Creating the Data Cube

Prerequisites: following software needs to be installed on your system:
- SQL Server 2008R2 (although other versions likely work as well)
  - A simplified version of the AdventureWorksDW2008R2 database has to be attached
- SQL Server Analysis Services
- Business Intelligence Development Studio (BIDS) (Microsoft Visual Studio-based integrated database development environment for SQL Server)

The machines in the ULB computer rooms have all necessary databases installed. Most of the following scenario is explained step-by-step in the following website:
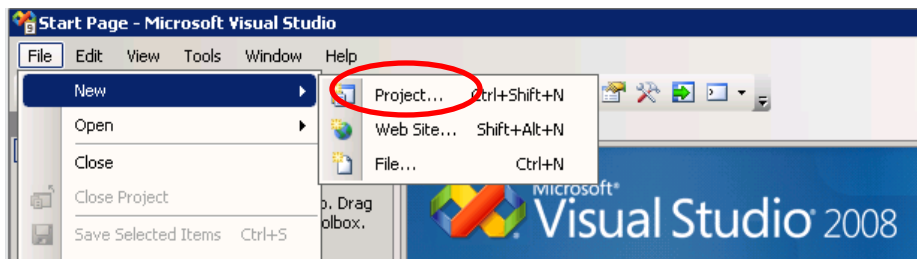
http://msdn.microsoft.com/en-us/sql10r2byfbi-trainingcourse_sql10r2byfbi05-hol-01_topic2#_Toc278876078

and in the following video:

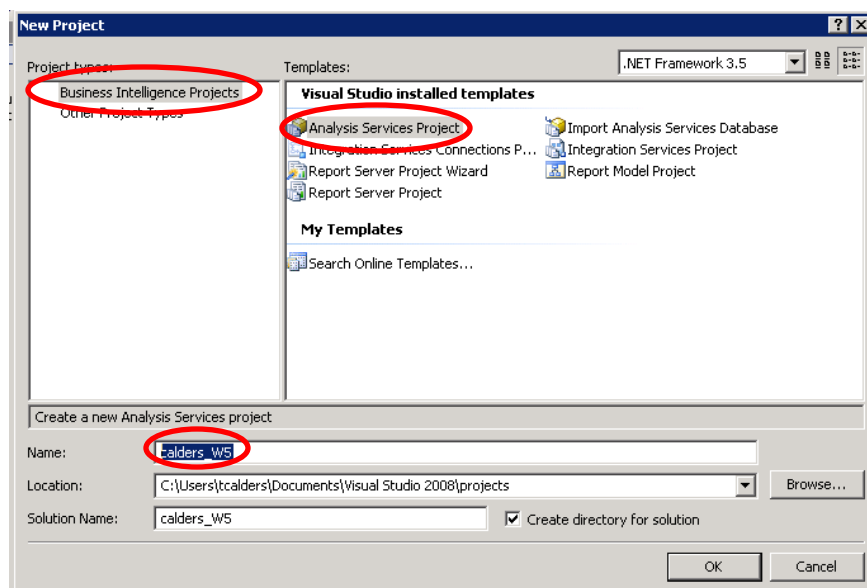http://technet.microsoft.com/en-us/sqlserver/ff522829.aspx

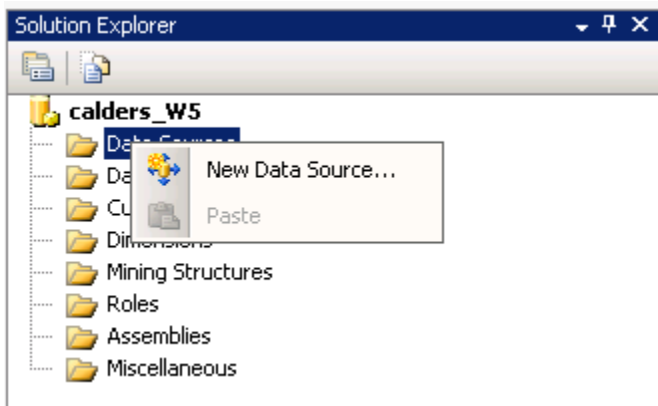In what follows you are guided through the process of creating a data cube.
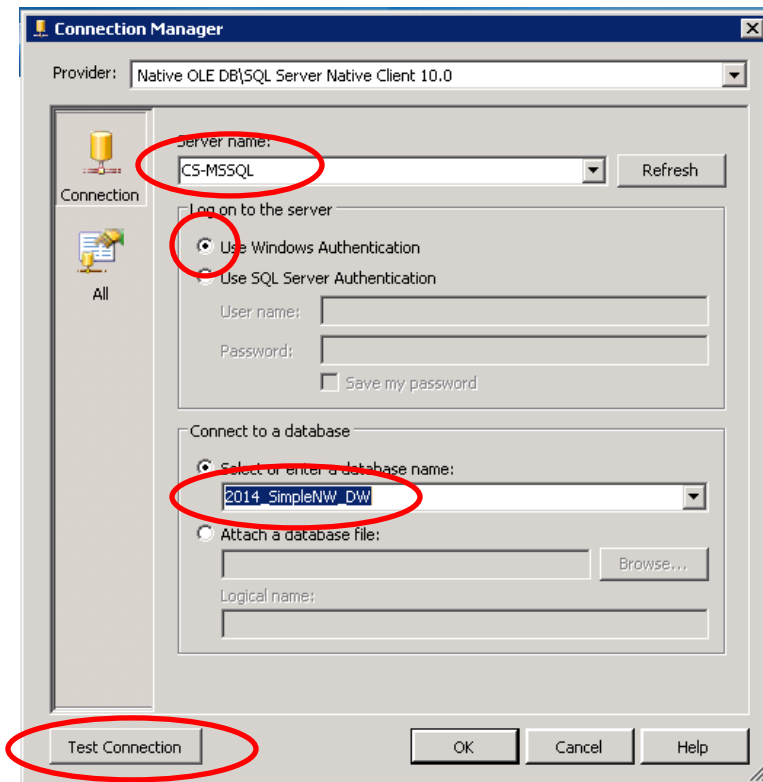
Create a new project:

Select BI projects/Analysis Services Project, and select a name for the project:

In the Solution Explorer on the right, create a new data source by right clicking on "Data Sources" (if solution explorer is not visible: in the menu, select View, then Solution Explorer):
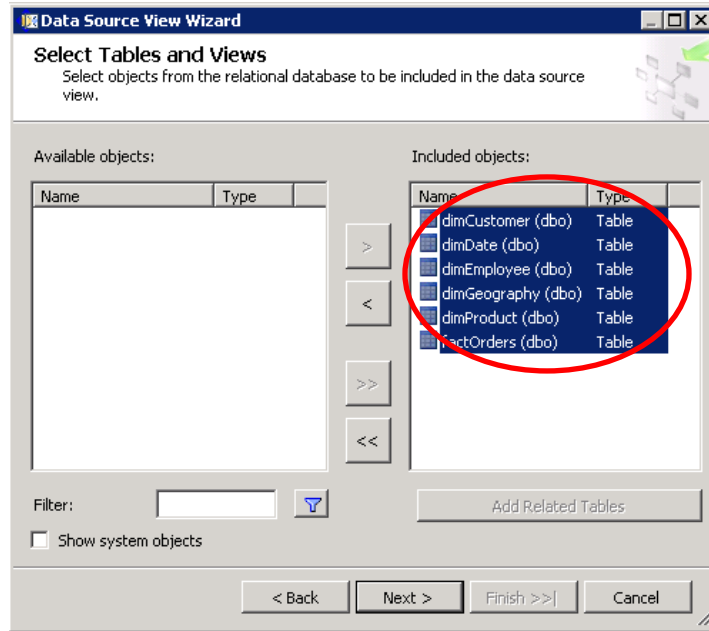

In the computer lab: select CS-MSSQL server, and "Use Windows Authentication"; on your own computer: server is most likely "local" (make sure that the database server is running). Navigate to the 2014_SimpleNW_DW database and test the connection.
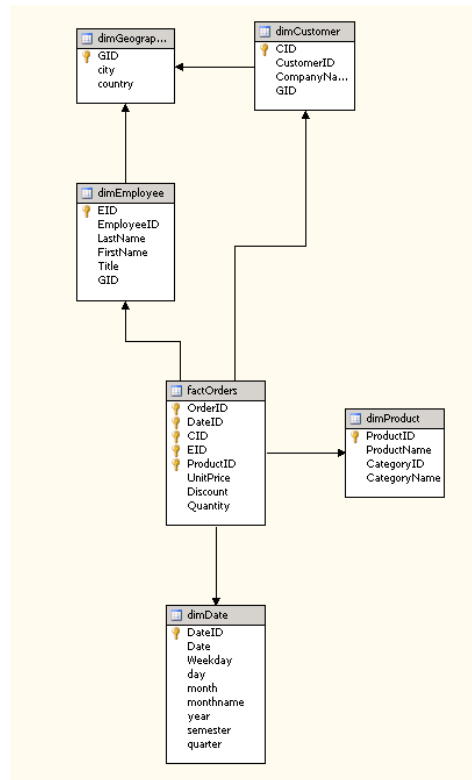

For impersonation mode use "service account" (next window; no screenshot).

Create a new data source view (Solution explorer; right click "data source views"). Select the newly created data source (no screenshot shown) and in the **next** window, select all tables to be included:
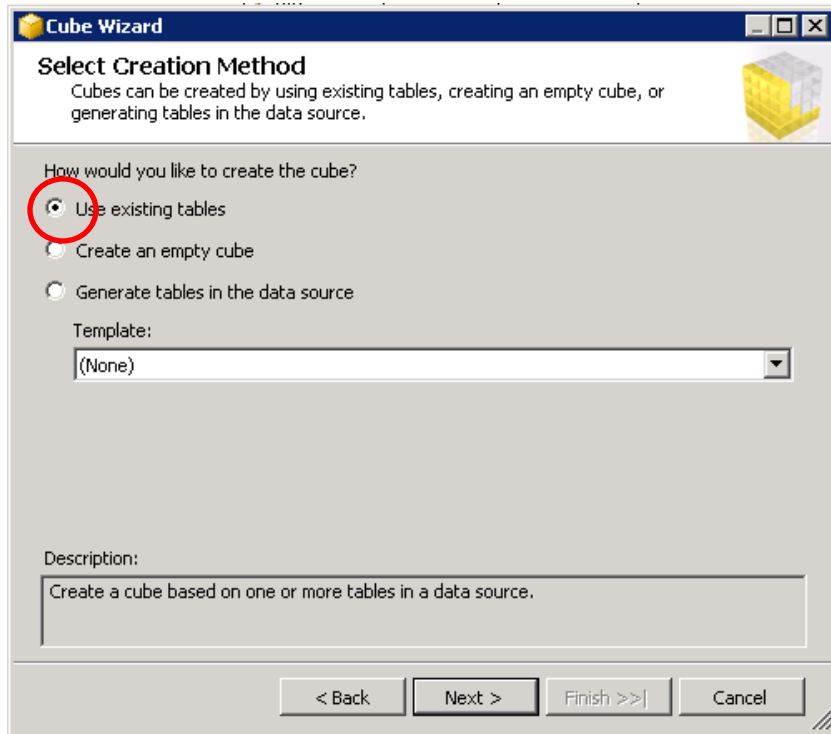

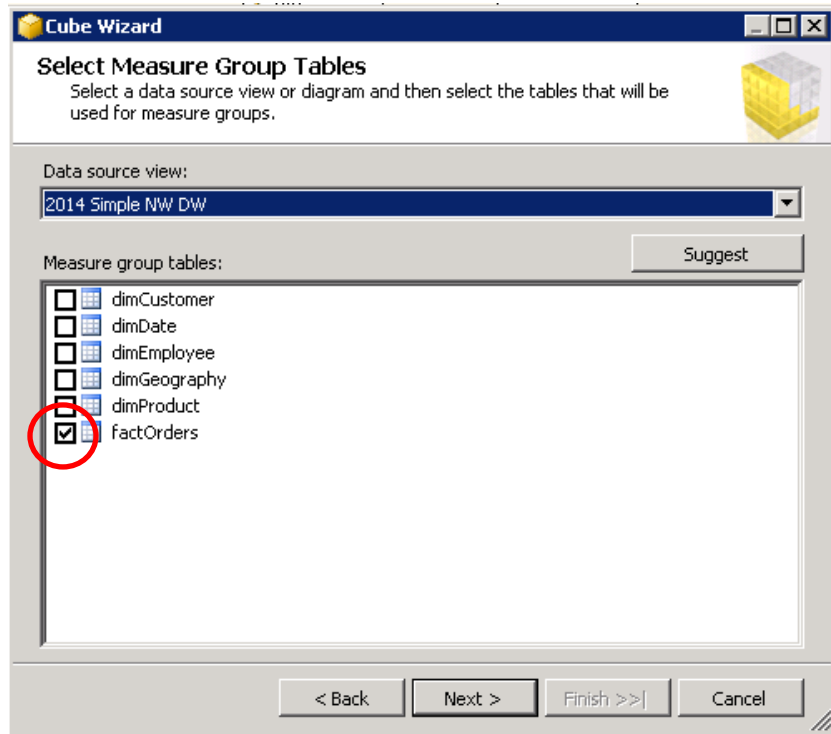In the **next** window (no screenshot) chose a name and finish.

If everything went well, you should normally see the following relational schema when exploring the data source view:

Now create a new cube in the Solution explorer (right-click cube). Select "use existing tables", as the dimensional schema already exists. The other options are there if you want to build up the relational schema using SSAS.
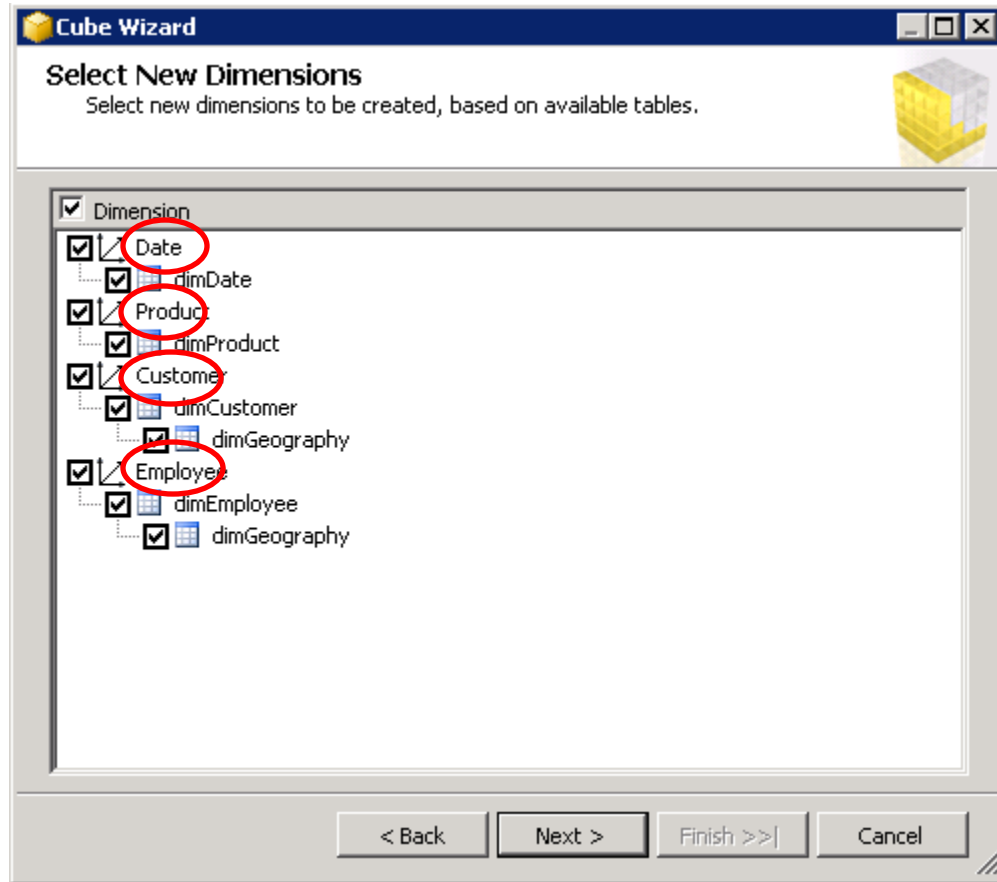

Select in the next window the measurement groups (tables containing the measures = fact tables)
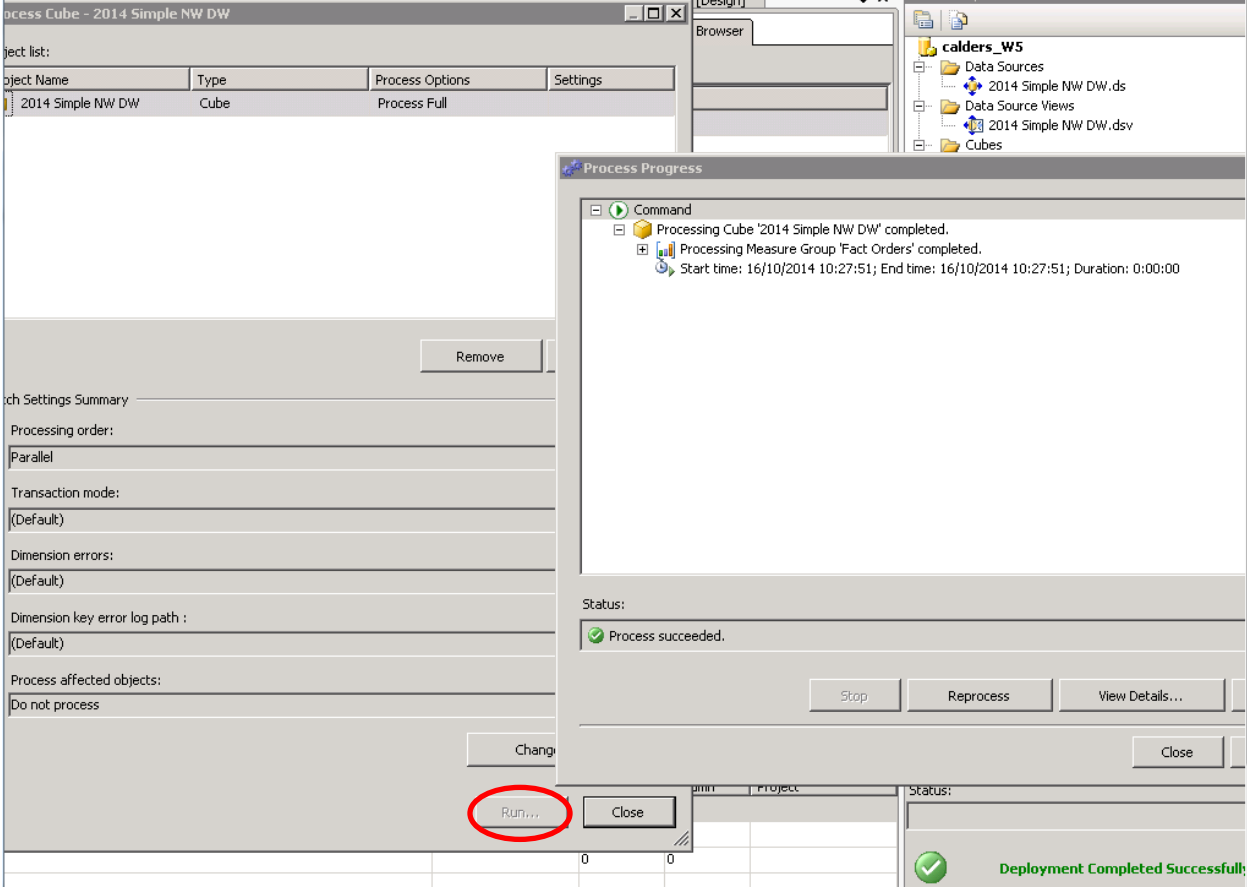
Select in the next window the measures you want; select all (no screenshot included).

Then select the dimensions. The wizard makes an educated guess based on the relational schema and the foreign key dependencies.

Rename the dimensions by removing the "dim". The table names that make up the dimension obviously should/cannot be renamed.

After you have created the cube, already try to build and deploy it a first time in order to make sure you have all the right permissions and all connections have been set correctly. To do this, right-click on the cube, select "Process cube", and chose "run". If there are problems with connecting to the database, chance the impersonation properties of your data source. Select the **service account** to be used.
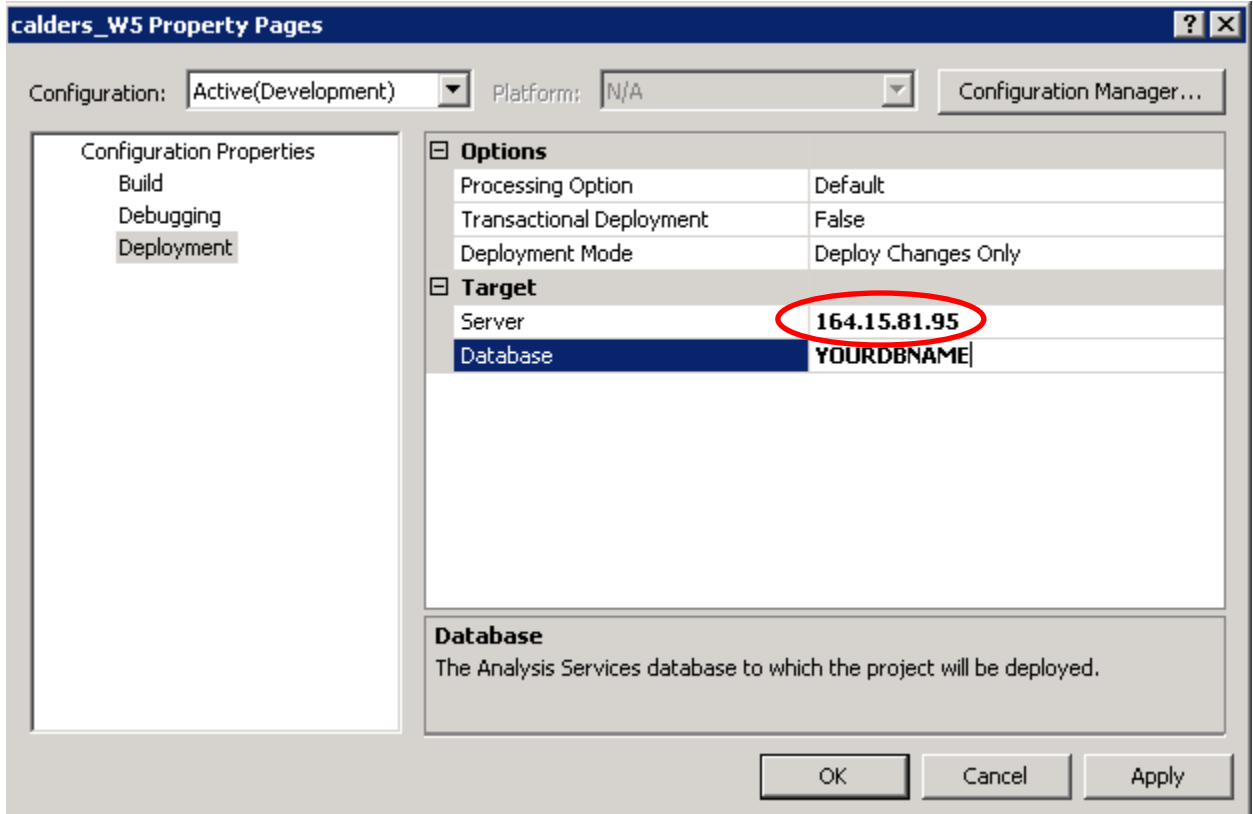

This step often causes problems because of authentication problems and permissions on the source database not correctly been set.

Congratulations! You have built your first cube. Browse the cube by right-click on the cube object in the Solution explorer and selecting "browse cube".
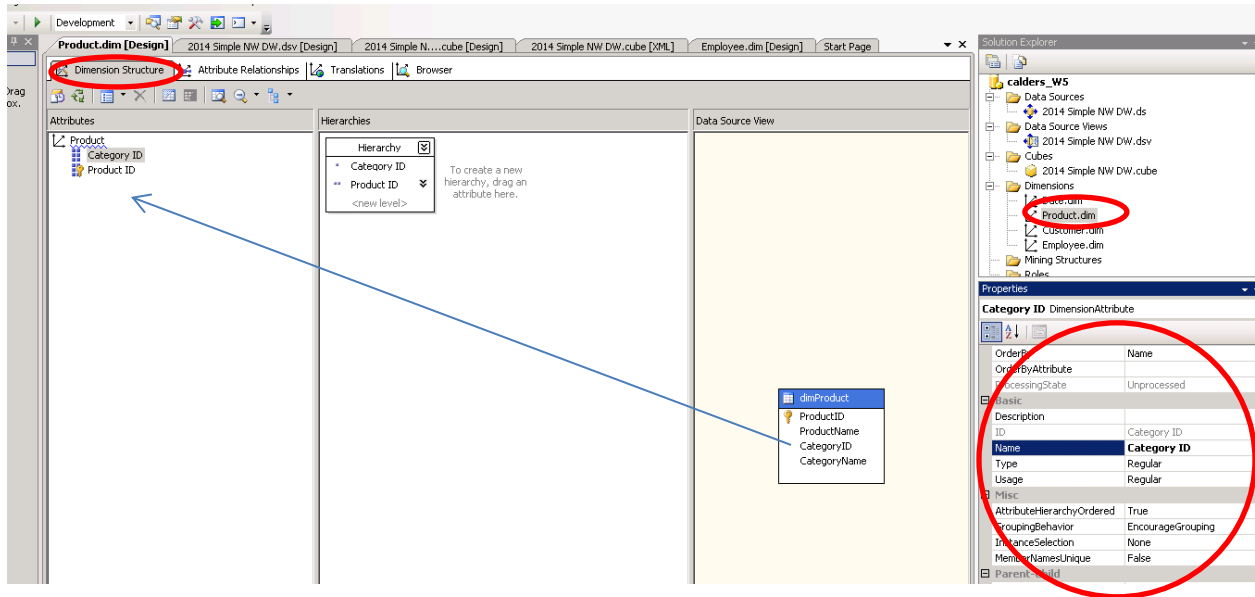
In case you are having problems with this step, the following problems can be causing it:

- The SSAS server properties have not properly been set. Go to "project", "[your project name] properties" and set the server correctly:
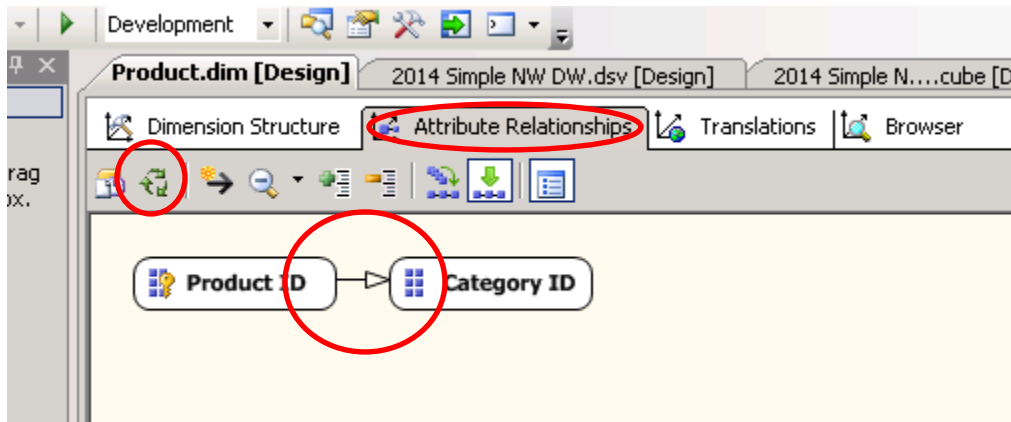

- You do not have the right permissions on the database; solve this by changing the permissions of your database (SQL Server Management studio)
- The impersonation mode is wrong; for your data source preferably use the service account impersonation mode as the permissions for the service account have been properly set.

Clearly in the cube definition important information about the hierarchies is missing. Use the dimension browser to properly organize the levels in the hierarchy.
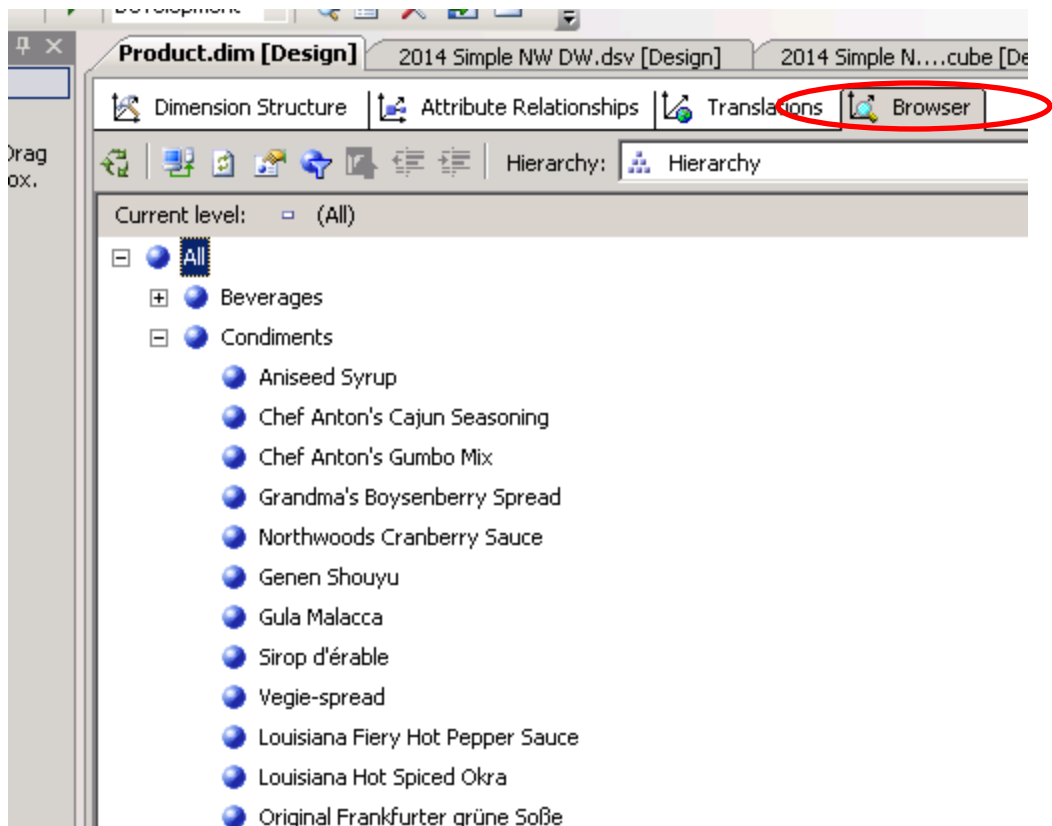

Create levels by dragging and dropping attributes.

Set properties of the levels; for instance: keys of the level (if composite key), name column for a level.

Set the attribute relationships (functional dependencies), and deploy.

Browse the dimension.

Now do the same for the other dimensions, deploy the cube again and browse the cube with the proper hierarchies etc. this time.