Analysis Services

Mag. Thomas Griesmayer

OLAP

- Online-Analytical-Processing
- The underlying structure of an OLAP cube is a star schema.
- The main idea is that the business analyst is able to analyze the data by himself - simple by drag and drop fields in a dynamical report.

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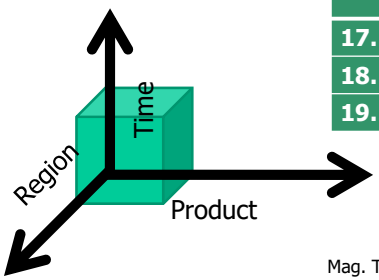

	Books	Hardware	Software
17. Feb	€ 2.584.180	€ 52.601	€ 8.716
18. Feb	€ 2.157.229	€ 67.557	€ 5.263
19. Feb	€ 2.063.425	€ 61.637	€ 8.477

Slice

- Slice is the act of picking a rectangular subset of a cube by choosing a single value for one of its dimensions, creating a new cube with one fewer dimension.

Region

Asia	Hardware	Software
USA	Hardware	Software
Europe	Hardware	Software
17. Feb	€ 53.098	€ 5.875
18. Feb	€ 59.513	€ 7.214
19. Feb	€ 58.213	€ 6.816

USA	Hardware	Software
17. Feb	€ 152.601	€ 78.716
18. Feb	€ 167.557	€ 65.263
19. Feb	€ 161.637	€ 88.477

https://en.wikipedia.org/wiki/OLAP_cube (19.2.2017)

Dice

- The dice operation produces a subcube by allowing the analyst to pick specific values of multiple dimensions.

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Drill

- Drill Down/Up allows the user to navigate among levels of data ranging from the most summarized (up) to the most detailed (down).

	+ Books	+ Hardware	+ Software
17. Feb	€ 2.584.180	€ 52.601	€ 8.716
18. Feb	€ 2.157.229	€ 67.557	€ 5.263
19. Feb	€ 2.063.425	€ 61.637	€ 8.477

	- Books			+ Hardware	+ Software
	Thriller	Fantasy	Art		
17. Feb	€ 1.047.861	€ 93.769	€ 1.442.550	€ 52.601	€ 8.716
18. Feb	€ 1.040.589	€ 93.722	€ 1.022.918	€ 67.557	€ 5.263
19. Feb	€ 1.078.841	€ 80.760	€ 903.824	€ 61.637	€ 8.477

https://en.wikipedia.org/wiki/OLAP_cube (19.2.2017)

Pivot

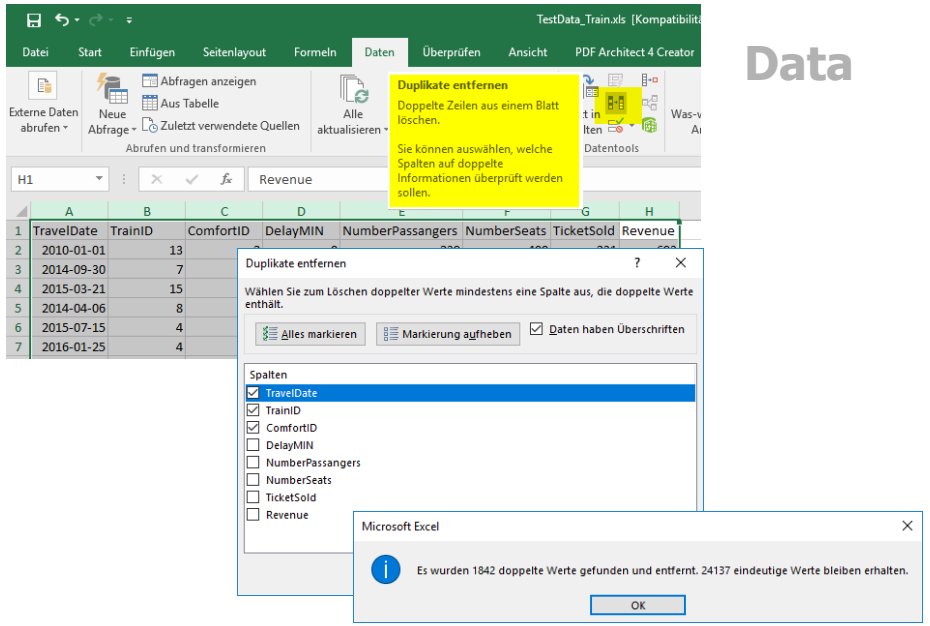
- Pivot allows an analyst to rotate the cube in space to see its various faces.
- For example, cities could be arranged vertically and products horizontally while viewing data for a particular quarter.
- Pivoting could replace products with time periods to see data across time for a single product

	Hardware	Software
17. Feb	€ 52.601	€ 8.716
18. Feb	€ 67.557	€ 5.263
19. Feb	€ 61.637	€ 8.477

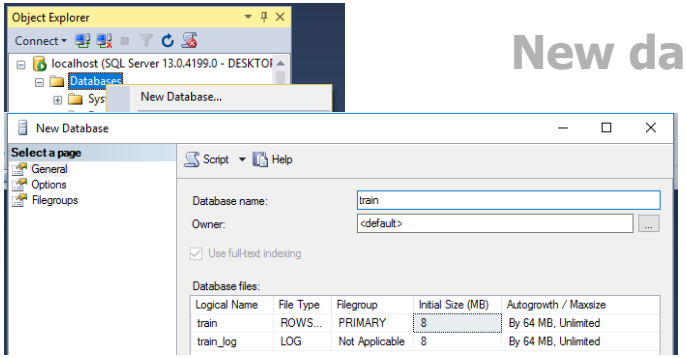
	17. Feb	18. Feb	19. Feb
Hardware	€ 52.601	€ 67.557	€ 61.637
Software	€ 8.716	€ 5.263	€ 8.477

https://en.wikipedia.org/wiki/OLAP_cube (19.2.2017)

Data



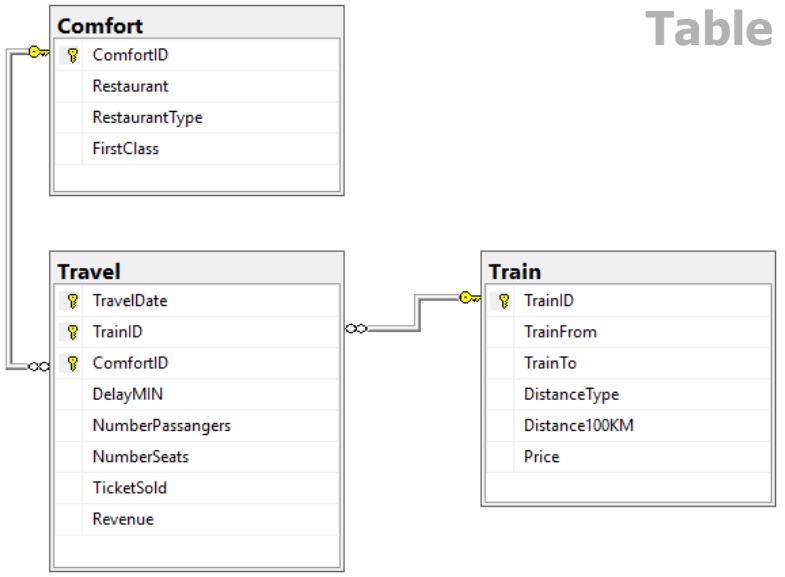
New database



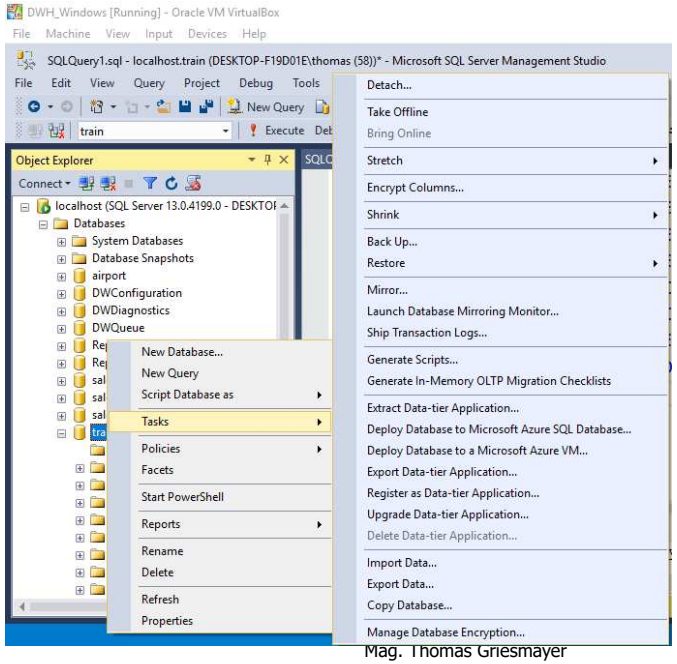
Table

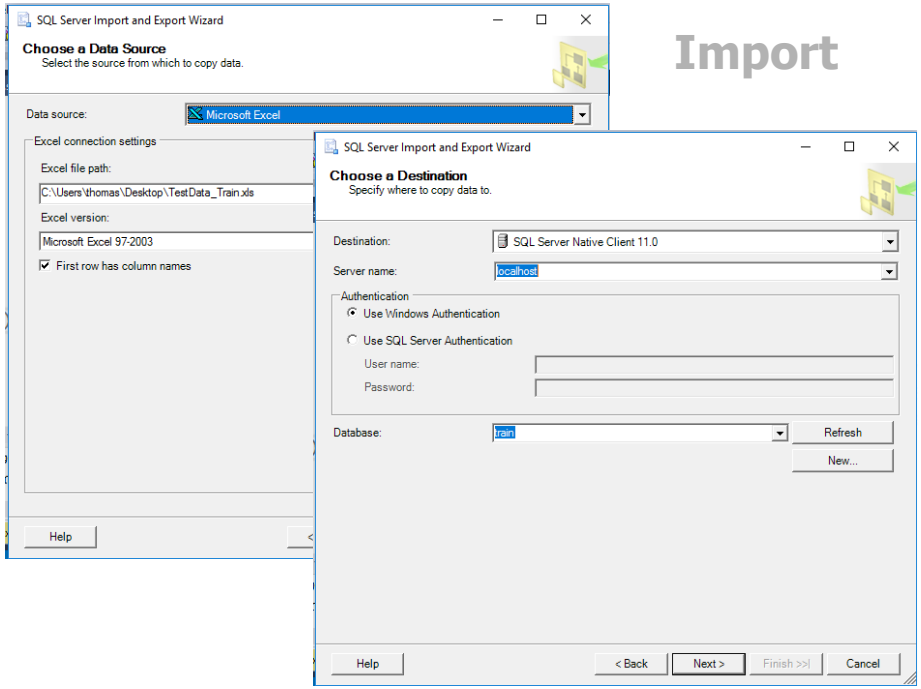
```
CREATE TABLE dbo.Travel
(
  TravelDate          DATE NOT NULL,
  TrainID             INTEGER NOT NULL,
  ComfortID           INTEGER NOT NULL,
  NumberPassangers    INTEGER NOT NULL,
  CONSTRAINT pk_Travel PRIMARY KEY
    (TravelDate, TrainID, ComfortID),
  CONSTRAINT fk_Train FOREIGN KEY
    (TrainID) REFERENCES dbo.Train(TrainID),
  CONSTRAINT fk_Comfort FOREIGN KEY
    (ComfortID) REFERENCES dbo.Comfort(ComfortID)
)
```


Table



Import





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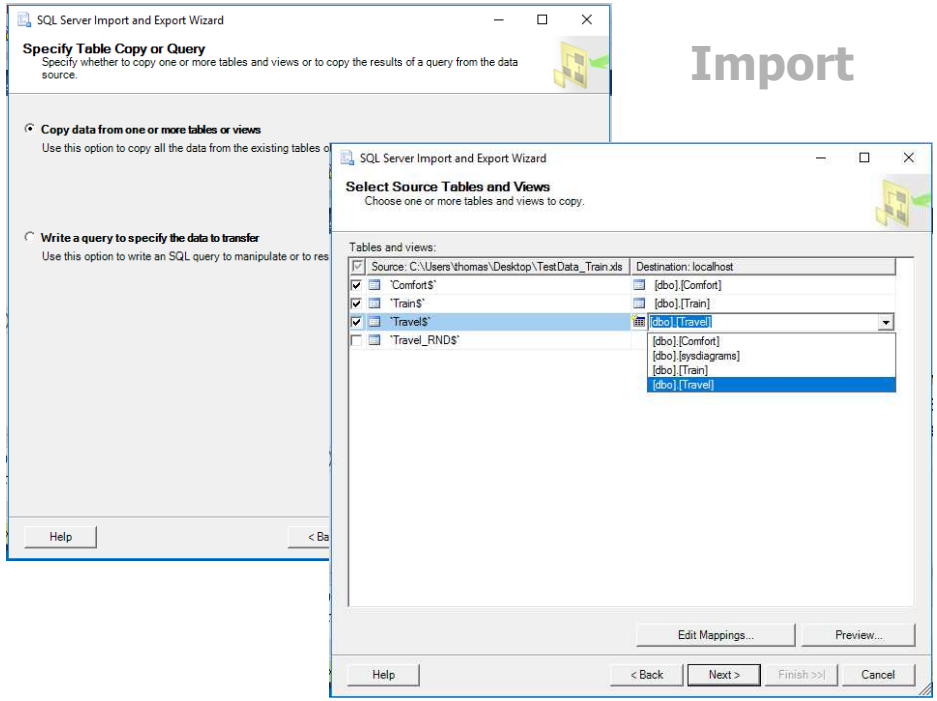

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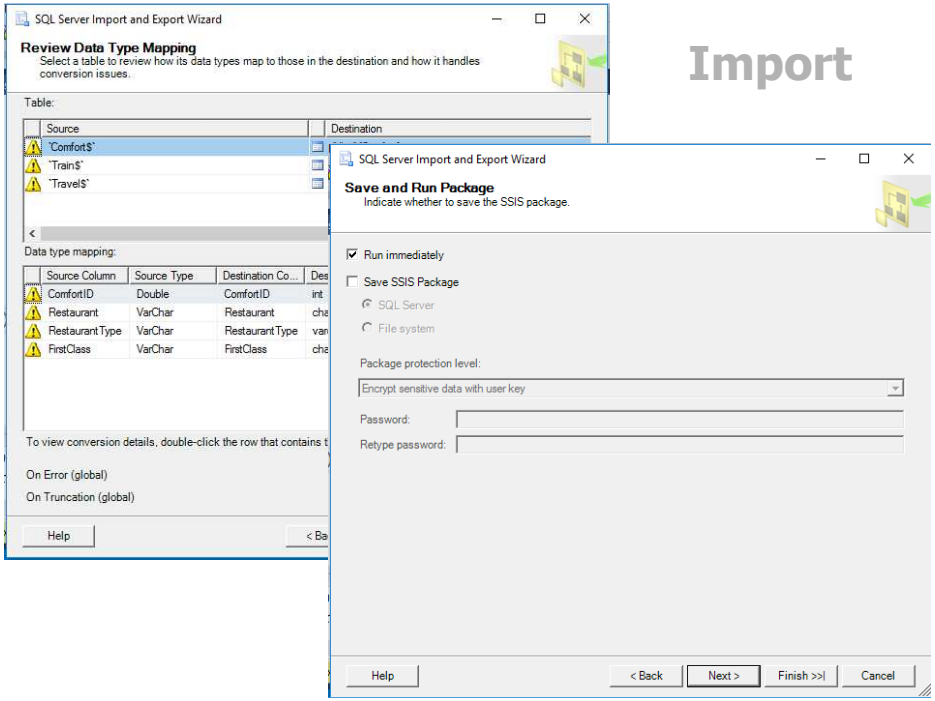

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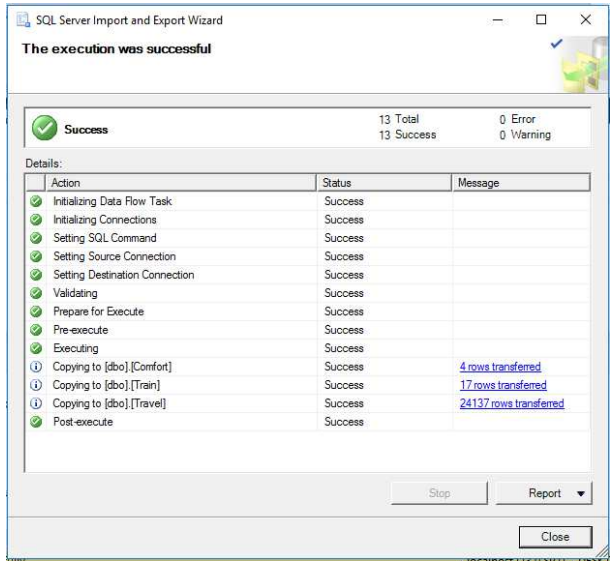
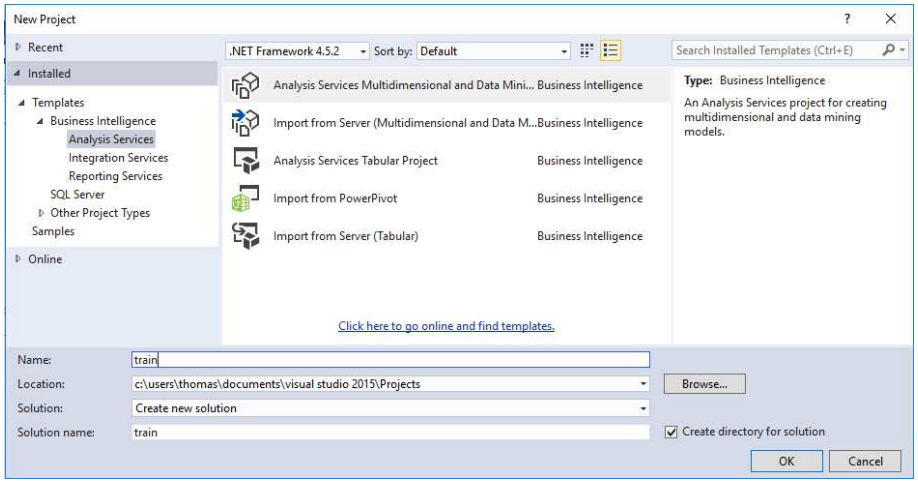
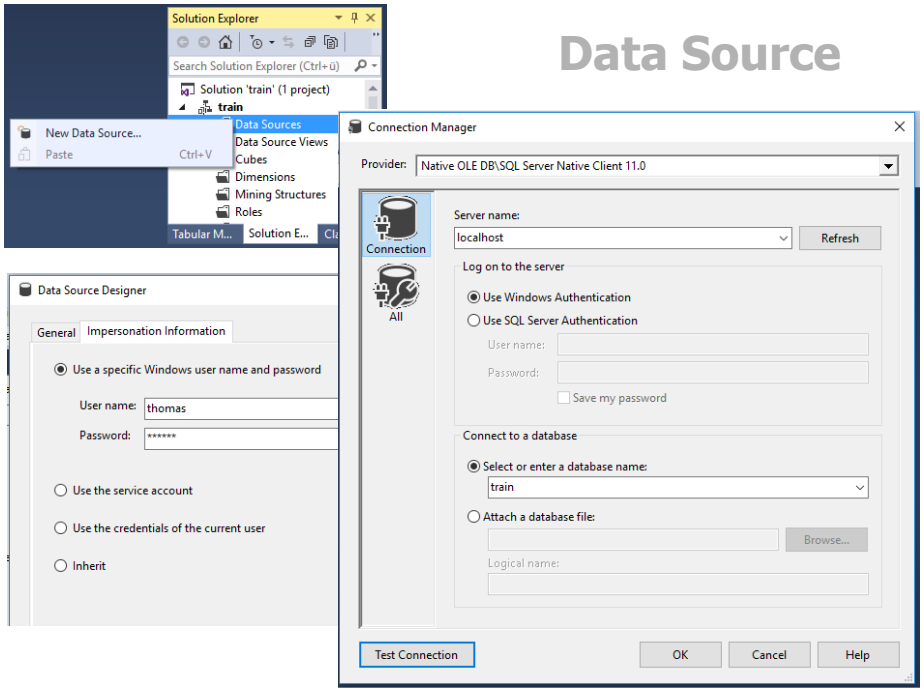


Import

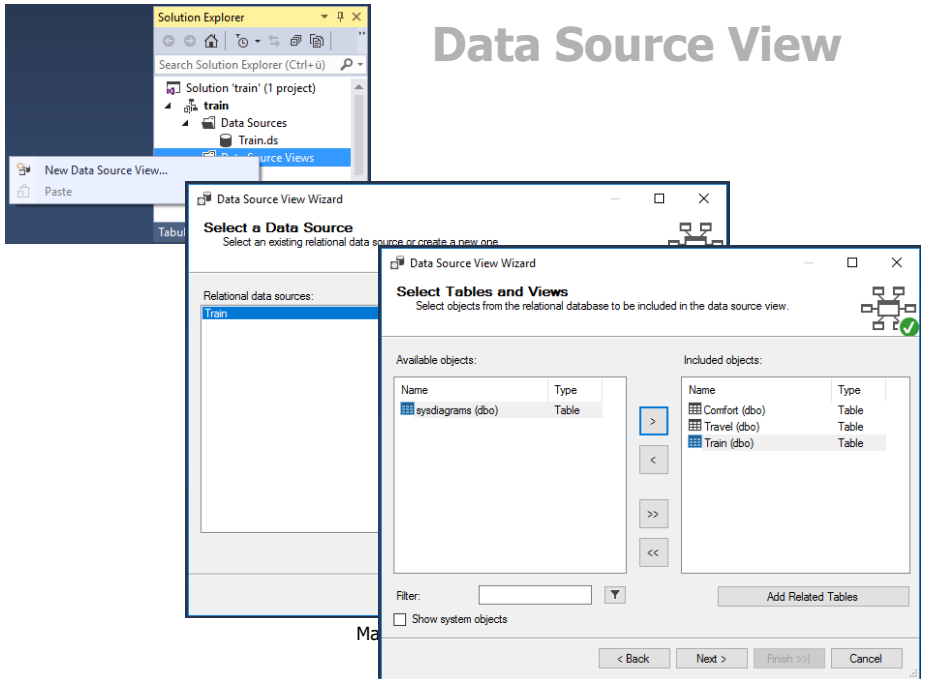
New project



Data Source



Data Source View



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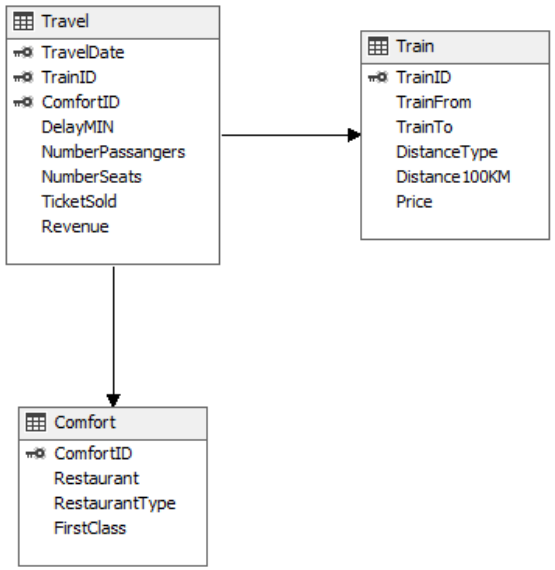
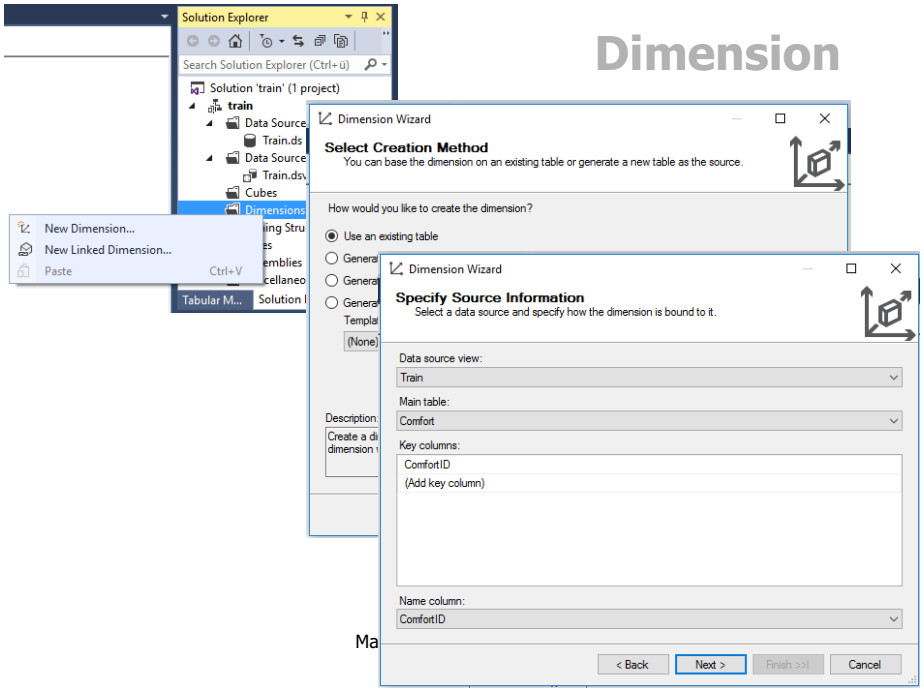


Dimension



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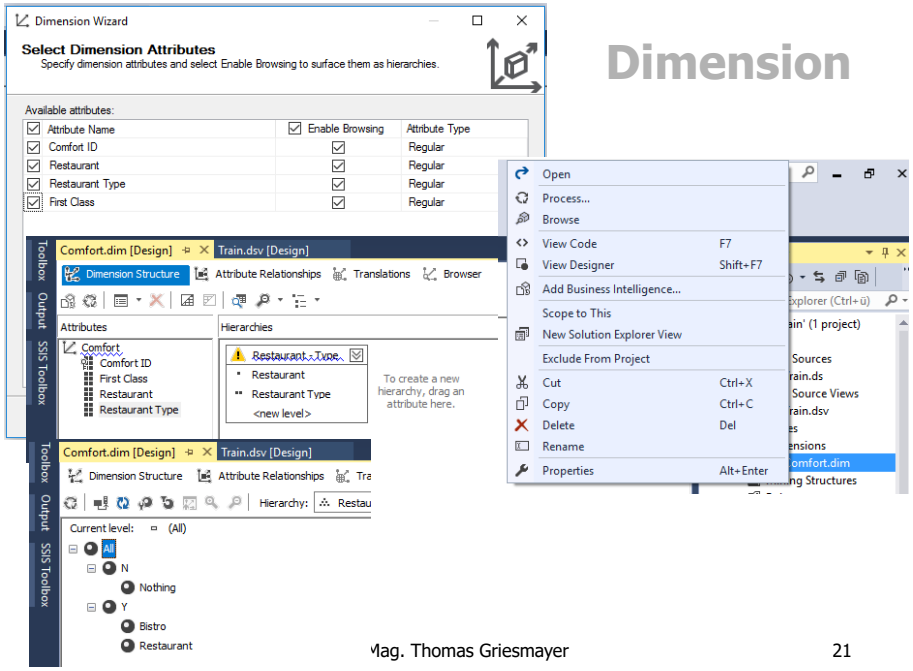
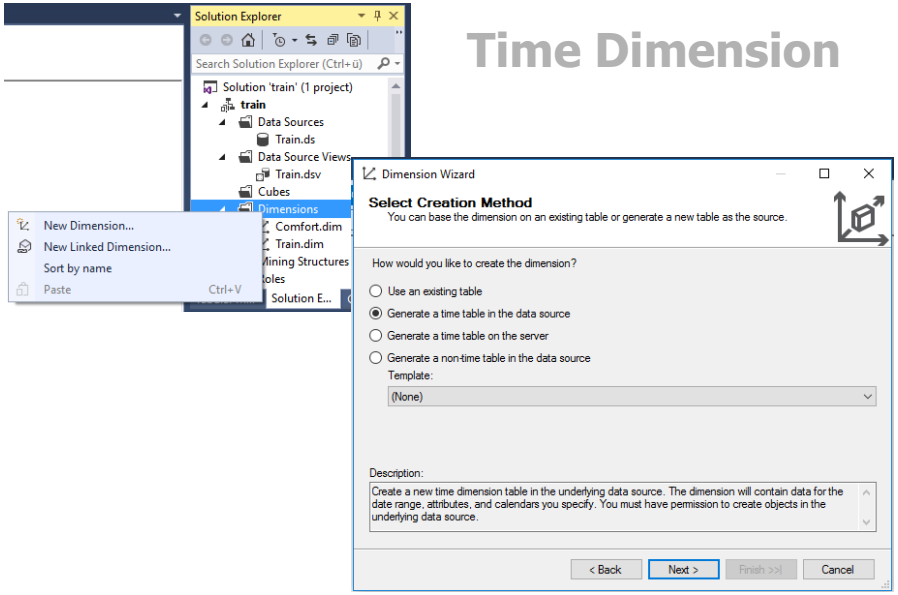
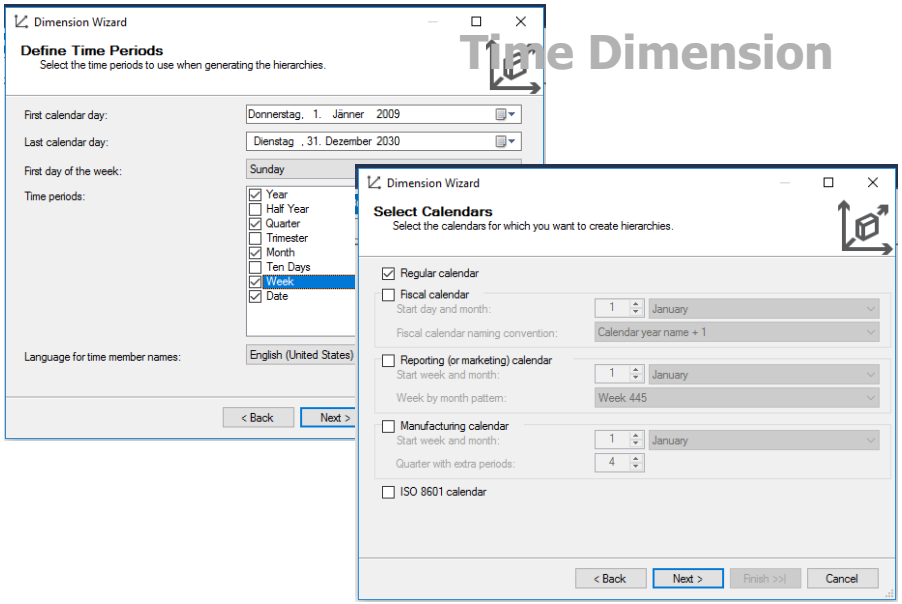


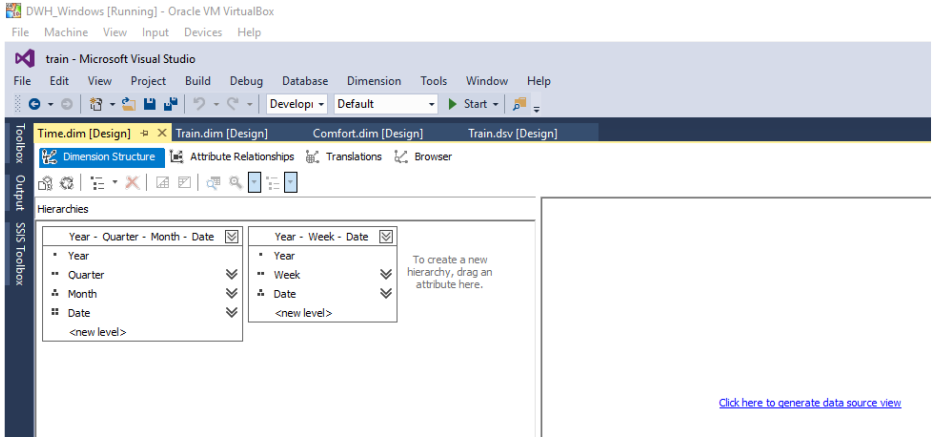
Time Dimension



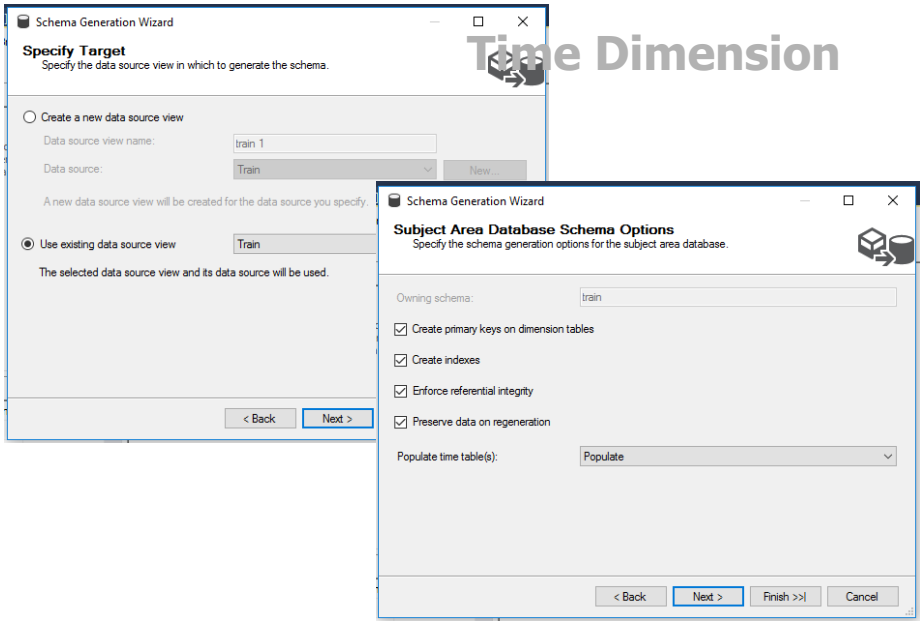
Time Dimension



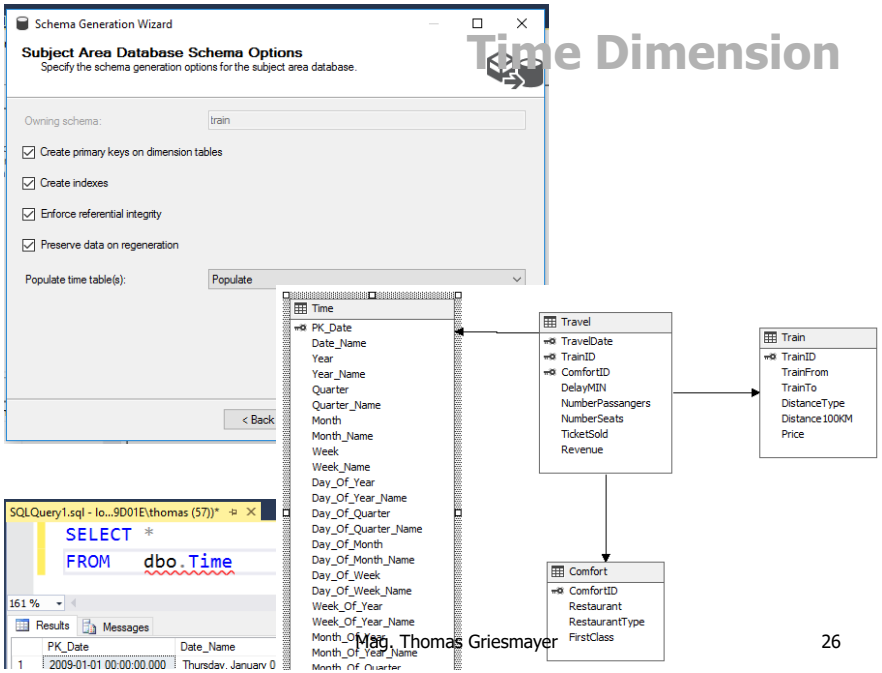
Time Dimension



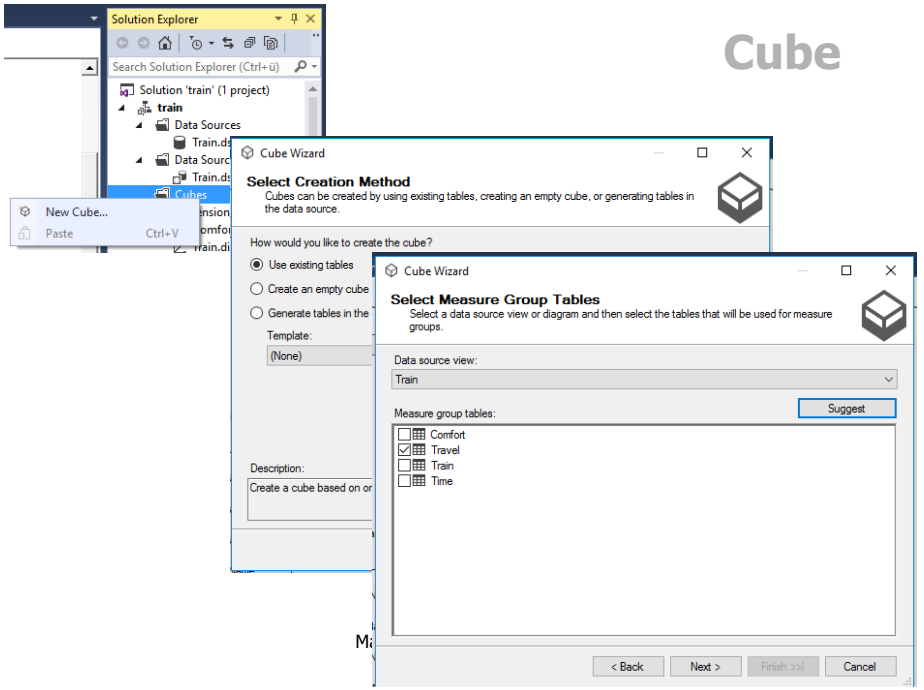
Time Dimension



Time Dimension



Cube



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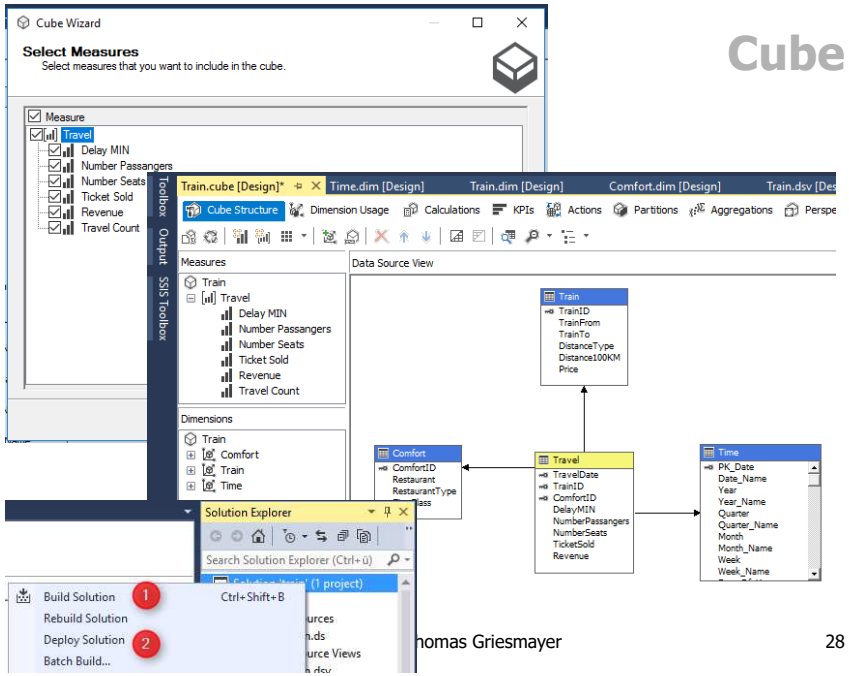

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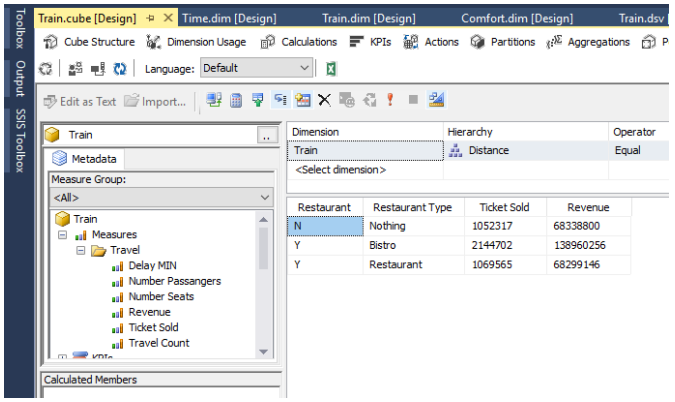
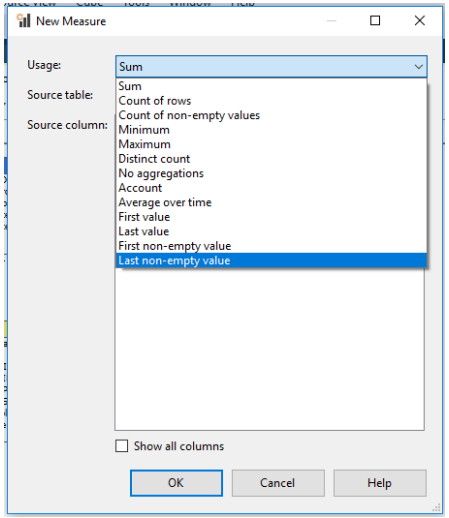
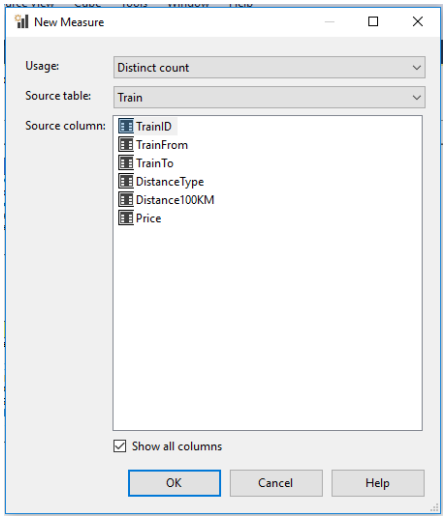


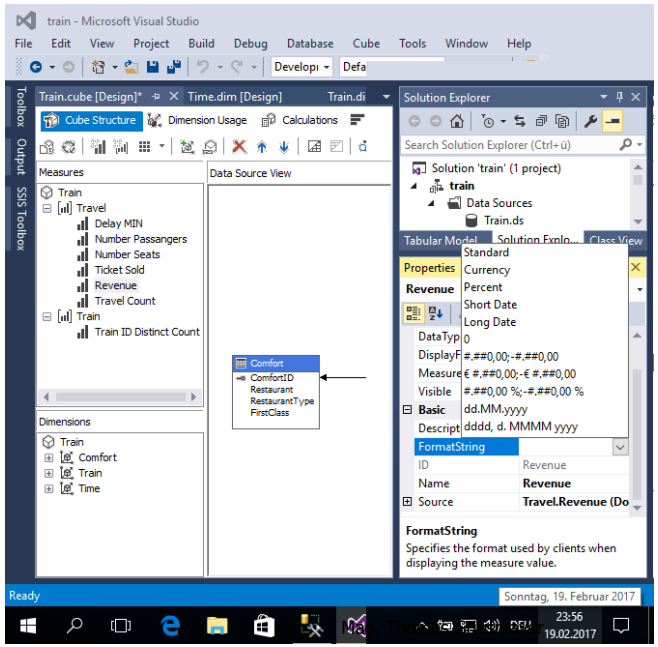
Last non-empty



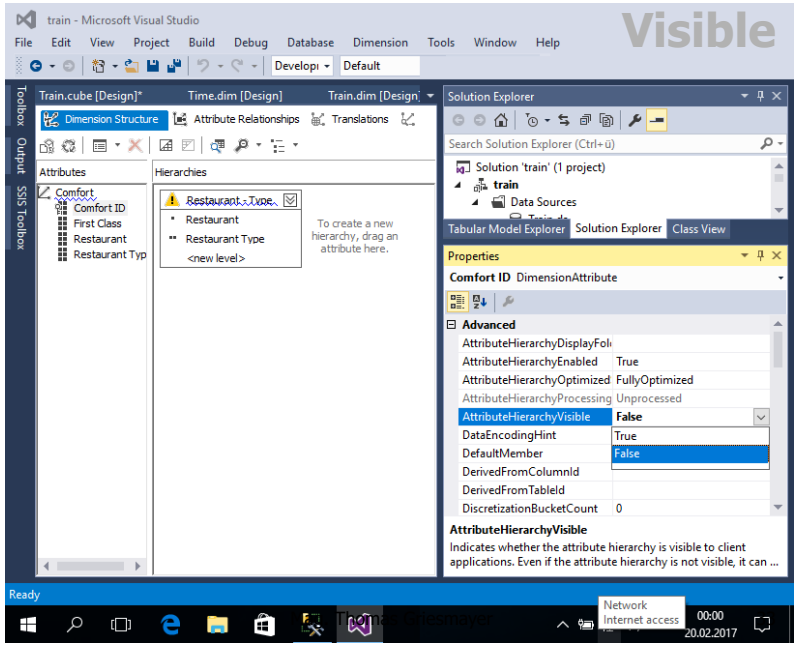
Date	Emp
29.1.	472
30.1.	473
31.1.	470
1.2.	470
2.2.	471
3.2.	475
28.2.	453
1.3.	460

Distinct count





Format



Visible