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Tons of Tips for SparxSystems Enterprise Architect

Peter Doomen

This book is for sale at http://leanpub.com/TonsOfTips4EA

This version was published on 2019-02-23

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Introduction

Preface

Four years ago, I decided it was time to write a book about SparxSystems Enterprise Architect. The main reason being that such a book did not exist already, and that EA was pretty much in need of it.

Since then, a lot of things have happened. First, my book 'Fifty Enterprise Architect Tricks' became a bestseller with thousands of copies sold. Second, I decided to write another book that would be complementary to my first book. This book became a success as well, though not as succesful as the first one. Then I learned that others were sharing their EA knowledge as well. Some on LeanPub, so I teamed up with them. Some by giving courses and consultancy. Others by developing a website with tips and advice.

Furthermore, EA User Groups were being organised: a clear sign that EA gained traction in the analyst community. SparxSystems themselves contributed by publishing white papers, instructional videos and more. And especially by organizing webinars that helped users understand the new features of recent releases, or to delve into a specific feature set of the product.

Then why did I decide to publish a new book and discontinuing Fifty Enterprise Architect Tricks? There are several reasons. The first one being that the book was lost beyond redemption: too much has happened, the content, while largely applicable to the current EA version, needed a full rework if only to reflect the new user interface, which is ribbon based. To add to that, I have many new tips to share. Just adding them to the existing book would harm its structure.

Some years back, a reader argued that I should call the book 'Fifty EA Tips' instead of tricks, reasoning that EA was not a product that had to be 'tricked' into functioning properly. I disagreed back then. I agree now. Not because I changed my mind about EA, but because EA changed. It matured into a product that kept its usefulness combined with affordability, but it became much easier to use.

If EA is easy to use, why write a book about it? Because I still get the same reaction as to EA version 7 back then: its feature set is so overwhelming that it is hard to know it all. EA's manual is not helpful either: since it needs to cover every bit and piece, its sheer size (well over a thousand pages) deters from reading it.

Two more ideas popped my mind and motivated me even stronger to rework my old material. I thought the old 'case material' was too sterile, so I decided to add some life to the examples by developing a model for the email implementation of the party game of 'werewolf' (also known as mafia). Second, since I have been wrestling with the ShapeScript editor, I wrote a little app that makes developing shapescripts easier, and I want to share that app with my readers.

So there is this new book. I hope you like it. Let me know.

Peter.

Copyright notice

Thanks to

Thanks to all people who have helped me gain a better understanding of Enterprise Architect. Thanks to all readers of my previous books about Enterprise Architect, and especially to those who took the time to share their questions and insights with me.

Dedication

I would like to dedicate this book to my friend Bart Hellemans, who was an avid role player, a great artist and a big fan of Werewolf, and who passed away silently last year. Bart is also responsible for the picture on the cover page of this book.

About the author

Peter works as an Enterprise Architect - specialist at SD Worx. He is the author of several books, among which the best seller and predecessor to this book, Fifty Enterprise Architect Tricks.

Chapter 1: Elementary, My Dear Watson

The title of this chapter is the most famous quote from Sherlock Holmes, even if it appears nowhere in the novels by Conan Doyle. This first chapter deals with the basic stuff of every model in Enterprise Architect: elements.

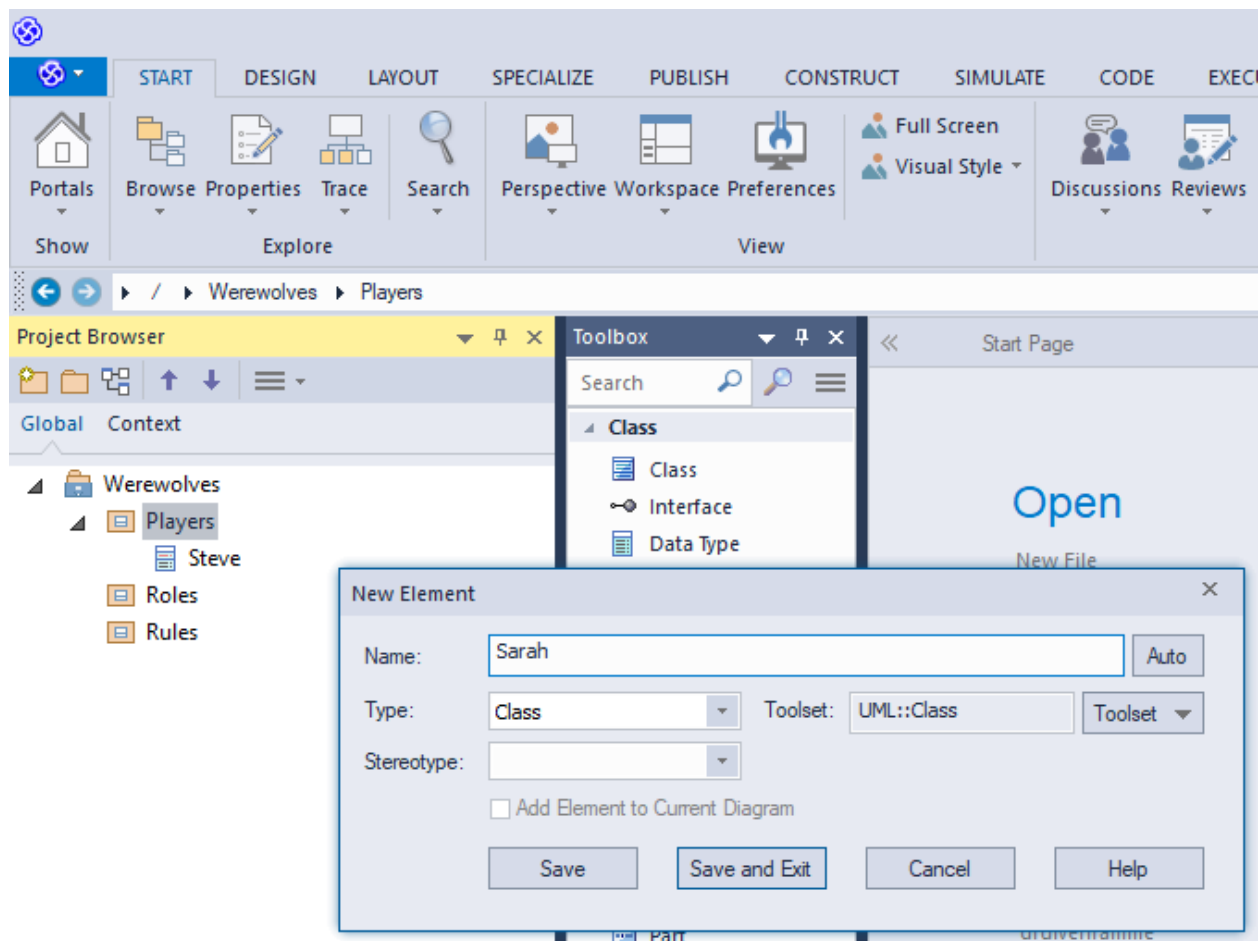## Tip 1.1: Understanding elements and their place in the EA model

Basically, an element is a thing that gets a life of its own in EA's Project Browser. The Project Browser is the window that sits to the left of the EA user interface when you open EA the first time. It contains all the elements the model is built up with. To organise these elements, EA allows you to define containers that hold the elements in a hierarchical way. The top of the project is the level of the 'root nodes'. One level below that are the 'views'. Still a level lower comes the 'package'. From then on, you can have unlimited packages.

Don't think too hard about the structure of the model when you create it: apart from the root nodes, it is fairly easy to restructure the model afterwards.

Here's how to proceed to fill up a new, empty model, as quick as possible:

- Click the 'model' package in the Project Browser and rename it. For example, we will develop a model for the well-known party game 'Werewolves' so we will call the model just that.
- Right-click the 'Werewolves' package and select 'Add' | 'Add View...'; select 'class view' in the dialog window that appears.
- Type the name of the view ('Players') in the dialog box. Select 'class' in the 'Type' field. Keep on typing new names and press 'save' each time to add the element to the model.

Adding elements to the model

As you can see, Enterprise Architect considers elements to be independent of a diagram. In this case, we have even created elements that don't show up on any diagram whatsoever - simply because we didn't yet create diagrams at all! This is a major difference between proper modeling tools like EA and drawing tools like Microsoft Visio.

> ⚠️ You cannot add an element directly under a root node. The view is the lowest level under which an element can be put.

Tip 1.2: Adding elements by putting them on diagrams

Usually, however, you will create elements while you are building the model by creating and improving diagrams.

First, let's create a diagram called 'All Players' in the 'Players' view: right-click the 'Players' view in the Project Browser and select 'Add Diagram...'. Then choose 'UML Static - Class' as the diagram
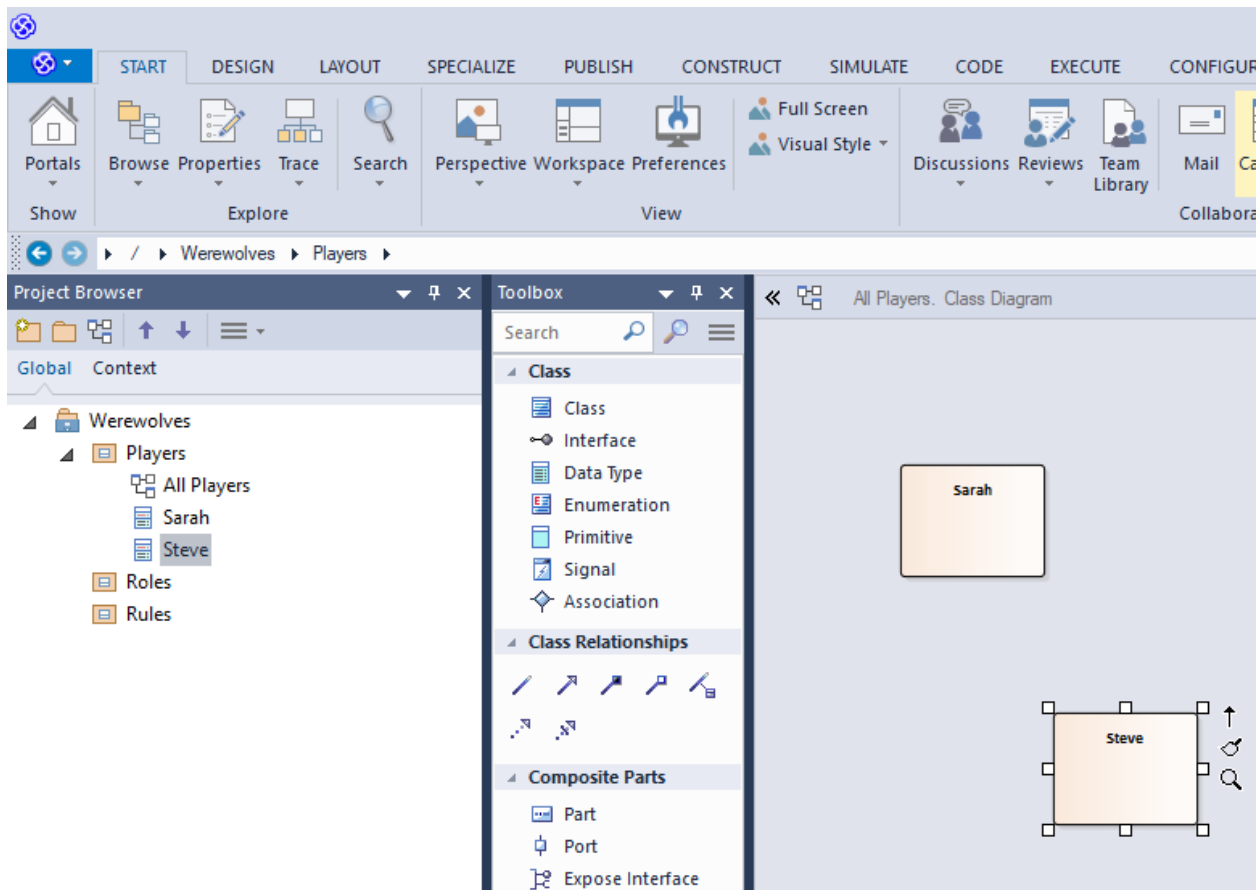
type and give it the right name ('All Players'). The diagram is added to the Project Browser and it opens automatically.

> In case you selected the wrong view to start from, you can still choose the right package by browsing the 'Package' field in the 'Add Diagram' dialog.

Now we can add more players to the diagram:

- To add the existing players, drag them to the diagram from the Project Browser. Depending on the user settings, EA will ask you how you would like to add them - choose 'as a link' for now. Note that you cannot add the same element twice. This is an EA limitation that makes sense, since having the same element twice on a diagram can confuse your readers, even if it would lead to a simpler diagram without crossing connectors.
- To add new players, click on the 'class' stereotype in the Toolbox (next to the Project Browser), then click the diagram and proceed as described above.

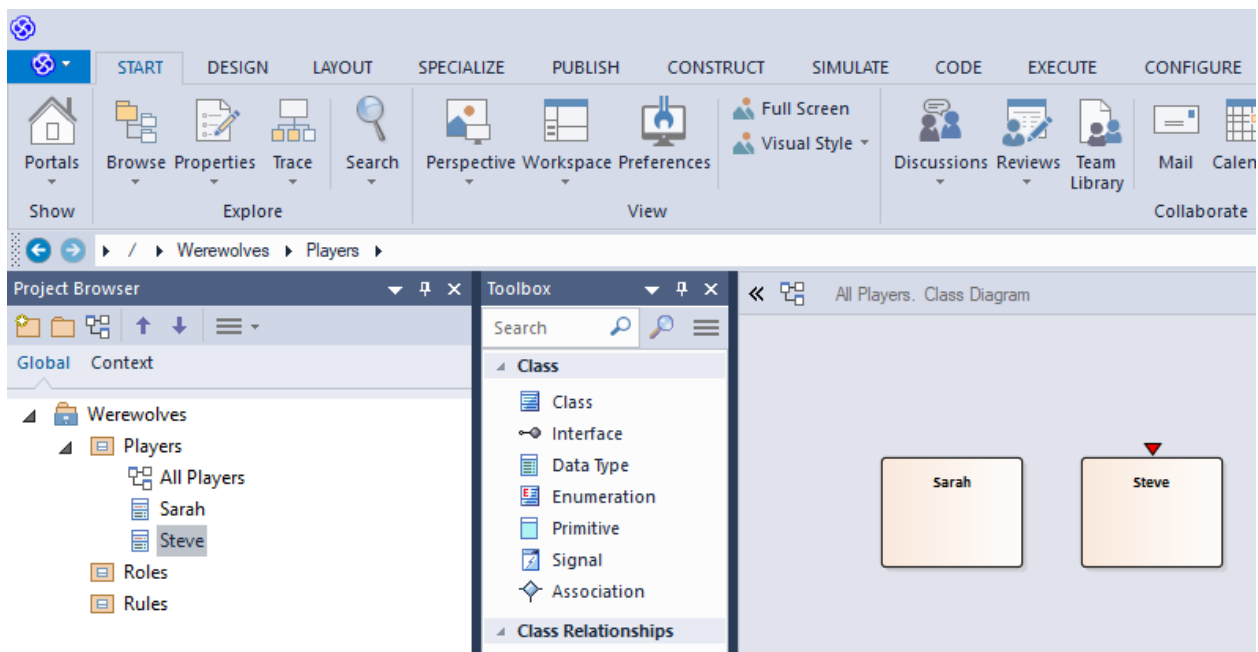**Adding existing elements to the diagram**

To add another player to the same diagram, you don't need to click the Toolbox again. Simply hold down the ctrl button of your keyboard and click the diagram on any empty space. It keeps on surprising me that even fairly experienced EA users don't know this shortcut!

Tip 1.3: Bookmarking elements

Building models involves being able to focus on aspects of a problem. Often you want to focus on one aspect and suddenly you get information on another aspect. A bookmark is what you need, as a reminder that you still have to work on an element.

Putting a bookmark on an element is easy: select the element and press shift+space bar. The same key combination removes the bookmark. In chapter 6, we discover how we can come up with a list of all bookmarked elements in the model.
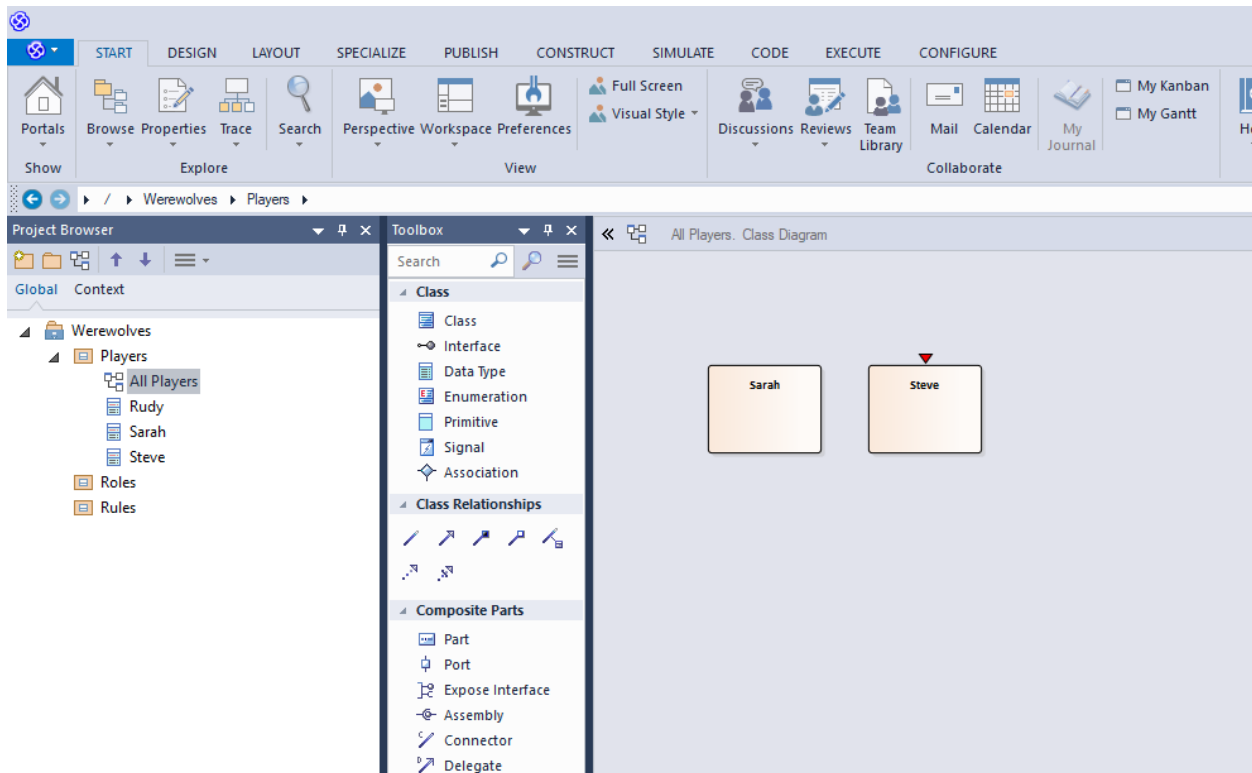
I discovered this trick by accident. A colleague asked how he could get rid of the "red triangle" that suddenly showed up on a diagram. I said I had the same problem, and realized that it was probably some odd key combination. Looking up the table of Enterprise Architect shortcuts revealed the culprit. But now, I use this function fairly often either as a reminder to myself or to point a colleague to "some work to do".
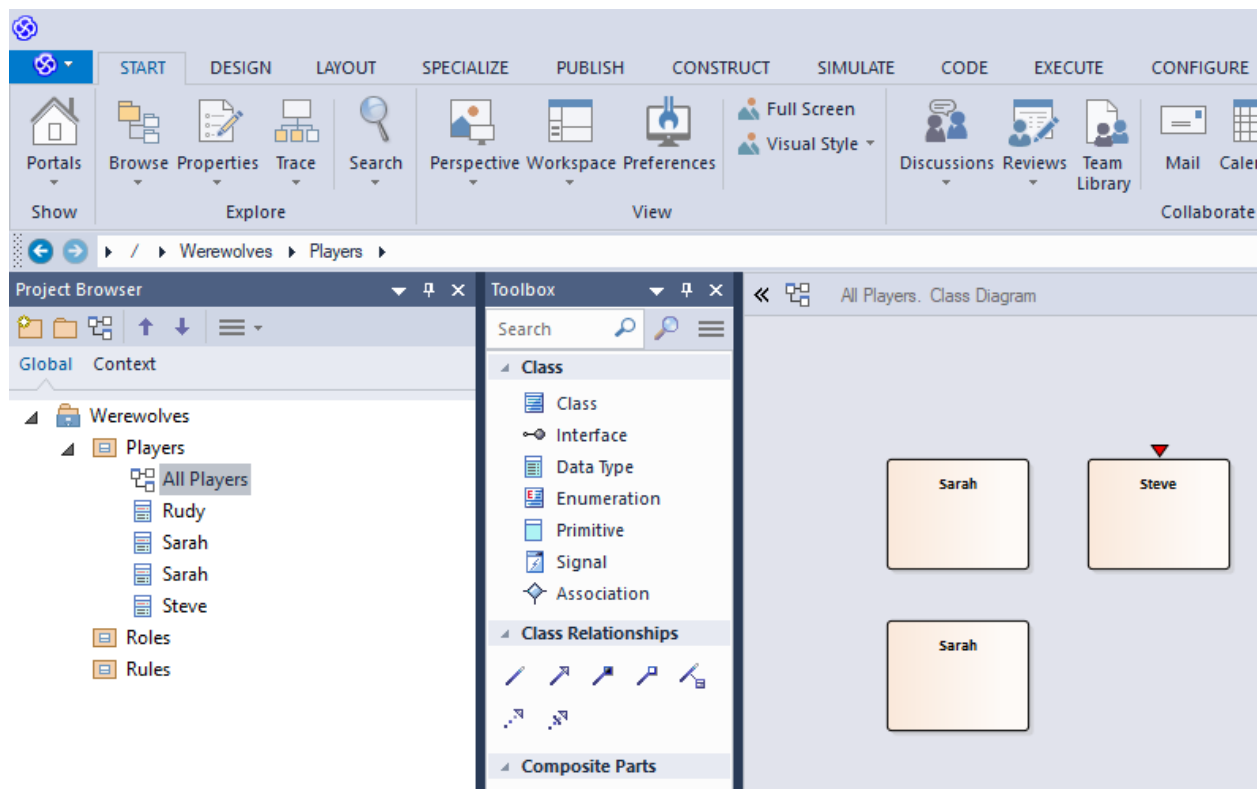

A bookmarked element

Tip 1.4: Finding elements in the Project Browser

As you already understand, there's a difference between the information included in the model (i.e. the elements that populate the Project Browser) and the diagrams. It is perfectly possible, for example, to have a player, say Rudy, that is represented by an element in the Project Browser, that appears on no diagram.
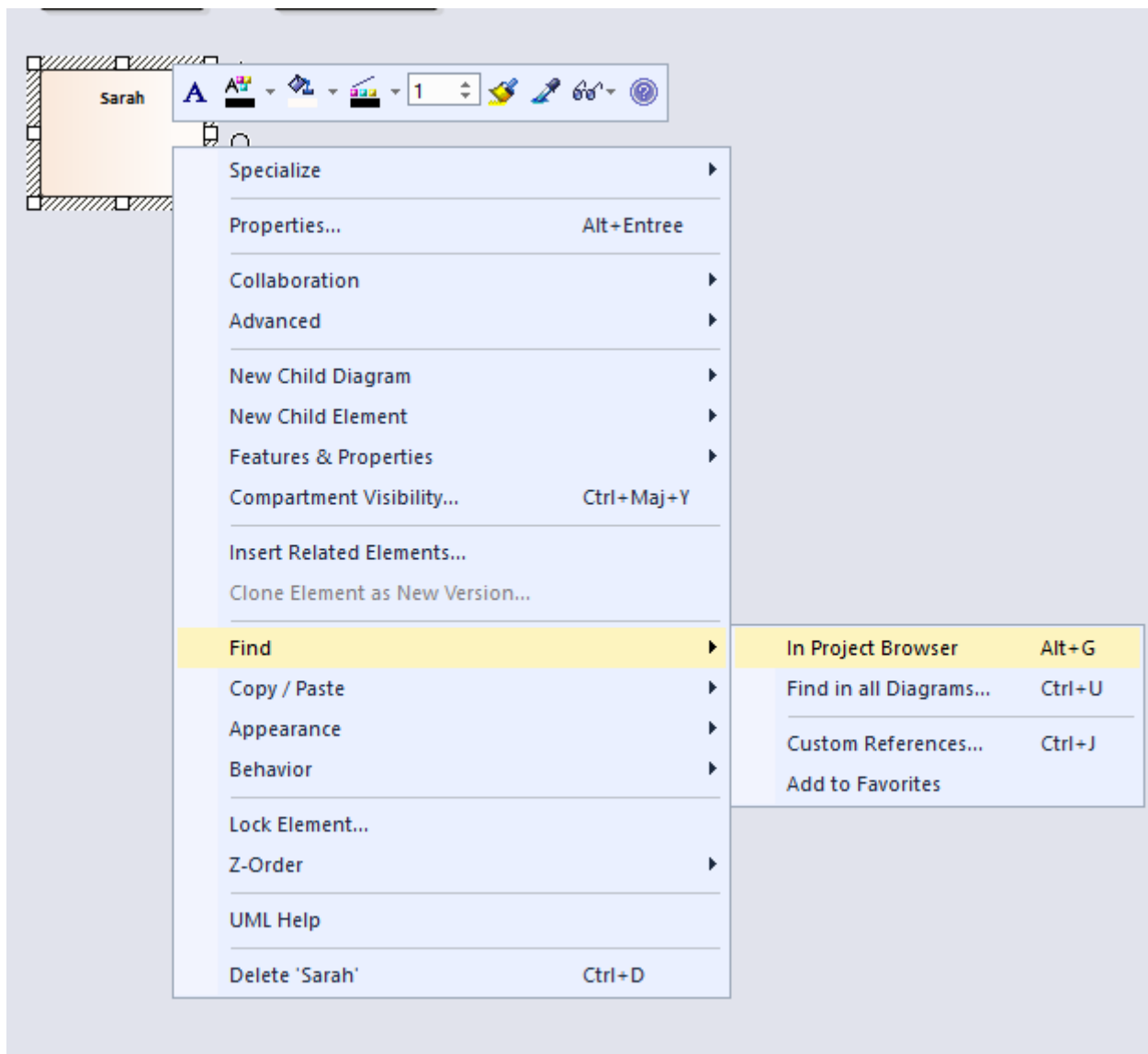

Rudy is in the model, but not on the diagram

Elements can appear on no, one or more than one diagram. Also, nothing prevents you from adding two elements with the same name. For example, we could have two Sarahs in the model. These elements would be referring to two different women by that name, because having two elements in the model to represent just one physical person is bad modeling practice.

Two people called Sarah in the model and on the diagram

Now , how can you know which model element (in the Project Browser) corresponds with which element on the diagram? Easy: select the element, right click and select 'Find | In Project Browser'. The element will then be selected in the Project Browser.
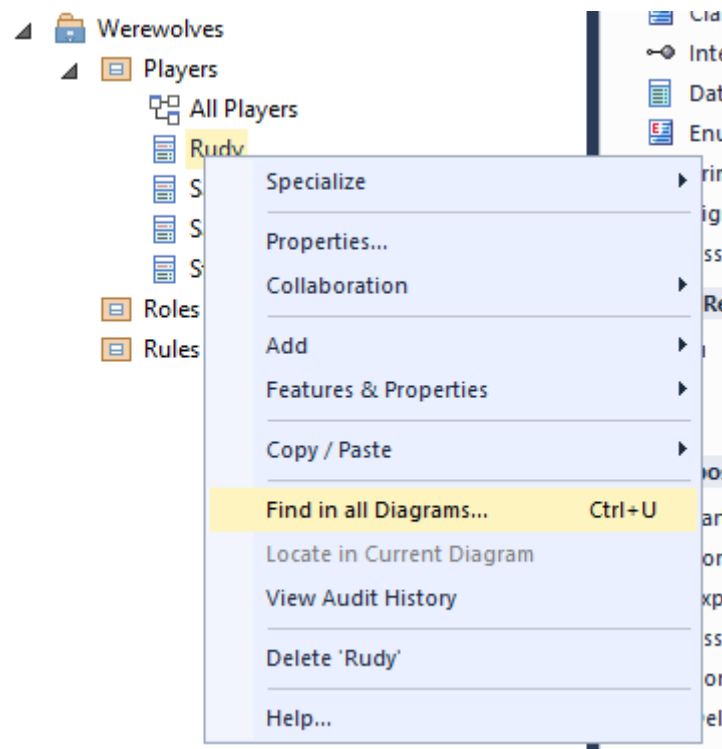
Finding the right Sarah in the Project Browser

If you use this feature often, it pays to learn the shortcut by heart: Alt+G. Try it a few times so it becomes an automatism.
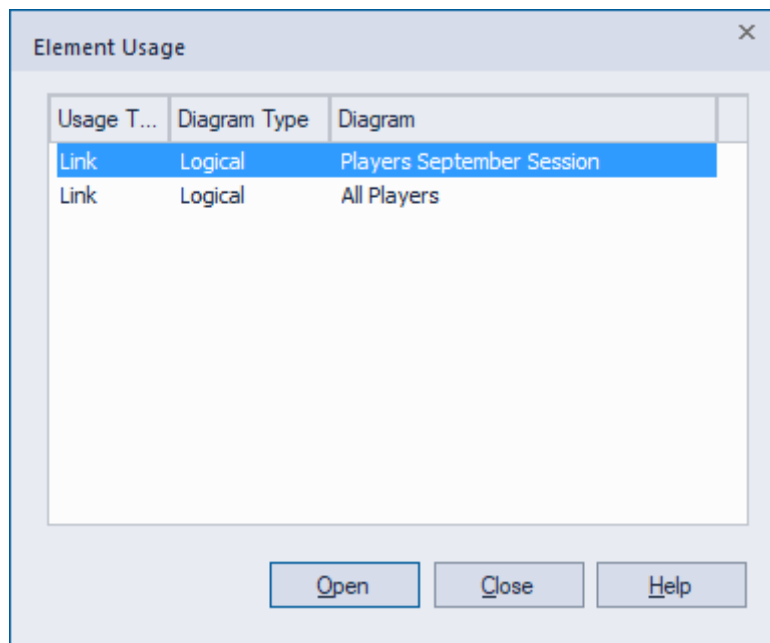
Tip 1.5: Finding elements in all diagrams

Sometimes it can be useful to know where an element appears. To see which diagrams contain a certain element, right-click it either on the diagram and select 'Find | Find in all diagrams...' or click it in the Project Browser and select 'Find in all diagrams...'.

Finding Rudy in all diagrams

Then, either of these three things can happen:

- If the element appears on exactly one diagram, that diagram is shown and the element is selected.
- If the element appears on more than one diagram, a dialog window with the list of these diagrams is shown. Double click the diagram (or select it and press "open") to open the diagram you were looking for.
- If the element does not appear on any diagram, the same dialog window opens but with an empty list. I consider this a bug in Enterprise Architect: Enterprise Architect should tell you that the element is an orphan.
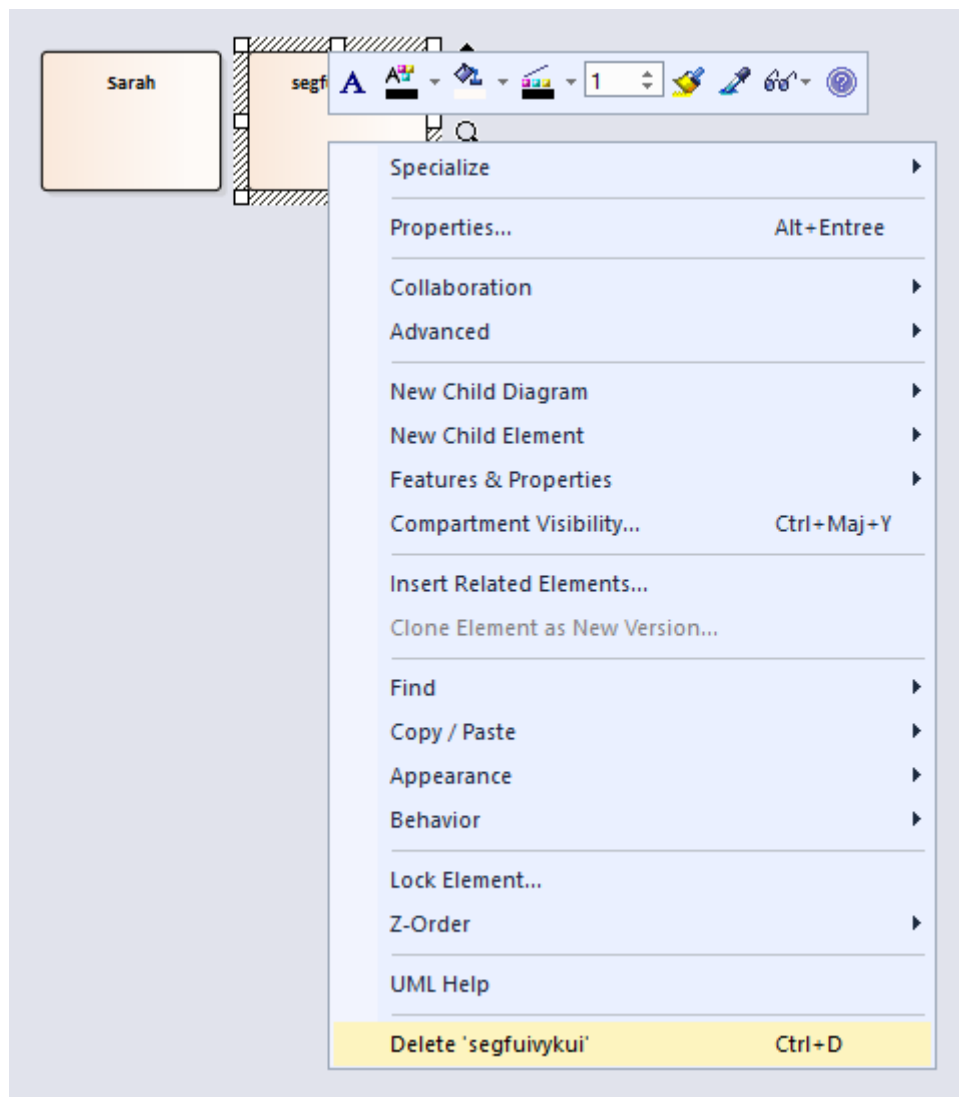
What happens when Sarah appears on more than one diagram

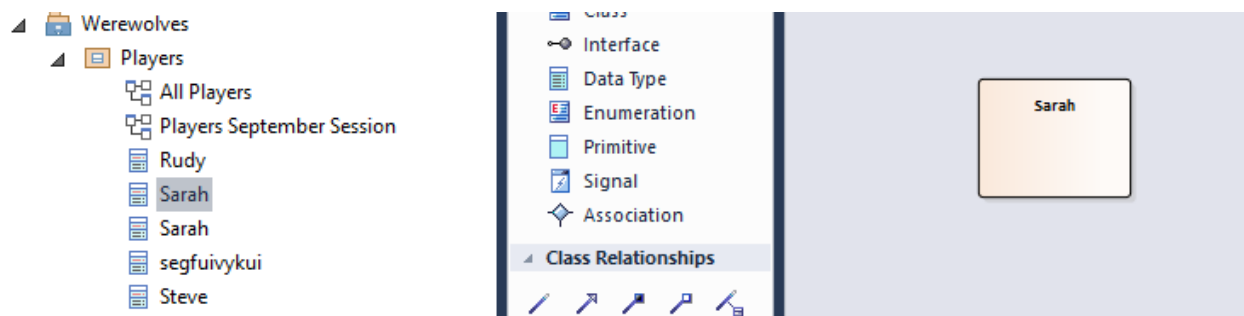The shortcut to find a selected element in all diagrams is Ctrl-U.

Tip 1.6: Deleting elements from the model

Suppose you have wrongfully added an element to the model. How can you delete it? Looks like a simple question! Just right-click the element and select 'Delete' from the context menu, not?

An attempt to delete the superfluous element

The result: the superfluous element has gone from the diagram, but it is still in the Project Browser!
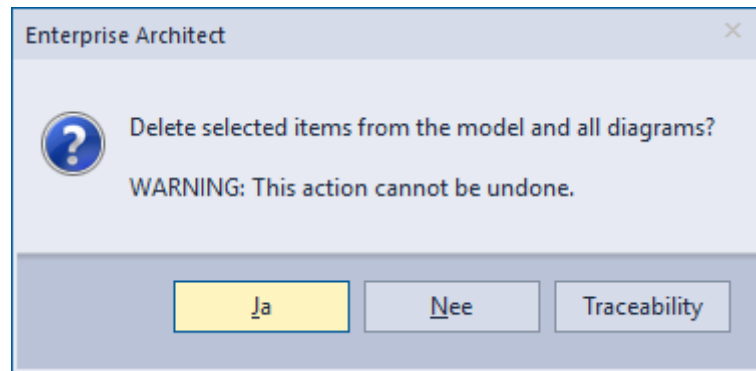

Gone from the diagram...

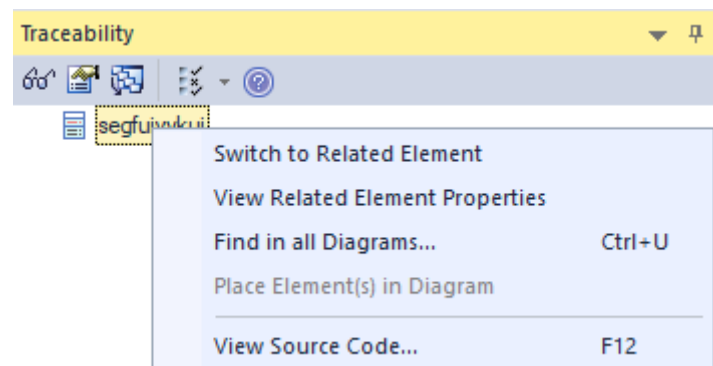There are two ways to actually delete this element from the model:

- either select the element on the diagram and press Ctrl-delete.
- or select it in the Project Browser and press Ctrl-delete or invoke the delete function from the context menu.

In the first case, you get this dialog window:

Warning dialog with Traceability button

If you now press the Traceability button, the Traceability window opens (or gets the focus if it is already there). From there, it is easy to find out where the element is being used by right-clicking the element and choosing the appropriate function.
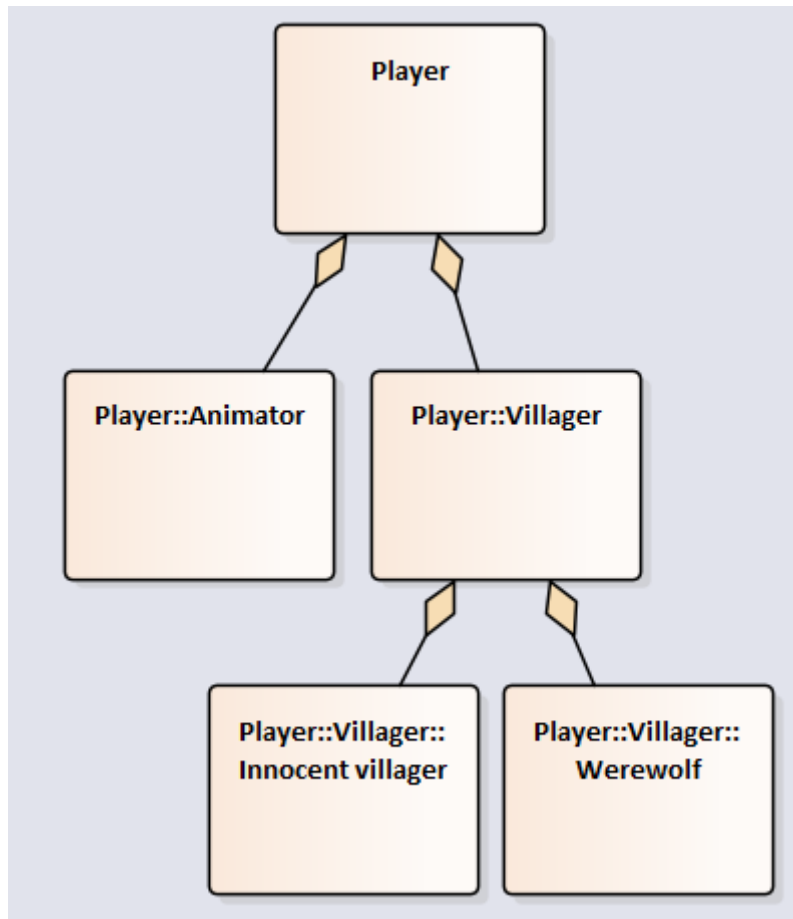

Traceability window

In the second case, when you work from the Project Browser, you get the regular warning dialog box without the Traceability button. I wonder why.

Tip 1.7: Nesting elements

As we have seen above, you can use packages to keep the information in the Project Browser well-organized. There is another trick you can use: nesting elements.

Suppose we have modeled the different roles players can assume in the WoWW game like this:
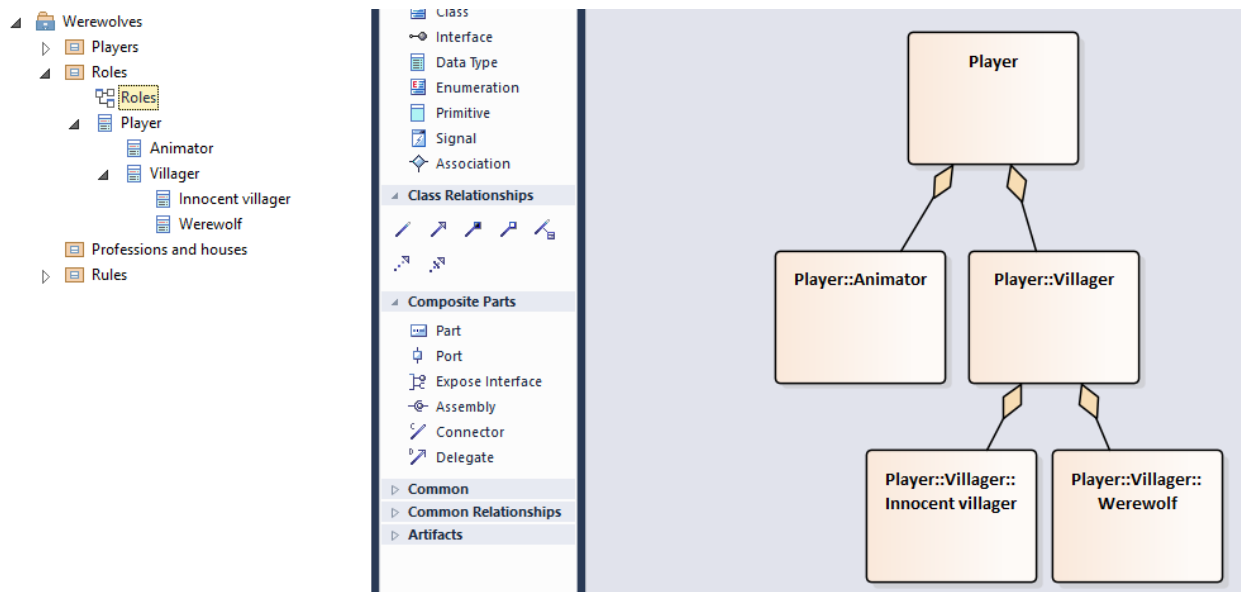
A class model for player roles

Wouldn't it be nice if we could show this hierarchical relationship in the Project Browser? That way we can:

- easily see the relationships between the roles in the Project Browser, without the need to consult a diagram
- hide information when we don't need it and show it when we do.

The way to obtain such a hierarchical model is easy: just drag the classes in the Project Browser under the right parent class.

Later we will see alternative ways to obtain the same result. See Chapter 2, Tip 2.11: Parent-child relations, drag-and-drop style.

The hierarchy reflected in the Project Browser

Tip 1.8: Locking elements

Once you will have done real hard work modeling a piece of reality or of your dreams, you will want to protect it against unwanted changes. For example changes by your project team colleagues who always argue with you about… well, you know what I mean.
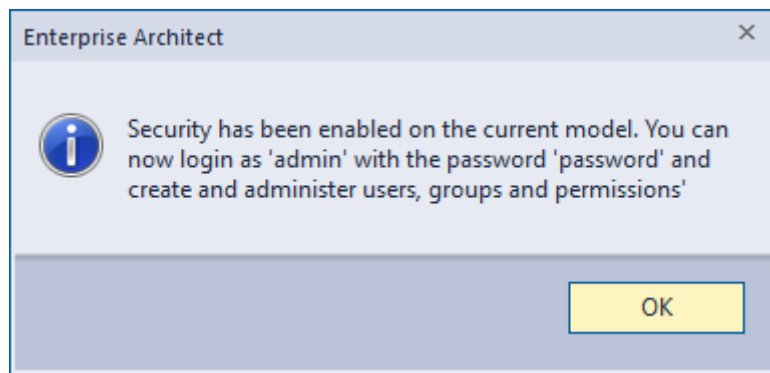
That's the right time to start locking your work. Select the element to protect, right click on it and press "lock element". Until you get the lock off, you and others won't be able to change its properties (name, notes etc). The OK button on the properties window is grayed out.

> Since EA version 12, this will only work when 'Security' is enabled. To enable security, you must have at least the corporate edition of EA. Then do the following:
>
> - Go to 'Configure' in the ribbon and choose 'Security | Administer' and 'Enable Security'
> - Fill in the Authorization Key you obtain from the Sparx website at http://www.sparxsystems.com/resources/corporate/index.html#key_sec

From the moment you have filled in the security key, it becomes clear that you better now log off, log on and change the admin password. If you want to have real security, that is:

Security is now in place!

From the moment you have enabled security, you will notice some differences to the EA user interface. Life just has become more difficult. To disable security, log in as administrator (via the ribbon 'Configure | Administer | Log in as a different user' with user name 'admin' and password 'password' in case you didn't change that), then click "disable security' in the ribbon 'Configure | Administer'.
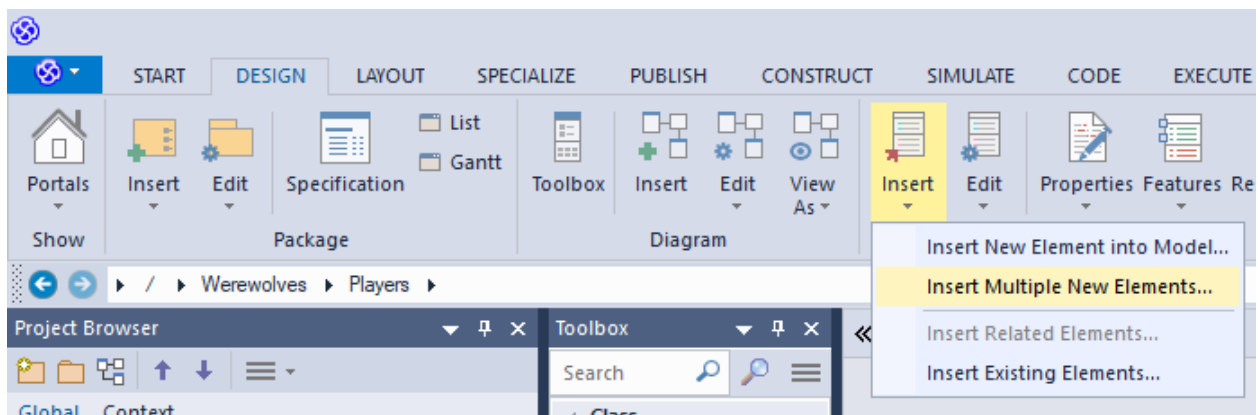
You can show the lock status of elements on a diagram by checking the box 'Display Element Lock Status' in the Diagram Properties | Appearance.

Tip 1.9: Easily importing elements

So I collected a list of about 25 friends who want to play the WoWW game with me. How can I import them to the model?

First, make sure the name list is on the computer's clipboard (select the name list and press Ctrl-C to obtain that).

Then, open the 'All Players' diagram in the Project Browser and press 'Design | Element | Insert' on the ribbon. Choose 'Insert Multiple New Elements…'.
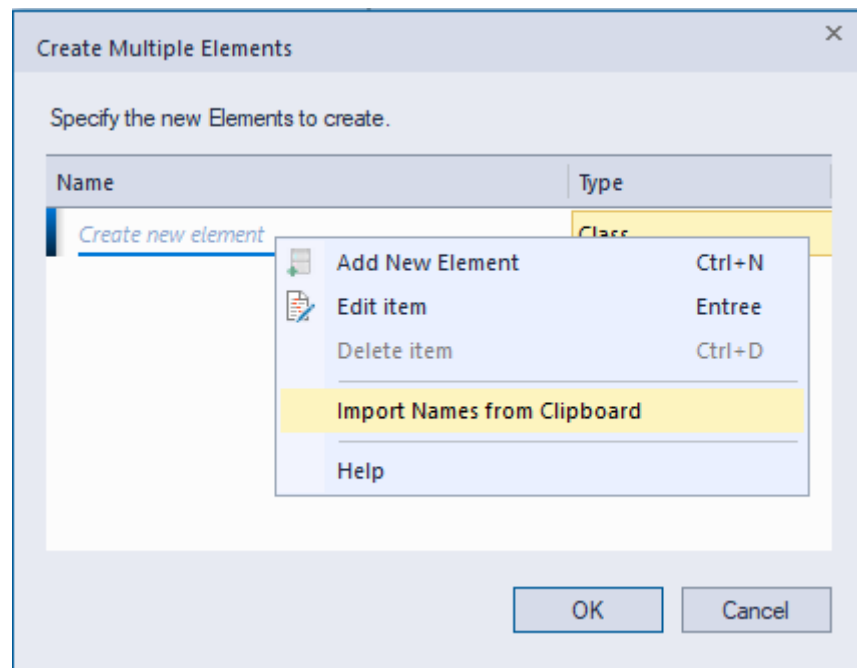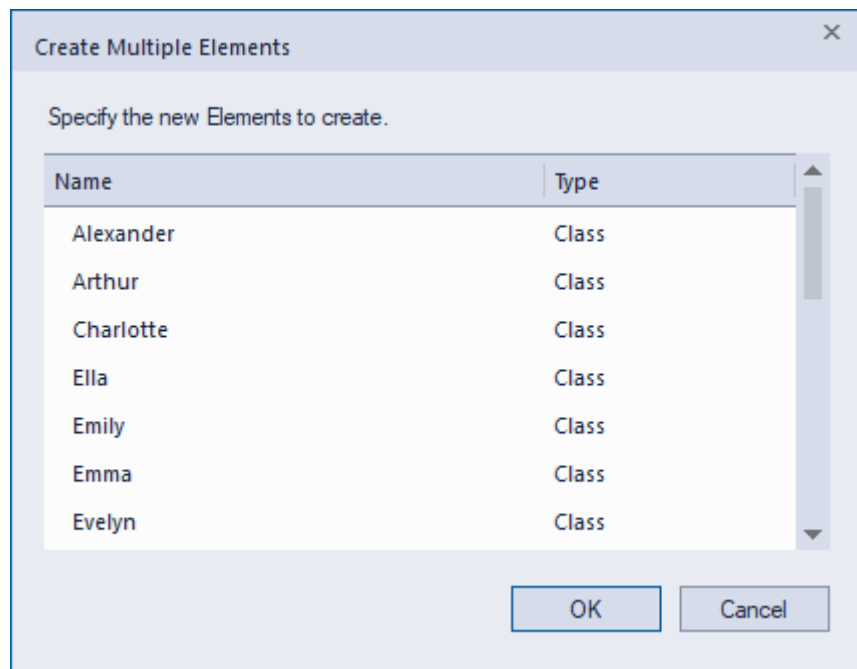
Inserting multiple new elements

There are three 'Insert' functions on the ribbon. Be sure to take the one in the 'Element' section.

Then right-click the first empty field saying 'create new element" in the list and select 'Import names from the clipboard'.

Importing from the clipboard

This is the result:

An easily imported list

This simple trick can save lots of work retyping existing information. Neat!

Tip 1.10 A bit more advanced importing

The previous tip is a time saver when you have a simple list of element names to import, but it has certain limitations. For example, it is not possible to include the description of the element (the one appearing in the element's notes) with it.

There is another, more versatile import function. It is a pity that this importer is not more intuitive to use. Here's how it works. As an example, we are going to import the profession list from a spreadsheet file.

Step 1: prepare the data

For this step, you need spreadsheet software that is able to generate csv files, like Microsoft Excel or OpenOffice Calc. Create a new file with three columns. The first column contains the element names (in this case: the names of the professions), the second one their types (in this case: 'class'), the third the notes. Each column heading relates to the corresponding field in Enterprise Architect: Name, Type and Notes.

	A	B	C	D	E	F	G
1	**Name**	**Type**	**Notes**				
2	Armorer	Class	the armorer is a specialized blacksmith who prod				
3	Baker	Class	the baker is responsible for baking bread for the				
4	Barber	Class	the barbers does not only cut hair but also serve:				
5	Blacksmitl	Class	the blacksmith uses heavy tools and fire to prod.				
6	Brewer	Class	the brewer brews ales and beers and stores and				
7	Butcher	Class	the butcher not only prepares, cuts, stores and s				
8	Carpenter	Class	the carpenter creates and fixes roofs, gates, doo				
9	Draper	Class	the draper sells cloth to people who maketheir c				
10	Falconer	Class	the falconer trains and keeps falcons and other b				
11	Fishmong	Class	the fishmonger sells raw fish and seafood.				
12	Furrier	Class	the furrier works with pelts and hides to create c				
13	Goldsmitl	Class	the goldsmith creates not only jewels from preci				
14	Grocer	Class	the grocer is a merchant that sells common food				
15	Groom	Class	the groom is responsible for cleaningthe stables				
16	Miller	Class	the miller operatesthe mill of the landlord. He is				
17	Page	Class	the page is a servant to a knight. Soemtimes he a				
18	Plowman	Class	the plowman works hard all day, carrying loads o				
19	Shoemake	Class	the shoemaker makes and fixes shoes and other				
20	Stonemas	Class	the stonemason creates buildings and other stru				
21	Weaver	Class	the weaver weaves cloth of silk, linen and other				

A csv file to import in EA

Save the file as a csv file (Comma Separated Volume).

> Depending on the regional settings of your computer, the separation character might not be a comma, but for example a semicolon - you can indicate this in step 2.

Step 2: prepare an import specification

Now turn to Enterprise Architect. Click the ribbon's 'Publish' section, then under 'Model Exchange' click 'csv | 'csv Import/Export Specificiation'.

In the dialog window, choose 'New'. Give a name for the specification (for example, 'professions import'). Default direction is 'import'. Change the delimiter if your regional settings don't take a comma as a csv field delimiter.
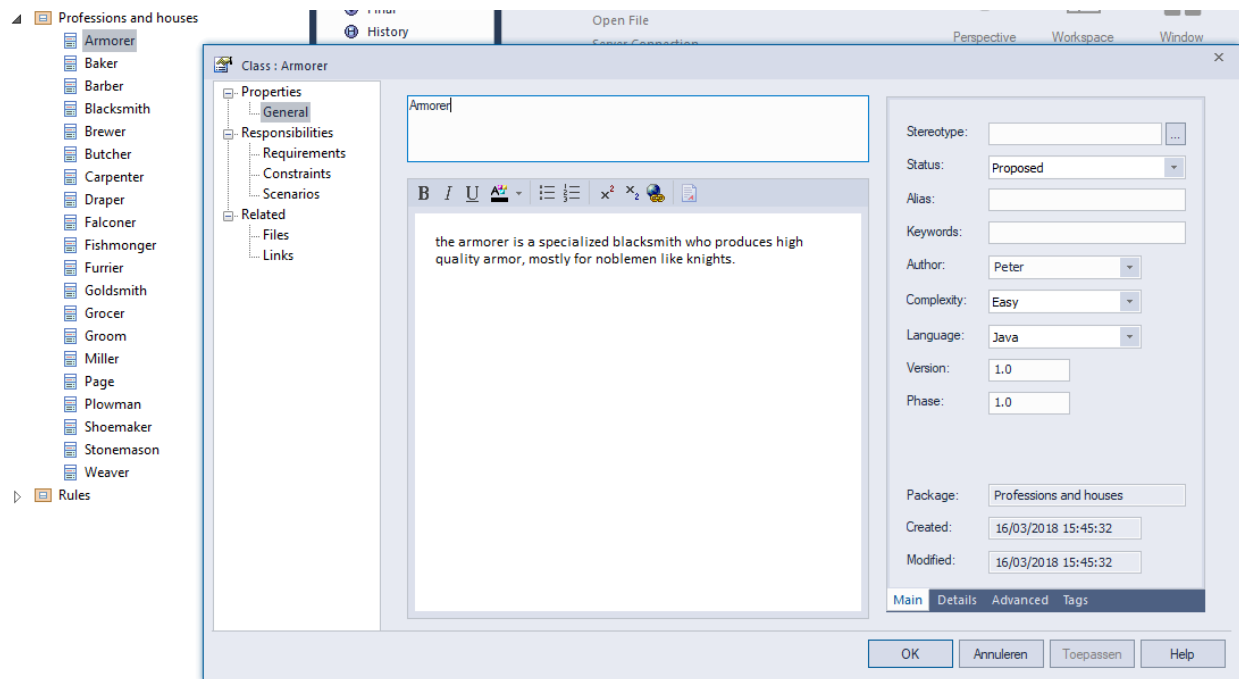
Creating an import specification

In the 'Available Element Field' section, choose the three appropriate fields (Name, Type, Notes) and press 'Add Field' each time. Change their order with the green arrows so that they correspond with te csv's column order. Save the specification.

Step 3: finalize the import

As a last step, turn to the Project Browser and activate the package in which to import the csv file. Click 'Publish | Model Exchange | CSV | CSV Import/Export'.

Choose the specification you saved in step 2, choose the csv file created in step 1, and press 'Run'.

The result is a neat list of the professions in the Professions package. Double click any of them to verify that the notes have been imported as well.

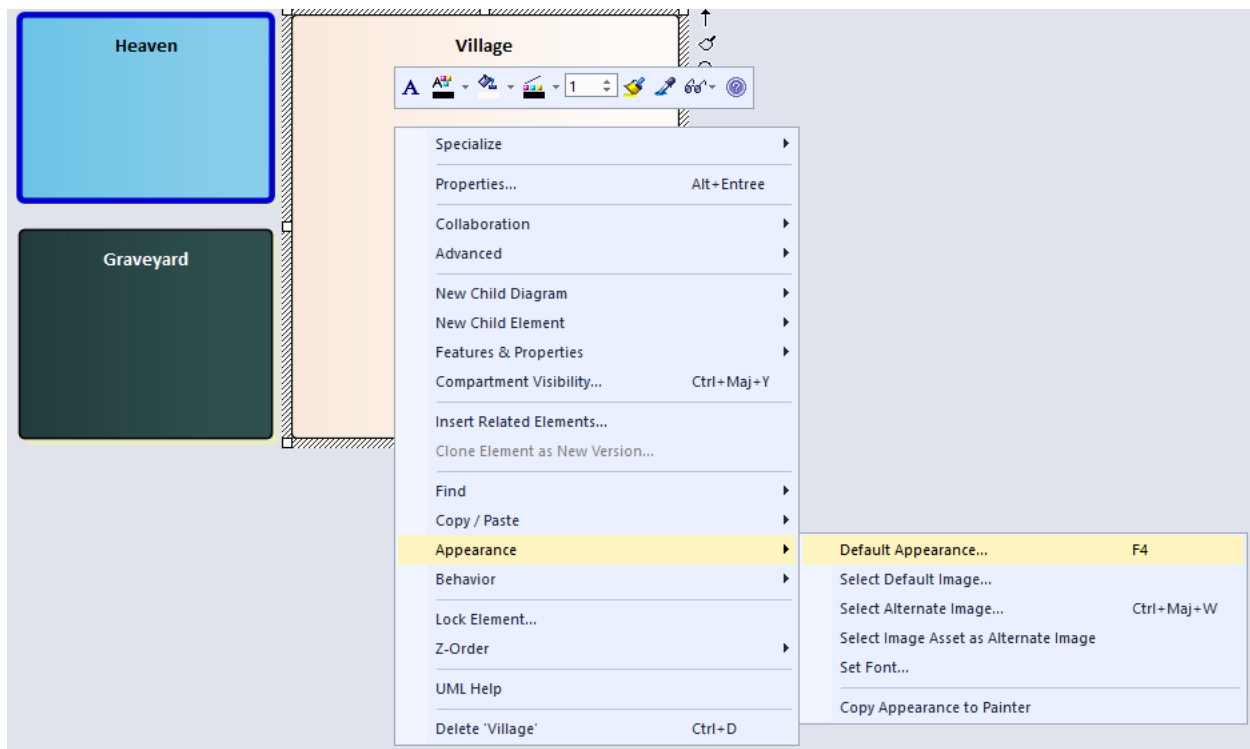**A fully imported professions list**

In order to be able to import data into a package, neither the package nor any element contained in that package should have the status 'locked'.

Tip 1.11: An elements default appearance

Previous versions of EA did not support the functionality to give an element a default appearance (apart from the one derived from the elements stereotype). In each and every diagram, you had to apply formatting if you wanted consistency across your diagrams.

With the current version of EA, you can give an element a default appearance. Simply right-click the element, and choose 'Appearance | Default Appearance…' from the context menu.

Changing the default appearance of the three places

🔑 The shortcut to the Default Appearance dialog is F4.

In this example, we have given Heaven a blueish appearance, while the village is green and the graveyard grey. If you now create a new diagram and add the places to it, they will inherit their default appearance from above.

If you change the default appearance of an object, it will be changed in all diagrams where you didn't alter its appearance.
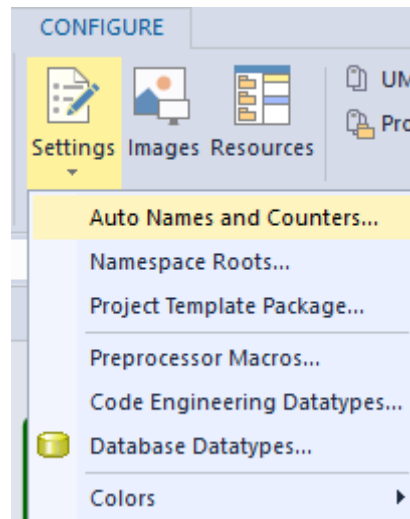
🔑 From the same context menu, you can also select an image from the image manager as default appearance, or any other image.

Tip 1.12: Auto name counters

In the 'Configure | Reference Data | Settings', there is an option 'Auto Names and Counters...' that is very useful when you work with elements you need to refer to by name. The usual suspects are requirements, changes, and issues. Auto name counters give each element of that type a unique

number, so you can make lists and refer to each item by its number without worries that you point to the wrong one.
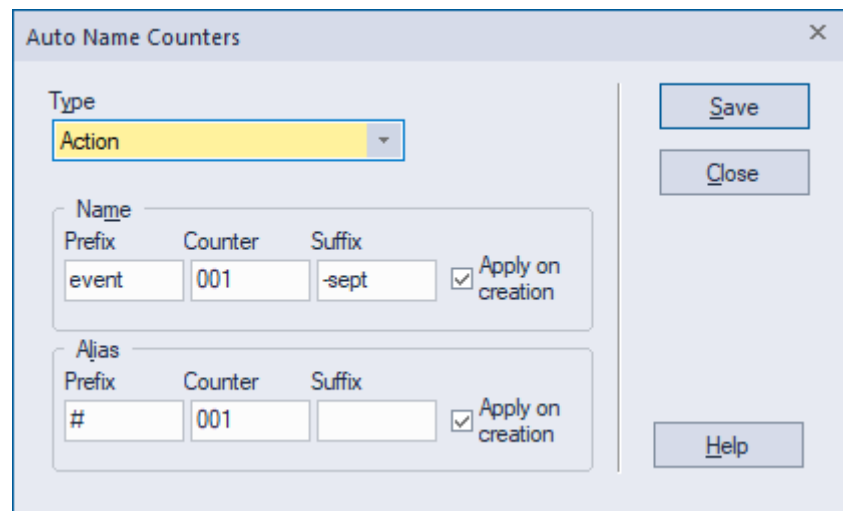

Auto Names and Counters

Let's use auto names and counters for keeping an event log of our september session.

First, indicate the type of element you want to setup an auto name counter for ('action'). Then give it a prefix (like 'event') and a suffix (for example, referring to the september session). As a counter, type as many zeroes as needed to 'pad' the counter, then a '1'. This indicates that you want the auto name counter to start with the number 1, appearing as 'event-001-sept' on the diagram.

Every element type can have only one auto name and counter, which makes sense. How else would EA be able to know which counter you want to use for the element?

Setting up Auto Names and Counters

Of course, you can start with any value you want. If you input '0100' as a counter value, the first item will be '0100', the next one '0101' and so on. You don't have to give a suffix and a prefix: neither of them or one of them is okay too.
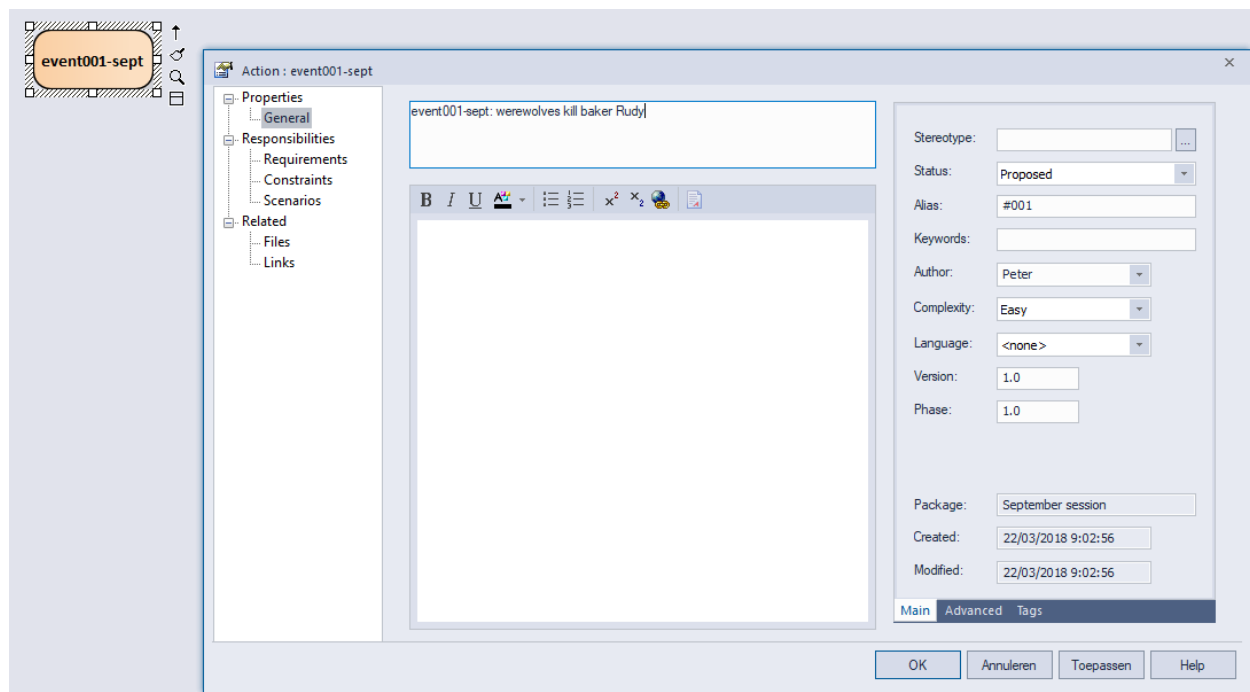
You can also auto name the alias of the element. See Tip 3.10 to discover why that would be useful.

Put a checkmark before 'Apply on creation', confirm with 'Save' and 'Close' and you will be able to use the auto name counter.

The auto name generated by EA is not written in stone: you can change it or entirely override it, if you want.

Auto Names and Counters in action

If you want to know the current value of the counter, or reset it, just go to the dialog 'Configure | Reference Data | Settings | Auto Names and Counters'.
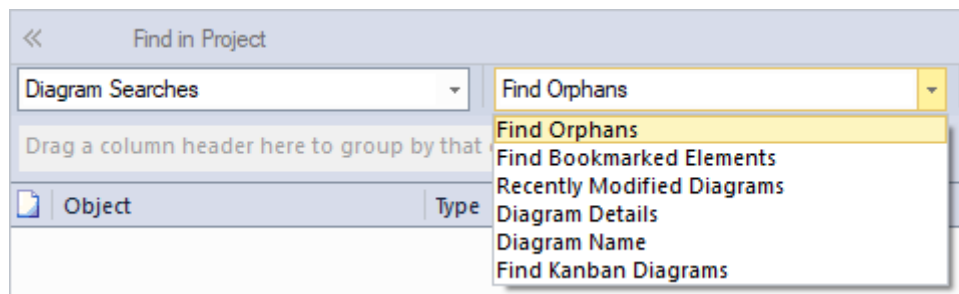
Tip 1.13: Finding orphans

While modeling, the analyst sometimes adds elements to the model tree to find out later that they are not needed. Often, the element gets deleted from the diagram but not from the model. The result is what we call an orphan: elements that appear in the tree, but not on any diagram. With one of the default searches, Enterprise Architect helps us to find orphans like these. First, press Ctrl-Alt-A to open the model search window in the main workspace.
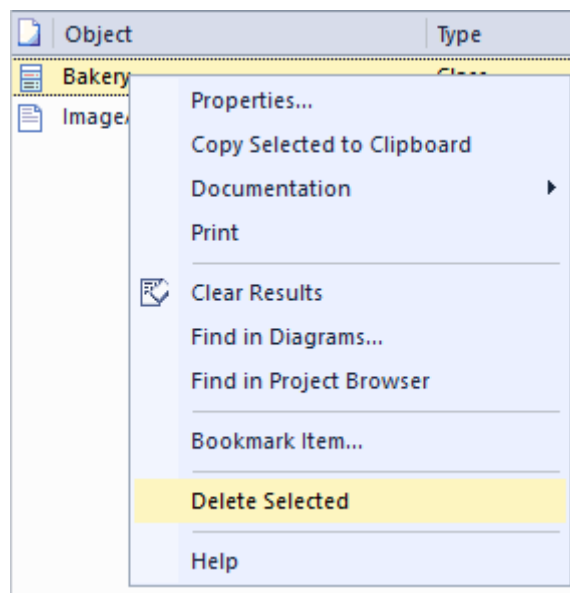
The shortcut to open the advanced search window is Ctrl-Alt-A.

Then, select as search type 'Diagram Searches' - 'Find orphans' and press 'run'.

A search for lonely elements

From this window, you can manipulate the object and even delete it if it is really not needed anymore. Select the element, choose 'Delete selected' from the context menu and it's gone.

Deleting an orphan element

There are other searches available and even a sql-based search builder. See chapter 6.