Entity Relationship Diagrams in Enterprise Architect

At some point in our design we are going to have to create some mechanism to store persistent data within the system.

This will typically take the form of some sort of data base, in our case SQL server.

In our journey so far we have pretty much worked from the presentation layer, through the middle layer and finally arriving at the data layer.

Creating data models in EA is pretty much like creating any other diagrams as many of the skills are transferrable.

One issue you may however note at this point is that you may be creating diagrams in a notation that you have not encountered before.

There are a number of ways of drawing ERDs each with their different standards of notation.

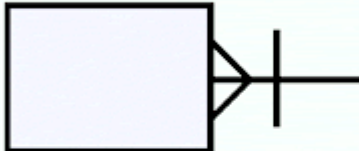A common form of notation is called the Chen notation
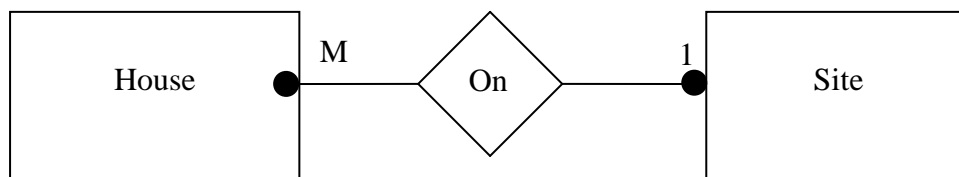
In this example we are stating that a house is on one site.
A house must be on a site.
A site may or may not have many houses.

You may also have encountered the crow's foot notation.

SYMBOL		MEANING	UML REPRESENTATION
	⊢⊦	One and only one	1
	⊳⊦	One or many	1..*
	⊳○	Zero, or one, or many	0..*
	⊦○	Zero, or one	0..1

Since EA supports the second notation and it is we are going to concentrate on this.

ERDs may be seen as a subset of class diagrams so to create a new diagram we will add it the structural view of the system…
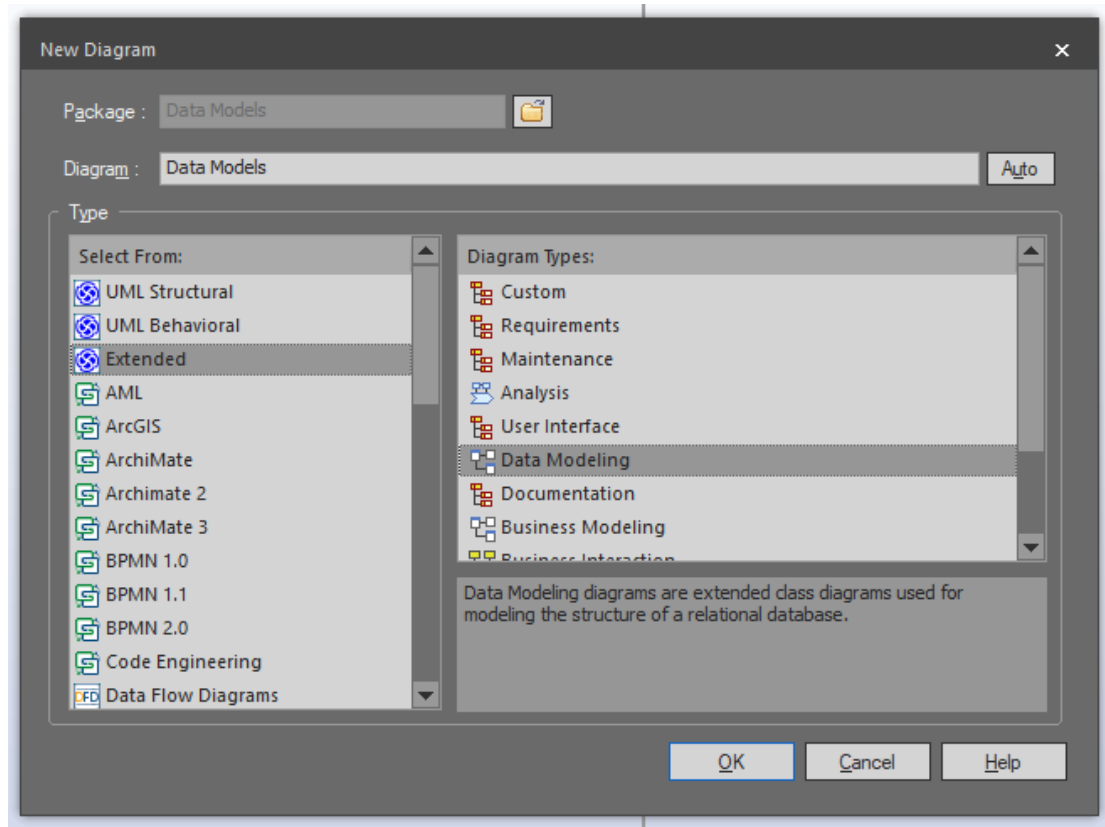
Project Browser

☐ Model
   ⊞ Dynamic View
   ☐ Structural View
      ⊞ Data Entry Revised
   ⊞ User View
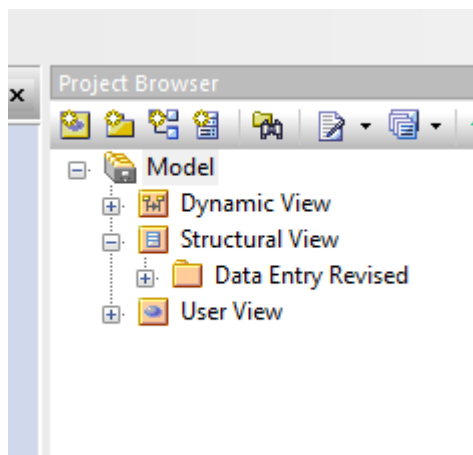
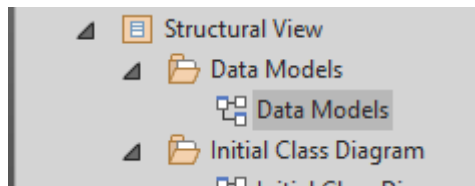Right click on the folder for your structural view and add a new package for the data model…
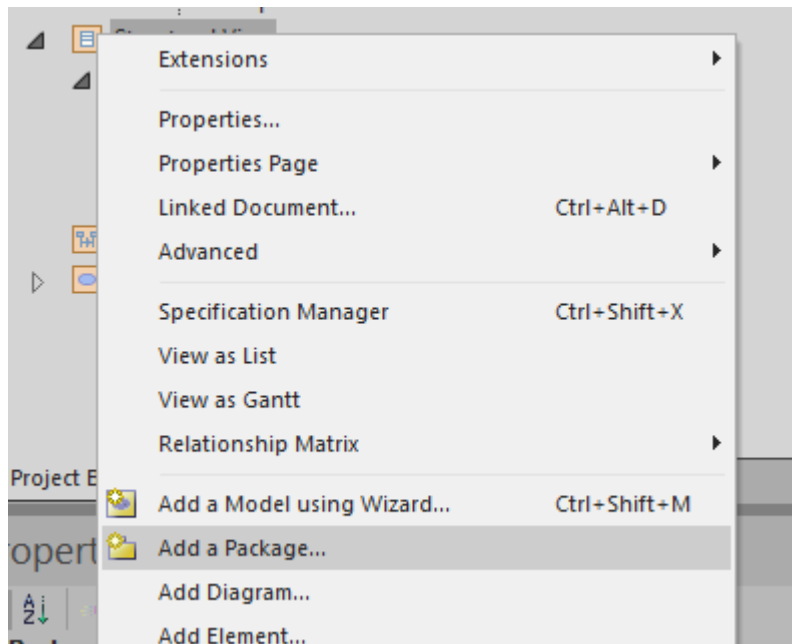
Name the package Data Models…
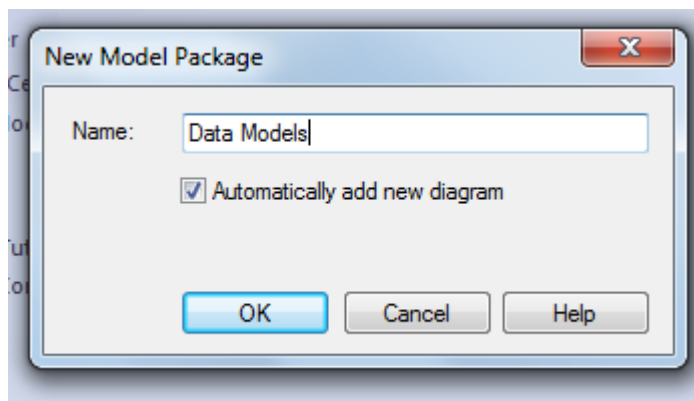
To add the new diagram locate the section for "Extended" and select "Data Modelling" as your diagram type.

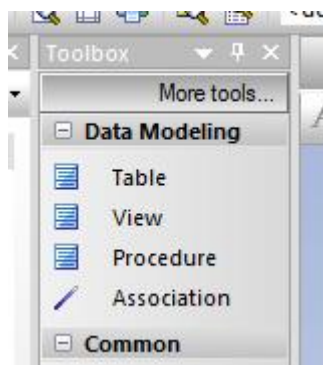This will create the diagram within a suitable package.

Double click the diagram to edit it.

Creating Tables

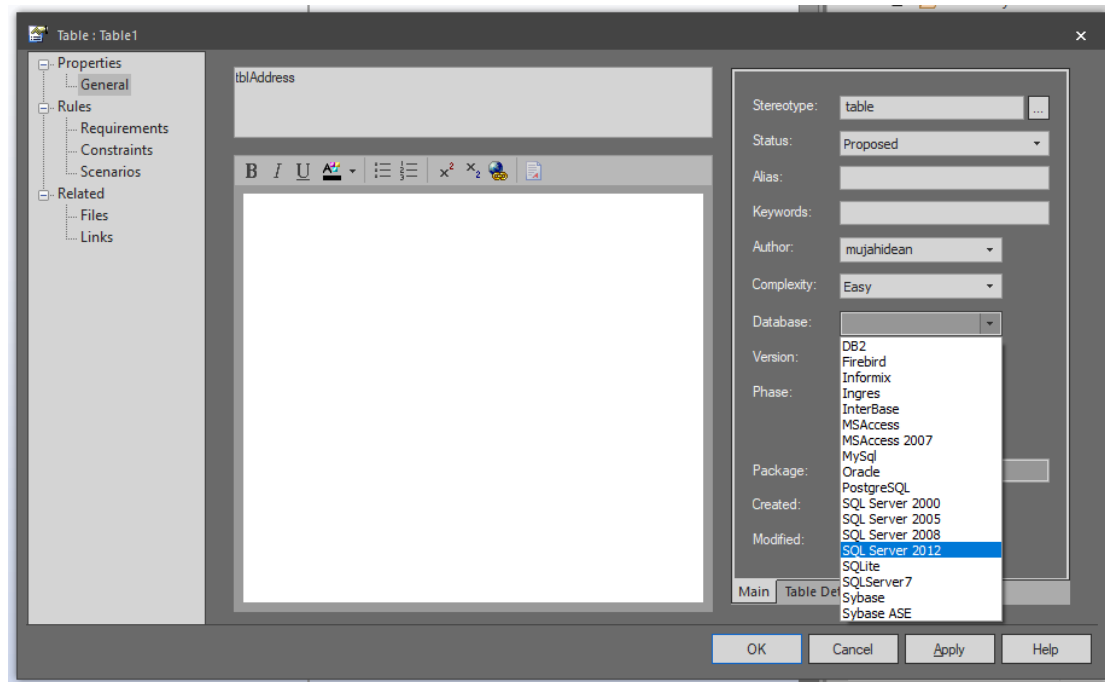Drawing tables on the diagram is pretty much like creating any other item within EA.

The tables may be accessed from the toolbox…

Auto Data Definition Generation

One rather nice feature of EA is its ability to generate the table definitions for use in SQL server.

Add a new table to your diagram you will be asked to complete the properties…

Give the table a new (in this case tblAddress). Note that we also have the option of specifying the database that we will be working with (in our case SQL Server 2012 will do).

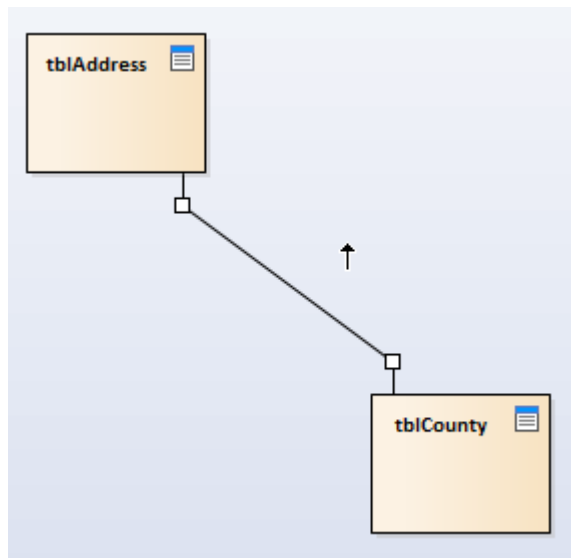Create a new table and in this case call it tblCounty.
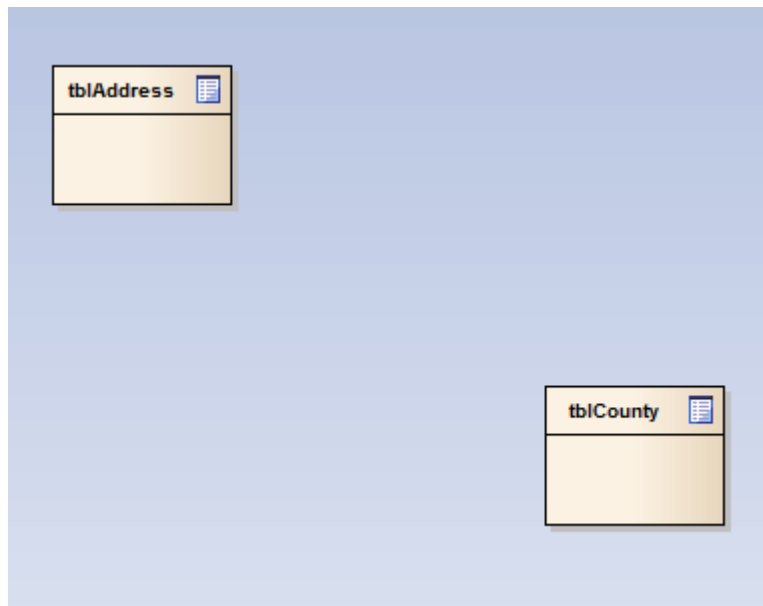
Creating Associations

To create an association between the tables use the association tool and draw the link between the two tables.
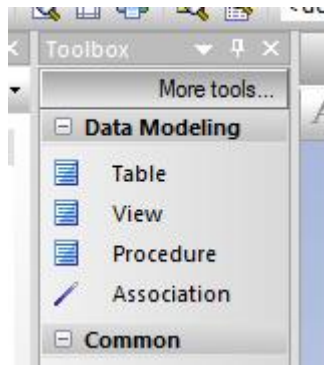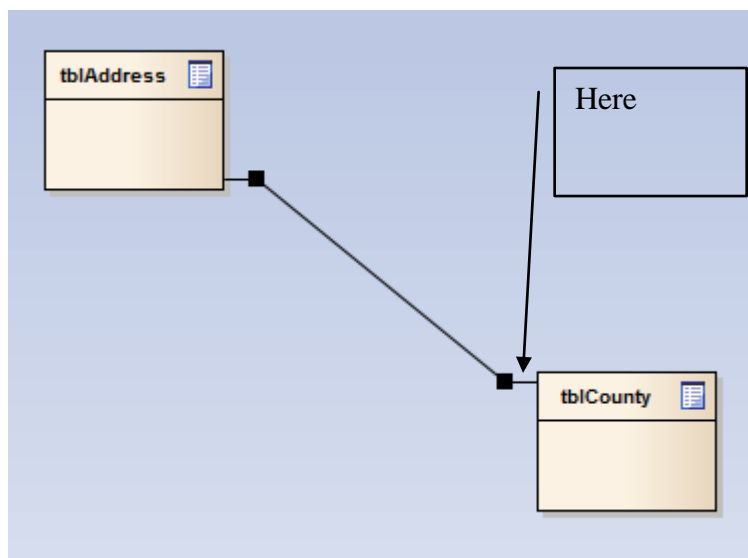

Like so…

Having created the association we need to think about how the two entities are related.
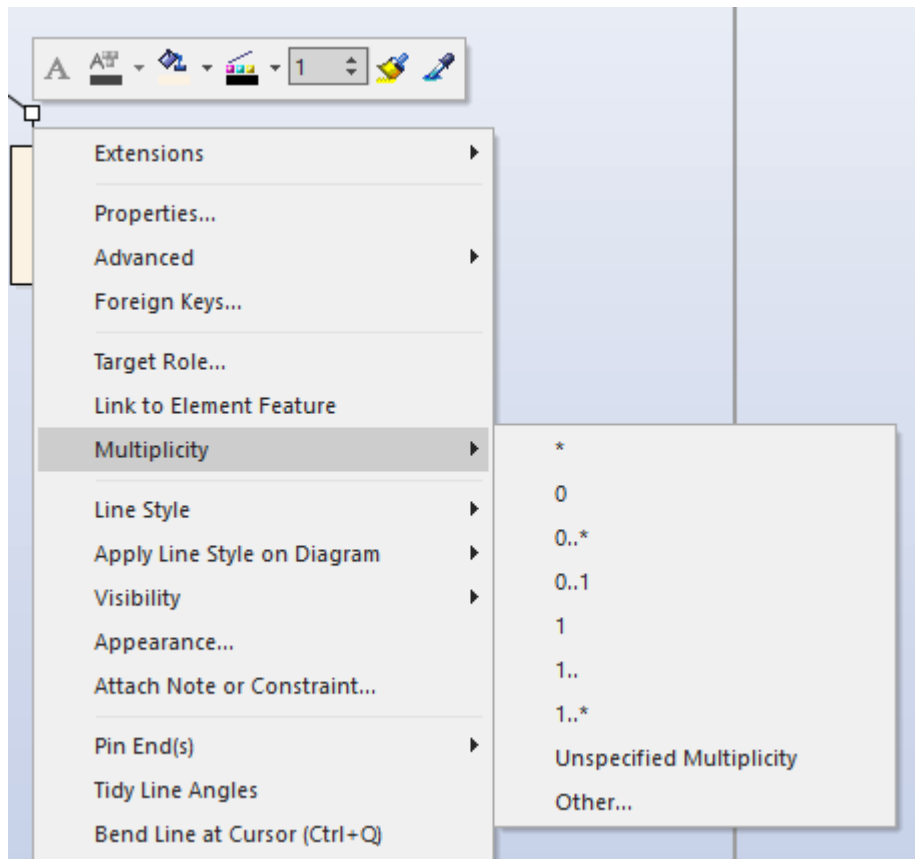
In this example we shall assume the following.

- An address must be in one county
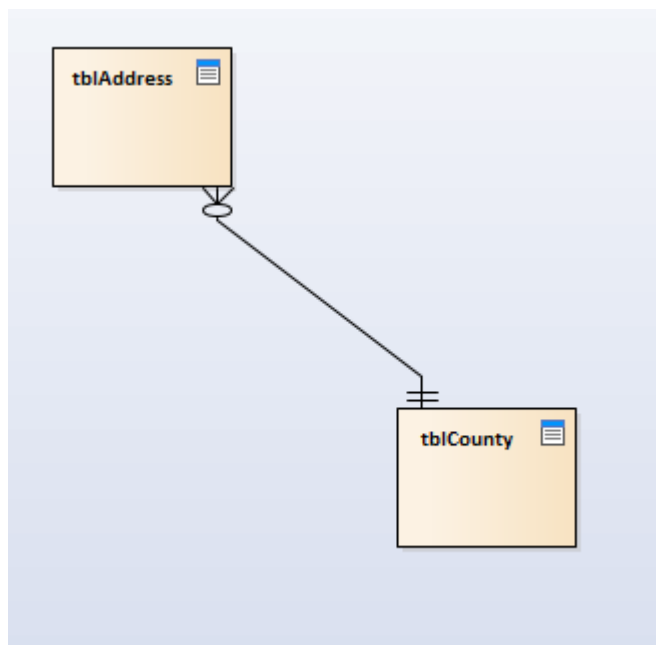- A county must have many addresses

To set these aspects of the association right click on the end of the association.
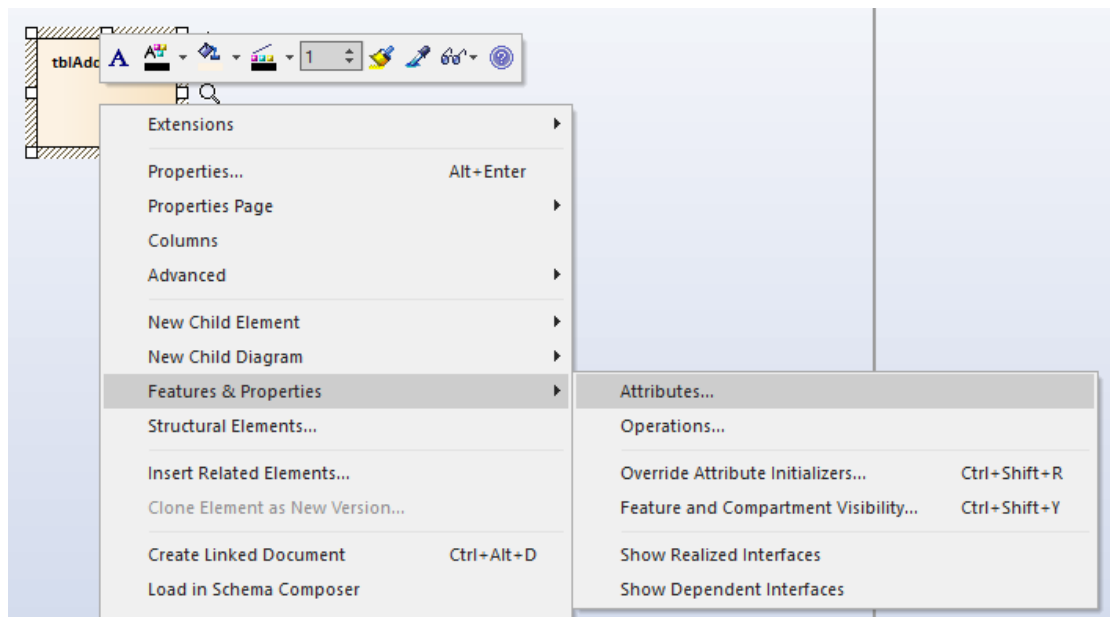

And select multiplicity…

Set the multiplicity for this end to 1 and the other end to * many…

Having set up the association between the entities we are in a position to add some attributes to the entities.
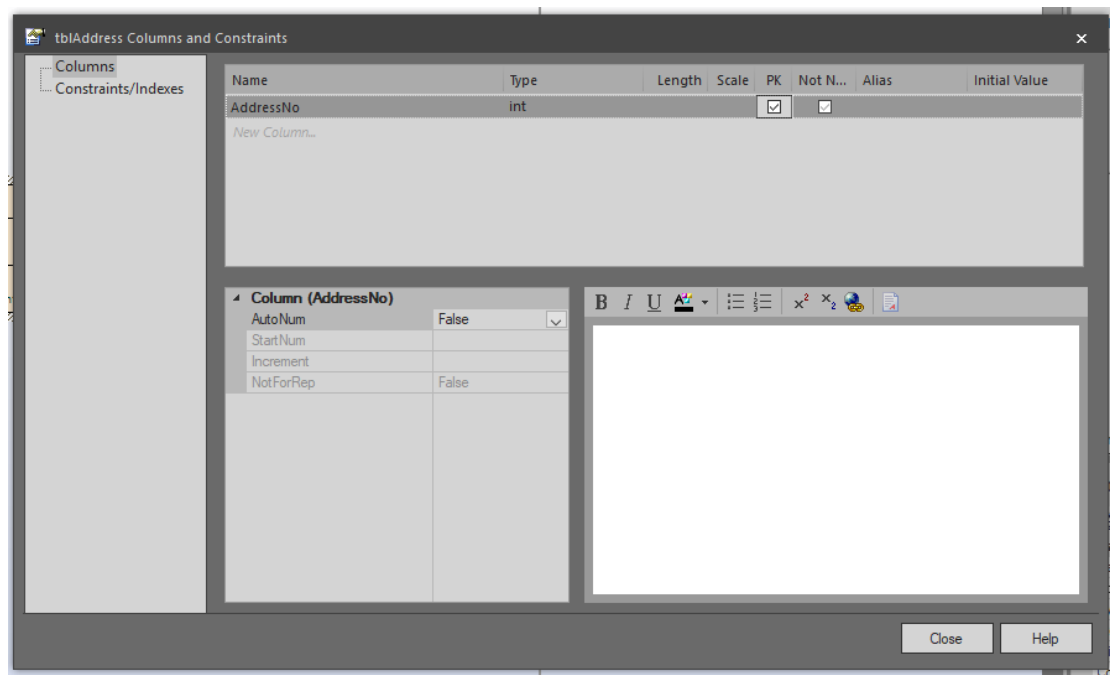
The mechanism for doing this is the same as adding attributes to a class.

Right click on the entity and select attributes…

The first attribute we will create is the AddressNo primary key for the table.

Set up the new field like so…

Then press close.

Next set up a new attribute for Street with a data type of varchar(50)…

tblAddress

«column»
*PK AddressNo :int
    Street :varchar(50)

«PK»
+   PK_tblAddress(int)
«unique»
+   UQ_tblAddress_AddressNo(int)