architect | Reporting | RTF Templates | Altering the Default 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"> • Ctrl+Left Arrow to move to the previous word • Ctrl+Right Arrow to move to the next word • 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 • Ctrl+Down Arrow to move to the first column of the next line • F10 to display the 'Jump to line number' dialog; type in a line number to jump to, and click on the OK button
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>Vertical Scroll Bar: 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>Horizontal Scroll Bar: 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 > Edit > Search > Search', or press F5.</p> <p>The 'Search String Parameters' dialog displays. Specify:</p> <ul style="list-style-type: none"> • The term to search for • Whether to search from the start of the file or forwards or backwards from the

	<p>current cursor position, and</p> <ul style="list-style-type: none"> Whether the search should exactly match the case of the search term <p>The editor searches for the first instance of the specified character string as defined by the parameters.</p>
Find next instance of a text string	<p>Select the option 'Document-Edit > Edit > Search > Search Forward', or press 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 > Edit > Search > 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 > Edit > Search > Replace', or press F6.</p> <p>The 'Replace String Parameters' dialog displays, in which you specify:</p> <ul style="list-style-type: none"> The text string to locate The text string to replace it with Whether to search the whole document or just a highlighted block of text Whether to confirm each replacement before making the change <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 > Edit > Edit > 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"> '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 double-clicking the object '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 'Unformatted Text' - Another text format; this option pastes the text without retaining the formatting information 'Picture Format' - The data is available in Picture format; you can later edit the

	<p>object, by double-clicking on it and invoking the Microsoft MS Draw application</p> <p>This format is preferable to the Bitmap and the Device Independent Bitmap formats</p> <ul style="list-style-type: none">• '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 <p>The editor converts these formats into the Picture format before calling the drawing application</p>
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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 wish.

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

Highlight the text to which to apply the format, then select options from the 'Font' panel of the 'Document-Edit' ribbon bar.

Text formatting options

To	Action
Apply character format	<p>Highlight the text to which to apply the 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"> •  or 'Font Normal', or press Alt + 0 • B or 'Font Bold', or press Ctrl + B • <i>I</i> or 'Font Italic', or press Ctrl + I • <u>U</u> or 'Font Underline', or press Ctrl + U • <u>U</u> ▾ Double Underline, or 'Font Double Underline', or press Ctrl + D • _{x₂} or 'Font Subscript', or press Alt + 5 • ^{x²} or 'Font Superscript', or press Alt + 4 • abe or 'Font Strike', or press Alt + 6 (puts a line through the text) • abe ▾ Double Strike, or 'Font Double Strike' • Aa ▾ lowercase • Aa ▾ UPPERCASE • Font All Caps • Font Small Caps <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 point size	<p>Highlight the text to change and select the required typeface from the 'Font' 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 > Font > Font > 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 > Font > Font > 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"> • Document-Edit > Font >  ▼ • Document-Edit > Font >  ▼ • Document-Edit > Font >  ▼ > Underline Color <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 > Font > Font > Spacing'. The 'Character Spacing' dialog displays. 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 > Font > Font > 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 press OK. The text (both characters and spaces) are scaled horizontally, by the specified amount.</p>
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 > Font > Font > 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 > File > View > Hidden Text'; you can then make the text normal again by highlighting it and deselecting the option 'Document-Edit > Font > Font > 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 > Font > Font > 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 'Document-Edit > Font > Font > Protect'.</p> <p>You can select and release a portion of the protected text; the remainder stays protected.</p> <p>Note: If the menu option is unavailable, or the text is not faded, it means that you have not removed the protection lock. (See 'Protect Document Contents'.)</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	<p>Position the cursor on the point in the text to create the table, and select the option 'Document-Edit > Paragraph > Table > Insert Table'.</p> <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 > Paragraph > Table > 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 if you wish, using other context menu options.</p> <p>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 current column	Click on a column and then select the option 'Document-Edit > Paragraph > Table > Insert Column'.
Merge cells	<p>Highlight the cells to merge and select the option 'Document-Edit > Paragraph > Table > 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"> 'Document-Edit > Paragraph > Table > Split Cell Horizontally' to split the selected cell into two cells of equal width within the column 'Document-Edit > Paragraph > Table > Split Cell Vertically' to split the cell into two cells of equal height, doubling the height of the whole row

	<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 > Paragraph > Table > Delete Cells'.</p> <p>The 'Delete Table Cells' dialog displays, on which you specify whether to delete:</p> <ul style="list-style-type: none"> • Cells - deletes the highlighted cells; realign the column and/or row after doing this • Columns - deletes the column or columns containing the highlighted cells, or • Rows - deletes the row or rows containing the highlighted cells <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 > Paragraph > Table > 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 of a row, or all rows	<p>Highlight the rows to adjust and select the option 'Document-Edit > Paragraph > Table > Row Height'.</p> <p>The 'Row Height Parameters' dialog displays; you can select to:</p> <ul style="list-style-type: none"> • Allow the row height to be determined automatically • Set a minimum row height, or • Set an exact row height <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 > Paragraph > Table > 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>
Keep row text together if it continues over a page	<p>Select the rows to protect (preferably all rows in the table) and select the option 'Document-Edit > Paragraph > Table > 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>
Set the text flow in the table rows	<p>Select the rows and select the option 'Document-Edit > Paragraph > Table > 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"> • Left to right

	<ul style="list-style-type: none"> • Right to left • Default <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>
Set the width of selected cells	<p>Select the cells to act on and select the option 'Document-Edit > Paragraph > Table > 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"> • All cells in the table • The selected cells only • The complete column or columns containing the selected cells, or • The complete row or rows containing the selected cells
Define the width of the cell borders	<p>Select the cells to act on and select the option 'Document-Edit > Paragraph > Table > 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"> • The selected cells as a block, select the 'Draw outline border around the selected cells' checkbox • Each selected cell separately, leave the checkbox unselected <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"> • All cells in the table • The selected cells only • The complete column or columns containing the selected cells, or • The complete row or rows containing the selected cells
Define the color of the cell borders	<p>Select the cells to act on and select the option 'Document-Edit > Paragraph > Table > 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"> • All cells in the table • The selected cells only • The complete column or columns containing the selected cells, or • The complete row or rows containing the selected cells
Define the degree of shading on the cell color	<p>Select the cells to act on and select the option 'Document-Edit > Paragraph > Table > 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"> • All cells in the table • The selected cells only • The complete column or columns containing the selected cells, or • The complete row or rows containing the selected cells
Define the background color of the cell	<p>Select the cells to act on and select the option 'Document-Edit > Paragraph > Table > Cell Color'.</p> <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"> • All cells in the table • The selected cells only • The complete column or columns containing the selected cells, or • The complete row or rows containing the selected cells
Vertically align text in cells	<p>Select the cells to act on and select the option 'Document-Edit > Paragraph > Table > 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 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"> • All cells in the table • The selected cells only • The complete column or columns containing the selected cells, or • The complete row or rows containing the selected cells
Rotate the text of a cell to display vertically	<p>Select the cells to act on and select the option 'Document-Edit > Paragraph > Table > 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 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"> • From top to bottom, scrolling across the cell from right to left, or • From bottom to top, scrolling across the cell from left to right <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">• All cells in the table• The selected cells only• The complete column or columns containing the selected cells, or• The complete row or rows containing the selected cells
Select a column	Click on a cell and select the option 'Document-Edit > Paragraph > Table > Select Current Column'. The whole column is highlighted and selected for further formatting.
Show gridlines	Show or hide grid lines for the current table. Note: For printing purposes, Border Width must be set to a non-zero value.

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	Document-Edit > Paragraph > Paragraph > [options] 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
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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	
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"> • the first line of the paragraph on the previous page ('widow' line) • the last line of the paragraph on the 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	Select the 'Paragraph Border and Shading' menu option. The 'Paragraph Box Parameters' dialog displays, on which you specify: <ul style="list-style-type: none"> • Which sides of the box to display (including a line between text lines) • Whether the lines are thick or doubled • The degree of gray shading behind the text • The color of the lines
Define line spacing	Select the 'Paragraph Paragraph Spacing' menu option. The 'Paragraph Spacing Parameters' dialog displays, on which you specify the line spacing and the point spacing before and after lines. Alternatively, to just set double line spacing, select the 'Paragraph Double Space' menu option.
Set a background color for text space	Select the 'Paragraph Background Color' menu option. The 'Color' dialog displays, on which you select the background color. The editor highlights the full width of the page in that color, for the selected lines.
Create a bulleted list	Select the 'Paragraph Bullet' menu option. The editor formats the lines into a simple bullet list. 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.
Create a numbered list	Highlight the required lines of text and select the 'Paragraph Numbering' menu option. The editor formats the lines into a simple numbered list. To create multiple-level numbered lists, see <i>Set the list characters</i> .
Apply numbering to paragraphs	(Used in the 'Document Template Editor'.) <ol style="list-style-type: none"> 1. Set up a numbering list and overrides ('Edit List and Overrides'). 2. Apply the numbering levels to the template sections ('Paragraph List Numbering').
Apply a paragraph style from the template stylesheet	Select the 'Paragraph Style' menu option. The 'Select a Style' dialog displays, listing the currently-defined paragraph styles in the template stylesheet. Select the required style and click on the OK button .

Set text flow in document	<p>To set the text flow for:</p> <ul style="list-style-type: none"> • A highlighted block of text, select the 'Paragraph Text Flow' menu option; the 'Paragraph Text Flow' dialog displays • The entire document, select the 'Edit Document Text Flow' menu option; the 'Document Text Flow' dialog displays <p>In either case, select the required text flow direction and click on the OK button. The options are:</p> <ul style="list-style-type: none"> • Left to right • Right to left • Default <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"> • The paragraph marker at the end of each paragraph • The Tab indicators between tabbed blocks of text, and • The blank character marker between words <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 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"> • Single-level: Arabic numerals, Roman numerals, upper-case letters and lower-case letters • Multiple-level: Arabic numerals, Roman numerals and bullet symbols

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"> • In the 'Number of Columns' field, type the number of columns to divide the text into across the page • In the 'Space Between the Columns' field, type the separation of the columns, in inches • If you want to separate the columns with a vertical line, select the 'Line Between Columns' checkbox <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</p>

	<p>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	Set the direction of the text flow within the section by selecting the appropriate radio button.
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 > File > File > 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

From the 'Document-Edit > Paragraph' panel on the ribbon, drop-down the 'Paragraph' menu and choose one of:

- Set Tab
- Clear Tab
- Clear All Tabs,

or, click on the ruler at the top of the page.

Create and Clear Tab Points

Topic	Detail
Using the ruler	<p>If the ruler is not visible, select the option 'Document-Edit > File > View > Horizontal Ruler'.</p> <p>To create a:</p> <ul style="list-style-type: none"> • Left tab, click on the required tab position on the ruler; the left tab is indicated on the ruler by an 'L' shape • 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 • 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 • 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. <p>To move a tab position, click on the tab symbol on the ruler and drag it to the new position.</p>
Using the Set Tab menu option	<p>The 'Paragraph > 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"> • Set the tab position with more precision and with a clear value (in inches) that you can duplicate • Select from a set of radio buttons to add or remove a dotted, broken or solid line preceding the tab point <p>Click on the OK button to save the settings.</p>

Clear a single tab point	Highlight the block of text and select the 'Paragraph Clear Tab' menu option. The 'Clear a Tab Position' dialog displays. Select the tab to clear and click on the OK button .
Clear all tab points for a text block	Select the block of text and select the 'Paragraph Clear All Tabs' menu option.

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 page

Header and footer options

To	Action
Create the page header and footer	<p>Select the option 'Document-Edit > Edit > Edit > Page Header/Footer > Edit Page Header/Footer'.</p> <p>A dotted line marks off the header area at 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 > File > File > 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	<p>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.</p>
Create separate header and footer for the initial page of the document	<p>Select the option 'Document-Edit > Edit > Edit > Page Header/Footer > Edit Page Header/Footer' to access the header and footer text spaces.</p> <p>Select the option 'Document-Edit > Edit > Edit > Page Header/Footer > First Page Header/Footer' and either:</p> <ul style="list-style-type: none"> • The 'Create First Page Header' option, or • The 'Create First Page Footer' option <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 > Edit > Edit > Page Header/Footer > Edit Page</p>

	<p>Header/Footer' to access the header and footer text spaces.</p> <p>Select the option 'Document-Edit > Edit > Edit > Page Header/Footer > First Page Header/Footer' and either:</p> <ul style="list-style-type: none"> • The 'Delete First Page Header' option or • The 'Delete First Page Footer' option <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 > Edit > Edit > Page Header/Footer > Edit Page Header/Footer' to access the header and footer text spaces.</p> <p>Select the option 'Document-Edit > Edit > Edit > Page Header/Footer > Left Page Header/Footer' and either:</p> <ul style="list-style-type: none"> • The 'Create Left Page Header' option, or • The 'Create Left Page Footer' option <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 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 > Edit > Edit > Page Header/Footer > Edit Page Header/Footer' to access the header and footer text spaces.</p> <p>Select the option 'Document-Edit > Edit > Edit > Page Header/Footer > Right Page Header/Footer' and either:</p> <ul style="list-style-type: none"> • The 'Create Right Page Header' option, or • The 'Create Right Page Footer' option <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 start on right-hand pages.</p>
Delete left or right page headers and footers	<p>Select the option 'Document-Edit > Edit > Edit > Page Header/Footer > Edit Page Header/Footer' to access the header and footer text spaces.</p> <p>Select the option 'Document-Edit > Edit > Edit > Page Header/Footer > <side> Page Header/Footer' (where <side> is either Left or Right) and either:</p> <ul style="list-style-type: none"> • The 'Delete <side> Page Header' option, or • The 'Delete <side> Page Footer' option <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 > Edit > Edit > Page Header/Footer > Edit Page Header/Footer' to access the header and footer text spaces again, and check that you</p>

	cannot move the cursor into the header and footer spaces.
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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 > Edit > Insert > Footnote/Endnote > Footnote'.</p> <p>The 'Footnote' dialog displays. In the:</p> <ul style="list-style-type: none"> • '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 • 'Footnote Text' field, type the text of the footnote • '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 <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>
Edit footnote text	<p>Select the option 'Document-Edit > Edit > Edit > Edit Footnote/Endnote > 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 > Edit > Edit > Edit Footnote/Endnote > Edit Footnote text'; the footnote text is no longer shown in the document text.</p>
Create an endnote	<p>Move the cursor to the position at which to insert the endnote marker, and select the option 'Document-Edit > Edit > Insert > Footnote/Endnote > Endnote'.</p> <p>The 'Endnote Parameters' dialog displays. In the:</p> <ul style="list-style-type: none"> • '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 • 'Endnote Text' field, type the text of the endnote • '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 <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 > Edit > Edit > 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</p>

	'Document-Edit > Edit > Edit > Edit Footnote/Endnote Edit Endnote text'; the endnote text is no longer shown in the 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.

Learning Center topics

- **Alt+F1** | Enterprise Architect | Reporting | RTF Templates | Add Header and Footer
- **Alt+F1** | Enterprise Architect | Reporting | RTF Templates | Define First Page Header

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 Review** 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	<p>You can insert a picture bitmap or Windows metafile in your document as either an embedded picture or a link to 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"> • 'Document-Edit > Edit > Insert > Embed Picture' (F8) or • 'Document-Edit > Edit > Insert > Link Picture' <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 > Edit > Insert > 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 represents the inserted object.</p> <p>You can also use the option 'Document-Edit > Edit > Edit > 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 > Edit > Edit > Edit OLE Object'.</p>
Change the size and alignment of an embedded picture	<p>Click on the picture and select the option 'Document-Edit > Edit > Edit > 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	Select the option 'Document-Edit > File > Manage > Watermark Picture'; a browser

watermark picture for the document pages (document report templates)	<p>dialog displays, through which you select the graphic file to insert as a watermark. The picture occupies the entire text area, 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 > File > Manage > 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 > Edit > Insert > Insert RTF File'.</p>
Embed a frame at the cursor position	<p>Select the option 'Document-Edit > Edit > Insert > 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 > Edit > Insert > 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"> • Text Box • Rectangle or • Line <p>Click on the OK button; the selected object displays, overlaid on the existing document content. If you wish, 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 > Edit > Edit Frame/Drawing Object > 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"> • Whether to display a border line and, if so, your preferred border thickness, type and color • Whether the object is transparent or filled and, if filled, the fill color • The wrapping behavior of the text outside the object: <ul style="list-style-type: none"> - 'Wrap Through' causes the document text to flow through the diagram object so that they overlap each other - 'No Wrap' causes the document text to skip over the object, so that the text resumes below the object - '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 • 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 = >1)
Insert text into the frame, text box or rectangle	<p>Click inside the outline and type the text 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"> • Frame, extends the bottom border of the box • 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 <p>If you change the width of the outline, any text inside the outline is automatically wrapped to adjust to the new width.</p>
Rotate text to display it vertically in the frame or text box	<p>Select the option 'Document-Edit > Edit > Edit > Edit Frame/Drawing Object > 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"> • '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 • '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 edge of the box and scrolling right to left • '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 <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.</p> <p>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.</p> <p>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>
Lock a frame or drawing object to a point on the page	<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"> • Top edge of the page or • Top margin of the page <p>In these cases, if the document text on the page is adjusted it flows past the outline. Click on the outline and select the option 'Document-Edit > Edit > Edit > Edit Frame/Drawing Object > 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"> • 'Top of the Page' • 'Top Margin'

	<ul style="list-style-type: none">• 'Current Paragraph' Click on the OK button to apply the lock.
Delete a frame or drawing object	Click on the outline and press the Delete key . The editor prompts you to confirm the deletion; click on the Yes button . This deletion is reversible - press Ctrl+Z or select the option 'Document-Edit > Edit > Edit > Undo'.

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	<p>Select the option 'Document-Edit > Edit > Spell Check > Auto Spell Checking'.</p> <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"> • One of the words, to use it in place of the misspelt word • The 'Ignore All' option to use the word as it is in this context • The 'Add' option to add the word to the suggested list of spellings/other words <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 the whole document	<p>Select the option 'Document-Edit > Edit > Spell Check > Spell Check'.</p> <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>

Run Thesaurus

To	Action
Access the Thesaurus	<p>Select a word in the text, then select the option 'Document-Edit > Edit > Spell Check > Thesaurus'.</p> <p>The 'Thesaurus' dialog displays, showing the:</p> <ul style="list-style-type: none"> • Selected word • Word-categories the word belongs to, in the 'Categories' panel • List of synonyms for the word within the first category (words that have the same meaning as the selected word) in the 'Synonyms' panel <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 like 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 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 you wish) 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	<p>Select the option 'Document-Edit > Edit > Edit > Track Changes > Enable Tracking'.</p> <p>Any changes made after Tracking is turned on are immediately highlighted:</p> <ul style="list-style-type: none"> • Inserted text - printed in a different color • Deleted text - struck through with a single colored line • Formatting changes - indicated by a colored dotted underline <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 tooltip 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 > Edit > Edit > Track Changes > 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 > Edit > Edit > Track Changes > 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 > Edit > Edit > Track Changes > Hide Changes' again.</p>
Locate changes	<p>Select the option 'Document-Edit > Edit > Edit > Track Changes > Find Next Change' or 'Document-Edit > Edit > Edit > Track Changes > 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"> • 'Document-Edit > Edit > Edit > Track Changes > Accept Change' to confirm

	<p>the change, or</p> <ul style="list-style-type: none">• 'Document-Edit > Edit > Edit > Track Changes > Reject Change' to reverse the change to the original text or format <p>In either case, the change tracking markings are removed. You can make further changes if you wish.</p>
Accept all changes	<p>If you are not assessing each change, for example if you just want to see what a 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 > Edit > Edit > Track Changes > 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 > Edit > Edit > Track Changes > 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	<p>Document-Edit > File > Manage > Text Selection Lock</p> <p>Document-Edit > Font > Font > Protect</p> <p>Document-Edit > File > Manage > Protect Document</p>
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Protect text

To	Action
Enable text protection	<p>By default, the Text Selection Lock is enabled.</p> <p>Select the option 'Document-Edit > File > Manage > 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 > File > Manage > Text Selection Lock' again. 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>
Protect text	<p>Highlight the line, block or section of text to be protected, and select the option 'Document-Edit > Font > Font > 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 (above).</p> <p>To release the text for editing again, highlight it and reselect the option 'Document-Edit > Font > Font > Protect'. You can select and release a portion of the protected text; the remainder stays protected.</p>

Protect a document

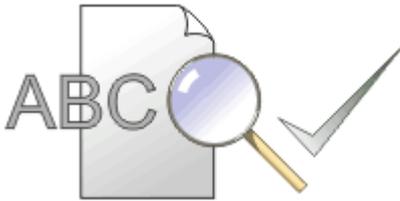
Within the document or template, select the option 'Document-Edit > File > Manage > Protect Document'.

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'.

Spell Checking



Enterprise Architect provides a powerful spell checking facility. This operates at both project level and Package level.

Topics

Topic	Detail
Automatic Spell Checking	The spell checker can be set to run automatically, so that it highlights possible errors in text as it is created or pasted in: <ul style="list-style-type: none"> • Select 'Tools Options Objects' • Deselect or select the 'Disable spelling' checkbox
Spelling Configuration	You can configure what types of text error the spell checker should detect, using the 'Spelling Options' dialog.
Using Languages Other Than English	Enterprise Architect is supplied with dictionaries for US English, Canadian English and British English; you can download a set of dictionaries for other languages from the Sparx Systems website.
Using the Spell Checker	You can run the spell checker manually on the whole model, or on a selected Package.
Correcting Text	As the spell check progresses, Enterprise Architect highlights any errors or unknown words; you have several options for responding to these potential spelling errors.

Notes

- In the Corporate, Business and Software Engineering, Systems Engineering and Ultimate editions of Enterprise Architect, if security is enabled you must have Spell Check permission to perform any spell check or change any spell check options

Select Spell Checker Options

You can configure the spell checker to ignore or detect specific types of text conformation. Ignoring the conformation means to skip over the text without identifying it as an error.

Access

Ribbon	Publish > Documentation > Spelling Spelling Options
Menu	Project Spell Checking Spelling Options

Configure the spell checker

Option	Action
Ignore capitalized words	Ignore any words beginning with a capital letter, such as 'David'. You might enable this option if the text being checked contains many proper names.
Ignore all-caps words	Ignore any words containing all capital letters, such as RADAR. You might enable this option if the text being checked contains many acronyms.
Ignore Words with Numbers	Ignore any words containing embedded digits, such as 'Win95' and 'Q4'. You might enable this option if the text being checked contains many code words or other symbols containing digits.
Ignore Words with Mixed Case	Ignore any words containing an unusual mixture of upper- and lower-case letters, such as 'MicroHouse' and 'CapsLock'. You might enable this option if the text being checked contains many variable names or other symbols that use changes in letter-case to distinguish words.
Ignore Domain Names	Ignore any words that appear to be Internet domain names, such as wintertree-software.com.
Report Doubled Words	Detect any word appearing twice in a row, such as the the.
Case Sensitive	Distinguish between capitalized and non-capitalized words. For example, canada would be considered as different from Canada, and therefore reported as a misspelling. When the option is disabled, canada and Canada are considered to be identical. Note that the performance of the spell checker is reduced if this option is disabled.
Phonetic Suggestions	Suggest alternative words based on phonetic (sounds-like) similarity to the misspelled word; this option tends to improve the correction of badly misspelled words.

	<p>Enabling this option increases the time required to locate suggestions.</p> <p>Note that either this option or the 'Typographical Suggestions' option must be enabled in order to list suggestions of alternative words.</p>
Typographical Suggestions	<p>Suggest alternative words based on typographical (looks-like) similarity to the misspelled word. This option is appropriate for people who are generally good spellers.</p> <p>Note that either this option or the 'Phonetic Suggestions' option must be enabled in order to list suggestions of alternative words.</p>
Suggest Split Words	<p>Suggest two separate words as a replacement for a misspelling containing two joined words.</p> <p>For example, is the would be suggested as a replacement for isthe.</p>
Auto Correct	<p>Automatically change words marked with Auto Change actions to their specified replacements.</p> <p>When this option is disabled, a confirmation prompt displays before the words are changed.</p>
Main Dictionary Language	<p>Set the language of the main dictionary used to check spelling; the drop-down list shows only languages for which dictionaries are installed on your system.</p> <p>To check spelling in a different language, select the language in the list.</p>
Suggestions	<p>Determine the speed and accuracy of the initial automatic search for suggested replacements for misspelled words.</p> <p>Click on the appropriate radio button for your choice.</p>
OK	<p>Close the 'Options' dialog, and save any changes made to the option settings.</p>
Cancel	<p>Close the 'Options' dialog, and discard any changes made to the option settings.</p>

Notes

- In the Corporate, Business and Software Engineering, Systems Engineering and Ultimate editions of Enterprise Architect, if security is enabled you must have Spell Check permission to perform any spell check or change any spell check options

Use Languages Other Than English

Enterprise Architect is supplied with three dictionaries, for US English, Canadian English and British English. Additional dictionaries are available as a pack, for download from the registered pages of the Sparx Systems website.

The dictionaries in this downloadable file enable spell checking in these languages:

- Brazilian
- Danish
- Dutch
- Finnish
- French (Continental)
- German
- Italian
- Norwegian
- Portuguese
- Spanish and
- Swedish

Download the additional language dictionary pack

Step	Action
1	Access the registered user page on the Sparx Systems web site.
2	At the end of the page, download the EADict.zip file from the Enterprise Architect Dictionary section.
3	Unzip the file into the Enterprise Architect install directory - C:\Program Files\Sparx Systems\EA. This makes the non-English spelling dictionaries available to the Enterprise Architect spell checker.

Notes

- In the Corporate, Business and Software Engineering, Systems Engineering and Ultimate editions of Enterprise Architect, if security is enabled you must have Spell Check permission to perform any spell check or change any spell check options
- Enterprise Architect .EAP files default to use Jet 3.5 as the database engine; this does not support unicode character sets, which makes the use of certain languages - such as Portuguese - difficult, including spell checking words in those languages

If you use such languages, it is recommended that you either upsize to a DBMS repository or set JET 4.0 as the database engine

If your .EAP project is not in a Jet 4.0 database, you should also download a copy of the Jet 4.0 EABase model from the Sparx Systems website, and do an EAP to EAP transfer of your model into the Jet 4.0 file

Using the Spell Checker

Enterprise Architect has an inbuilt spell checker, which you can configure to detect a range of types of possible spelling error in your project, and to use one of several language dictionaries other than English.

Access

Ribbon	Publish > Documentation > Spelling > Spell Check Project Publish > Documentation > Spelling > Spell Check Current Package
Menu	Project Spell Checking Spell Check Project Project Spell Checking Spell Check Current Package
Keyboard Shortcuts	Ctrl + F7 (spell check project) Ctrl + Shift + F7 (spell check current package)

Run the spell checker

Step	Action
1	Select the 'Spell Check Project' or 'Spell Check Current Package' menu option, as required. The 'Spell Check' dialog displays.
2	('Spell Check Project' option.) Select the checkbox against each of the items to spell check within your model.
3	Click on the Start button to begin the spell check. As the spell check proceeds, the text being checked displays in the text panel at the bottom of the screen; if an error is detected, the 'Check Spelling' dialog displays, offering several options to correct the error.

Notes

- You can use the Spell Check Project menu option to check spelling for the entire project
- The Spell Check Current Package option only checks the Package currently open, and you cannot select items to check
- In the Corporate, Business and Software Engineering, Systems Engineering and Ultimate editions of Enterprise Architect, if security is enabled you must have Spell Check permission to perform any spell check or change any spell check options

Correcting Words

As a spell check progresses, Enterprise Architect highlights any errors or unknown words in the 'Check Spelling' dialog. The inbuilt spell check stores user-defined words in the user dictionary (%APPDATA%\Sparx Systems\EA\userdic.tlx). During the spell check process, if you add a word, it is written into this file for later reference. While the spell check is in progress you can:

- Correct the spelling of a word
- Ignore the error
- Add the word to the user dictionary
- Suggest alternatives or
- Otherwise assist in the spelling correction process

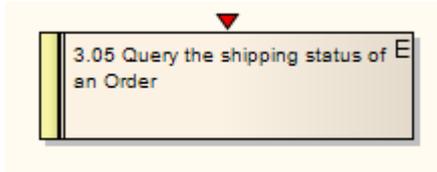
Correct spelling

As the Spell Checker identifies possibly mis-spelled words, make the appropriate response:

Action
<ul style="list-style-type: none">• Modify the spelling by hand and click on the Change or Change All button to change the word to that spelling• Click on a suggested alternative and click on the Change or Change All button to change the word to that spelling• Click on the Ignore or Ignore All button to exclude the word from the spell check• Click on the Add button to add the word to the user dictionary• Click on the Suggest button to list alternative spellings or words• Click on the Cancel button to abort the spell check entirely

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"> • Press Shift+Space, or • Select the 'Edit Bookmark Selected' menu option
Clear a bookmark on a selected element	Use either of the above two options again.
Bookmark Multiple Elements in a Package	Project Browser Right-click on Package Contents Bookmarks The 'Manage Bookmarks' dialog displays, which you can use to automatically bookmark any elements (and, if required, their children) in the Package that have: <ul style="list-style-type: none"> • New changes defined in the Maintenance window • New defects defined in the Maintenance window, and/or • Test scripts defined in the Testing window This is useful to highlight elements that have additional project information.
Clear all elements of bookmarks	To clear all bookmarks: <ul style="list-style-type: none"> • Throughout the current Package, click on the Clear All button on the 'Manage Bookmarks' dialog • In the current diagram, select the 'Edit Clear All Bookmarks' menu option

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

