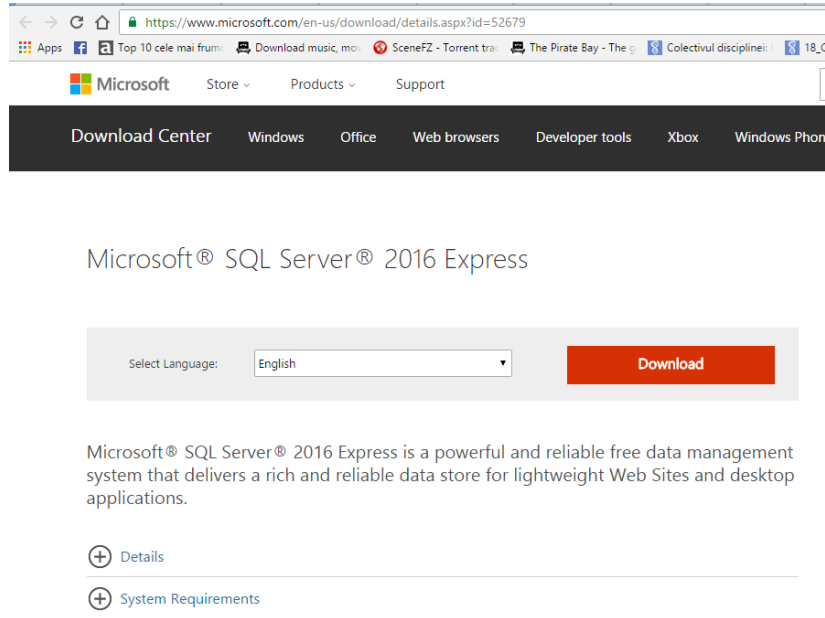


Installation Microsoft SQL Server 2016

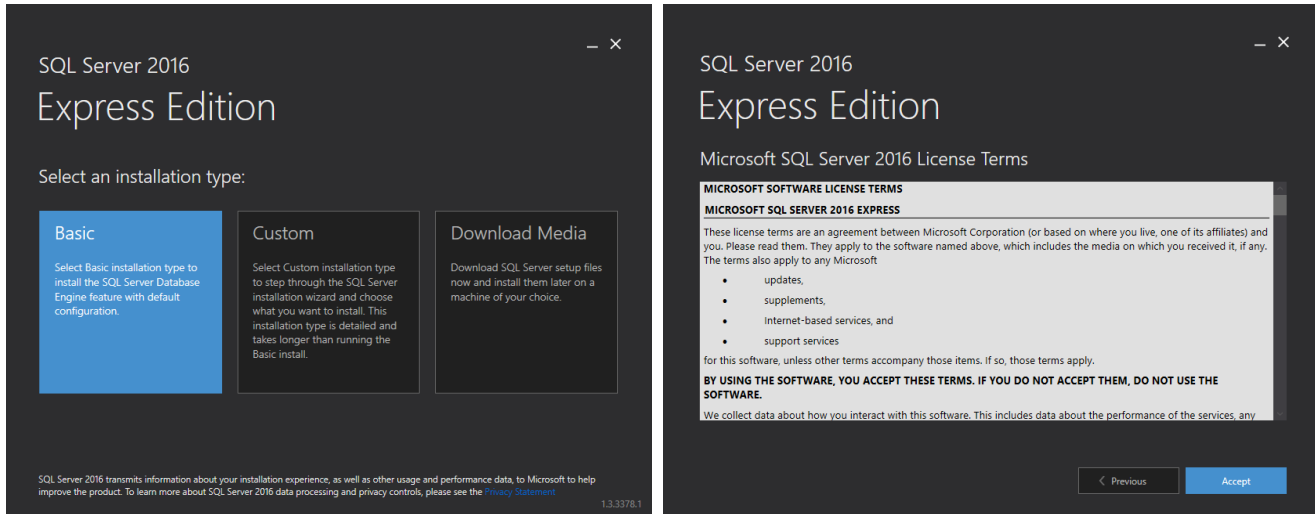
Microsoft SQL Server 2016 is a relational database management system (RDBMS). It retrieve and manipulate data, create connections between pieces of data and uses the Transact-SQL version of the language.

It can be download from <https://www.microsoft.com/en-us/download/details.aspx?id=54284>

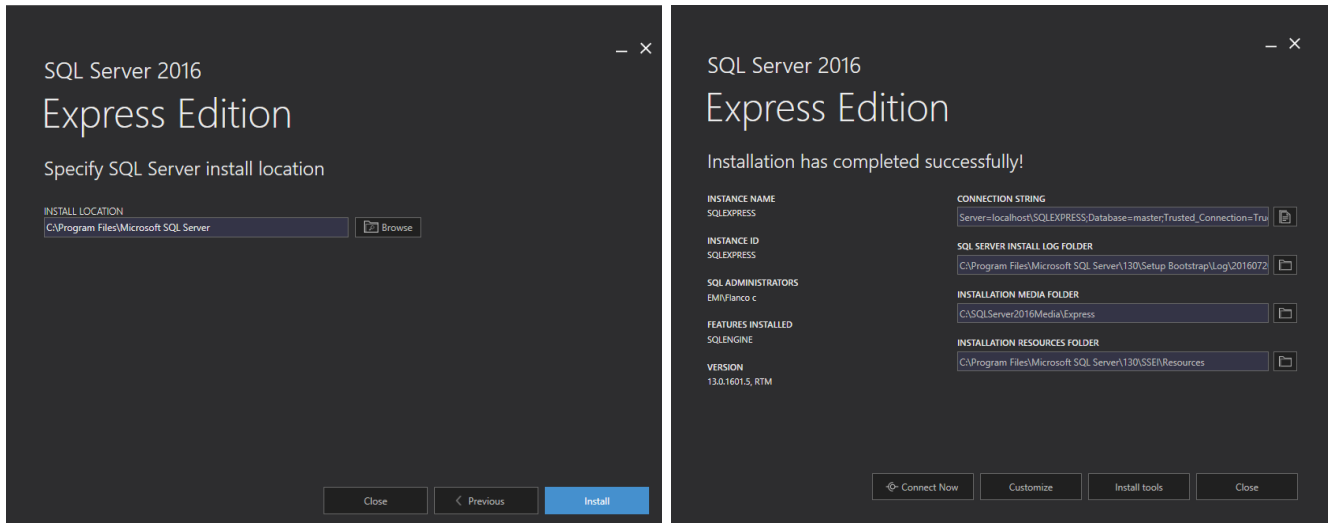
The version Express will be installed (SQLServer2016-SSEI-Expr).



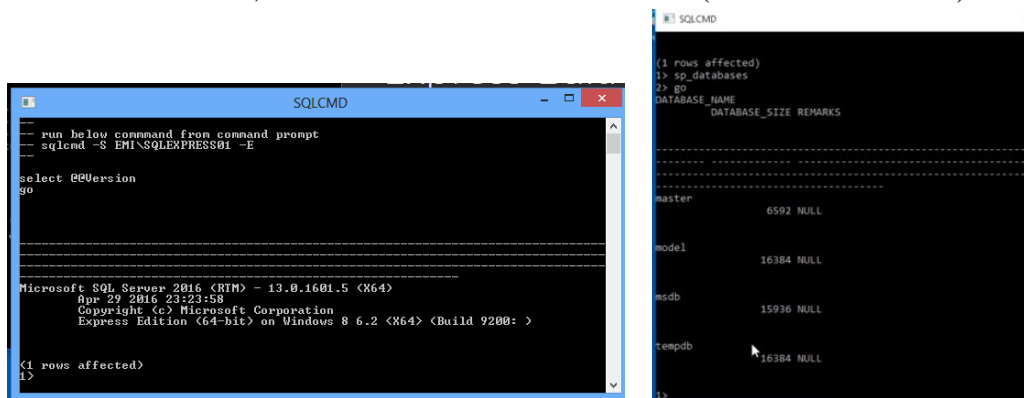
After downloading the SQL Server 2016 Express Edition, the Basic type will be installed. Multiple instances can be installed (if someone install it more than once).



Accept the License -> Install

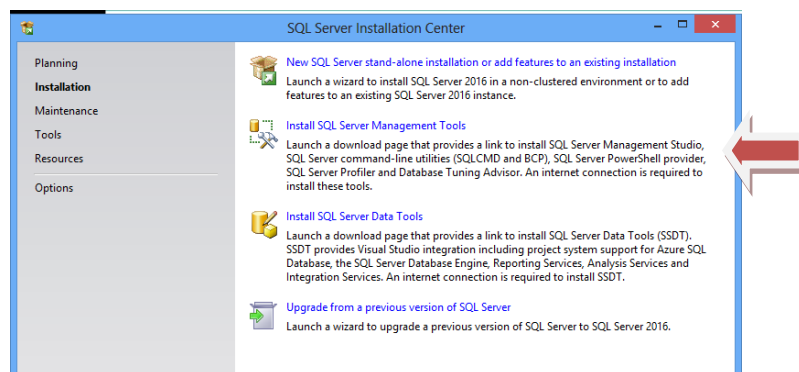


After the installation is finished, the connection has to be checked (from Connect Now).

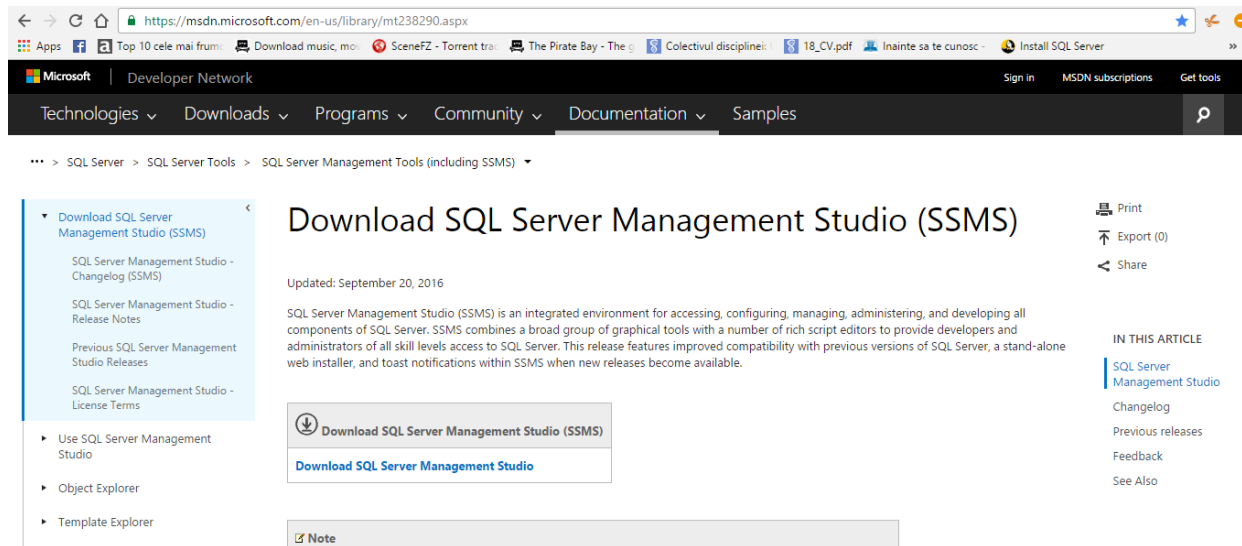


The commands that has to be checked for the connection are: `sp_databases -> go`

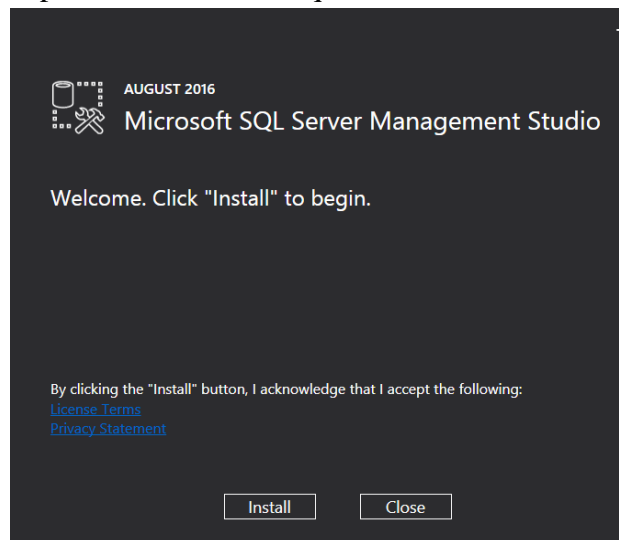
From SQL Server 2016 Express Edition -> Customize / Install tools, the SQL Server Management Tools has to be install.



From the web page <https://msdn.microsoft.com/en-us/library/mt238290.aspx>, the SQL Server Management Studio (SSMS) will be downloaded (SSMS-Setup-ENU).

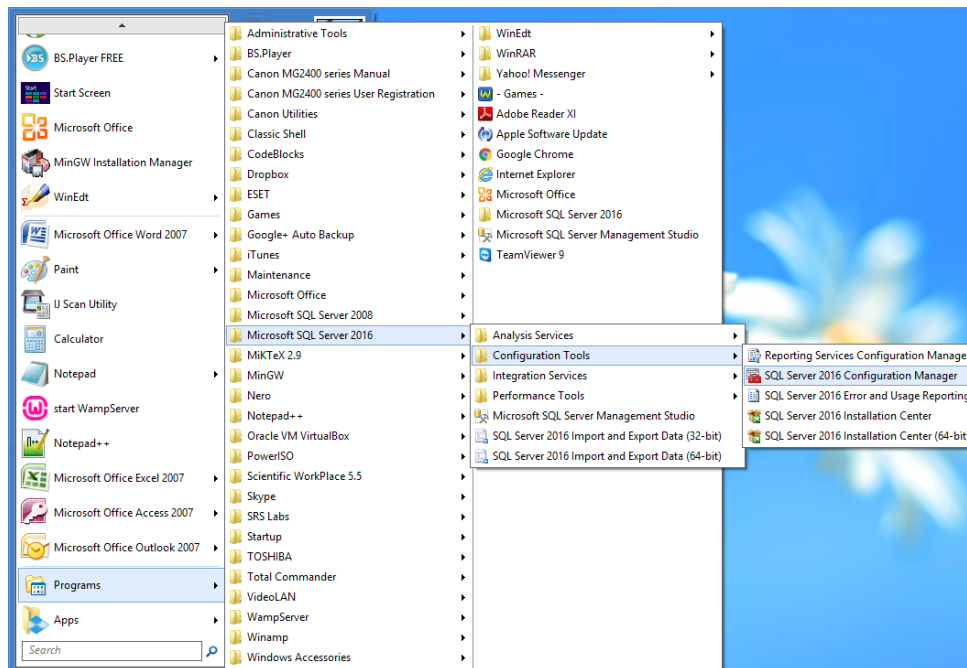


Now, the SQL Server 2016 Express Edition can be quit. The SSMS will be installed.

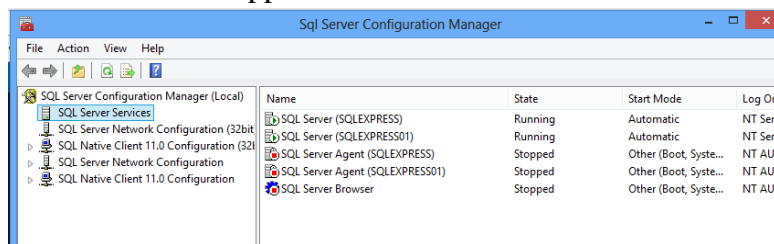


A restart of the computer is recommended after the installation.

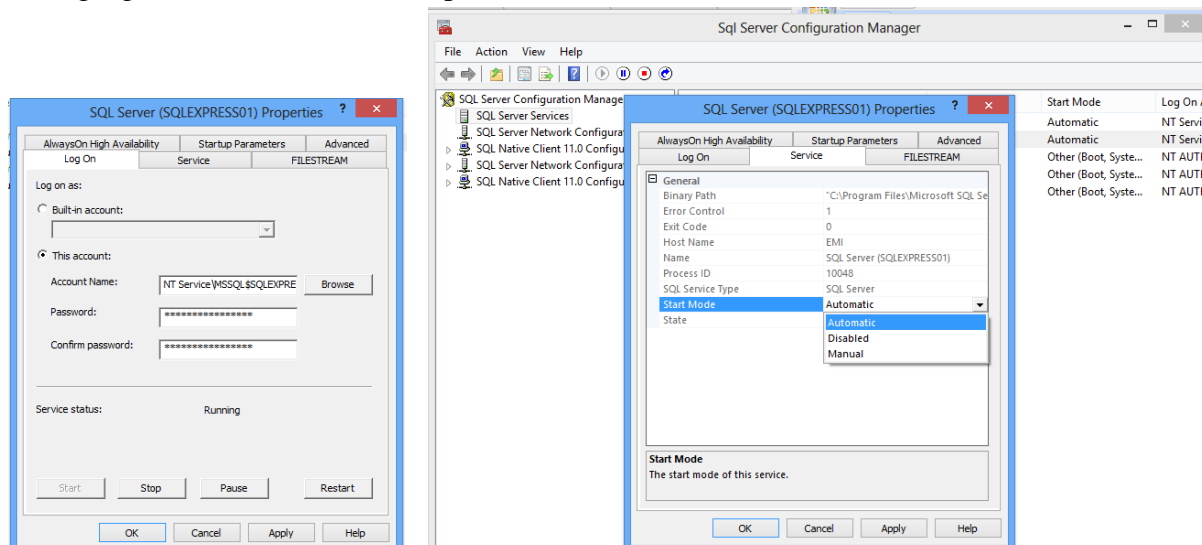
- Microsoft SQL Server Management Studio (yellow icon)
- SQL Server 2016 Configuration Manager (red icon)



SQL Server 2016 Configuration Manager (red icon) – run into the background (not necessarily open). It is used for the service to be started or stopped.



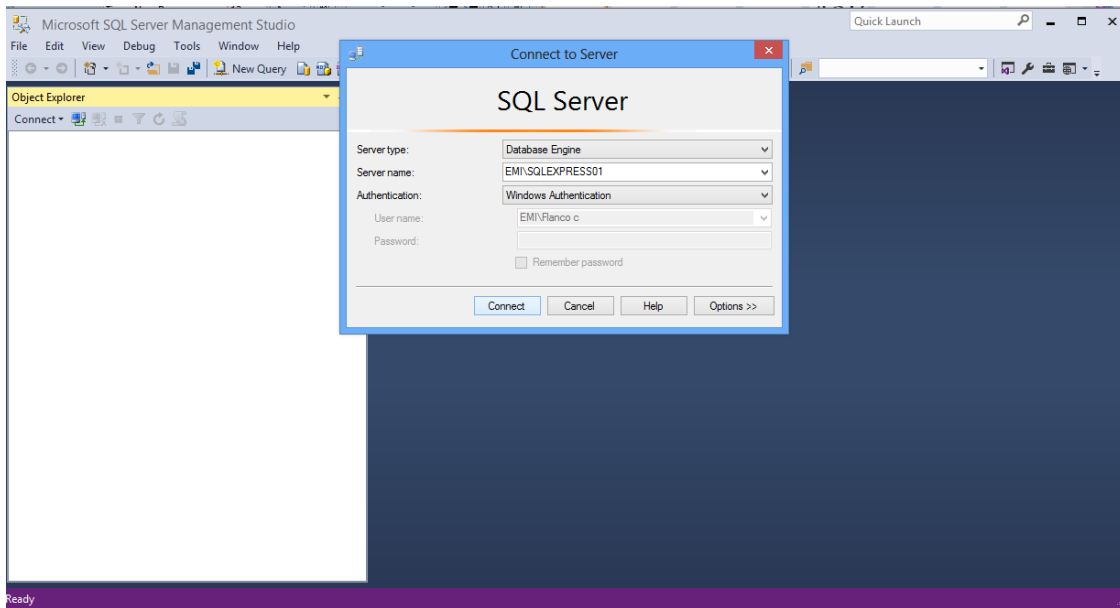
Usually, the SQL Server Services is running automatic. This property can be changed from Properties (by pressing right click on it): Start, Stop, Pause, Restart.



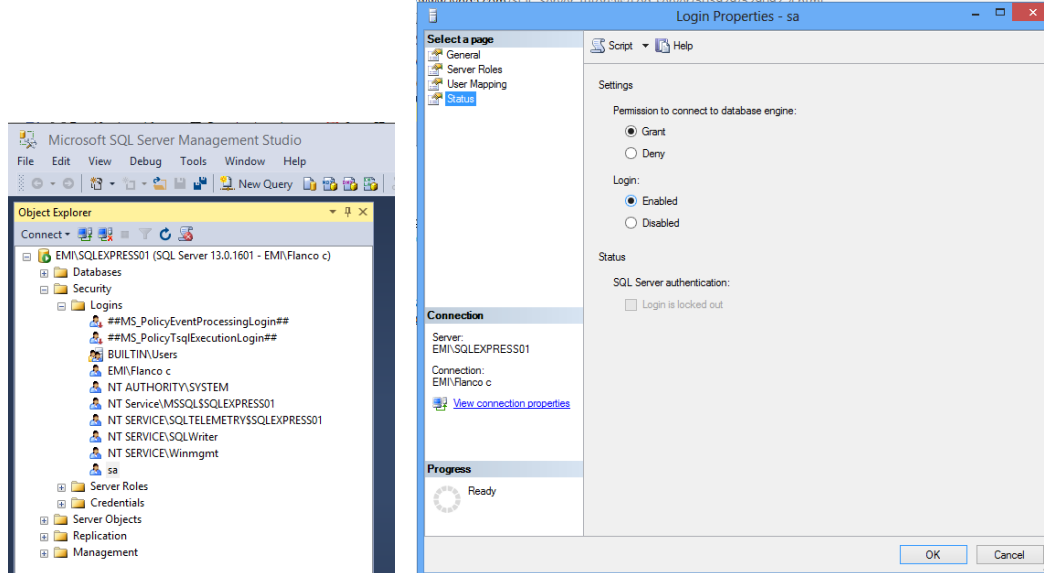
The automatic running (when the computer starts) can be changed from Properties -> Service -> Start Mode.

Microsoft SQL Server Management Studio (yellow icon)

The first connection present an authentication as Windows Authentication or can be changed to SQL Server Authentication.

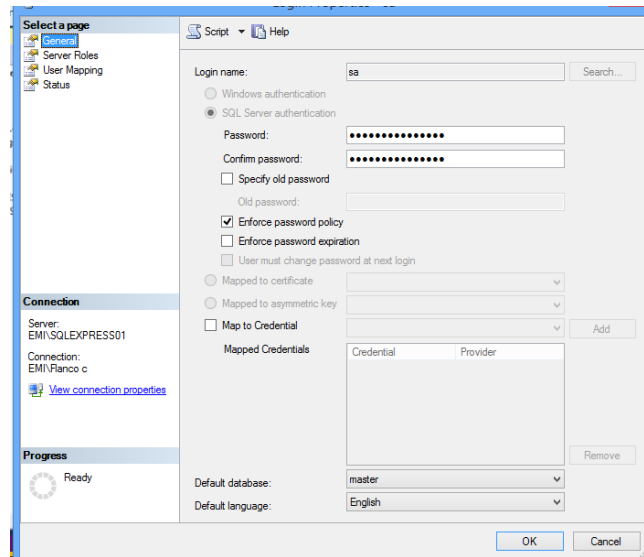


To configure the system administrator account (sa) – a default account, one has to go to Security -> Logins -> sa. If sa account is disabled (has a red point near the icon), it has to be enabled by click right -> Properties and from Status -> Enabled.

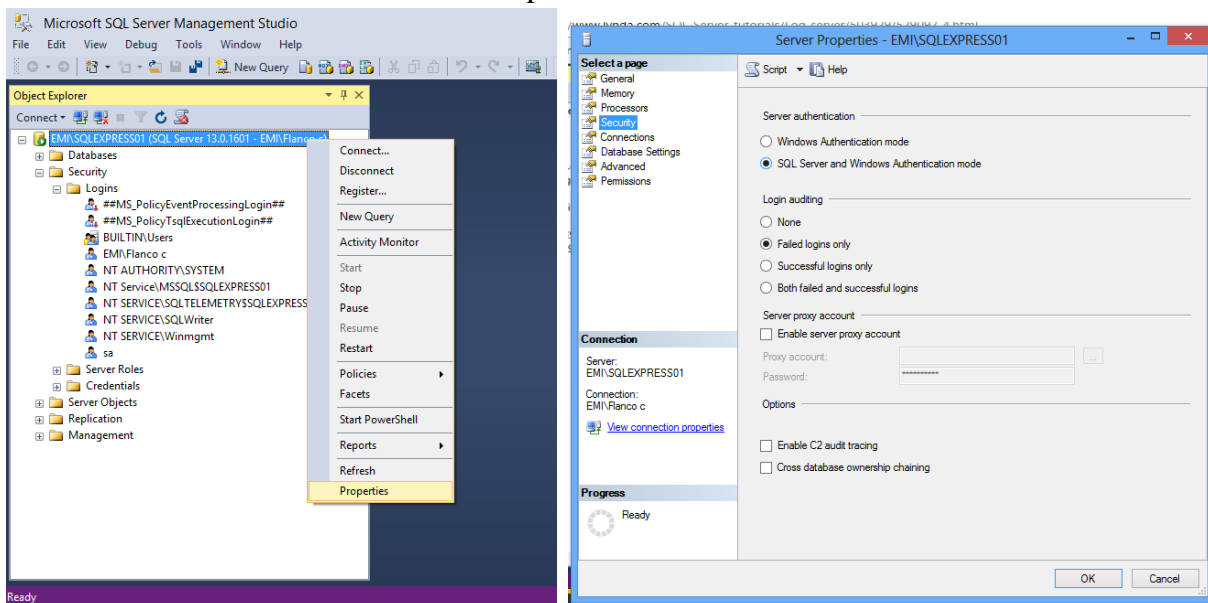


Also, for this account, from General menu, a password should be established (preferable a strong one) and then press Ok. Don't forget the password!

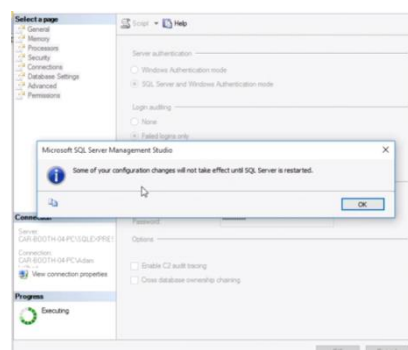
Then, by pressing right click on the Security->Logins a Refresh will be need (the red point from the sa icon will disappear).



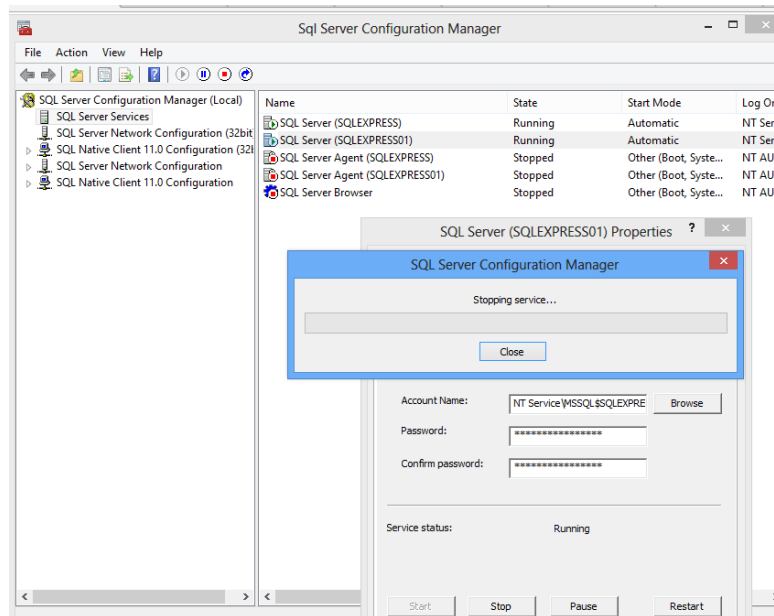
Next the SQL Server has to be enabled: a right click on the Server Name is required to access the Properties menu. From the Security menu, the bullet SQL Server and Windows Authentication mode has to be marked and then the ok button has to be pressed.



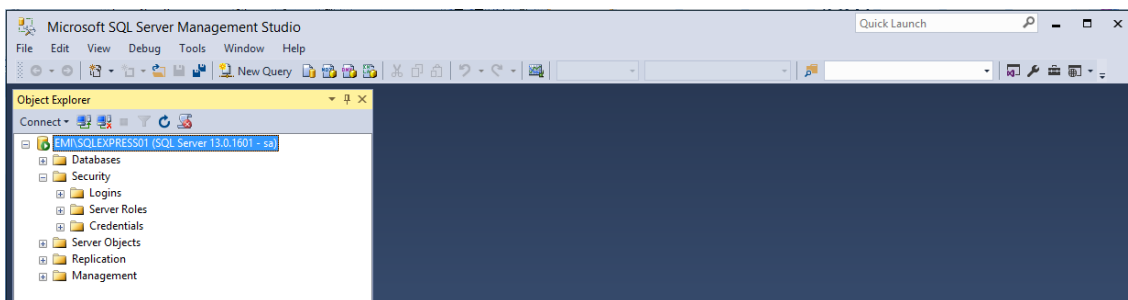
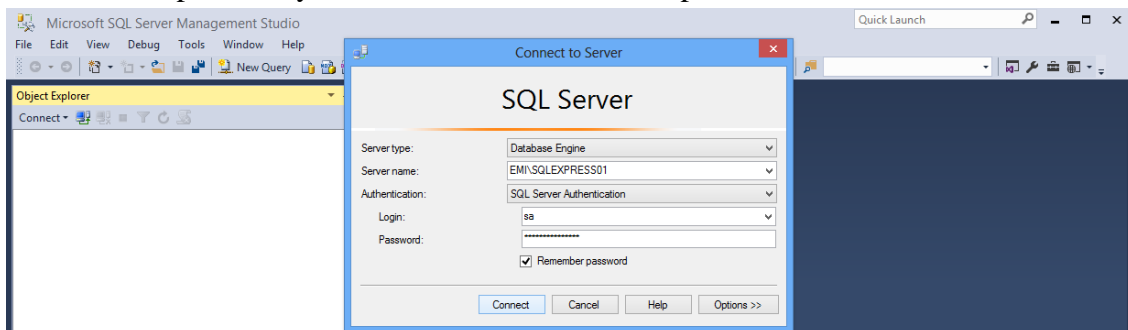
A message will be displayed and ask to restart the SQL Server (because otherwise the change will not take effect)



The Microsoft SQL Server Management Studio (yellow icon) has to be closed and the SQL Server 2016 Configuration Manager (red icon) started. On the SQL Server Services, the SQL Server (SQLEXPRESS) will be restarted by accessing the Properties menu (with right click) -> Log On menu -> Restart ->ok. After this change was done, the SQL Server 2016 Configuration Manager (red icon) can be closed.

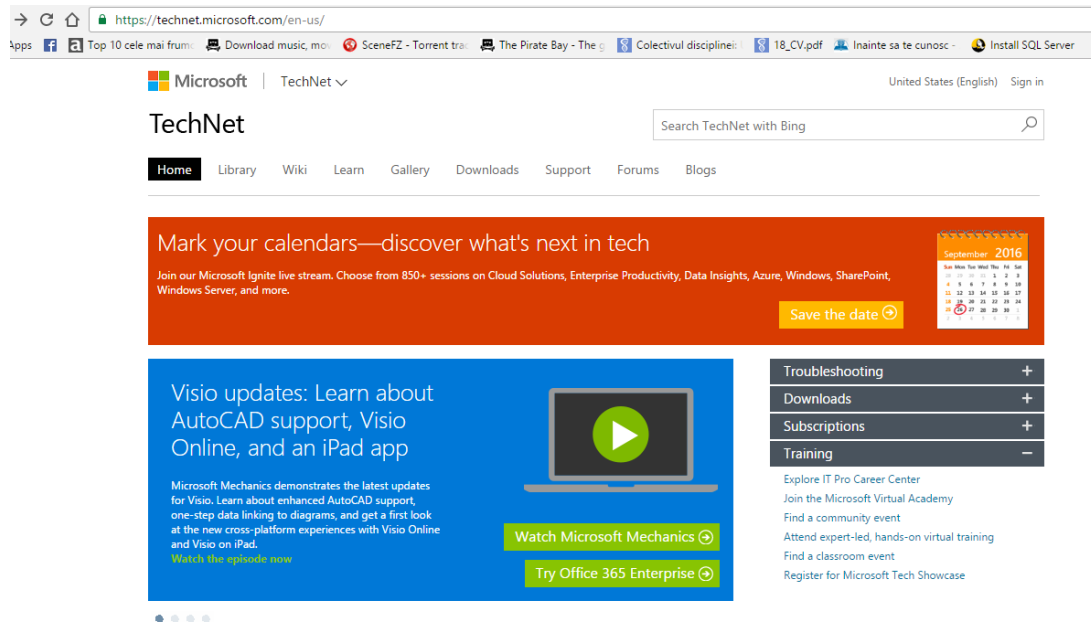


Now, the Microsoft SQL Server Management Studio (yellow icon) can be open and the authentication will be done by using as Authentication, the SQL Server Authentication with the Login sa and the password established previously. The Connect button can be pressed.

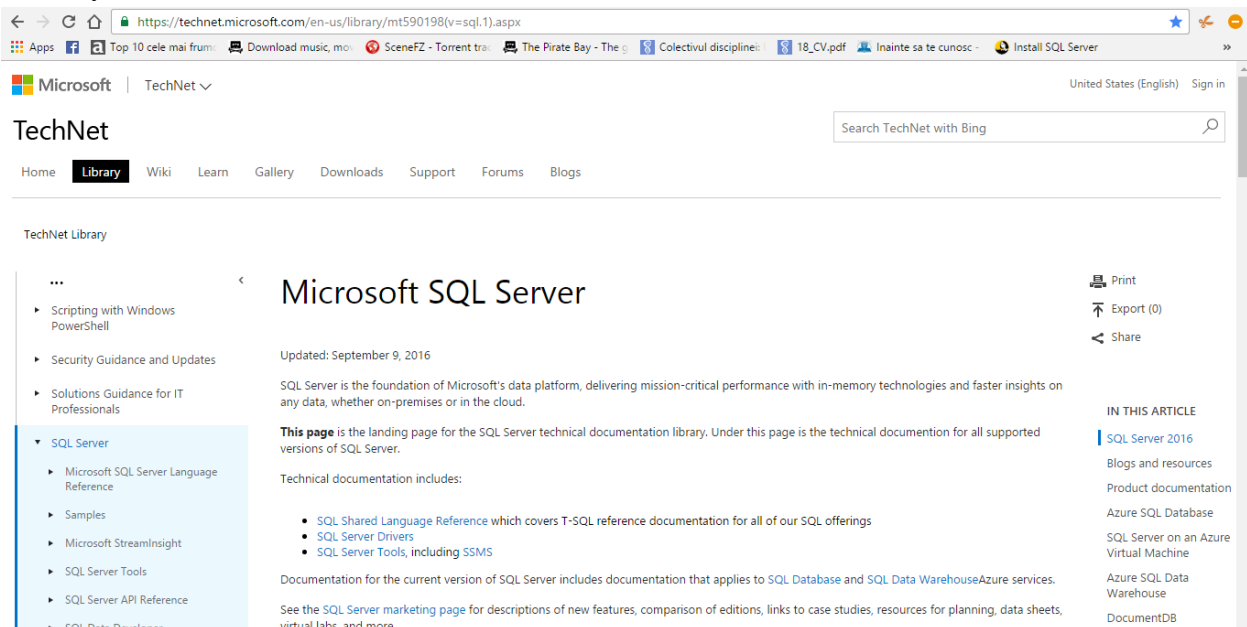


SQL Server Documentation

The documentation can be found on the web page <https://technet.microsoft.com/en-us/>.



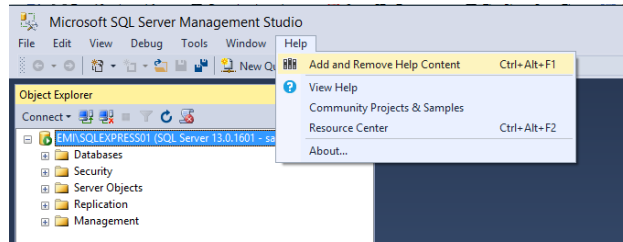
The Library menu was to be access, then SQL Server menu.



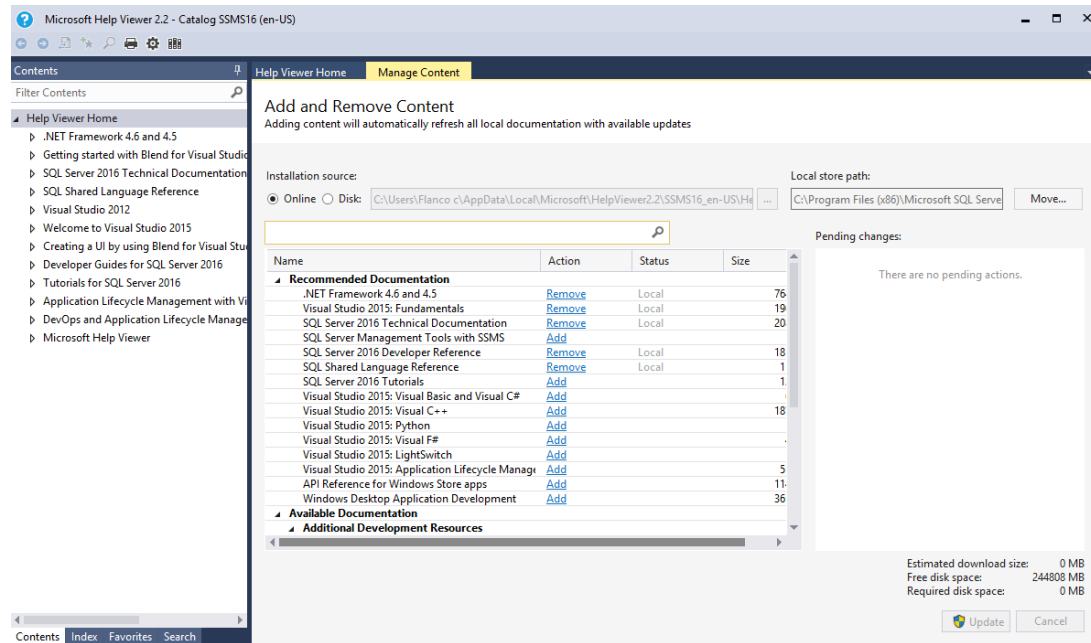
The documentation for SQL Server 2016 can be found there:

[https://technet.microsoft.com/en-us/library/hh994726\(v=sql.10\).aspx](https://technet.microsoft.com/en-us/library/hh994726(v=sql.10).aspx)

Inside of Microsoft SQL Server Management Studio (yellow icon), the documentation can be found in the Help menu at the section Add and Remove Help Content.

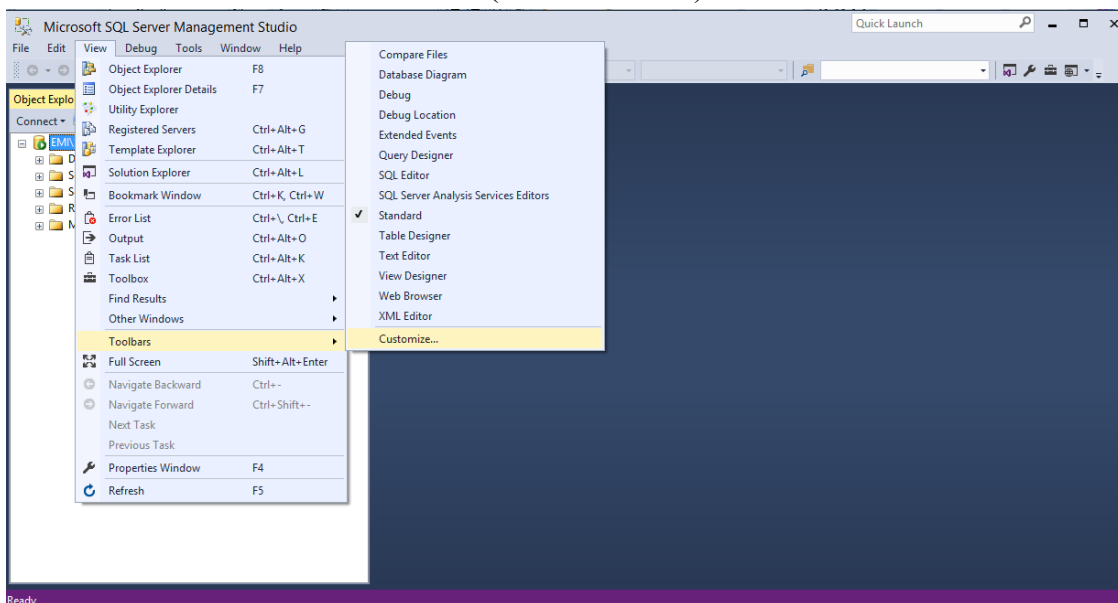


The SQL Server 2016 Technical Documentation, SQL Shared Language Reference and SQL Server 2016 Tutorials should be included by pressing Add and the Update.

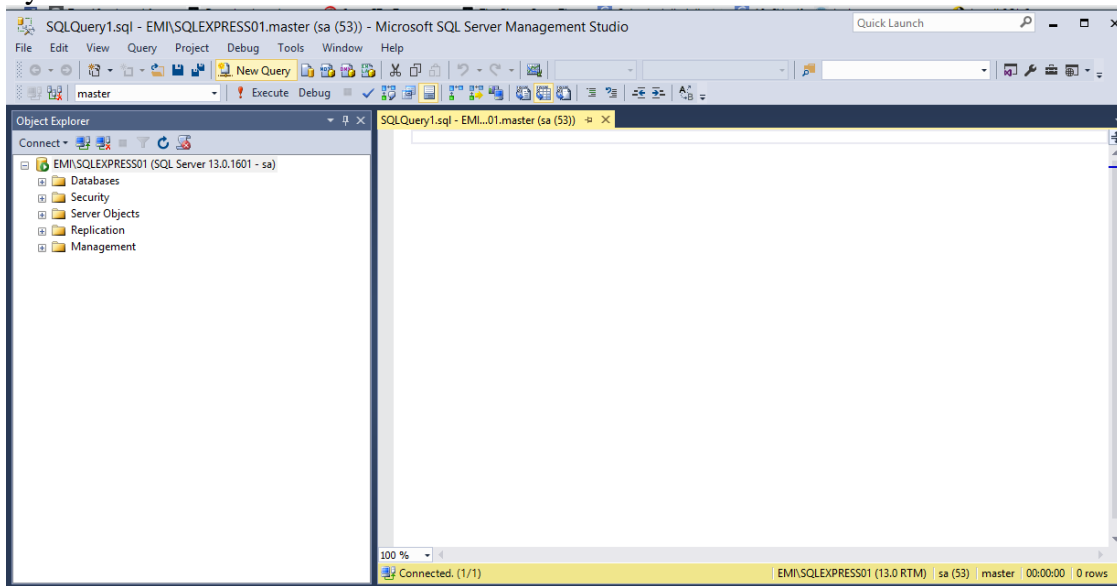


SQL Server Management Studio

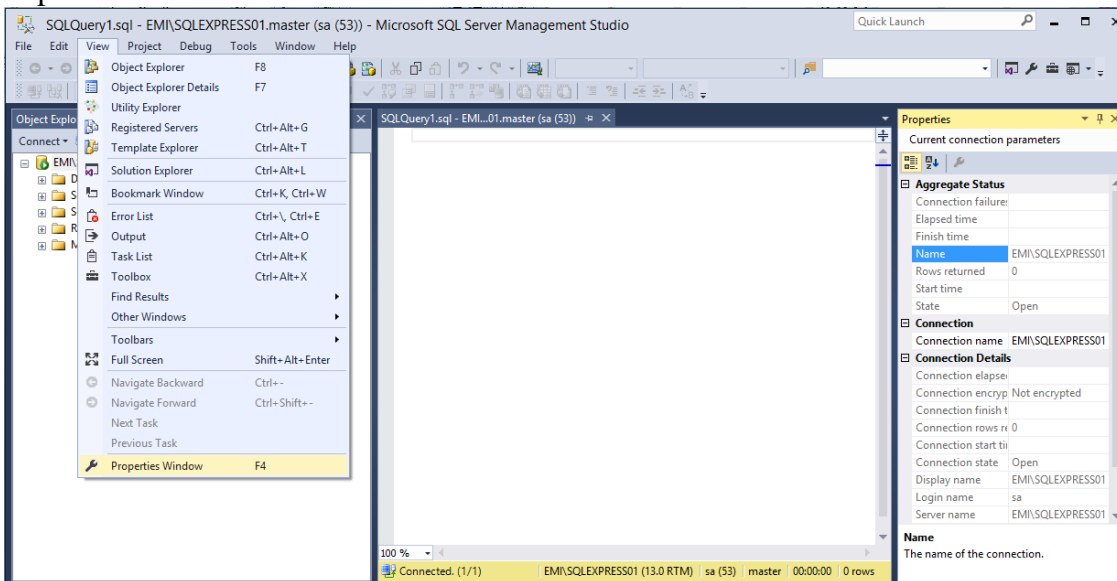
Add new tools: View menu -> Toolbars -> ... (one can choose)



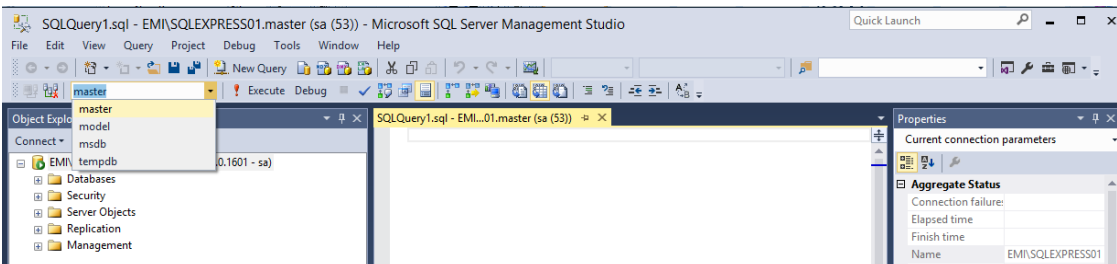
New Query:



See the Properties:



Choose the database



Install a Sample Database

<http://msftdbprodsamples.codeplex.com/>

The screenshot shows the CodePlex website for Microsoft SQL Server Database Product Samples. The browser address bar displays <http://msftdbprodsamples.codeplex.com/>. The website header includes the CodePlex logo and navigation links: HOME, SOURCE CODE, DOWNLOADS, DOCUMENTATION, ISSUES, PEOPLE, and LICENSE. A search bar is also present. The main content area features a prominent announcement: "New! Wide World Importers Sample Databases for SQL Server 2016". Below this, there are links to download AdventureWorks Databases for 2014 and for 2008, 2008R2, and 2012. A grid of colored buttons offers options to download SQL Server 2012 OLTP, SQL Server 2012 DW, SQL Azure OLTP, or to get more information. A sidebar on the right contains a search bar, a "downloads" section with an "ACTIVITY" tab, and a "RELATED PROJECTS" section linking to the Microsoft SQL Server Community & Samples.

Download database: Adventure Works 2014 Sample Database, Wide World Importers sample database.

The screenshot shows the Microsoft SQL Server Samples page on MSDN. The browser address bar displays [https://msdn.microsoft.com/library/mt748083\(v=sql.1\).aspx](https://msdn.microsoft.com/library/mt748083(v=sql.1).aspx). The page header includes the Microsoft logo and navigation links: Technologies, Downloads, Programs, Community, Documentation, and Samples. The main content area is titled "Microsoft SQL Server Samples" and includes a sub-header "New!! Wide World Importers sample database". The text states: "We are pleased to feature a new sample database called Wide World Importers (WWI), developed to showcase database design using current features, tools and design techniques. The samples include an OLTP and an OLAP database which are built to run on SQL Server 2016 and later." A "Documentation" section mentions that the WWI documentation is on MSDN. A "SQL Server Samples repository" section is also present. A sidebar on the left lists various resources, including "Microsoft SQL Server Language Reference", "Samples", "Wide World Importers Documentation", "Microsoft StreamInsight", "SQL Server Tools", "SQL Server API Reference", "SQL Data Developer", "SQL Server Release Notes", "Install and Configure Help for SQL Server", and "SQL Server 2016". A right sidebar contains links for "Print", "Export (0)", "Share", and "IN THIS ARTICLE", which includes links to "New!! Wide World Importers sample database", "Documentation", "SQL Server Samples repository", "Working in GitHub", "License", and "Questions".

GitHub, Inc. [US] | <https://github.com/microsoft/sql-server-samples>

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<> Code 1 Issues 5 Pull requests 3 Projects 0 Pulse Graphs

Official Microsoft GitHub Repository containing code samples for SQL Server

571 commits 25 branches 7 releases 23 contributors

Branch: master New pull request Find file Clone or download

rgward committed on GitHub Update readme.md

File	Commit Message	Time Ago
media	adding image for in-memory oltp perf	6 days ago
samples	Update readme.md	4 months ago
.gitignore	simplifying deployment scripts	6 months ago
README.md	Update README.md	
README_samples_template.md	Update README_samples_template.md	
license.txt	MIT license	

Clone with HTTPS
Use Git or checkout with SVN using the web URL.
<https://github.com/Microsoft/sql-server-samples>
Open in Desktop Download ZIP

The file [WideWorldImporters-Full.bak](#) will be downloaded from the link [Wide World Importers sample database v1.0](#)

GitHub, Inc. [US] | <https://github.com/microsoft/sql-server-samples/releases/tag/wide-world-importers-v1.0>

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wide-world-importe... dfef1b64

Wide World Importers sample database v1.0

jodebrui released this on Jun 8 · 303 commits to master since this release

WideWorldImporters sample database for SQL Server (starting 2016) and Azure SQL Database. For details see the corresponding [documentation](#).

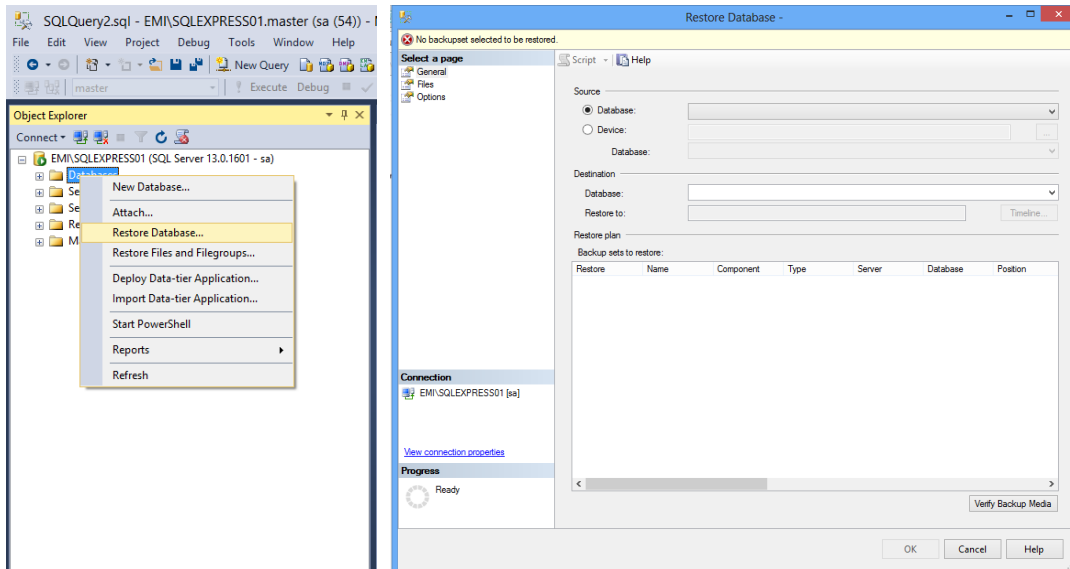
This release includes the following artifacts:

- SQL Server Evaluation/Developer/Enterprise Edition
 - [WideWorldImporters-Full.bak](#) - full sample database for OLTP (OnLine Transaction Processing) and HTAP (hybrid transaction and analytical processing aka real-time operational analytics). For SQL Server 2016 (or higher) Evaluation/Developer/Enterprise Edition.
 - Update (8/12/2016): updated stats on system tables to support efficient reverse engineering with Entity Framework
 - [WideWorldImportersDW-Full.bak](#) - full sample database for OLAP (OnLine Analytical Processing). For SQL Server 2016 (or higher) Evaluation/Developer/Enterprise Edition.
- SQL Server Standard Edition
 - [WideWorldImporters-Standard.bak](#) - standard edition OLTP sample database in backup format. For SQL Server 2016 (or higher) Standard Edition.
 - Update (8/15/2016): updated stats on system tables to support efficient reverse engineering with Entity Framework
 - [WideWorldImportersDW-Standard.bak](#) - standard edition OLAP sample database in backup format. For SQL Server 2016 (or higher) Standard Edition.

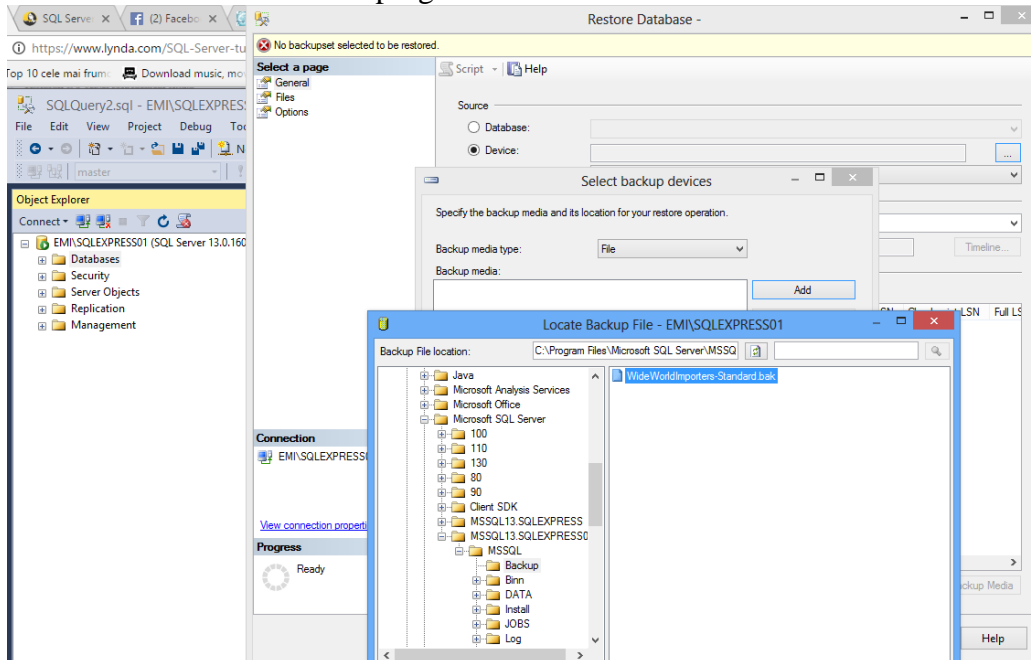
The database (the backup file that had been downloaded) has to be placed in:
C:\Program Files -> Microsoft SQL Server -> MSSQL13.SQLEXPRESS -> MSSQL -> Backup -> .bak

Name	Date modified	Type	Size
WideWorldImporters-Standard.bak	9/21/2016 4:21 PM	BAK File	123,964 KB

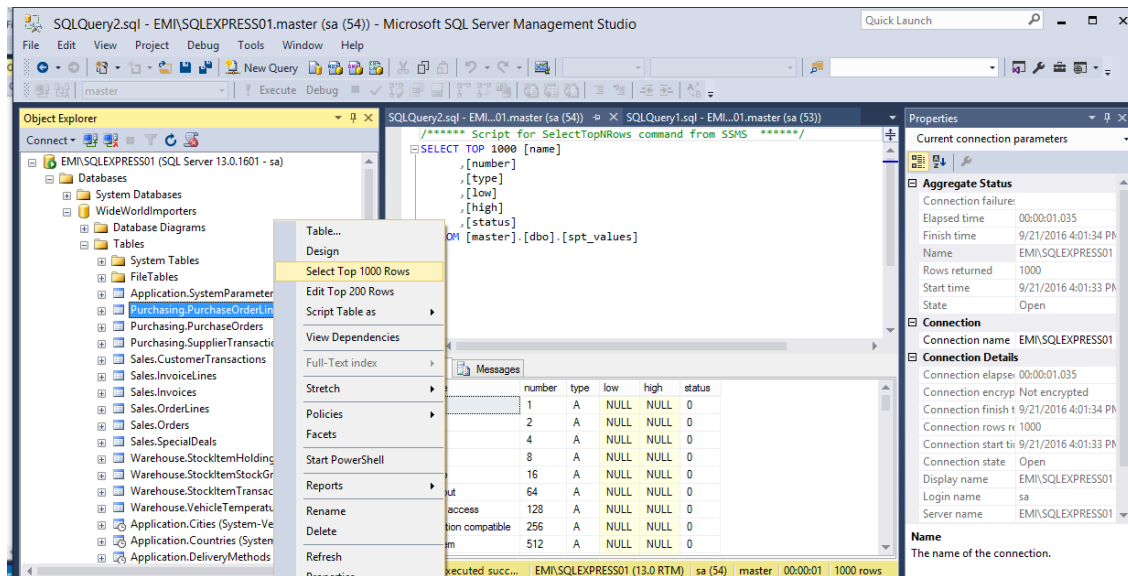
The file [WideWorldImporters-Standard.bak](#) has to be downloaded.
Import the database into Microsoft SQL Server 2016 Management Studio: Database-> right click -> Restore databases



Now, the database can be restored in the program

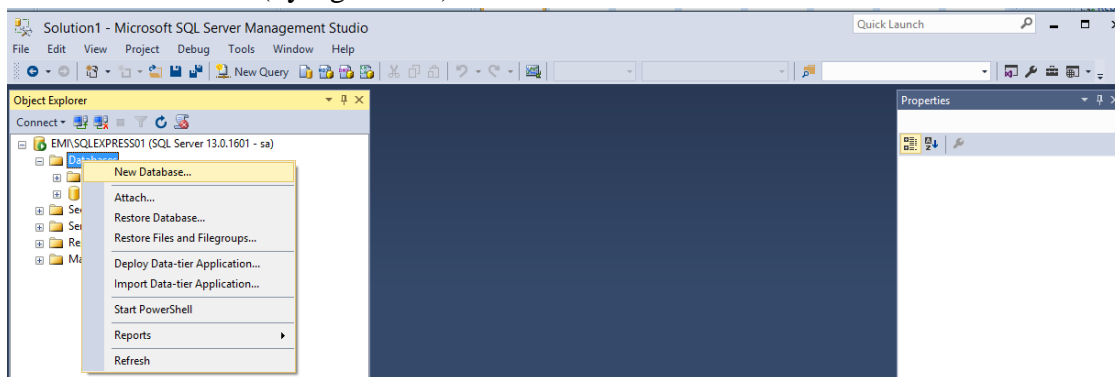


Check the database (Refresh = F5) and it appear

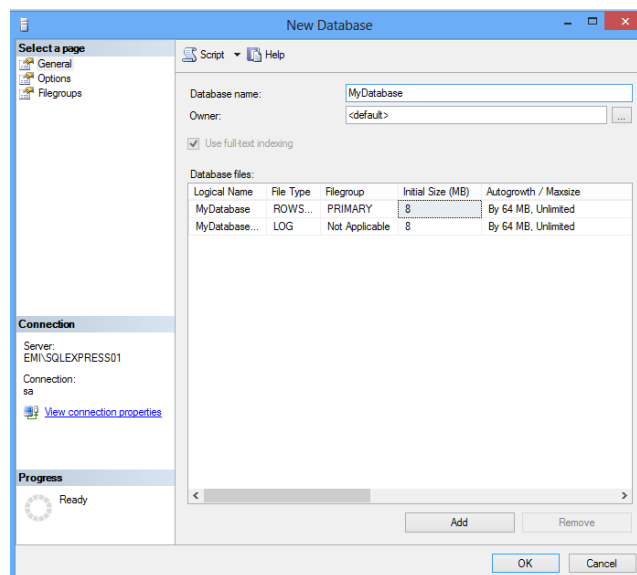


Create a new Database on the Server

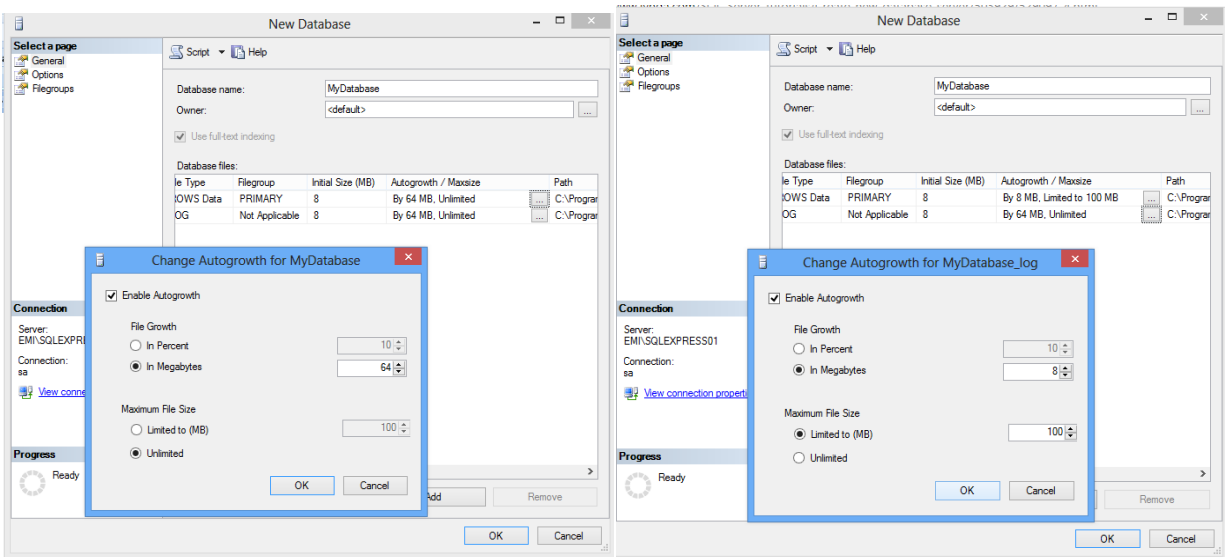
Databases -> New Database (by right click)



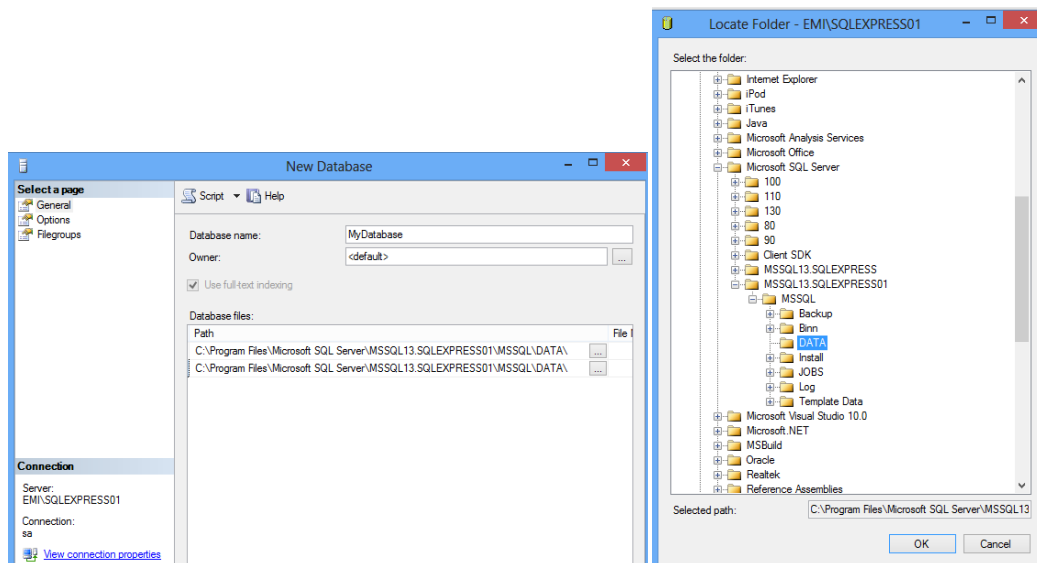
Create a database: General menu -> name it



Change the space that the database will occupy



Path where the database will be saved



Then press ok. The database will appear in the Databases menu (eventually by right click -> Refresh)

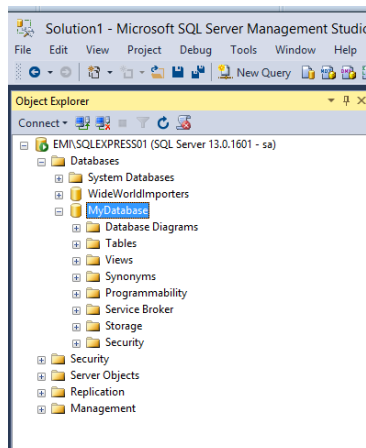


Table Structure

- Horizontal rows – store information about a single item, are called “records”
- Vertical rows – attribute fields, descriptive component of each record

A table example:

Customers

	Name	Birthday	Favorite Color
1	Sean	5/23/1972	Blue
2	Tabitha	7/6/1984	Orange
3	Marcus	3/27/1996	Aqua

Data Type

Text Data Types:

Char(10) – text data of 10 characters

NChar(10) – Unicode text with 10 characters

VarChar(50) – Variable length text data up to 50 characters

NVarChar(50) – Variable length Unicode text data up to 50 characters

Numerical Data Types:

TinyInt – whole numbers between 0 and 255

Int – whole numbers between -2 billion and +2 billion

Decimal / Float – fractional numeric with varying degrees of precision

Specialty Data Types

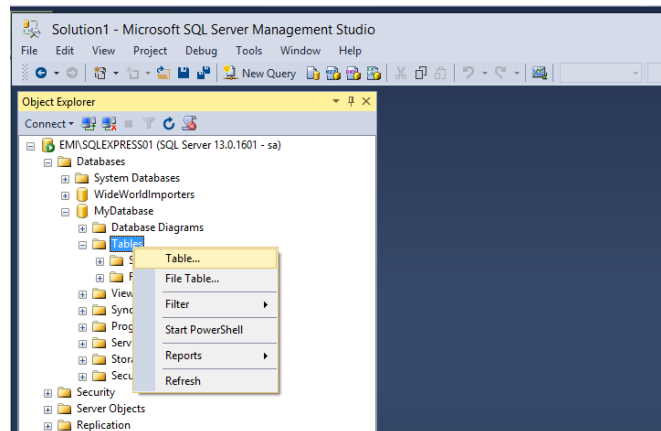
Date

Currency

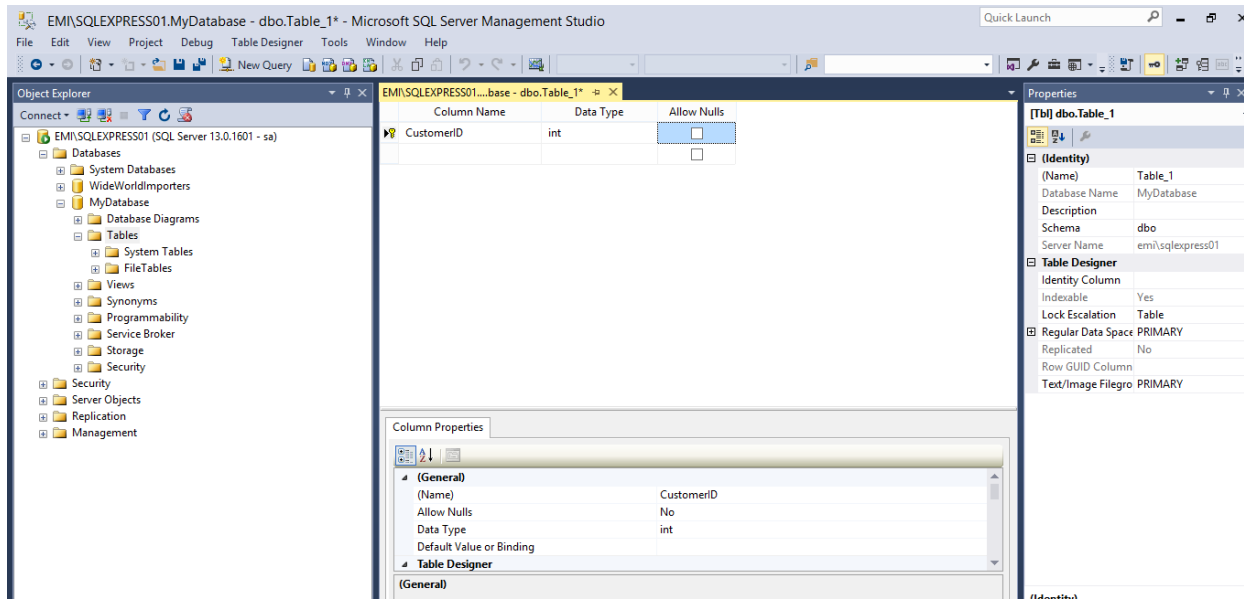
Geographic coordinates ...

Create a table

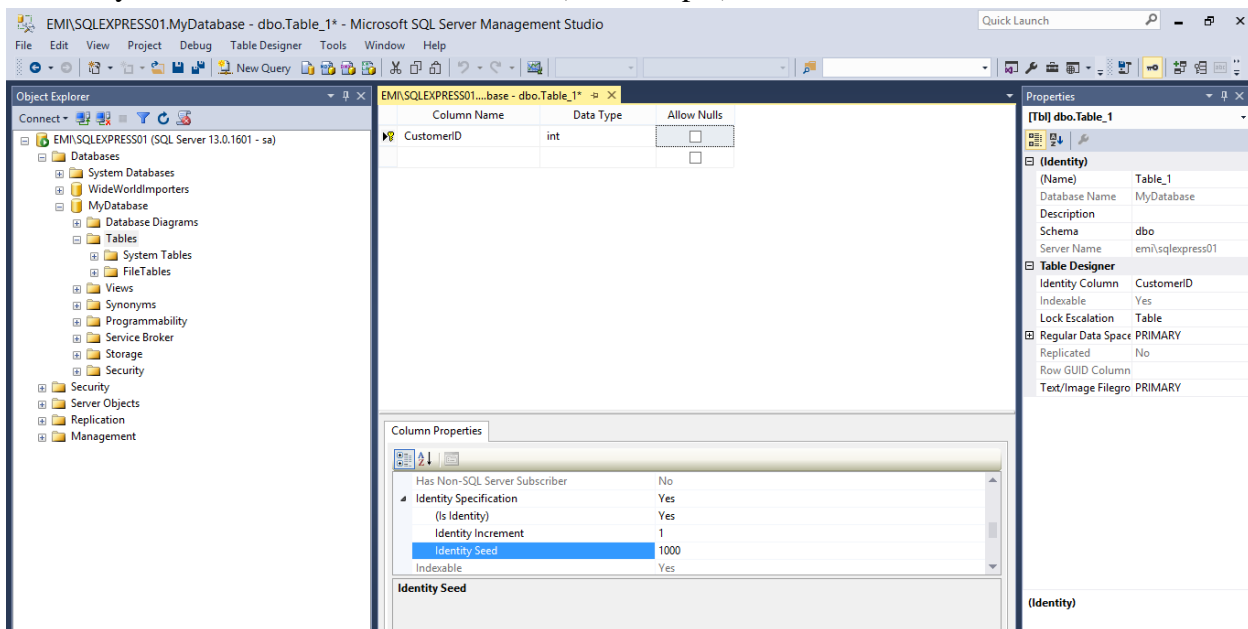
Inside of the Database (MyDatabase) -> Table menu -> Table (by pressing right click)



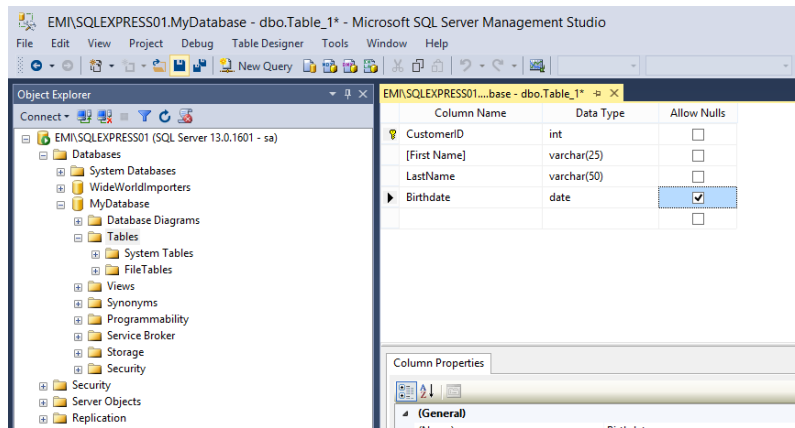
A column



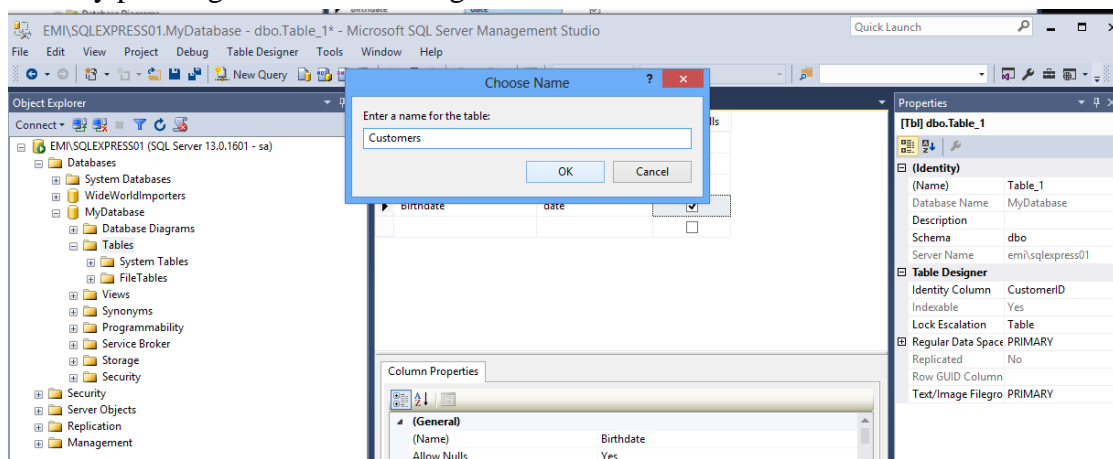
A identity of the instances: Yes – 1 – 1000 (for example)



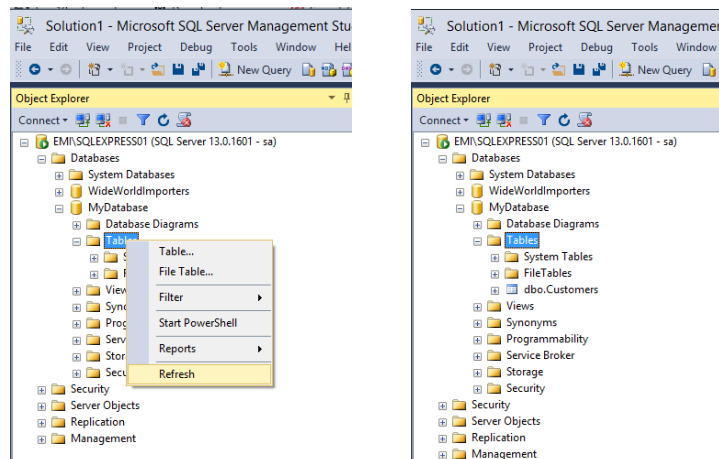
Introducing more fields (If another add will be required later than the save of the table: right click on table -> Design)



Save the table by pressing the disc or closing the window where we write.



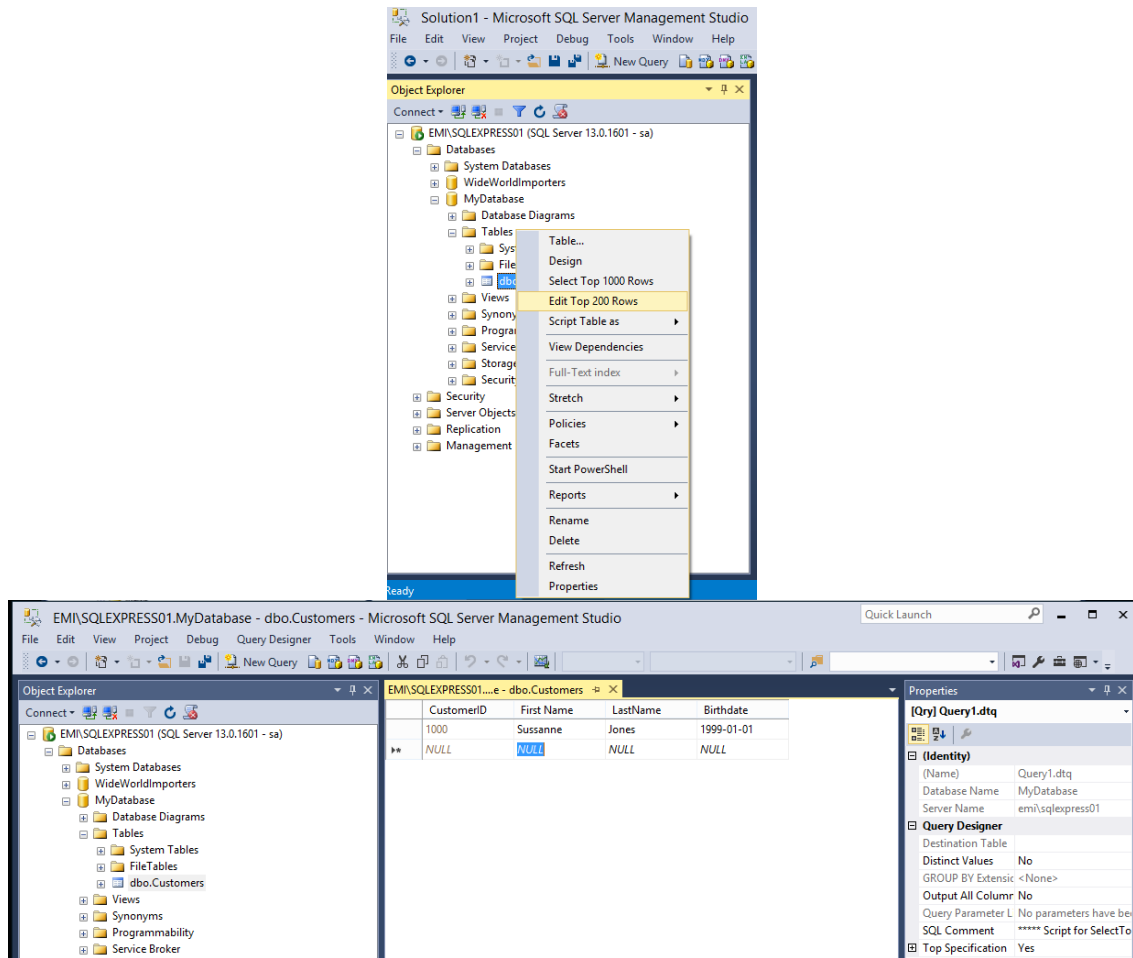
Refresh on Tables tab to see the table



There is the dbo.Customers table.

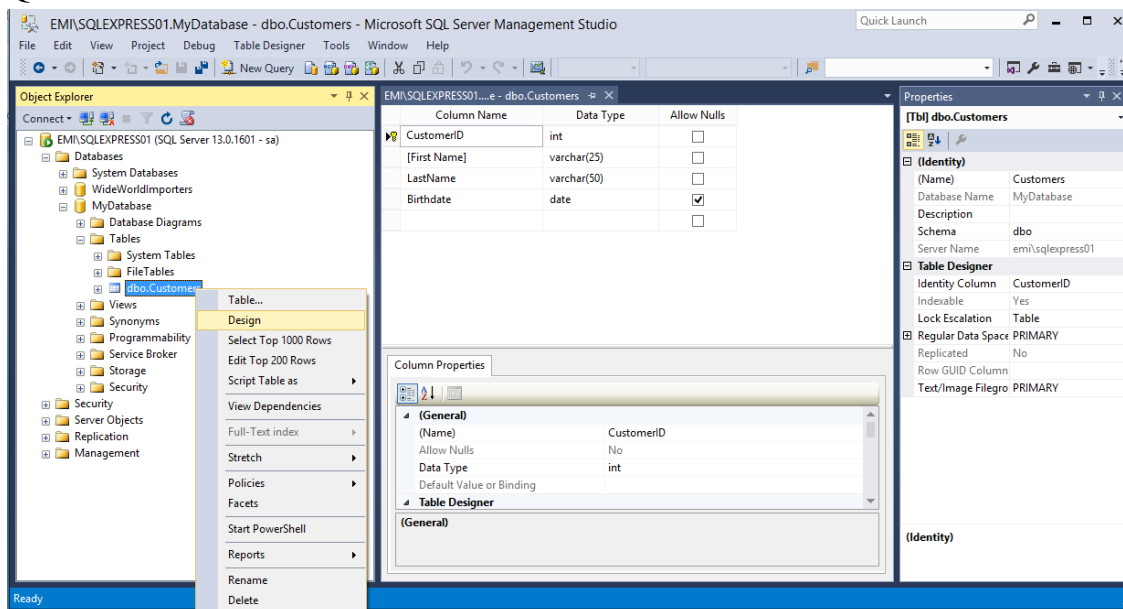
Edit Top 200 rows (from right click on dbo.Customers) is used to introduce values.

Select Top 1000 rows is used to see the records from the table.



The CustomerID (primary key) is not necessary to be introduced if it was set as Identity.

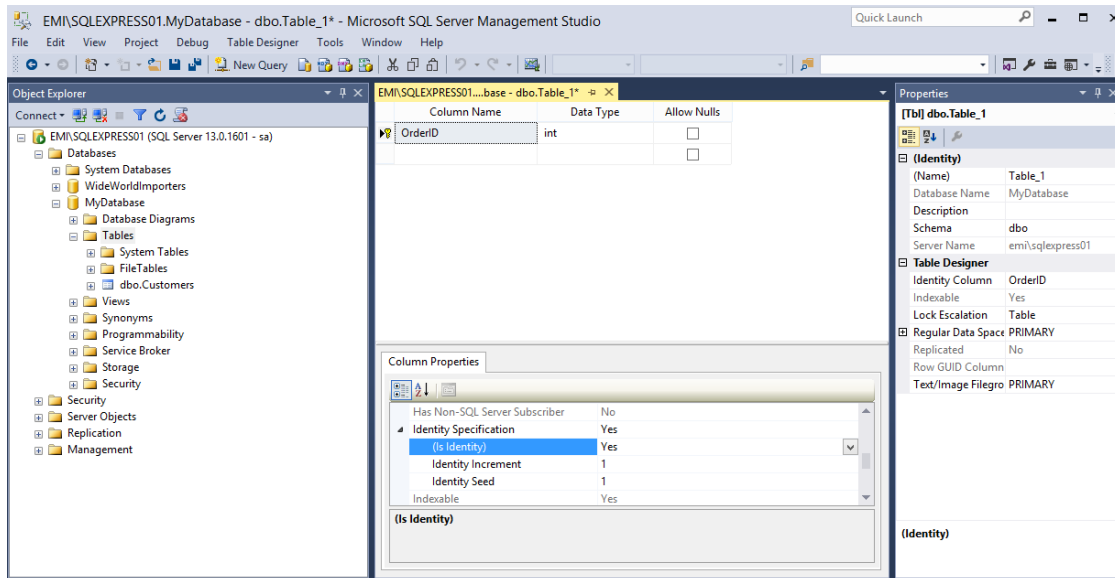
The UNIQUE IDENTIFIER in the table = PRIMARY KEY



Join tables together with keys

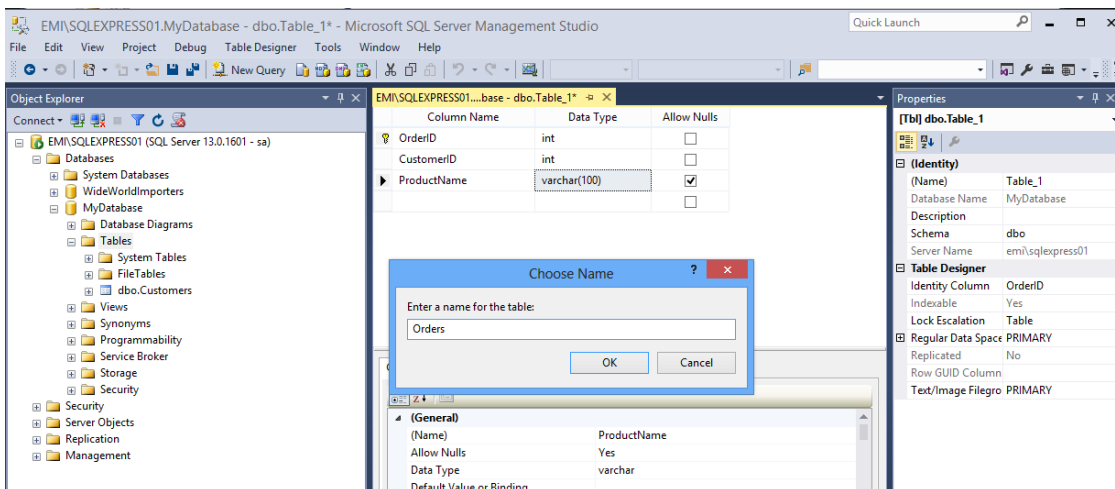
Primary key from a table

- Allows null – NEVER
- Identity Specification – Yes – if someone wants to be autoincrement

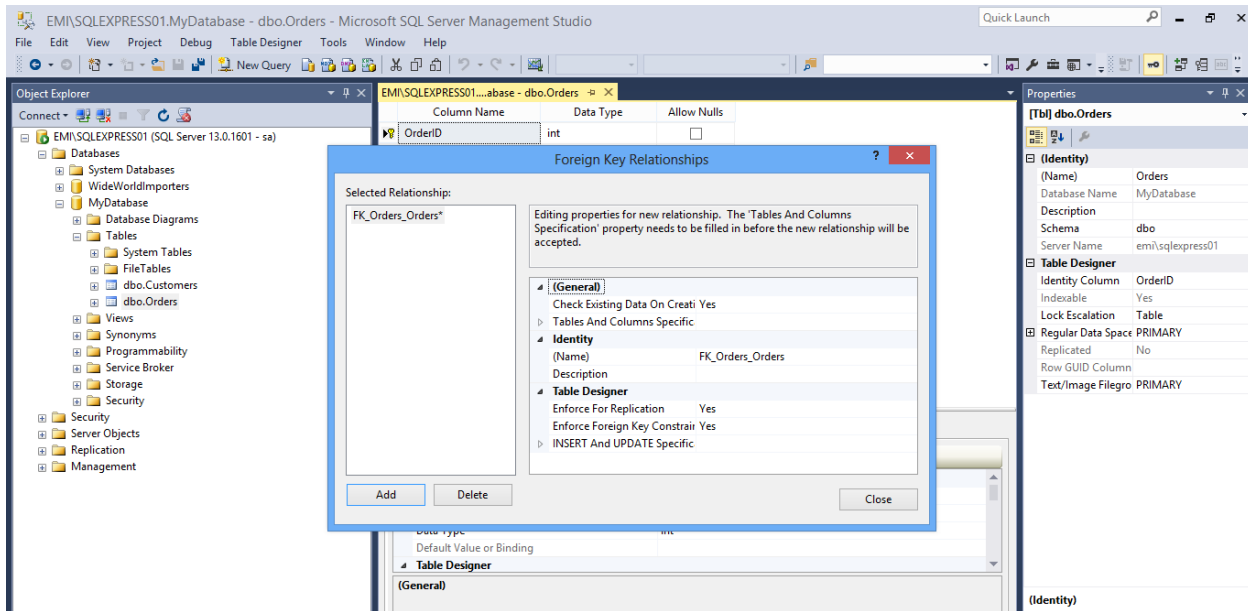


Foreign key – CustomerID – from Customers table

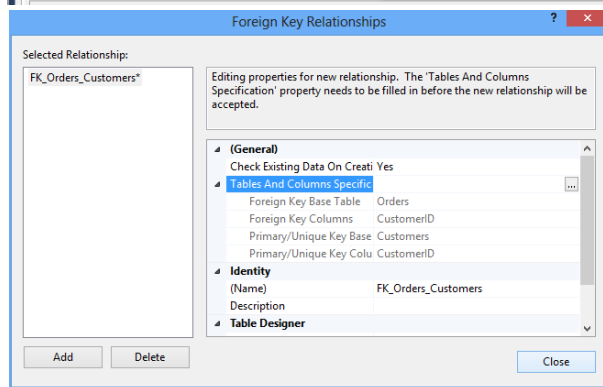
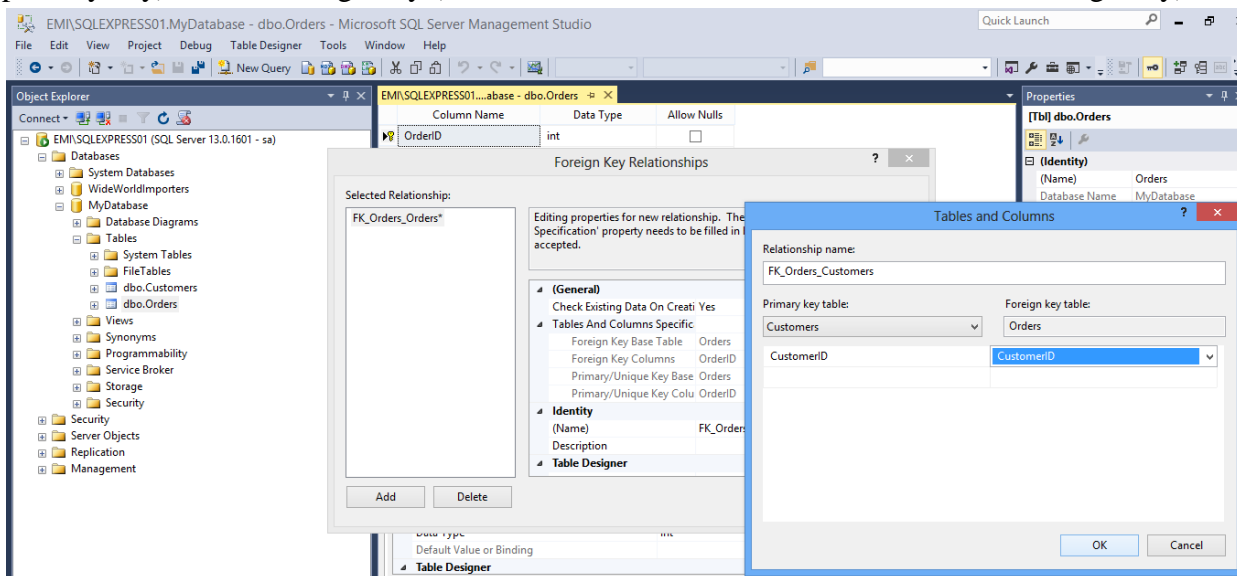
- the same type like in that table where is primary key (int)
- the same values as where it is primary key, but not necessarily unique (a value can appear more than once)
- Allow Null – Never



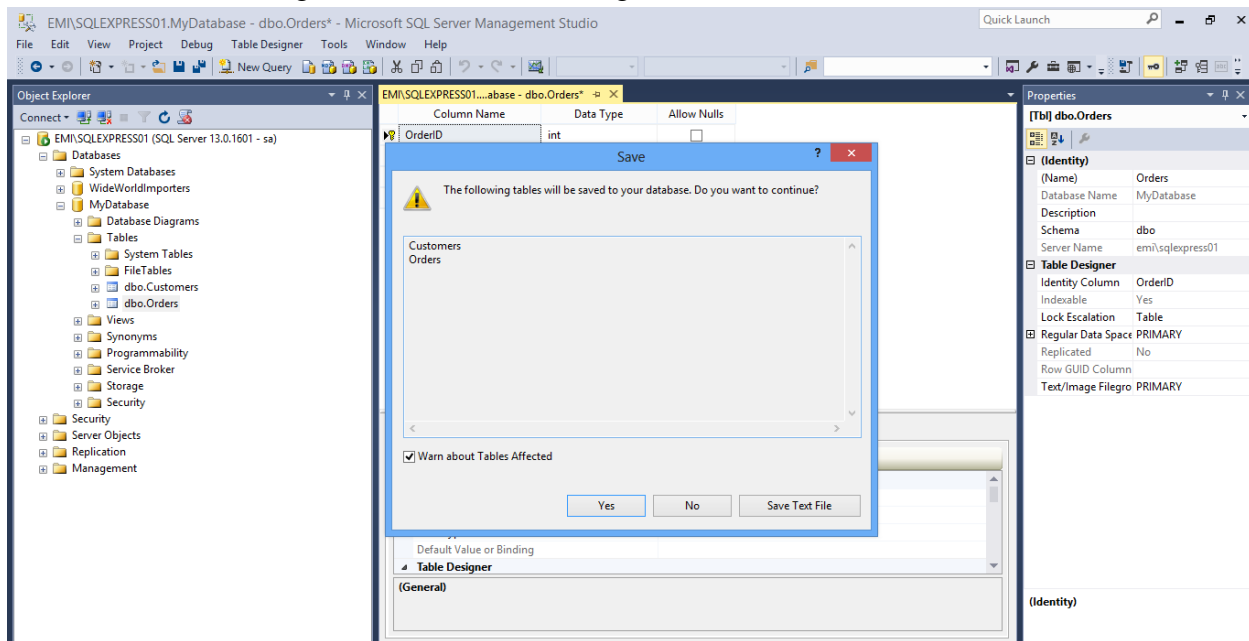
Relationships – right click on the left part where the fields are -> Add a new relationship



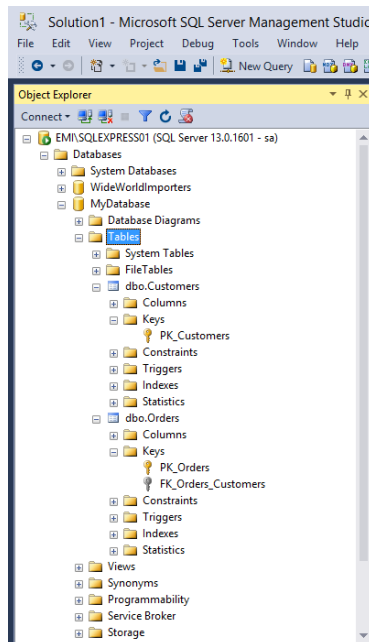
The Tables and Columns Specific -> has to be access from ... -> complete the tables that are in the relationship and corresponding to those the primary key (the first table – Customers – the table with the primary key) and the foreign key (the second table – Orders – the table with the foreign key)



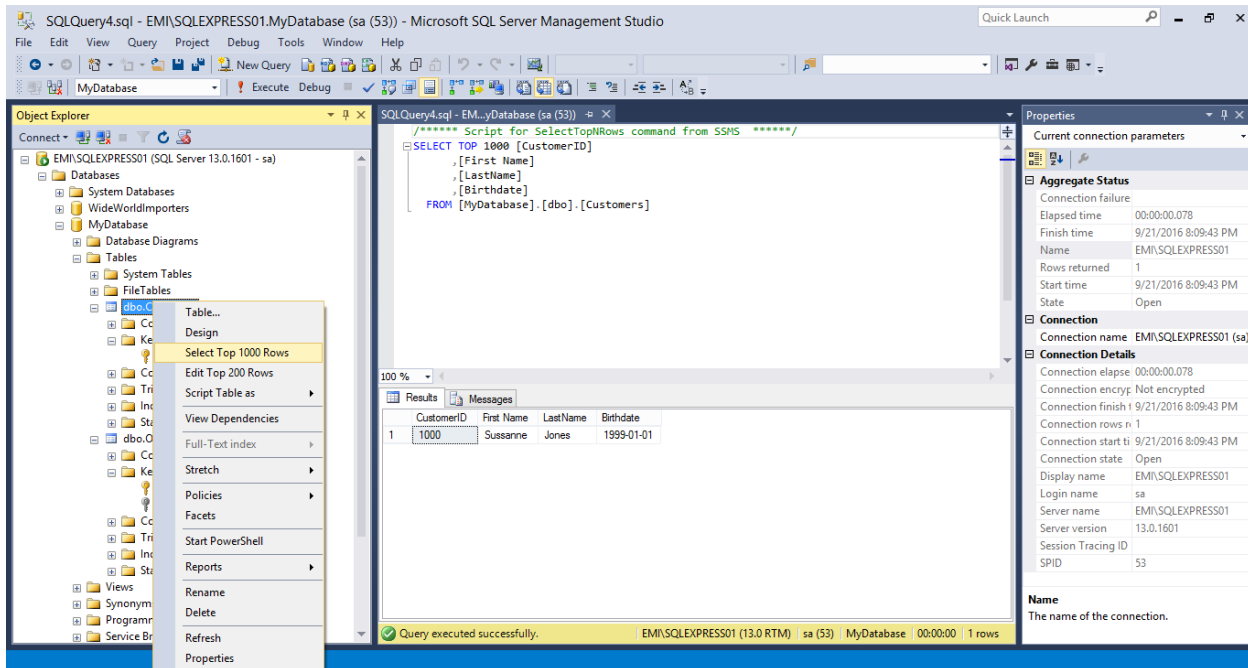
SAVE after these changes and Yes to the message that follows.



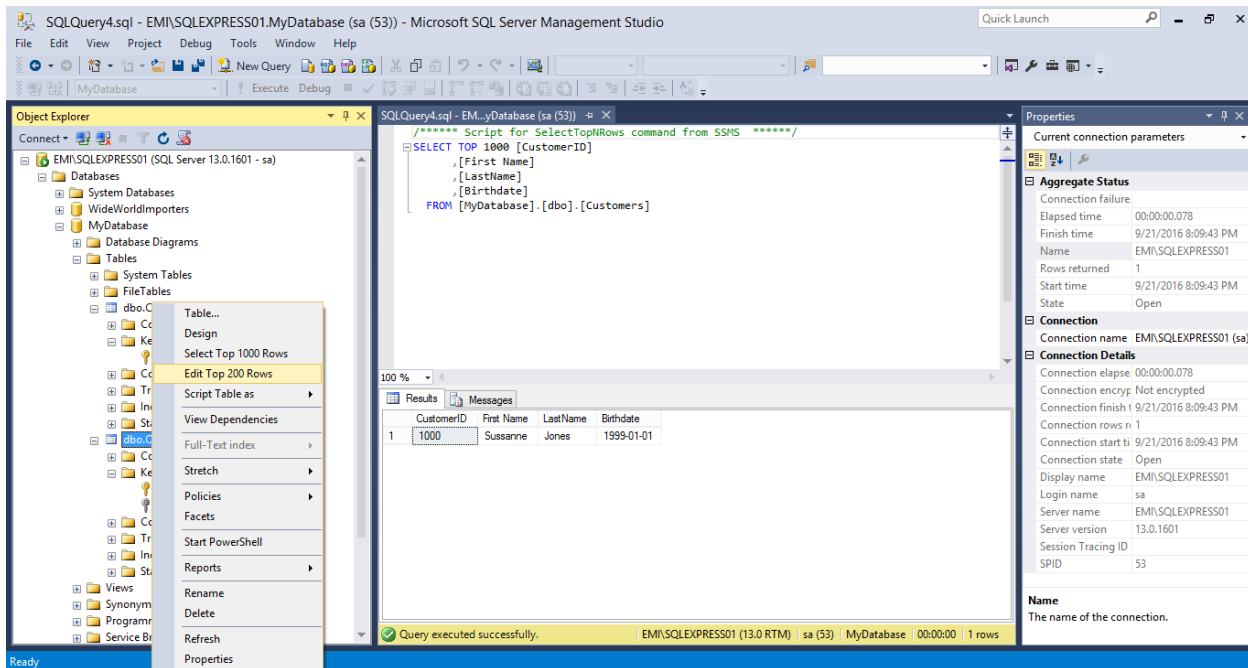
The primary keys and foreign key can be seen in the configuration part after a Refresh.



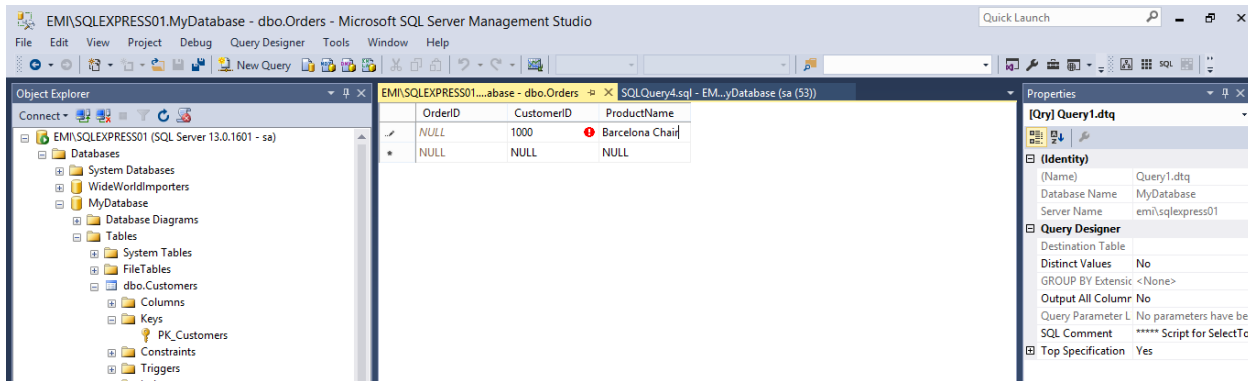
See the records: right click on the table (Customers) -> Select 1000 top rows



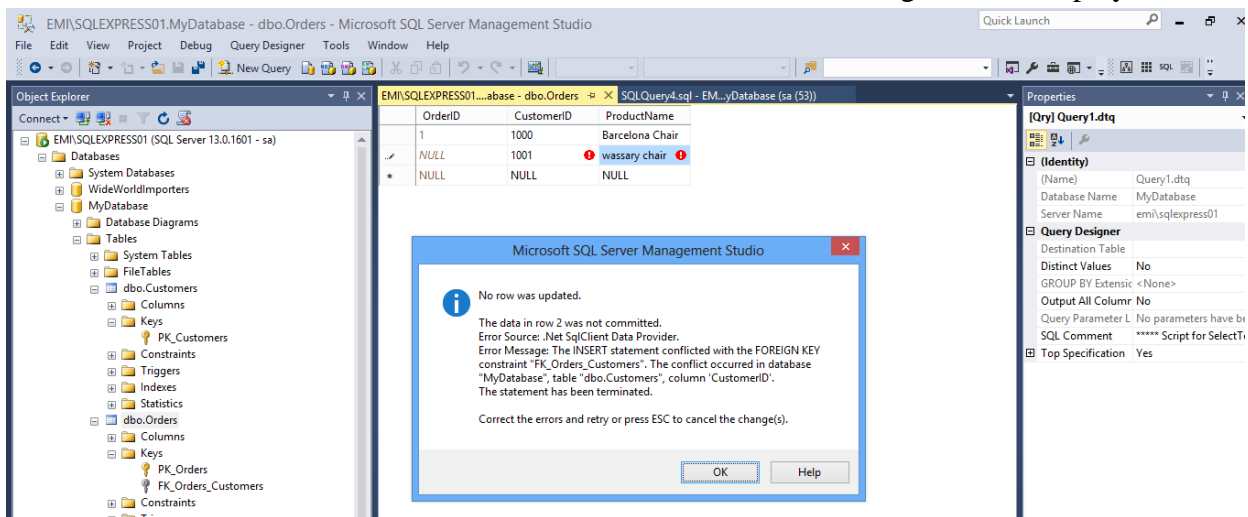
Select right click on table 2 (Orders) -> Edit top 200 rows



THE SAME CustomerID



If a CustomerID that does not exist in Customer table a conflict message will be displayed.



ENTER to save the record introduced. ESC to give up to the record.