

MooD 16

Getting Started Guide

Version 16.032

Notice of Copyright and Trademarks

MooD 16 Getting Started Guide (MooD 16 Build 032)

® MooD, MooD Smarter Decisions, Performance Activation, Synchronization Activation Technology and Knowledge Map are registered trademarks of MooD Enterprises Ltd. in the United Kingdom and / or other countries.

Microsoft and Windows are trademarks of Microsoft Corporation in the USA and other countries.

Rights to all other referred trademarks or registered trademarks reside with their respective owners.

Aspects of the Enterprise Business Model, Model-Driven Data Aggregation and Business Solutions to Support Smarter Decisions are protected by International Patent and Patent Pending. These include the Meta-Architecture Framework, Panels Technologies, Auto-Explorer, Business Orchestration, the Activator mechanism, Process Driven System, Performance Activation, Model-Driven Enterprise Management, Dynamic Aggregation, Smart Columns, the Variant Mechanism, and other technologies and mechanisms implemented within MooD Business Architect and MooD Active Enterprise.

© MooD Enterprises Ltd., all rights reserved. No part of this document may be reproduced by any means, or transmitted, or translated into machine language without the written permission of the company.

Contents

<u>Introduction and about this guide</u>	8
Suggested reading order for users new to MooD.....	8
Technical support.....	9
<u>Introducing MooD technology</u>	10
<u>Repository Manager</u>	11
About repositories, servers and Repository Manager	11
About schemas.....	12
Mandating a Build	12
<u>Business Architect</u>	13
<u>Key concepts</u>	14
Theme	14
Element	14
Subject element.....	16
Relationship.....	16
Measure.....	17
Model.....	18
Panel	18
Query.....	18
Matrix.....	19
Aggregation	20
Synchronizations	20
<u>Business Architect's user interface</u>	22
The ribbon	23
The File tab	24
Business Architect's options	25
Getting help	25

The Quick Access Toolbar	25
The Explorer Tree	26
The second Explorer Tree	27
The Explorer Tree toolbar	27
The Bookmarks Bar	29
The Explore button.....	29
The workspace	30
Multiple workspace areas (tab groups).....	30
The status bar	31
The secondary Examine pane	32
Panels and docking/floating.....	33
Element definition window controls.....	33
The Welcome page and repository shortcuts	33
Context menus	35
Navigation Bar	36
How "Save", "Rename" and "Undo" work.....	38
How "Remove" and "Delete" work	39
Difference between "Open", "Examine", "Look Inside", "Look At" and "Explore"	39
Selecting, formatting and arranging symbols on a model	40
Selecting overlapping or layered symbols	44
The Model tab (page setup and grid)	44
Pickup and Apply	45
Conditional formatting	46
Model timings and testing performance.....	46
Flipping panels	46
Pinning (green, blue and orange pins)	47
Searching	50
Filters.....	51

List styles.....	52
Favourites.....	53
Spotlight mode and presentations	55
Elements in Business Architect	57
Building an element hierarchy	57
Relationships between elements (relationship fields)	60
Measures on elements (measure relationship fields).....	62
Viewing information about an element	63
Using the Examine pane	64
Setting an element's fields	65
Creating and viewing models.....	66
Adding elements to a model	67
Linking elements on a model	68
Adding bends to lines.....	70
Formatting the ends of lines.....	71
Formatting elements on a model	72
Key features in Business Architect	73
Queries	74
Creating a query.....	74
Using queries	78
Parameters and variables in queries	79
Setting variables in Query Builder	80
Info panels.....	82
Adding an Info panel	84
Smart Columns.....	87
Creating a Smart Column	89
The Smart Column's visualization on the Designer tab	94
The Fact Builder dialog box	95

Using Smart Columns	99
Matrices	102
Creating a matrix	103
Using a matrix on a model	108
Graph panels (gauges, charts and maps)	110
Adding a graph panel	110
The General chart type	112
Action panels (making models for the web)	113
Adding an action panel	114
Styles	117
Creating a style	118
Applying, updating and deleting styles	121
Difference between styles and formatting	122
Model Masters	123
Creating a Model Master	128
Previewing Model Masters	130
Applying and removing Model Masters	130
Hierarchical Model Masters	131
Using Model Masters with Active Enterprise	132
The Elements Navigates To setting	133
Conditional Model Masters	133
Measures	136
Variants	139
Finding out if an element is or has variants	139
Creating variants	140
SAT (the Synchronize library)	143
Knowledge Activation	145
Using hyperlinks instead of Knowledge Activation	145

Active Enterprise	147
Home Pages.....	147
Introducing administration	149
Users, user groups and permissions	149
Audit and Security	150
Introducing Manage Themes	151
Hiding themes from Explorer Tree.....	151
Creating themes	152
Creating element Types	152
Creating standard relationships	154
Creating measure types and measure relationships.....	154

Introduction and about this guide

This guide is aimed at users new to the MooD Intelligent Architecture Platform (MooD 16). It assumes a familiarity with the basic purpose of Enterprise Architecture, Performance Governance and Business Modelling.

MooD is feature rich and this guide introduces many of these features. It is not meant to be read cover to cover. Nevertheless, it is structured as follows:

- [Introducing MooD technology](#) (page 10)
This outlines what MooD is, and what it can be used for.
- [Repository Manager](#) (page 11)
Architectures are held in repositories (databases). This short section introduces Repository Manager. There is a separate *Repository Manager* guide.
- [Business Architect](#) (page 13)
This is where you create and manipulate business models. As Business Architect is the application you will use most, the bulk of this guide is dedicated to it. This section is subdivided into sections on key concepts, the user interface, building element hierarchies, and finally a section covering many of Business Architect's key features.

This is a *Getting Started Guide*. It is principally aimed at explaining the MooD workflow and introducing key features.

About boxes like this

Boxes like this include supplementary information. Reading them is not critical to getting started. But, if you want to know more, they give you a fuller picture.

Suggested reading order for users new to MooD

Everything in MooD revolves around elements and the relationships between them. Because of this, if you are new to MooD and Business Architect, we suggest you look at the [Elements in Business Architect](#) section first, and then look at the [Key features](#) section as you add and encounter things in your repository (queries are particularly important to understand). As you do this, refer to the [Key concepts](#) section for background, and the [User interface](#) section for help in fully utilizing the working environment. This guide is not meant to be read cover to cover as some of the concepts and user interface features will only become apparent when you use particular features.

Only a subset of the documentation is included with the installation. More documentation is available on our support site including:

- Guides such as: *Aggregation Designer*, *Aggregation Fact Builder*, *Aggregation performance*, *Excel Import synchronizer*, *Denormalised Excel synchronizer*, *Model Driven Documents (MDD)*, *Free Form Matrix*, *Epochs*, *Measures*, *General chart*, *Radial chart*, *Clock Face chart*, *Project and Risk Performance charts*, *World Map panel*, *Data Tables theme*, *Deployment Packs*, *User management and Permissions*, *Active Publisher Setup*, and *using SSIS with MooD*.
- Several shorter pieces of documentation are also available as "Quick Guides" and new documentation is added throughout the year and particularly alongside a wide product build release.

- Short videos are available covering *Aggregations, Aggregation caching, MDD, Measures, pinning variables, Queries and Query Builder, Relationships, Excel Import SAT functionality* and *Session Variables*. New videos are added as they are produced.

Go to the Support area at www.moodinternational.com to see the full list of documentation available.

Technical support

MooD 16 is backed by a dedicated UK based technical support team. Contact details can be found on Repository Manager's **File** tab.

Note: You may be supported by an intermediary and not directly by Mood International.
Your system administrator should be able to provide you with details.

Introducing MooD technology

MooD International's Intelligent Architecture Platform is an award-winning software platform for:

- Enterprise Architecture, business models and 'traditional' architectures.
- Developing performance governance solutions. Solutions leverage business models.

The MooD Intelligent Architecture Platform comprises two main components:

- MooD Business Architect:
A Windows client-side application used to develop and manage the business model, and to configure MooD solutions based on it.
- MooD Active Enterprise:
A set of Windows server products that exploit standard enterprise web technologies to deploy solutions across a wide community of users.

Put simply, Business Architect lets you build models and solutions. Active Enterprise lets you deploy solutions on the web.

These key MooD components are supported by other components and technologies, including:

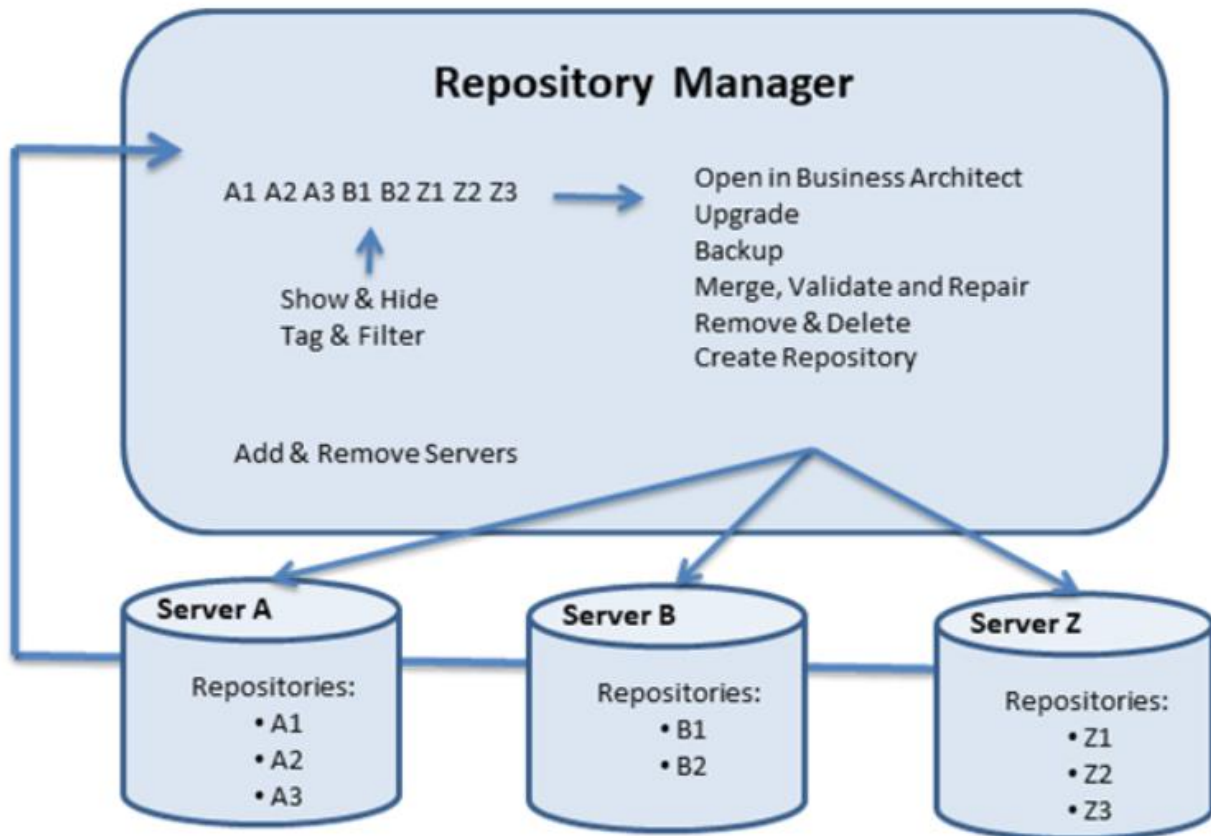
- Repository Manager:
A business model is held in a repository (database). This application lets you manage your repositories, and open them in Business Architect.
- Synchronization Activation Technology (SAT):
This MooD technology lets you synchronize your business model with external applications and data sources. You can have any number of synchronizations, and you manage them in Business Architect.
- Data Table Themes
A high performance method of connecting directly to external data.

This is a very brief overview. MooD International's website (www.moodinternational.com) includes much more information on MooD technology.

Repository Manager

This section is a basic introduction to repositories and Repository Manager. There is a *Repository Manager Guide* that covers these aspects in detail.

About repositories, servers and Repository Manager



A **repository** is the entity that holds your architecture. It is a database instance that collects together everything that makes up your architecture.

Repositories exist on **servers**. In MooD, servers are database servers, not just physical servers. A physical server can contain many database servers, in which there could be many MooD Repositories. **Tags** are useful to help manage many repositories.

When you start MooD from the desktop icon, Repository Manager starts first. Use Repository Manager to define which servers and repositories should be available to you, from there you can use it to:

- Open a repository in Business Architect.
- See repository details such as size and last modified time.
- Create, rename, remove (hide) or delete repositories.
- Upgrade repositories when you get a version of MooD with a new schema (if you install a new version and all your repositories appear brown (sepia), it is due to a change in schema). See [About schemas](#) next for more details.
- Create backups (SQL Server only). (To restore a backup, you can drag the **.bak** file into a group on the **Repositories** tab.

- Merge repositories together.
- Validate and repair the data within a repository. Validation is a recommended step prior to making a repository available using Active Enterprise. Validation can also help resolve structural issues within a database.
- Improve database performance by defragmenting storage.
- Manage your MooD licence.

About schemas

All builds of MooD and consequentially all MooD repositories have an underlying schema. This is the database structure it is built upon. The MooD schema changes less frequently than the MooD build. Builds introduce features and fixes on top of a schema. Hence, a schema can support several builds. The schema only changes when a new feature requires a change to the underlying database.

Repositories that do not match the schema of your current build appear in shades of brown (sepia) and cannot be opened in your version of MooD unless upgraded to the same schema. To upgrade, first ensure you have a backup of the repository, then highlight the repository and then select **Upgrade** (it is one of the few commands available to you). However, note the following:

Once a repository has been upgraded to a new schema, you cannot open it in a version of MooD with an earlier schema.

Note: If you have a repository that appears brown and you are not given the **Upgrade** option, the repository is on a newer schema than your current installation. You will not be able to open this repository unless you get a newer version of MooD itself.

Mandating a Build

Business Architect includes a complementary feature called **mandate**. This lets you specify a specific MooD build (version of Business Architect) that the repository must be edited with. If you try and open a repository on a different build (but same schema), Business Architect warns you but will let you proceed. Mandating a build helps development teams ensure they always work on a set build of Business Architect. Mandating is optional and can be found (in Business Architect) under **File > Manage Repository > Mandate a Build of Business Architect**.

Business Architect

Business Architect is where you construct and leverage your Enterprise Architecture to provide solutions. Business Architect is covered in the following sections:

- [Key concepts](#) (page 14)

Some key concepts that you need to know when using MooD.

- [Business Architect's user interface](#) (page 22)

Helps you understand, and get the most from, Business Architect's workspace.

- [Elements in Business Architect](#) (page 56)

How to develop element hierarchies.

- [Key features in Business Architect](#) (page 73)

This section introduces some of the features available to you. For example, it includes sections on queries, action panels, aggregations, synchronization and **Manage Themes**.

About permissions

This guide assumes you have been granted **Administrator** user privileges on a repository. If you find that some features are denied you, ask your system administrator about the permissions you have. In addition, some themes can be configured to restrict certain functionality. Your system administrator (or a more experienced user) should be able to advise you.

Key concepts

When using Business Architect, you will become familiar with the following terms and concepts introduced here:

- [Theme](#)
- [Element](#) (page 14)
 - Subject element
- [Relationship](#) (page 16)
- [Measure](#) (includes **epoch**) (page 17)
- [Model](#) (page 18)
- [Panel](#) (page 18)
- [Query](#) (page 18)
- [Matrix](#) (page 19)
- [Aggregation](#) (page 20)
- [Synchronization](#) (page 20)

Some sections include info boxes that provide more detail should you wish to develop your knowledge of a concept further.

Theme

Themes are blueprints. They are a classification and structural definition of elements and the relationships that can exist between them. Themes define the meta-model for your enterprise architecture or business model.

Any themes that you (or the person responsible for your meta-model) add are known as **universal themes**. Universal themes support one or more **element types**. Element types define the fields that an element can have.

Themes correspond to element hierarchies in the Explorer Tree. If a theme has more than one element type, when you create elements, you choose which element type to base the new element on. For example, if you have a Projects theme that includes Internal Project and External Project element types, when you create an element you choose between these types.

More on themes – What you might have

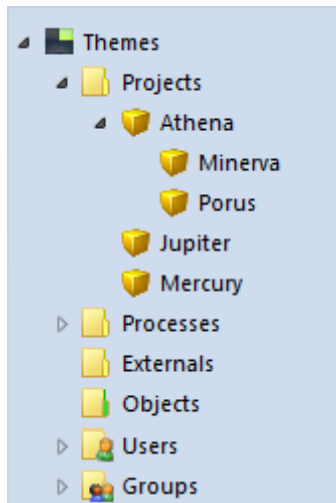
If you use Repository Manager to add a new repository, it will have some default themes, including the Processes, Objects, and Users themes. These themes are not universal themes so you cannot add more element types to them.

To see what themes you have and explore their structure, on the ribbon, click **File**, point to **Manage Repository**, and then click **Manage Themes**. This opens the **Manage Themes** dialog box. You should be careful about changing things. However, you can use **Manage Themes** to hide themes so that they do not appear in Explorer Tree. See [Introducing Manage Themes](#) (page 151) for more information.

Element

An **element** is any instance of an element type within a theme. Elements are the building blocks of your business model. Elements exist in a hierarchy, and each element is uniquely

identifiable within a repository. This is easily seen in Business Architect's Explorer Tree, as shown in the following image:



Elements are the focal point of Business Architect. You can easily see your elements, open and view or modify their definitions, relationships and dependencies, and manage all the things associated with them such as models, matrices and queries. Most things in Business Architect revolve around the concept of the element.

More on elements – Relationships, dependencies and variants

Elements exist within a hierarchy. This hierarchy is constructed using parent child **relationships** within a theme.

An element's:

- **parent** element is its immediate ancestor element.
- **child** elements are its immediate descendant elements.
- **sibling** elements are any elements located at the same level in the hierarchy.
- **ancestor** elements are any elements higher in the element hierarchy (the theme is at the top of any hierarchy).
- **descendant** elements are any elements lower down the element hierarchy.

Relationships can also be non-hierarchical. You have **standard relationships** between things like Project elements and Team elements, and **measure relationships** between things like Project elements and Cost measures.

Relationships are one type of **dependency**. An element can have other dependencies, including measures and aggregations involving the element, and models where the element is used. For any element, in Business Architect, you can view a pane (the Examine pane) showing you all its dependencies organized by category. This lets you quickly understand an element's place within a repository.

Elements can also have, or be, **variants**. Variants are copies of elements and their relationships. Variants know what elements they are derived from, and elements know of their variants. See [Variants](#) on page 139 for more details.

Subject element

A key concept in Business Architect is the **subject element**. This is the element that is the primary focus of models, Info panels, charts, queries and other items. It is the starting point for many dialog boxes and features.

Business Architect often assumes the subject element for you, but you can usually change it or make it a parameter so that you can **pin** it to something else.

Relationship

Relationships define how element types can relate to other element types or to measures. As such you have **standard relationships** and **measure relationships**. Relationships are non-hierarchical (i.e. not parent child). Relationships are defined within **Manage Themes**. Element types can include **relationship fields** which dictate which relationship can be held in that field (what element types or measure types you can drag into it).

An example helps illustrate standard relationships. You have Project elements and Team elements. These elements are not related by hierarchy but they do have a relationship in that projects are undertaken by teams. Hence you need a relationship between the two. For this you create a standard relationship called Team Assigned, and in the Project element type you add a relationship field that uses Team Assigned. This means that in Business Architect, when you open a Project element, it has a Team Assigned field that you can drag Team elements into. Having Team Assigned defined on its own as a standard relationship makes it available for reuse. For example, you could use the same relationship to link Location elements to Team elements.

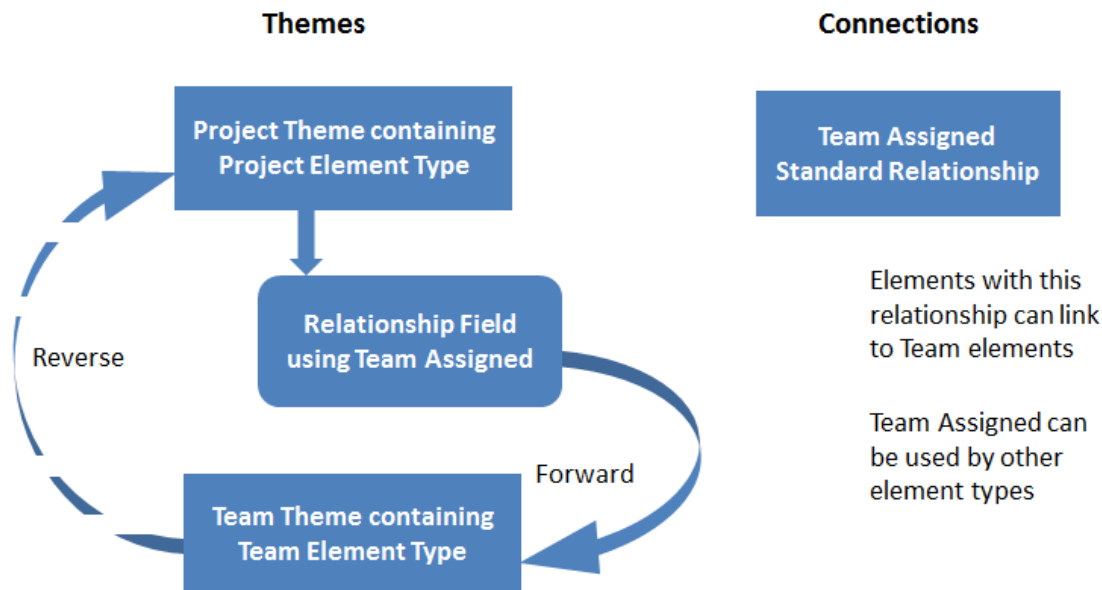
Relationships are used throughout MooD. For example, in queries you will frequently want to find the elements at the end of a relationship. Extending the example, this would be 'find the Team elements associated with a Project by using the Team Assigned relationship'.

Finally, there is the concept of **reverse relationships**. Again, this is best explained by developing the example. Because Project elements include the Team Assigned relationship field that links them to Team elements they are linked by a **forward relationship**. Team elements don't have a relationship field, but they do have an implicit reverse relationship to Project elements because they are at the end of the Team Assigned relationship. MooD makes these reverse relationships available to you (look for **Used By** in the relationship name (see note)). Hence starting from a Team element, you could find its associated Project elements by using the Used by Team Assigned reverse relationship. You do not have to create the reverse relationship yourself.

Note: "Used By <forward relationship name>" is the default name MooD gives to reverse relationships. However, this can be changed within **Manage Themes**. If you do not see "Used By" names in your repository, ask the repository owner about the names used for reverse relationships (or look in **Manage Themes**).

This next diagram summarises standard relationships, and how they are created in **Manage Themes**.

Manage Themes – Standard Relationships



Project has *forward relationship* to Team (because it has the Relationship Field)

Team has implicit *reverse relationship* to Project (because it is at the end of the relationship)

There is also a video covering how to create relationships in **Manage Themes**. This is available within the Support Area at www.moodinternational.com.

Relationships themselves can have fields. For example, a Project to Team standard relationship could have a Capacity field to hold a figure specific to each instance of the relationship. Note that if you want to SAT into the fields on a relationship, use the Microsoft Excel synchronizer's Denormalised layout.

Measure

A **measure** is an element that quantifies or measures some aspect of another element. For example, Cost is a typical measure applied to Project elements. In other terminology, measures are Key Performance Indicators (KPIs).

Measures are created by defining a **measure type** within **Manage Themes**. Measure types are similar to element types in that they define structure and behaviour. Also in **Manage Themes**, you can create a **measure relationship** that when given to an element type via a **measure relationship field**, specifies that that element can be measured by that measure.

Note: A guide covering how to create measure types in **Manage Themes** is available within the Support Area at www.moodinternational.com. There is also a video. However, the [Creating Measure Types in Manage Themes](#) section (page 154) includes a quick reference taken from the full guide.

When an element has a measure applied to it, each result is known as a **measure instance**. Measures can include **thresholds**. Thresholds determine the status of measure instances. This status can be visually represented. For example, thresholds are often used to apply traffic light indicators to elements.

Measures can be **epoch** aware. Epochs are chunks of time, for example, calendar months or years. When an epoch aware measure is applied to an element, measure instances are created for selected epochs. This lets you measure and analyse performance over time.

See [Measures](#) on page 136 for an introduction to using measures in Business Architect's Explorer Tree.

Model

A **model** is a diagram that elaborates some aspect of an element. Models help you navigate and visualize your business model. For example, a top level process is likely to have a model that shows how its sub processes link together. Each sub process is likely to have a model elaborating its steps.

Models are views of an element. To construct this view, you place related or dependant elements together on the model, and add other information, such as links, to define structural and functional relationships. You can also add other components such as Info panels, graph panels and matrices to display the detail you require.

Models also let you build web based MooD solutions (Active Enterprise). By adding action panels to models, you construct the 'screens' of your solution.

Panel

Panel is the general term used for items that help you represent and convey your architecture on models. Panels are grouped into:

- **Info panels**

Info panels show information about elements or links. See [Info panels](#) on page 82 for an introduction to creating and using Info panels in Business Architect.

- **Graph panels**

Graph panels include numerous charts, gauges, and map controls that you can use to display information about elements. See [Graph panels \(gauges, charts and maps\)](#) on page 110 for an introduction to including these on models.

- **Action panels**

Action panels are assorted controls that can make your models interactive and web deployable. See [Action panels \(making models for the web\)](#) on page 113 for an introduction to including these.

More on panels – Active Enterprise

Many panels are designed specifically for web deployment, and many panels gain additional features when displayed in a browser. For example, Radial charts can be animated on the web.

Business Architect includes a test environment (Web Preview) that lets you see how a model will look when deployed in Active Enterprise.

Query

Queries are used extensively to find elements that match a set of criteria. For example, you could create a query that returns all project elements with the status Critical, which could then

be used as the rows in an Info panel. You can use the list of elements returned by a query in many ways, including:

- As an input to a matrix.
- To provide content for charts.
- As the input to another query – you can have nested queries.

Queries are reusable and most things in MooD are driven by queries. It is a key area to understand and Business Architect includes a dedicated Query Builder interface to help you. See [Queries](#) on page 74 for an introduction to creating and using queries in Business Architect. There is also a video introducing queries and Query Builder. This is available within the Support Area at www.moodinternational.com.

Matrix

A **matrix** is a table used to display information. Matrices have a **subject element**. This is the element that the matrix takes as its starting point. To help you construct matrices, Business Architect includes **Matrix Designer**.

Once you have a matrix you can:

- Include it as it is on any model.
- Add it as a thumbnail to any model – this thumbnail shows the matrix as it was when it was last executed. You can click the thumbnail to open the actual matrix.
- Add it to the model of another element, and draw its content from that element (the matrix must be configured to use **the matrix subject** as its starting point). This means that you can define a matrix for a particular purpose, and then reuse it against many elements.
- Include it in a Model Driven Document (the Documents synchronizer).
- If it is an Aggregation matrix, use it to drive a chart or graph. This gives you many ways to visualize the content of an aggregation.
- You can use Matrices to power another panel.

See [Matrices](#) on page 102 for an introduction to creating and using matrices in Business Architect.

More on matrices - Matrix types

There are several matrix types:

- **Data Sheet.** Displays fields and other information about elements. For example, elements as rows, and the columns showing field values. You can also include Smart Columns as columns.
- **Pick List Ticks.** Displays elements as rows, and Pick List items as columns. You can display icons instead of ticks.
- **Relationship Field Ticks.** Displays elements in the X and Y axes. Tick marks at intersections show whether a pair of elements are related by a particular relationship. You select a standard relationship and then define queries to populate the axes (if suitable, the second query (axis) can be auto generated via a setting on the **Matrix** tab). The Matrix Designer also includes a **Change** button to flip the axes (and in effect support the reverse relationship).

- **Time Line.** Displays time related information for elements. You can include bars between dates, milestones, dependency lines and date markers. You can also add a Datasheet type column to a Timeline Matrix.
- **Bar Chart.** Displays numeric information for elements. Elements appear as rows, and the columns show a progression of values.
- **Free Form.** Displays elements on both the X and Y axes, and shows, by means of a query, how they are related. This type of matrix is flexible and suitable for occasions where one of the other types doesn't fit your requirements. You can include Smart Columns in this type. A guide is available within the Support Area at www.moodinternational.com.
- **Aggregation.** Totals values across multi-dimensional views and groupings allowing you to summarize, analyze and compare data. Aggregation matrices and Smart Columns form MooD's **aggregation** technology. Several guides covering aggregation are available.

Aggregation

Aggregation is the generic term for two features:

- Matrices of type **Aggregation**.
- Smart Columns.

Both share the same technology. Aggregations are calculations on repository data that produce results. These results can be displayed in tables or Info panels, used to drive charts, or used as the basis for conditional formatting.

All aggregations use **facts**. Facts are calculations that produce results. For example, you might have a fact that divides Project Cost by Project Days to produce a Cost per Day result. The key point being that the result itself is not held in a field. It is calculated when required. Aggregation matrices can have multiple facts (columns in the table) and Smart Columns can have a single fact.

As a broad distinction, Aggregation matrices are designed to be seen on models or used to drive other panels (charts and graphs). Smart Columns are designed to produce results that can be utilised elsewhere, for example, to determine what conditional formatting to apply, what label to use (facts can output strings as well as numbers), or as a column in a **Data Sheet** matrix.

Note: In documentation, when you see "Aggregation matrix", it is specifically referring to matrices of that type. "Aggregation" on its own includes Smart Columns and Aggregation matrices.

A video introducing aggregation is available within the Support Area at www.moodinternational.com. Aggregation matrices are not covered in this guide, but see [Smart Columns](#) on page 87 for an introduction to creating Smart Columns.

Synchronizations

Enterprise architectures absorb and produce information. MooD Synchronization Activator Technology (**SAT**) is a tool for synchronizing with external data sources.

You can connect to an external application, or another MooD repository, and import or export data. For example, a common synchronization is to import from a Microsoft Excel spreadsheet, creating elements for each row in the spreadsheet, and populating each element with data from

the spreadsheet's columns. You can configure multiple synchronizations, and they can be scheduled, or executed on demand.

See [SAT](#) on page 143 for an introduction to creating and using synchronizations in Business Architect. There are also some videos covering SAT available within the Support Area at www.moodinternational.com. This includes an introductory video covering the Microsoft Excel Import synchronizer.

More on synchronizations – Types available

MooD provides many synchronizations, including (but not limited to):

- Microsoft Excel and PowerPoint.
- Database and SSIS.
- Assorted XMI and XML formats.
- Model Driven Documents (MDD). You can generate Microsoft Word or PDF documents from the content of a repository.

As with most things in MooD, a dedicated user interface makes developing and using synchronizations simpler. This includes a Data Mapping window that lets you hook up your source with your target.

Note: In general, data duplication is a bad idea, especially if it's sensitive or of a high volume. You may create a better solution by leveraging Data Table Themes, which can cross reference the original data, without resulting in duplication. Often the result can also be many times faster than using SAT.

Business Architect's user interface

The information here should help you make the most of Business Architect's user interface. There are topics on:

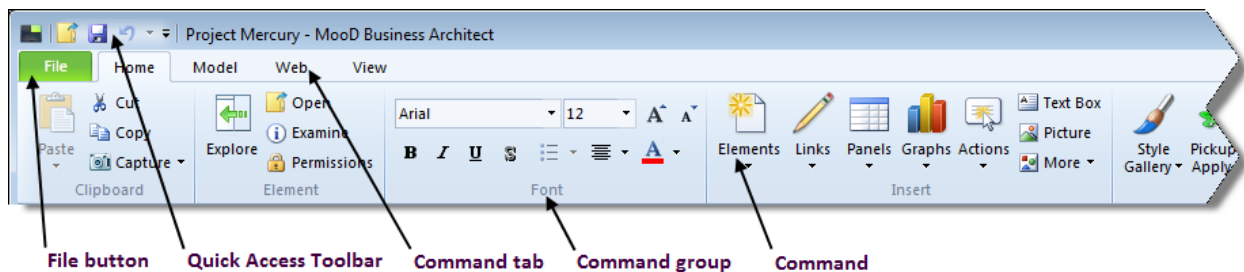
- [The ribbon](#) (page 23)
- [The File tab](#) (page 24)
 - [Business Architect's options](#)
 - [Getting help](#)
- [The Quick Access Toolbar](#) (page 25)
- [The Explorer Tree](#) (page 26)
 - [Splitting the Explorer Tree](#)
 - [The Explorer Tree toolbar](#)
 - [The Explorer Tree filter](#)
 - [The Bookmarks Bar](#)
 - [The Explore button](#)
- [The workspace](#) (page 30)
 - [Multiple workspace areas \(tab groups\)](#)
 - [The status bar](#)
 - [The hidden Examine pane](#)
 - [Panels and docking/floating](#)
 - [Element definition window controls](#)
- [The Welcome page and repository shortcuts](#) (page 33)
- [Context menus](#) (page 35)
- [Navigation Bar](#) (page 36)
- [How Save, Rename and Undo work](#) (page 38)
- [How Remove and Delete work](#) (page 39)
- [Difference between Open, Examine, Look inside, Look At and Explore](#) (page 39)
- [Selecting, formatting and arranging items on a model](#) (page 40)
 - [Selecting overlapping or layered symbols](#)
 - [The Model tab – page setup and snap to grid](#)
 - [Pickup and Apply](#)
 - [Conditional formatting](#)
- [Model timings and testing performance](#) (page 46)
- [Flipping panels](#) (page 46)
- [Pinning](#) (green, blue and orange pins) (page 47)
 - [Multiple pinning](#)
- [Searching, filters and list styles](#) (page 50)

- Search boxes
- Element search
- Filters
- List styles
- Favourites (page 53)
- Spotlight mode and presentations (page 55)

Note: This guide covers the default setup. This is customizable. In particular, you can change how the mouse functions. *Business Architect options* on page 25 outlines the customization available.

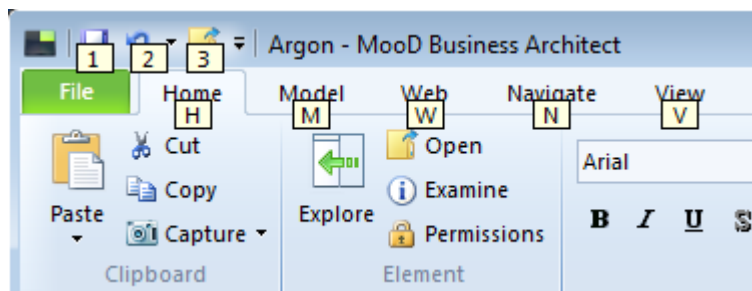
The ribbon

The **ribbon** stretches across the top of the work area in Business Architect. It gives you tabs and commands that are related to the current operation you are performing.



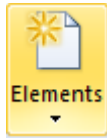
The ribbon includes several components:

- The **File** tab. See *The File tab* on page 24 for details.
- The **Quick Access Toolbar**. This appears in the top left of the window and includes the **Save** button. You can customize the Quick Access Toolbar to include commands you use frequently, and you can position it below the ribbon. See *The Quick Access Toolbar* on page 25 for more details.
- **Command tabs**, such as **Home**, **Model**, **Web** and **View**, stretch across the window, just below the title bar. The tabs are based on the current content of the workspace.
 - When the pointer is over the ribbon, the mouse wheel button cycles through the available tabs.
 - Press **Alt** to see the key tip badges for the ribbon. Key tips show you what keyboard shortcuts are available, for example:



- **Command groups** are the sets of commands available on a tab. They relate to what you are trying to do. For example, the **Insert**, **Drawing** and **Layout** groups appear on the **Home** tab when you look at a model.

- **Commands.** These are the operations you can perform.
 - Some commands are enabled only when a relevant item is selected. For example, formatting commands are only enabled when something they can be applied to is selected.
 - An arrow on a command means that additional choices are available. This can be a list of settings, or a gallery of possibilities.



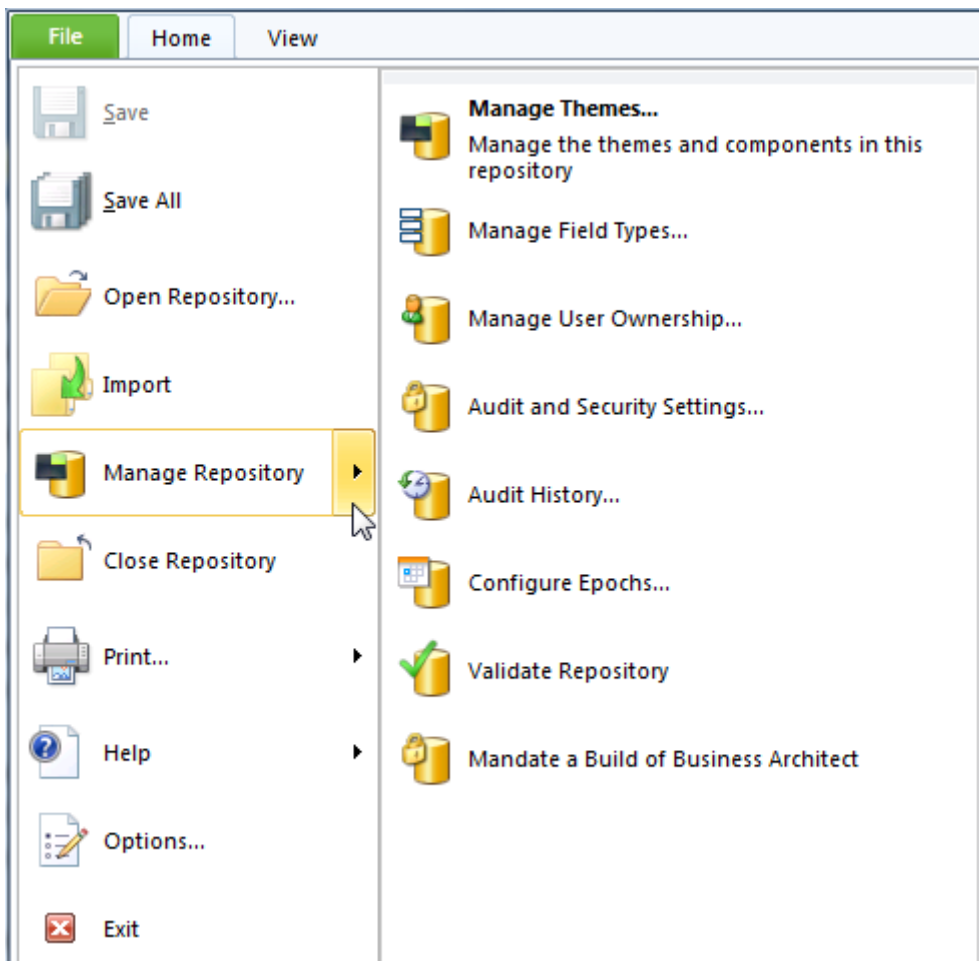
- To see a command's ScreenTip, using the mouse, point to the command, and then pause. The ScreenTip will appear. If the command has a keyboard shortcut, it's included.

The ribbon approach cuts down on the number of menus, commands and dialog boxes you have to sort through in order to find the items you want.

The File tab

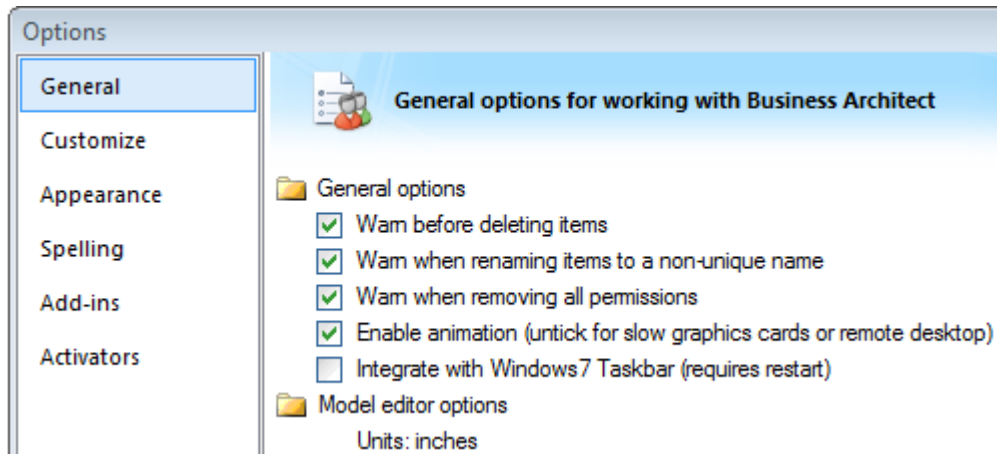
File

The first thing on the ribbon is the **File** tab. It includes file and repository commands. When you point to commands that include an arrow, a tab of commands appears, for example:



Business Architect's options

Use the **Options** command on the **File** tab to open the **Options** dialog box. This lets you customize general appearance and functionality. These settings affect Business Architect, not just the current repository.



This *Getting Started Guide* doesn't cover these options in detail, but you can use the **Options** dialog box to:

- Change the default unit of measure from inches to centimeters (the **General** group of settings).
- Configure how the model editor functions, for example, whether moving an element's symbol also moves its attached panels (the **Model Editor Options** section in the **General** group).
- Switch off warnings (**General**).
- Change the mouse functionality (**General**).
- Control what element tooltips show (**General**).
- Customize the Quick Access Toolbar and keyboard shortcuts.
- Change Business Architect's appearance.
- Control spell checking.
- Manage add-in MooD modules.

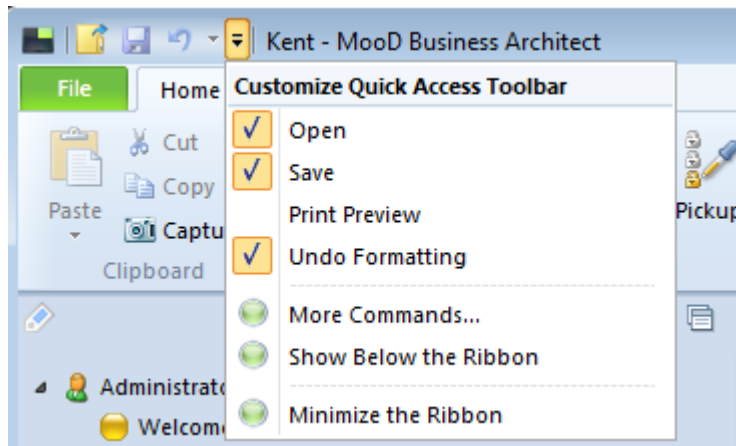
Getting help

Business Architect includes several PDF user guides, including this guide. Use the **Help** command on the **File** tab to see what documentation is installed.

Note: Only a subset of the available documentation is installed with Business Architect.

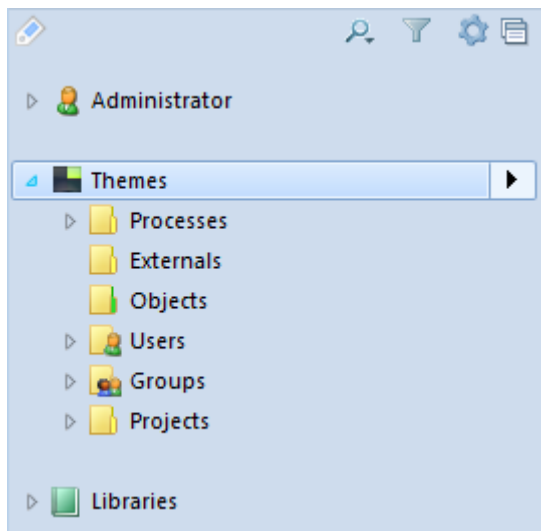
The Quick Access Toolbar

Business Architect includes a **Quick Access Toolbar**. By default, this appears in the top left corner, and, as shown here, you can customize it:





The Explorer Tree

The **Explorer Tree** appears on the left side of Business Architect, below the ribbon. The Explorer Tree shows the repository contents, including the element hierarchy.



The Explorer Tree lists three groups of items:

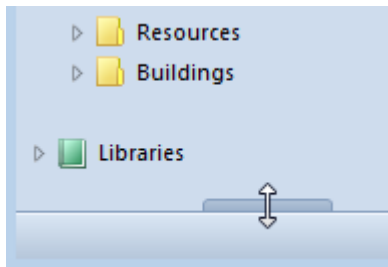
- **User** (who you logged in as) includes administrative items that let you manage and quickly access parts of your repository. It includes favourites and recently visited items.
- **Themes** lists all your elements in their hierarchies. You can easily open and add elements. Users and user groups are listed here too (they are elements in their own rights). You can:
 - Right-click an element to get a shortcut menu for that element.
Click the  button next to an element to open its **Examine** pane within the workspace (you get the same pane from the **Examine** command on the shortcut menu and on the ribbon (or **F12**)).
 - Double-click an element's icon or name to open its model (or the **Create Model** dialog box if no model exists).
- **Libraries** groups reusable resources like queries, matrices, styles and Model Masters.
Click a group's  button to open a window in the workspace listing its contents. Here you can quickly see what resources you've got and add new ones.

Note: In the Explorer Tree, you can use **Shift** click and **Ctrl** click to select multiple adjacent and non-adjacent elements respectively.

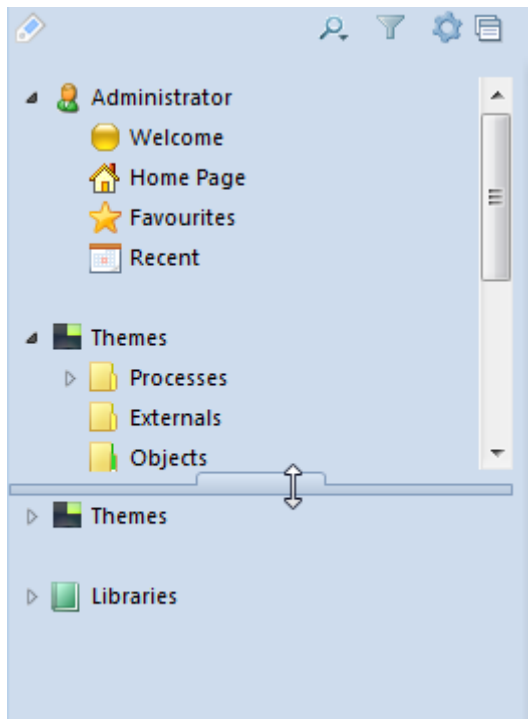
The second Explorer Tree

You can split the Explorer Tree into two trees, and then view different parts of your repository. You can drag and drop elements between the two.

To split the Explorer Tree, click and drag the handle located at the bottom of the Explorer Tree's panel. As shown in the following image, the pointer changes to show that you can drag this up and down.



The second Explorer Tree omits the user's own group (**Administrator** in the images), and instead starts from the **Themes** group. **Knowledge Activation** is also omitted from its **Libraries** group.

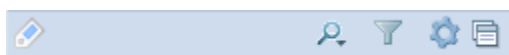


To remove the split, drag the handle back to the bottom of the panel.

Note: When you remove the second Explorer Tree, its state is wiped. When you next split the Explorer Tree, its tree will appear collapsed.

The Explorer Tree toolbar

The Explorer Tree has its own toolbar shown here:



The buttons are:



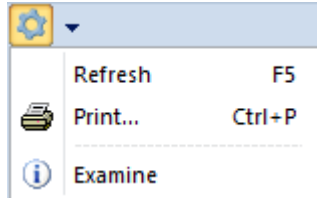
Bookmarks. This toggles the Bookmarks Bar on and off. See [The Bookmarks Bar](#) on page 29 for more details.



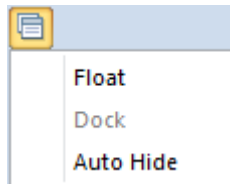
Find. Displays a Search box. See [Search boxes](#) on page 50 for general details on searching within Business Architect but note that the Explorer Tree's search includes a **Recently Used** filter.



Options. A shortcut menu with the commands shown here.

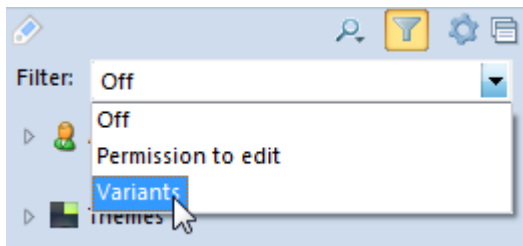


Window Position. Use this shortcut menu to pin and unpin the Explorer Tree.



Filter. This lets you filter the Explorer Tree (filtered out items appear dimmed in the hierarchy).

Click the **Filter** icon to select and apply a filter from a list of available filters.



When a filter is applied to the Explorer Tree, filtered out elements appear dimmed.

Filters vary depending on what you are doing, but can include:

- **Permissions to edit.** Identifies elements that you have permission to edit.
- **Elements Allowed on Model.** Elements allowed on the open model.
- **Variants.** Use this to find elements that are **variants** of other elements. See [Variants](#) on page 139 for details on this type of element.
- **Elements allowed in Measures.** Identify elements that can be measured by the measure type selected in the **Performance** tab (in the Explorer Tree, click **Libraries**, and then click **Performance**).
- **Off.** Use this to remove filtering without closing the **Filter** box.

Note: To remove filtering and close the **Filter** box, click the **Filter** button again.

The Bookmarks Bar

The first button on the Explorer Tree's toolbar (shown highlighted in the main image that follows) toggles the **Bookmarks Bar**. This appears down the left side of the Explorer Tree. Bookmarks let you quickly access elements, or areas within Business Architect.



The buttons are:



User. For example, Administrator. Displays the user's **Examine** pane. If you are an administrator, you can use this to change your password.



Favourites. Displays the **Favourites** pane. To add an element's model to your favourites, right-click the element or its model, and then select **Add to Favourites**.



Recent. Displays a list of items recently opened in the workspace. This lets you quickly find and access items you recently worked on.



Themes. Displays a pane where you can look through and search the models within your themes.



Epochs. Displays a pane where you can look through and search the epochs (months, years, and other system or user defined periods of time) in your repository.



Matrices. Displays a pane showing your matrix groups.



Model Masters. Displays a pane showing your Model Master groups.



Queries. Displays a pane showing your query groups.



Smart Columns. Displays a pane showing your Smart Column groups.



Styles. Displays a pane showing your style groups.



Synchronizers. Displays the **Synchronize** tab in the workspace. This lets you access all your repository's synchronizers.

The Explore button

In Business Architect, you often want to quickly locate an item in the Explorer Tree. For example, you might see an element on a model and want to see what theme it belongs to, and where it is in the element hierarchy. To do this, use the **Explore** button to synchronize the Explorer Tree with the selected element.



The **Explore** button can appear on the ribbon (in the **Home** command tab), in an element's **Examine** pane, or on an element's context menu. It always uses the same icon.

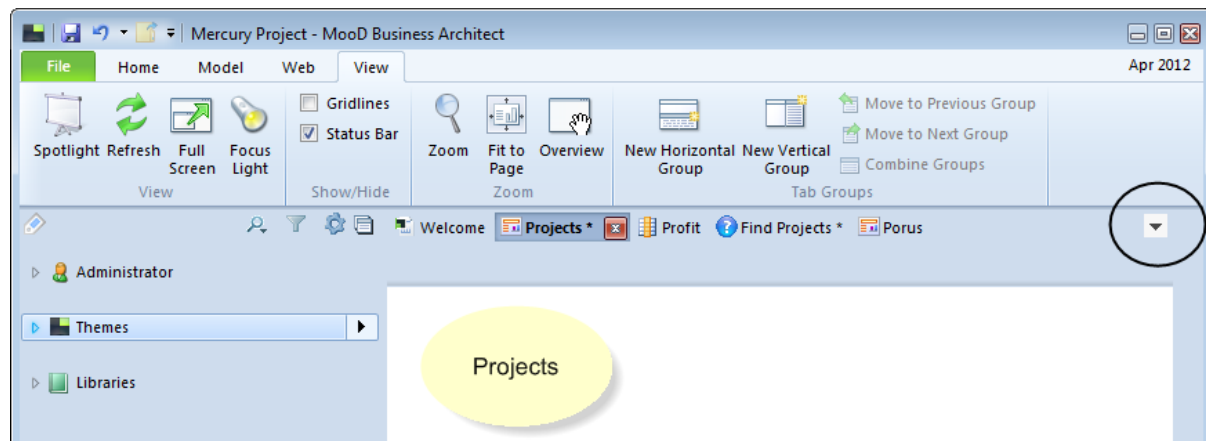
The workspace

Below the ribbon, to the right of the Explorer Tree, is the workspace. Here you open and work on items in your repository, including elements, models, matrices and queries.

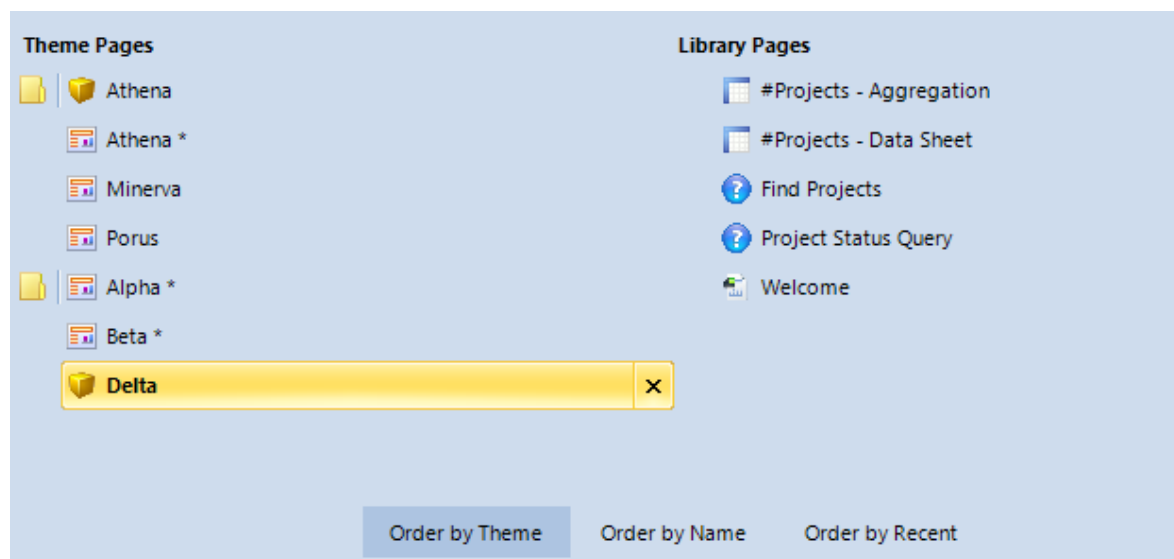
You can have more than one item open in Business Architect. Tabs appear along the top of the workspace for each item open. Use these tabs to switch between them.

Note: You cannot float workspace tabs.

An asterisk on a tab means that that item has unsaved changes.



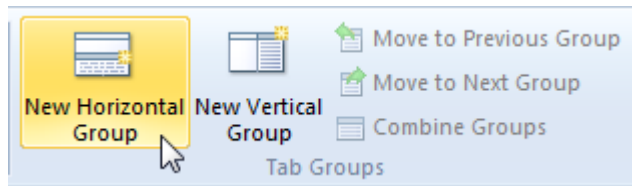
The down arrow at the top-right of the workspace (ringed in the preceding image), or **Ctrl W**, displays a gallery of open items. For example:



You can also use **Ctrl Tab** to display this dialog box and cycle through the available pages.

Multiple workspace areas (tab groups)

By default, the current item fills the available workspace. However, you can divide the workspace into two areas (called tab groups) either horizontally or vertically, and thereby display two items side by side. To do this, on the **View** tab, in the **Tab Groups** group, click the **New Horizontal Group** button or the **New Vertical Group** button.



The workspace divides, and the current item appears in the new tab group.

Note: You can also click and drag an item's tab to the right edge or bottom edge to create a new vertical or horizontal tab group respectively. Business Architect outlines the area where the new tab group will appear.

Each tab group can display more than one item (tab). New items are opened in the tab group that has focus, and you can use the **Move to Previous Group** and **Move to Next Group** buttons to move items between tab groups.

Note: Again, you can click an item's tab, and then drag it to the required tab group. Dragging the last item from a tab group removes the tab group.







Also on the **View** command tab:

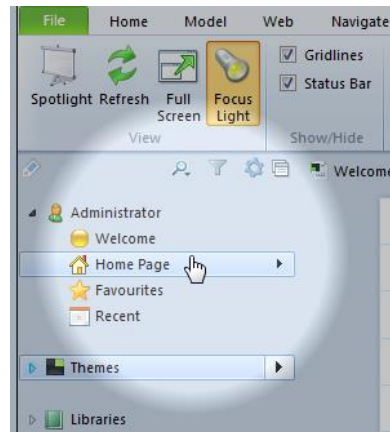
- **Zoom** commands apply per tab group.
- **View** and **Show/Hide** commands apply to all tab groups.
- The **Combine Groups** button restores the workspace to a single area.

The status bar



The status bar in the bottom right corner of Business Architect's window can include the following.

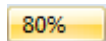
 8.58, 2.36 in	The position of the currently selected symbol. If multiple symbols are selected, this is the position of the first symbol selected (the symbol with the white selection points).
 2.04 x 1.64 in	The size of the currently selected symbol. The same multiple selection rules apply.
 Administrator	Current user.
	Full screen (F11).
	Spotlight Presentation. Opens Business Architect's presentation mode. This lets you view, arrange and present elements as a slide show.
	Focus light (Ctrl+L and Esc to exit). Turns on a spotlight. Use this to highlight parts of Business Architect. For example:



The area outside the spotlight appears dimmed. Use the mouse to control the spotlight. Business Architect's functionality is still available, for example you can click buttons and follow links. Press **Esc** to exit spotlight mode. The preceding image also illustrates the same **Focus Light** command on the ribbon.



Controls the level of zoom.



Current zoom.



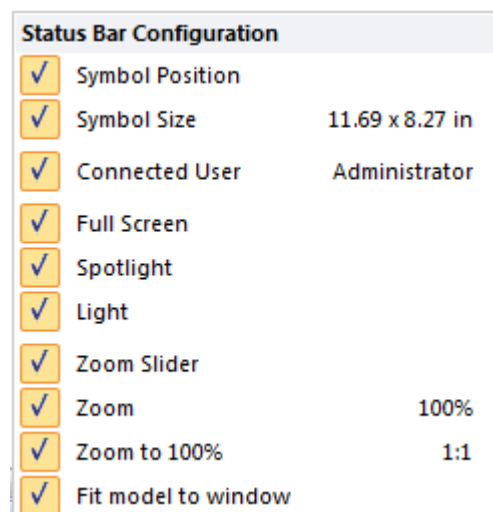
Zoom to 100%.



Fit model to window.

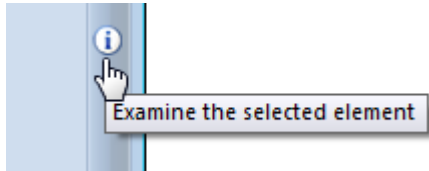
Note: Most of these commands are also in the **View** and **Zoom** groups on the **View** tab. This tab also lets you hide the status bar.

Right-click the status bar to choose what is included on it.



The secondary Examine pane

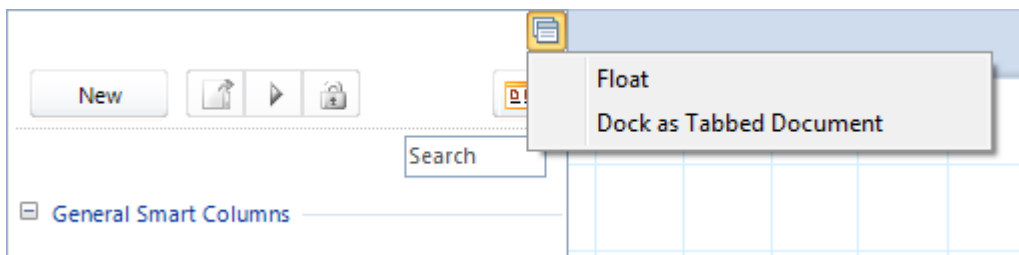
Along the right hand edge of the workspace there is a hidden Examine pane for the currently selected element. This is the same information that you get when you right-click an element, and then choose **Examine**, or when you click **Examine** on the ribbon, or press **F12**.



To activate the hidden Examine pane, click the right hand edge. You can resize and pin the pane as required. See [Using the Examine pane](#) on page 64 for more details.

Panes and docking/floating

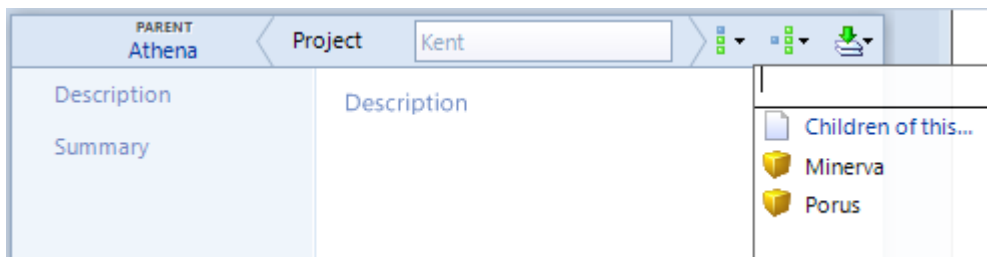
Business Architect includes panes that appear and then hide once used, or when you click elsewhere. Examine panes and Query panes are examples. As shown in the following image, click the Window Position button in a pane's top right corner, and then choose from **Float** or **Dock as Tabbed Document** to prevent the pane from hiding automatically:



Note: You cannot float workspace tabs.

Element definition window controls

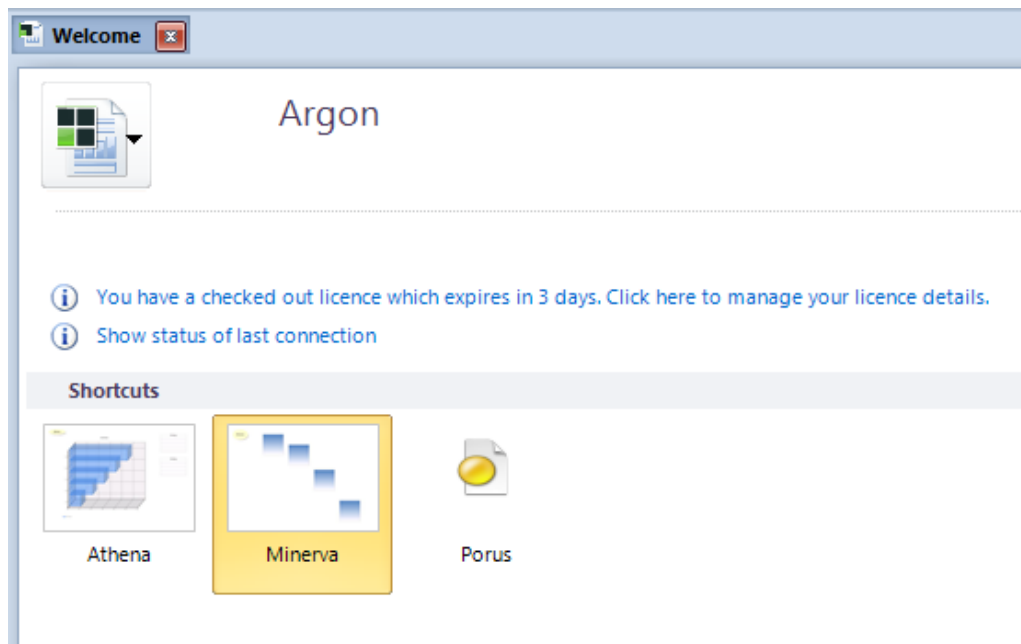
When the workspace is showing an element's definition (right-click an element, and then select **Open**), its workspace includes controls to help you view and navigate the element's place in the hierarchy. The following image shows these controls.



If the element has a parent, it is shown on the left. This is followed by the name of the theme that the element belongs to. You then have the name of the element in a text box that allows you to rename it. This is followed by three buttons that drop-down to reveal the element's siblings, children, and variants (and originals) respectively. See [More on elements](#) on page 15 for an explanation of the relationship hierarchy, and the terminology used in MooD.

The Welcome page and repository shortcuts

When you open Business Architect, the workspace includes a Welcome page. This page highlights when any licences are due to expire, and you can add shortcuts to elements or other resources in the repository.

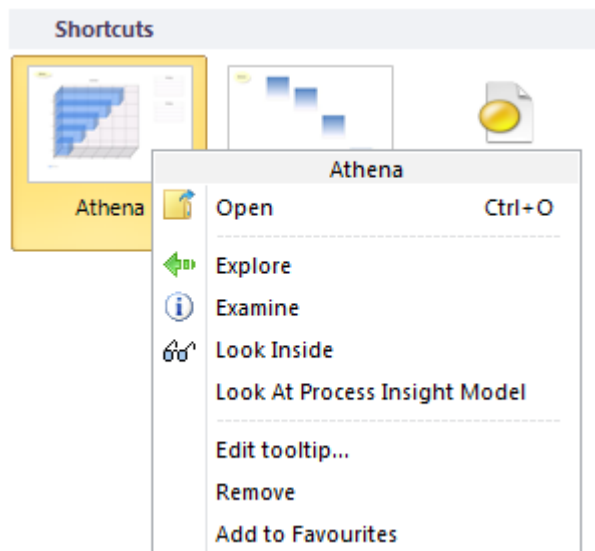


To add a shortcut, drag an element onto the Welcome page's **Shortcuts** area. This creates the shortcut to the element's model if it has one or to the element's definition if it doesn't. New shortcuts are appended to the existing shortcuts, but you can rearrange them.

Note: If a shortcut exists for an element that does not have a model and a model is subsequently added for that element, the shortcut updates to open the element's model.

If Business Architect can't create a shortcut for a particular item, the pointer changes to show you that that type of shortcut is not supported and cannot be created.

To override the default shortcut functionality, you can right-click a shortcut, and then choose from the options shown in the following image.



You can access other aspects of the element, and you can change the tooltip or delete the shortcut.

The Welcome page has a **Welcome** group on the **Home** tab as shown here:

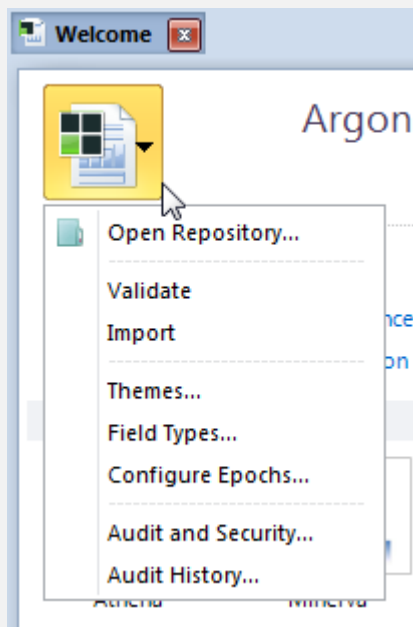


Click **Edit Message** to add or edit any message included on the Welcome page. This displays the **Edit welcome text** dialog box.

Click **Arrange Shortcuts** to reorganize your shortcuts. This command disables the shortcuts, allowing you to drag them to new positions. Once moved, click **Arrange Shortcuts** to re-enable the shortcuts and fix their positions.

Performing repository management from the Welcome page

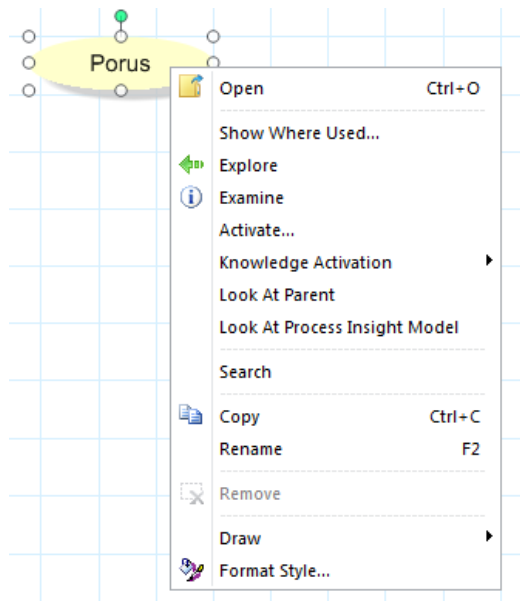
Depending on your level of permissions, you can perform some repository administration tasks from the Welcome page. To see what options are available, click the icon that represents your repository. For example:



Note: The **Open Repository** command means open another repository. This closes the current repository.

Context menus

Business Architect makes extensive use of right-click context menus. You can right-click most things, and then see a menu of possible commands. For example, the following shows the context menu for an element on a model:

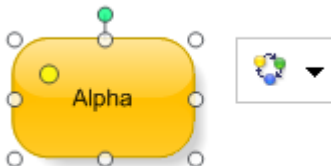


If you select multiple items, the context menu shows valid commands for that group of selected items.

Note: In the Explorer Tree, you can use **Shift** click and **Ctrl** click to select multiple adjacent and non-adjacent elements respectively. On models, both the **Shift** and **Ctrl** keys behave the same when used with the mouse to select multiple items.

Navigation Bar

Each symbol on a model has access to what we term a **Navigation Bar**. This is what appears to the top right of symbols when you select them. For example:



The icon on this will vary as Business Architect remembers the last thing you accessed so that you can quickly access the same area (useful when you are repeatedly performing the same task on successive symbols). So if you click the icon, you access that area. If you click the down arrow to the right of the icon, the Navigation Bar extends to reveal all its areas:



The icons are:

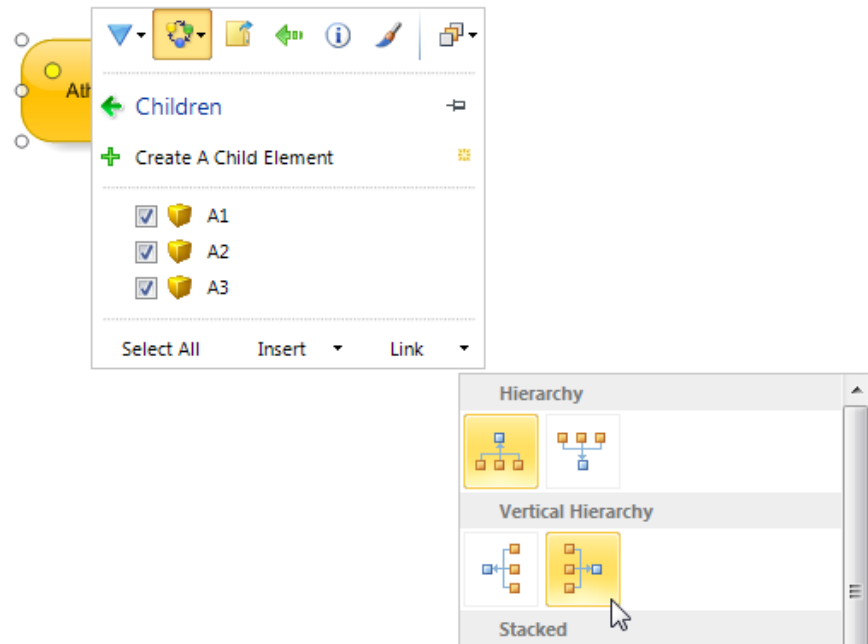


Look Inside/Outside. Expands to let you access associated models.

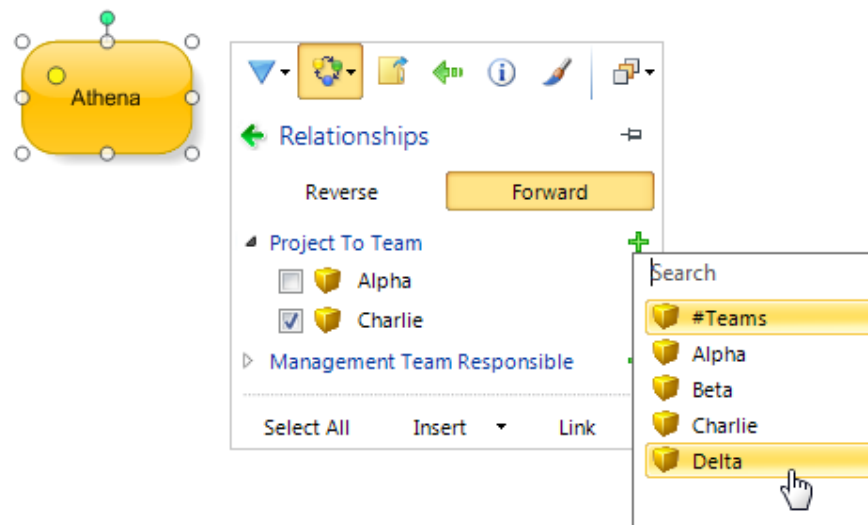


Follow Dependency. This drops down and lets you find related elements. From here you can do many things including:

- Insert, or insert and link, related elements to the model. For example:



- Add new elements. You can see the **Create A Child Element** option in the previous image.
- Add, insert and link relationships. For example:



You can access forward and reverse relationships.



Open. Displays the element's definition window as a tab in the workspace.



Explore. Synchronizes the Explorer Tree with the selected element.



Examine. Displays the element's Examine pane about the element's properties and relationships within the architecture.



Style. Displays the **Format Style** dialog box.



Symbols are this point. See [Selecting overlapping or layered symbols](#) on page 44 for information on this.

How "Save", "Rename" and "Undo" work

Each resource or element in a repository is uniquely identifiable, and can be referenced by many other items throughout the repository. Because of this, if you ever rename anything, that change is implemented immediately, and all internal references are updated. You cannot undo a rename.

Other changes have to be saved, and can be undone. Undo applies per tab, and each tab remembers its undo history. The **Undo** button appears in the Quick Access Toolbar.

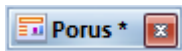


If you don't see this button, see [The Quick Access Toolbar](#) on page 25 for details on customizing this toolbar to include the **Undo** button.

The shortcut for undo is **Ctrl Z**. To reverse an undo, it is **Ctrl Y**.

Note: When you add an element to another element's model, it immediately creates an association between the two elements. This cannot be undone by the **Undo** button. In this case, you must use the **Remove** command to remove the element you added from the model concerned. See [How Remove and Delete work](#) on page 39 for more details.

An asterisk next to something indicates unsaved changes, for example,



Within an element's definition (use **Open** to display this), additional asterisks show what parts (fields) have changed. You have two save commands:

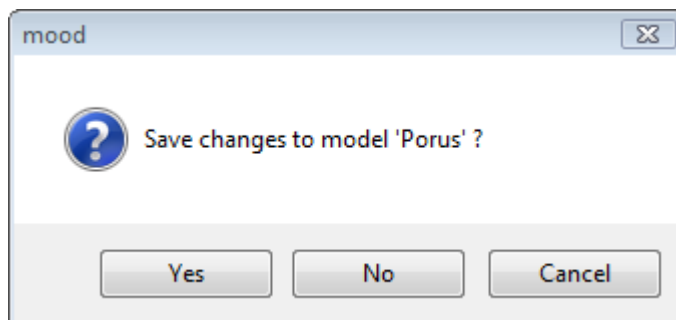


Save



Save All

If you close Business Architect with unsaved changes, it prompts you to save each unsaved item.



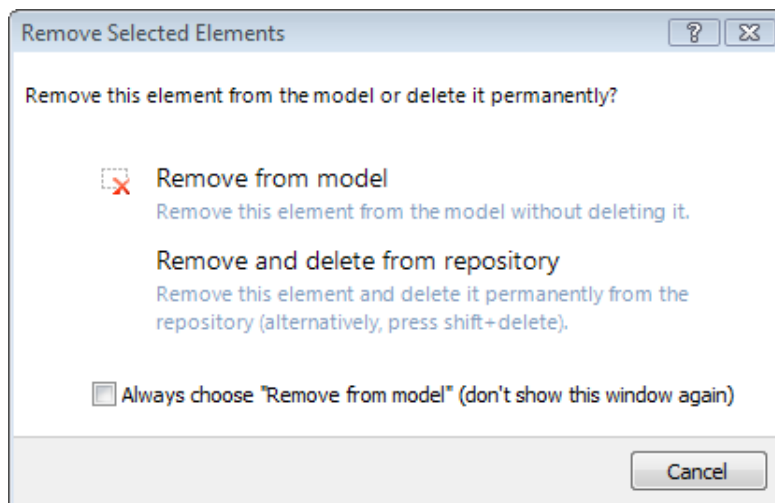
Note: If you have many unsaved items, you can cancel one of these prompts and then use **Save All**. However, be careful if you have been making experimental changes during your session. You risk saving unwanted changes.

How "Remove" and "Delete" work

In Business Architect:

- **Remove** generally means remove an element from a model. Removing leaves the element in the repository.
- **Delete** generally means delete the item from the repository. This removes any dependencies and relationships that item has. You cannot undo a deletion.

Business Architect will typically prompt for clarification of your intention, and will always prompt you to confirm a deletion from the repository. For example, when you remove an element from a model, you will see the following dialog box (unless you have previously selected the check box to always remove).



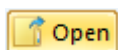
Tip – Previewing the impact of a deletion

Before you delete an element, you can see where it is used. To do this, right-click an element, and then click **Show Where Used**. This displays the **Used By** dialog box.

Difference between "Open", "Examine", "Look Inside", "Look At" and "Explore"

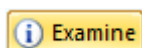
In Business Architect:

- **Open**



Displays the element's definition window as a tab in the workspace. This is how you see the element's fields.

- **Examine**



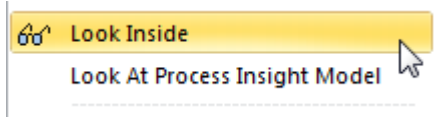
Displays the Examine pane about the element's properties and relationships within the architecture. **F12** is the shortcut for this.

So whereas **Open** lets you see what an element is, **Examine** lets you see how an element is used. For instance, **Examine** lets you see all the models that the element appears on. See [Using the Examine pane](#) on page 64 for more details.

- **Look Inside**

Displays the element's model. If the element does not have a model, you are prompted to create one. There may be a choice of model types.

Look Inside is on an element's shortcut menu along with **Look At**.



- **Look At *Type of Model***

Displays, or prompts you to create, the named model type. Depending on an element's theme, it can have more than one type of model.

- **Explore**



Synchronizes the Explorer Tree with the selected element. Use this to quickly locate an element within the hierarchy. This function is always represented by the icon shown.

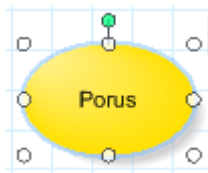
Note: You can change some of the default functionality described here. See [Business Architect's options](#) on page 25 for an introduction to what's possible.

Selecting, formatting and arranging symbols on a model

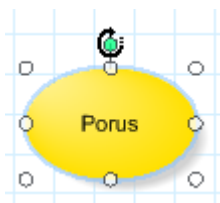
Before you can format symbols on a model, you need to select them: You can:

- Click a symbol to select it.

When a symbol is selected, it has selection points as shown here:



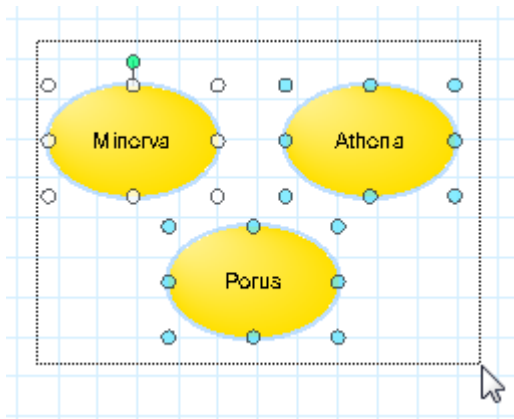
Use the selection points to resize and rotate an item. The pointer changes to show what happens when you click and drag each point. For example, the next image shows the rotation selection point.



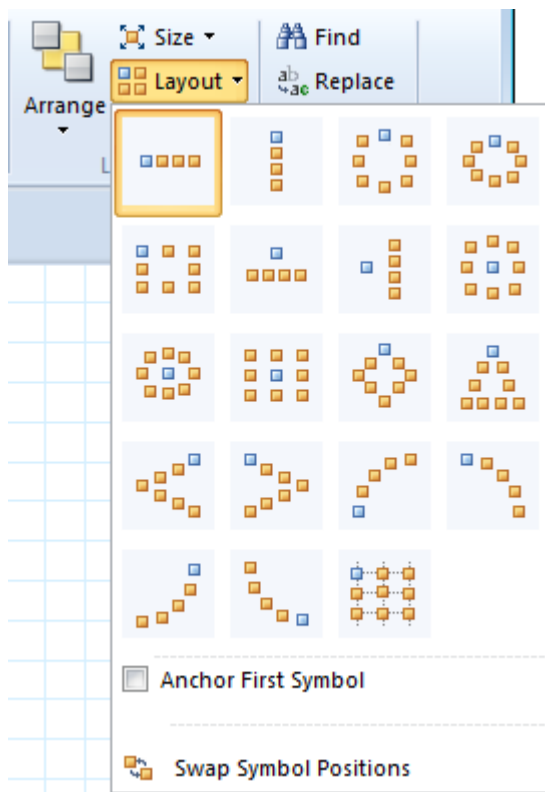
Note: Red selection points mean the symbol is locked and cannot be moved, resized, rotated or reshaped.

When a symbol is selected, you can drag it with the mouse, and you can use the arrow keys to move it slightly in a given direction.

- Click, hold and drag a virtual rectangle to encompass one or more symbols. As the box encloses symbols, they become selected, and the available formatting options apply to the selected symbols as a group.

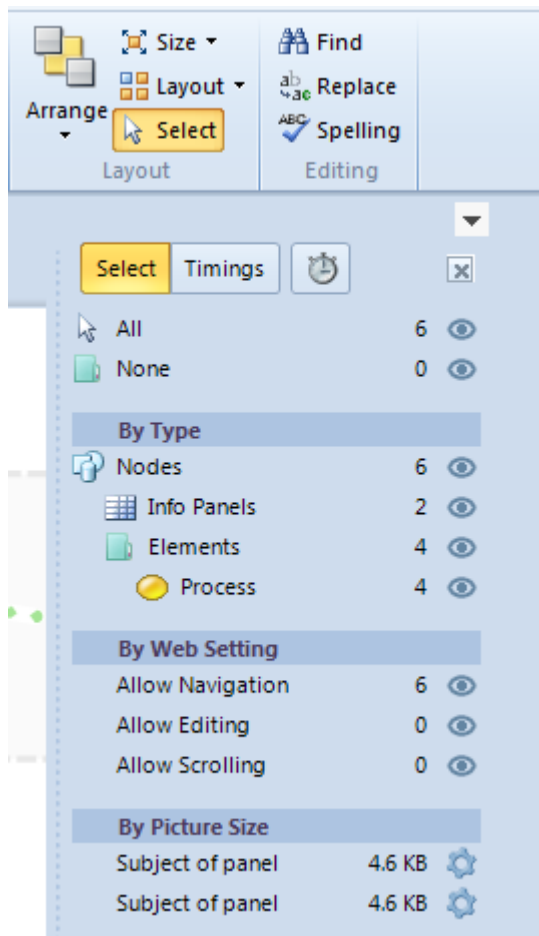


For example, when multiple symbols are selected, you can use the **Arrange**, **Layout** and **Size** commands on the ribbon to collectively size or organize the selected symbols. The **Layout** gallery is shown here:



Note: When more than one symbol is selected, the first one you select has white selection points. This is because some formatting options are relative to the first symbol selected. If this is important to you, the next selection method may be better for you.

- Press and hold the **Shift** key or **Ctrl** key, and then click the symbols you want to select. The items remain grouped until you click outside of the selected symbols' selection points.
- Use the **Select** command on the ribbon. On the **Home** tab, the **Layout** group includes the **Select** command. This displays the Selection pane:



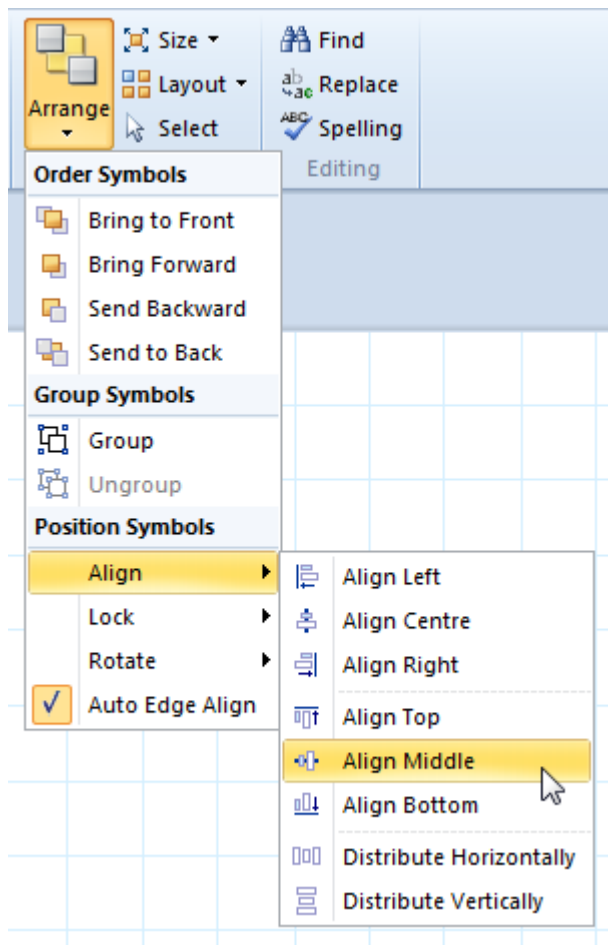
Use this to select a category of symbols. Use the **Ctrl** key to select multiple categories, and click the eye icon to show or hide that category (dimmed means hidden).

Note: On the Selection pane, use the **Timings** command to see how resource intensive a model is. See [Model Timings](#) on page 46 for details.

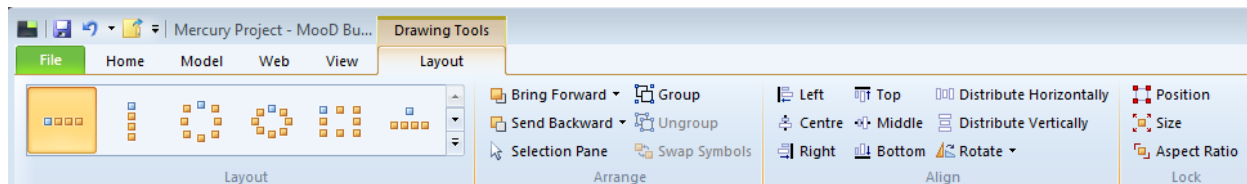
The selection methods covered here illustrate some of the formatting options you have. Most formatting options are on the ribbon. The **Home** tab's **Font**, **Drawing** and **Layout** groups contain all your formatting options. These can be seen in the following image (note that it has been altered to exclude the **Insert** group).



Some of the commands on the ribbon give you lots of formatting possibilities. For example, in the **Layout** group, the **Arrange** command includes a variety of commands to arrange what is currently selected on the model. The next image illustrates this.

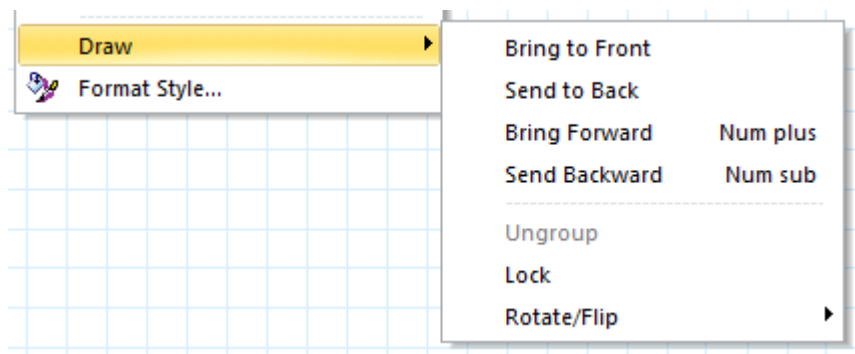


In addition to the **Home** tab, the ribbon includes a **Layout** tab that includes many of the same commands. As shown in the next image, this provides an alternative to the **Home** tab.



As an alternative to the ribbon, if you right-click a symbol or group of selected symbols and then click **Format Style** on the shortcut menu, you get the **Format Style** dialog box for the selected symbols.

As shown in the following image, the same shortcut menu includes a **Draw** command. Use this to position the selected symbols. Again, this is an alternative to the ribbon.



Finally, as shown in the following image, the status bar shows the screen position and size of the selected symbol. If more than one symbol is selected, these relate to the first symbol selected (the one with white selection points).



Business Architect's Model Editor Options settings

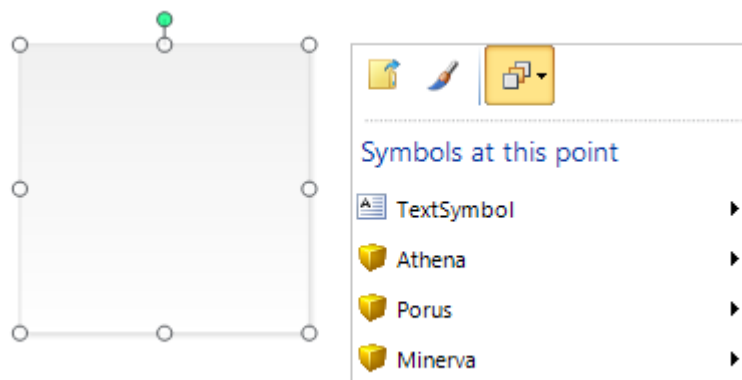
Business Architect's **Options** dialog box (**File** tab, **Options**) includes a **Model Editor Options** group of settings on its **General** tab. These affect how selecting and formatting function. This guide describes the default functionality, but you can tailor the working environment to suit your preferences. For example, there is a **Moving a symbol also moves its attached panels** check box. If this is selected, when you select and move an element's symbol, any panels pinned to that element also move. See [Business Architect's options](#) on page 25 for more details on what features can be configured.

Selecting overlapping or layered symbols

On a model, if you have symbols that cover each other, use the Navigation Bar's **Symbols at this Point** feature:



For example, the text box shown in this next image covers three other symbols. The context menu lets you select the required symbol.

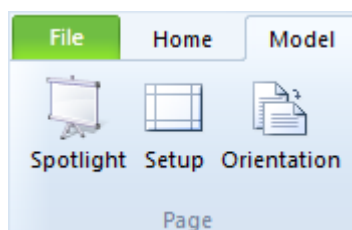


To quickly access the **Symbols at this Point** details for any point on a model, use **Alt** left-click. This immediately displays the Navigation Bar in **Symbols at this Point** mode.

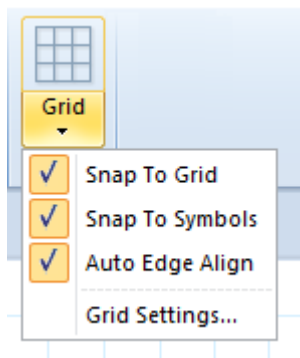
The Model tab (page setup and grid)

The **Model** tab includes basic settings that affect how you create and format models.

- Use the **Page** group of commands to control page setup and orientation.



- Use the **Grid** button in the **Guides** group to control how the grid appears and functions.



The top half of the 'Grid' button toggles the grid on and off.

Pickup and Apply

On the **Home** tab, in the **Drawing** group, the **Pickup / Apply** button lets you **pickup** the formatting on one symbol and then **apply** it to another.



Task 1 To use the **Pickup / Apply** command:

1. On a model, click the symbol that has the formatting you want to apply elsewhere.
This selects the symbol.
2. On the **Home** tab, in the **Drawing** group, click the top half of the **Pickup / Apply** button.



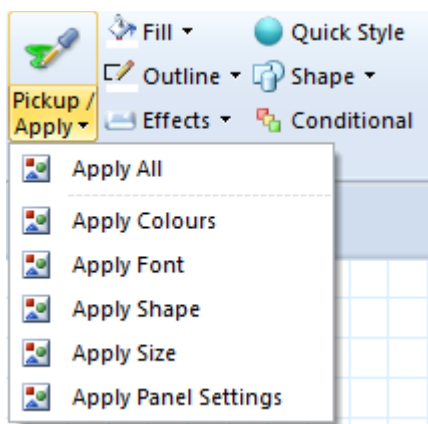
This picks up the selected symbol's formatting.

3. On a model, click the symbol that you want to apply the formatting to.

Note: This does not have to be the same model that you picked up from.

4. Click the bottom half of the **Pickup / Apply** button.

This displays the menu shown here:



5. Click the formatting that you want to apply to the selected symbol.

The formatting is applied.

Note: The **Pickup / Apply** button remains **loaded** with the last set of formatting picked up.

See the [Styles](#) section on page 117 for more information on how you can also use named styles within models.

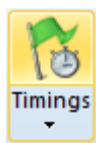
Conditional formatting

You can conditionally format symbols based on an element's Pick list values. For example, you could make items deemed critical appear bold and in red. To configure this, on the ribbon, on the **Home** tab, in the **Drawing** group, click **Conditional**. This displays the **Conditional Formatting** dialog box.

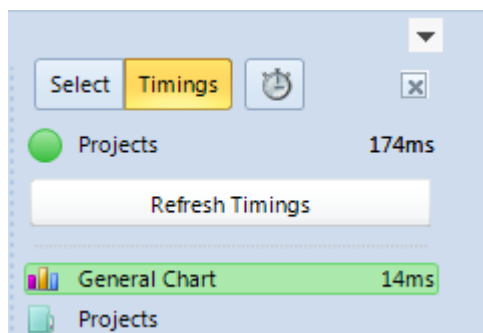
Model timings and testing performance

Business Architect lets you see how resource intensive a model is. You can see the number of milliseconds it takes for items such as matrices and charts to load. This is particularly useful if you are creating models that will be deployed on the web using Active Enterprise.

When a model is displayed, the **Model** tab includes a **Timings** command in the **Show** group.



The top half of this button displays the Selection pane's **Timings** section.

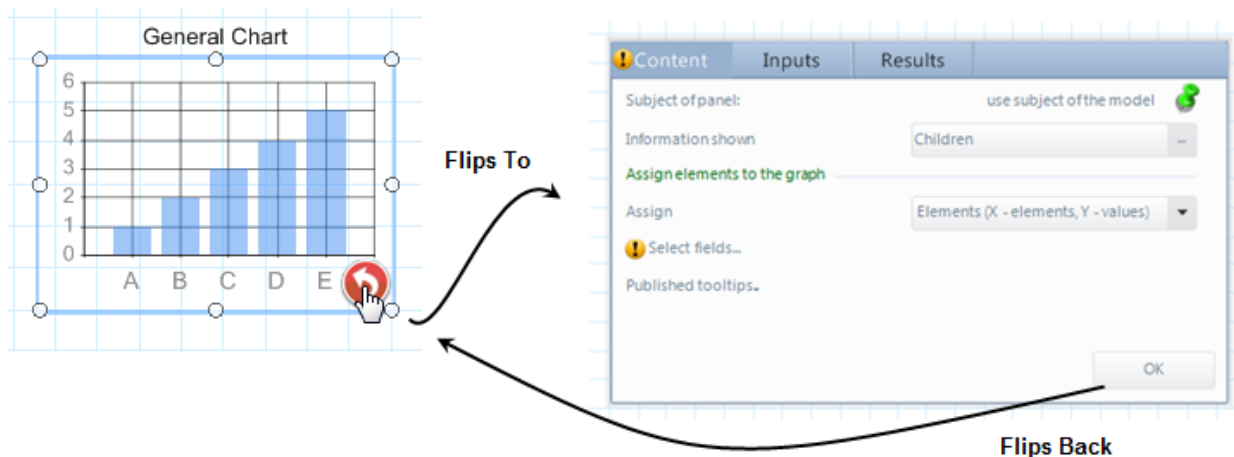



Tip

If something takes a long time to load and it uses queries, you should look at the efficiency of those queries. Query Builder has its own test and performance tuning features. See [Creating a query](#) on page 74 for details and some tips for faster queries. If the bottleneck is an aggregation, consider using aggregation caching (an *Aggregation Performance* guide is available in the Support Area at www.moodinternational.com).

Flipping panels

On models, you turn over (flip) Info, graph and action panels to access their settings. You then flip the panel back to see the changes made.



If the **Flip** button is red, a panel needs further configuration. In most cases, an exclamation mark icon  next to a tab or setting indicates where the issue is.

Note: Typically, the flip side contains settings that affect the panel's **content**. Settings that affect **appearance** are generally on the ribbon.

When multiple panels are selected, flipping one flips them all. To flip them all back, press **F9**.

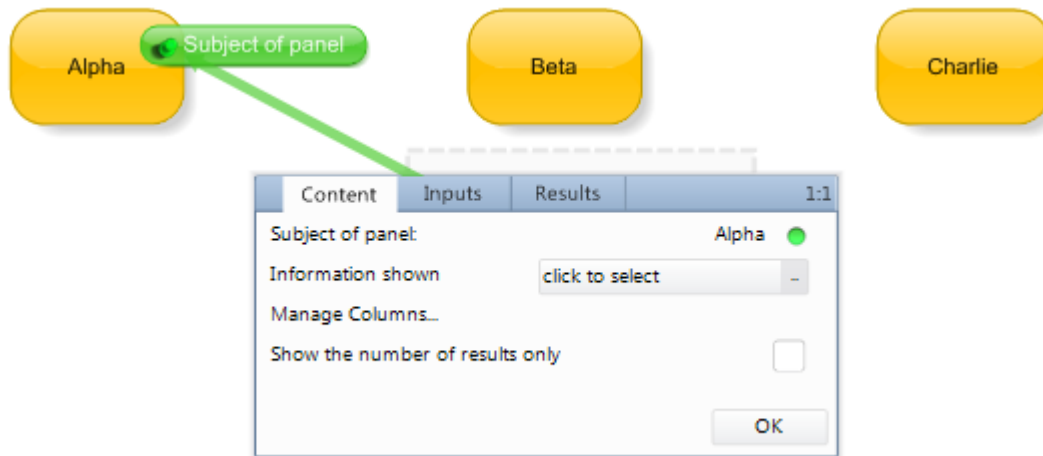
Pinning (green, blue and orange pins)

Pinning is how you connect panels and their inputs. Pins enable interactions:

- **Green** pins show the panel's subject element. When viewing a model's pin connections, a dotted green line means that the subject element has been implicitly set (assumed). Explicitly set subject elements have a solid green line.
- **Blue** pins show elements that can refresh the panel. For example, you will often blue pin items to **Button** action panels.
- **Orange** pins show elements that are the source of a variable used in a query that defines the panel's content. So when a panel's **Information Shown** is set to a query that takes variables, those variables are listed on the panel's **Inputs** tab where they can be pinned to whatever will provide their value.

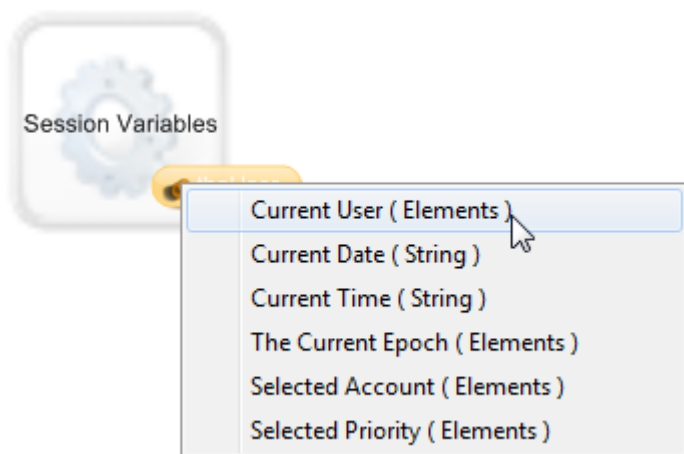
Pins are typically used to drive content, and to make models interactive when deployed on the web using Active Enterprise. Here are examples:

- You have a model with three element symbols on it. You want an Info panel to show information about one of these elements. Here you flip the Info panel and green pin the **Subject of panel** to that element, as shown in this image. This is pinning at its simplest.

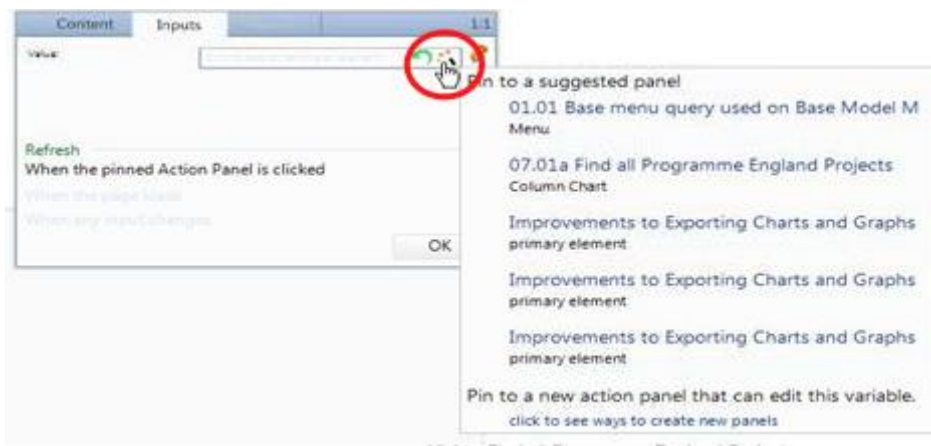


- You have a page (model) that shows project information on some Info panels, matrices and charts. You want the user to select a project from a drop down list and update the page to show content for that selection. Here you pin the Info panels, matrices and charts to the drop down list so that they use what is selected in it and refresh when that selection changes.
- You have a **Documents** synchronizer that generates a report. The subject of the report is set by a variable that has been passed upwards so that it is exposed for pinning. You want to use this synchronizer to generate a report for the element being viewed on a Model Master. Here, the Model Master will include a button that executes the synchronizer. The button's **Inputs** tab will include the variable that the synchronizer needs. You pin this to the Model Master's primary symbol. Hence the report will be generated for the element currently being viewed.

You drag pins onto symbols or other panels. This pins that value to that target or source. If there is a choice of targets, you choose the required one. For example, as shown in the next image, when you drag a pin onto a **Session Variable** panel, Business Architect prompts you to choose which one.

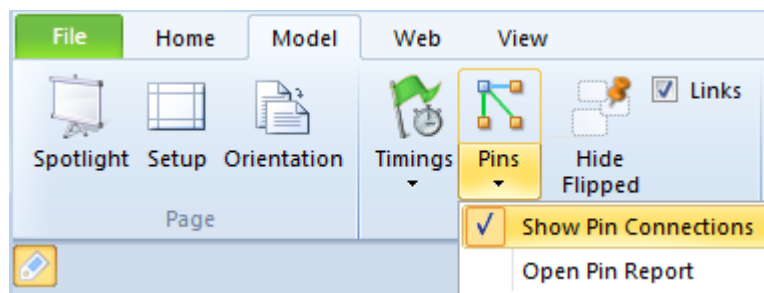


Beside the pin on the reverse of a panel, there is a Wand icon. This Wand icon produces an intelligent list of the types of panel that may be created to support this type of input and, an intelligent list of the potential pin targets that already exist on that model.

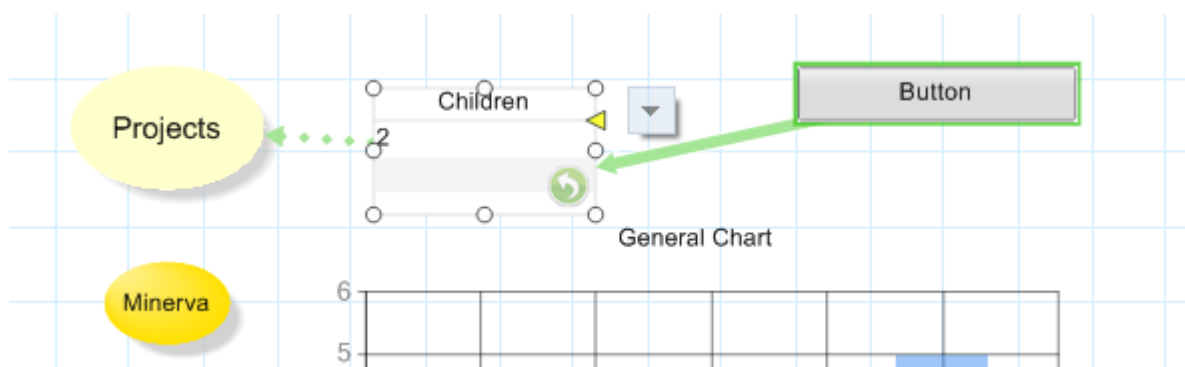


Note: Session variables let you preserve user's selections across pages in a web solution. They are not covered in this guide but a video is available in the Support Area at www.moodinternational.com. If you are developing web solutions, you will frequently pin to session variables.

To see what pins are on a model and how they interact, use the **Pins** command (on the ribbon, on the **Model** tab, in the **Show** group).



When **Show Pin Connections** is selected, you can click anything on a model and see what it is pinned to, for example:

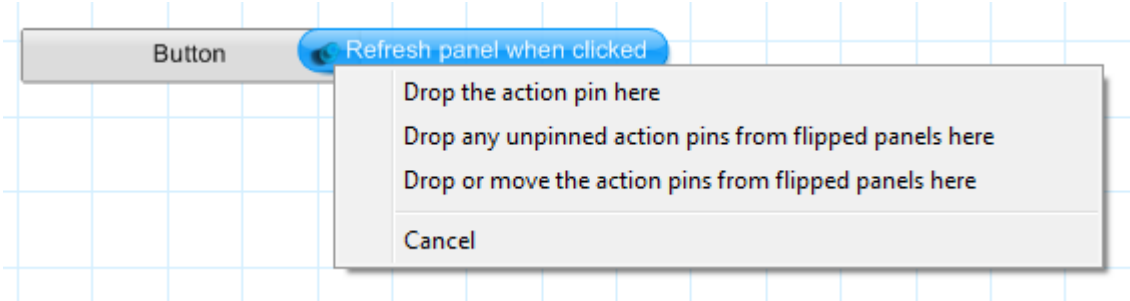


On the **Model** tab, select **Hide Flipped** to temporarily hide flipped panels when you are dragging a pin. This can make pin positioning easier. As soon as you drop the pin, the flipped panels reappear.

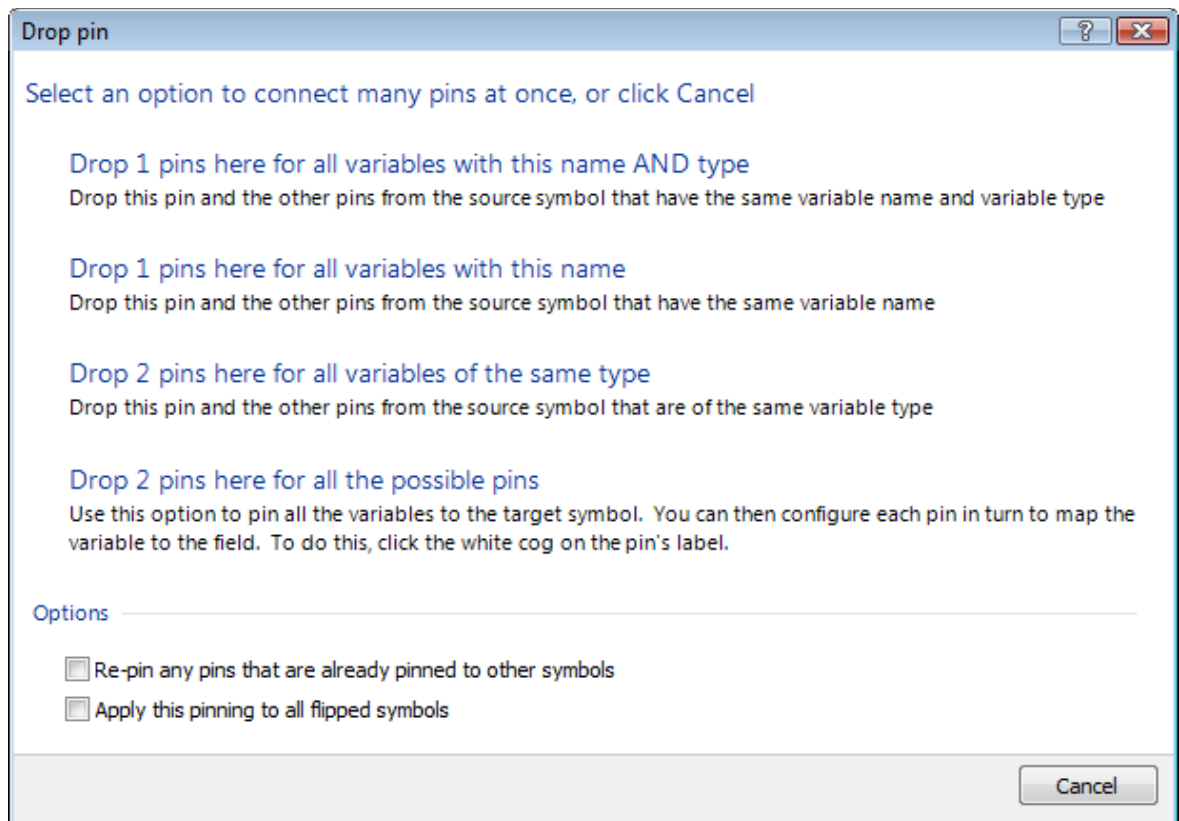
Alternatively, users can flip a panel that has been pinned and click on an empty pin hole to "unpin" or "show pin". Note that this is for the selected panel only, whereas the ribbon options control all panels on the model.

There will be occasions when it is possible and desirable to connect many pins. Rather than doing each pin individually, you can do it in one operation. To do this, press and hold the **Ctrl** key as you drop a pin. This will give you a list of valid possibilities:

- For green and blue pins (subject and action pins), you get a menu like the following:



- For orange pins (variables), you get a dialog box like the following:

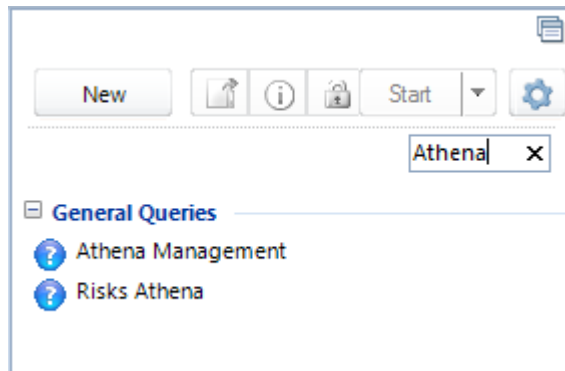


Searching

In Business Architect you have:

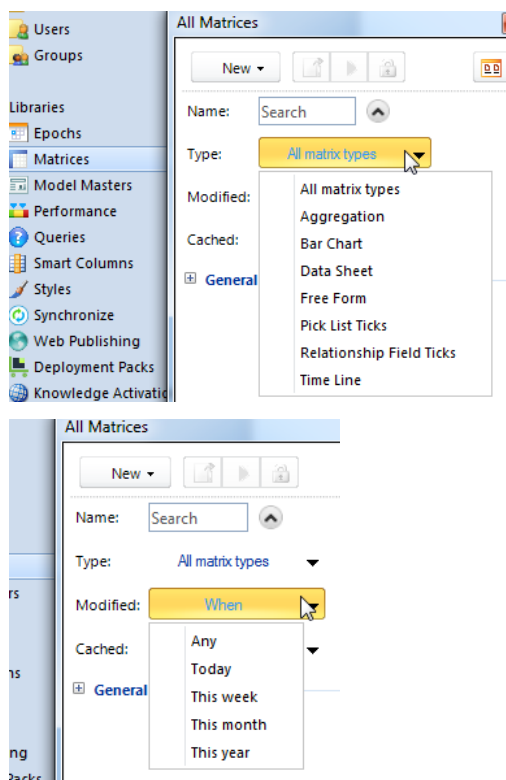
- Two types of search facility: simple Search boxes, and the more detailed element Search available in each element's Examine pane.
- Filters to help you find and select items from a reduced list.
- List styles to present lists of items in a display format you like.

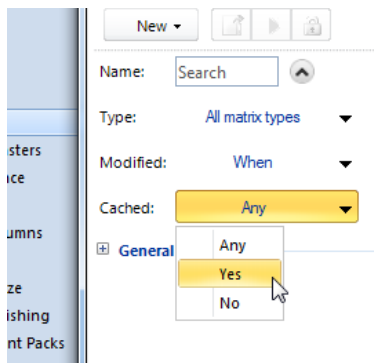
Search boxes appear in many places. All Search boxes function the same way. Whatever you are searching reacts to show what matches the text entered in the Search box. For example, here is the Search box in a Query pane.



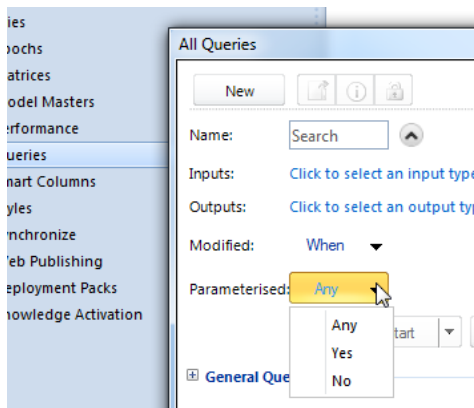
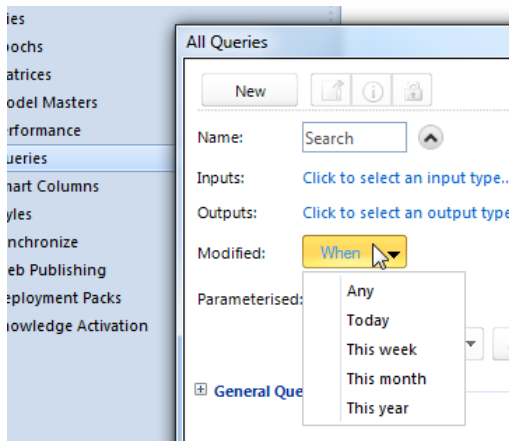
Filters

You can filter many lists. Filters always appear in drop-down lists, and the available filters are fixed. For example, the Matrices pane has a number of filters (Matrix Type, Cached, and Modified) as shown here:





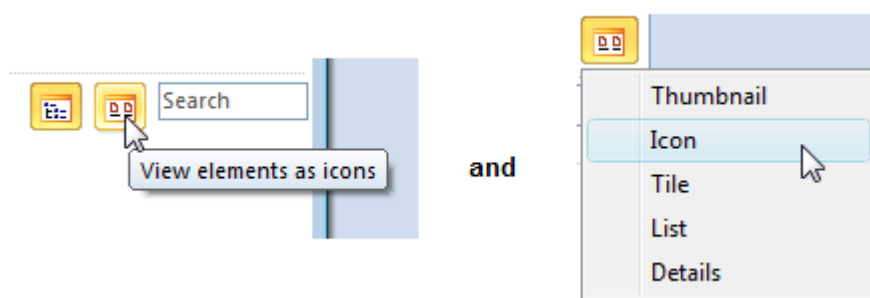
Similarly, the Queries pane has a range of filters (Input, Output, Modified and Parameterised) as shown here:



Note: The initial filter always restores the unfiltered list.

List styles

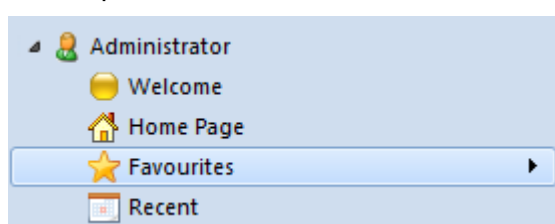
Many things in Business Architect appear in lists. To view a list in a format that suits you, you can usually select a list style by means of buttons or a menu. Both are shown here:



Favourites

You can mark elements as favourites, and then access them quickly from:

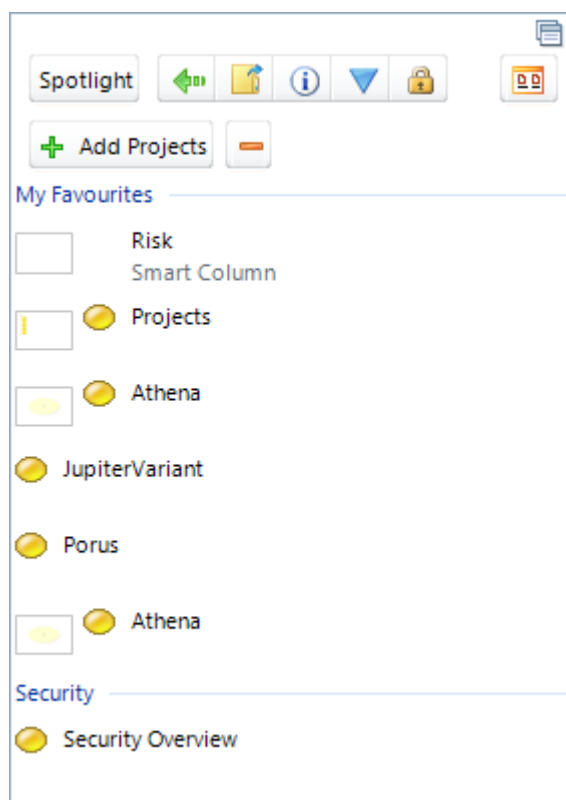
- The Explorer Tree's **Favourites** item.



- The Bookmark Bar's **Favourites** button.



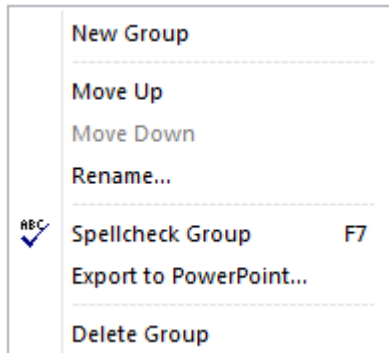
Both open the Favourites pane.



Note: The Favourites pane is, like most panes, unpinned. Once used, or if you click elsewhere, it hides itself until you access it again. This maximizes your available workspace. However, you can pin the Favourites pane to the workspace, for example, if you want to use it several times, or if you want to rearrange your Favourites.

Favourites are organized into groups. You can:

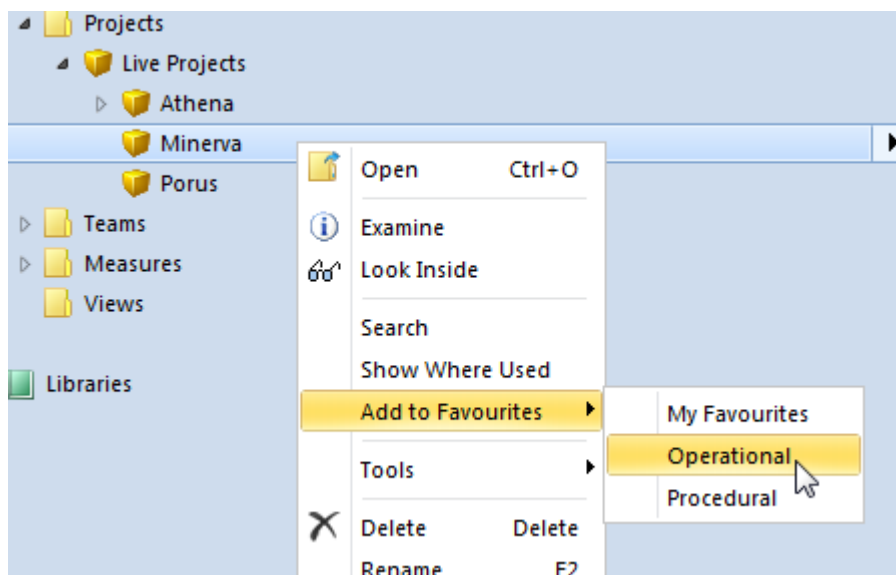
- Add, rename and arrange groups. In the Favourites pane, right-click a group title or white space, and then use the shortcut menu.



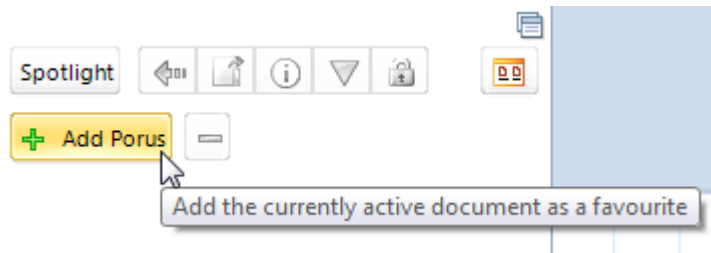
- Drag Favourites between groups.

To mark an element as a Favourite, you can:

- In the Explorer Tree, right-click an element, and then click **Add To Favourites**. Then, if you have groups, select the group from the sub menu.



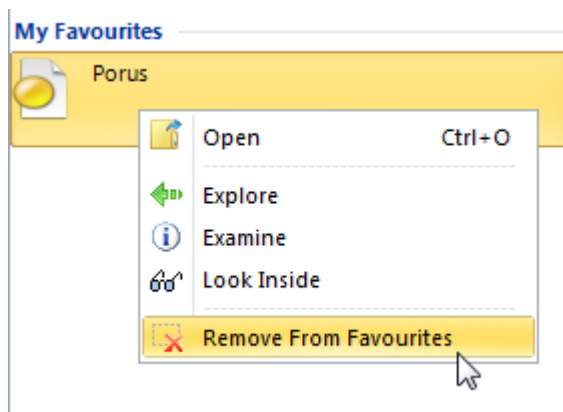
- If you want to add the currently active element as a Favourite, open the Favourites pane, and then use the **Plus** button.



- Open and pin the Favourites pane, and then drag an element from the Explorer Tree into a group.

Note: Use this method if you want an element to appear as a favourite in more than one group.

To remove a favourite, in the Favourites pane, right-click the favourite, and then click **Remove From Favourites**. This is shown in the following image. Alternatively, use the **Minus** button (visible in the previous image).



Note: Removal in this context only removes the favourite status. It does not remove the element.

Spotlight mode and presentations

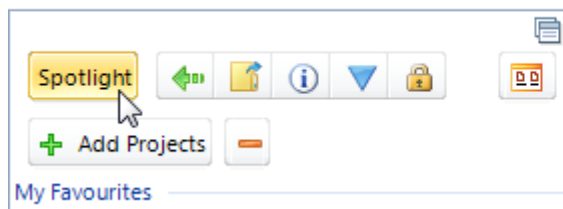
Business Architect includes a presentation application called Spotlight. If you open Spotlight from within a Favourites group, you access slides for each of the models in that group. Slides are ordered in the same way as the elements in the Favourites group. You can format slides, and save them as Microsoft PowerPoint presentations.

You can also use Spotlight to present a model full screen.

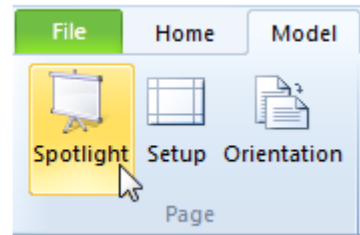
To open Spotlight, do one of the following:

- In the **Favourites** pane, click **Spotlight**.
- On the ribbon, on the **Model** tab, in the **Page** group, click **Spotlight**.

Both are shown in the following image.

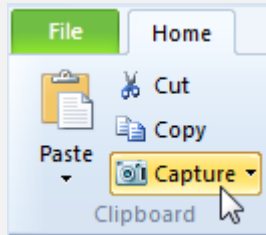


and



Tip

When a model is in the workspace, the **Home** tab has a **Capture** button.



This copies an image of the active model into the Windows clipboard. You can then paste this image into other applications.

Elements in Business Architect

Elements are the building blocks of business models in MooD. This section covers:

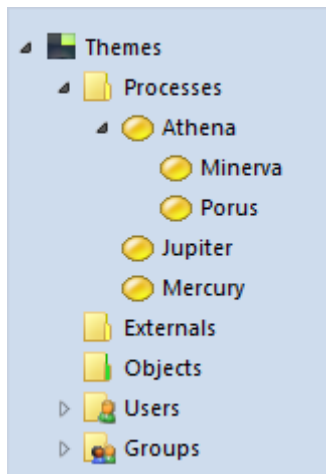
- [Building an element hierarchy](#)
 - [Relationships between elements](#) (relationship fields)
 - [Measures on elements](#) (measure relationship fields)
 - [Tip – Benefit of # root elements](#)
- [Viewing information about an element](#) (page 63)
 - [Using the Examine pane](#)
- [Setting an element's fields](#) (page 65)
- [Creating and viewing models](#) (page 66)
- [Adding elements to a model](#) (page 67)
- [Linking elements on a model](#) (page 68)
 - [Adding bends to lines](#)
 - [Formatting the ends of lines](#)
- [Formatting elements on a model](#) (page 70)

See [Element](#) in the *Key concepts* section (page 14) for a general introduction to elements and their place within MooD. Also, as you develop your understanding of elements, you may need to refer to the [Business Architect's user interface](#) topics (starting on page 22) for information on particular features or processes.

Building an element hierarchy

Elements form the hierarchy within a business model.

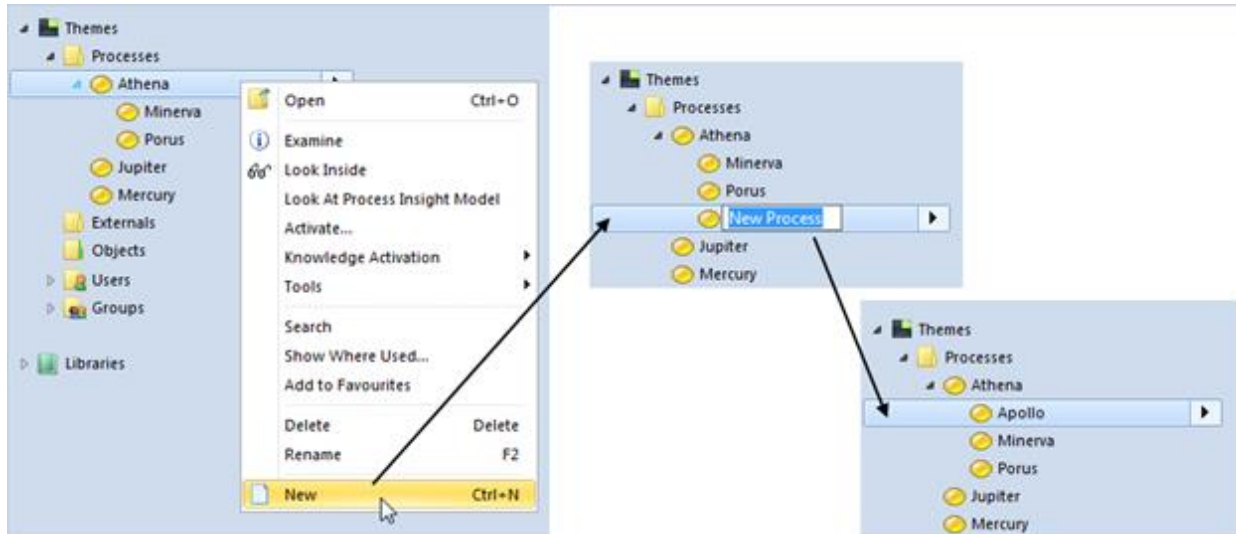
The Explorer Tree's **Themes** section shows this hierarchy.



Each theme defines the types of element that you can create within that theme. You create elements in **parent-child** relationships starting from the theme.

For example, in the preceding image, the **Processes** theme has three child Process elements, one of which (Athena), has two child Process elements.

In the Explorer Tree, when you right-click an element, the context menu includes a **New** command. This creates a new element as a child of the element that you clicked. Use this mechanism to create elements and build a hierarchy.



This means that to create **sibling** elements, you add new elements to the parent element until you have the required number.

Note: Universal themes support several element types. When you click **New**, you choose from the available types. For example:



Once you have a hierarchy, you can drag elements and **re-parent** them within it. The Explorer Tree lists sibling elements alphabetically. Business Architect will only let you move elements to valid positions in the hierarchy.

Other ways to create elements

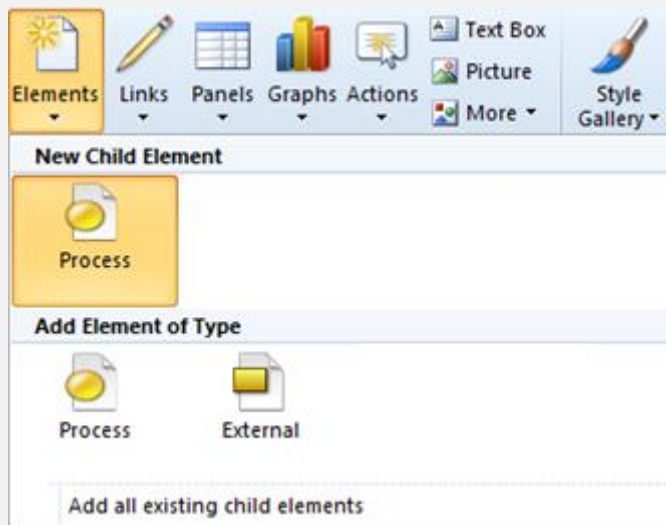
You can also create elements automatically using a **synchronization**, or when modelling by means ribbon, mouse and Navigation Bar. Each of these is outlined here.

Using synchronizations

Synchronizations are frequently used to import data into a theme and recursively create or update elements. For example, the Microsoft Excel Import synchronizer is commonly used to import data from a spreadsheet. See [Synchronizations](#) in the *Key concepts* section (page 20) for an introduction to this technology, and [SAT](#) on page 143 for details on where synchronizations are in Business Architect and an example illustrating the Microsoft Excel Import synchronizer.

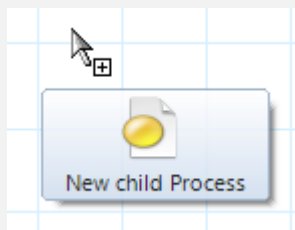
Using the Elements command on the ribbon

When a model is displayed, the **Home** tab includes the **Elements** command.



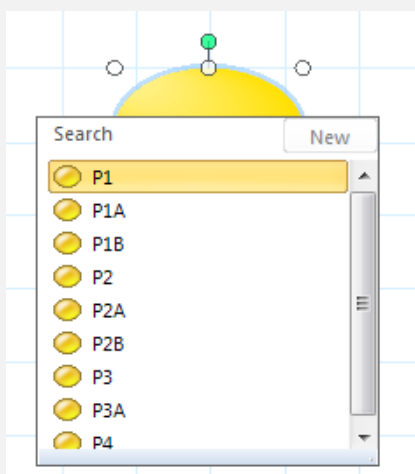
Use **Elements** to:

- Create a new child element (child of the model's subject element). In the gallery, when you click within **New Child Element**, the pointer changes to:



When you click the model, the element's symbol is added to the model, and an element is inserted into the hierarchy as a child of the model's subject element.

- Add another element of any supported type. Choose from the gallery under **Add Element of Type**. The pointer changes as before. However, as shown in the following image, you can then select from a list of existing elements, or, if permitted, create a new one (type a name in the **Search** box to enable the **New** button).



If the new element is the same type as the model's subject element, it is created as a sibling of the subject element.

Using the Ctrl key with the mouse and an existing symbol on a model

If a model already includes element symbols, you can use the **Ctrl** key with the mouse to create new elements or add existing elements.

- If you press and hold the **Ctrl** key and then click and drag an **unselected** child of the model's subject element, it creates a clone of the child element on the model and in the element hierarchy. We recommend that you rename clones.

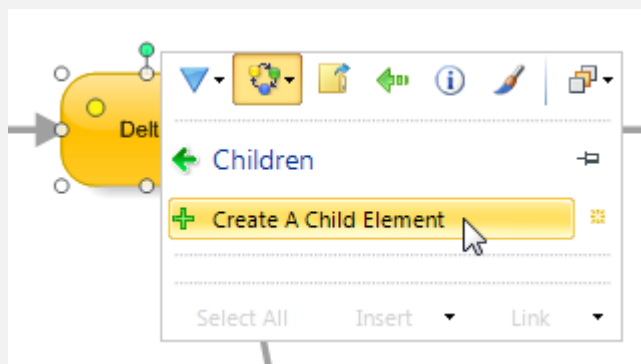
Note: This cloning technique does not work with elements in the Explorer Tree. For this area you can use **variants**. See [Variants](#) on page 139 for details.

- If you **Ctrl** drag a symbol that does not represent a child of the model's subject element, it functions like the **Add Element of Type** gallery described in the previous section, that is, you can choose to add an existing element, or, if permitted, create a new one.

Note: **Ctrl** drag on the subject element's symbol just moves the symbol, and **Ctrl** drag on a panel creates a duplicate of that panel.

Using the Navigation Bar

The **Follow Dependency** option lets you add elements when modelling. See [Navigation Bar](#) on page 36 for more details.

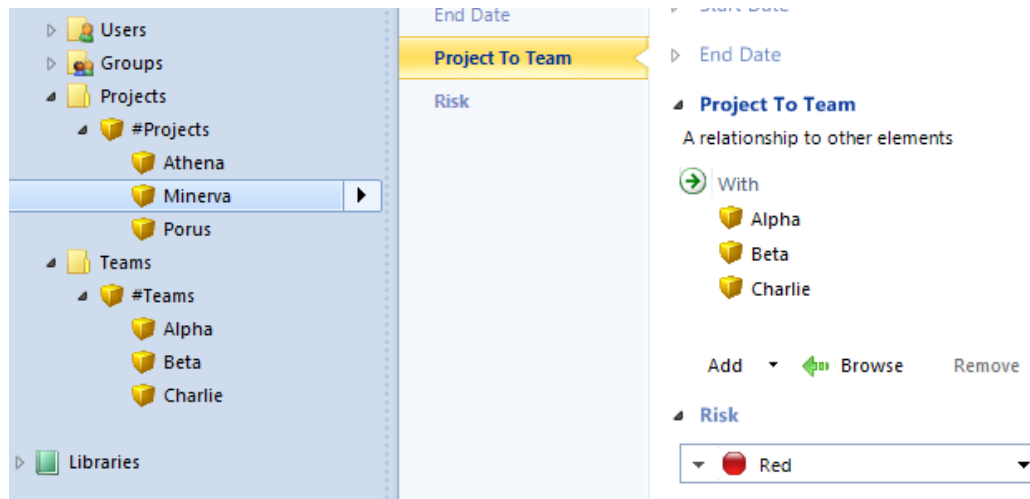


Relationships between elements (relationship fields)

The element hierarchy covered in the preceding section refers to **inherited** (parent child) relationships between elements in a theme.

Note: See [Relationship](#) (page 16) in the *Key Concepts* section for an overview of non-hierarchical relationships in MooD.

Elements can also have explicit non-hierarchical relationships with other elements by means of **relationship fields**. For example, a Project element might have a relationship field linking it to Team elements, as shown here:

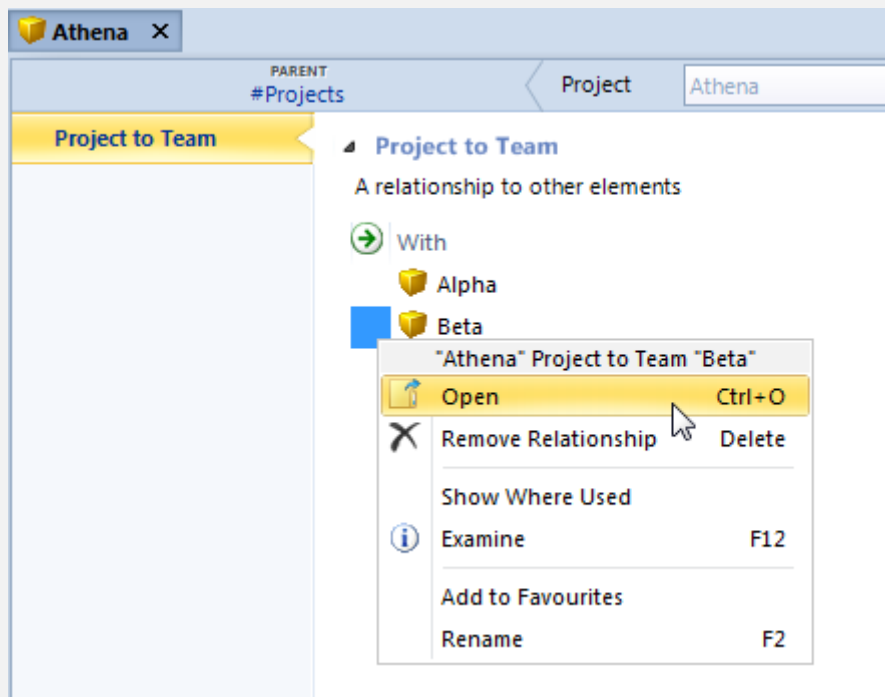


These relationships can be within or between themes. In **Manage Themes** this type of relationship is defined as a **standard relationship** (the other type called **measure relationship** is outlined in the next section).

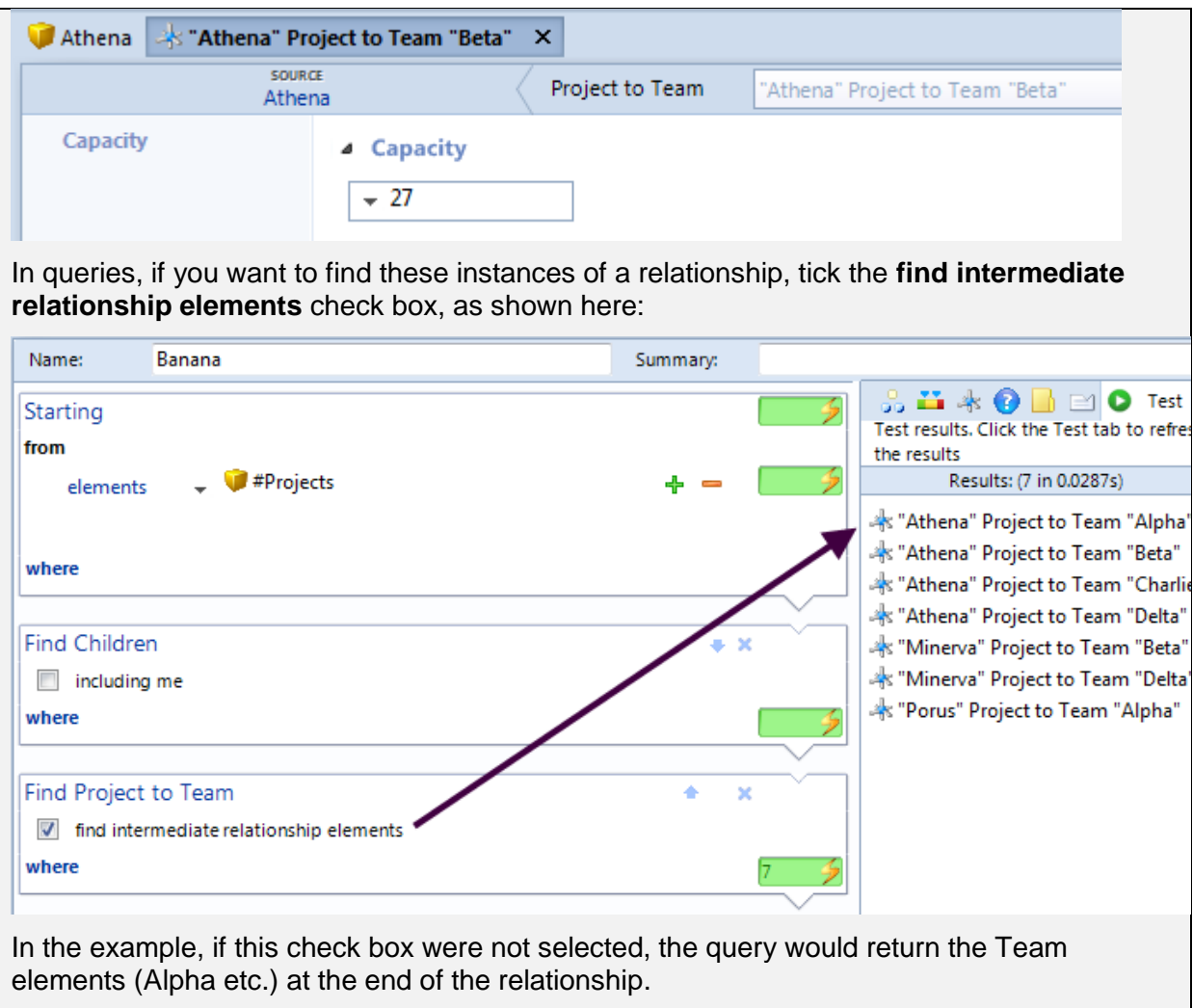
The definition of a relationship in **Manage Themes** includes the nature of the relationship, the fields the relationship itself can have, and rules governing what elements (themes) can satisfy the relationship. Like many things in MooD, you drag elements into a relationship field and, provided the conditions are satisfied, the connection is made. On models, you can create specific **relationship links** between elements connected by a relationship field. Synchronization also supports the automated creation of relationships.

Opening and finding relationships in Business Architect

To open an individual instance of a relationship, for example, to see any fields on that relationship, in the element's relationship field, right click the column at the very start of the field. For example:



opens:

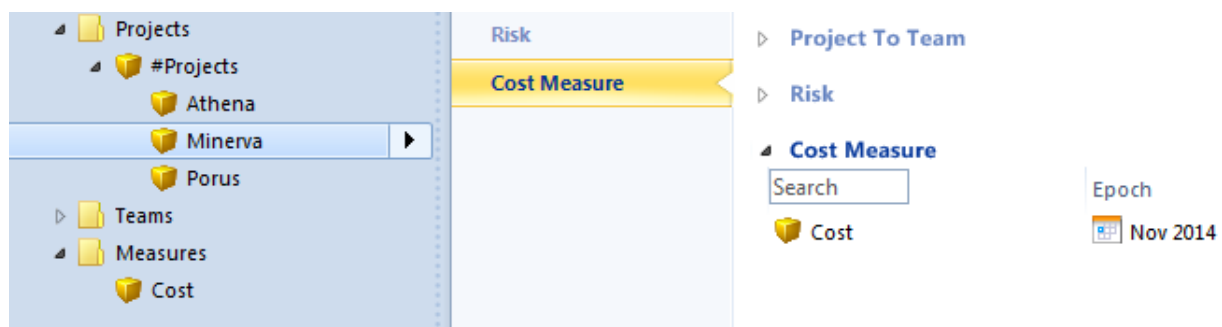


In queries, if you want to find these instances of a relationship, tick the **find intermediate relationship elements** check box, as shown here:

In the example, if this check box were not selected, the query would return the Team elements (Alpha etc.) at the end of the relationship.

Measures on elements (measure relationship fields)

Following on from standard relationships between elements, you have **measure relationships**. Again these are defined as part of the meta-model definition in **Manage Themes**. If an element can have a measure applied to it, it will have a measure relationship field. For example:



Again you can drag a measure into this field to create specific **measure instances** for that element, and synchronization can be used to create and populate measures.

Benefit of # root elements

In practice, when developing solutions, MooD International use universal themes, and for each element type have a root element called `#typeName`. For example, if you have a Projects theme with a Project element type, you would have a root element `#Project`.

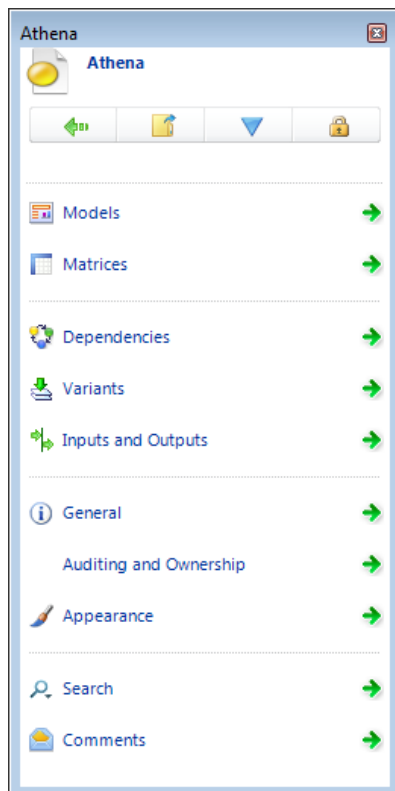
Why we do this:

- **Clarity.** It is useful for all elements of a particular type to be descendants of a `#typeName` element that names their type.
 - Queries on a type can then start from the `#typeName` element and use Find Children or Find Descendants as appropriate.
- **Organization and protection against unwanted deletion.** For example, consider making all the matrices for a particular element type belong to its `#typeName` element. Alternatively, consider having a `#MatrixContainer` element for all matrices. This makes matrices easier to find and helps prevent their unintentional deletion (as users will be understandably careful about deleting anything with `#` in its name).
- **Setting Permissions.** Permissions are best set at the `#typeName` element and inherited wherever possible.

Viewing information about an element

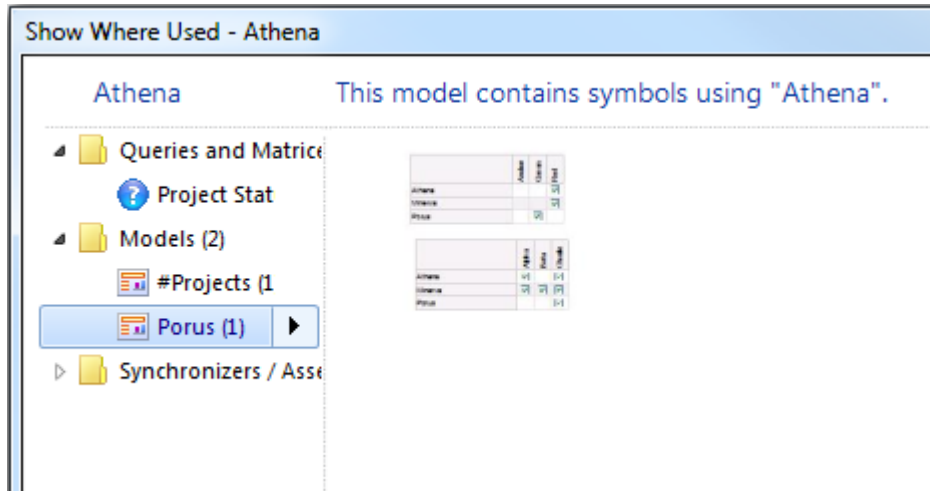
In the Explorer Tree, right-click an element, and then click:

- **Open** to see the element's fields. This is displayed as a tab in the workspace.
- **Examine** to see information about the element's place and function in the architecture, including what models and matrices it has or is used in, its dependencies, and its permissions. This is displayed in an Examine pane, for example:



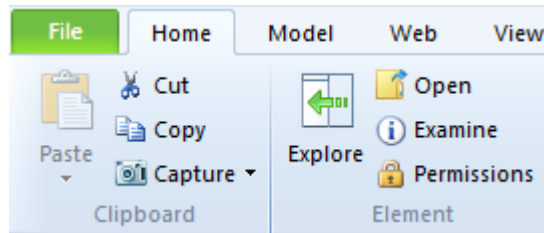
See [Using the Examine pane](#) on page 64 for more information on this pane.

- **Look Inside** to see the element's model. If the element does not have a model, you are prompted to create one. Models are displayed on tabs in the workspace.
- **Show Where Used** to see where the element is used. This is displayed in a **Show Where Used** dialog box, for example:




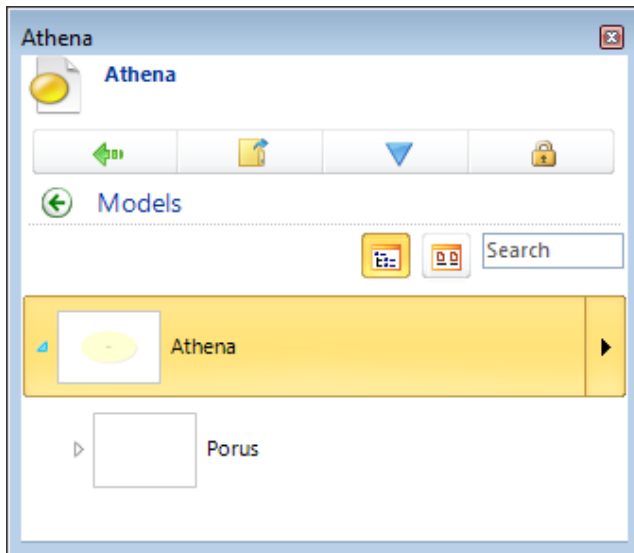
You can open multiple **Show Where Used** dialog boxes and you can right click items and access their context menus.

Note: When an element is selected in the Explorer Tree or on a model, both **Open** and **Examine** are also available on the ribbon.



Using the Examine pane

The Examine pane is used throughout Business Architect. It gives you access to everything linked to, or related to, an element. It is organized into categories. Click the  buttons to display more about each category. For example, the next image shows the effect of going into the **Models** category.



Use the left arrow button  to return to the category list.

The icons along the top of the Examine pane are:



Explore. Synchronizes the Explorer Tree with the element.



Open. Displays the element's definition as a tab in the workspace.



Model. Displays the element's model as a tab in the workspace. If no model exists, the **Create Model** dialog box is displayed.



Permissions. Displays the Permissions tab for that element.

The shortcut for the Examine pane is **F12**, and the Examine pane opens at the last category viewed. So, for example, if you are looking through the dependencies for several elements, you don't have to navigate through the categories each time you open the Examine pane.

Setting an element's fields

Business Architect presents elements and their contents clearly and consistently.

Task 2 To set an element's fields:

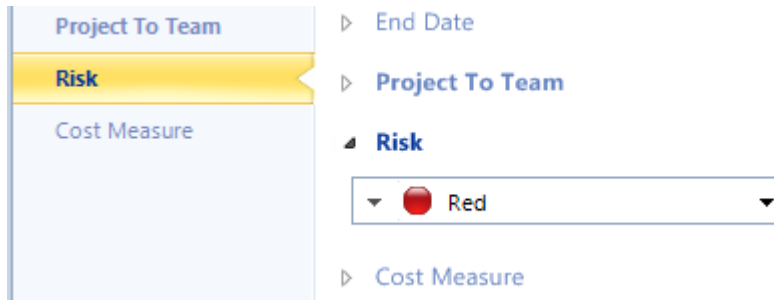
1. In the Explorer Tree, right-click the element, and then click **Open**.

This displays the element's definition as a tab in the workspace.

The element's fields are listed on the left. The same list of fields appears on the right along with their current settings.

2. In the list of fields on the left, click the name of a field.

The field is highlighted and, on the right, the same field is highlighted and expanded to show its current setting. For example:



3. Set the field to the required value.

Fields vary. To help you:

- Some fields take text (these are known as **formatted text** fields). Just click and type.

Tip

If you right-click a formatted text field, you get a shortcut menu of text commands, for example **Bold**, **Bullet**, **Font** and **Align**.

- Some fields are Pick lists, or controls such as calendars. Use the control to enter or change the value.
- Some fields take elements. You can drag elements from the Explorer Tree, or find and add elements.

Tip

Whenever you see an element listed in a field setting, you can right-click it and find out more about it. For example, you could use the **Explore** command to sync the Explorer Tree with that element, or the **Look Inside** command to see its model.

Whatever the type of field, it is designed to help you see and understand its setting. In addition, Business Architect will not let you set fields to nonsensical values.

4. Save your changes.

An asterisk next to a field or on the element's tab means that the element has unsaved changes.

In practice, elements and their fields are often populated and updated using synchronization.

Creating and viewing models

Models elaborate elements. For example, if you have a Process element, a model of the steps involved in that process is very informative. Models also form the user interface in web solutions deployed using Active Enterprise.

Creating a model and viewing a model is the same basic process, because, if you try and view a model and it doesn't exist, Business Architect will either create one, or prompt you to confirm that you want to create one.

Task 3 To create or view a model for an element:

1. Do one of the following:
 - In the Explorer Tree, double-click the element.

Note: This is the default double-click behaviour. However, you can alter this. See [Business Architect's options](#) on page 25 for details on altering the defaults.

- Anywhere, right-click the element, and then, on its shortcut menu, click **Look Inside**.

Note: Some elements may also have a **Look At Type of Model** command.

Business Architect displays the model as a tab in the workspace, or prompts you to create a model.

2. If prompted, confirm the creation or choose the model to create.

Business Architect creates the model and displays it as a tab in the workspace. A newly created model might be blank apart from the element itself, or it can already include content from its **Model Master** if one is automatically applied. See [Model Masters](#) on page 123 for more details.

Adding elements to a model

When you construct a model for an element, you are likely to add other elements to the model. Business Architect lets you do this in a number of ways. These are covered in this task.

Task 4 To add elements to a model:

1. Open the element's model.

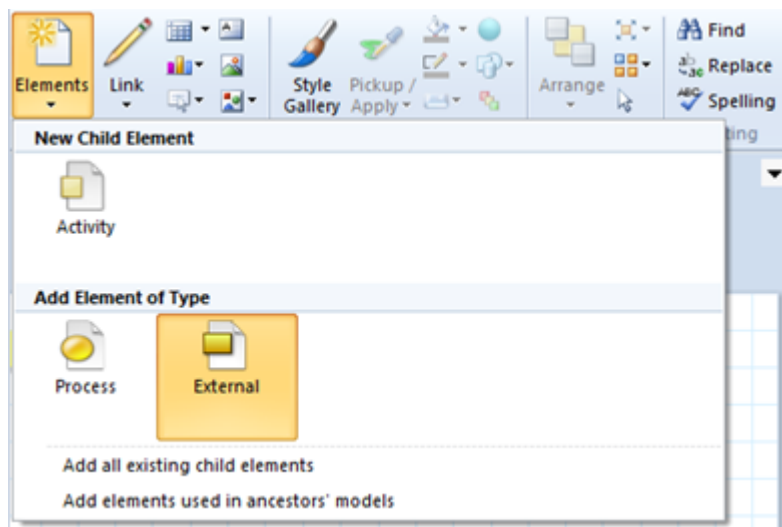
See [Creating and viewing models](#) on page 66 for details on this first step.

2. Do any of the following:

- In the Explorer Tree, or in any pane listing elements, click the element and drag it onto the model.

Note: In the Explorer Tree, you can use **Shift** click and **Ctrl** click to select multiple adjacent and non-adjacent elements respectively.

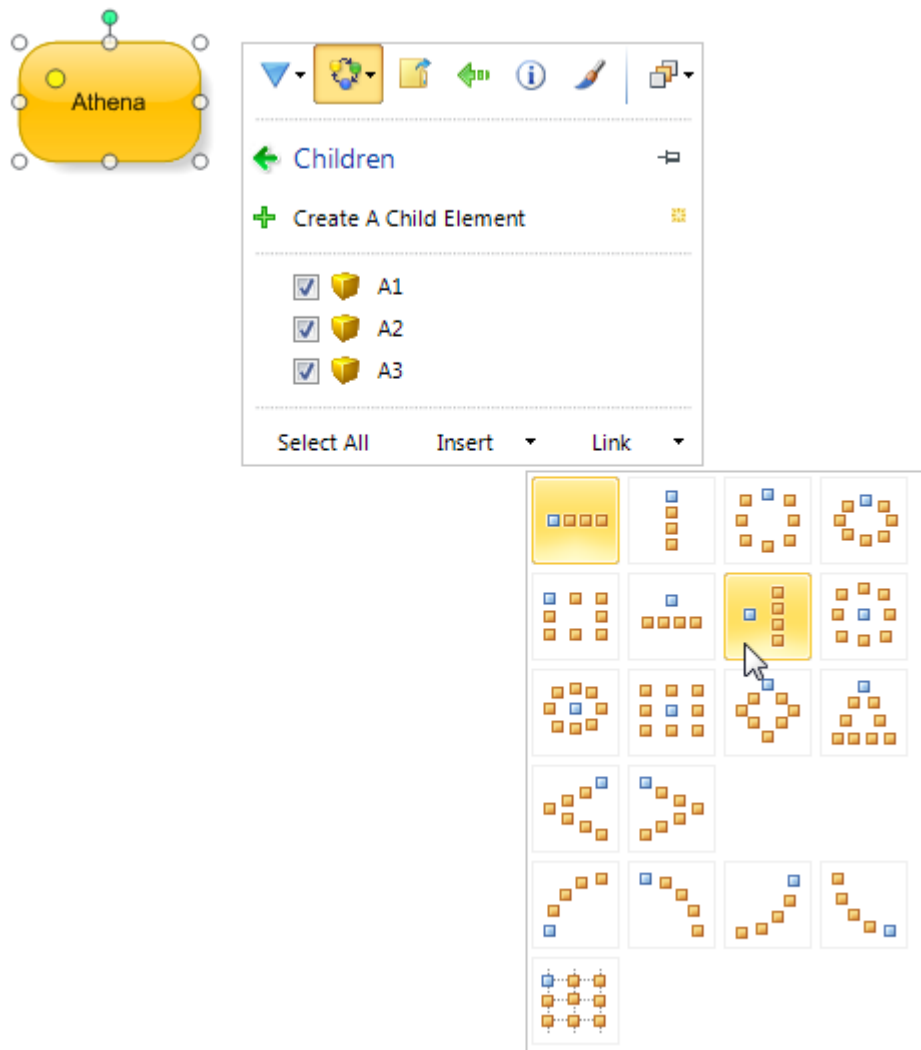
- Use the ribbon. On the **Home** tab, in the **Insert** group, click **Elements**, and then use the gallery.



- Use the **Ctrl** key with existing model symbols and the mouse to add new or existing elements. See the [Other ways to create elements](#) info box within the *Building an element hierarchy* section (page 58) for details on how the **Ctrl** key functions (it varies

depending on what you select on the model). Also note that **Ctrl** drag on a panel creates a duplicate of that panel.

- Select any element already on the model and use the Navigation Bar to add (**Insert**) or add and link (**Link**) related elements with a variety of layout options. For example:



See [Navigation Bar](#) (page 36) for general details about using the Navigation Bar.

- In the Explorer Tree or on the model, right-click the subject element (or any element), and then click **Examine**.

This displays the element's Examine pane. Use its Dependencies list to find elements that you might want to add to the model.

Linking elements on a model

When you construct a model, you will link elements (or any items on a model). Business Architect makes linking simple, and preserves links when you move linked items.

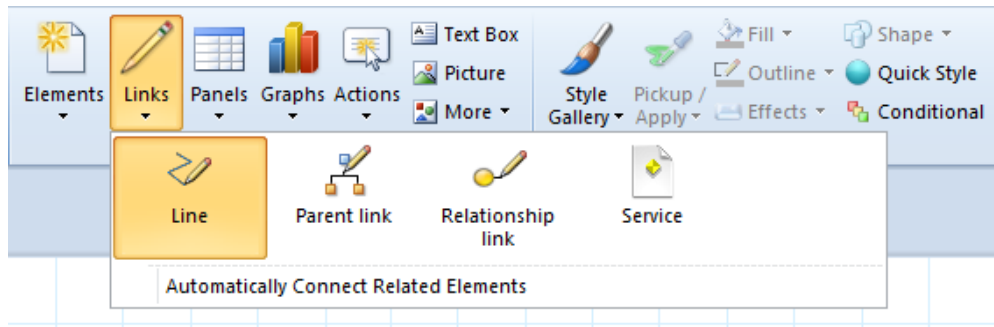
Task 5 To link two Items on a model:

1. Open the element's model.

See [Creating and viewing models](#) on page 66 for details on this first step.

2. On **Home** tab, in the **Insert** group, click **Links**.

This displays the link gallery.



Note: The types of link available depend on the type of model you are working on. Each type also affects what happens. For example, if you are drawing a Relationship link, you'll be prompted to select the relationship (adding a relationship link does more than draw a line – it creates the actual relationship). In all cases, the user interface will guide you. This task just draws a Line link.

The **Automatically Connect Related Elements** command draws links between relevant symbols already on the model. You can use the [Navigation Bar](#) to add and link related elements at the same time. See [Navigation Bar](#) (page 36) for details.

3. Click the type of link you require.

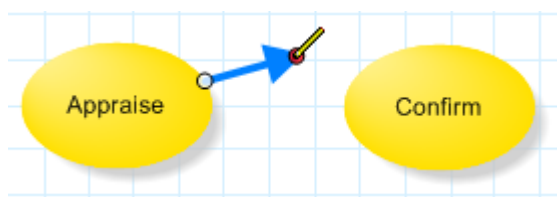
When over the model, the pointer changes to a pencil icon.



Note: To cancel this at any time and get the normal pointer back, press the **Esc** key.

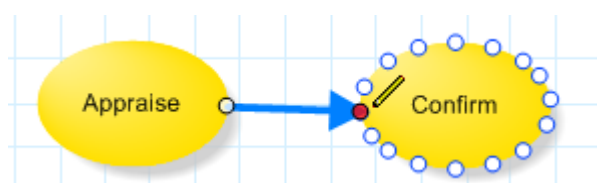
4. Click the first item you want to link.

A link attaches itself to the nearest attachment point, and the mouse pointer is bound to the link's pointed end. The link now moves with the pointer.



Note: The attachment point on the first item may change as you move the mouse. Business Architect tries to provide the most efficient attachment point. Once the link is in place, you can move either attachment point.

5. Move the pointer to the item that you want to create a link to. The attachment point that will take the link is highlighted in red.



6. Click to link the two items.

The two items are linked.

Depending on the type of link, you may be able to label it.

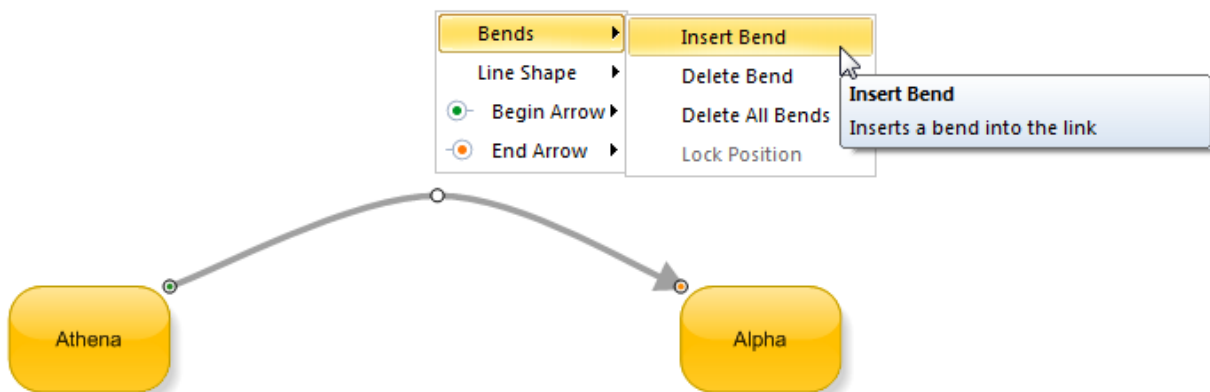
Double-click to terminate free-standing lines (lines that do not end at an attachment point).

If the pointer still shows the pencil icon and you do not want to add another link, press the **Esc** key to return it to its normal appearance and functionality. This will also delete any unterminated links.

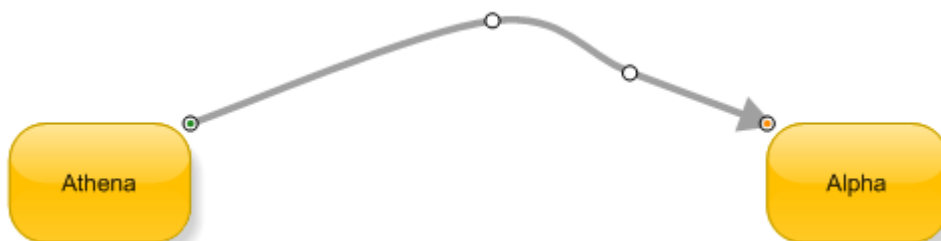
To format a link on a model, right-click it, and then click **Format Style**. This displays the **Format Style** dialog box for the link. Other line formatting options are available on the ribbon or from the line's Navigation Bar and the next two sections cover bends and end points.

Adding bends to lines

By default, Business Architect draws straight lines. If you want to insert bends, select the line and right click one of its selection points. A new point is inserted between the existing points. You can then drag this to form the curve. For example, the following images show a fourth point being added to an already curved line.

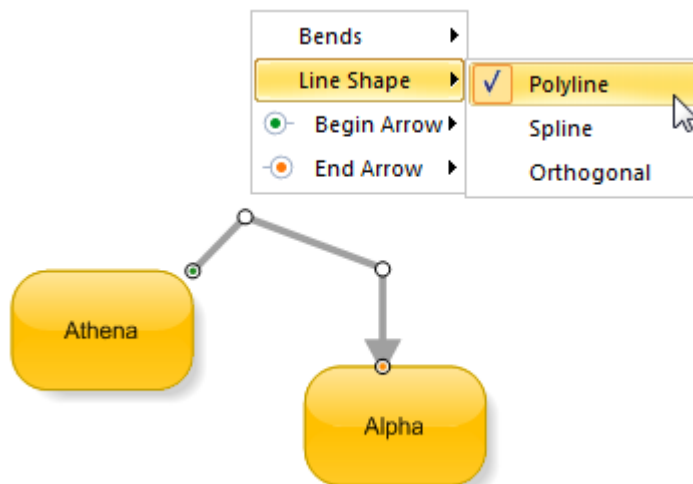


Gives you:

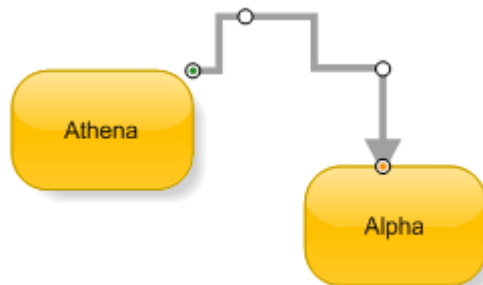


By default, bendy lines are **Spline** (smooth curves). The **Line Shape** setting also gives you:

- **Polyline**. For example:

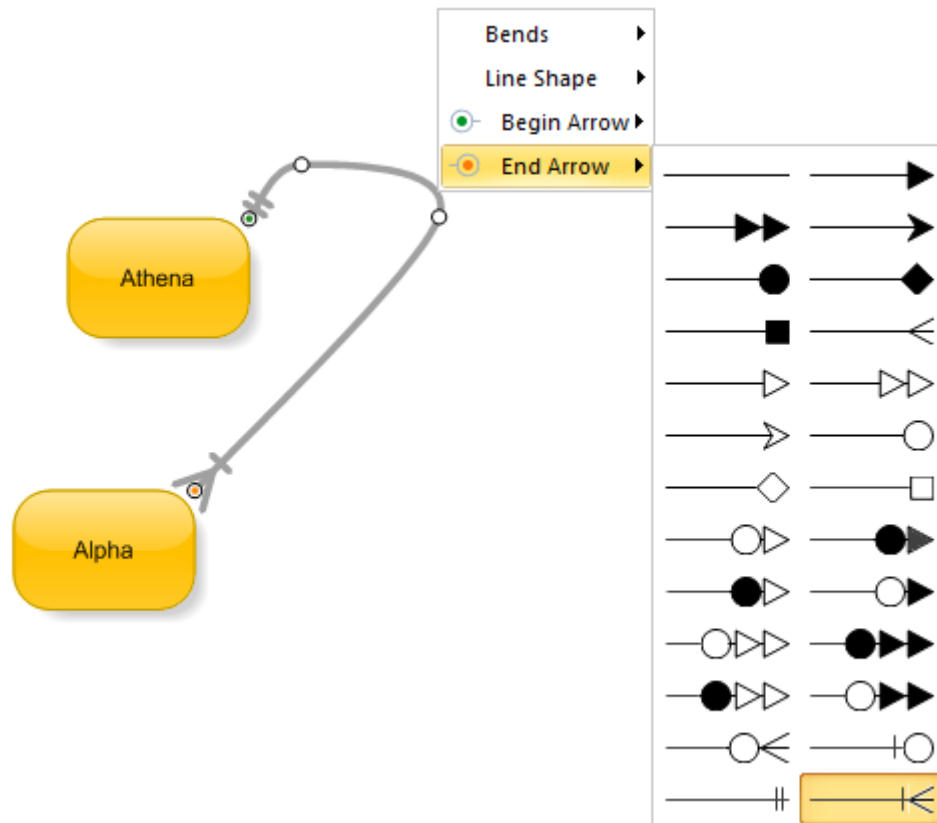


- **Orthogonal.** For example:



Formatting the ends of lines

MooD lets you choose between numerous end points including ones that comply with IEDM Crow's Foot notation. Start and end points are also colour coded. To set the end points, right click a selection point and use the **Begin Arrow** and **End Arrow** settings.



If you right click either end of a line, you only get to choose that particular line terminator (the menu will only have the relevant **Arrow** setting). If, like the preceding image, you right click a selection point in the middle, you get both **Begin Arrow** and **End Arrow**.

Formatting elements on a model

As you construct models, you can apply formatting to everything that appears on them, not just elements. Hence, you'll find formatting discussed in general terms throughout this guide. When a model is open in the workspace, the **Home** and **Layout** tabs include comprehensive formatting options, while the **Model** tab has basic page setup features. Most of these are covered in the [Selecting, formatting and arranging items on a model](#) section on page 40. This is followed by sections on [The Model tab](#) (page 44), [Pickup and apply](#) (page 45) and [Conditional formatting](#) (page 46). Features you may also want to make use of when formatting are [Styles](#) (page 117) and [Model Masters](#) (page 123).

Key features in Business Architect

This section covers using some of the some of the key features in Business Architect. Specifically:

- [Queries](#) (page 74)
- [Info panels](#) (page 82)
- [Smart Columns](#) (page 87)
- [Matrices](#) (page 102)
- [Graph panels](#) (page 110)
- [Action panels](#) (page 113)
- [Styles](#) (page 117)
- [Model Masters](#) (page 123)
- [Measures](#) (page 136)
- [Variants](#) (page 139)
- [SAT](#) (the Synchronize library) (page 143)
- [Knowledge Activation](#) (page 145)
- [Active Enterprise](#) (page 147)
- [Introducing administration](#) (page 149)
- [Introducing Manage Themes](#) (page 151)

Queries

A query finds elements. See [Query](#) in the *Key concepts* section (page 18) for more general material on queries. This section describes how to create and use queries in Business Architect.

Note: A video introducing queries and Query Builder is available within the Support Area at www.moodinternational.com.

Queries are reusable items that can be organized into groups. Hence, in the Explorer Tree, they are listed under **Libraries**.

Tip – Organizing your library

In practice, when developing solutions, Mood International organizes queries into logical groups and uses a numbering system that relates to the element type returned. For example, you could have a group and naming convention 01.xx for queries relating to Project elements, 02.xx for Team elements, and 00.xx for generally useful queries.


In addition, spend some time on your naming conventions and query summaries. Will someone new to the solution understand its queries?

If you click a query, and then click **Open**, it opens that query in **Query Builder**. Query Builder occupies a tab in the workspace. Use it to construct and test queries block by block.

Creating a query

The following task illustrates how to approach adding a query.

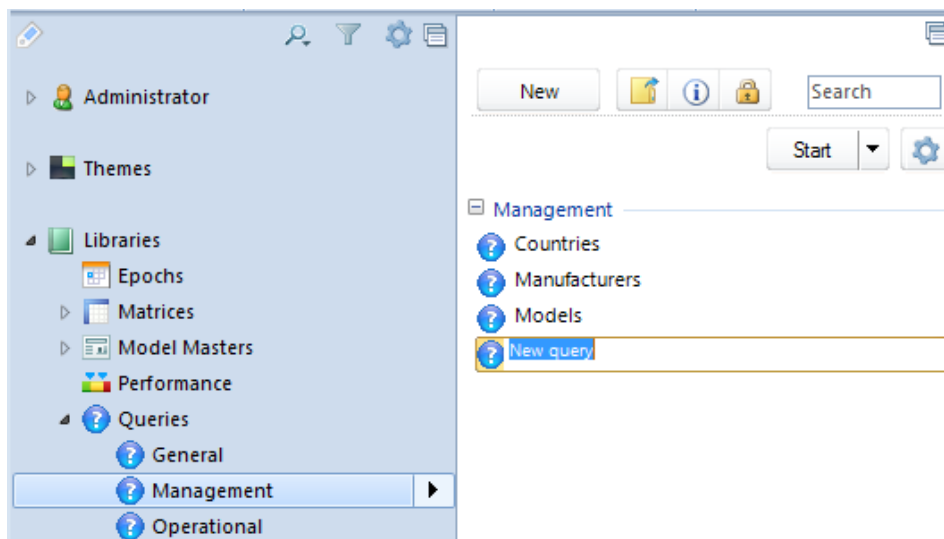
Task 6 To create a query:

1. In the Explorer Tree, under **Libraries**, click the  button next to the query group that you want to add the new query to.

This selects the query group, and displays its Queries pane.

2. In the Queries pane, click **New**.

This adds a query called **New query**, and selects its name.

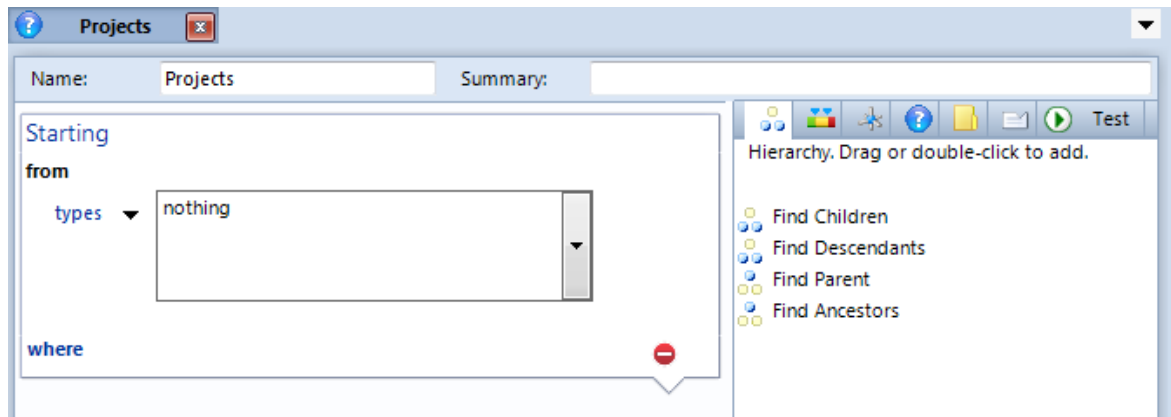


3. Give the query a descriptive name.

- Click the query, and then click the **Open** button:



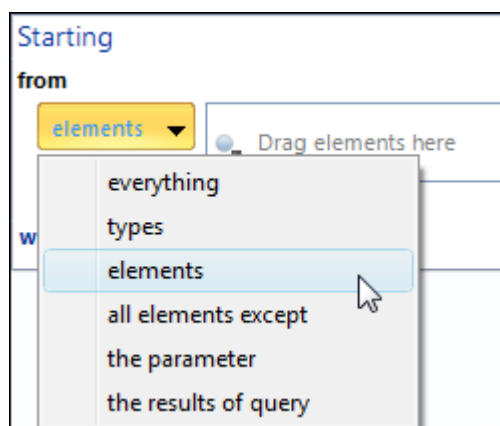
A tab opens in the workspace. This is Query Builder.



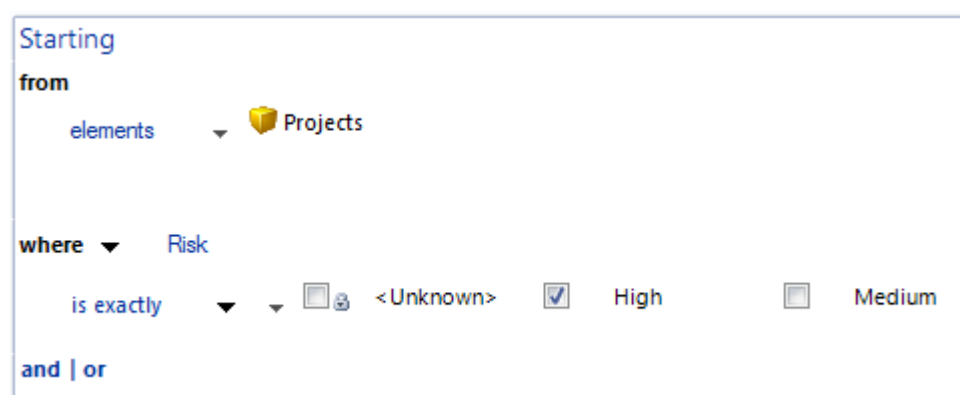
- Configure the query.

The following should help you:

- All queries have a **starting** block. This defines where your query begins.



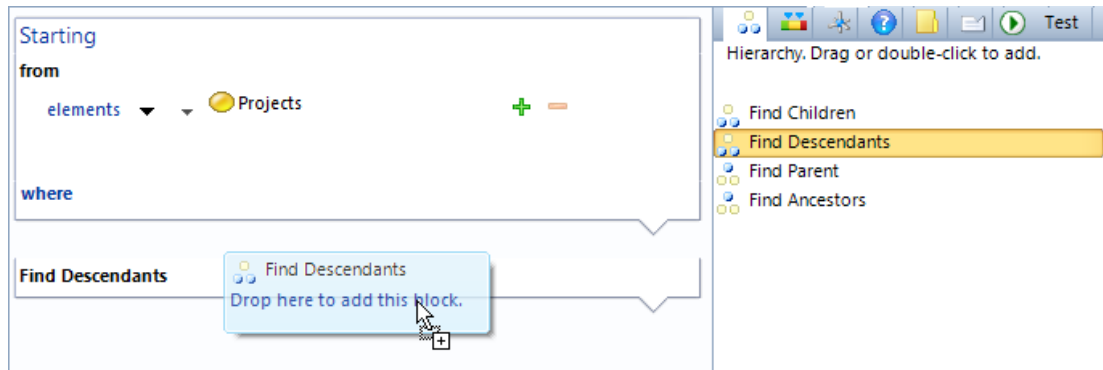
Starting blocks can have **where** clauses that add qualifying conditions. For example, you might want a query to only return elements with a particular status, as shown in the following image where the risk **High** is set as a condition:



You can add multiple **where** conditions.

- On the right of Query Builder, you have several categories of Find block that you can drag underneath the starting block to build the query (double-click also adds them).

These are the things that the query will look for in relation to the elements returned by the starting block.



You have the following categories of Find block:



Relative positions in the element hierarchy. For example, **Find Children**.



Measures. For example, **Find Instances from Container Element**. The ones with an icon beside them return actual *measure instances*. The others return some information about measure instances.



Relationships attached to the elements or measure instances. Anything with **Used By** in its title is a reverse relationship (unless the default names given to reverse relationships have been changed in **Manage Themes**).

In a relationship Find block, if you select the **find intermediate relationship elements** checkbox, the block will give you the instances of the relationship and not the elements at the end of the relationship.



Queries.



Miscellaneous. Other categories of Find block, including element relationships, models, variants, events and epochs. For example, it includes **Find sibling epochs** that gives you the other months in a year.



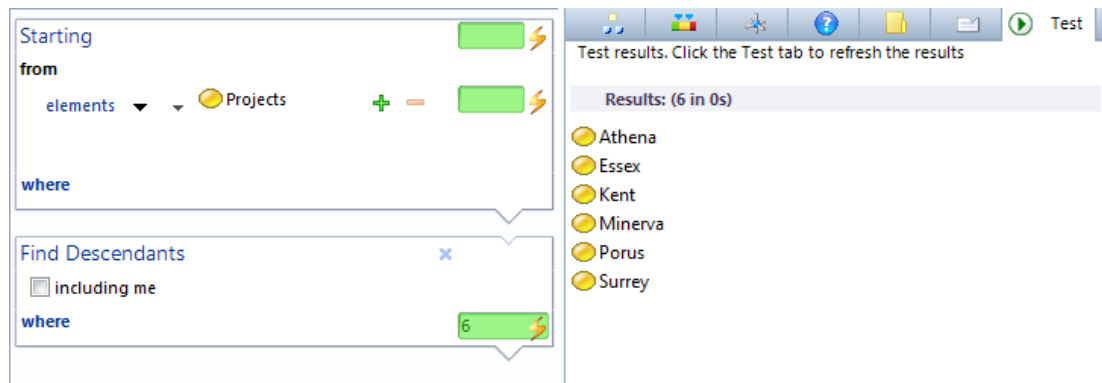
Terminators. Queries can end in an **And Finally** block. This lets you, for example, order the results, or only return the top *N* matches (*N* can be a number or a variable).

If you want to use the query in an aggregation, don't include an **And Finally** block (any sorting is done in the aggregation).

You can add multiple Find blocks. Each Find block acts on the results of its predecessor.

You can use the **Filter blocks** check box to see what is valid at any particular point. For example, if your query currently finds measure instances, the Measure blocks with icons against them will be greyed (disabled) because they return measure instances.

- Use the **Test** button on the ribbon, or click the **Test** tab in Query Builder, to test your query as you construct it.



The **Test** tab lists the elements returned by the query.

You can also see or access the number of elements found by each step in the query. An empty box means that the result at that stage has been withheld to make Query Builder more efficient. To see a withheld interim result, click its empty box.

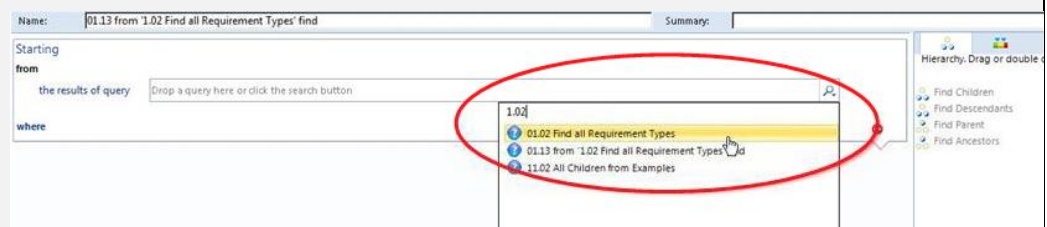
The ⚡ icon indicates that the query is optimized at that point. If these don't appear, you should investigate whether you can make the query more efficient. Some tips are included in the next info box.

Note: On the ribbon, the **Home** tab has some more advanced testing/tuning facilities. These are in the **Performance Tuning** and **Advanced** command groups.

Tips for faster queries

To improve performance:

- The starting block should involve as few elements as possible. The most efficient starting point is **the parameter**, followed by **elements**, **the results of query**, and then **type**. The **all elements except** and **everything** settings are the least efficient.
 - When using **the parameter**, use a **where type** condition to stop users executing queries over more elements than necessary. You should always try and restrict the breadth of a query.
 - When using **the results of a query** you can select a query (or other block) from the Picker - accessed by clicking on the Search icon - rather than dragging a find block from the right-hand panel.



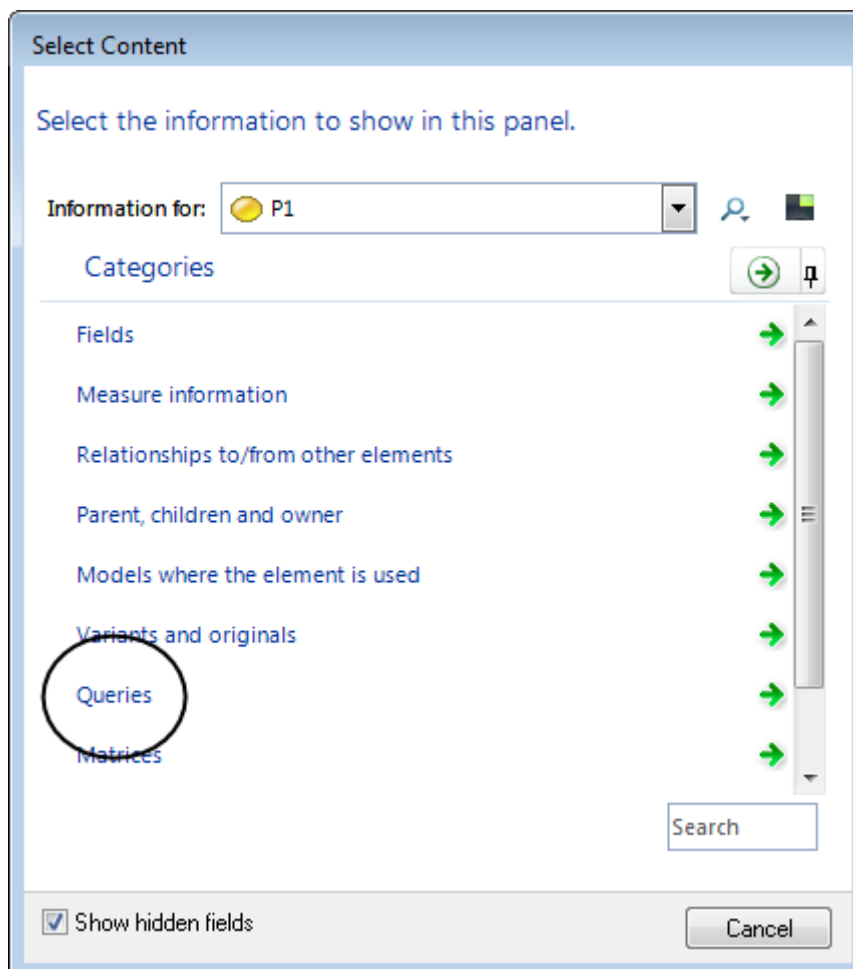
- When starting from a variable, be careful with the **Ignore Variable** setting. You can end up searching across the entire repository.
- Conditions and their order can significantly affect performance. If a chain of conditions does not show the optimized icon ⚡ at each point, experiment with their order and try to get the optimized parts of the query nearer the top of the chain. You

can also attempt to restrict your query to conditions that lend themselves to optimized performance. These include:

- **where** conditions based on name (excluding measure instances), type, parent, children, reference, and the contents of simple type fields.
- Find blocks that find children, parents, descendants, and reference/referenced by.
- When ordering conditions, put the following as early as possible in the query:
- **AND** conditions that are most likely to fail.
- **OR** conditions that are most likely to succeed.
- If using sub-queries, consider the performance of each, and pay particular attention to condition ordering when sub-queries are **AND**'d or **OR**'d together.
 - **And Finally** blocks and the **Take Top N** condition can stop sub-queries being optimized.

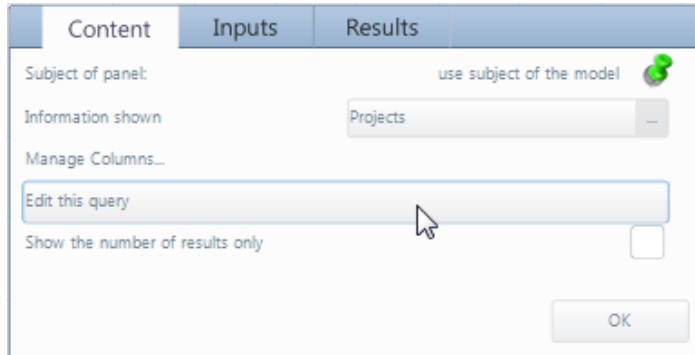
Using queries

Once you have a query, you can use it in any place that can take a query, for example, to return the elements that form the columns in a chart. The **Select Content** dialog box includes **Queries** as one of its categories (ringed in the following image):



When something uses a query, you are typically given an **Edit this query** option to quickly display that query in Query Builder. For example, the following shows an Info panel's flip side

with **Information shown** set to a query (called **Projects**), and the resultant **Edit this query** option:



Parameters and variables in queries

Parameters and variables are what make queries one of the most useful features in MooD.

Parameterized queries take a parameter as their starting point (one of the starting blocks is **the parameter**). This means you can use the same query again and again with different subject elements as the starting point each time. For example, you could have a parameterized query that returns all the tasks assigned to a person. The same query could then be used with any person element.

Parameterized queries have a yellow dot on their icons:

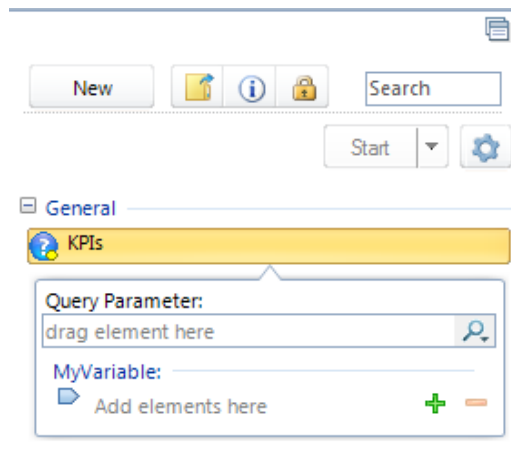


Tip – Developing 'the parameter' queries

When developing reusable queries, although Query Builder does let you set a test element for **the parameter**, it can be helpful to develop your query from a known element with known results. Once you know that the query does what you want, you can change the starting block to **the parameter**. We have found this approach useful during introductory training.

A query can include variables that you derive from a value or collect from the user. For example, a chart could use a query that returns project overspends. If the project element in the query is a variable, you can let users select the project from a drop-down list. In Business Architect this would be configured via **pinning** – the query variable would be exposed on the chart's **Inputs** tab and pinned to the drop-down list.

In any Queries pane, if you click on a query that uses a variable or parameter, it expands to show you what it requires to run (or be tested), for example:



Note: Query Builder's **Test** tab does similar when displaying such a query.

Tip – Develop 'the parameter' and 'variable' versions of queries

It can be useful to develop variants of the same query. For example, **Find Self From Parameter** and **Find Self From Variable**.

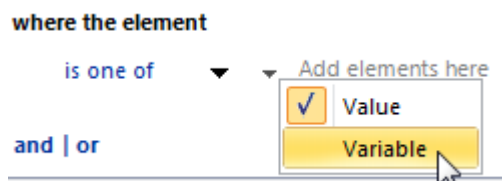
Setting variables in Query Builder

By default, Query Builder expects literal values, but you can change it to expect a variable.

To set a variable, click the down arrow button at the relevant place, for example,



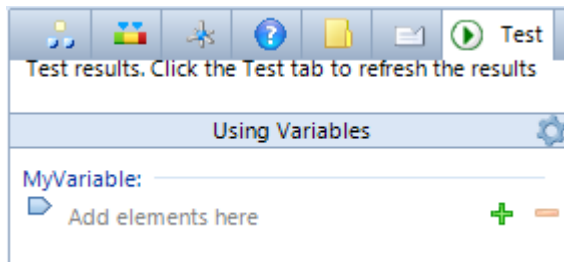
and then click **Variable**:



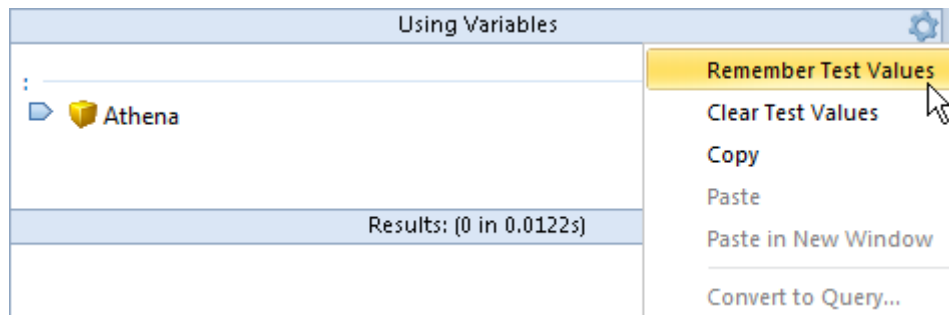
You can then type a name for the variable in the space provided (type over **insert variable name**):



When Query Builder includes variables, its **Test** tab changes to let you supply suitable test data.



Query Builder can remember the variable settings. Use the cog icon illustrated in the following image.



Note: If you have a query that uses multiple variables, ensure that your variables are uniquely and sensibly named. This is good practice and helps avoid clarity issues when using such queries within, for instance, Info panels. Good naming conventions are valuable throughout MooD. For example, if your meta model includes client and supplier organizations, don't have a variable just called **organization**.

Info panels

Info panels are small tables that show information about elements.

Note: MooD tends to recommend using matrices instead of Info panels. You have greater control over matrices meaning they can be better for Active Enterprise . However, Info panels are a quick way to add small tables to your models.

Info panels always have a subject element, and show information derived from it such as related elements, field values, dependencies, measures, matrices and queries. Info panels can include one or more columns, and you can include a total for each column. For example, the following Info panel includes child elements of the subject element, and two columns showing values from those child elements.

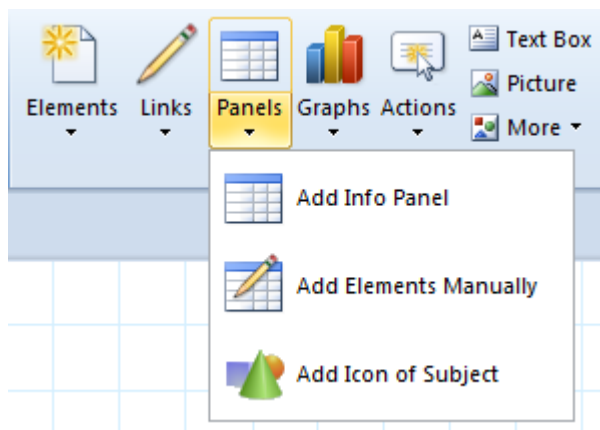
Children		
	Revenue	Projected Profit
Essex	600	200
Kent	1500	300
Surrey	750	250

This next image shows an Info panel that includes two Smart Columns, and has the total enabled for the first column.

Children		
	Profit Per Day	Trend
Athena	999	↑
Minerva	333	↑
Porus	250	↓
Zeus	100	→
Jupiter	444	→
Total	2126	

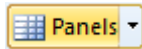
When a model is displayed, the **Home** tab includes an **Insert** group. This has a **Panels** button. Use this to add Info panels. Click the buttons:

- Top half to add a standard Info panel already pinned to the model's subject element (although you can change this).
- Lower part to choose the type of Info panel to add, as shown here.

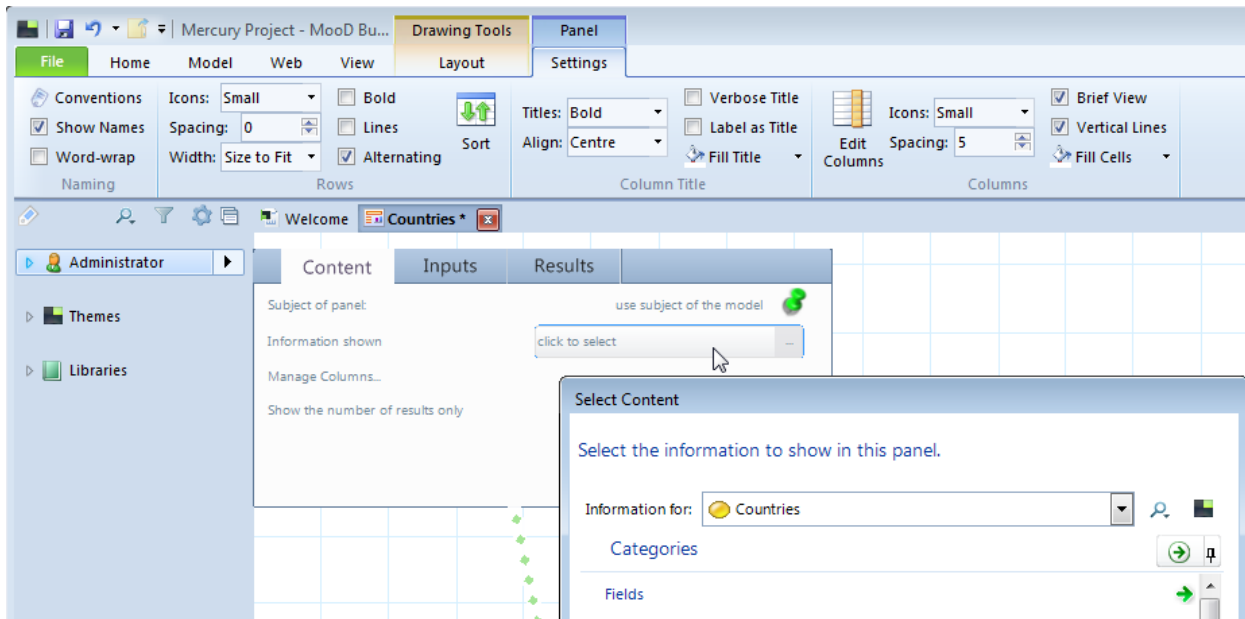


See the next [info box](#) (page 83) for details on the other types of Info panel.

Note: If Business Architect is displayed in a small window, the ribbon can appear different. For example, as shown in the following image, there is a smaller version of the **Panels** button with the same functionality organized left right, instead of top bottom.



When you place a standard Info panel onto a model, it flips so that you can set its content using the **Information Shown** setting (which displays a **Select Content** dialog box) as shown here:

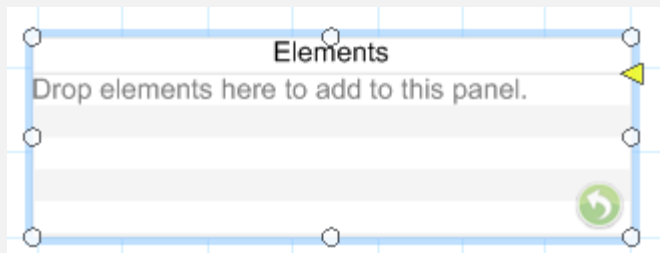


When an Info panel is selected on a model, the ribbon includes formatting options for that Info panel. These are under **Panel**, on the **Settings** tab. The **Layout** and **Home** tabs include general formatting commands.

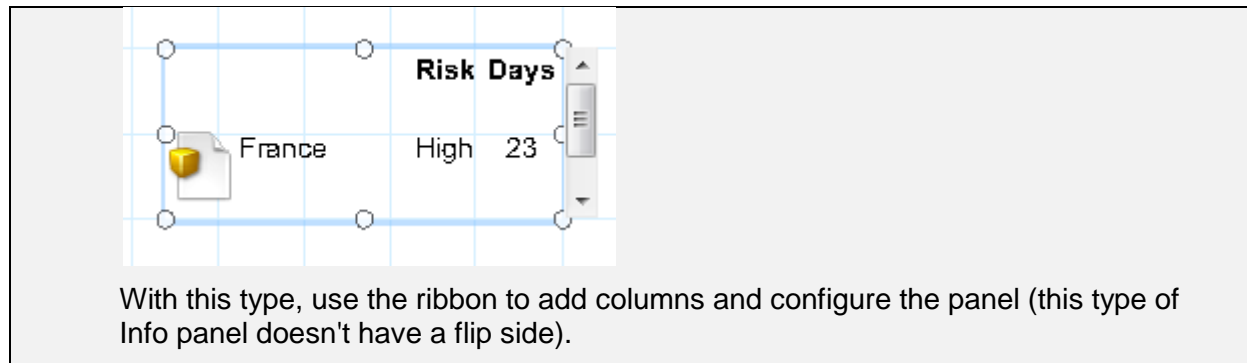
Additional types of Info panel

In addition to the standard Info panel covered in this guide, two other types are available from the lower part of the **Panels** button: **Add Elements Manually** and **Add Icon of Subject**. Respectively these display:

- A list of elements that you add manually:



- The icon for the subject element that you can then add columns against to achieve effects like:



Adding an Info panel

Task 7 To add an Info panel to a model:

1. Open the model.
2. On the **Home** tab, in the **Insert** group, click the top portion of the **Panels** button.



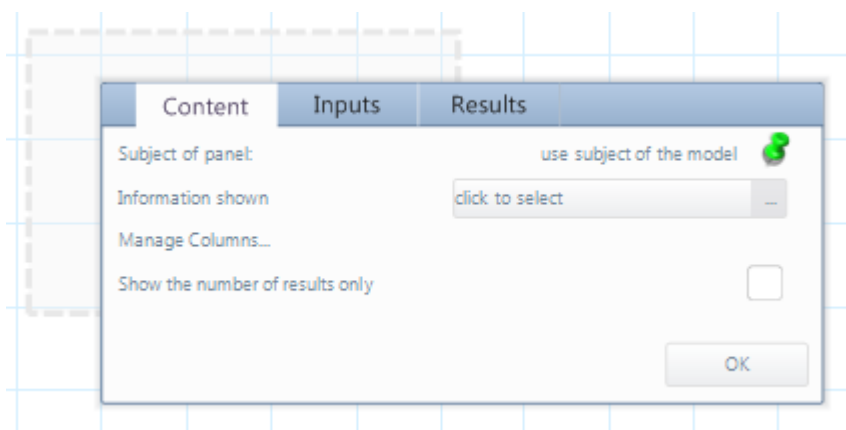
When the pointer is over the model, it shows that a standard Info panel will be added when you next click.



Note: If you click the lower portion of the **Panels** button, you can choose from the three types of Info panel. The upper part of the button defaults to the standard Info panel. See the info box that precedes this task for details on the other two types.

3. Click where you want the Info panel to appear.

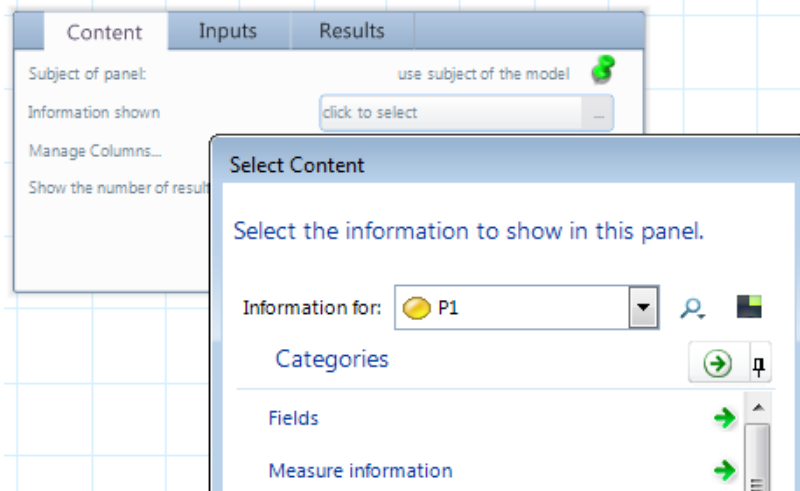
The Info panel is added to the model (you can move it later). It opens on its flip side.



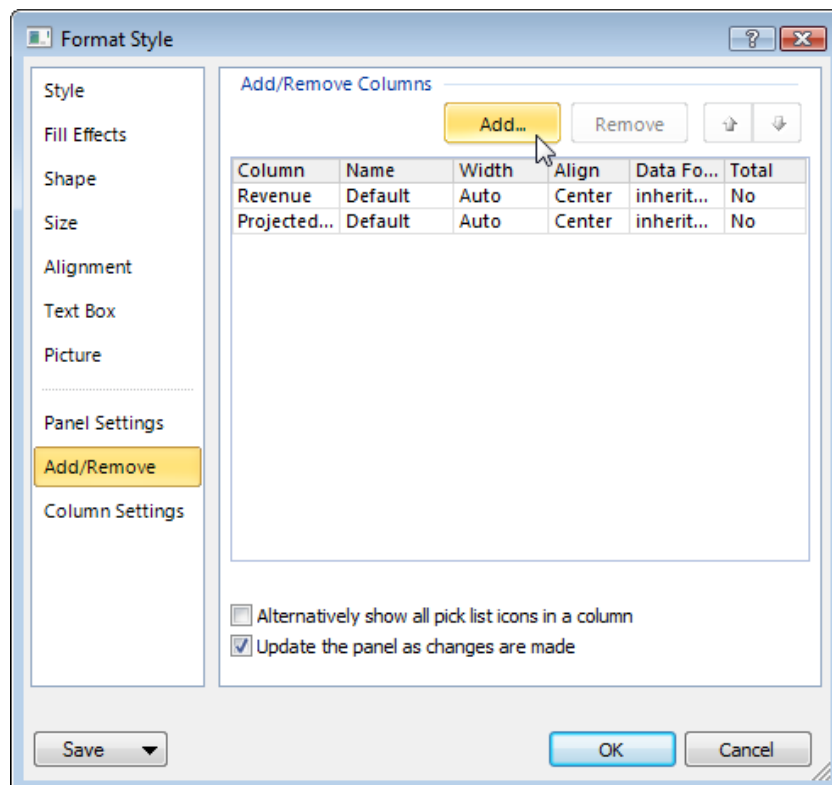
4. Use the flip side to set the Info panel's content.

To help you:


- On the **Content** tab, **Subject of panel** sets the subject element. By default, this is the model's subject element, but you can change this.
- **Information shown** uses the **Select Content** dialog box to find and select what will be shown in the Info panel. For example, it could be one of the subject element's measures, the subject element itself, or a list of elements related to it.



- **Manage columns** lets you add columns to the Info panel. These columns show information for each element included in the Info panel as a result of the **Information shown** setting. For example, **Information shown** might be a list of project elements, and you then add columns to show costs and revenue for each project.
- **Manage columns** displays the **Format Style** dialog box, where you can add columns by means of the **Add/Remove** section shown in the following image.



- The **Panel Settings** and **Column Settings** sections in the **Format Style** dialog box give you considerable control over the general appearance of an Info panel (as does the ribbon (see step 6)).
 - Use the **Results** tab to see what the **Information shown** setting has found. This is what will appear in the Info panel.
 - If you set **Information shown** to a query that requires a parameter, use the **Inputs** tab to set that parameter. The **Inputs** tab adjusts itself as necessary and will often only include some basic refresh options.
5. To flip the Info panel and reveal its content, click **OK**.

Note: If the **Flip** button is red, your Info panel needs further configuration. In most cases, an exclamation icon  next to a tab or setting indicates where the issue is.

6. Use the ribbon to format the Info panel.

For example, under **Panel**, on the **Settings** tab:

- In the **Naming** group, click **Conventions** to control how items are labeled.
- In the **Rows** group, click **Sort** to manually sort the rows.

Note: You can also do this on the Info panel's flip side. Use the **Results** tab.

- In the **Columns** group, click **Edit Columns** to display the **Format Style** dialog box (as mentioned and illustrated in the preceding image, you can also access this from the flip side's **Content** tab). Use this to add or remove columns, change the column order, and add totals for individual columns.

Note: You can also use the **Format Style** dialog box to format the Info panel, and then save that formatting as a style that can be applied to other Info panels. See [Styles](#) on page 117 for more details.

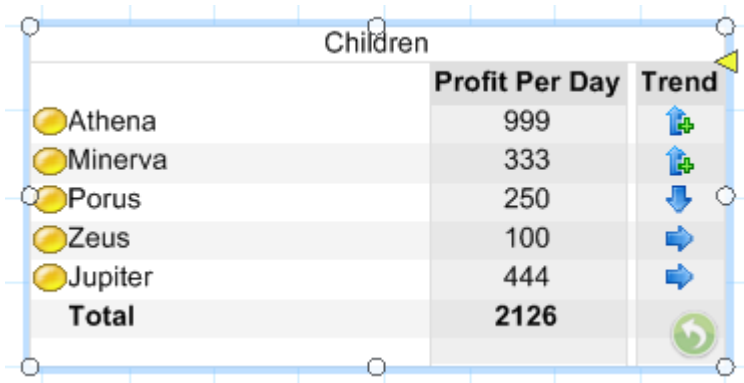
Smart Columns

Smart Columns are part of MooD's aggregation technology along with the **Aggregation** matrix type. See [Aggregation](#) (page 20) in the *Key Concepts* section for an introduction. Aggregation matrices are not covered in this guide, but Smart Columns are a good introduction to aggregation in general. A video introducing aggregation is available within the Support Area at www.moodinternational.com and guides are available covering *Aggregation Designer*, *Fact Builder* and *Aggregation Performance*.

A **Smart Column** performs a calculation on elements and obtains the result. For example, you might add up the total cost of all projects, or you might calculate the margin between revenue and expenditure. You can use Smart Columns in many places. For example:

- As columns in Info panels and Data Sheet matrices.
- As the basis for conditional formatting.
- To provide labels (aggregations can output strings).

The following image demonstrates the first example usage. It shows an Info panel with two Smart Columns, one showing a calculation, and one showing how each element compares against a threshold.



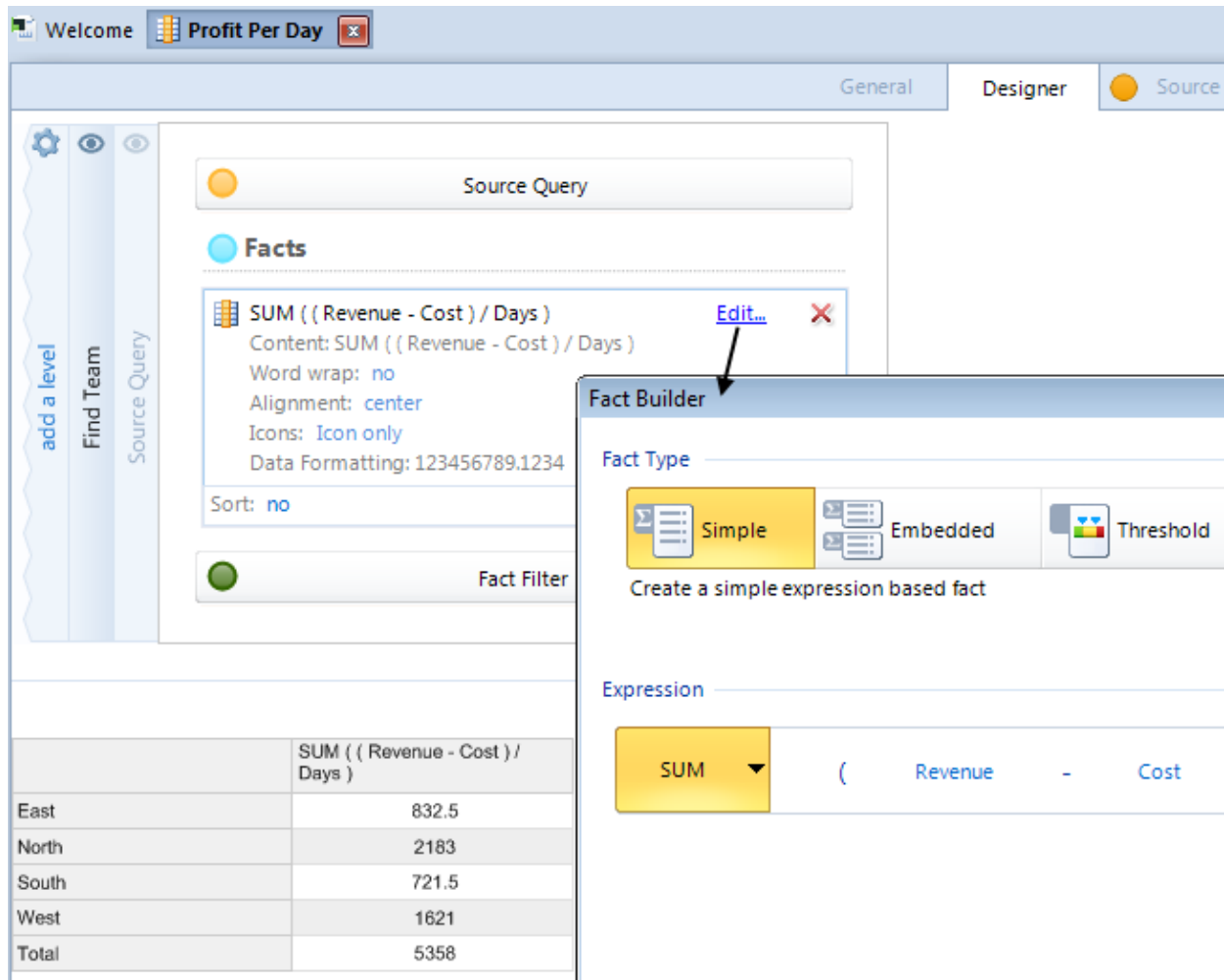
Children		
	Profit Per Day	Trend
Athena	999	↑
Minerva	333	↑
Porus	250	↓
Zeus	100	→
Jupiter	444	→
Total	2126	

Smart Columns are reusable items that can be organized into groups. Hence, in the Explorer Tree, they are listed under **Libraries**:

When you click a Smart Column, and then click **Open** (beside the **New** button or on the Smart Column's right-click shortcut menu), it opens that Smart Column's definition as a tab in the workspace.

Note: If you are looking at a group that does not include any Smart Columns, you can click **New** to create one.

The tab includes several secondary tabs that define the Smart Column. The **Designer** tab is the one you will primarily use. It includes a visualization of the Smart Column, and a test area. Both are shown here:



Smart Columns start with a **source query**. This finds the elements to be included. You then apply a single **fact**, and obtain a column of results complete with a total for that fact. A fact is a calculation (the result of an **expression**). Facts are the principal purpose of Smart Columns, as they are calculations that you can access and use elsewhere. The **Fact Builder** dialog box lets you build the expression that constitutes your fact. As shown in the preceding image, this is accessed from the **Edit** link in the middle of the **Designer** tab's visualization of the Smart Column.

Starting from the source query, you can add **levels**. Levels are Find blocks that drill up and down from the source query. Levels let you:

- Include other groupings of elements and obtain a total across those groupings. For example, find the parent elements of the source query so that the fact can be applied across that grouping and a total obtained. You include and exclude levels to specify the content you want (excluded levels appear dimmed).
- Find repository content related to the elements found by the source query, and then use that content within your fact to obtain the result that you want from your Smart Column. For example, find measures for different months, and then include them within a Threshold fact to determine and display a trend.

The sections: [Creating a Smart Column](#) (page 89), [The Smart Column's visualization on the Designer tab](#) (page 94), and [The Fact Builder dialog box](#) (page 94), cover all of this in more detail.

Once you have defined a Smart Column, you can:


- Include it as a column in an Info panel or Data Sheet matrix. For the elements (rows) in both, the result of the Smart Column's fact for those elements will be shown. This is dependent on the elements concerned being included in the Smart Column's source query, or in one of its levels. If the Info panel or matrix includes an element outside the Smart Column's scope, its cell will be empty.
- Place it directly onto models. This gives you a single column table, like the one shown in the **Designer** tab's test area.
- Use it in other areas, including Free Form matrices, various graph panels, and as the basis for conditional formatting. For example, you can use a Smart Column with a Threshold fact to conditionally colour data series in charts.

The [Using Smart Columns](#) section (page 99) covers this in more detail.

Creating a Smart Column

The following task illustrates how to add a basic Smart Column, and then introduces some of the additional design features available.

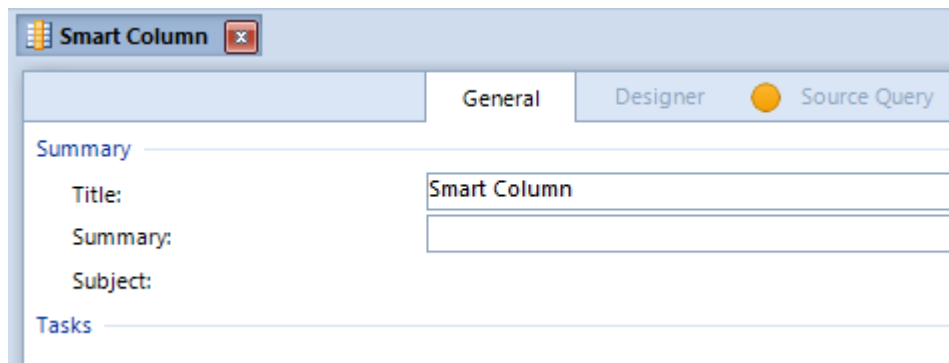
Task 8 To create a Smart Column:

1. In the Explorer Tree, under **Libraries**, click the  button next to the Smart Column group that you want to add the new Smart Column to.

This selects the group, and displays its Smart Columns pane.

2. In the Smart Columns pane, click **New**.

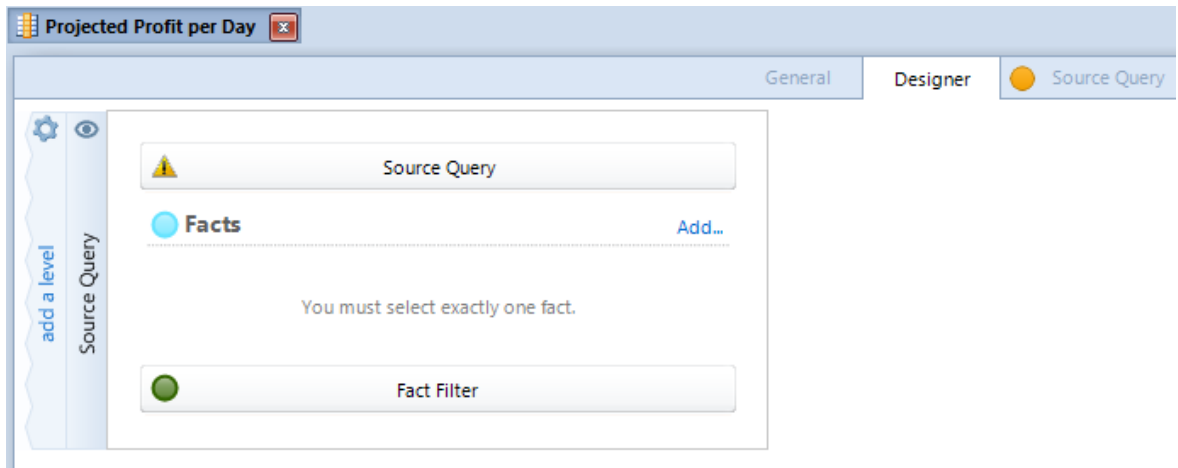
A **Smart Column** tab opens in the workspace.



The screenshot shows a window titled "Smart Column" with a close button. It has three tabs: "General" (selected), "Designer", and "Source Query". Under the "General" tab, there is a "Summary" section with three input fields: "Title:" (containing "Smart Column"), "Summary:", and "Subject:". Below this is a "Tasks" section which is currently empty.

All new Smart Columns are initially named **Smart Column**.

3. Click in the **Title** box and give the Smart Column a meaningful name.
It is also good practice to give a full description in the **Summary** box.
4. Click the **Designer** tab.



This has a structural visualization of the Smart Column, and below that, an area where you can execute the Smart Column to see it populated with data from your repository.

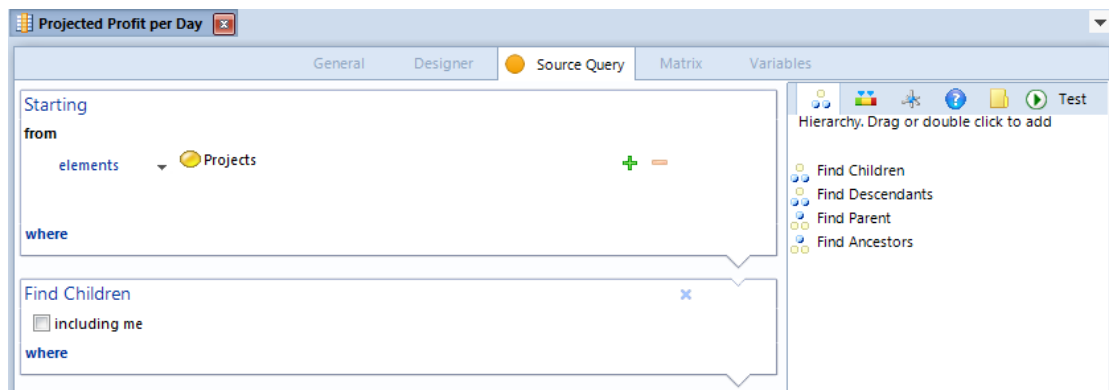
Note: This task goes on to introduce key features of this visualization. However, see [The Smart Column's visualization on the Designer tab](#) on page 94 for a more complete overview.

5. Configure the Smart Column.

As a minimum, you need to add a source query, and then add a fact. To help you:

- Smart Columns start from a source query. This finds the elements to be included in the Smart Column.

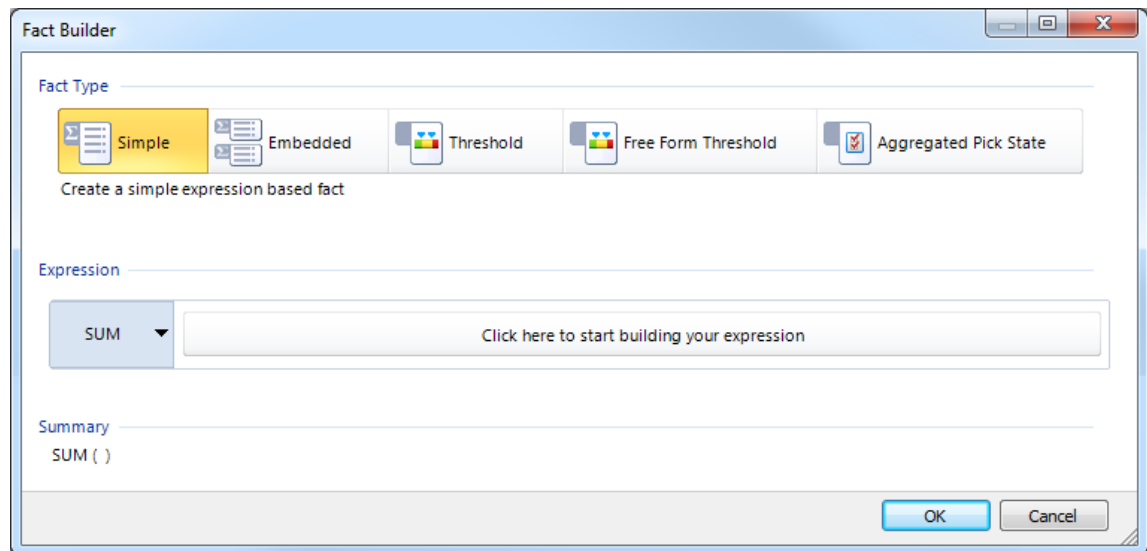
Click **Source Query** to go to the **Source Query** tab. This lets you define a query, and is the same as other queries in Business Architect.



See [Queries](#) on page 74 for details on using the **Source Query** tab.

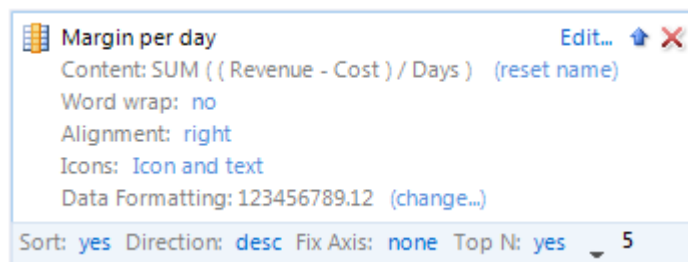
- Smart Columns have one fact. This fact defines a calculation on the content of the elements found by the source query.

In the centre of the **Designer** tab's visualization, click **Add** (or **Edit** if the Smart Column has a fact) to display the **Fact Builder** dialog box.



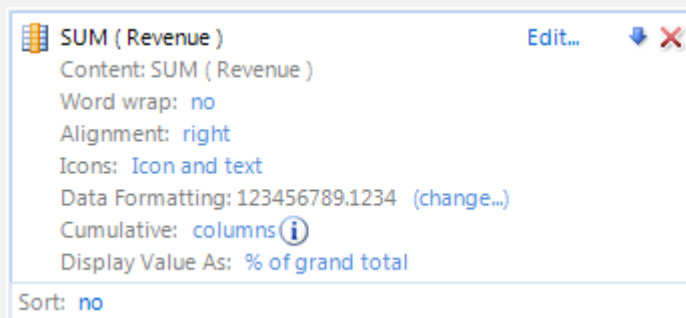
See the *Fact Builder dialog box* section (page 94) for details.

- Once you have a fact in the centre of the **Designer** tab's visualization, you can control how its results are displayed in the table when it is generated. For example, as can be seen in the following image, you can control alignment and wrapping.



Tip – Aggregation matrix: Cumulative and Display Value As

Facts in Aggregation matrices include two additional formatting settings: **Cumulative** and **Display Value As**.



Cumulative lets you show totals across rows or columns (including across totals if required). **Display Value As** lets you show results as a percentage of the total. If you require either of these, consider using an Aggregation matrix instead of a Smart Column.

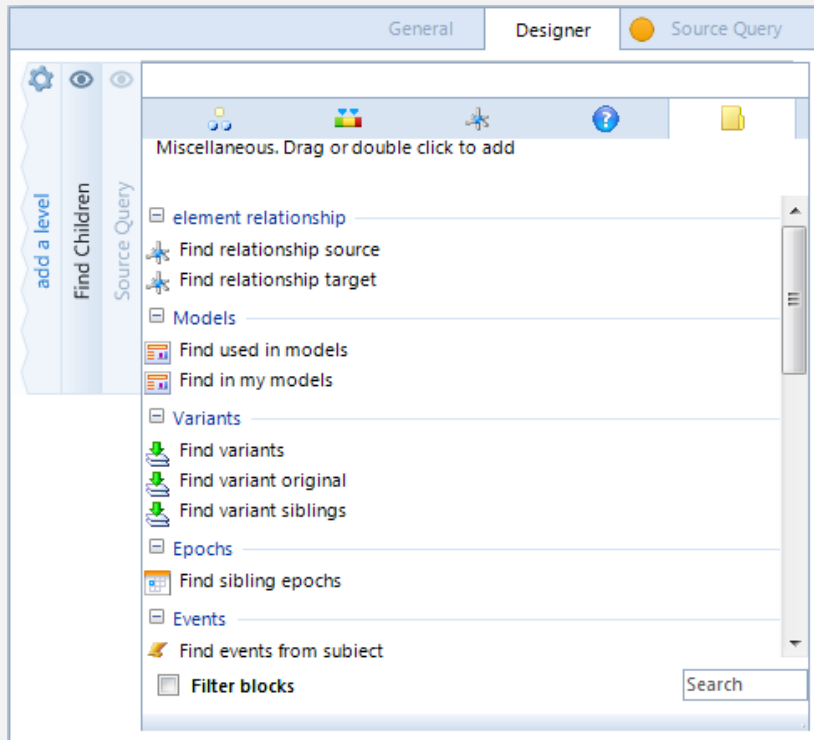
- Once you have a source query and fact, you can use the ribbon to test the Smart Column. On the **Home** tab, in the **Matrix** group, click **Execute**.

At this point, you should have a functioning Smart Column that you can use in a range of places, including Queries or Data Sheet matrices. The info box that follows includes some additional features you may want to use.

Smart Column Designer tab - additional features

You can click **add a level** to add a Find block that drills up and down from the source query. This can:

- Find and make available content that you want to utilize within your fact, such as measure content.
- Bring further element groupings into the Smart Column that then have the fact applied and rows added. For example:

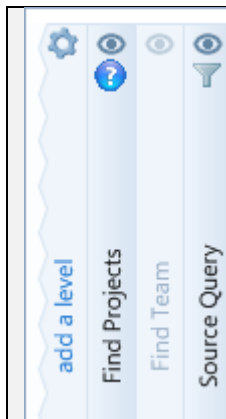


Again, this functions like any query in Business Architect, except that the starting point is set to the Smart Column's source query (the source query is effectively the first level and cannot be changed).

You can add multiple levels:

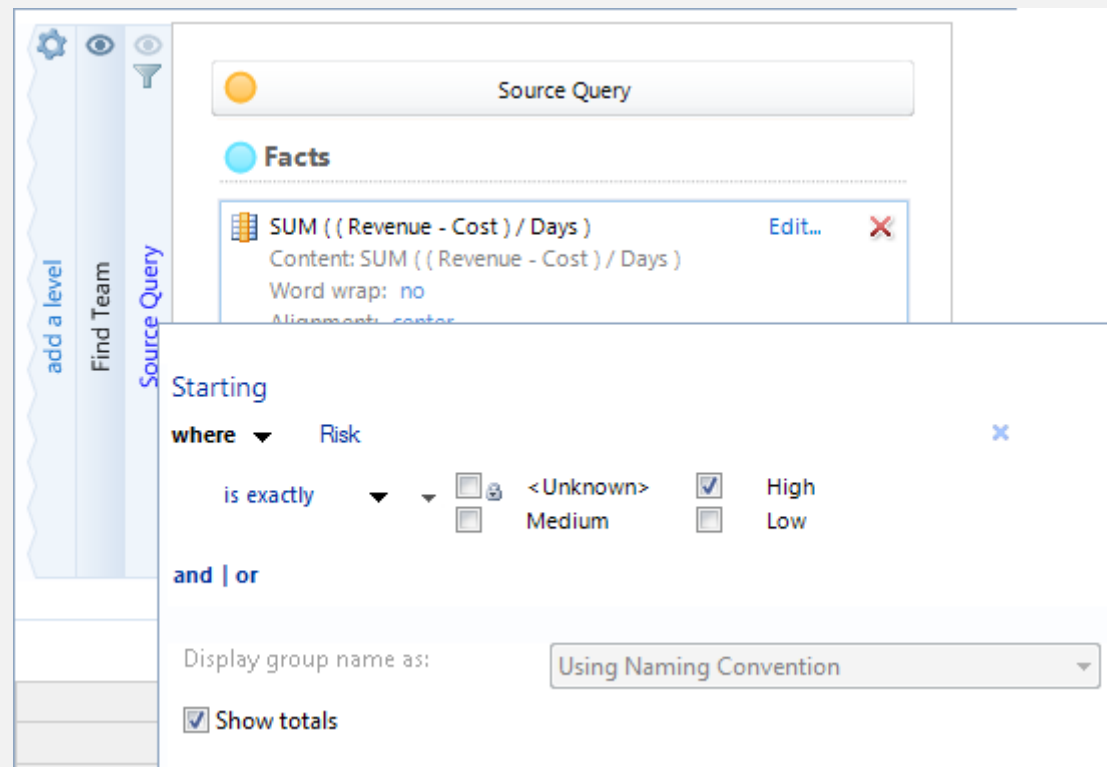
- Each level starts from the preceding level's elements.
- You can click each level (including the source query) and add a **where** condition to further qualify that level.
- Again, the filter icon indicates when a **where** condition is in effect.

In addition, as shown in the following image, you can include and exclude levels from the Smart Column. Excluded levels appear dimmed.



Each time you click **Execute**, the table in the test area is updated to reflect the included content.

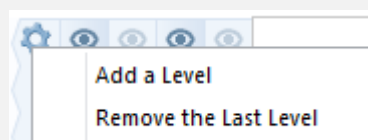
You can also click a level's **Source Query** link and add a **where** condition to further qualify the results of the source query. For example:



When a **where** condition is in effect, the **Designer** tab includes the filter icon against the item affected, for example:



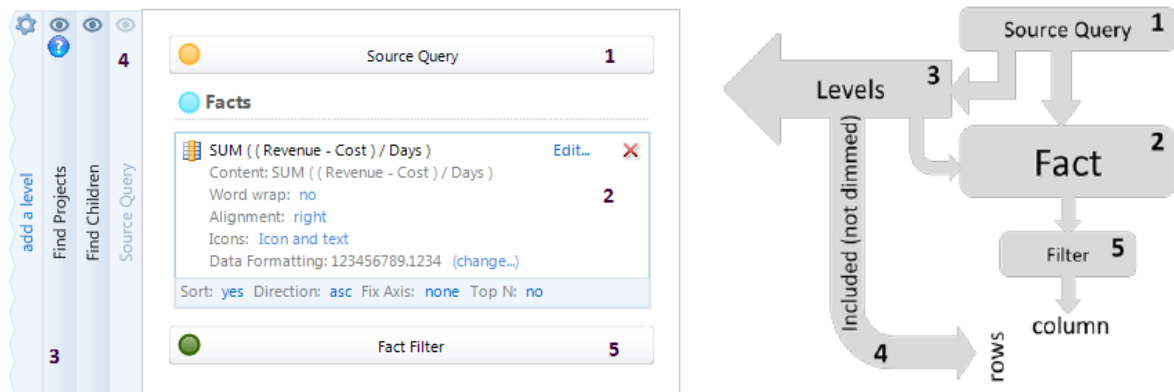
Finally, as shown next, click the cog icon to get a menu that lets you manage levels.



The Smart Column's visualization on the Designer tab

This section has reference material that explains and summarizes the visualization used on a Smart Column's **Designer** tab. It duplicates much of the information covered in the preceding task, but provides an alternative approach that some readers may prefer.

Figure 1. The Smart Column's Designer Visualization




- 1 Source Query.** Click this to display the **Source Query** tab, and then set or edit the query that finds the elements that the Smart Column will operate on. If the source query is included (4) in the Levels area (3), the elements returned by the source query will be included as rows in the Smart Column, and have the fact applied.
- 2 Fact.** The single fact (aggregation) that the Smart Column will perform. Click **Edit** to display the **Fact Builder** dialog box. The fact can utilize content from the source query and levels.
- 3 Levels.** Each level is a Find block that drills up and down from the source query (if it is the first level), or from the preceding level. Levels give you groupings of elements to include in the Smart Column (included levels produce rows, excluded (dimmed) levels do not), and provide content that you can access and use in facts. For example, a level might find the parent elements of the source query elements, or levels might be used to find measures for comparison within a fact.
- 4 Included Content.** The source query and levels can be included or excluded. When included, rows are added to the Smart Column. Excluded content appears dimmed.

Note: In Smart Columns, the level hierarchy is flattened into a single column of rows in the table produced in the test area below the visualization. This is because the primary purpose of Smart Columns is to give you access to the result of a fact, and not to produce a table that you can include on a model.

- 5 Filter.** You can filter the results of a fact.

Copy and paste facts

A recent addition (Build 85) is the ability to copy a fact and paste it as a new fact. Aggregation Designer now includes **Copy** and **Paste** options, shown here:



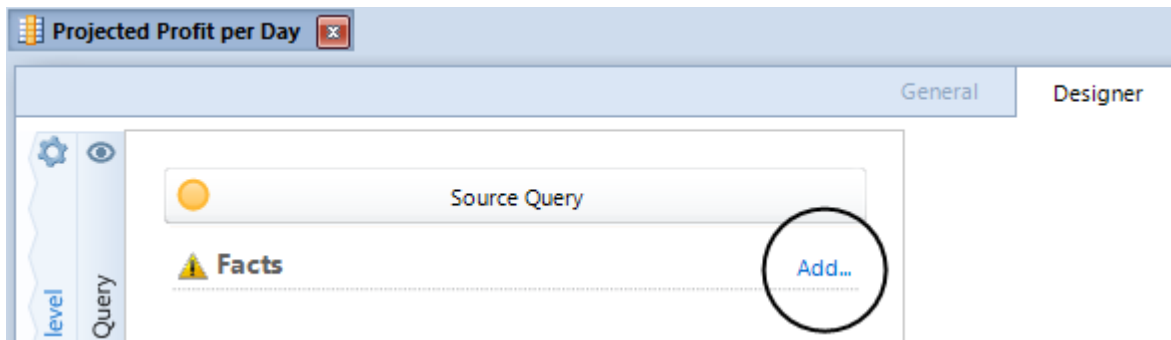
Paste is only shown when a fact has been copied. The copied fact is held in memory until another fact is copied i.e. the buffer holds one fact at a time. Hence, you can open two aggregations and copy a fact from one to the other. You cannot paste facts into notepad or similar, and you cannot copy fragments of facts. Any conditional formatting in a fact is not included in the copy.

In Aggregation matrices, when you paste a fact, it is added at the bottom.

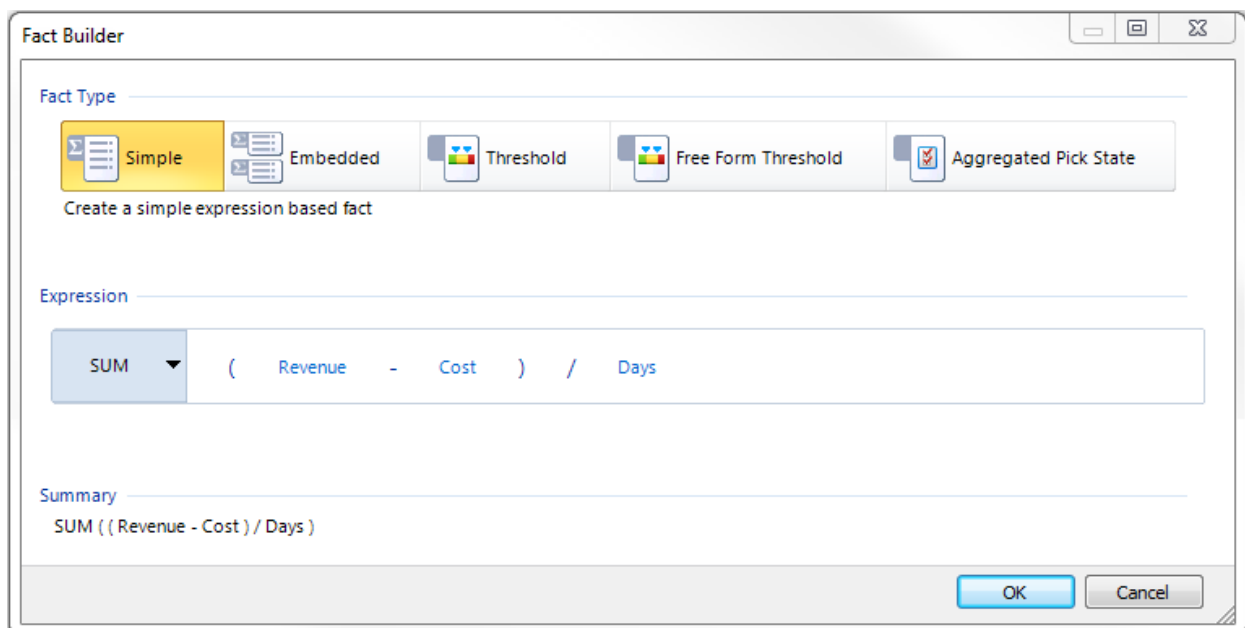
As Smart Columns only have one fact, if you paste a fact into a Smart Column, it overwrites any existing fact. Because of this, you get a warning when pasting into Smart Columns.

The Fact Builder dialog box

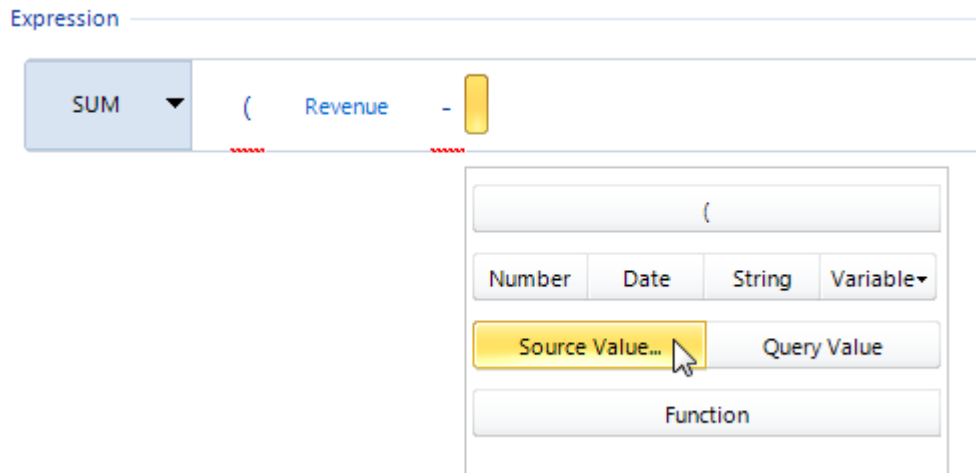
A Smart Column must have one **fact**. This is the Smart Column's calculation. On the Smart Column's **Designer** tab, click **Add** (or **Edit**) to open the **Fact Builder** dialog box.



Use the **Fact Builder** dialog box to create your Smart Column's fact. For example:



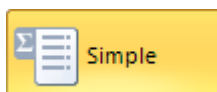
As you build an expression, the **Fact Builder** dialog box only offers valid options. For example, it won't let you include a closing parenthesis if there is nothing to close. In the following image, you can see a Simple SUM fact being constructed:



At any time, you can return to the Smart Column's **Designer** tab to test your fact, and see if it gives you the expected results.

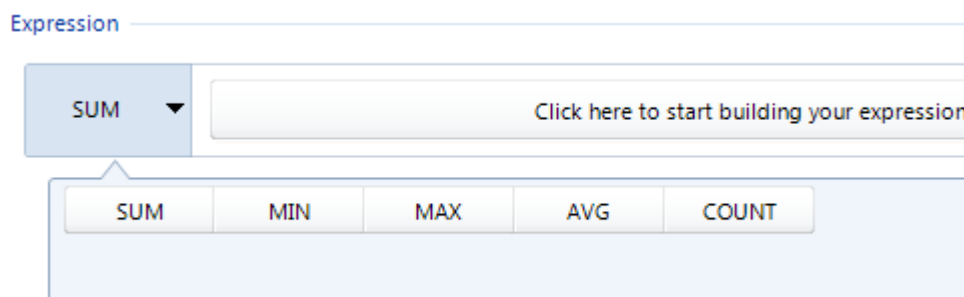
The **Fact Builder** dialog box lets you construct five types of fact:

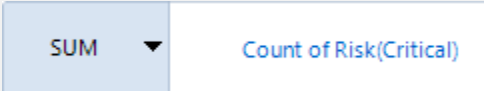
- **Simple**

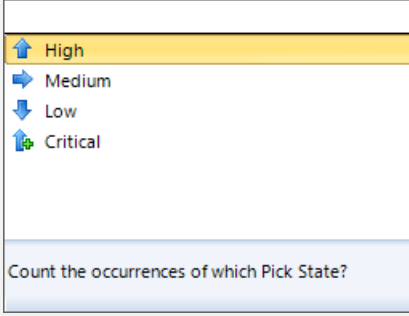


A single expression based fact. An expression is a calculation that produces a numeric or date result. For example, **revenue minus cost** produces a result that you could call **profit**.

There are five types of Simple expression. Click **SUM** to choose a type (the **Fact Builder** dialog box always defaults to SUM).

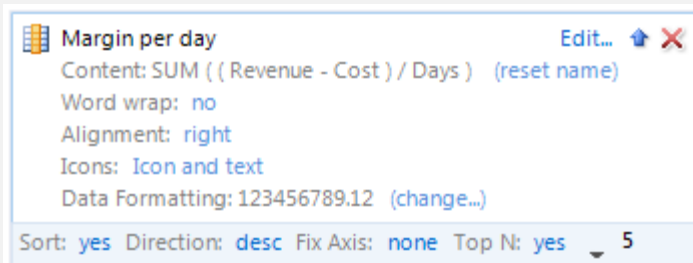


Type	Returns
SUM	<p>The sum of a number of values. This sum includes the basic arithmetical operators +, -, * and /. You can also include parenthesis to enforce precedence.</p> <div> <p>SUM of Pick states – Counts</p> <p>If you do a SUM on a Pick list state, it gives you a count of that state. For example:</p>  </div>

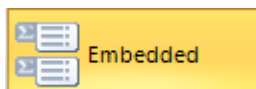
	<p>When you select a Pick list as a source value, you choose the Pick list state to be counted, as shown here:</p> 
MIN	The minimum value in the expression's results. For example, the project with the lowest revenue.
MAX	The maximum value in the expression's results.
AVG	The arithmetic mean (average) of the values in the expression's results. For example, average revenue across all projects.
COUNT	The number of source elements in the expression (as grouped by the Smart Column's levels). For example, the number of projects currently active.

Sorting and the Top N property

When a fact is configured and shown in the **Designer** tab, you can control how it is sorted. The **Top N** property (shown in the following image) can be set to a number or a variable, and is useful if you only want, for instance, to show the best (or worst) performing items.



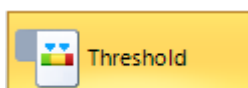
- **Embedded**



Incorporates Simple facts within a larger expression, and gives the result. For example, you could multiply the result of a SUM by the result of a COUNT, or multiply a SUM by a variable.

You build each component Simple fact within the Embedded fact itself.

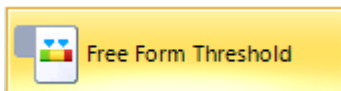
- **Threshold**



Compares the result of a Simple fact expression against a Threshold, and returns the corresponding Pick state. This is illustrated in the following image where a Threshold fact is used to compare a SUM expression (Revenue) against a Threshold (Risk) to display one of four Pick states against each element in the Smart Column.

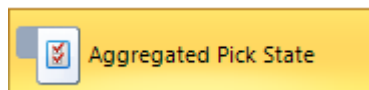
Risk(SUM (Revenue))	
Low	↓
Critical	↑
Critical	↑
Critical	↑
Low	↓
Medium	→
Medium	→
Medium	→
High	↑

- **Free Form Threshold**



Calculates a Pick list state from the value of an expression. This fact type was introduced in Build 63. It is documented in the *Changes Between Build 54 and 69* guide.

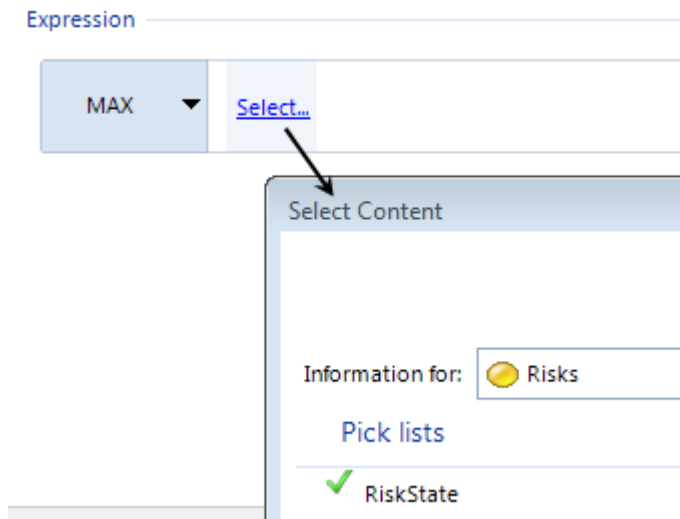
- **Aggregated Pick State**



Return the minimum (MIN) or maximum (MAX) Pick list state for a Pick list. This can be used to show the extreme cases to be found within a group of elements. For example, if looking at risk within a group of projects, you could quickly see the highest rated risk currently active within that grouping.

	MIN (RiskState)	MAX (RiskState)
Artemis	Amber 🟡	Green 🟢
Cyclops	Amber 🟡	Green 🟢
Demeter	Amber 🟡	Red 🔴
Hephaestus	Amber 🟡	Green 🟢
Mnemosyne	Amber 🟡	Red 🔴
Pontos	Green 🟢	Red 🔴
Total	Amber 🟡	Red 🔴

When you set **Fact Type** to **Aggregated Pick State**, you can choose between MIN and MAX, and then select a Pick list, as shown here:



Note: The MIN and MAX of a Pick list is determined by the order of states within it. Hence, you should ensure that your Pick lists are ordered from the MIN (first state) to the MAX (last state), and not some random collection of states in no particular order.

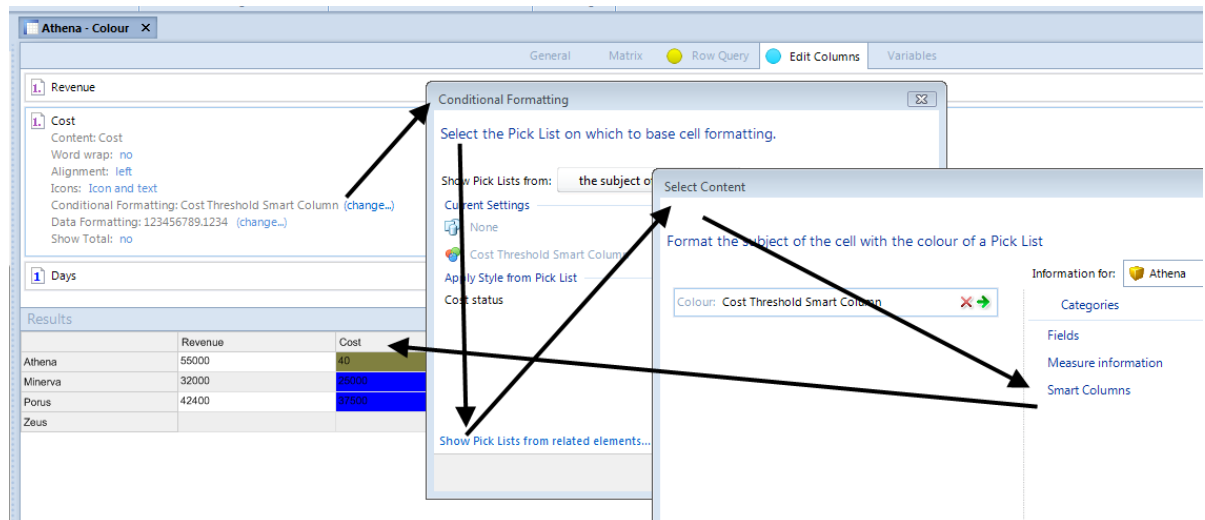
The Fact Builder dialog box and Aggregation matrices

The Fact Builder dialog box is used in two places: Smart Columns and Aggregation matrices. They are derived from the same technology, and the **Designer** tabs for both are very similar. Aggregation matrices let you include multiple facts as columns in a table, and include a total for each column across multiple dimensions and levels. Aggregation matrices are not covered in this *Getting Started Guide*.

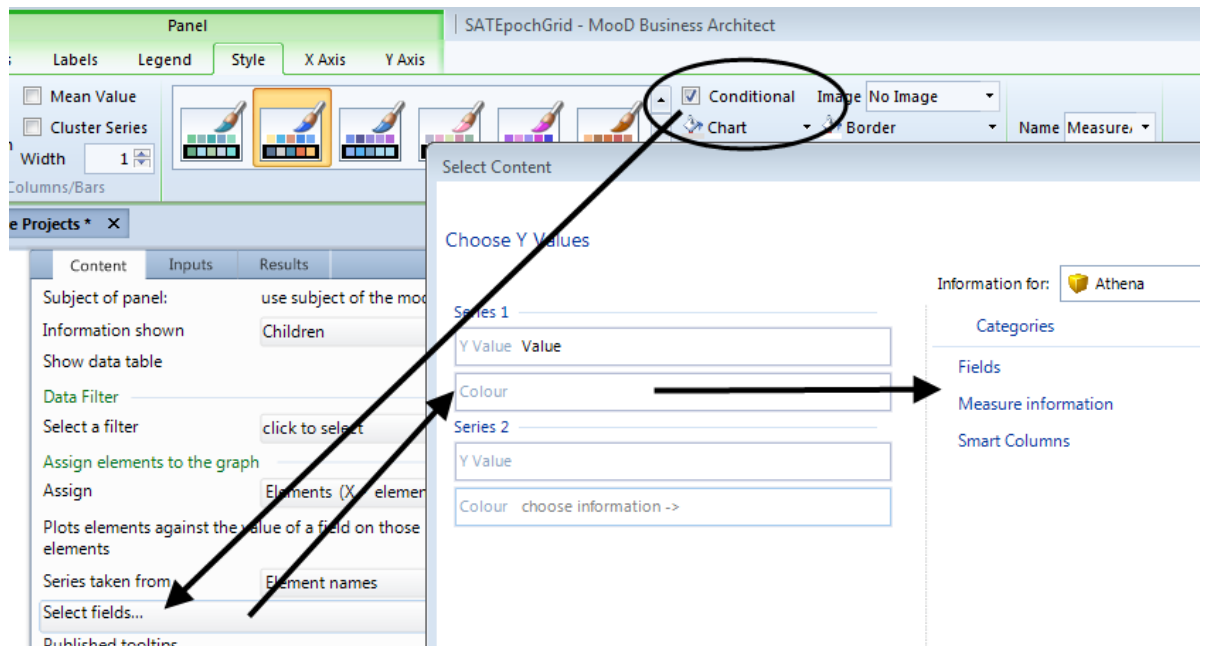
Using Smart Columns

Although you can place Smart Columns directly onto models to get a single column table like the one shown in the **Designer** tab's test area, Smart Columns are principally intended for inclusion:

- As a source of content for various graph panels. If a panel supports the use of Smart Columns, the panel's flip side will let you select one.
- As the basis for conditional formatting. Many places can use Smart Columns to determine their conditional formatting. For example, this next image illustrates this in a Data Sheet matrix. On the **Conditional Formatting** dialog box, when you click **Show Pick Lists from related elements** you get a **Select Content** dialog box where you can select the Smart Column.



And in a chart, when **Conditional** is selected on the ribbon, a **Colour** field is added to the **Select Content** dialog box. Set this to a Smart Column.



- As columns in Info panels.

The Info panel's **Subject Element** and **Information Shown** settings return elements (rows) that the Smart Column will then be executed for. For example, **Information Shown** might return the children of the subject element, and the Smart Column then shows some calculation for those child elements, as shown here:

Children	
	Projected Profit
Essex	200
Kent	300
Surrey	250

Note: You cannot set an Info panel's **Information Shown** setting to a Smart Column. Smart Columns can only be added as additional columns.

See [Info panels](#) on page 82 for details on creating and using Info panels in Business Architect.

- As columns in Data Sheet (or Free Form) matrices.

When you add columns to a Data Sheet matrix, the **Select Content** dialog box lets you choose a Smart Column. You can include multiple Smart Columns, for example, two of the columns shown in the following image are Smart Columns:

	Days	Profit Per Day	Profit Trend
Athena	1	999	
Jupiter	1	444	
Minerva	3	333	
Porus	2	250	
Zeus	3	100	
Total		2126	

The Smart Column's fact is executed and displayed for each row included in the matrix.

Using a Smart Column as Row data in a Data Sheet matrix

In a Data Sheet matrix, on its **Designer** tab, if you select **Row data's Use a Dependency** setting, and then click **edit**, you can select a Smart Column. This uses the Smart Column's query to find the rows, and adds the Smart Column as the first column in the matrix.

You can add additional columns as required, and change the column order. However, you cannot remove the matrix column that is added for the Smart Column.

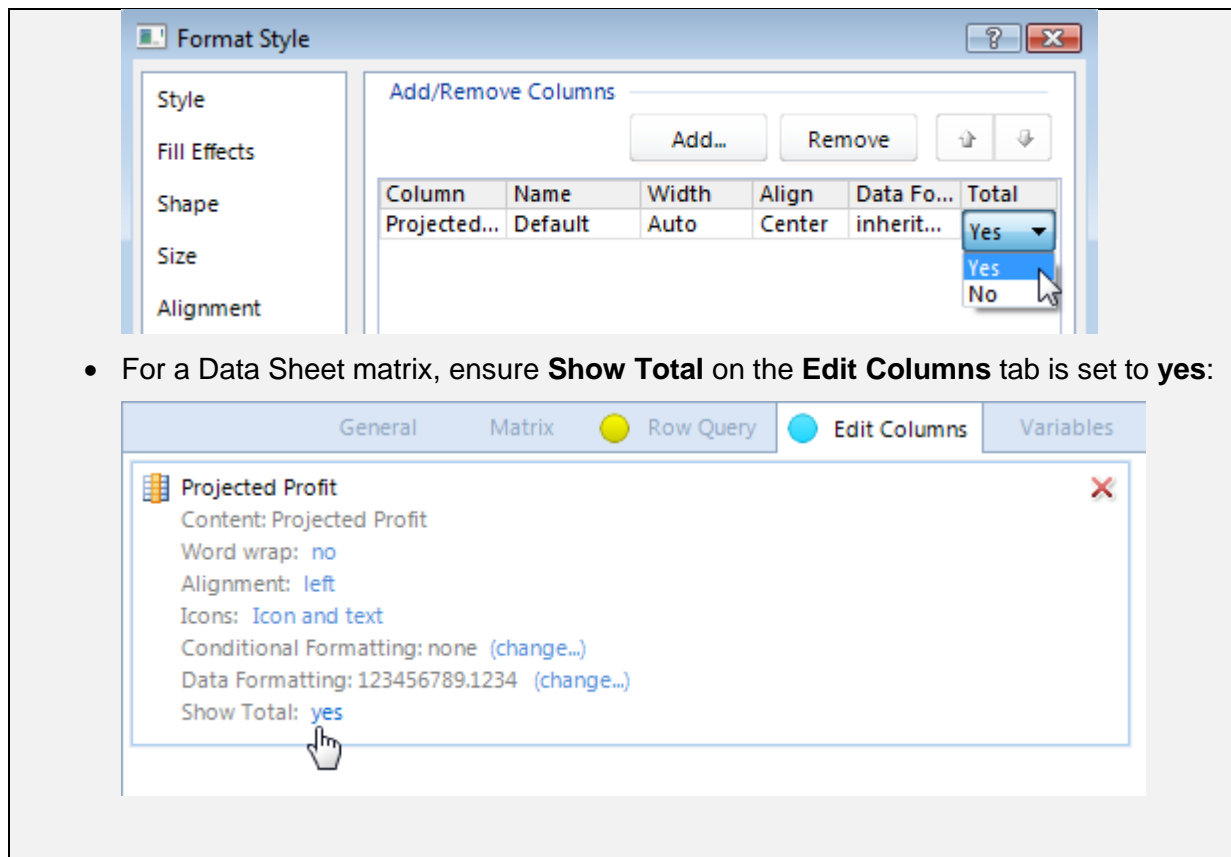
See [Matrices](#) on page 102 for details on creating and using matrices in Business Architect.

For values to appear in an Info panel or matrix, the elements included as rows must also be included in the Smart Column. If not, the corresponding cell will be blank. This can affect how you design your Smart Column. For example, if a Smart Column's source query only includes the children of a project element, the Smart Column will not calculate its fact for any descendants of those children. Hence, an Info panel or matrix that includes all descendant project elements will only show Smart Column results for children of the project element. To include results for all, you would need to add a level to the Smart Column, or change its source query to find all descendant elements.

Tip - Smart Column totals

Both Info panels and Data Sheet matrices can include a total for any Smart Column included. By default, totals are not included. To include a total:

- For an Info panel, when you add a column, make sure **Total** is set to **yes**:

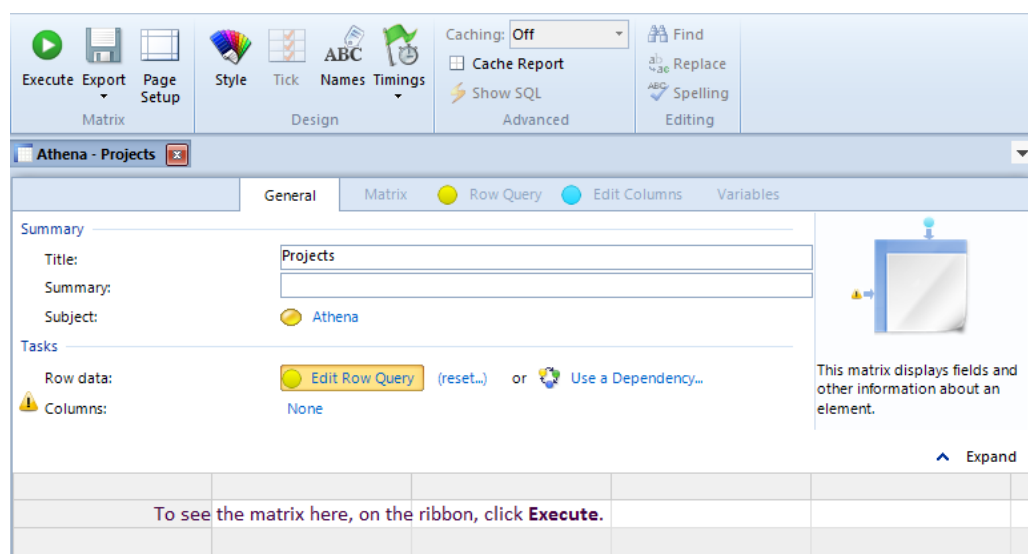


Matrices

A matrix is a table used to display information. See [Matrix](#) in the *Key concepts* section (page 19) for a general discussion on matrices and the types available. This section describes how to find, create, and use matrices in Business Architect.

Matrices are reusable items. Hence, in the Explorer Tree, they are listed under **Libraries**.

If you click a matrix, and then click **Open**, it opens that matrix's definition in the workspace. This workspace is referred to as **Matrix Designer**, and is shown in the following image.



Matrix Designer has several tabs. These change depending on the type of matrix. However, the **General** tab always includes a **Tasks** section that outlines the steps required to create a working matrix.

On the **Home** tab, the **Matrix** group includes the **Execute** command. Use this to generate the matrix and see the result in the lower part of each tab. The [Creating a matrix](#) task next covers all of this in more detail.

Note: This guide assumes you are using an established repository complete with matrices, and can therefore easily access Matrix Designer. If you are looking at a group that does not include any matrices, click **New** to start adding one.




Before Matrix Designer appears for the new matrix, you must select an owner element and a matrix type. Again, this is covered in the [Creating a matrix](#) task.

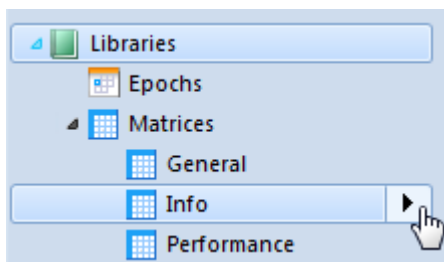
Once you have defined a matrix, you can use it on a model. Once a matrix is on a model, you can set its properties for that instance of its use. When the matrix is selected, the ribbon includes tabs for it. You can also flip the matrix and set further properties.

Creating a matrix

The following task adds a simple Data Sheet type matrix.

Task 9 To create a matrix:

1. In the Explorer Tree, under **Libraries**, click the  button next to the matrix group that you want to add the new matrix to. For example:



This displays the group's Matrix pane.

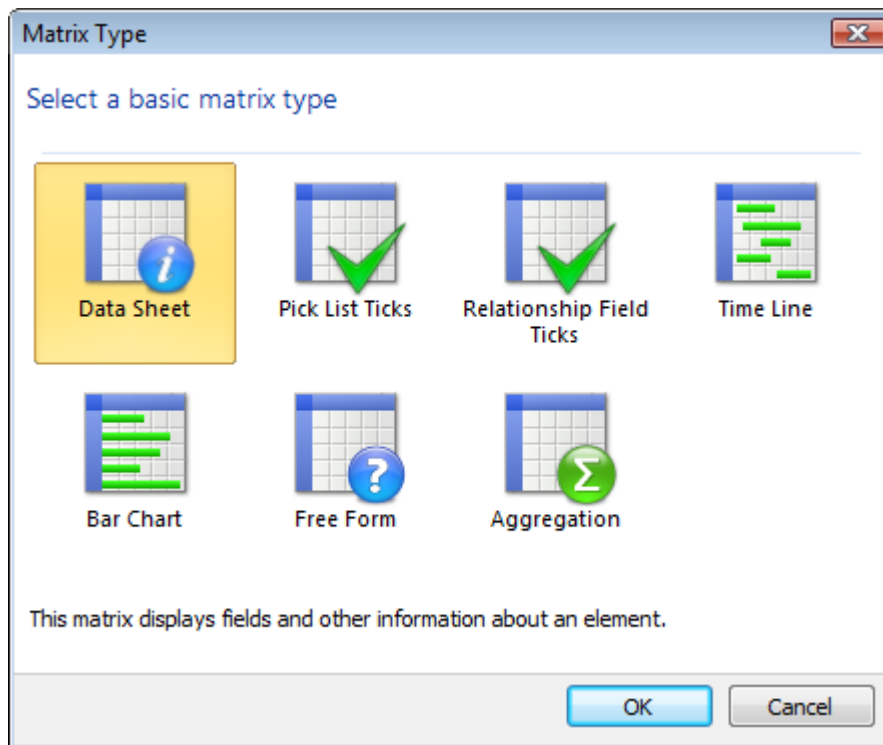
2. In the Matrix pane, click **New**.

A drop-down prompts for the owning element. In MooD, matrices are owned by elements. Consider using a *#typeName* or *#MatrixContainer* element. See [Tip – Benefit of # root elements](#) for why (page 62).

Note: You can change the owning element later. In the Matrix pane, right click a matrix and then click **Move To**. There is also a **Copy To** command.

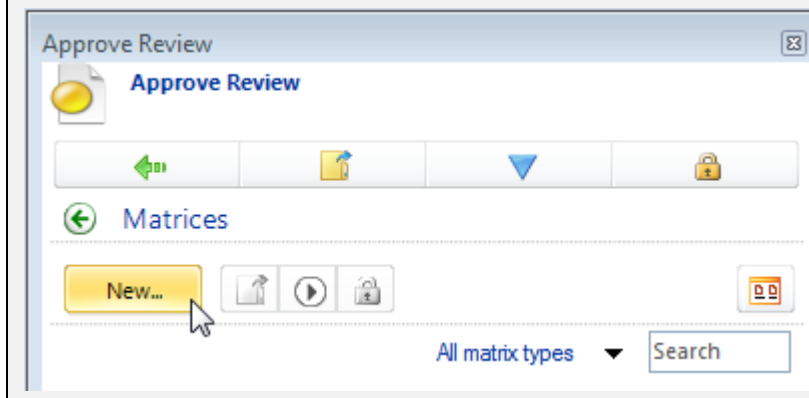
3. Click the owning element.

This displays the **Matrix Type** dialog box.



Alternative...

You can also get to this point by selecting the owner element, and then choosing **Examine** ⓘ. As shown in the following image, the element's Examine pane includes a **Matrices** category with a **New** button.



4. Click a matrix type, and then click **OK**.

Note: This example continues with the Data Sheet matrix type. The **Matrix Type** dialog box explains each type, as does the [More on matrices](#) section within *Key concepts* (page 19).

Matrix Designer opens in the workspace. The **General** tab includes the subject element, and the chosen matrix type is used as the default name.

5. In the **Title** box, give the matrix a descriptive name.
6. Configure the matrix.

The following advice and guidance should help you:

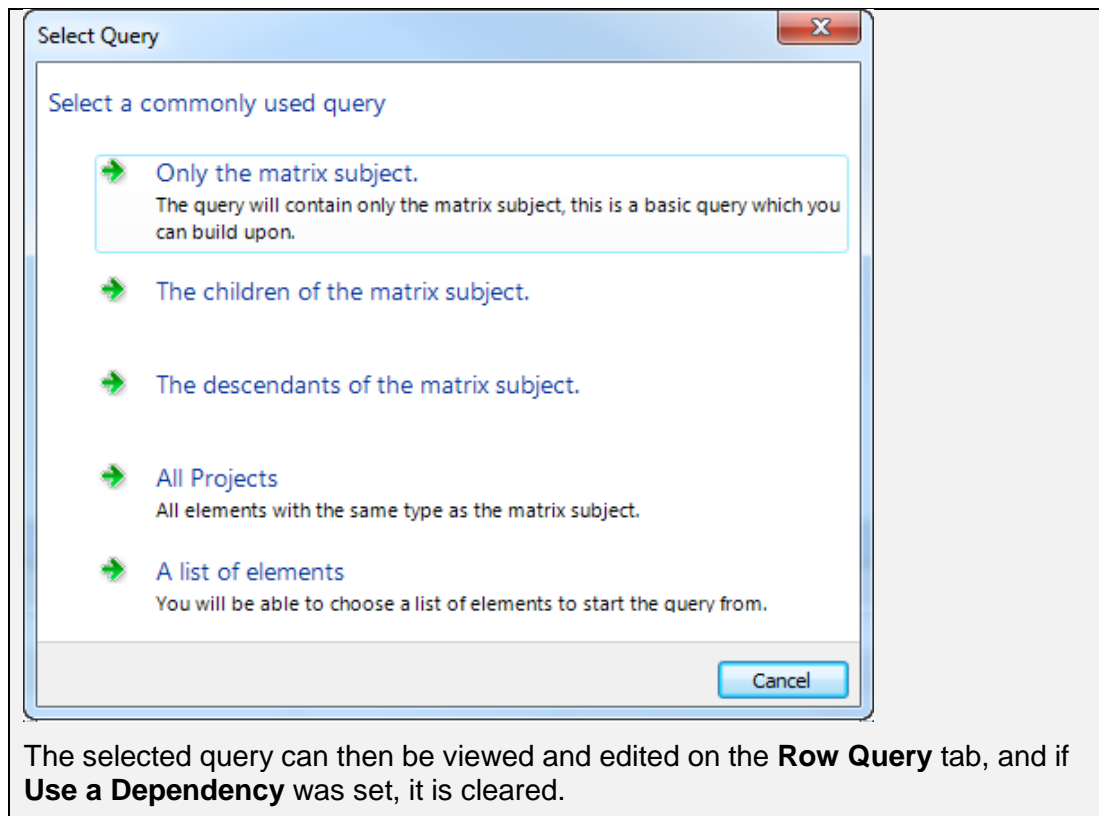
- The **General** tab's **Tasks** area lists the steps required to get a useable matrix.

Typically, you define a query to return your rows, and then pick the columns to include for each row returned by your query. Use the buttons and links to go to the correct place to complete each task.

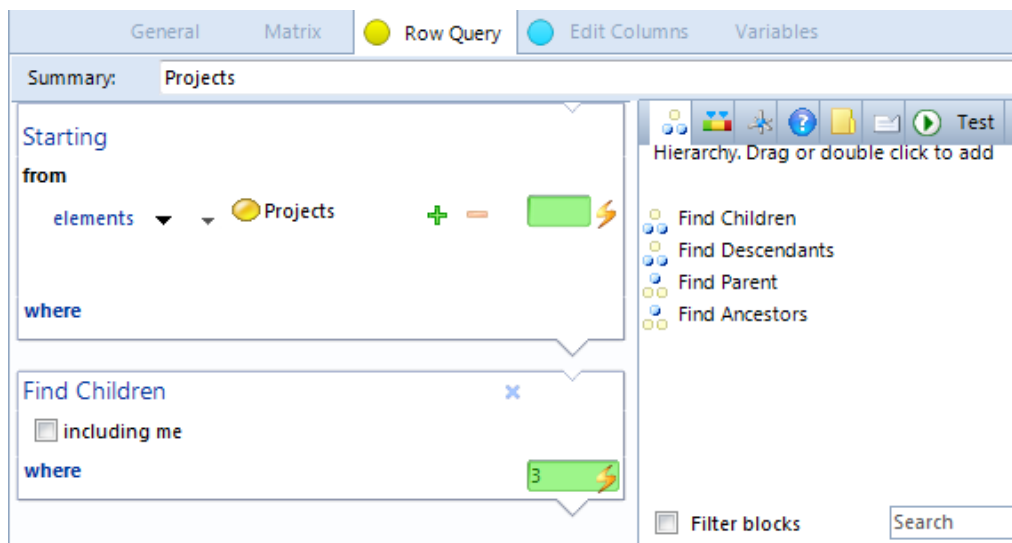
The Row data settings – Edit Row Query and Use a Dependency

The **Edit Row Query** and **Use a Dependency** settings specify whether the matrix will get its rows from a query, or from a dependency selected by means of a **Select Content** dialog box. **Edit Row Query** takes you to the **Row Query** tab, where you can construct and test a query. If you opt for **Use a Dependency**, your selection will appear next to the highlighted **Use a Dependency** button, as shown here:

The **reset** link lets you reset the row data source to a query chosen from a selection of basic queries listed in a **Select Query** dialog box:



- The **Row Query** tab lets you define a query to find the rows for your matrix.



The right-hand section lists various categories of building block that you can use in a query.

Consider developing a named query that can be reused elsewhere. However, if it is vital to ensure that the query is not changed, develop it in place.

See [Queries](#) on page 74 for an introduction to creating queries in Business Architect. This includes information that will help you understand and use this tab.

Starting from the matrix subject

One possible starting point is **the matrix subject**.

Starting

from

types

nothing

everything

types

elements

all elements except

the matrix subject

the results of query

Initially this is the owning element. However, when you place the matrix on a model, it takes the model's element as its starting point. This means you can develop one matrix, and then use it in many places. See [Using a matrix on a model](#) on page 108 for information on placing matrices on models and using this feature.

- The **Edit Columns** tab lets you select content that will appear as columns in your matrix. For example, in the following image there are three columns (two number fields and a Smart Column).

General

Matrix

Row Query

Edit Columns

Variables

1 Revenue

Add...

Revenue So Far

Remove

1. Cost

Move Up

Move Down

Totals

By default, the columns in a Data Sheet matrix are not totalled. To add a total, set the column's **Show Total** property (click the column to expand its properties).

1 Revenue

Revenue So Far

Content: Revenue So Far

Word wrap: no

Alignment: left

Icons: Icon and text

Conditional Formatting: none (change...)

Data Formatting: 123456789.12 (change...)

Show Total: yes

1. Cost

- The **Matrix**, **Row**, **Col** and **Cell** tabs let you set general properties for each of these areas.
- If your matrix requires a variable in its query, enter it on the **Variables** tab.

- Use the ribbon to test your matrix. On the **Home** tab, in the **Matrix** group, click **Execute**.

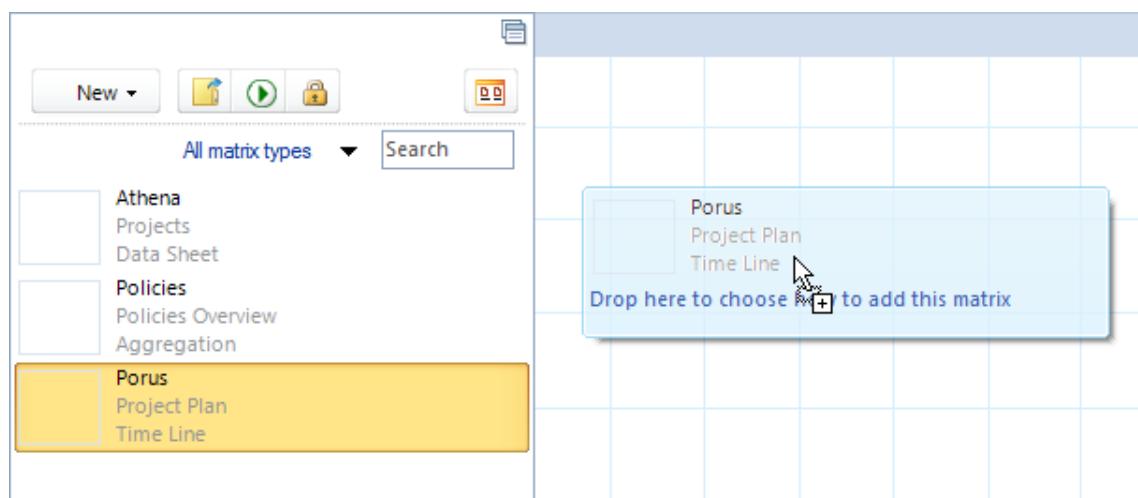


The lower part of the workspace displays the generated matrix. Use this to interactively develop your matrix before placing it on a model.

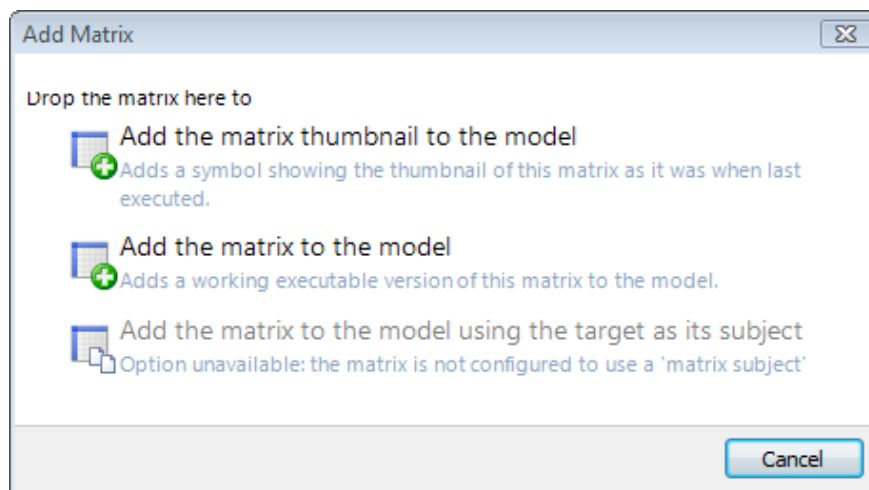
Once you have defined a matrix, you can use it on a model.

Using a matrix on a model

You drag and drop matrices onto models.



Typically, when you drop a matrix, you get the following dialog box with two of the three options enabled:




You can add a working version of the matrix, or a thumbnail that opens the matrix.

Note: The working version is not a separate copy. Any changes you make to the matrix in Matrix Designer will affect all placements of that matrix. However, any visual changes you make to the matrix on the model are specific to that model.

Tip – Making a matrix transparent

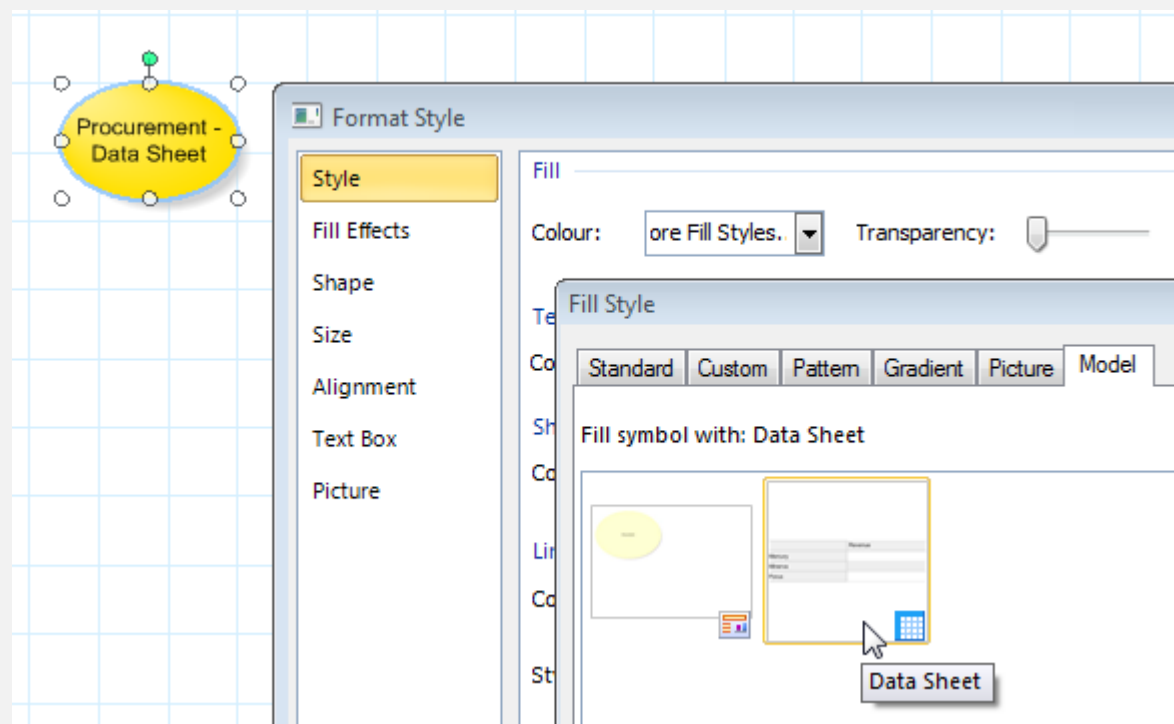
You can format a matrix so that it only includes its data and has no dividing lines. This can be useful if you want the matrix to overlay a corporate background. In Matrix Designer, on the **Matrix** tab, the **Matrix** group of settings lets you set **Colours** to several different **Transparent** colour schemes.

As shown in the next image, if the matrix starting point is set to **the matrix subject** (see the [Starting from the matrix subject](#) info box on page 106), the third option in the **Add Matrix** dialog box is enabled and the model's element becomes the matrix subject.

 Add the matrix to the model using the target as its subject
 Adds this matrix to the model using Minerva as 'the matrix subject'.

Adding matrices using symbol fills and Model Masters

You can also use an element's symbol, or it's Model Master, to include a matrix on a model. When you include an element on a model, it is represented by its **symbol**. You can format symbols, including their fill. Often this is a colour, but it can be one of the element's matrices.



You can also include matrices in Model Masters. Any element using that Model Master will get the matrix. See [Model Masters](#) on page 123 for details.

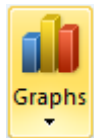
Graph panels (gauges, charts and maps)

Graph panel is the general term for the assorted ways you can visually present information from your repository. They are grouped into:

- **Gauges.** Assorted dials, sliders, thermometers and traffic lights.
- **Graphs and Charts.** A variety of graphs and charts such as Column, Pie and Bar, and the more specialist Radial, Radar, Network and Clock Face.
- **Maps.** Assorted map formats and controls, such as the World Map or Open Street Map panels.

You should be able to find a graph panel that suits your needs. All graph panels are added in the same general way. You place them on a model, specify where it gets its content from (for example, a query or an Aggregation matrix), and then format it to get the look and feel you require. In general, you use the flip side to set the content and the ribbon to set the formatting.

When a model is displayed, the **Home** tab includes an **Insert** group. This has a **Graphs** command.



Click this to see a gallery of available visualizations that you can add to the model.

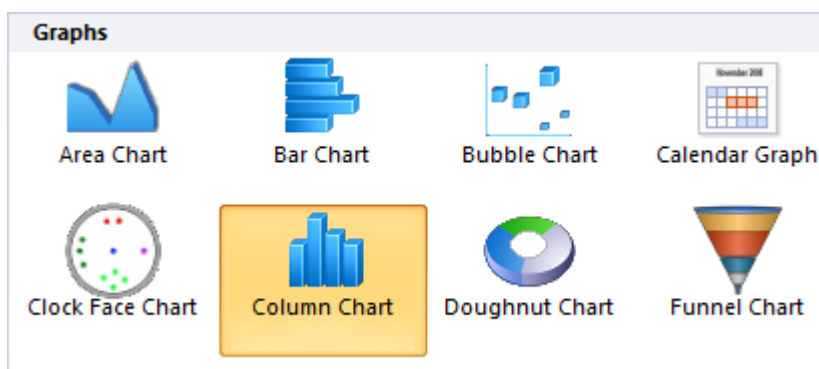
Once you have dropped a graph panel onto a model, you can flip it and set its contents, and use the **Panel** group of tabs on the ribbon to format it. These tabs vary depending on the graph panel type.

Adding a graph panel

Task 10 To add a graph panel to a model:

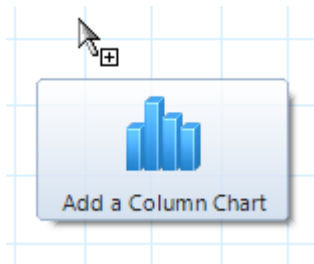
1. Open the model.
2. On the **Home** tab, in the **Insert** group, click **Graphs**.

A gallery of graph panels is displayed. For example, here is part of the gallery:



3. Click a graph panel.

The pointer shows the type of graph panel.




4. Click where you want the graph panel to appear.
The graph panel is added to the model, and opens on its flip side.
5. Use the flip side to set the graph panel's content.

Column chart example


The flip side varies between graph panels, although they all share common characteristics. The points here are for a Column chart, but should help you with any graph panel.

To help you configure a Column chart:

- As you use a flip side, the  icon on a tab or next to a setting suggests what you should pay attention to.
- On the **Content** tab, use **Subject of panel** to set the subject element.
- **Information shown** displays the **Select Content** dialog box for the subject element. Use this to find and select what will be shown on the chart. For example, if the subject element is a project element, **Information shown** could be its children (sub projects). Often you will set this to a query.
- Use the **Results** tab to see what the **Information shown** setting has found. These will be the columns in the chart. You can reorder the items, and hence the columns.
- If you set **Information shown** to a query that starts from **the parameter** or uses variables, these will be exposed on the **Inputs** tab for pinning. The **Inputs** tab adjusts itself as necessary and may only include some basic refresh options.

- **Select fields** displays another **Select Content** dialog box. Use this to find and select what will be plotted for each item on the X axis. For example, this could be cost, meaning that the chart will plot the cost for each project.
- You can select more than one field, meaning that a **data series** will be plotted for each field. For example, you could have estimated and actual cost for each project.
- If you set **Information shown** to an Aggregation matrix, **Select fields** is removed from the dialog box. Instead you get the **Assign** setting which defaults to **Aggregation (X – rows, Y – 1st column...)** meaning that the matrix rows are plotted on the X axis and the columns (facts) are plotted as series on the Y axis.
- **Show data table** shows you a table containing the data found as a result of your **Information shown** and **Select fields** (or **Assign**) settings. This lets you check the data that will be plotted on the chart.

6. To flip the graph panel and reveal its content, click **OK**.

Note: If the **Flip** button is red, your graph panel needs further configuration. In most cases, an exclamation icon  next to a tab or setting indicates where the issue is.

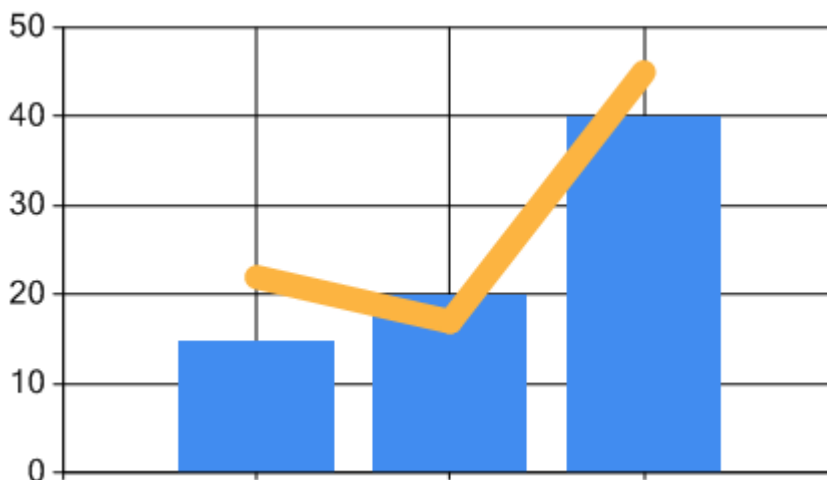
7. Use the **Panel** group of tabs on the ribbon to format the graph panel.

As you change settings, the graph panel changes to show the effect.

8. If the graph panel is going to be used on the web, preview its functionality in Active Enterprise. Use the **Web** tab on the ribbon. It includes a **Preview** command. See [Active Enterprise](#) on page 147 for details.

The General chart type

There are many graph panels. The most flexible is the General chart. It is highly configurable as you get direct access to its underlying settings. It defaults to a column chart, but can be changed to many other formats including pie and bar. One particular reason for using the General chart is that each data series can be plotted in a different format, for example:



The downside of the General Chart is its configuration is less obvious due to working at a lower level. Best practice is to use the dedicated graph panels first and only use the General chart where necessary. See the *General Chart User Guide* for full details.

Action panels (making models for the web)

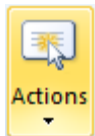
Action panel is the general term for the many controls that allow you to develop dynamic web solutions using MooD Active Enterprise. They are grouped into the following categories:

- **Controls.** Includes many general purpose controls such as drop-down selection, calendar and tick box controls.
- **Editing Elements.** Includes, for example, a control that lets users edit the contents of a specified field.
- **Navigation.** Includes, for example, a control that lets users choose, and then go to, a model.
- **Security.** Includes, for example, controls to create users and send password reminders.
- **Web Page.** Page management controls such as a refresh timer.

You should be able to find action panels that suit your solution requirements.

All action panels are added in the same general way. You place them on a model that you intend to publish using Active Enterprise, and then configure and format them to get the look, feel and interaction you require.

When a model is displayed, the **Home** tab includes an **Insert** group. This has an **Actions** command.



Click this to see a gallery of action panels that you can add to the model.

Once an action panel is on a model, you can flip it and configure its content or behaviour, and use the **Panel** group of tabs on the ribbon to format it. The tabs vary depending on the action panel type.

Here is an example scenario for action panels. You want to add a button that generates a report on the primary element in a Model Master (basically produce a report on what the user is looking at). You have a Documents synchronizer that generates the report using a variable for the subject element. To do this you:

- Add the **Button** action panel to the Model Master, flip it, and set it to **Execute a synchronization** (you get to choose from a variety of repository, navigation and generic actions).
- Because the **Execute a synchronization** action is selected, the button's **Content** tab now includes a field that lets you choose the actual synchronizer.

Once you select the Documents synchronizer, because it includes a variable, the button's **Inputs** tab gets a field (and pin) for that variable. Pin this variable to the Primary Element symbol on the Model Master. Hence the report will be generated for the element currently being viewed.

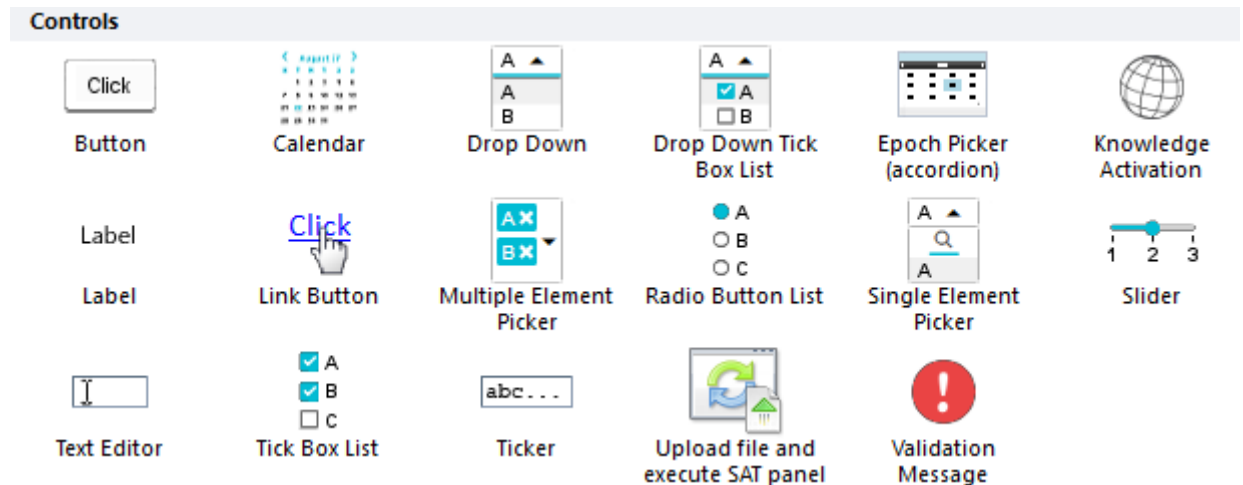
This next task illustrates much of what has just been described.

Adding an action panel

Task 11 To add an action panel to a model:

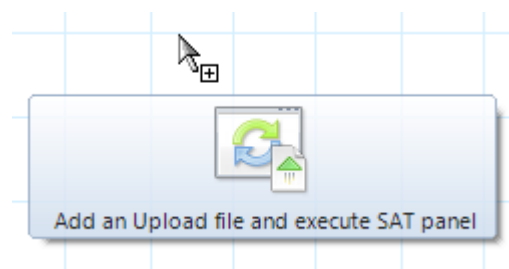
1. Open the model.
2. On the **Home** tab, in the **Insert** group, click **Actions**.

A gallery of action panels is displayed. For example, here is part of the gallery:



3. Click an action panel.

The pointer shows the type of action panel.



4. Click where you want the action panel to appear.

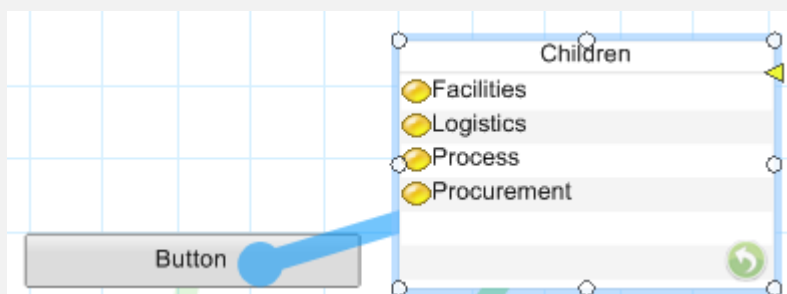
The action panel is added to the model, and opens on its flip side.

5. Use the flip side to configure the action panel.


Button example

The flip side varies between action panels. As an example, here is the flip side of the Button action panel:

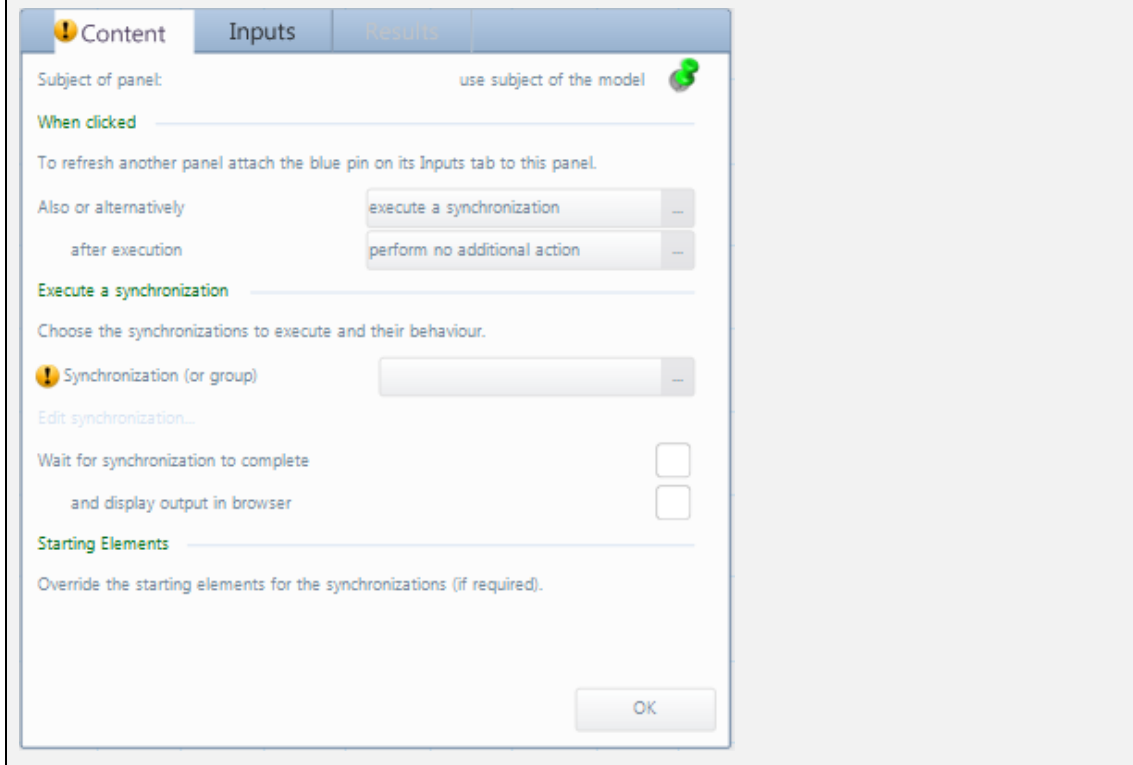
A Button is often used to refresh another panel. To do this, you pin the blue pin on **that** panel's **Inputs** tab to the Button. The following image shows an Info panel **blue pinned** to the Button action panel.




You can use the **Also or alternatively** setting on the **Content** tab to display the **Select Action** dialog box (shown next) from which you can select the action required.

If you select an action that requires further configuration, the flip side adjusts and points you in the right direction (the  icon). For example, as shown in the following

image, if you configure a Button to **Execute a synchronization**, the **Content** tab changes to include synchronization settings.



6. To flip the action panel into place, click **OK** (or press **F9**).

Note: If the **Flip** button is red, the action panel needs further configuration. In most cases, an exclamation mark icon  next to a tab or setting indicates where the issue is.

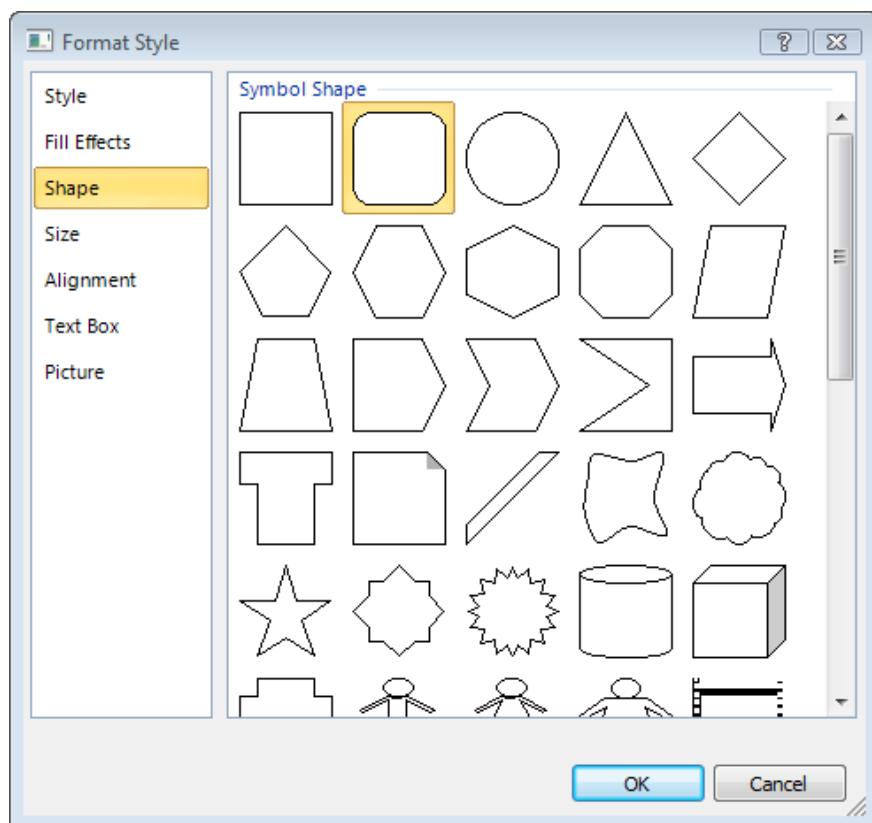
7. Use the **Panel** group of tabs on the ribbon to format the action panel.
As you change settings, the action panel changes to show the effect. The **Layout** tab also includes some formatting commands.
8. Test the action panel by previewing its functionality in Active Enterprise. Use the **Web** tab on the ribbon. It includes a **Preview** command. See [Active Enterprise](#) on page 147 for details.

Styles

Styles let you apply formatting consistently throughout a repository. For example, you can have a style that makes all Info panels use the same colour scheme.

Styles are reusable items. Hence, in the Explorer Tree, they are listed under **Libraries**.

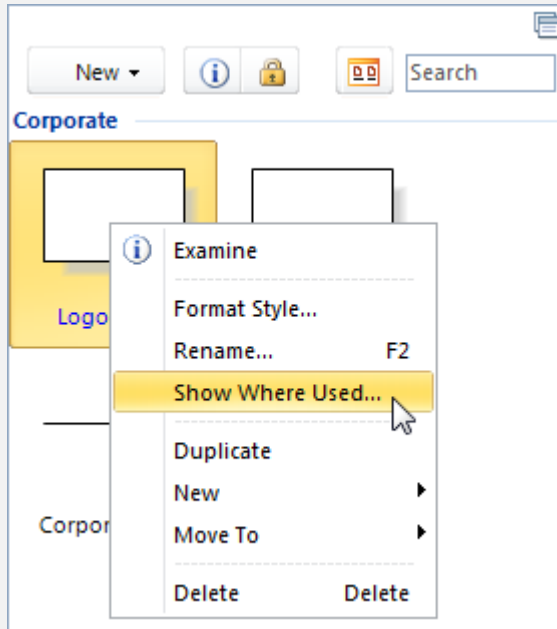
In the Styles pane, if you right-click a style and then click **Format Style**, it displays the **Format Style** dialog box shown in the following image. Within this dialog box, the style's current settings appear highlighted.



Tip

It can be useful to know where styles are used, and whether something has a style applied.

- To see a list of elements and models where a style is used, in the **Styles** pane, right-click a style, and then click **Show Where Used**.



You can then open a model and see how the style looks in use.


- To find out if something on a model is formatted with a style, you can:
 - Click it, and then, on the **Home** tab, in the **Drawing** group, click **Style Gallery**. If a style is applied, it is highlighted in the gallery.
 - If the item is not an element, for example, an Info panel, get its tooltip to appear. If a style is applied, it is included.

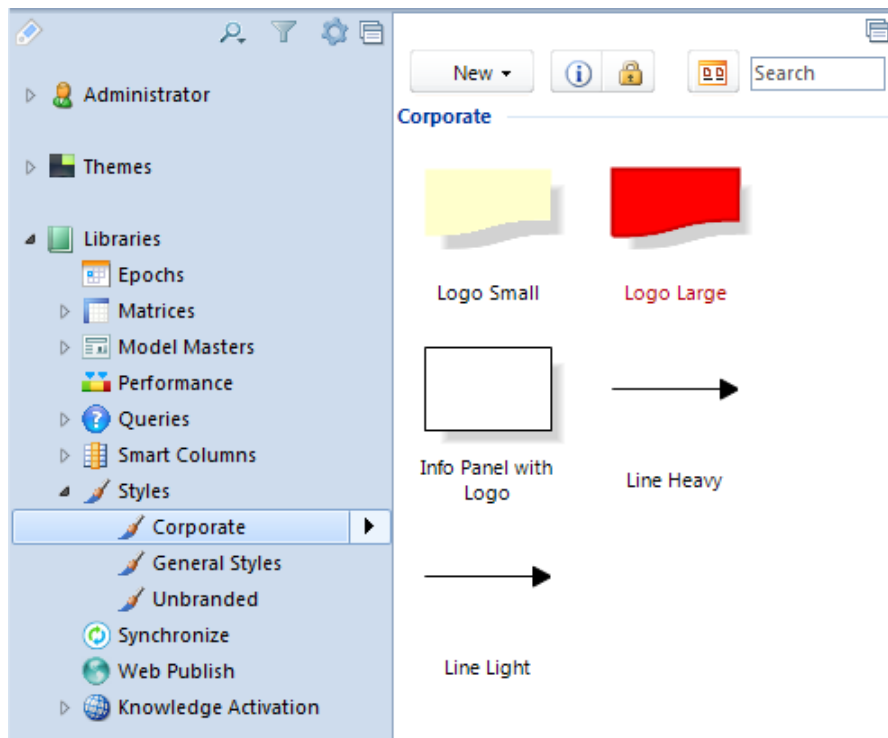
Creating a style

You can add a style in two ways:

- Create a new style, and then format it. This method is covered in the next task.
- Create a style from something already formatted. This method is useful if you have formatted something and then decide that you would like to save that formatting for use elsewhere. The two ways of doing this are covered after the task.

Task 12 To create and format a new style:

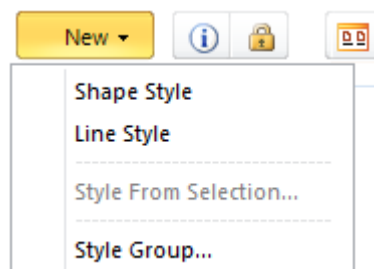
1. In the Explorer Tree, under **Libraries**, click the  button next to the styles group that you want to add the new style to.



This selects the style group, and displays its Styles pane.

2. In the Styles pane, click **New**.

This displays the list shown here:



3. Do one of the following:
 - If you want to create a format for shapes, click **Shape Style**.
 - If you want to create a format for lines, click **Line Style**.

Either choice adds a style with the name **New style**. It has default, basic formatting.

4. Rename the style.
5. Right-click the renamed style, and then click **Format Style**.

The **Format Style** dialog box is displayed.

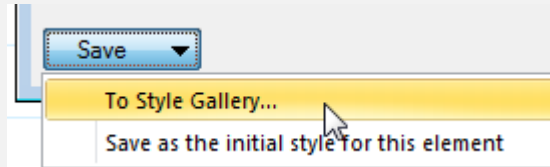
6. Format the style as required, and then click **OK**.

The representation of the style changes to reflect the applied formatting. You can return and change the formatting at any time. If you change a style that is already in use, those occurrences are updated to reflect the modified style.

Create a style from an existing item

If you like the way something is formatted, you can create a style from it. You can do this in several ways:

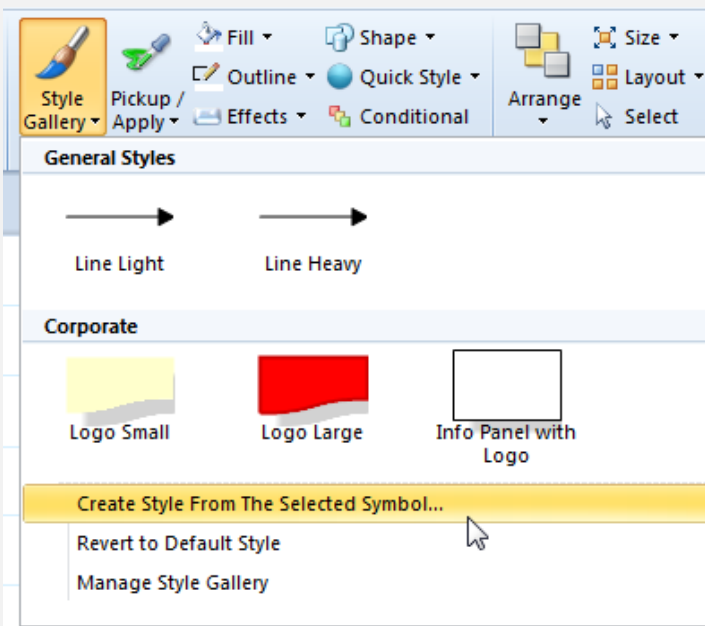
- Click the item to select it, and then, in the **Styles** pane, click **New**, and then click **Style from selection**.
- Right-click the item, and then click **Format Style**. This displays a **Format Style** dialog box with a **Save** button. Click **Save**, and then click **To Style Gallery**.



This displays the **Save Style** dialog box. Use this to save the formatting as a new style, or to overwrite an existing style.

Note: If you overwrite an existing style, all occurrences of that style are updated to reflect the new formatting. Before doing this, you may want to right-click a style and then click **Show Where Used** to see how many models will be affected.

- Select the item, and then, on the ribbon, click **Style Gallery**, and then click **Create Style From The Selected Symbol**.

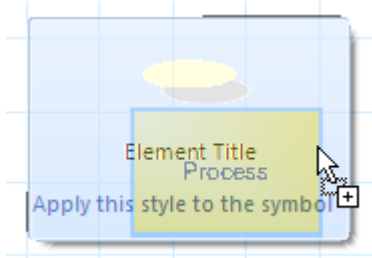


This displays the **Save Style** dialog box. Use this to save the formatting as a named style.

Applying, updating and deleting styles

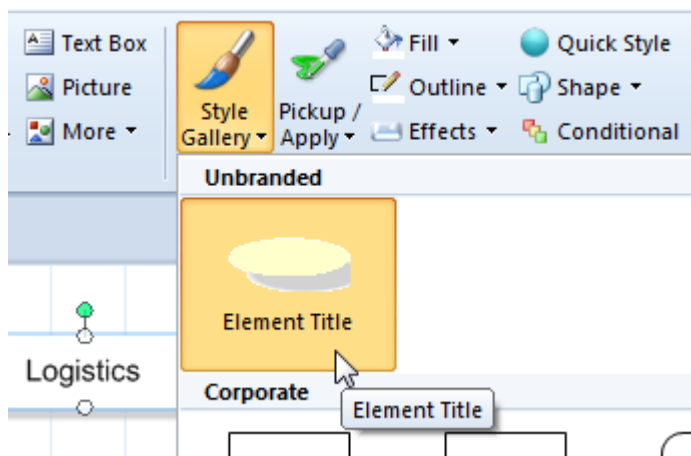
You can apply styles in the following ways:

- Use the Explorer Tree to open a Styles pane, and then drag a style onto the item you want to apply it to. Business Architect tells you that the style will be applied when dropped, as shown here:



Note: If you drop a style directly onto the model itself, a text box is created with that style.

- Select the item that you want to apply a style to, and then, on the ribbon, use the **Style Gallery** button to select and apply a style.



The main benefit of styles is that when you update one, the change is applied to everything that has that style. This can be useful if, for example, you decide that a rectangle would be better than a circle, or that a line should be thicker.

To update a style:

- In the Explorer Tree, under **Libraries**, open a Styles pane and find the style. Right-click the style, and then click **Format Style**. Use the **Format Style** dialog box to change the style. When you click **OK**, everything with that style is updated with the changes. To see a list of places affected, right-click the style, and then click **Show Where Used**.
- Find an instance of the style in a model, update it, and then overwrite the style. See the [Create a style from an existing item](#) box on page 120 for more details.

Tip

When you delete a style, it is removed from the repository, and items with that style lose their association. However, they do not lose the style's formatting.

This means that deleting a style is not a quick way to revert everything tagged with that style to its default formatting. To do this, on a model, select a symbol with the style, and then, on the ribbon, click **Style Gallery**, and then click **Revert to Default Style**. Next, use the same menu's **Create Style From the Selected Symbol** command to overwrite the original style

with the reverted formatting. This puts everything tagged with that style back to the default formatting. You can then delete the style.

Difference between styles and formatting

On the **Home** tab, the **Drawing** and **Font** groups include many formatting options. You can apply formatting to individual items. You do not have to use styles. You can also apply a style to get some default formatting, and then change some of it. Provided you do not update the style based on that item, those changes are unique.

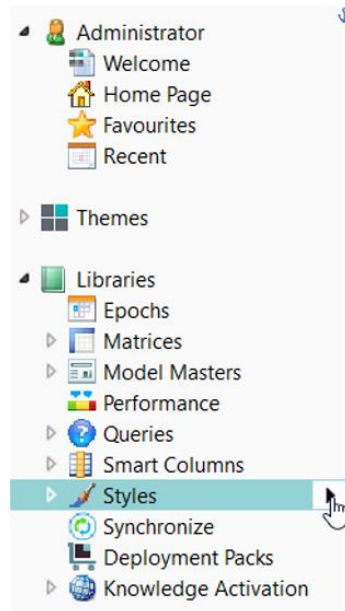
To find out if something on a model is formatted with a style, click the item to select it, and then, on the ribbon, click **Style Gallery**. If a style is applied, it is highlighted.

See [Selecting, formatting and arranging items on a model](#) on page 40 for general information on applying formatting without using styles.

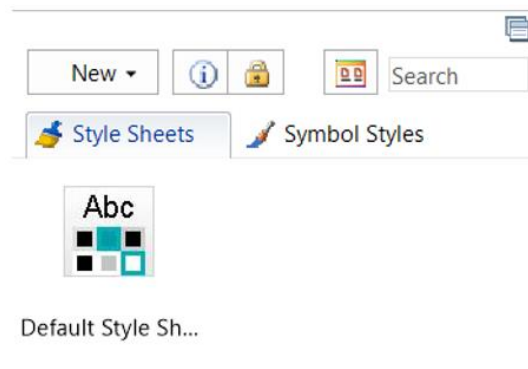
Style Sheets

Style Sheets are a brand-new way of styling your repository, with a slick UI and an intuitive editor, this new feature provides ease of use when creating new Styles.

To access Style Sheets in a repository, first go to Styles and there you will see a new tab option for 'Style Sheets'. New Style Sheets can be created by clicking 'New'.

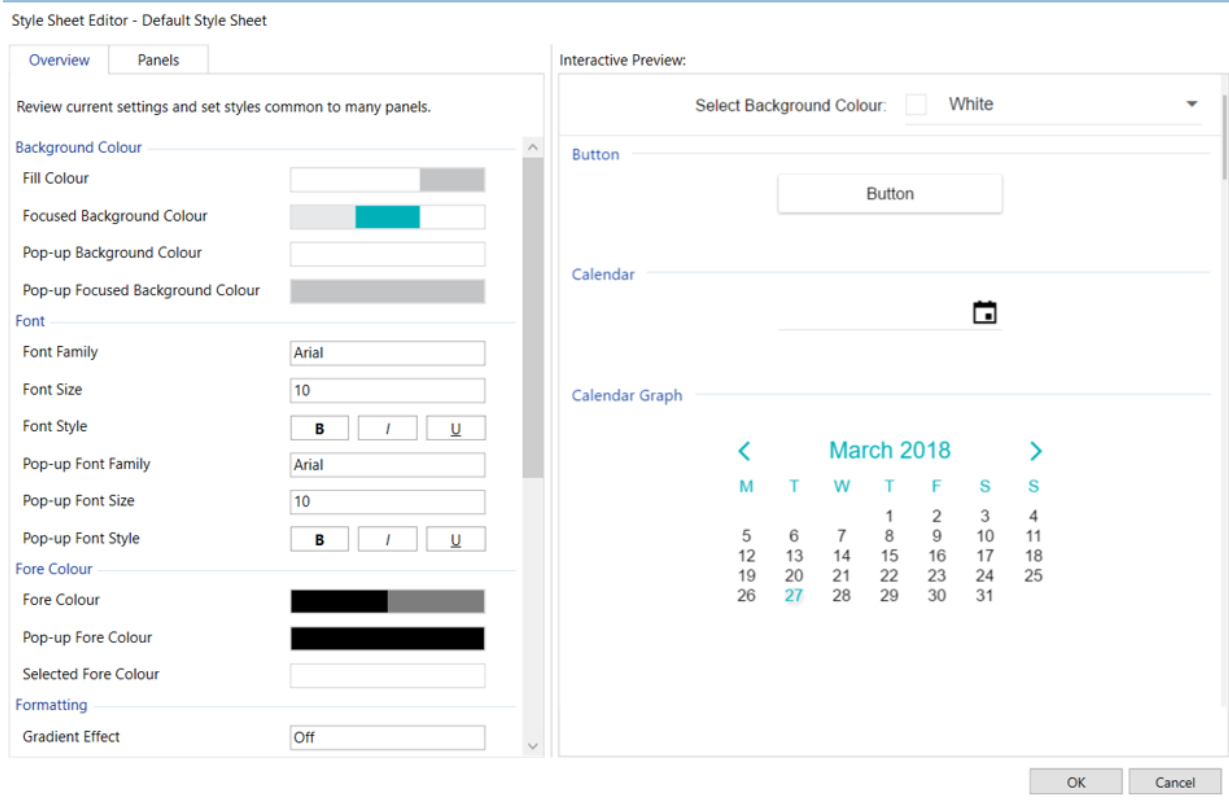


A Default Style Sheet is already present in the software. This Style Sheet cannot be deleted, moved around or renamed. When you are logged in as an Administrator and delete a Style Sheet, all panels associated with that Style Sheet revert to the Default Style Sheet.

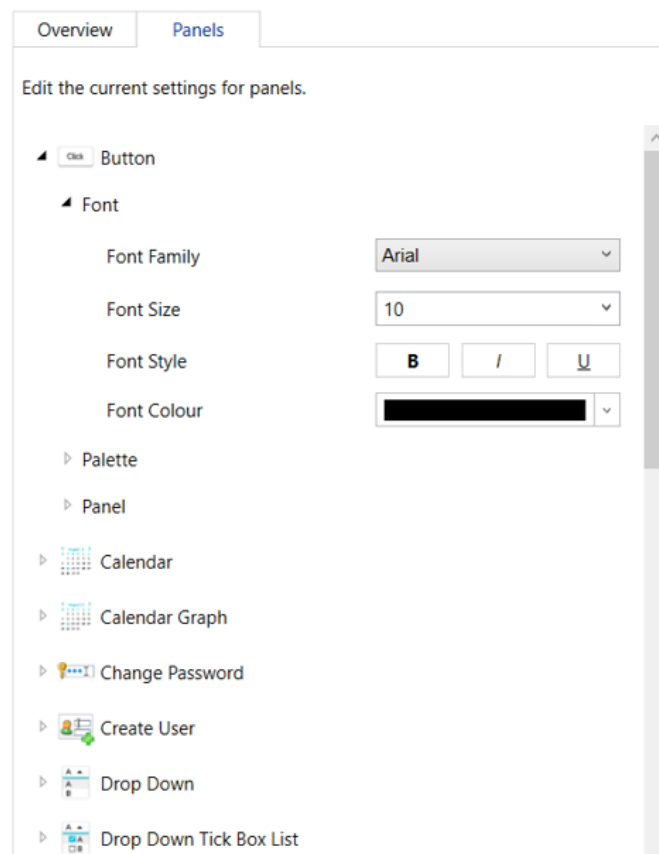


Click on your chosen Style Sheet to make the easy-to-use Style Sheet Editor appear. There are two tabs: the first Overview tab allows you to change setting and styles common in many panels, such as Font, and Background Colour.

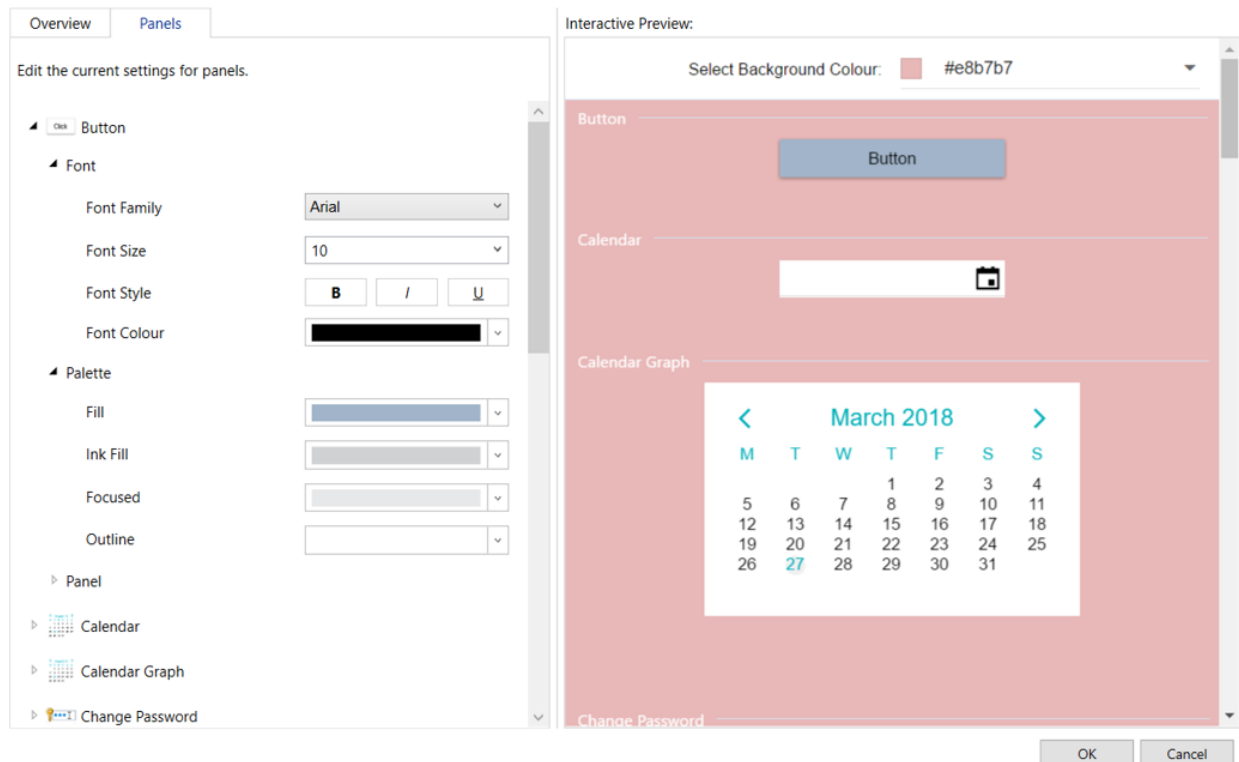
MooD 16 Getting Started Guide



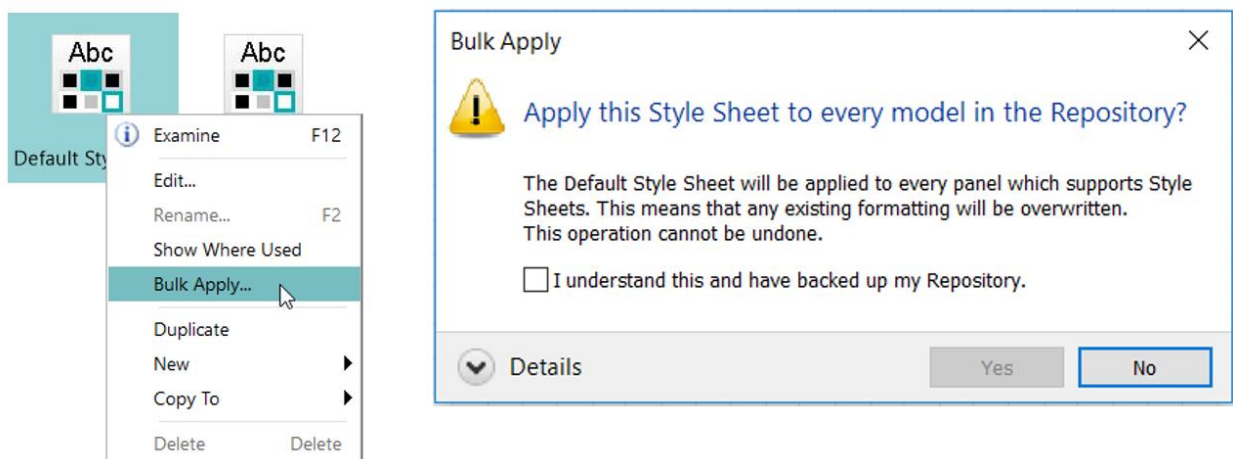
The second tab, Panels, provides a bigger customisable section, giving various options for separate panels.



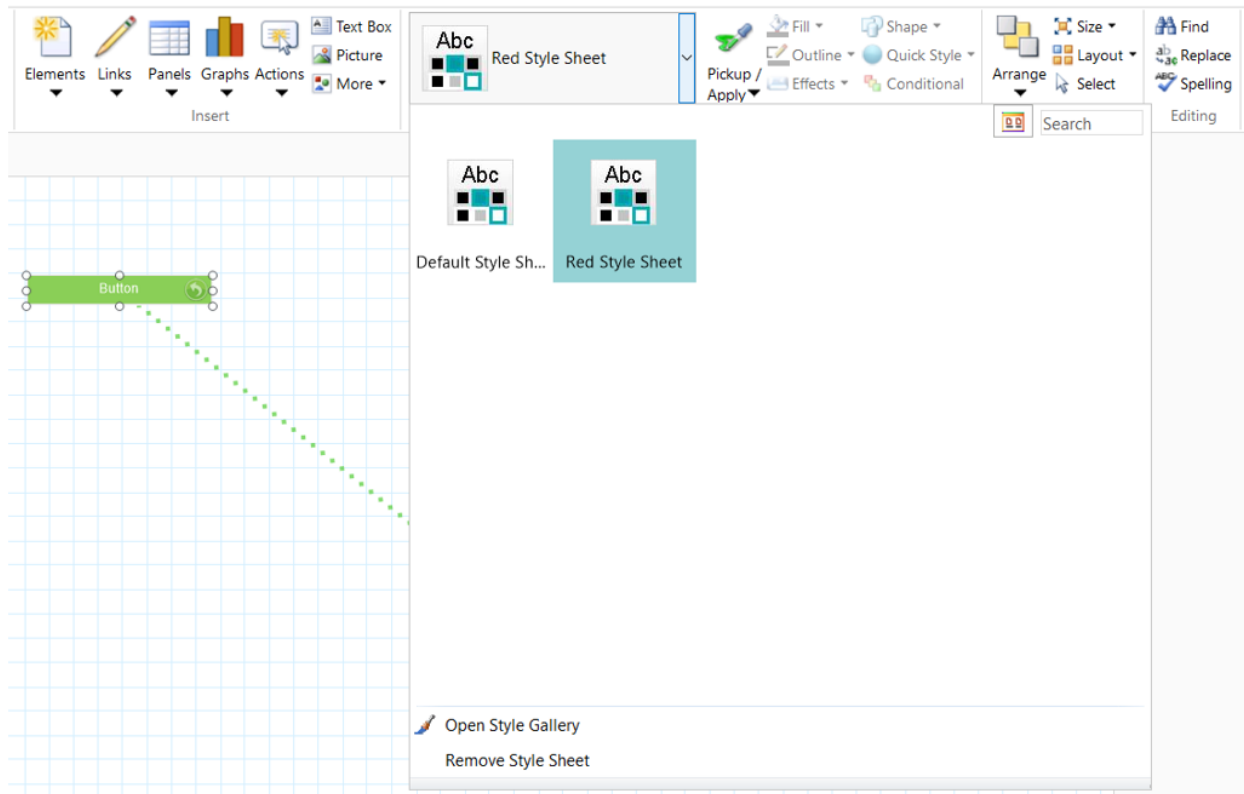
Another useful feature is the Interactive Preview. When customising panels and other parts of the repository, the preview will automatically show you the changes made in the editor and how it will appear in the repository.



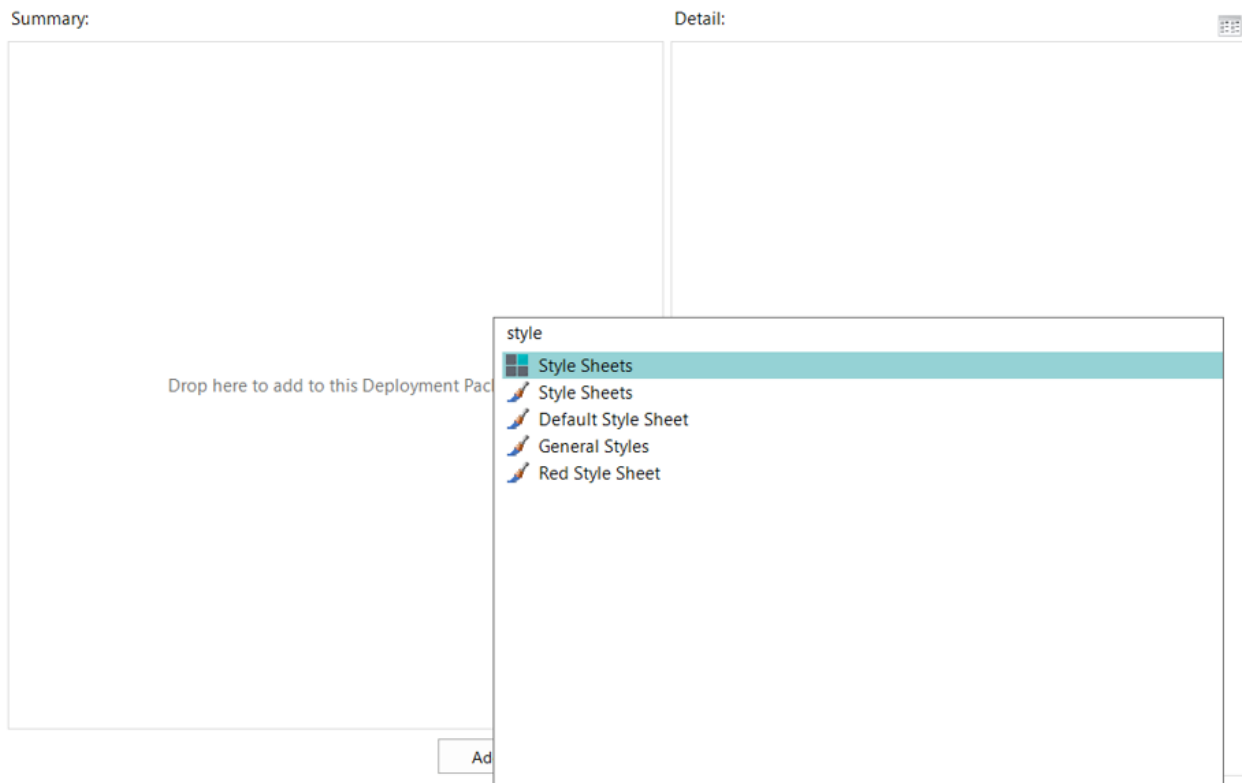
There is also the option to 'Bulk Apply' Style Sheets from the Default Style Sheet. This can be found in the Styles tab. By right-clicking the Style Sheet you wish to Bulk Apply, an option will appear allowing you to Bulk Apply. Bulk Apply will apply the selected Style Sheet to every model in the Repository.



When on a model, there is the ability to apply a Style Sheet to an individual panel. Simply select the panel, click on the drop-down box and select the Style Sheet you wish to apply.



Style Sheets can also be used in Deployment packs. Simply click 'Add...' to search for style sheets, which will then show you the available Style Sheets which can be deployed and used in another repository.



Model Masters

Model Masters let you apply templates to an element's model and thereby ensure consistent appearance and functionality. For example, a Model Master might include standard navigation controls and a corporate logo.

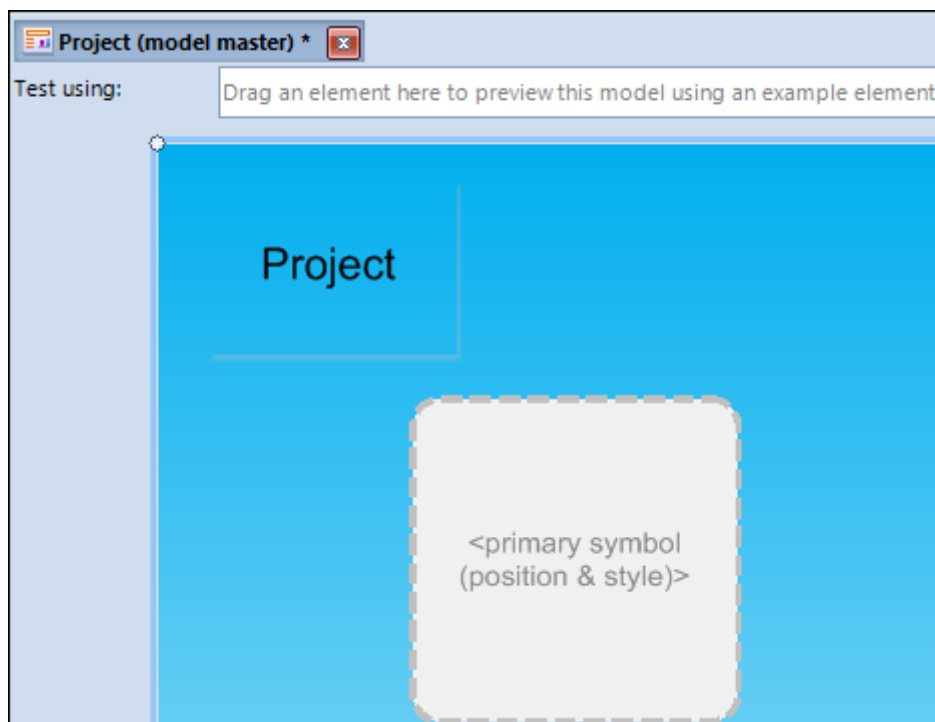
Model Masters save development time. Instead of repeatedly creating models for a theme's elements, you can create and apply one Model Master. Model Masters also save time when maintaining solutions. Changes to a Model Master affect all instances of its use.

A Model Master can include anything that can appear on a normal model. You can apply Model Masters to elements and relationships. You can also select the Model Master to use when an element is accessed from an Info panel, matrix, or selected types of graph panel. This overrides any Model Master setting that the element itself has.

Model Masters can be applied singly or in layers – known as **hierarchical Model Masters**. See [Hierarchical Model Masters](#) on page 131 for more information on this feature.

Model Masters are reusable items. Hence, in the Explorer Tree, they are listed under **Libraries**. To see hierarchical Model Masters you need to use **Tree** view. The **Thumbnail** views let you see individual Model Masters.

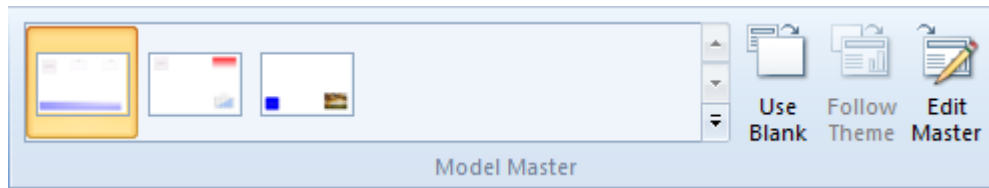
If you double-click a Model Master (or right-click, and then click **Look Inside**), it displays the Model Master's own model in the workspace, as shown in the following image.



The Model Master's model shows you what features and formatting it will impose when it is applied to an element. You construct and format this model like any other model. By default, it includes a **primary symbol**. This represents the element that the Model Master will be applied to.

To help you see what effect the Model Master will have, you can drag elements into the **Test using** box along the top of the model. That element becomes the primary symbol for the purposes of testing.

When a model is displayed, the **Model** tab includes the **Model Master** group, as shown in the following image. This includes a gallery of Model Masters that you can apply.



If the model does not have a Model Master, the **Edit Master** button is disabled (a quick way to open the Model Master used by a model is to click **Edit Master**).


Note: If you don't have any Model Masters, this gallery won't appear on the ribbon. Instead, the **Model Master** group will include an **Apply Master** button. This opens the Model Masters pane. You can then create a Model Master (as covered in the next task).

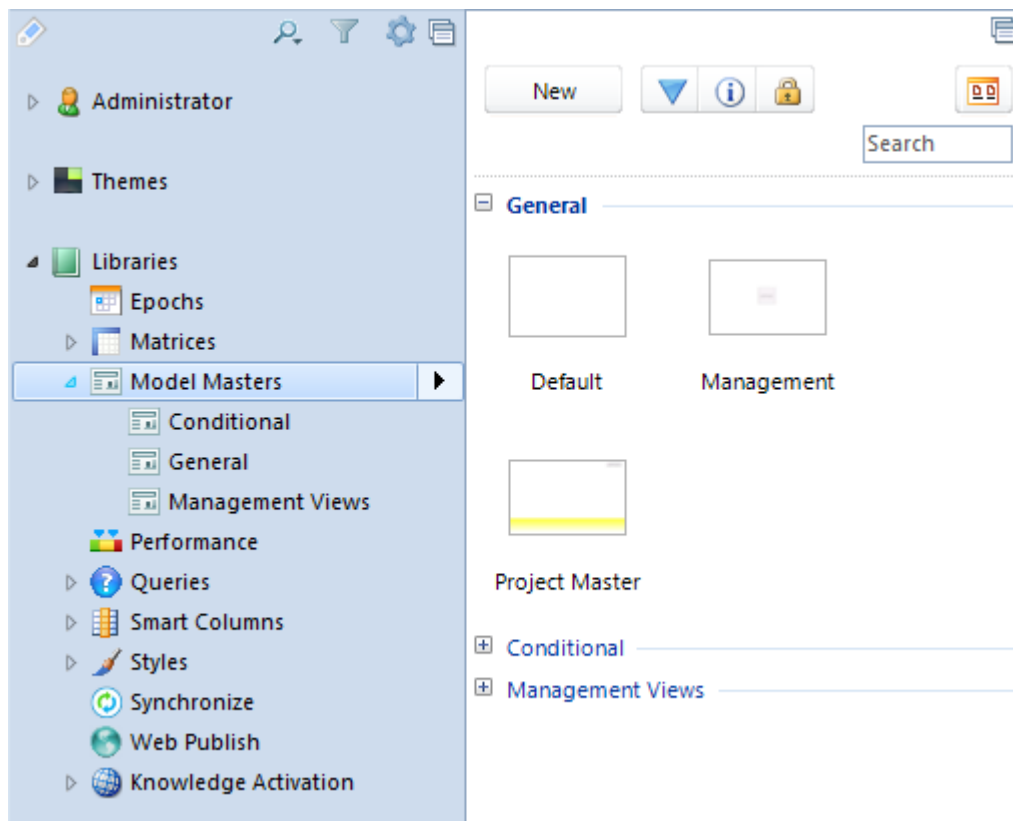
Creating a Model Master

You can create a Model Master in two ways:

- Create a new Model Master, and then format it. This method is covered in the next task.
- Duplicate an existing Model Master, and then modify it.

Task 13 To create and format a new Model Master:

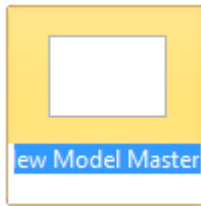
1. In the Explorer Tree, under **Libraries**, click the  button next to the Model Masters group that you want to add the new Model Master to.



This selects the Model Master group, and displays its Model Masters pane.

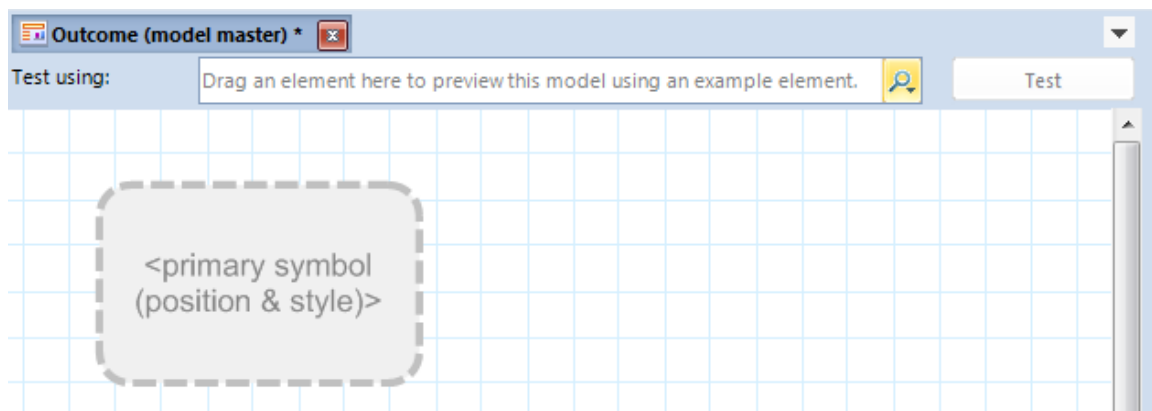
2. In the Model Masters pane, click **New**.

This adds a Model Master called **New Model Master**, and selects its name.



3. Give the Model Master a descriptive name.
4. Right-click the renamed Model Master, and then click **Look Inside**.

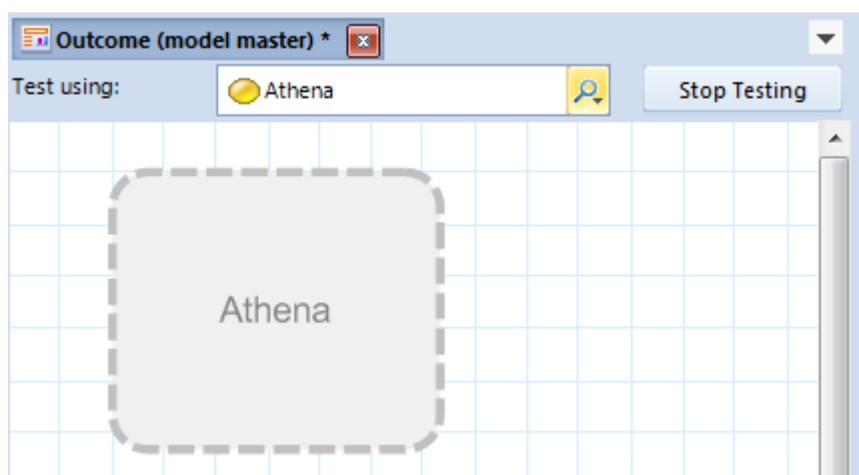
The Model Master's model opens in the workspace. In the images here, the Model Master is called **Outcome**.



Note: Model Masters are typically targeted at a type of element (known as the **primary symbol**). In most cases, it is useful to develop a Model Master with a suitable element in place. For example, if you are going to include and configure an Info panel, you need an element in place to see the effect of the Model Master. This example continues on this assumption.

5. Drag a suitable element into the **Test using** box.

The primary symbol is populated with this element, and the **Test** button toggles to **Stop Testing** (you can continue in either mode).



6. Configure the Model Master.

To help you:

- You can add Info panels, matrices, graph panels, action panels, and anything else that you could put on a standard model.
- You can pin content.
- You can format everything, and that formatting will be used whenever the Model Master is used with an element.
- If the target element has its own model, remember that the end result will include the content of the element's model on top of the Model Master. You should consider whether anything on an element's model is better suited for inclusion on the Model Master. Also decide if hierarchical Model Masters might be suitable. See [Hierarchical Model Masters](#) on page 131 for details.
- As you develop a Model Master, you should iteratively test it with suitable elements.

7. Click **Save**.

You can now:

- Preview the effect that applying a Model Master will have. See [Previewing Model Masters](#) on page 130 for details.
- Apply the Model Master to models. See [Applying and removing Model Masters](#) on page 130 for details.
- For Active Enterprise:
 - Assign the Model Master to items such as matrices and Info panels so that any elements accessed from them in Active Enterprise use that Model Master
 - Use the Model Master as part of a condition so that elements without models get a model based on that Model Master when they are accessed in Active Enterprise. See [Model Masters with Active Enterprise](#) on page 132 for details on both of these.

You can return and modify the Model Master at any time. Changes to the Model Master will update the models that use it.

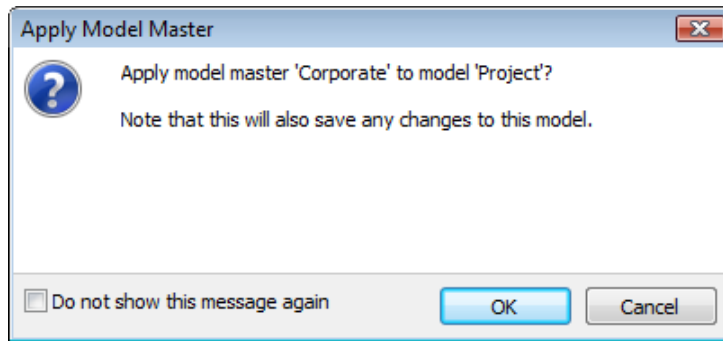
Previewing Model Masters

Before you apply a Model Master, you can preview it. To do this, drag an element from the Explorer Tree and drop it onto a Model Master in a floating Model Masters pane. This gives you a **Preview** window. You can resize this window for a clearer view of the Model Master. This saves you from opening the actual Model Master.

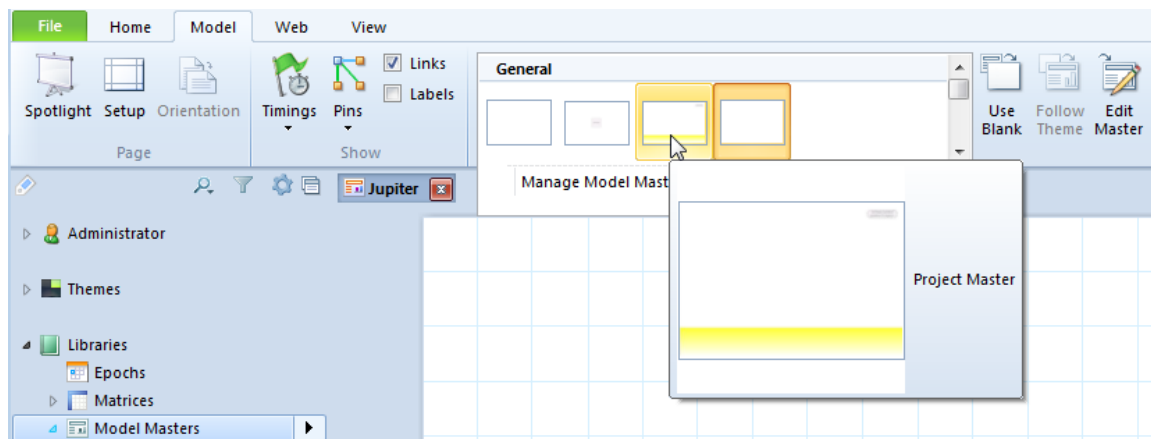
Applying and removing Model Masters

You can apply Model Masters to models in several ways:

- Use the Explorer Tree to open a Model Masters pane, and then drag a Model Master onto a model displayed in the workspace. By default, Business Architect tells you that the Model Master will be applied when dropped, as shown here:



- With the model displayed in the workspace, on the ribbon, click the **Model** tab, and then, in the **Model Master** group, use the gallery to select and apply a Model Master.



- In the Explorer Tree, right-click the element, and then click **Tools**, and then click **Apply Model Master**. This displays the **Apply Model Master** dialog box.

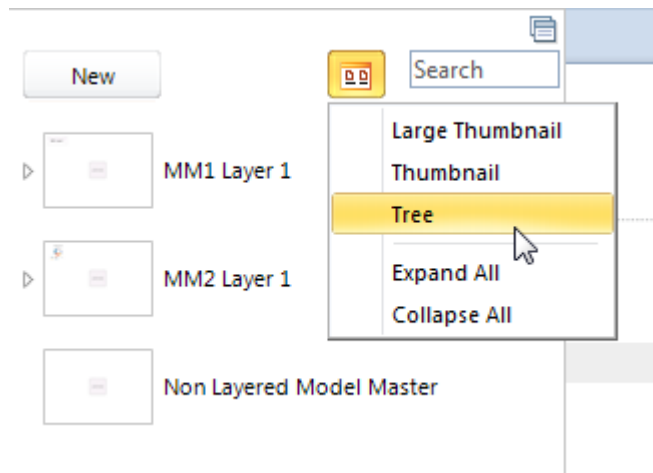
In each case, applying the Model Master saves the model, including any changes made prior to applying the Model Master.

You can also associate a Model Master with an element type in **Manage Themes**. This means the Model Master is automatically applied to any models created for elements of that type. See [Creating Element Types](#) (page 152) and its [Associating a Model Master with an element type](#) sub section for details.

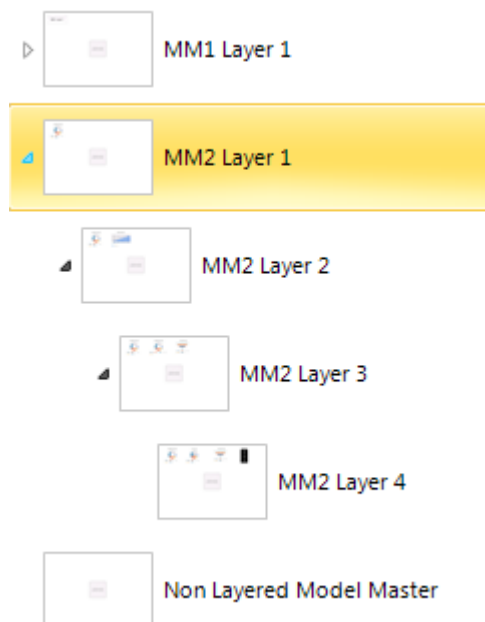
To stop a model using a Model Master, with the model displayed in the workspace, on the ribbon, on the **Model** tab, in the **Model Master** group, click **Use Blank**. This removes any applied Model Master.

Hierarchical Model Masters

Hierarchical Model Masters let you build up layers of Model Master content. Each Model Master layer can include pinned content. Use **Tree** view to see hierarchical Model Masters.



The ▶ symbol indicates a hierarchical Model Master. Click this to expand that particular hierarchy (as shown in the previous image, you also have **Expand All** and **Collapse All** commands). For example:



To create Model Master hierarchies, do either of the following within **Tree** view:

- Click **New** to create a Model Master and then move it into position (drag and drop just like an element).
- Right click a Model Master and then click **New**. This creates a new Model Master that inherits from the original Model Master.

Using Model Masters with Active Enterprise

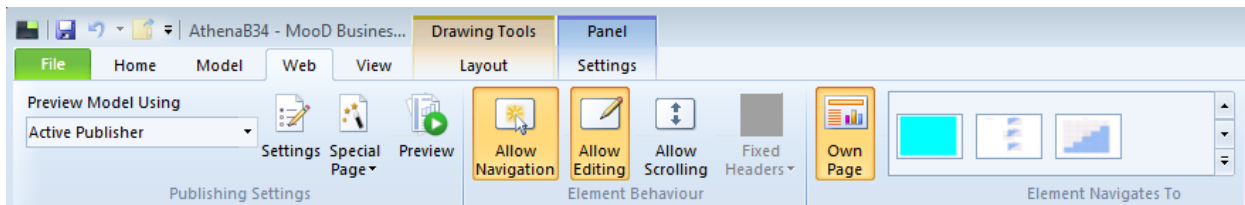
Active Enterprise has special features for Model Masters

- The **Element Navigates To** setting for matrices and other panels. This controls the Model Master used when an element is accessed from the panel.
- Conditional Model Masters. Rules that determine the Model Master used when an element does not have a model.

Element Navigates To takes precedence over any conditional Model Master setting. Both of these features are introduced below.

The Elements Navigates To setting

When developing a web based solution, you can control the Model Master used by an element when it is accessed from a matrix, Info panel, relationship, or certain graph panels. When one of these is selected on a model, the ribbon includes a **Web** tab. This includes the **Element Navigates To** command group. Use this to specify the Model Master used when an element is accessed from that item in an Active Enterprise environment.



Tip

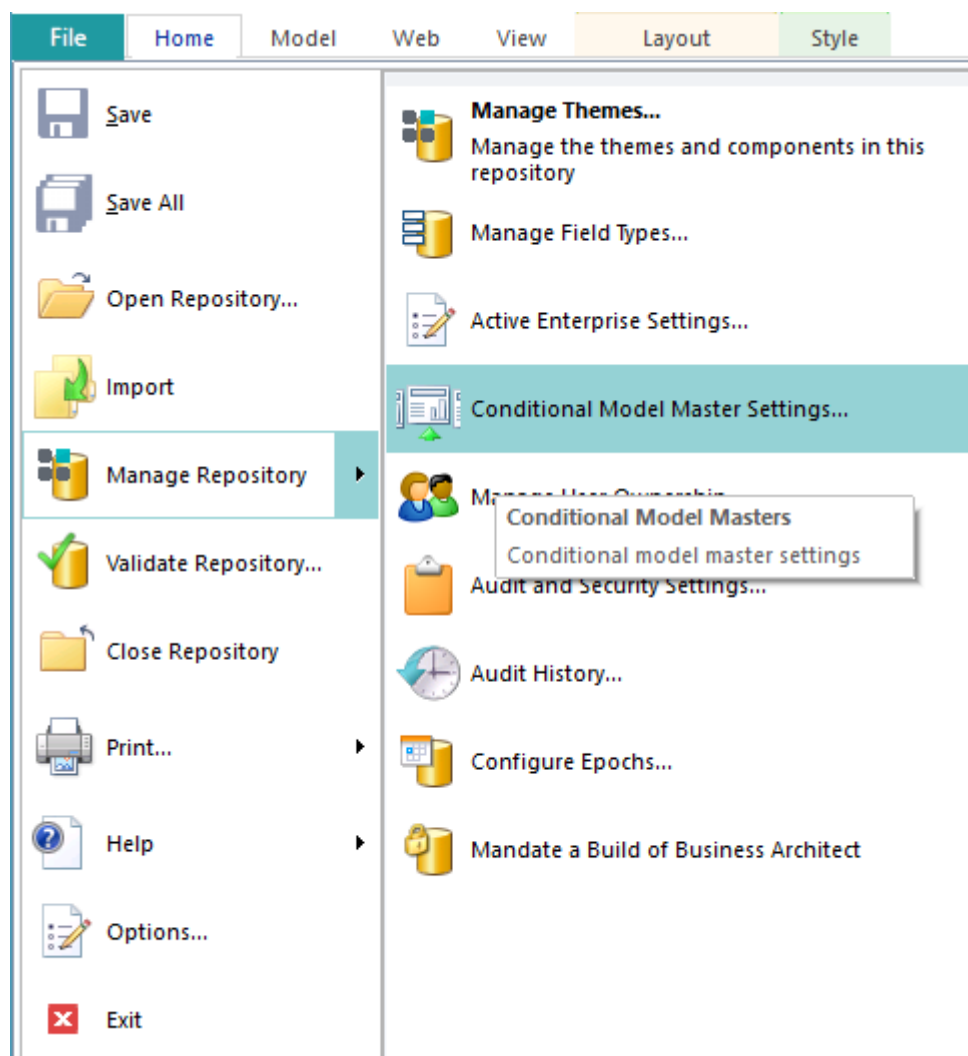
If you have set a Model Master for an item and then decide against using a Model Master, click **Own Page**. This displays the element on its own model. You cannot use the gallery to unset a Model Master.

Conditional Model Masters

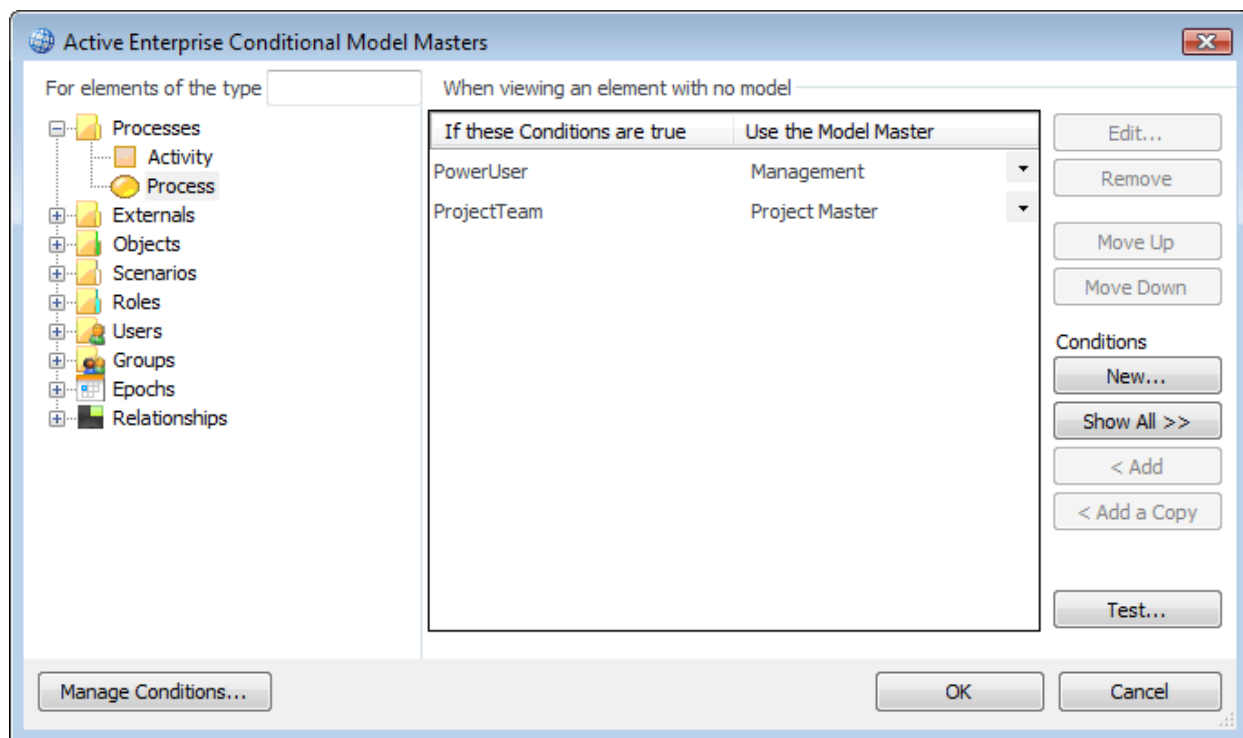
Active Enterprise lets you set conditions that, when met, result in a particular Model Master being used when an element **does not have a model** (this is a key point). This means that the element gets a model based on the Model Master. Conditional Model Masters can also be used with relationships (relationships don't have models).

Conditions are rules that let you control both presentation and workflow when a repository is viewed in a web based solution. For example, you can impose a Model Master based on the status of an element, and the user involved. So, the Model Master for a finance user could include the full financial impact of an issue. Engineering users could be spared this detail and only see technical detail. Senior management could see everything. Conditional Model Masters let you tailor the presentation of elements to your various operational requirements and circumstances. Conditions can be simple or complex, and you can have multiple conditions working in conjunction.

To access this functionality from Business Architect, in the File tab, under **Manage Repository**, click **Conditional Model Master Settings**.



Click **Conditional Model Masters** to display the **Active Enterprise Conditional Model Masters** dialog box.



Use this dialog box to create your conditions.

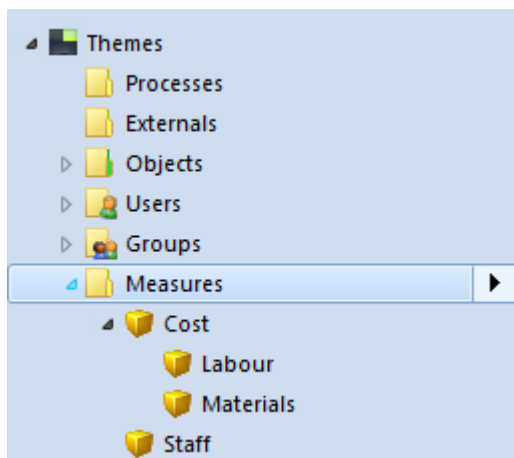
Measures

Note: See [Measures](#) in the *Key concepts* section (page 17) for general material on measures and their configuration in **Manage Themes**. The text below assumes you have measures available in the Explorer Tree.

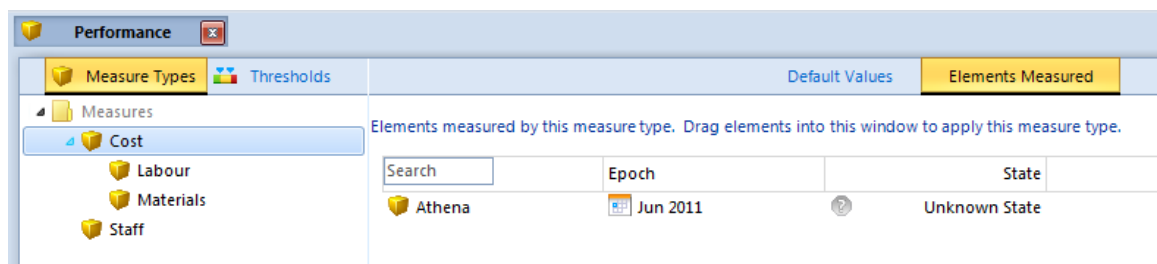
Measures record performance. For example, cost is a typical measure that you might want to record, and then display in Info panels, matrices and charts. Measures are also used to monitor and report on the status of elements. For example, if a project cost measure exceeds a given threshold, a traffic light indicator can change to red.

Measures are elements, and therefore belong to a theme. Measures are also reusable items. Because of this, in the Explorer Tree, measures are listed in two places:

- Under **Themes**, in whatever theme your **measure types** have been created in. For example, **Measures** in the image here:

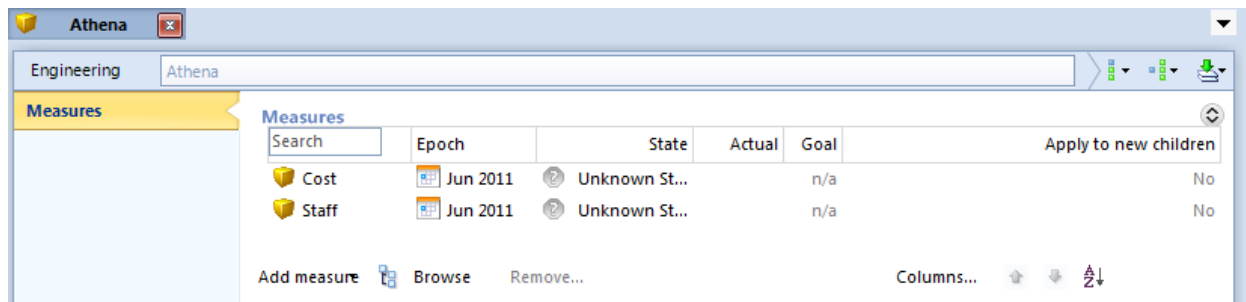


- In the **Performance** tab (in the Explorer Tree, click **Libraries**, and then click **Performance**). For example:

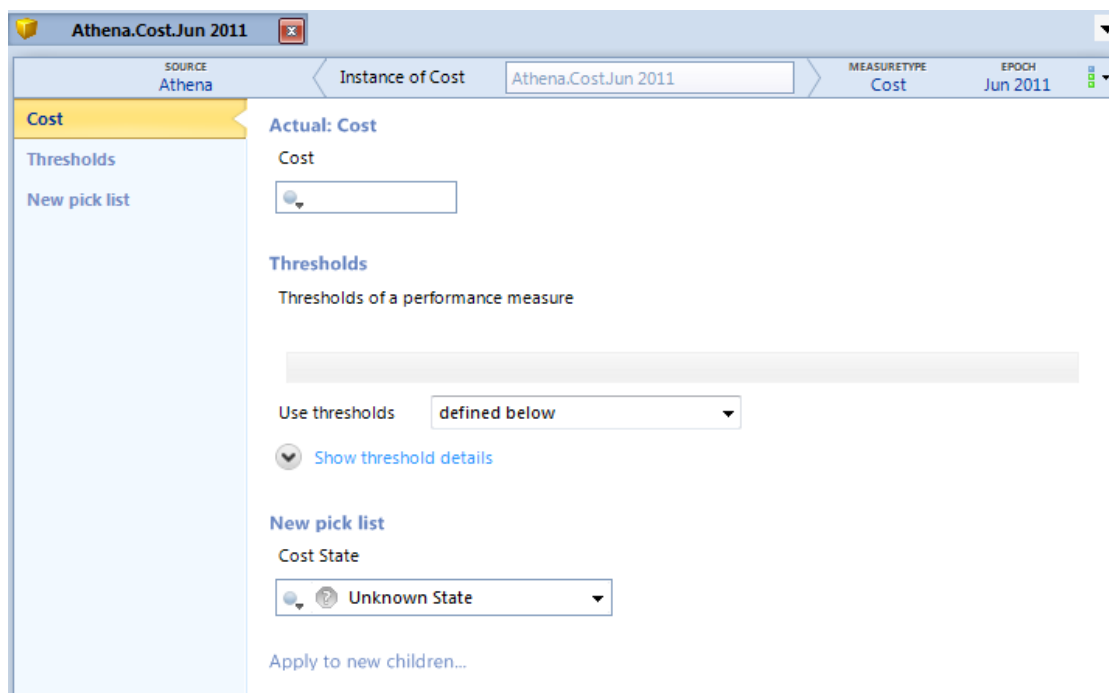


Both are different views of the same measures. The **Performance** tab gives you more direct control over measures, while having the measures listed under **Themes** lets you see and use measures more easily when other tabs are displayed in the workspace (for example, when you want to drag a measure onto an element).

Measures are applied to elements. Themes define what measures can be applied to their elements. As shown in the following image, if an element can have a measure, its definition will include a **Measures** field. This lists the measures applied to the element.



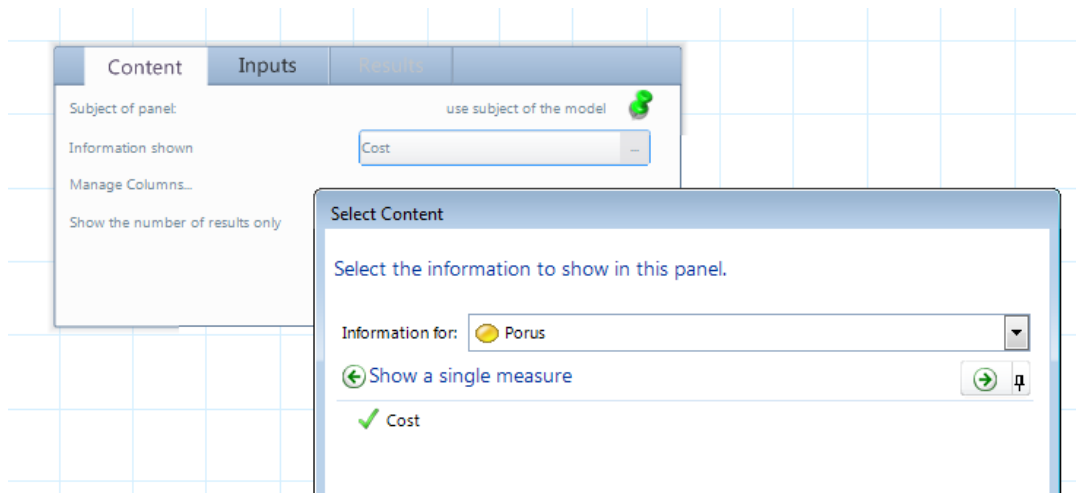
When a measure is applied to an element, this creates a **measure instance**. This is the value of that measure on that element for each epoch in effect. For example, the following image shows **Cost** from the previous image (you would right-click **Cost**, and then click **Open** to get this):



All measure instances have the same naming format of **Element.Measure.Epoch**. This uniquely identifies them, as illustrated by **Athena.Cost.Jun2011** in the preceding image.

Note: Measures are often populated with data imported using a regular synchronization (SAT). For example, you might import project costs on a monthly basis.

Throughout Business Architect, you can access and use measures and measure instances. For example, you can include them in an Info panel, as shown in the following image.



You can also use Epochs to record measures over a block of time. This allows calculations over time, and trend analysis. There is an *Epochs* guide. This is available within the Support area at www.moodinternational.com.

Variants

Variants are copies of elements. This can be a single element, or an element and its descendant elements. Variants know what element they are derived from, and elements know which variants have been created from them. Variants have the same definition, models and other information as the element they are copied from. However, once created, they are separate and independent elements. Originals and variants do not inherit or propagate changes between each other, and deleting one does not affect the other (other than removing the knowledge of being a variant, or of having a variant).

Variants are useful if:

- You have a core process that varies slightly between implementations. You can model the core process, and then quickly create the divergent cases you require. For example, a project process might vary slightly between geographic regions. You could have a core process for your primary region, and then create variants of this process for your remaining regions that you modify as required.
- You want to progressively develop parts of a repository. You can create a prototype of some repository structure, and then create a variant in order to preserve a base point before you make further changes. You can then easily return to this base point and make comparisons.

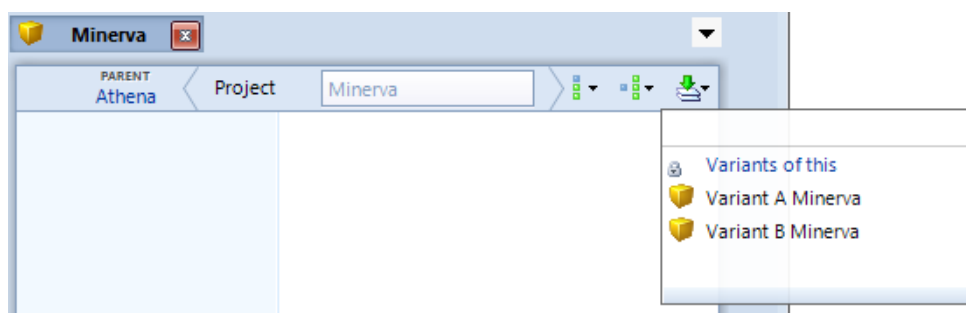
Finding out if an element is or has variants

Task 14 To see if an element is or has variants:

1. In the Explorer Tree, right-click the element, and then click **Open**.
This displays the element's definition in the workspace.
2. Click the **Variants** button (in the top right corner of the element's definition).

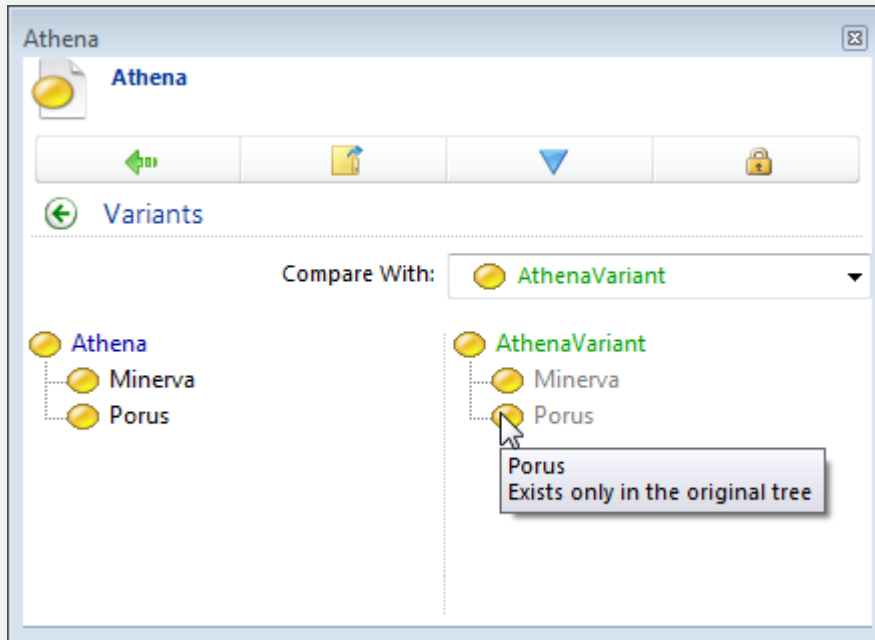


This displays whether the element is a variant of another element, and whether it has variants of itself.



Tips

- Each element's Examine pane includes information on its variants, for example:

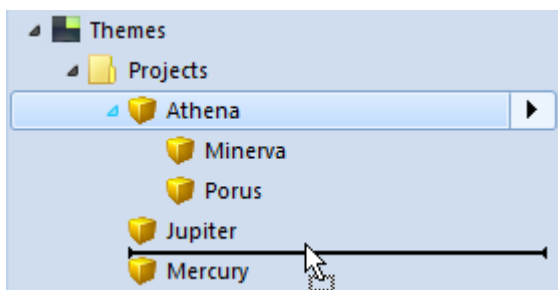


- You can filter the Explorer Tree by variants. This quickly shows you what variants you have in your element hierarchy.
- If an element's shortcut menu includes **Disconnect Variant**, it's a variant.
 - Creating a variant and then immediately disconnecting it is an effective means of creating a copy of an element (there is no element copy command in Business Architect, although you can copy their symbols on a model).

Creating variants

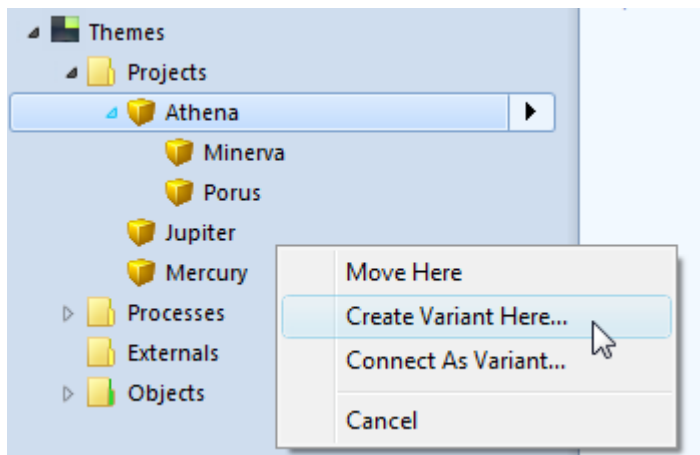
Task 15 To create variants of an element:

- In the Explorer Tree, right-click the element and hold the mouse button down. (Creating variants is a right-click drag drop operation.)
- Position the pointer at the location you want to create the variant(s).



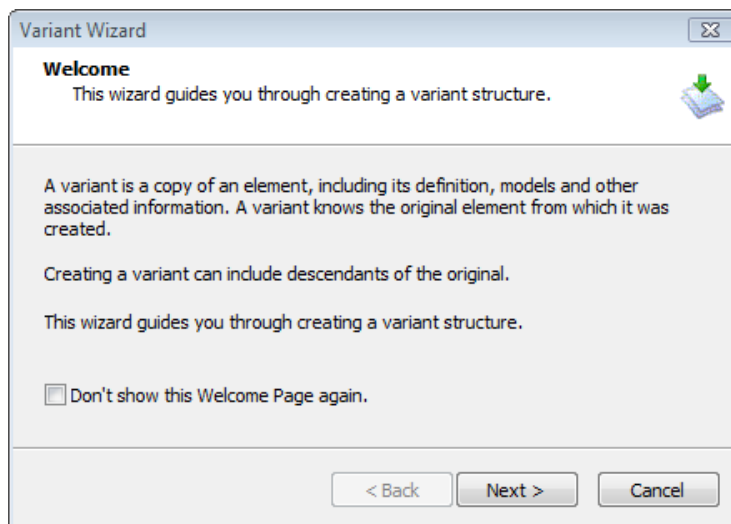
The underlined element will become the variant's parent in the hierarchy (in this example **Jupiter**).

- Release the right mouse button.
- This displays the shortcut menu shown here:



4. Click **Create Variant Here**.

This displays the Variant Wizard.



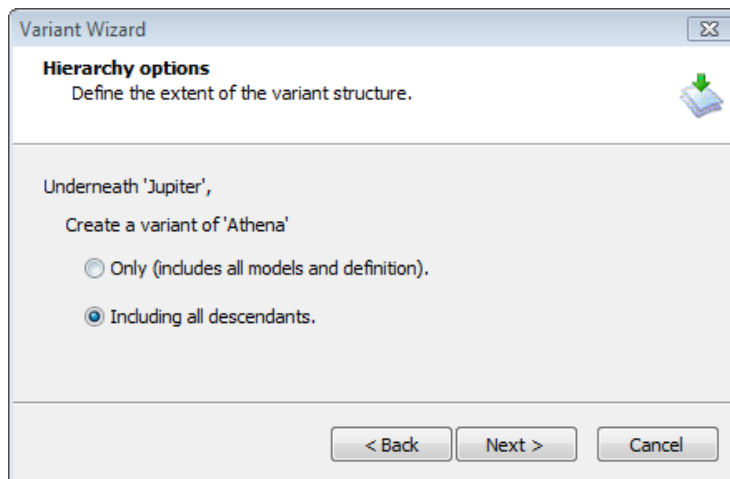
About Connect as Variant

The **Connect as Variant** command (which you can see in the image of the menu) makes an element a variant of a compatible element. This only links the two in that relationship. The actual element definitions are unaffected (that is, the variant is not overwritten with the definition of the element it is connected to).

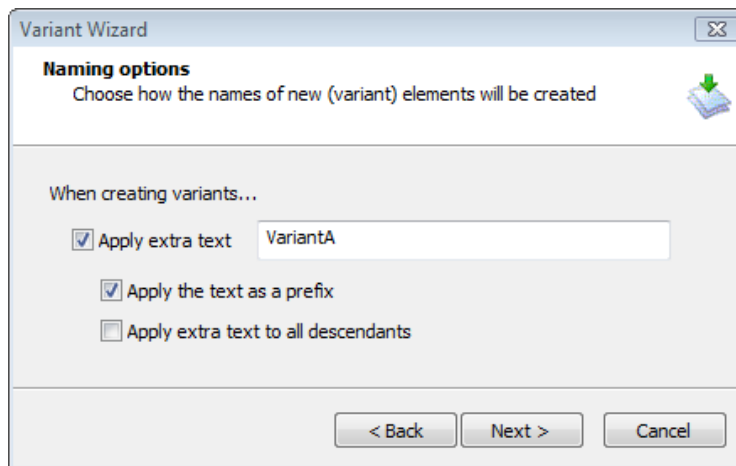
5. Use the wizard to complete the process.

To help you:

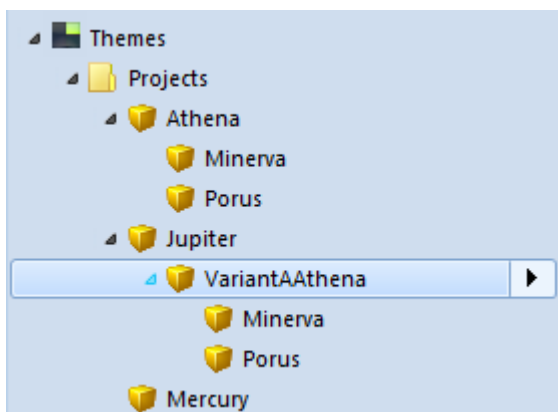
- You can choose to include all descendant elements, or just the element that you initially right-clicked.



- You can add a suffix or prefix to the names of the variants being created and apply this to just the initial element, or to all descendant elements. For example, you could add **V1** as a suffix to the first variant, but leave the descendant variant elements with the same names as the originals.



When the wizard is finished, the variants are added to the hierarchy at the requested location (in this example, under **Jupiter**).



SAT (the Synchronize library)

Synchronization Activation Technology (SAT) lets you synchronize your repository with a variety of data sources. SAT is one of the most powerful features in MooD. It gets data into and out of your repository. For example, you might have a spreadsheet of costs that you need to import into your repository on a weekly basis, or you might want to populate a theme with details from a database. SAT lets you configure and manage such exchanges of information. Synchronizations can be scheduled, and they are fully audited. However, instead of importing & potentially duplicating data, consider using **Data Table Themes** instead.

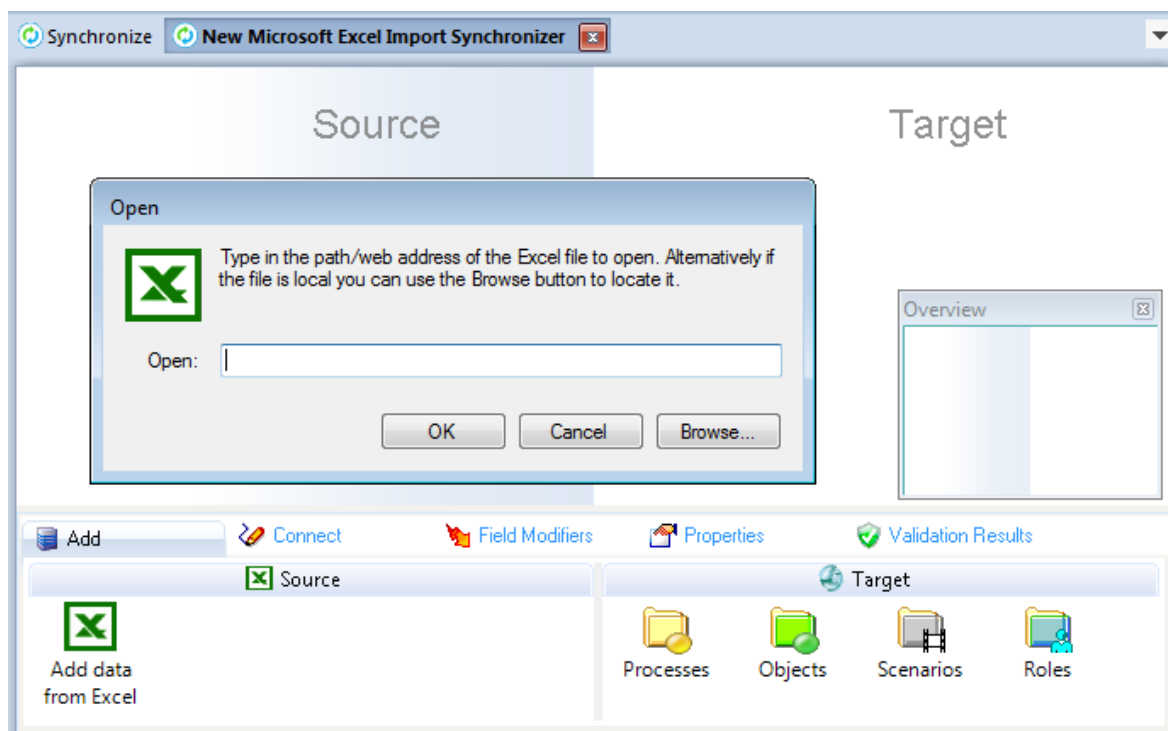
Business Architect comes with numerous preconfigured synchronizers including Microsoft Excel import and export, Microsoft PowerPoint, assorted databases, SSIS, XML, other MooD repositories and MooD Model Driven Documents (the Documents synchronizer).

Some synchronizers exist to help you with repository maintenance, for example the Manage Aggregation Cache and Delete Audit History synchronizers.

Synchronizers are managed on their own tab in Business Architect's workspace. To display this, in the Explorer Tree, under **Libraries**, click **Synchronize**.

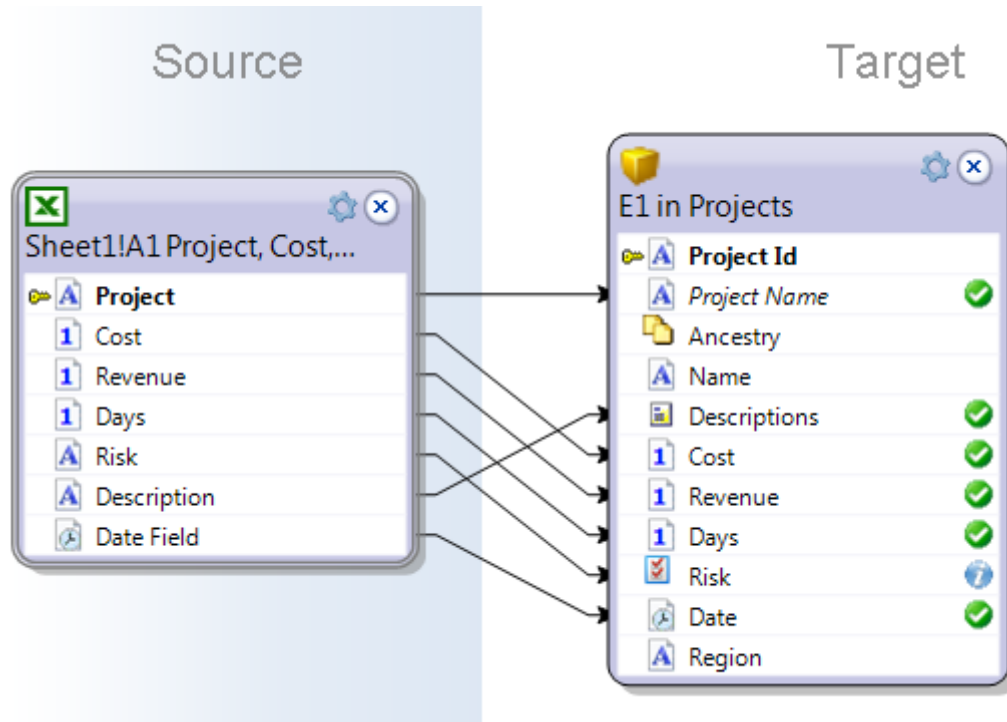
Everything you need to create, manage, execute and monitor SAT is on the **Synchronize** tab. The **Insert** gallery includes all the synchronizer types you have access to. Synchronizers can be organized into groups. The **All** and **General** groups are created for you, and, on the ribbon, click **New** (in the **Groups** command group) to add more. Individual groups of synchronizers can be executed directly, or according to a schedule. Hence, consider how your synchronizers will be executed when you organize them in your library.

Typical synchronizers rely on mapping data from a source to a target in the repository. Business Architect guides you through the process. For example, the following image shows you the first step in adding a Microsoft Excel Import synchronizer. This is selecting an Excel file that includes the data (or an example of the data) you want to import.



This next image (from later in the same process) shows how data from a source Excel spreadsheet is mapped to a particular element in a theme. Business Architect presents you

with the source and the target. You then link them, as shown, to produce a mapping. Elements that conform to this mapping will be created (or updated) when the synchronizer is executed.



Individual mappings can include **field modifiers**. These transform the format or structure of data as it is imported. Numerous field modifiers are available. For example, the Hyperlink string modifier lets you import active web addresses into formatted text fields. There are also modifiers to convert the format of dates, split or combine strings, and round numbers.

This is a very brief introduction to what synchronizers are, and where they are in Business Architect. The best way to learn about SAT is to experiment with importing source files. Provided you start with a valid source file, importing content using a synchronizer is just a matter of mapping it onto suitable targets in the repository. Business Architect will guide you in this. Export synchronizers are simpler in that you get the output you ask for in the synchronizer's target file format.

Guides covering the Microsoft Excel Import synchronizer and an introductory video are available in the Support Area at www.moodinternational.com. There is also a video and guide covering Model Driven Documents (MDD) – this is the Documents synchronizer that you use to generate reports based on your repository content.

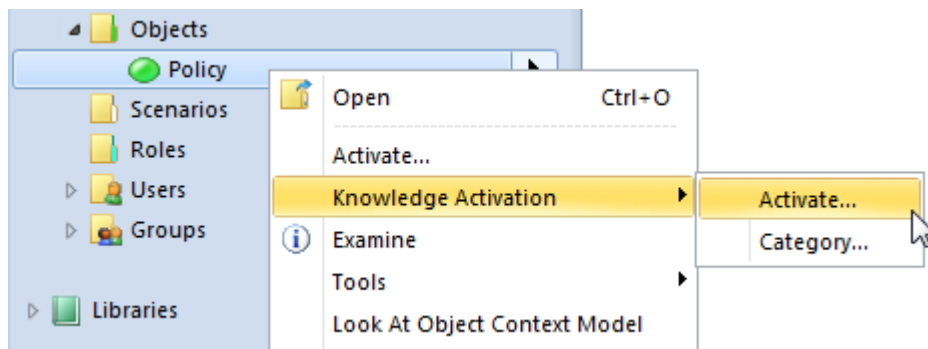
Knowledge Activation

Note: Knowledge Activation has been part of MooD for many versions. Whilst it remains a useful technology we now recommend using hyperlinks to link to external resources, particularly if you are using Active Enterprise. See [Using hyperlinks instead of Knowledge Activation](#) (page 145) for details.

Knowledge Activation is the general term for getting a Process or Object element to open an external resource such as Microsoft Office documents, webpages, PDFs, files, sound clips and many more. Elements become linked to the piece of knowledge they activate. For example, if you have an element that represents a policy document, then that element appearing on a published model would open the actual policy document. Knowledge Activation makes the resources represented in a repository directly accessible.

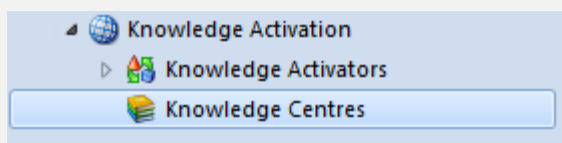
Knowledge Activation is only supported by the Process and Object default themes. You cannot use it with universal themes. And, if you want to use it with Active Enterprise, you must use the URL to the resource (**C:** paths will not work).

Business Architect comes with a suite of Knowledge Activators. In the Explorer Tree, they are listed under **Libraries**. Each Activator is preconfigured to collect the detail required for that type of external data source. Activators are associated with elements. When you right-click an element in the Explorer Tree, its context menu includes an **Activate** command, and a **Knowledge Activation** submenu also with an **Activate** command. Use this to select and configure an Activator.



Knowledge Centres

In the Explorer Tree, under **Libraries**, **Knowledge Activation** also includes **Knowledge Centres**. Note that Knowledge Centres do not work with Active Enterprise.



Knowledge Centres pull together collections of resources and make them readily available to a repository. For example, it can specify a location where all your external policy documents reside. Knowledge Centres help overcome potential issues when resources are moved, as they include logical, not physical, references. A wizard guides you through the process of creating Knowledge Centres.

Using hyperlinks instead of Knowledge Activation

Consider using hyperlinks in formatted text fields to link to external resources. These fields contain text that you format as hyperlinks using the **Hyperlink** command on the ribbon. Alternatively, select the text, right click and choose **Insert Hyperlink**.

SAT includes the Hyperlink field modifier that lets you import hyperlinks. A key benefit of this is that you can make imported hyperlinks open their target in a new window. A video covering this is available in the Support Area at www.moodinternational.com.

You can also place hyperlinks directly on models. On the ribbon's **Home** tab, in the **Insert** group, if you click **More**, you will see **Hyperlink**.

Here is an example of what you could do with hyperlinks. A Project element has a formatted text field that links to a resource. You are deploying an Active Enterprise solution and want to include a table complete with links that open these resources. Assume the solution is in an Active Enterprise folder **inetpub\wwwroot\ProjectSolution** and that the resources are in a sub folder called **Resources**. You would:

- Use a Microsoft Excel Import synchronizer with the Hyperlink field modifier to populate the formatted text fields in the Project elements. Alternatively, manually populate the fields ensuring that they are formatted as hyperlinks.

Assuming the server is called **SolServer.CloudApp.Net**, the hyperlinks would have this format:

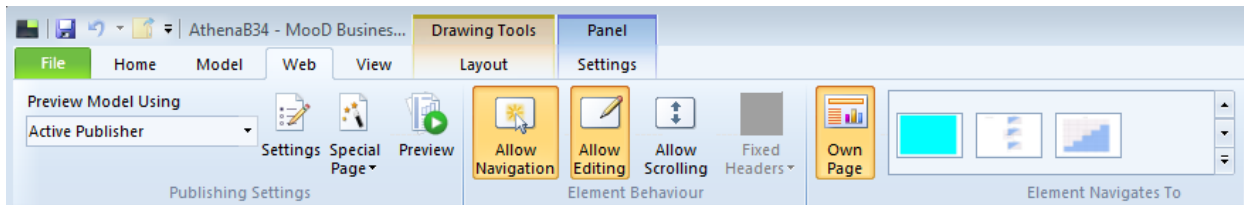
`http://SolServer.CloudApp.Net/ProjectSolution/Resources/ProjectResource`

- Create a Data Sheet matrix that finds the Project elements and includes the formatted text field as a column. Also make sure the **Matrix** tab has:
 - **Publish matrix** set to **Yes (as HTML)**. This setting is in the **Matrix** group.
 - **Plain text HTML** set to **False**. This setting is in the **Cells** group.
- Include the matrix on the model.

Active Enterprise

Active Enterprise is the module that web enables models. Active Enterprise is integrated into Business Architect. Action panels are controls that allow you to configure the pages in your web solution (pages are models). In addition, many of the other items that you place on models include web configuration options, for example, animation effects in the Radial chart.

The ribbon for every model includes a **Web** tab. For example:



Use these to control how a model appears and functions in a browser. For example, the **Allow Navigation** setting determines whether elements open their own models when the user clicks them. As far as possible, the **Preview** command lets you test your models without setting up an actual Active Enterprise installation.

Active Enterprise components

Publishing solutions in a live environment involves two other pieces of MooD technology:

- Business Integration Engine (always referred to as BIE)

BIE optimizes your repository for Active Enterprise and maintains an active connection to the database.

- Active Publisher

This is the tool that produces and maintains the compiled ASP.NET web portal to your repository.

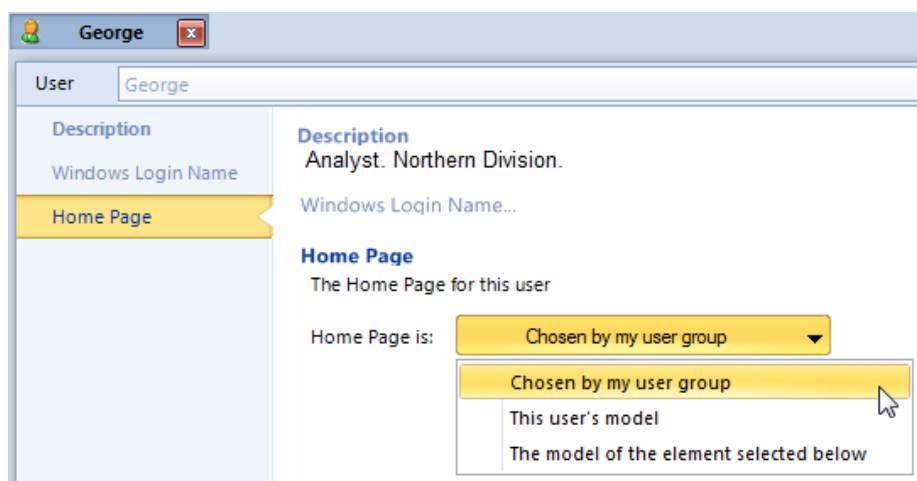
Note: Both Internet Information Server (IIS) and ASP.NET need to be on the same machine as Active Publisher.

Documentation is available covering Active Enterprise setup.

Although a standard Business Architect licence lets you develop web solutions (i.e. use and test Action panels), to deploy these solutions you need an Active Enterprise licence.

Home Pages

Each user and user group in Business Architect has a **Home Page**. This is the model displayed when a user logs into a repository by means of Active Enterprise. This model can be the user's model, a specific element's model, or the model associated with the user group that the user is a member of. For example:



See *Users, user groups and permissions* in the *Introducing administration* section (page 149) for more details on user management in Business Architect.

Introducing administration

If you are a member Business Architect's **Administrators** user group, you have access to administrative features in Business Architect. Some are introduced briefly here.

Note: A lot of repository administration is performed in Repository Manager (such as upgrades and backups). See [Repository Manager](#) on page 11 for an introduction.

Users, user groups and permissions

Business Architect has **users** and **user groups**. By default, there is an **Administrator** user and an **Anonymous** user. The **Administrator** user is a member of the **Administrators** user group. All users are automatically members of the **Everyone** user group. Users get their permissions from the user group(s) that they are members of. Members of the **Administrators** user group can create additional users and user groups, and reset passwords.

The **Anonymous** user exists to provide login free access to a repository. Hence, it is an entirely locked down user. You must specifically grant **View on Web** permission to those areas you want the **Anonymous** user to see.

Elements have permissions set by user group. This means that elements can have different permissions for different user groups. For example, one user group might be allowed to edit an element, while another user group cannot even view that element. There are also **library** permissions for certain administrative powers, including managing matrices, queries and synchronizers. Again these are set by user group.

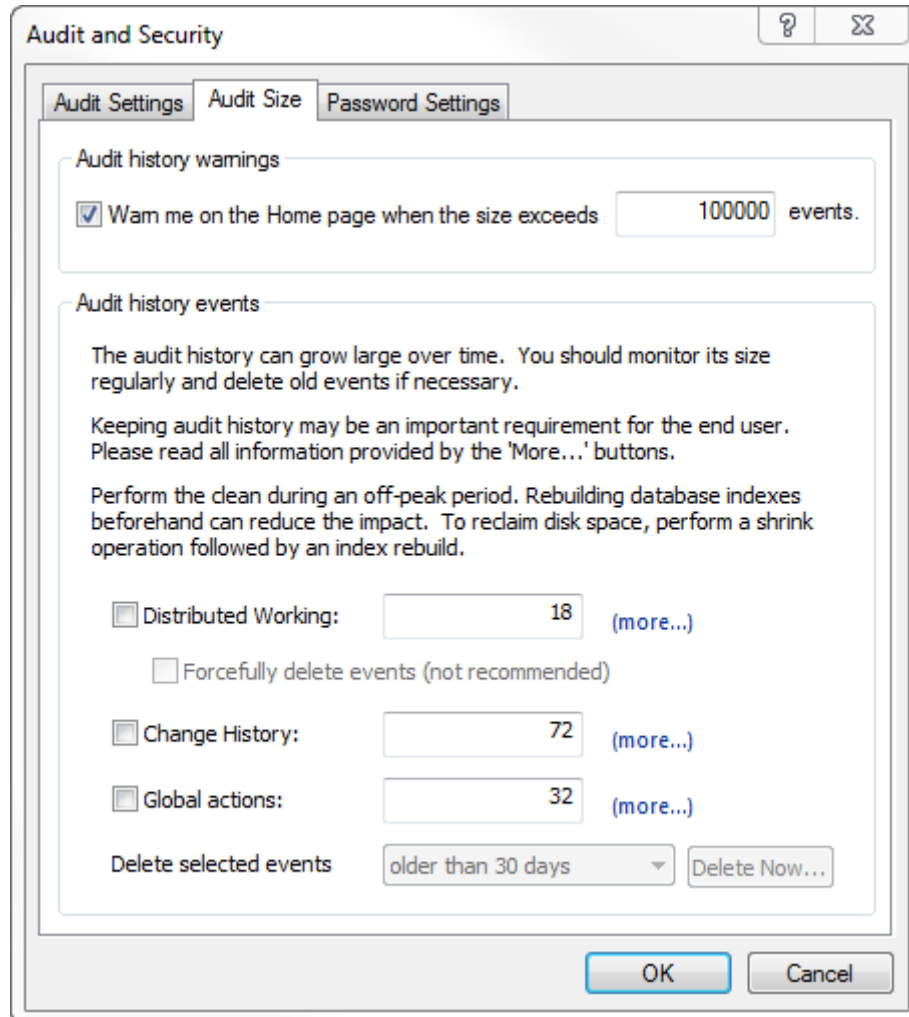
Collectively, users, user groups and permissions let repository administrators implement a user and permissions hierarchy appropriate to the needs of their repository. Users and Groups are themes in their own right, and permissions are managed centrally by means of the **Permissions** tab. You can also have **field** permissions on themes. However, most of the time, administrators will deal with element and library permissions.

There is a *User Management and Permissions Guide* that covers this in detail.

Note: You can also set permissions by user, but we recommend that you create user groups, apply permissions by user group, and then give your users membership of an appropriate user group.

Audit and Security

Members of the **Administrators** user group can control auditing and security using the **Audit and Security** dialog box. Click **File**, point to **Manage Repository**, and then click **Audit and Security Settings**.



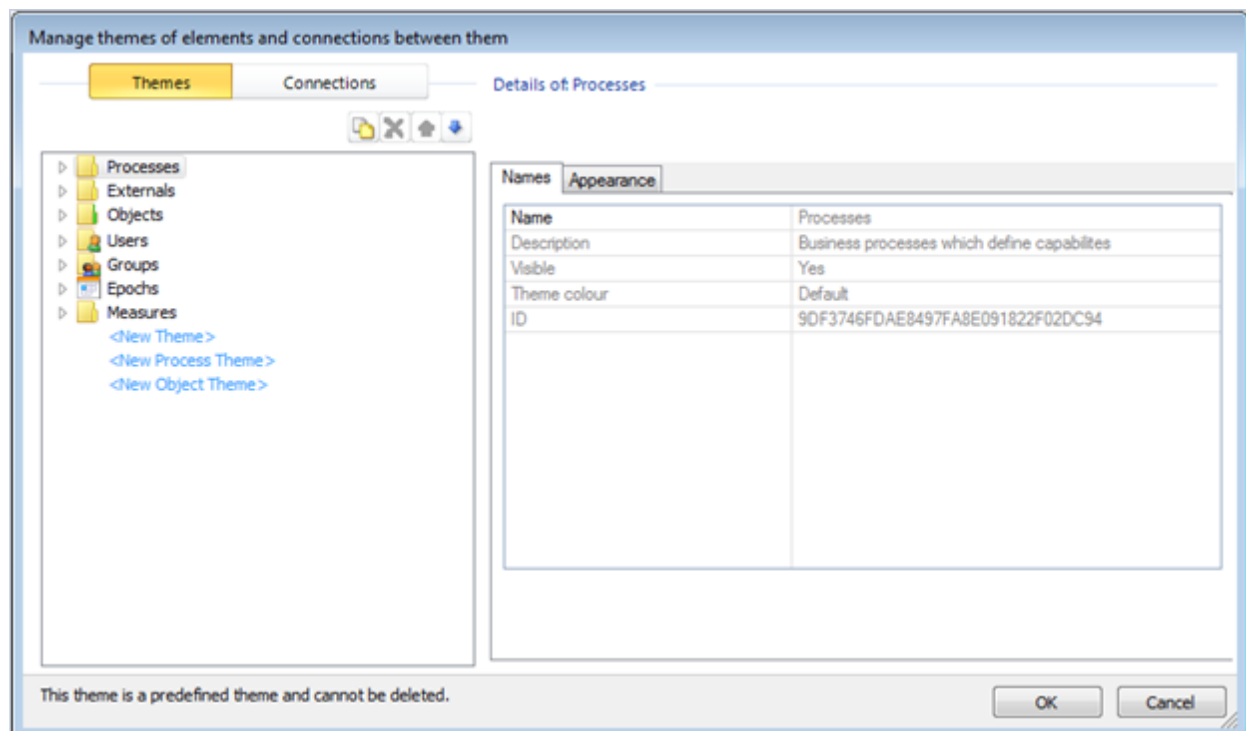
The preceding image shows the **Audit Size** tab. You can use this tab to occasionally clear down the audit history. This can get quite large, and affect performance. However, typically administrators will use the Delete Audit History synchronizer to automate the management of this.

The **Password Settings** tab lets you enforce passwords, and ensure their complexity.

Introducing Manage Themes

Manage Themes is where you define and maintain the meta-model for your repository. Designing and maintaining meta-models is advanced usage but it is helpful to understand what can be done in **Manage Themes** and how the definitions in your meta-model dictate what you can do in Business Architect. Much of this has been covered elsewhere in this guide (particularly in the [Key Concepts](#) section starting on page 14) so this section concentrates on the mechanics of using **Manage Themes** for some common tasks.

Only members of the **Administrators** user group can undertake theme management. All themes are created and maintained within a single dialog box accessible from the ribbon. Click **File**, point to **Manage Repository**, and then click **Manage Themes**. This opens the **Manage Themes** dialog box, as shown in the following image:

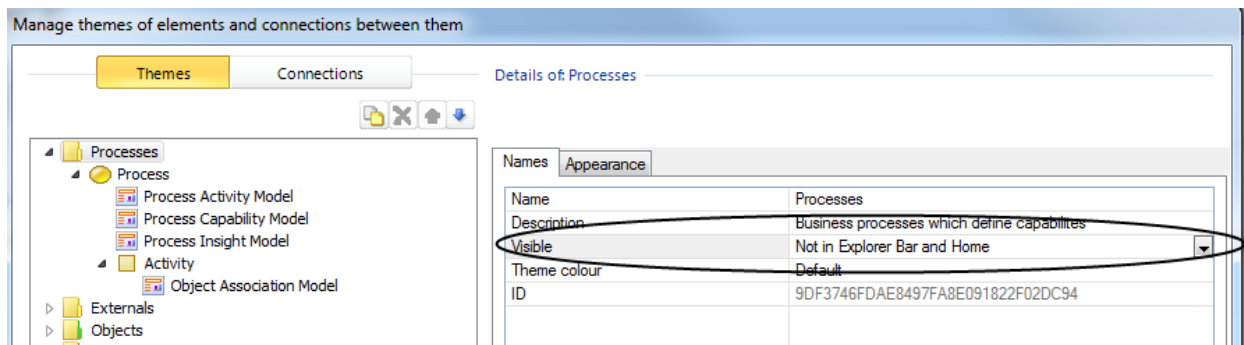


Manage Themes is organized in two sections:

- **Themes.** This is where you create **themes**, **element types** and **measure types**.
- **Connections.** This is where you create **standard relationships** and **measure relationships**.

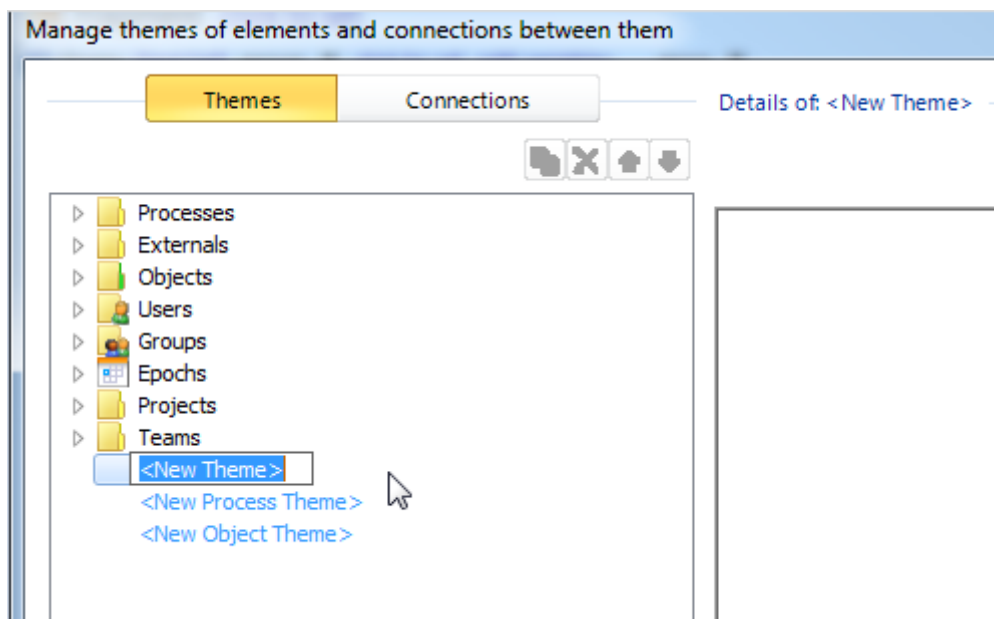
Hiding themes from Explorer Tree

You might want to hide some of the default themes. To do this, change the **Visible** setting for each theme that you want to hide, as shown here.



Creating themes

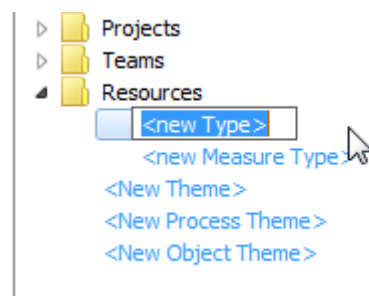
To create a new universal theme, open **Manage Themes**, click **<New Theme>** and give it a name. The same name will appear in the Explorer Tree.



New themes are not useable until they contain at least one element type.

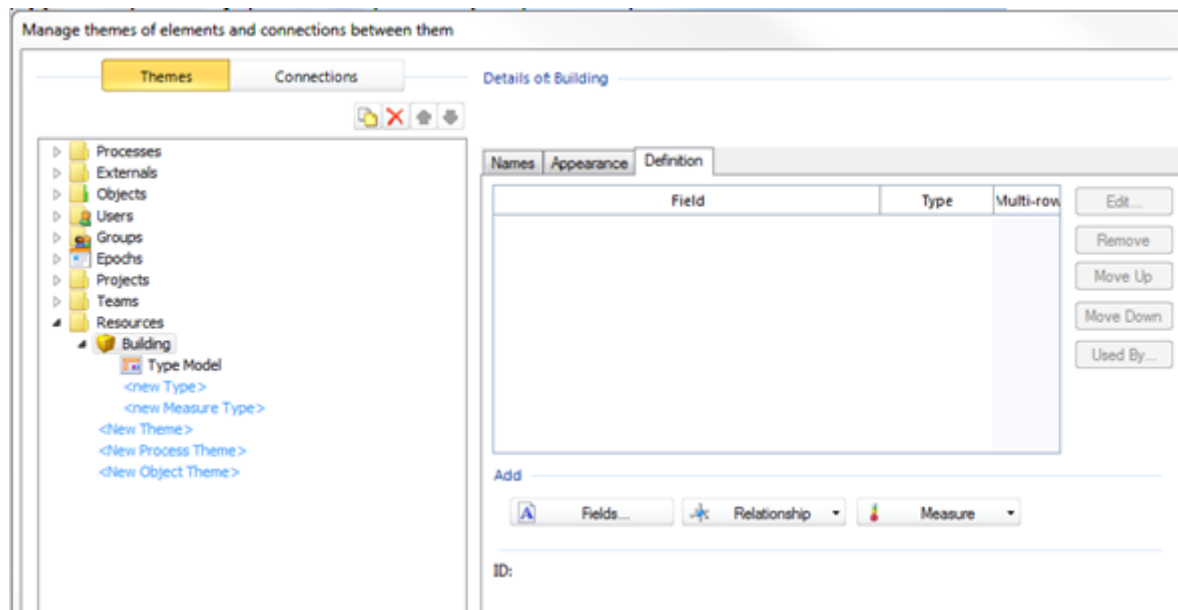
Creating element Types

In any universal theme, to add a new element type, click **<new Type>** and give it a name.



Once the element type is named, you get three tabs: **Names**, **Appearance** and **Definition**. Use these to define the element type.

The **Definition** tab is where you specify the fields that each element of that type will have.



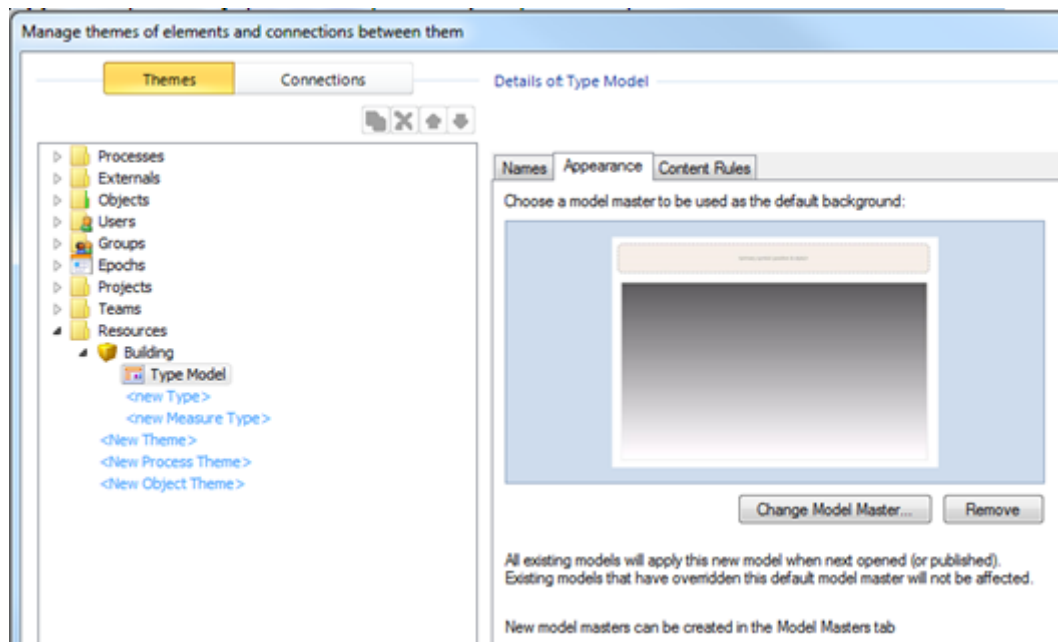
Use:

- **Fields** to add any standard fields you require. For example, date fields and number fields. The dialog box lets you add new field types. Field types are reusable. For example, once you define a Pick List field, you can use it anywhere.

Note: Formatted text fields hold text in HTML format, and as such, it can include hyperlinks. Users cannot edit the raw HTML encoding. There is a button on the ribbon to format text selections within formatted text fields, and to convert portions of text into hyperlinks, and there is a **Hyperlink** field modifier to let you SAT hyperlinks into formatted text fields (for which there is a video in the Support Area at www.moodinternational.com).

- **Relationship** to add a field that will hold a standard relationship to another element type. You define standard and measure relationships on the **Connections** tab.
- **Measure** to add a field that will hold a measure relationship to a measure type.

If you want to associate a Model Master with an element type, click **Type Model** and then use the **Appearance** tab to select the Model Master. For example:



Creating standard relationships

See [Relationship](#) in the *Key Concepts* section (page 16) for some guidance on this. Also, a video demonstrating this is available within the Support Area at www.moodinternational.com.

Creating measure types and measure relationships

A *Measures* guide covering how to create measure types and relationships in **Manage Themes** is available within the Support Area at www.moodinternational.com. There is also a video.

The diagram below is taken from the guide. It illustrates creating a measures theme, measure type, measure relationship and then applying a measure to an element. If you need more information, see the guide.

MooD 16 Getting Started Guide

Go to **Manage Themes** (on the **File** tab)

In the **Themes** section:

1 Create a theme called **Measures**

2 Create a *measure type* in this theme

Go to the **Connections** section and:

3 Create a *measure relationship type* for this *measure type*

Go back to the **Themes** section and:

4 In the element type you want to measure, add a *measure relationship field* for this *measure relationship type*

In the **Explorer Bar**:

5 Create a *measure* from the *measure type*

6 Create a *default measure instance* for this *measure*

7 Apply the *measure* to elements