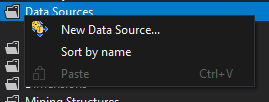
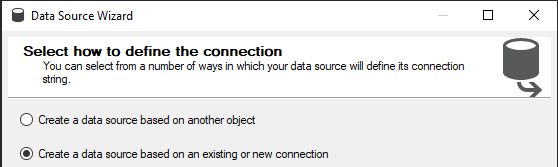
The CEO wants to have a report on profitability over time in sales.

The following steps will describe the process which generated the report for the CEO.

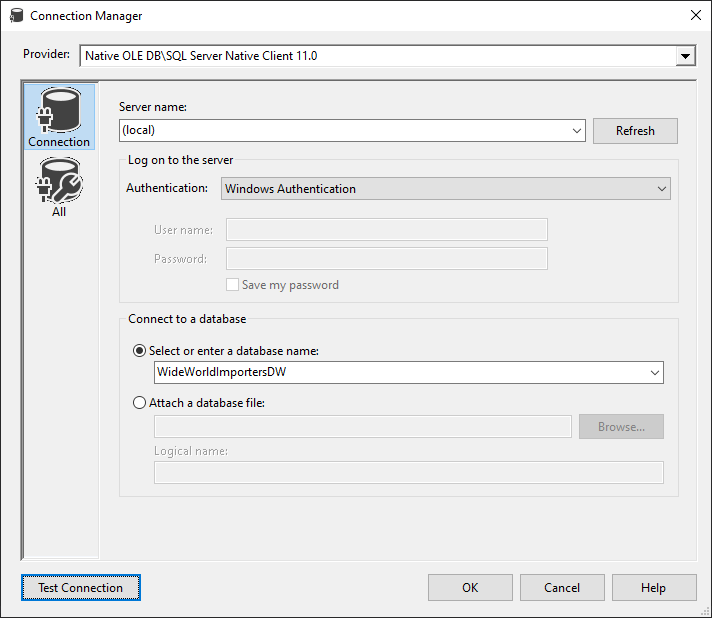
1. Inside SSDT, create a Data Source that extract the sales data from Wide World Importers DW



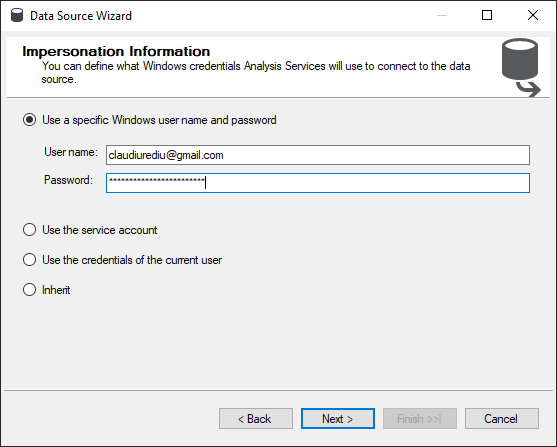
2. A Wizard will appear in which create a data source based on an existing or new connection must be selected. This make it possible to connect to the Wide World Importers database.



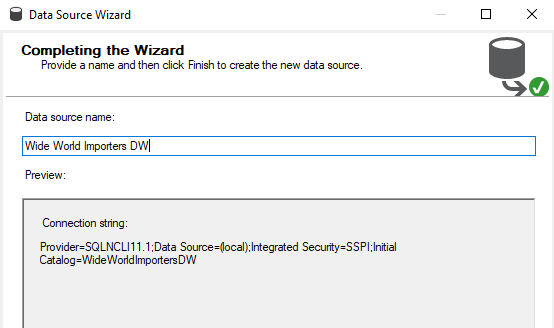
3. Press New to create this connection. In the connection manager, input the server name, select the authentication and write the name of the database to create the connection.



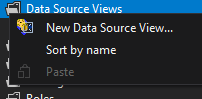
4. Press Next. Input the user name and password for the windows account. This will be used to authenticate to the database and request data whenever is needed.



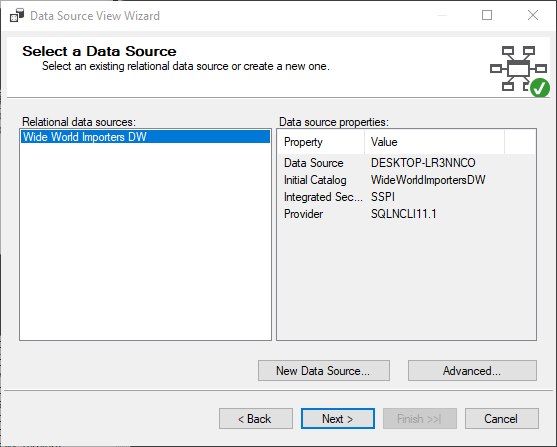
5. Write the of the database to identify the correct data source.



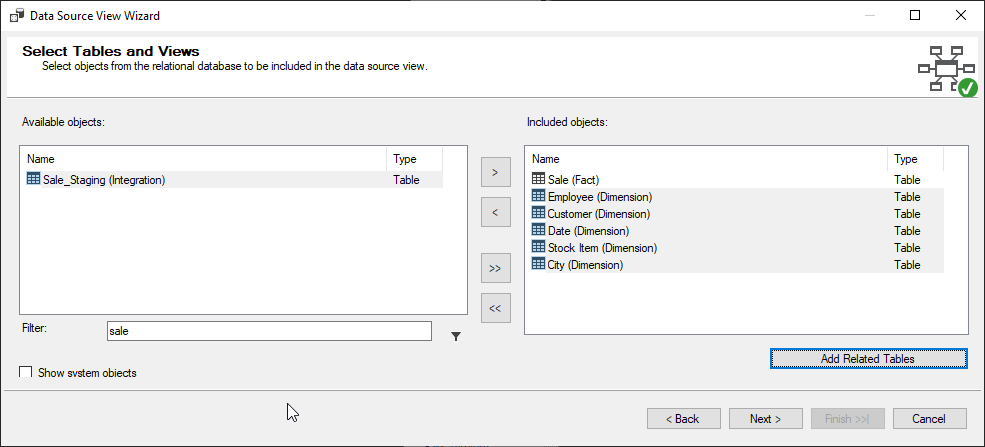
6. The next step is to create the data source view for the wide world importers using the data source that was just created.



7. Select the data source that was just created and move to the next step.

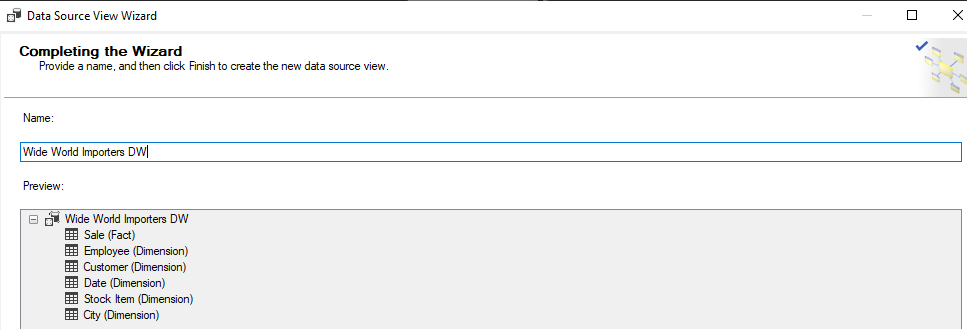


8. Find and select the Sale (Fact) table. Press add related tables. This should be the result.

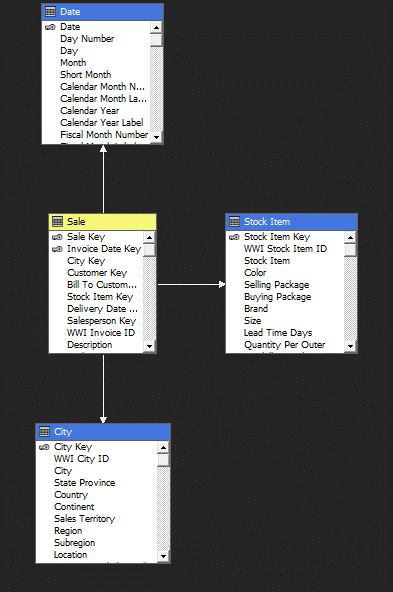


This will ensure that every table that is related to Sale will be accessible.

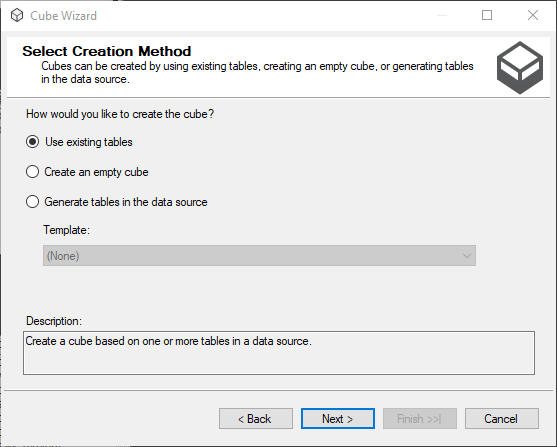
9. Finish by naming it.



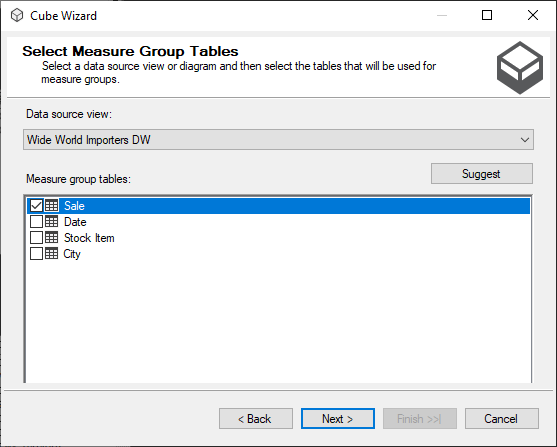
It will look like this



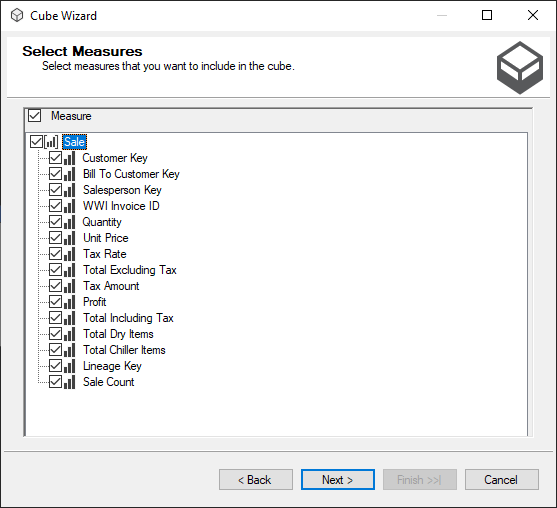
10. Remove Delivery Date from the list of dimensions in the data source view to ensure no duplicates in Date dimension as they would both feed in it.

11. The next step is creating the cube based on the data source view. Because the data source view was created, the option use existing tables can be selected.

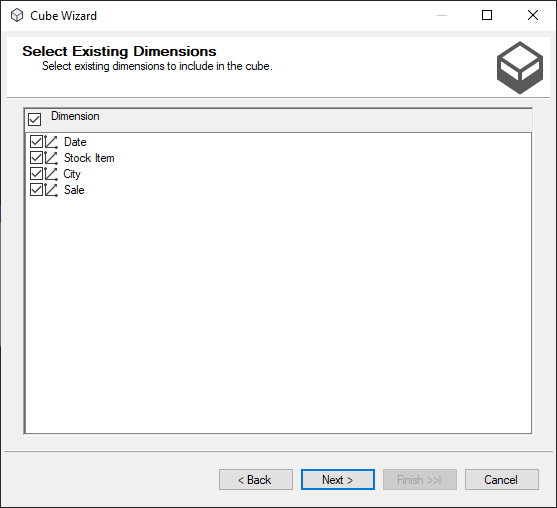
12. First the fact table is selected because it contains all the measures.



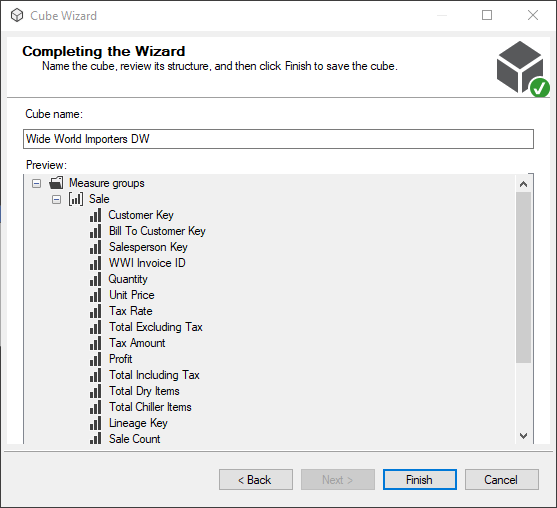
13. Select all the measures. In the end what is not needed will not be used in the report. If there are problems with space, the extra measures can be removed.



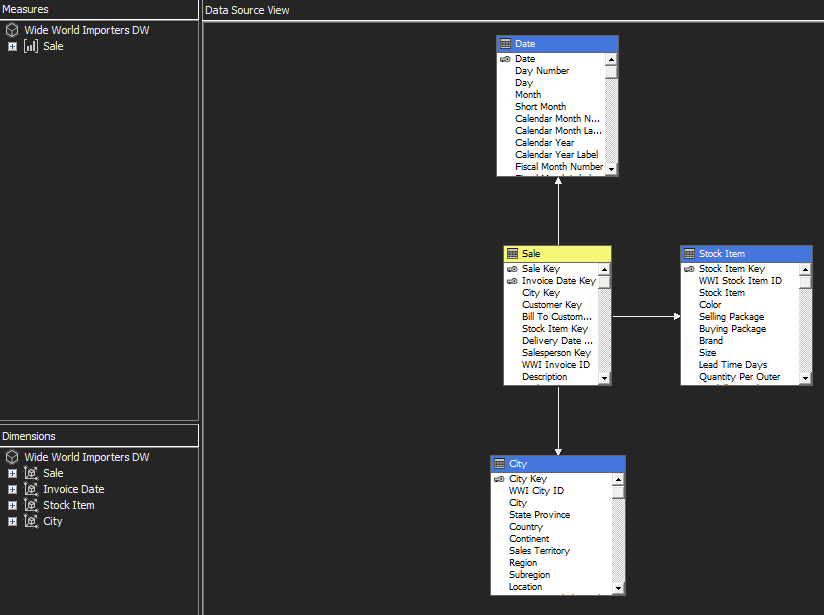
13. Each Dimension will be selected for the analysis.



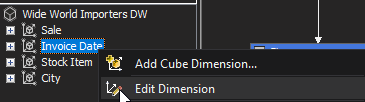
14. The last part is naming the cube.

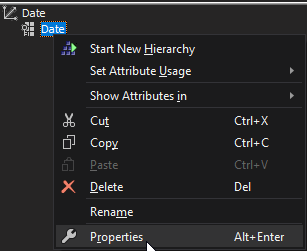


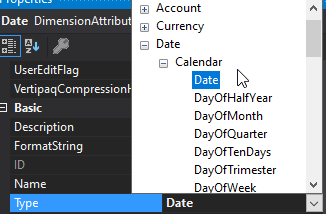
It will look like this



15. Now it is time to do some adjustments to the dimensions. First the date keys in Invoice Date and Delivery Date have the regular format and it is helpful to set them directly to the date type and create a hierarchy.



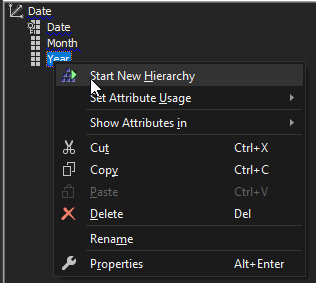


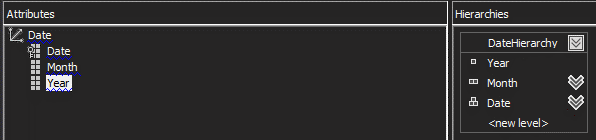


The same goes for delivery date

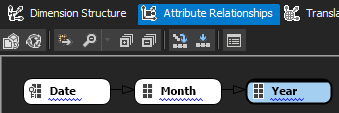
16. To create a hierarchy, all the attributes of the hierarchy must be selected and then the hierarchy is created as follows:





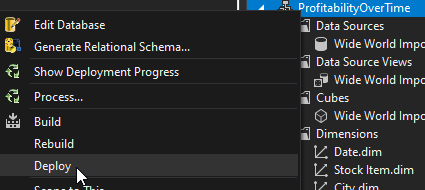


17. The next step is to specify the attribute relationship.

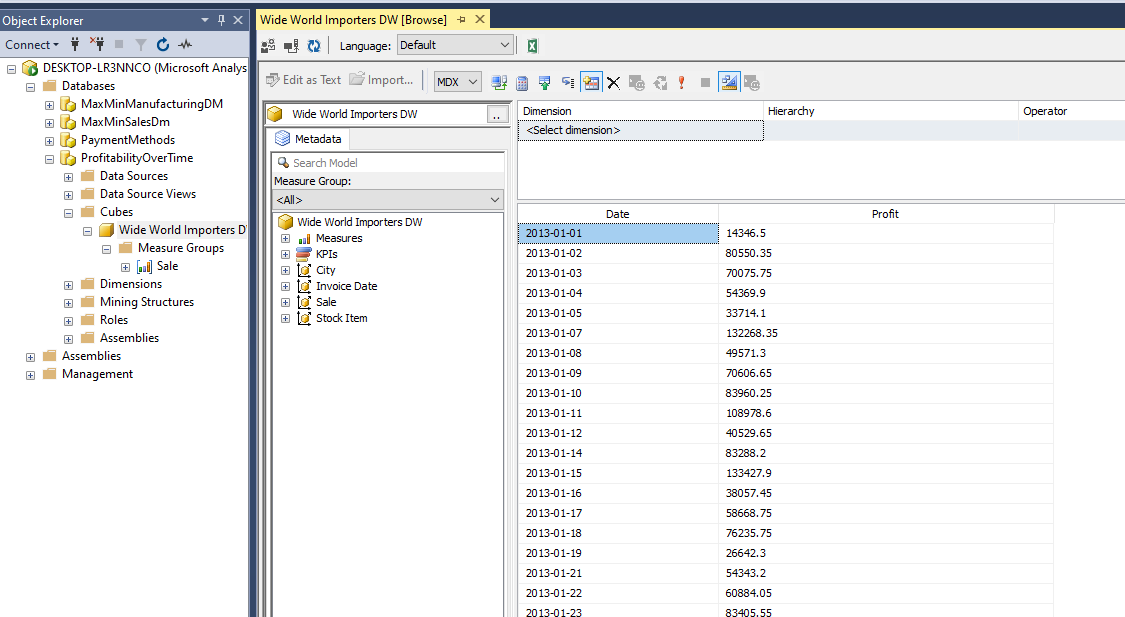


Date is the most specific and has a relationship to month and then year.

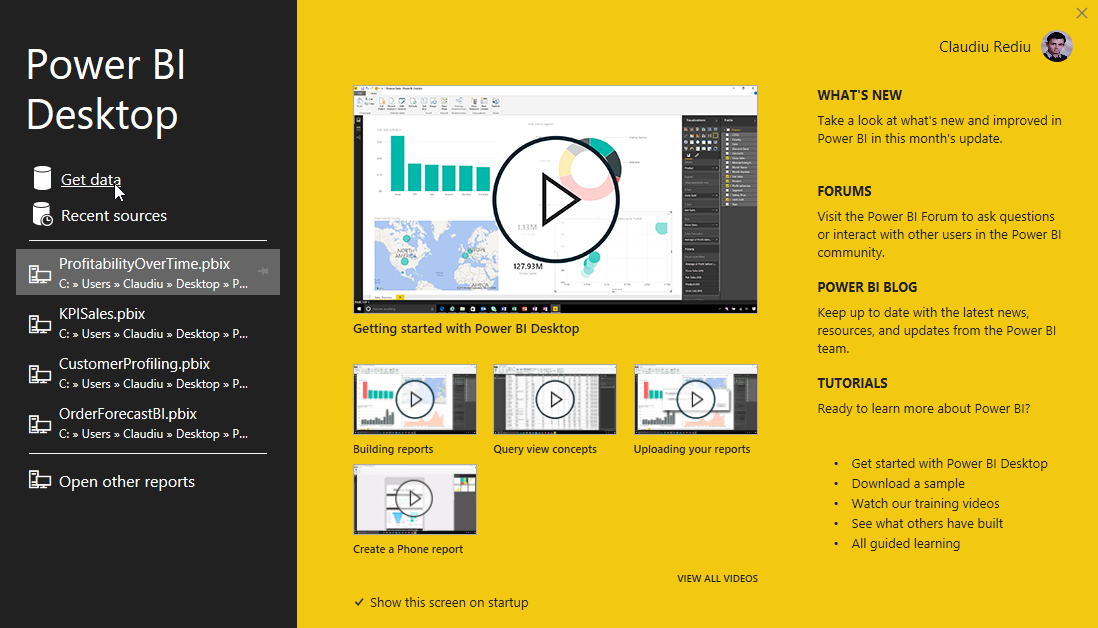
18. Now the cube is ready to be used for reporting. It has a date hierarchy, the measure for profit and a time dimension with some extra attributes if a deeper analysis is needed. After making sure the properties are set appropriately, the cube can be deployed to analysis services after it has been built.



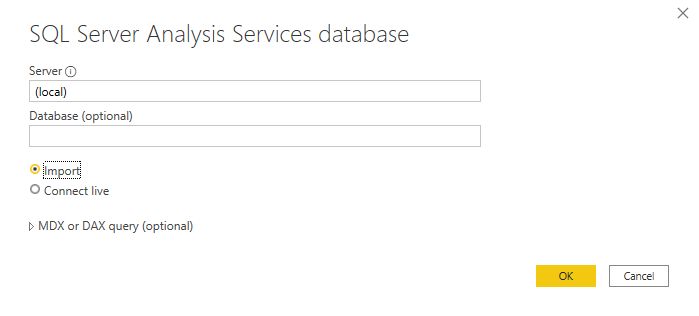
If we browse the cube, everything is there



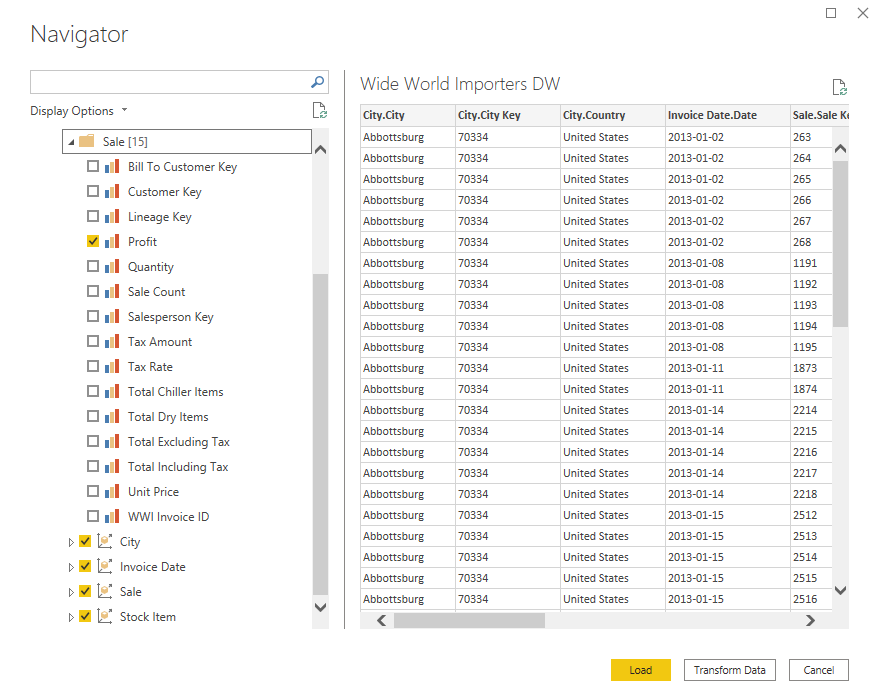
19. The next part is the PowerBI report. The first step is getting the data.



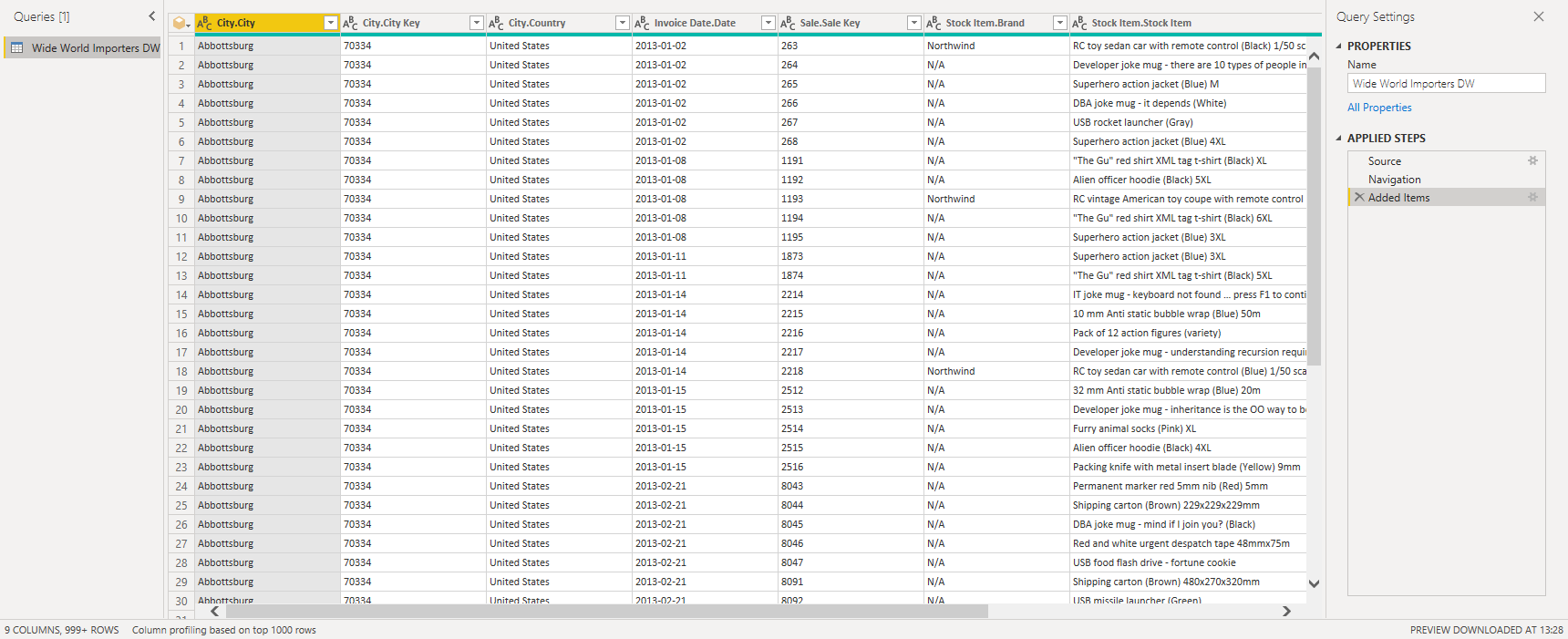
Select the sql server analysis services database and then input the parameters for connection.



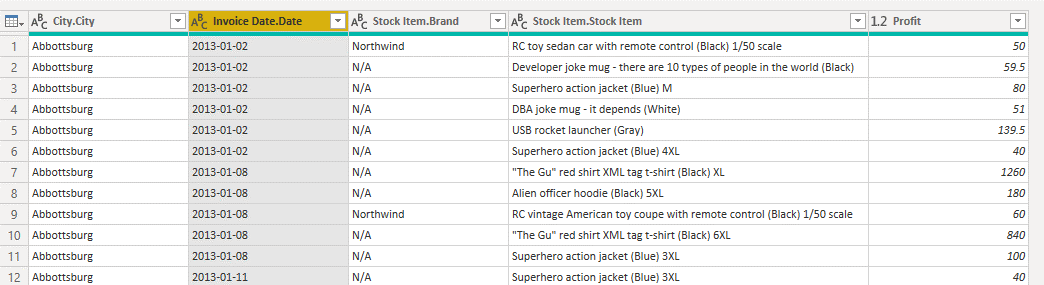
Select the data



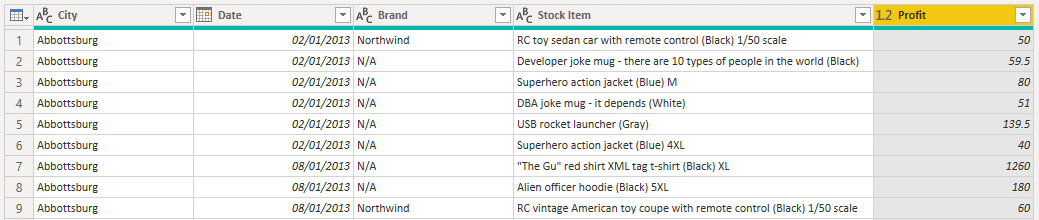
The next step is preparing the data. To do that, there is the option Transform Data.



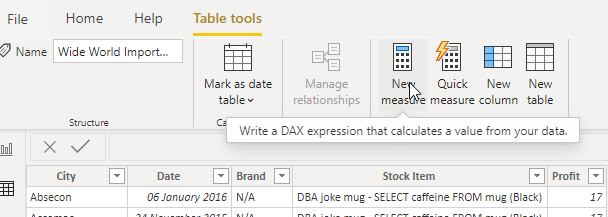
After an inspection country is the same for all of them, so it is safe to remove together with the key columns. This is what should be left:



The last adjustments will be setting Date to Date data type and setting more appropriate names for the columns. The result of the transformation is this:



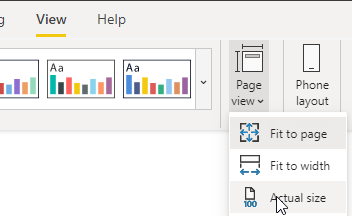
20. Next part is creating YTD measures for our reports. To create a new measure we have to use a DAX formula.





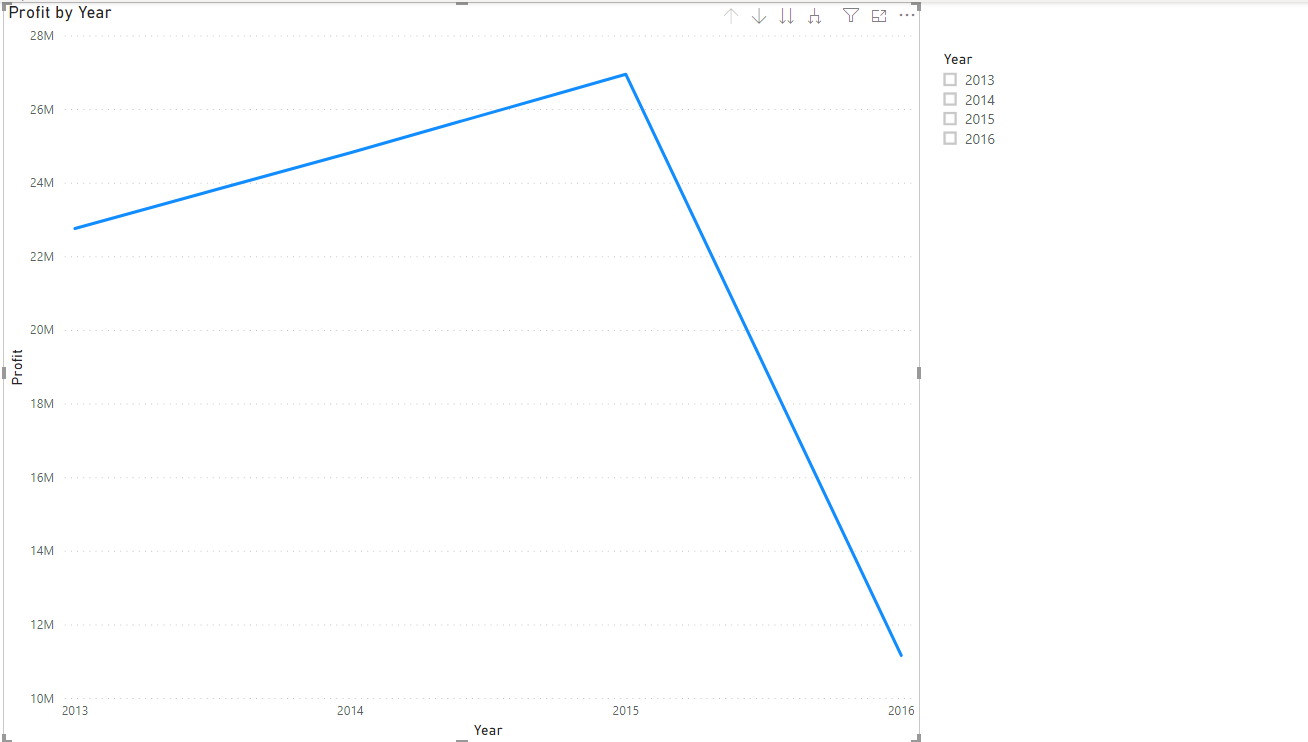


21. The next step is preparing the page for the report.

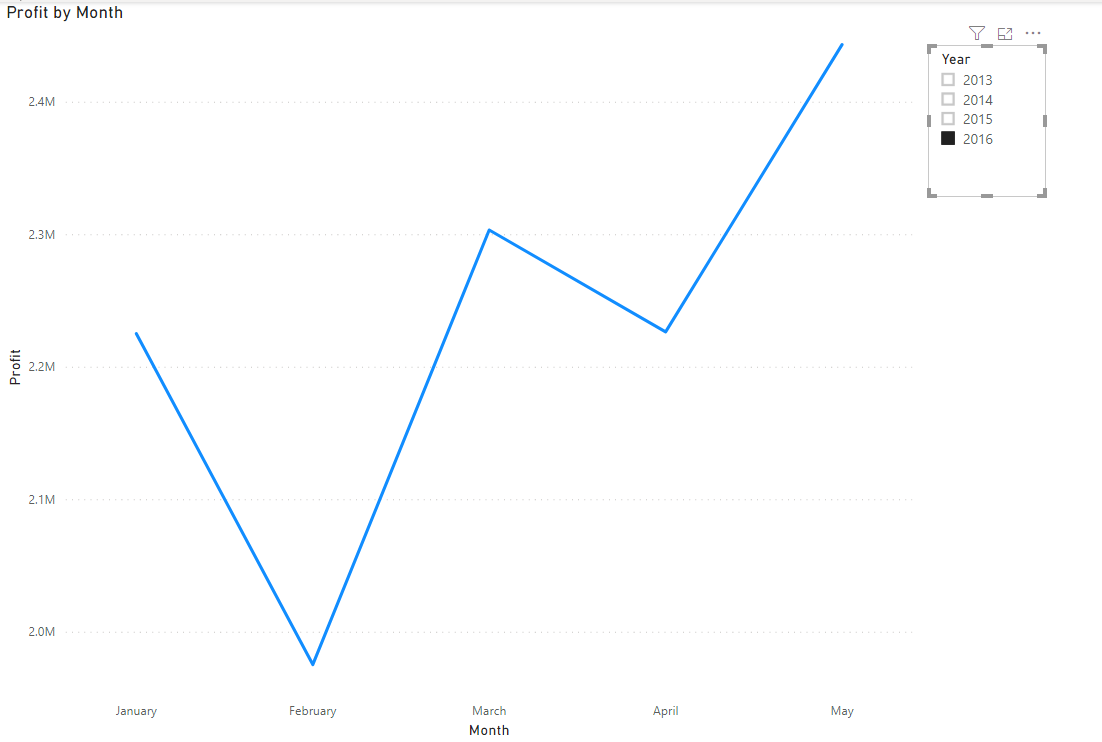




22. A Line chart with Profit for Values and Date Hierarchy for Axis is appropriate to create an idea of what the current situation is. Adding a slicer will help to filter for years. Adding the whole date hierarchy enables the possibility to drill down to a more detailed level



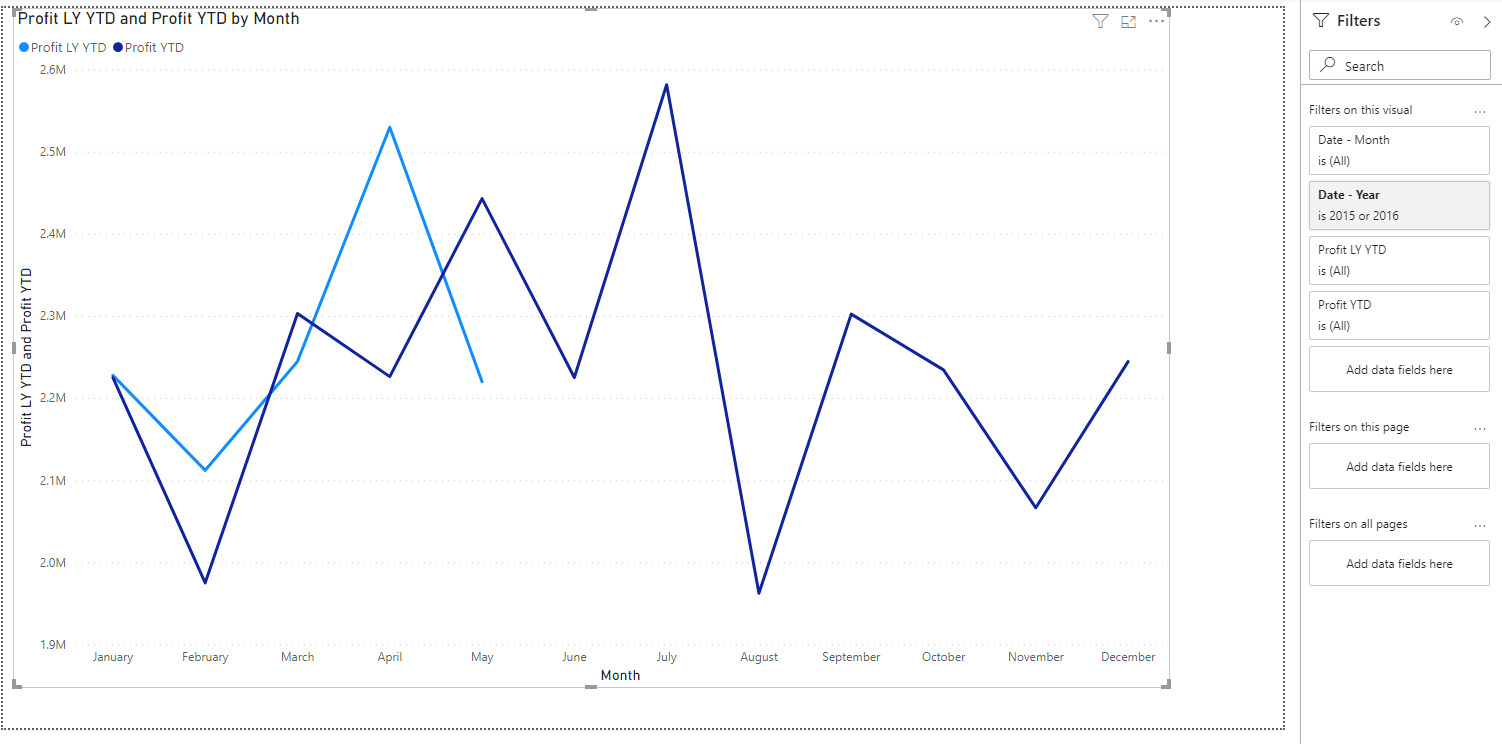
From this chart it is easy to see that profit have gone down, but the reason might not be obvious from this chart. If we drill down to month level and filter for 2016 we see why.



We have the months only up to 2016.

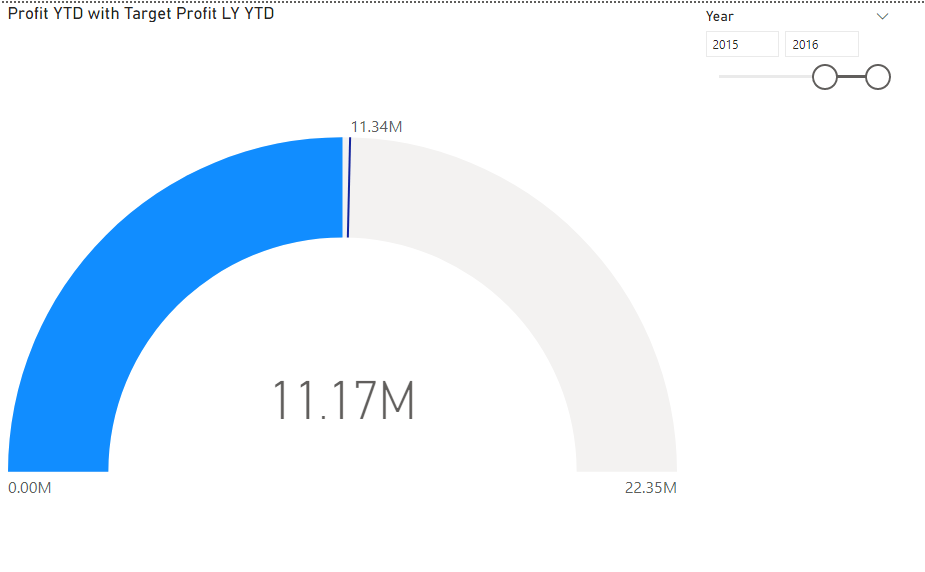
A different line chart can help with this.

23. Using the new measures (Profit LY YTD and Profit YTD) and filtering on 2016 will offer the possibility to compare the situation for 2016 to the situation in 2015.



May isn’t looking to great, but it might be because the month hasn’t finished yet. April has been a success in terms of profit. Is the company achieving the same profit YTD? A different chart can help with that.

24. A gauge chart is good to set up goals. A general goal is to achieve at least as well as last year. Using the measures, lets check if that is the case.

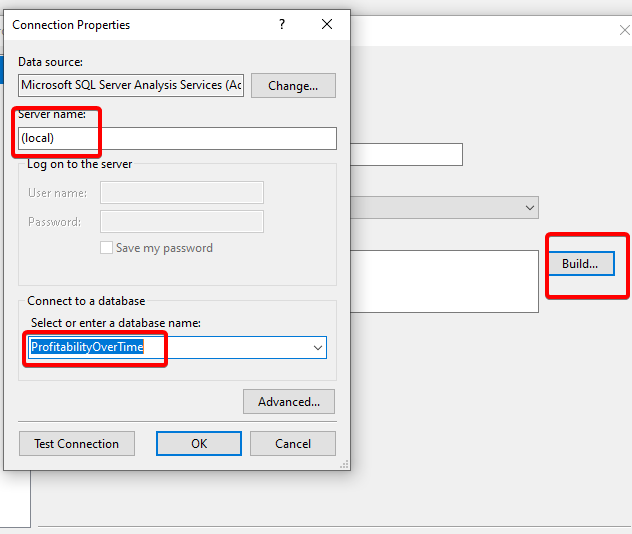


It is visible that the company is doing relatively similar to the previous year.

25. The next part is preparing a report for SSRS. It would be worth checking the profitability over time for some brands. There are 3 components: Shared Data Sources, Shared Datasets, Reports



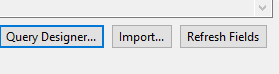
The first step is to build the link to the database

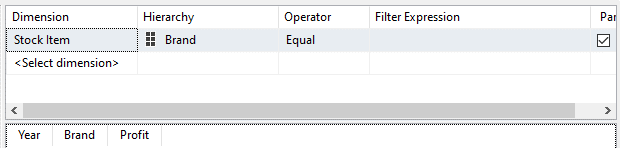


26. The shared datasets are based on the shared data sources.



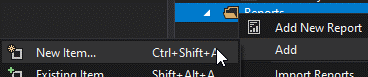
When creating the shared data sources, it is important to enter in query designer to pick the data for the report



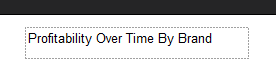


Brand as parameter will help filter out for specific brands.

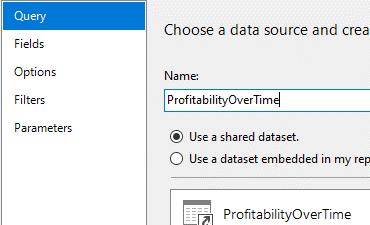
27. Now comes the part that involves creating the report



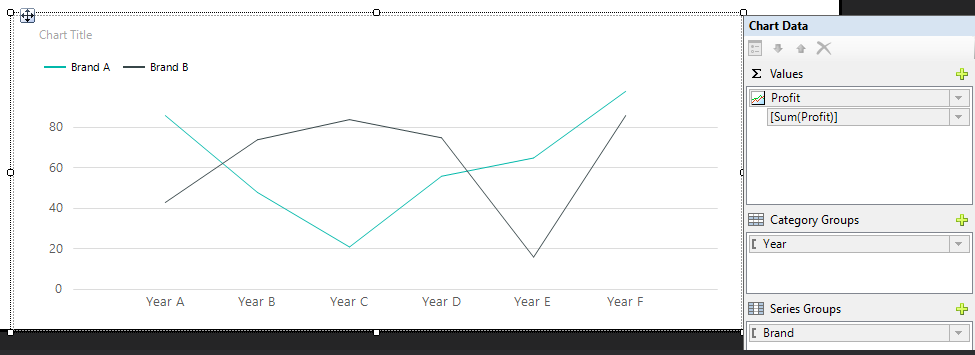
A textbox will be inserted to write a title for the report.



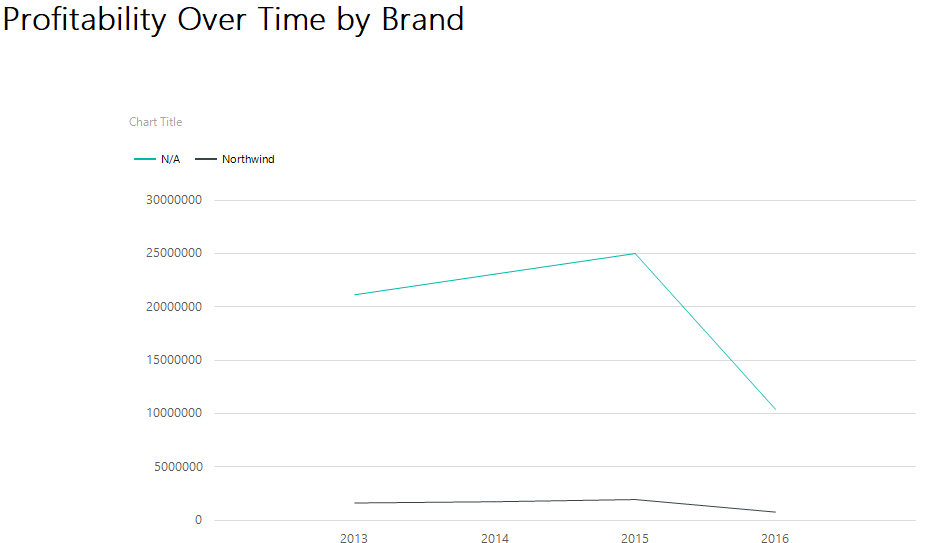
The components of the report have to be added. When the dataset is added, the parameter is also added together with it.



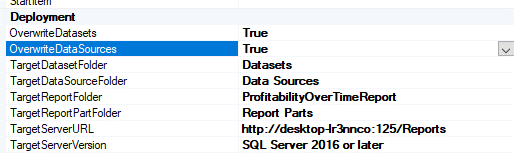
A line chart will be the best option for analyzing a trend.

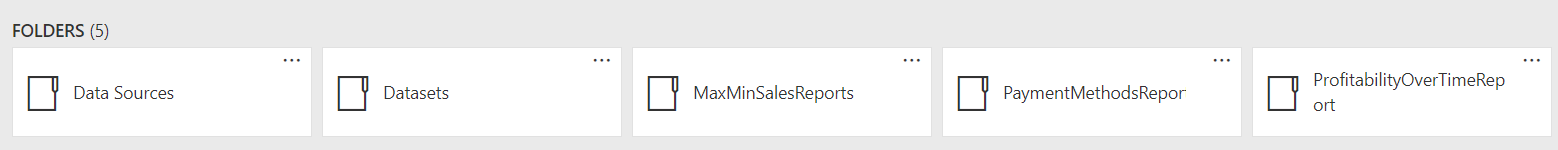


The result is:

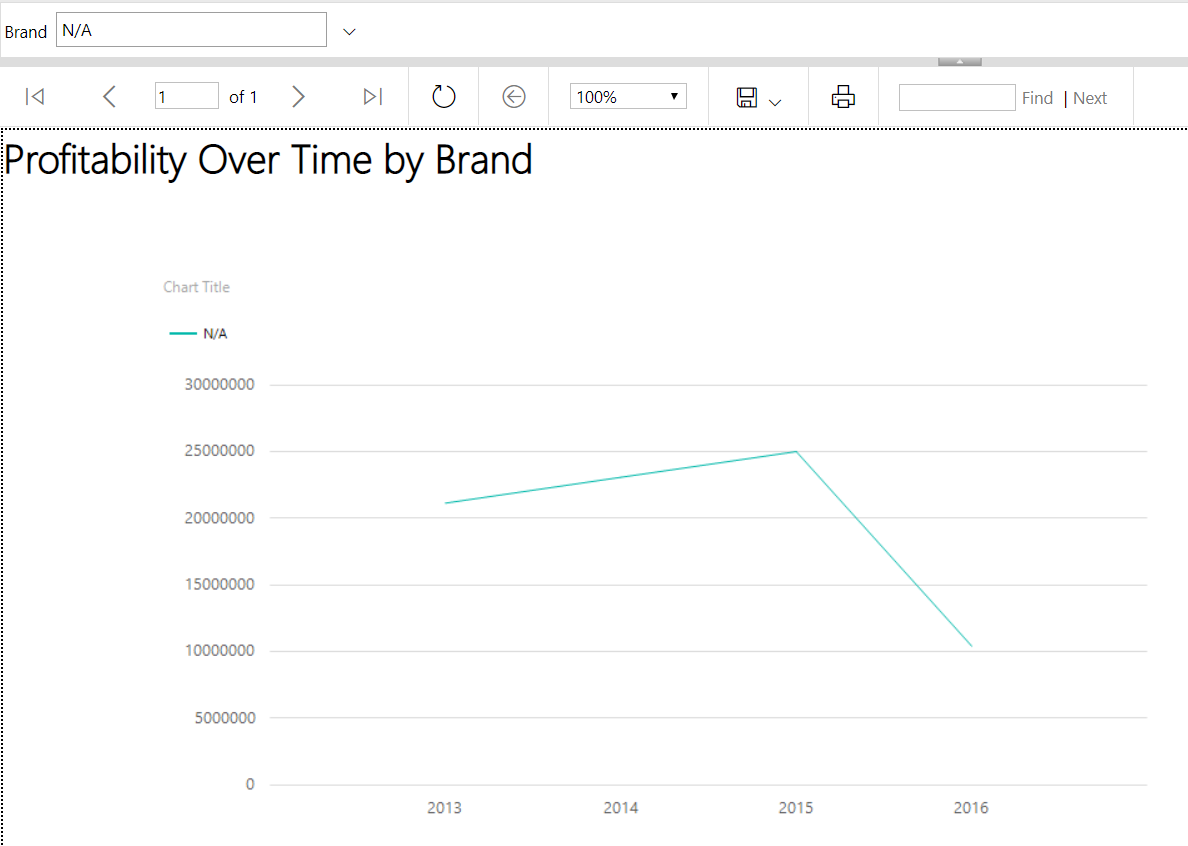


27. Now the solution can be deployed to SSRS. In the properties, the overwritedatasets and overwritedatasources are set to true to overwrite any previous mistakes and maintain with fresh data. The targetserverurl is updated to include the path of the local SSRS.

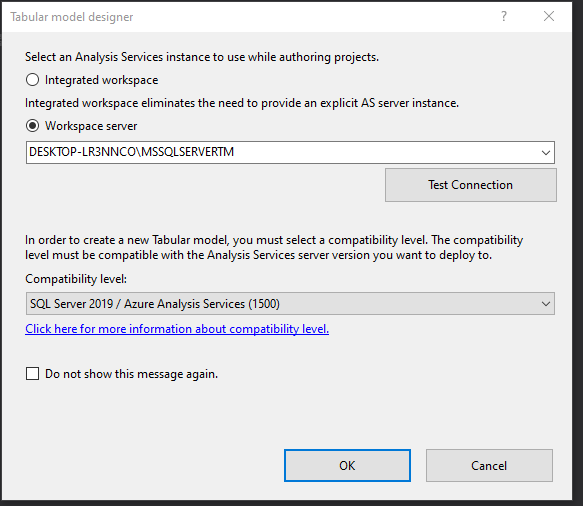




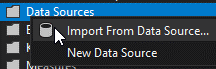
The final result is:



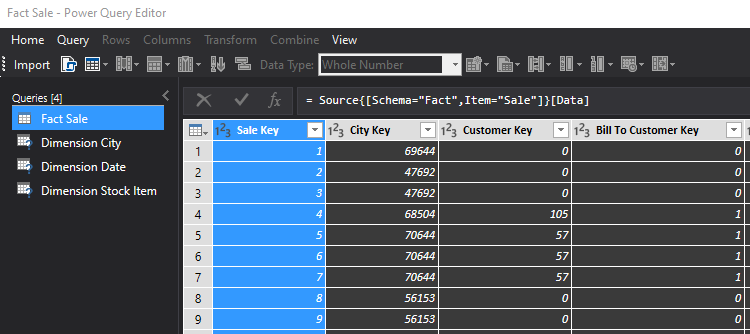
28. The next part is creating a tabular model for Profitability Over Time.



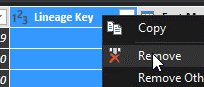
29. The data source must be created to be able to establish a connection with the source.



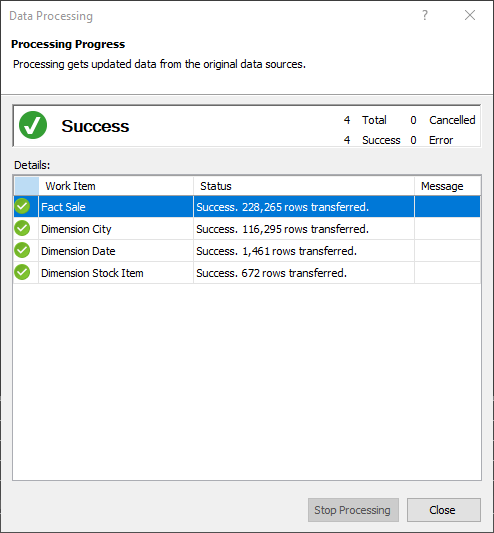
After selecting the tables, we will be able to transform the data.



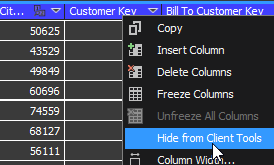
Some useless columns are the Lineage Key. Another column that will not be used is Delivery date. Invoice date will be used instead.



Once this is done, the data can be brought in.



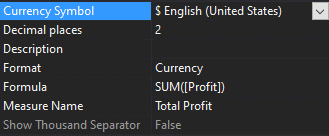
30. The Foreign Key columns can be hidden as they don’t serve any purpose.



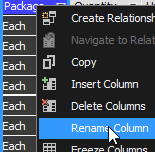
31. In analysing Profitability Over Time, a measure aggregating Profit is needed.

Total Profit:=SUM([Profit])

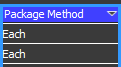
The Total Profit will be set as a currency with USA Dollars



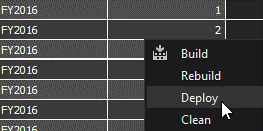
32. One of the columns doesn’t seem to named transparent enough.

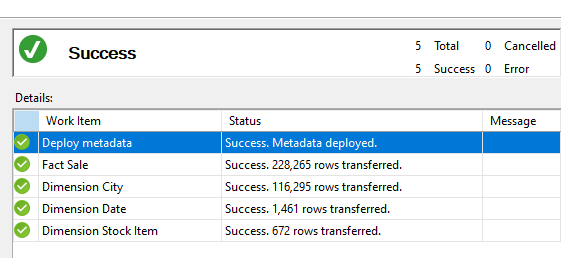


Package will be renamed to Package Method.

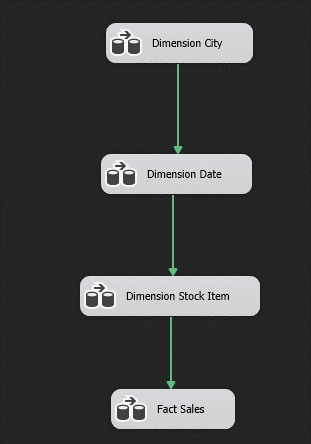


33. Now the solution is ready to deploy.



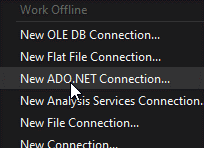


34. The next part is SSIS for profitability over time. Four Data Flow tasks will be needed for all 4 tables: Fact Sale, City Dimension, Date Dimension, Stock Item Dimension.

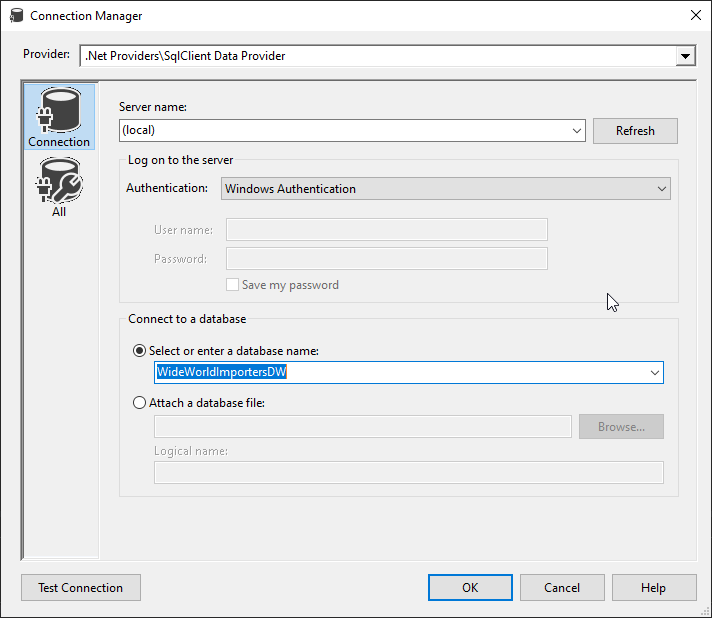


The last element is the fact table to avoid any issues due to constraints.

35. To get the data and deliver it, two connection must be set up. The source and the delivery database.

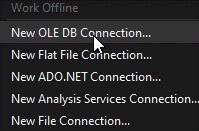


A new connection is created.



The result is a new element in the connection manager that can be used as a source.

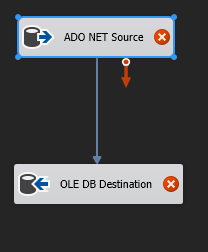


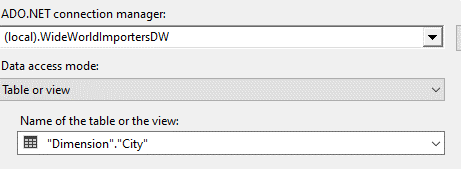


The delivery database will have an OLE DB Connection. Like the source, a new connection must be created.

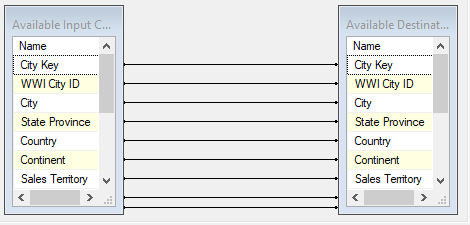


36. The elements for the source and destination are added to the data flow and then configured.



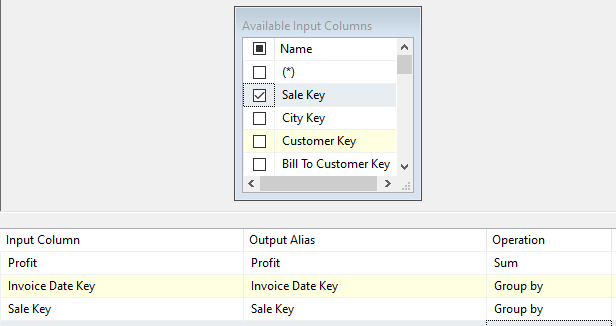


The source table is decided inside the ADO NET Source. The same is done in OLE DB Destination, while also checking the mappings.

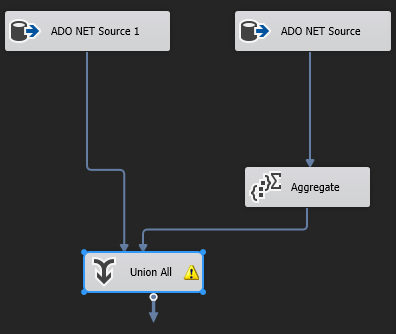


The same steps are applied for the other dimensions, while using the existing connections in the connection manager.

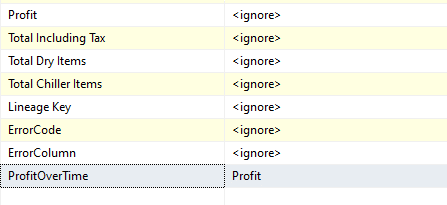
37. The fact Sales will be treated differently as a transformation (aggregation) will be added.

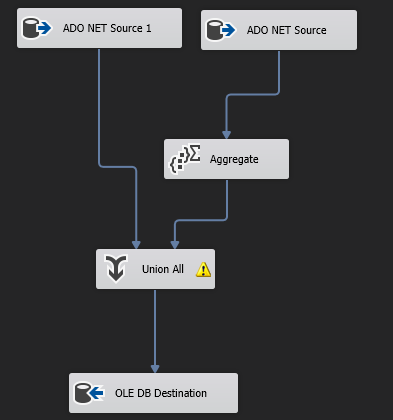


Inside the aggregation, the profit will be summed by the Invoice Date. This will make it so profit will be aggregated by day.



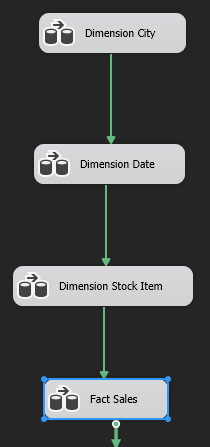
A union is performed to put everything together. The union will be performed on Invoice Date Key and there will be a new column for the Aggregate.





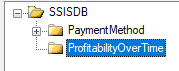
The exclamation mark is because there is no column assigned for the error code. If we delete that the exclamation mark goes away.

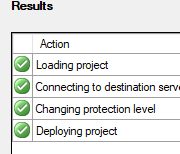
The result is:



38. The last step is deploying the IS. For that a new folder under SSISDB has to be created.







The project is now deployed.