

National University of Computer and Emerging Sciences



Lab Manual 1

“Introduction to MS SQL Server, Installation & Connection”

Database Systems Lab

Department of Computer Science
FAST-NU, Lahore, Pakistan



1. Objective

The purpose of this lab is to introduce students to Microsoft SQL server environment and getting started with installation and uses.

2. Task Distribution

Total Time	170 Minutes
Exercise	125 Minutes
Evaluation	45 Minutes

3.



Getting Started with Microsoft SQL server

In this section you will learn how to create open SQL server, connect with the database server, and create your new database (through design view and query as well).

Step 1: Installation of SQL Server Management Studio

SQL Server Management Studio (SSMS) is an IDE that provides a graphical interface for connecting and working with MS SQL server. It was launched with Microsoft SQL Server 2005 and is used for configuring, managing, and administering all components within Microsoft SQL Server.

Following are the steps on how to download and install Microsoft SQL Server Management Studio (SSMS):

First of all you need to download SQL Server Management Studio (SSMS) installation files (SQLManagementStudio_x64_ENU.exe / SQLManagementStudio_x86_ENU.exe) from the [SQL Server download page](#) depending on your server type (x64,x86), and keep it in a separate folder.

The screenshot shows a web browser window with the URL <http://www.microsoft.com/en-us/download/details.aspx?id=35>. The page title is "Download Microsoft® SQL Server Management Studio". Below the title, there is a "Select Language:" dropdown set to "English" and a large red "Download" button.

Microsoft® SQL Server® 2012 Express is a powerful and reliable free data management system that delivers a rich and reliable data store for lightweight Web Sites and desktop applications.

⊖ Details

Note: There are multiple files available for this download. Once you click on the "Download" button, you will be prompted to select the files you need.

Version:	Date Published:
11.0.2100.60	5/14/2012
File name:	File size:
ENU\x64\SQLExpr_x64_ENU.exe	132.3 MB
ENU\x64\SQLExprAdv_x64_ENU.exe	1.3 GB
ENU\x64\SQLExprRwt_x64_ENU.exe	669.9 MB
ENU\x64\SqlLocalDB.MSI	33.0 MB
ENU\x64\SQLManagementStudio_x64_ENU.exe	600.2 MB
ENU\x86\SQLExpr_x86_ENU.exe	116.7 MB
ENU\x86\SQLExpr32_x86_ENU.exe	101.5 MB
ENU\x86\SQLExprAdv_x86_ENU.exe	1.3 GB
ENU\x86\SQLExprRwt_x86_ENU.exe	706.1 MB
ENU\x86\SqlLocalDB.MSI	27.8 MB
ENU\x86\SQLManagementStudio_x86_ENU.exe	614.9 MB

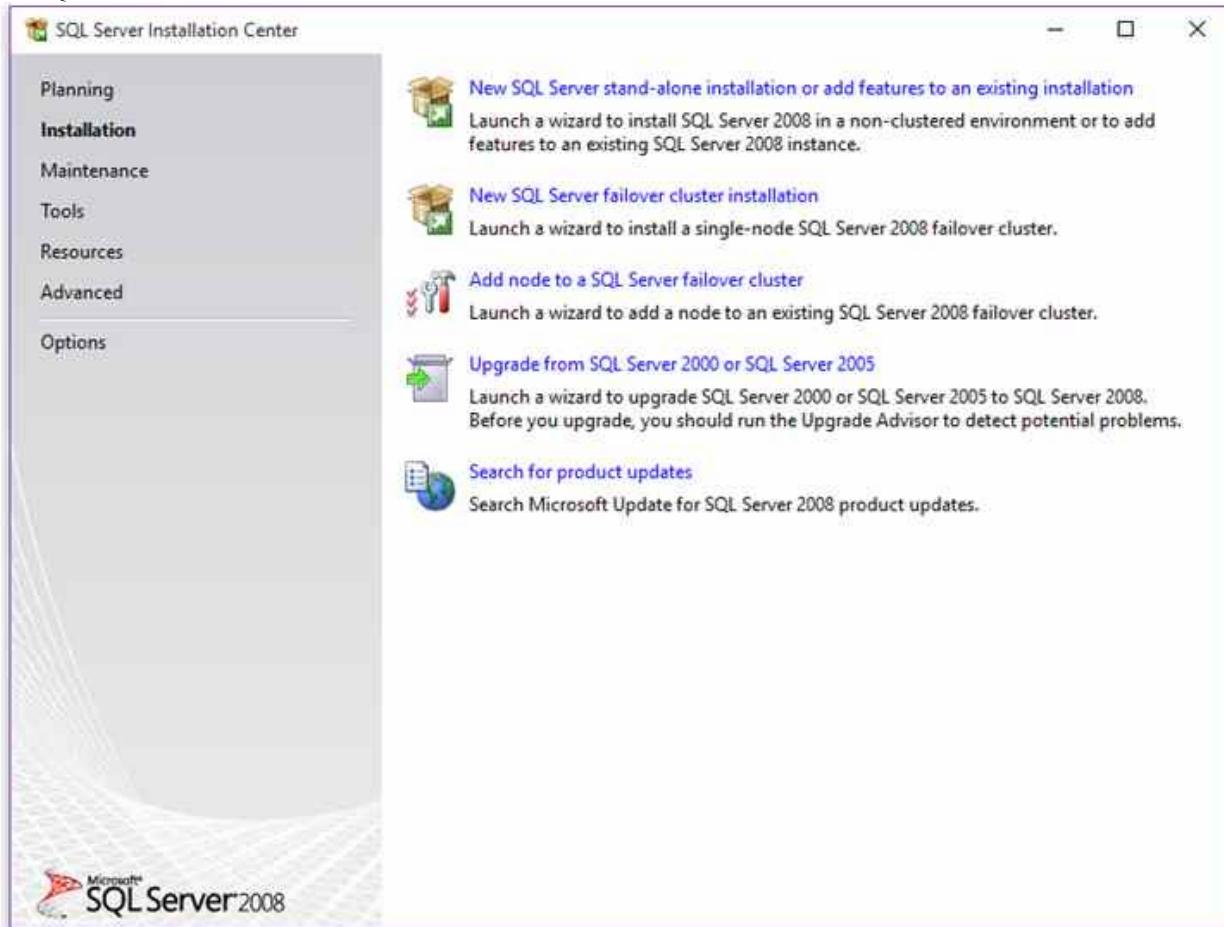


1: Open explorer and you'll see setup file as shown below.

Name	Date modified	Type	Size
x86	11/6/2015 11:32 PM	File folder	
autorun	7/3/2008 10:18 PM	Setup Information	1 KB
mediainfo	7/30/2008 9:34 PM	XML Document	1 KB
microsoft.vc80.crt.manifest	7/1/2008 12:36 AM	MANIFEST File	1 KB
msvcr80.dll	7/1/2008 12:49 AM	Application extens...	621 KB
readme	7/3/2008 9:32 PM	Firefox HTML Doc...	15 KB
setup	7/10/2008 2:49 AM	Application	105 KB
setup.rll	7/10/2008 2:38 AM	Application extens...	19 KB

Right click on the setup and run it as Administrator.

2: SQL Server Installation Center.



Go to installation section, here you'll find various options to install instance, add new features and upgrade your SQL Server. As we're doing a fresh installation, we'll select first option i.e. "**New SQL Server stand-alone installation**".

**3: Setup Support Rules**

SQL Server 2008 Setup

Setup Support Rules

Setup Support Rules identify problems that might occur when you install SQL Server Setup support files. Failures must be corrected before Setup can continue.

Setup Support Rules

Operation completed. Passed: 7. Failed 0. Warning 0. Skipped 0.

[Hide details <<](#) [Re-run](#)

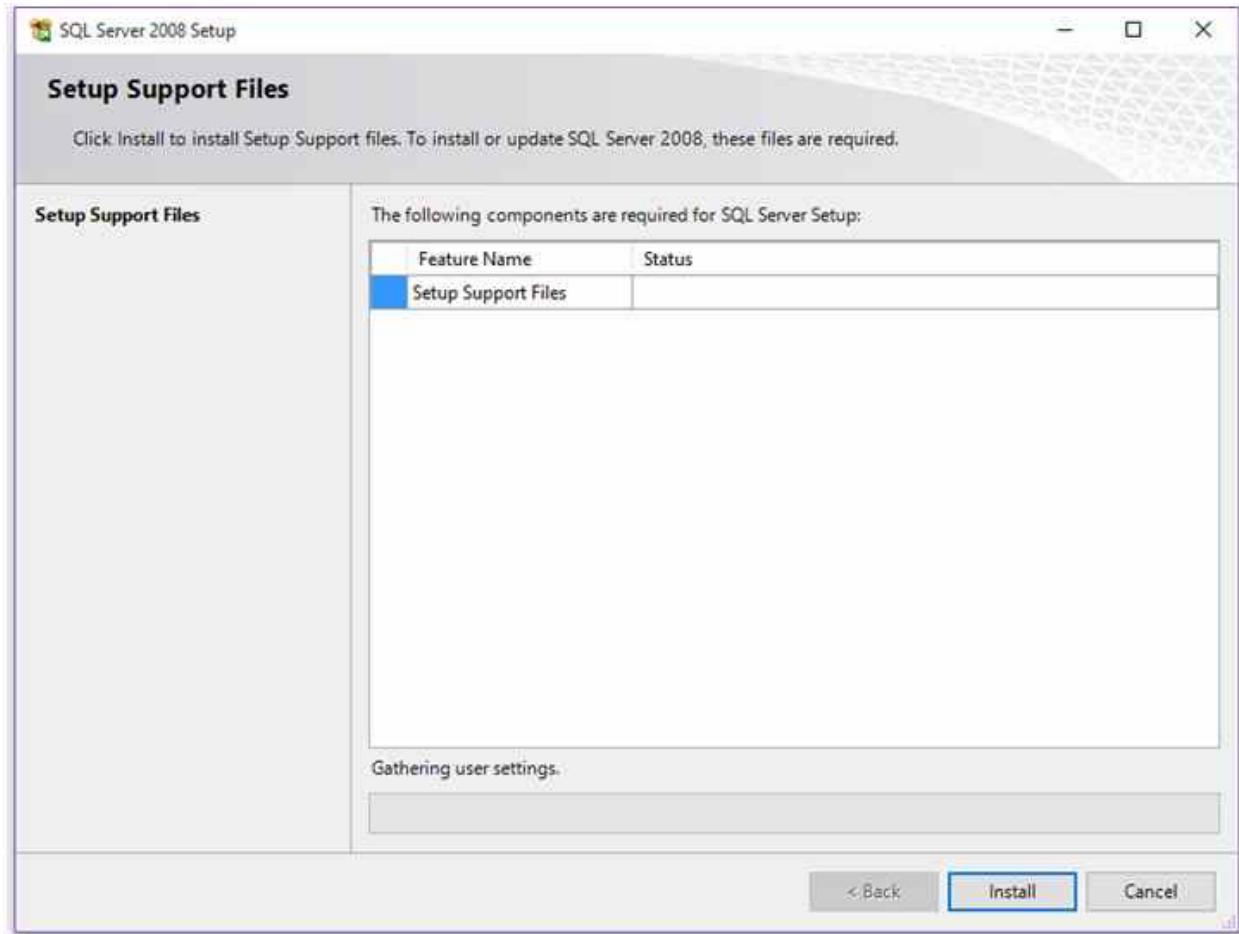
[View detailed report](#)

Rule	Status
Minimum operating system version	Passed
Setup administrator	Passed
Setup account privileges	Passed
Restart computer	Passed
Windows Management Instrumentation (WMI) service	Passed
Consistency validation for SQL Server registry keys	Passed
Long path names to files on SQL Server installation media	Passed

OK Cancel Help

Here setup will perform a check to ensure whether you can proceed with the installation or not. If check fails on any step listed in the rules, you won't be able to continue the installation.

Step 4: Setup Support Files.



At this step SQL Server Setup look for some components required during installation. After successful check you'll get Install button to proceed further. Click on Install Button.

Step 5: Setup Support Rules.



Setup Support Rules identify problems that might occur when you install SQL Server Setup support files. Failures must be corrected before Setup can continue.

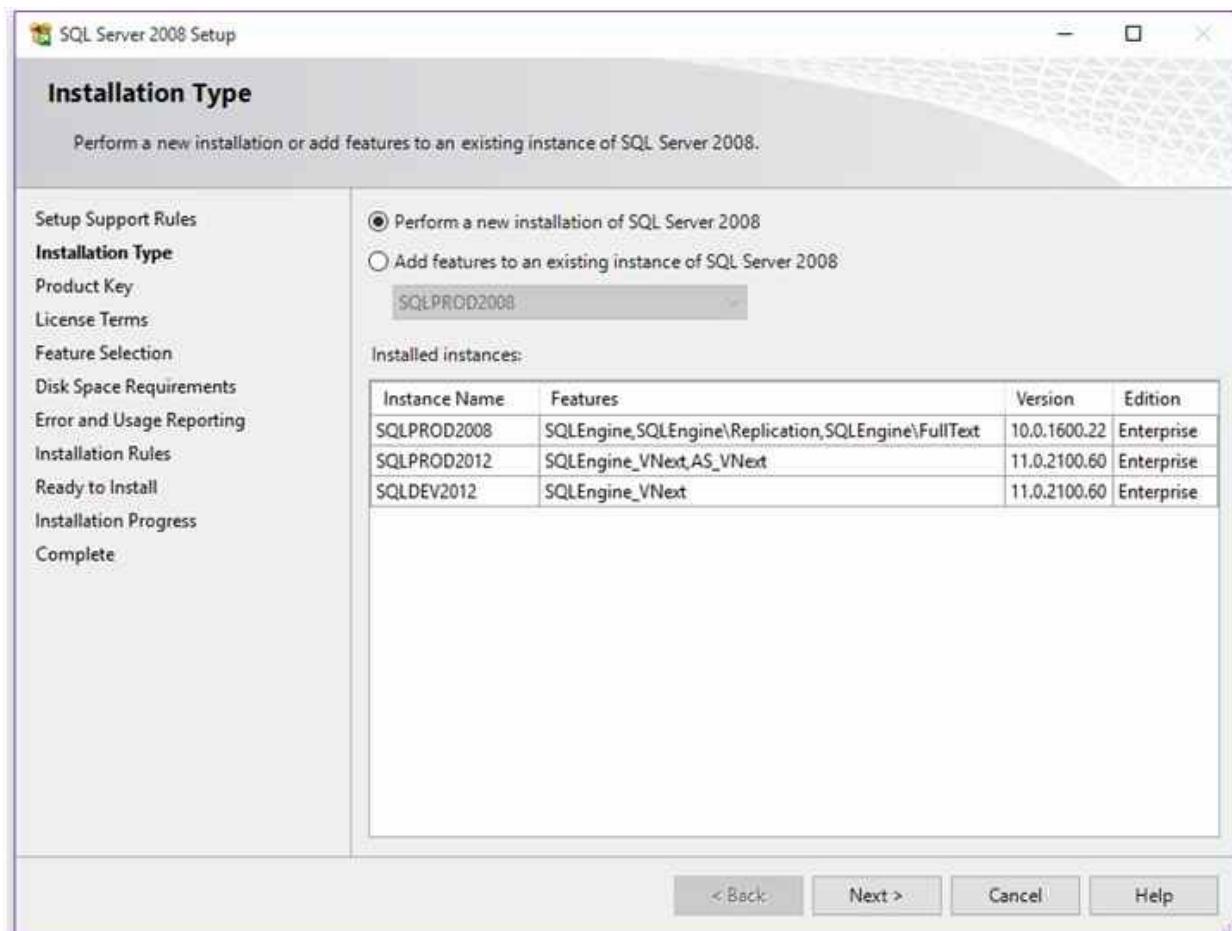
Operation completed. Passed: 10. Failed 0. Warning 1. Skipped 0.

Rule	Status
Fusion Active Template Library (ATL)	Passed
Unsupported SQL Server products	Passed
Performance counter registry hive consistency	Passed
Previous releases of SQL Server 2008 Business Intelligence Devel...	Passed
Previous CTP installation	Passed
Consistency validation for SQL Server registry keys	Passed
Computer domain controller	Passed
Microsoft .NET Application Security	Passed
Edition WOW64 platform	Passed
Windows PowerShell	Passed
Windows Firewall	Warning

< Back Next > Cancel Help

Again SQL Server runs a checkup after install to ensure whether your machine is OK or not for the installation. If you get passed in all rules, you're good to go. Click Next.

Step 6: Installation Type



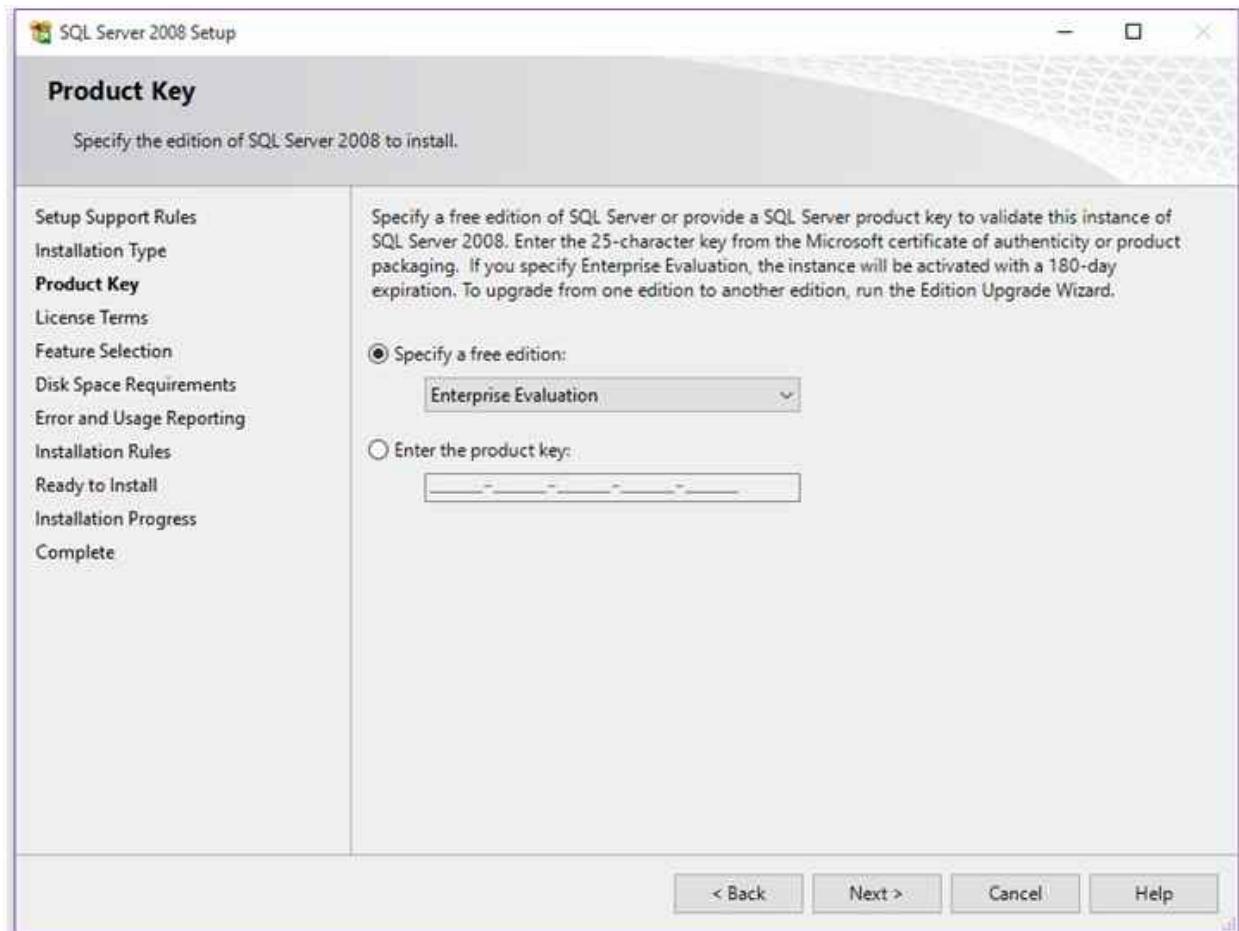
You find this step only if you previously installed any instances of SQL Server on your machine. At this step, you'll find 2 options i.e.

- Perform a new Installation
- Add features to an existing instance.

As we want a new installation of default instance, we'll select first option. If you want to add any additional features to your installed instance, you can go with option 2.

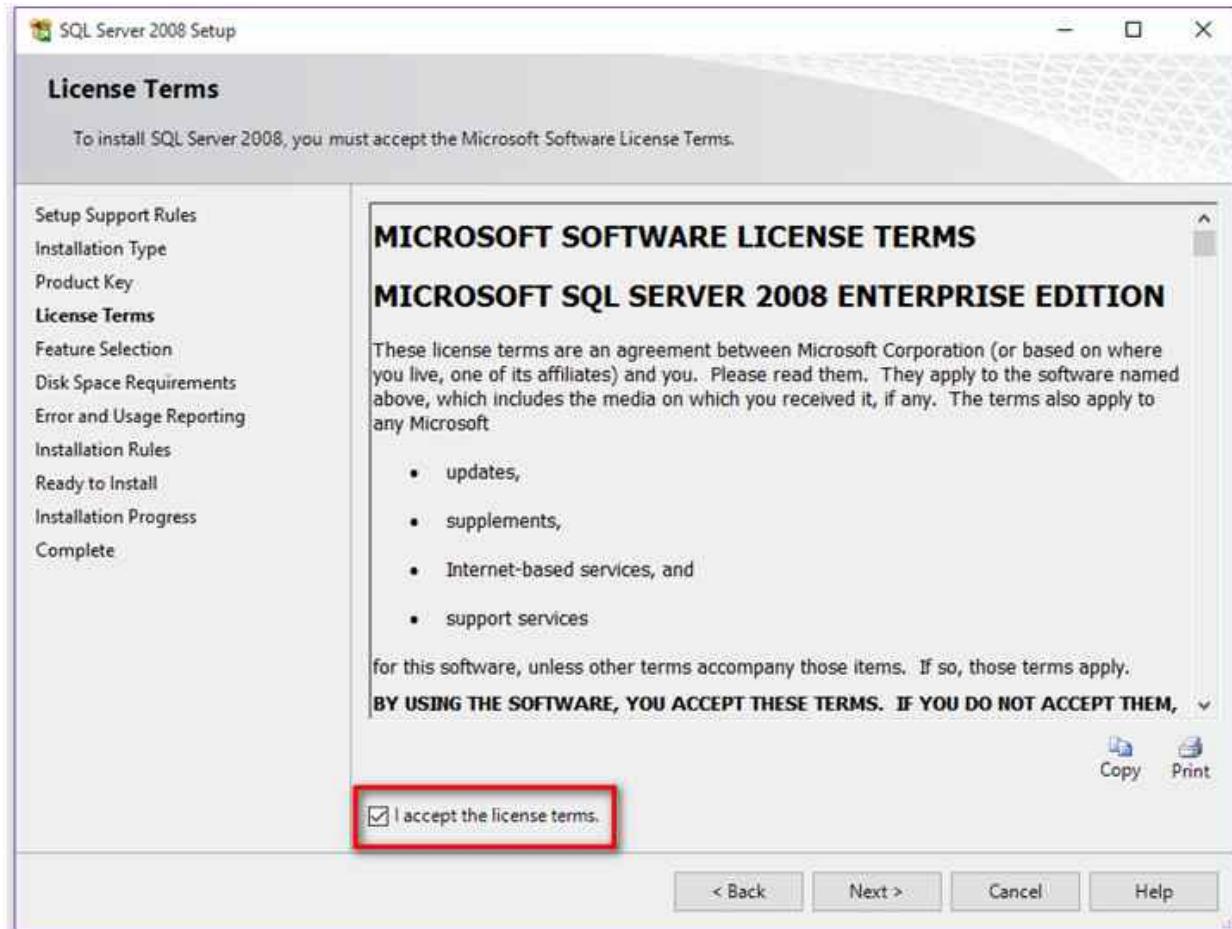
Select option 1 and click Next.

Step 7: Editions and Product Key



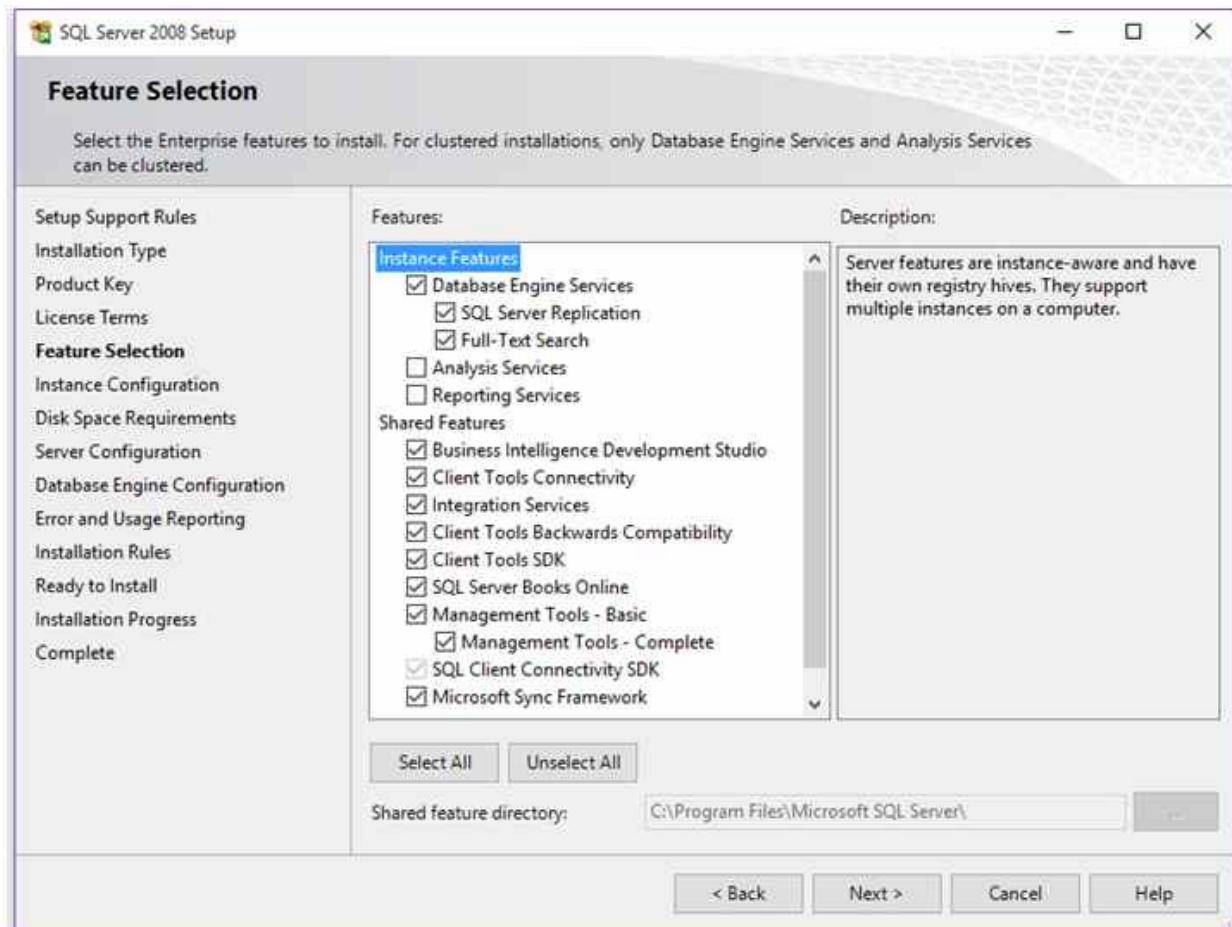
Here it'll ask you the type of SQL Server edition you want to install on your machine or on server. If you want express edition, no need to specify Product Key. Other editions like Enterprise, Standard, etc. requires Product Key. Click Next

Step 8: License Term.



Click on “I accept the license terms” and click Next.

Step 9: Feature Selection.



This is the important step during installation because at this step only you'll select the features you want to install. As we don't want Analysis and Reporting services now, we'll not add these 2 components during installation process.

Select “**Database Engine Services**” and shared features.

Below you'll find the path where these shared features will get installed.

If you're installing this on 64-bit machine, you'll find 2 path boxes for shared features as shown below.

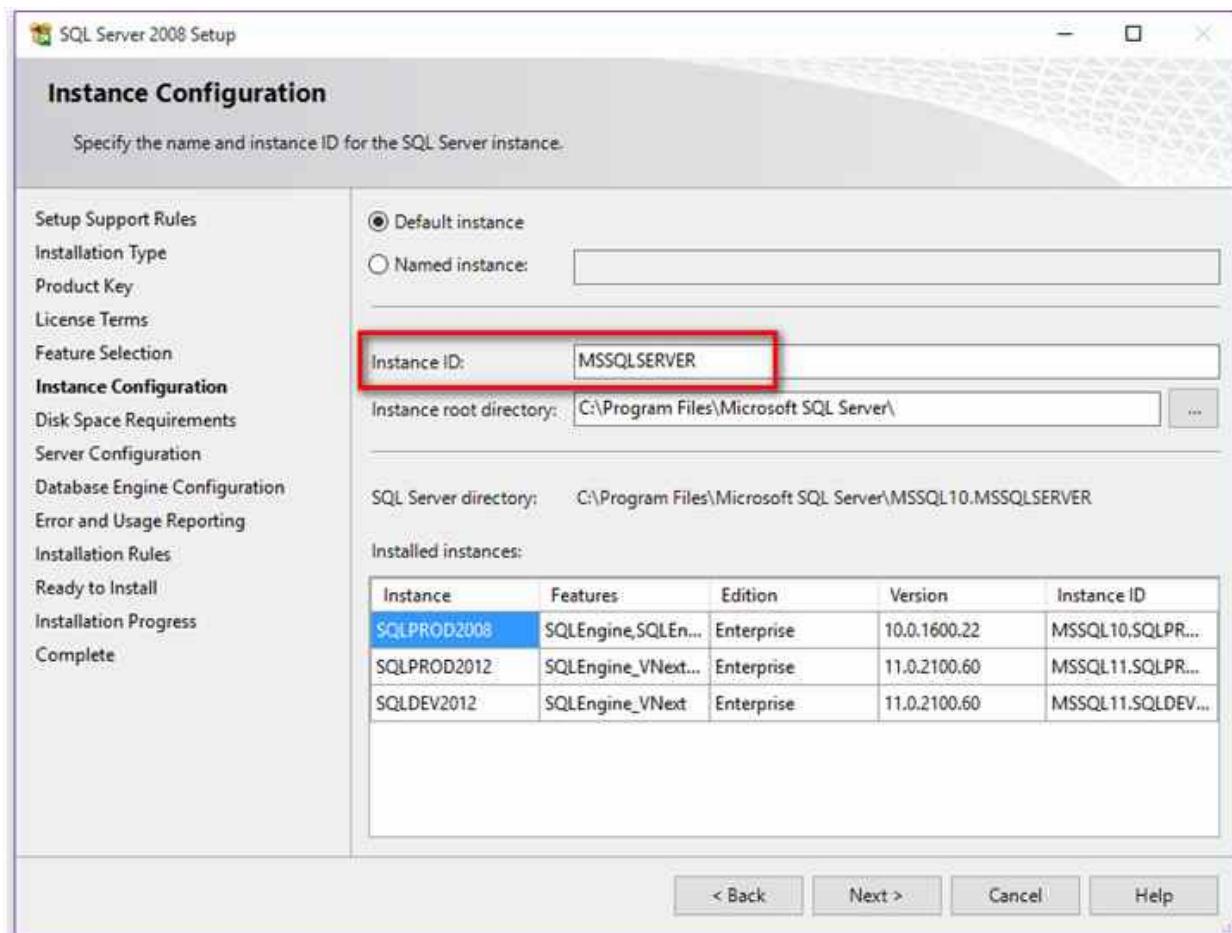
Shared feature directory: To store 64-bit components.

Shared Feature directory (x86): To store 32-bit components.

I'm using 32-bit machine hence I'm only getting 1 path box as shown in above image.

Click Next.

Step 10: Instance Configuration



This is the step where you can specify what types of instance you want to install.

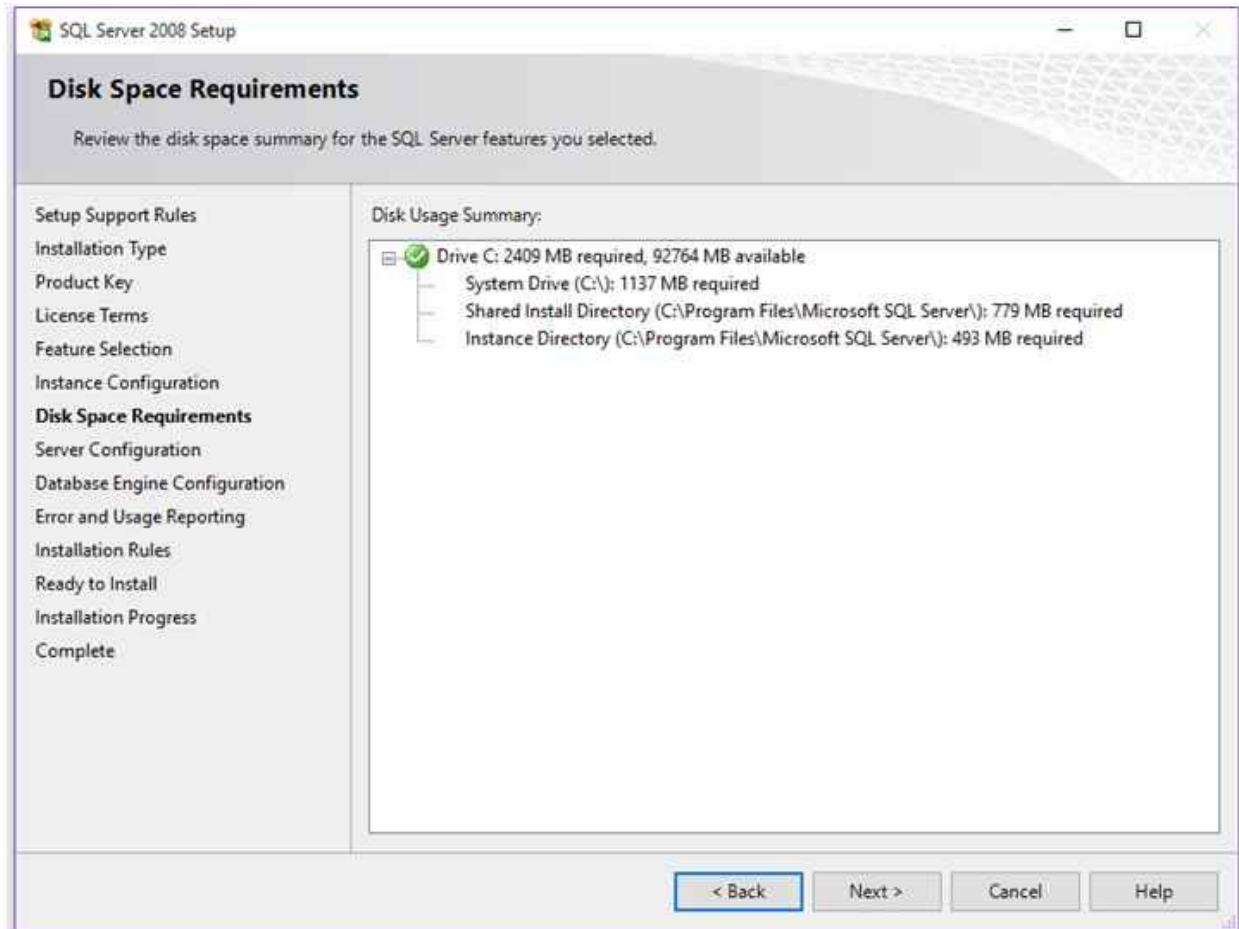
To install default instance of SQL Server, select “**Default Instance**” otherwise select “**Named Instance**” type the instance name and specify the instance root directory.

As we’re installing Default instance, we’ll go with first option and select Default instance.

You can only install 1 default instance on a single machine. If default instance is already installed, you cannot select the “**Default Instance**” option.

Click Next.

Step 11: Disk Space Requirement.



At this step, it'll show you the required and available space on the drive you're installing the instance.

Click Next.

Step 12: Server Configuration.



The screenshot shows the 'Server Configuration' step of the SQL Server 2008 Setup wizard. On the left, a sidebar lists various setup steps. The main area is titled 'Service Accounts' under 'Collation'. It contains a note about using separate accounts for each service. Two tables show service configurations:

Service	Account Name	Password	Startup Type
SQL Server Agent	NT AUTHORITY\SYSTEM		Automatic
SQL Server Database Engine	NT AUTHORITY\SYSTEM		Automatic
SQL Server Integration Services 1...	NT AUTHORITY\Netwo...		Automatic

A button labeled 'Use the same account for all SQL Server services' is present. Below the tables, a note explains that services will be configured automatically to use low privilege accounts, with a link to 'Help'.

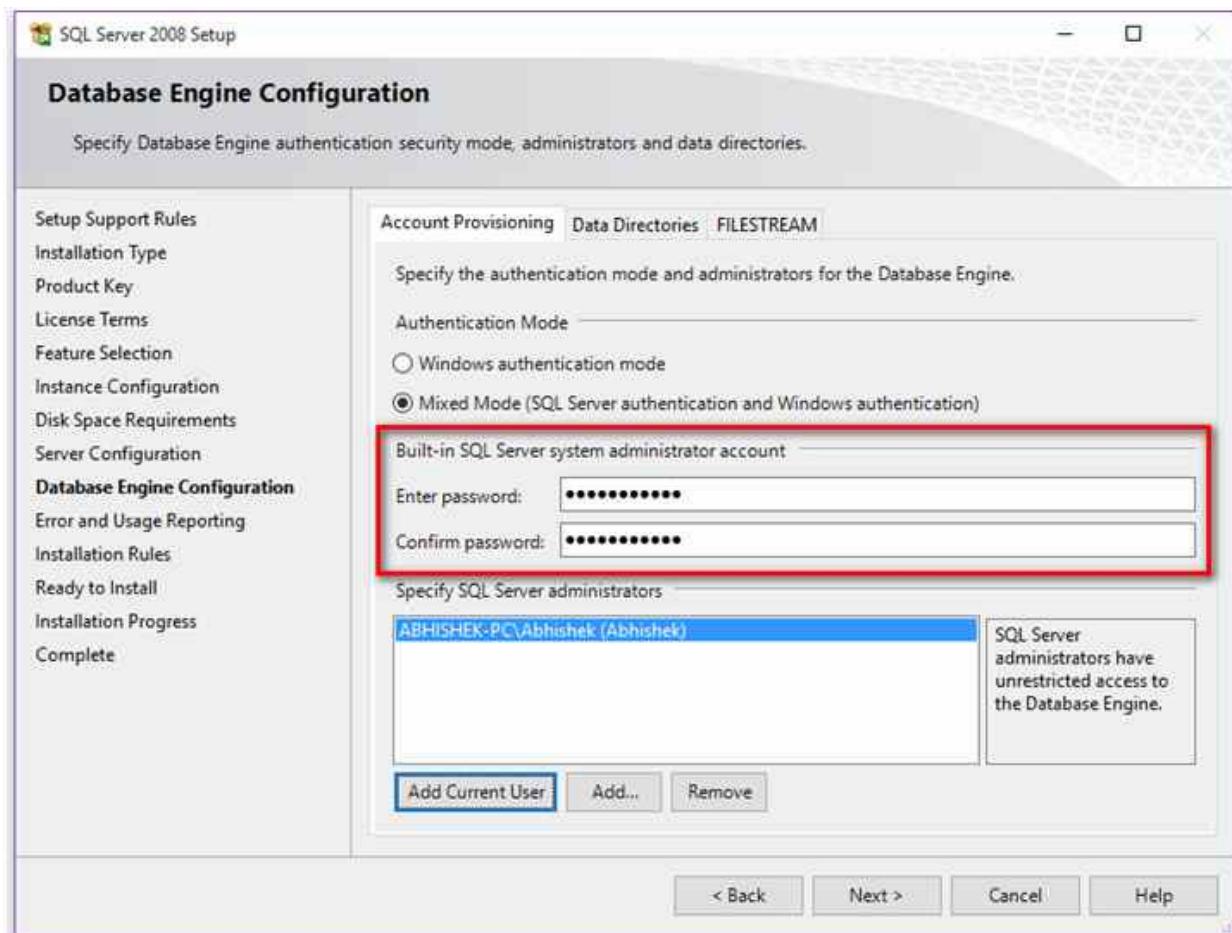
Service	Account Name	Password	Startup Type
SQL Full-text Filter Daemon Laun...	NT AUTHORITY\LOCA...		Manual
SQL Server Browser	NT AUTHORITY\LOCA...		Automatic

At the bottom are buttons for '< Back', 'Next >', 'Cancel', and 'Help'.

This step will determine how your SQL Services will run on your machine. Select the account name from which you want to run your services and select the startup type of the service.

Click Next.

Step 13: Database Engine Configuration



This is the 2nd most important step in installation process because here you'll configure your database engine.

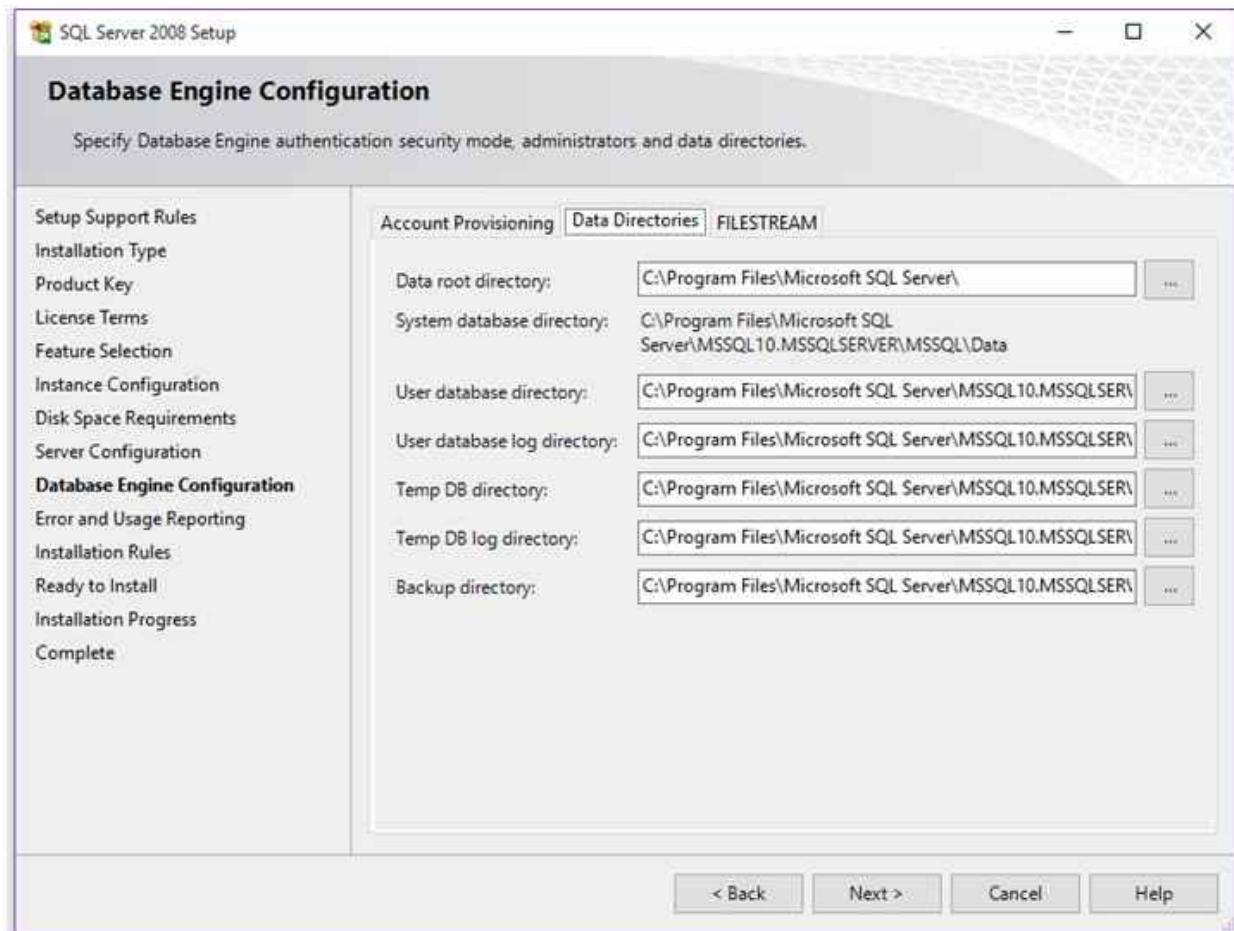
Here you'll find 3 tabs named

Account Provisioning (Shown in above image):

Here you'll select your Authentication Mode and also you'll setup your System Administration (SA) account.

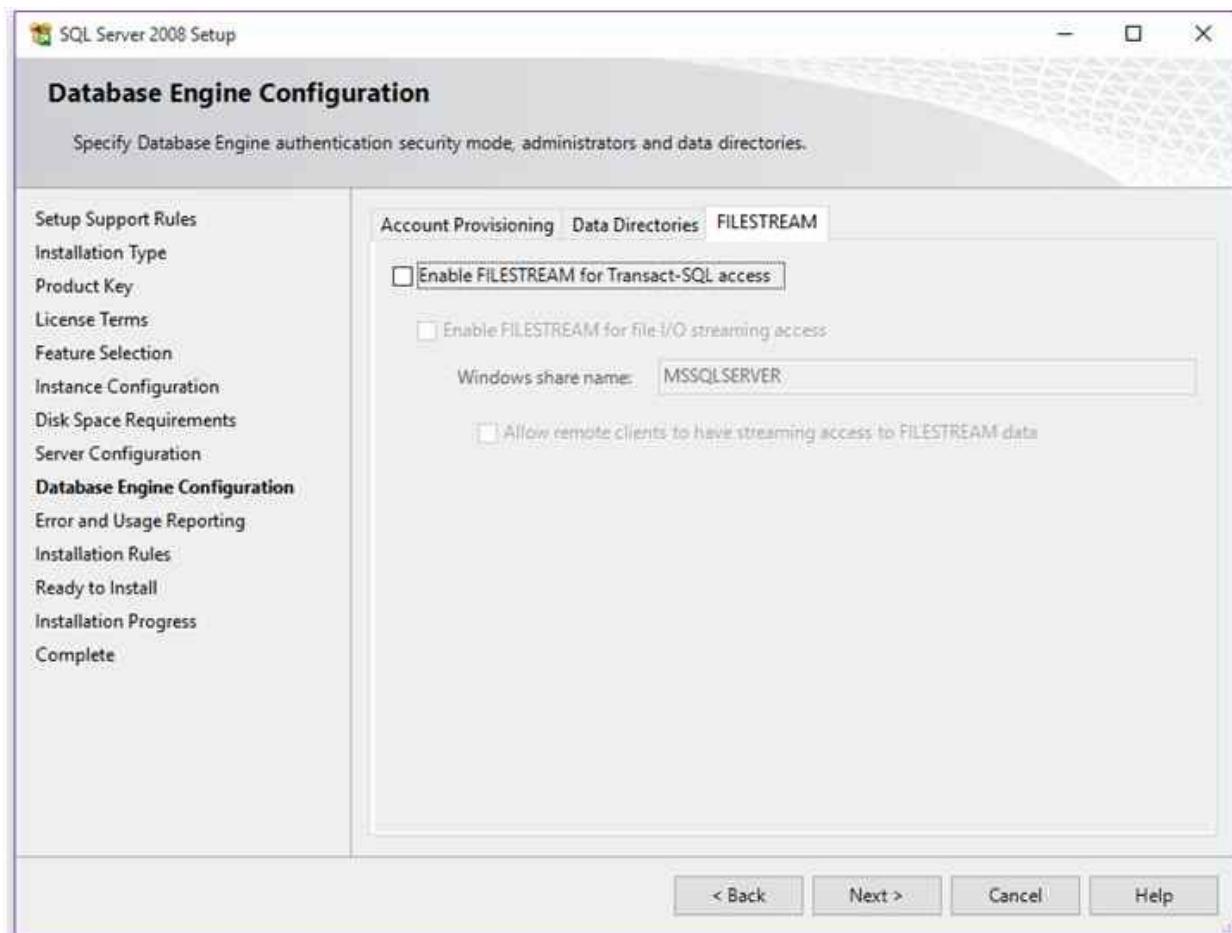
Select Authentication Mode as Mixed Mode and enter SA password. Add users as Sysadmin of the instance by using “**Add**” button. Add current user as SA admin by clicking “**Add Current User**”.

Data Directories:



On this tab, you'll get location of system databases, user databases, log file location, TEMP DB database location and also backup location. You can change these settings as per your choice.

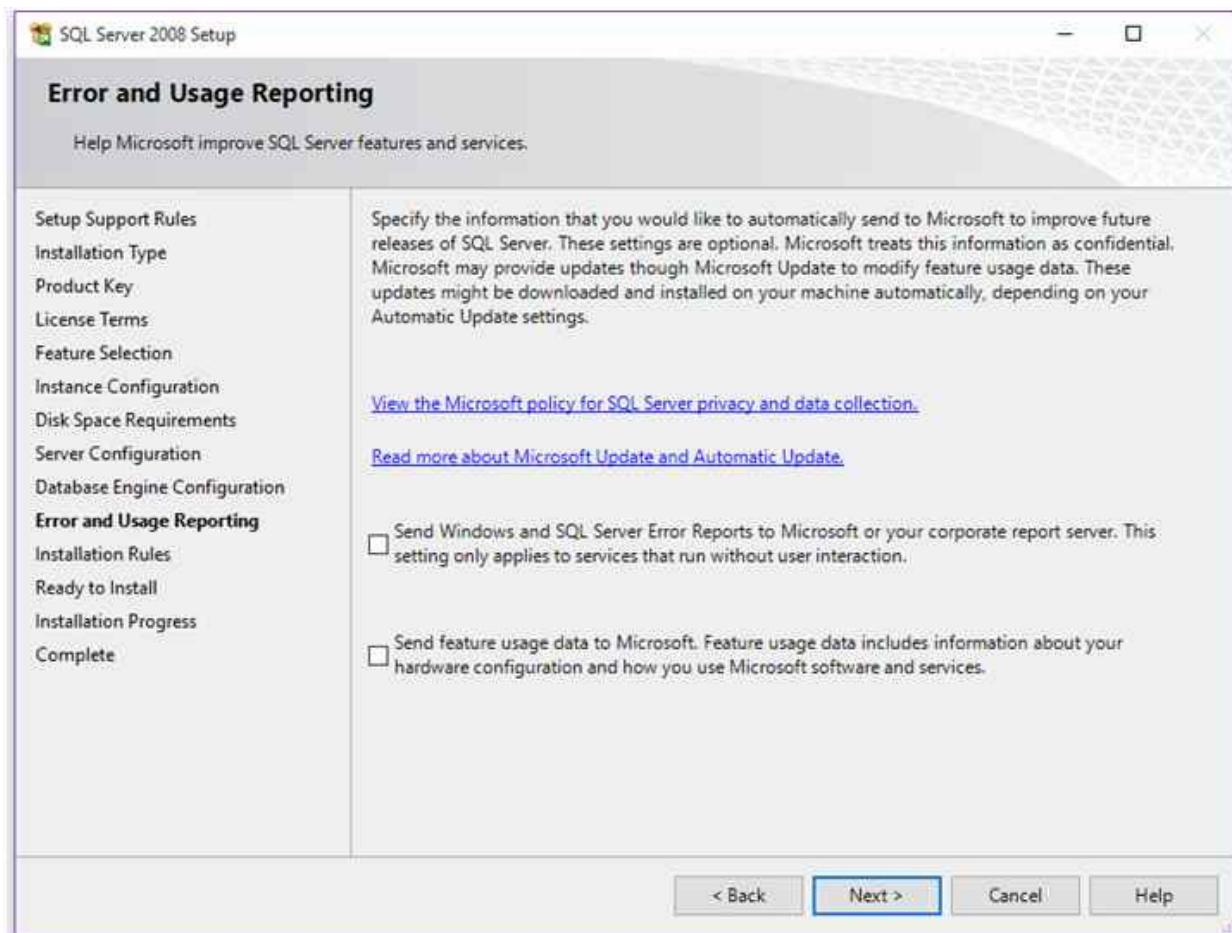
File Stream



This tab will allow you to enable FileStream feature.

Click Next.

Step 14: Error and Usage Reporting



Click Next.

Step 15: Installation Rules



SQL Server 2008 Setup

Installation Rules

Setup is running rules to determine if the installation process will be blocked. For more information, click Help.

Setup Support Rules	Operation completed. Passed: 10. Failed 0. Warning 0. Skipped 2.
Installation Type	
Product Key	
License Terms	
Feature Selection	
Instance Configuration	
Disk Space Requirements	
Server Configuration	
Database Engine Configuration	
Error and Usage Reporting	
Installation Rules	
Ready to Install	
Installation Progress	
Complete	

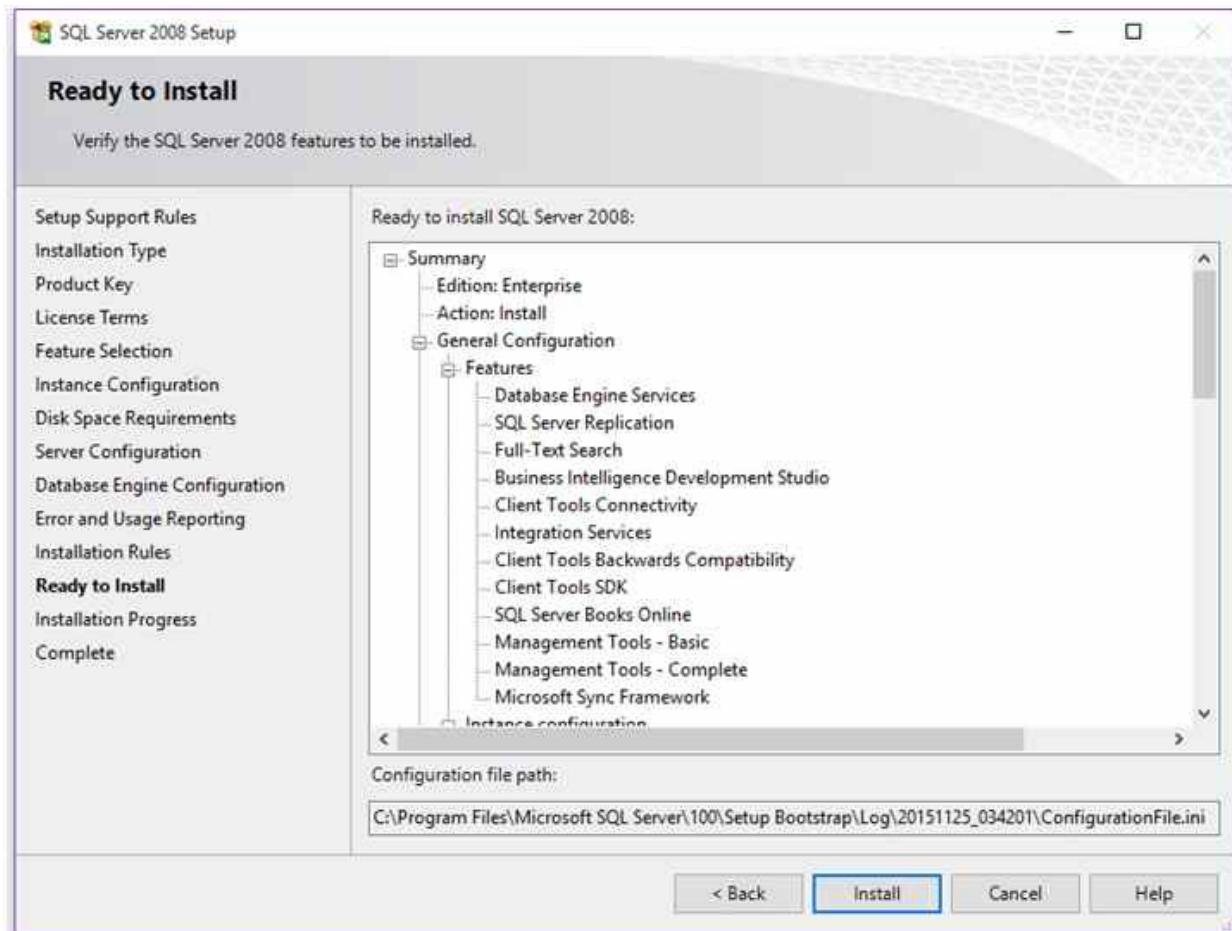
[Hide details <<](#) [View detailed report](#) [Re-run](#)

Rule	Status
Same architecture installation	Passed
Cross language installation	Passed
Existing clustered or cluster-prepared instance	Passed
Reporting Services Catalog Database File Existence	Not applicable
Reporting Services Catalog Temporary Database File Existence	Not applicable
SQL Server 2005 Express tools	Passed
Operating system supported for edition	Passed
FAT32 File System	Passed
SQL Server 2000 Analysis Services (64-bit) install action	Passed
Instance name	Passed
Previous releases of Microsoft Visual Studio 2008	Passed

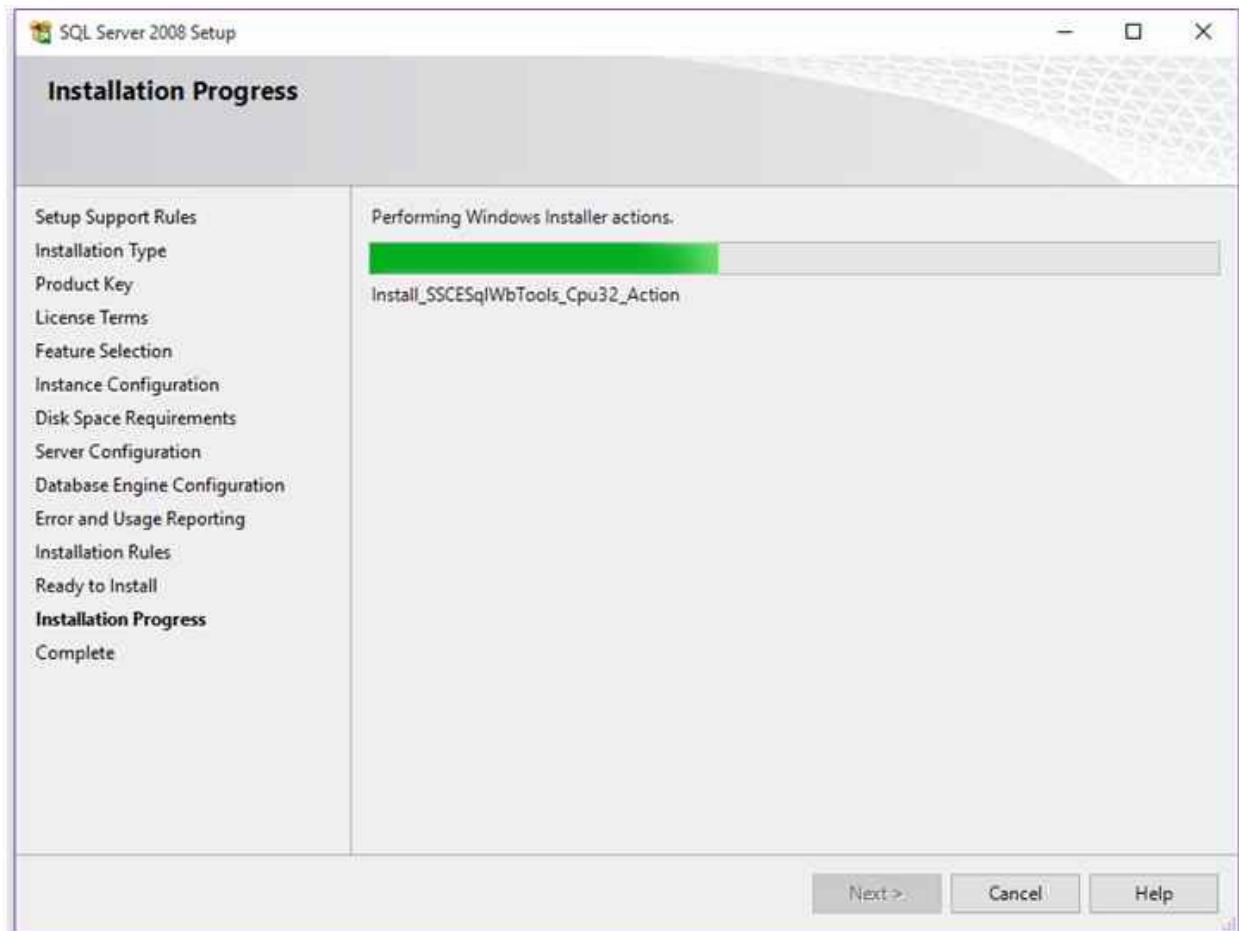
< Back Next > Cancel Help

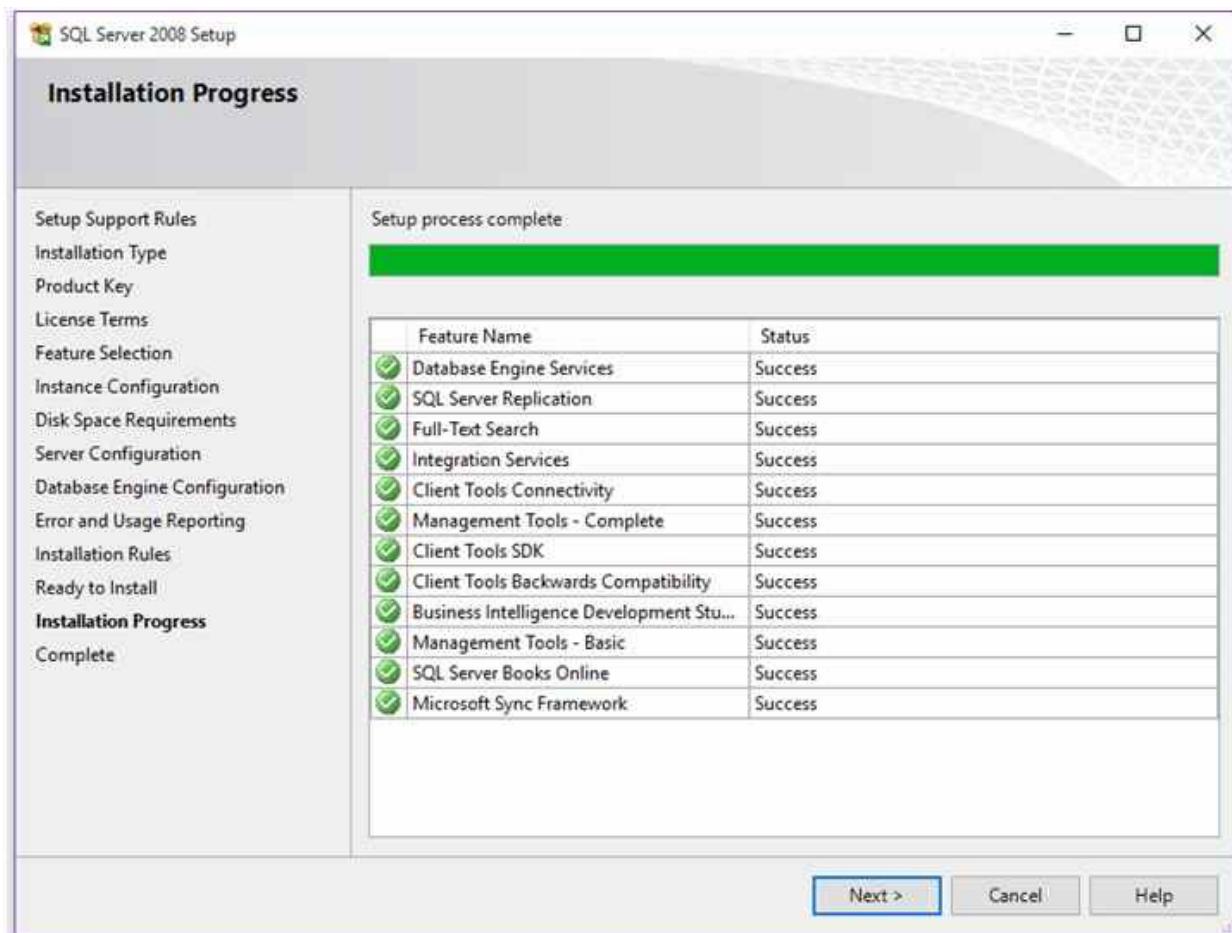
Setup will perform a check to ensure everything Ok to proceed further with installation. If all rule passes, click Next.

Step 16: Ready to Install



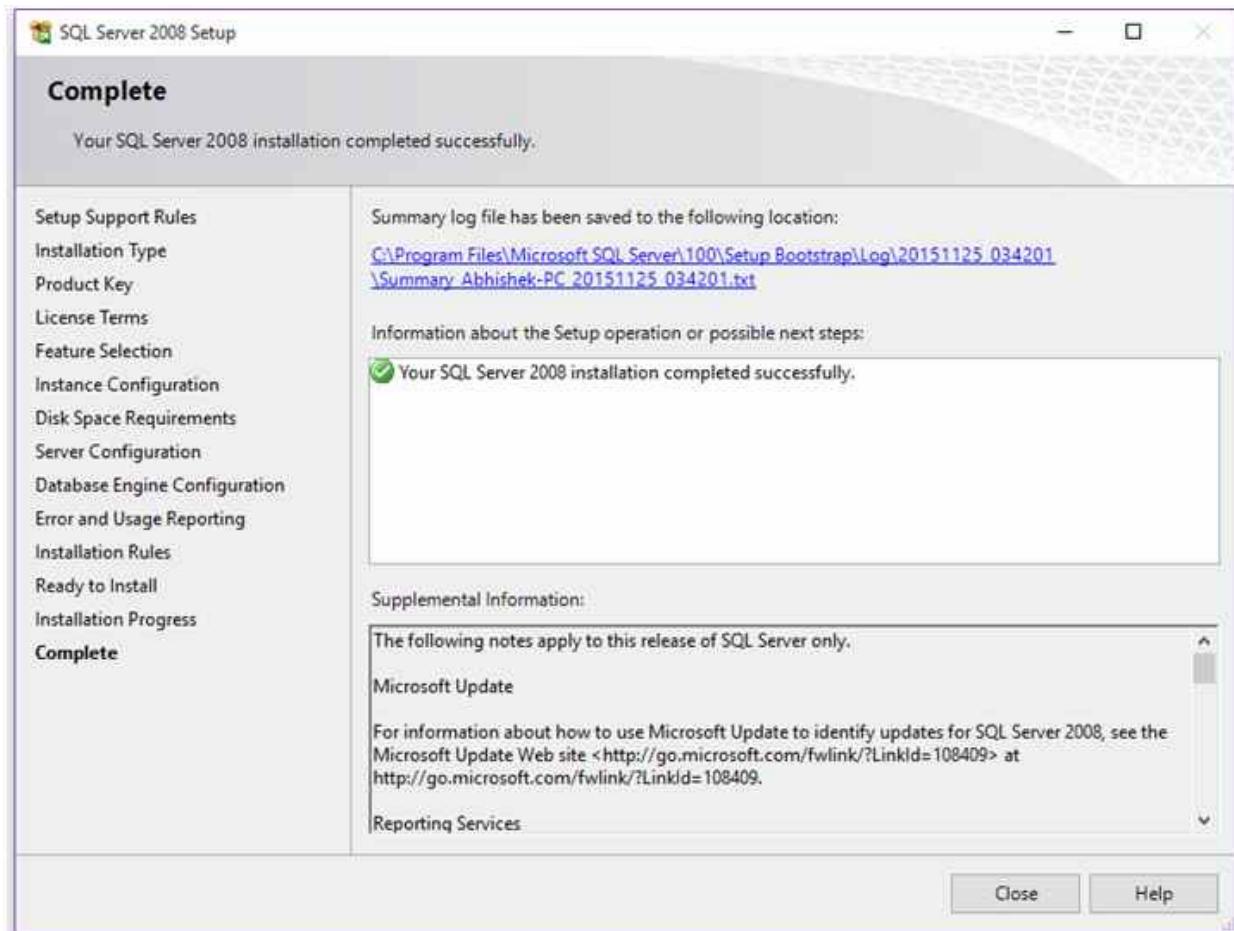
On this page, you'll get the summary of the configuration options you've chosen. Click on Install button to start the installation process and track the progress as shown below.





When setup finishes, you'll get "Success" in status column of each installed components.

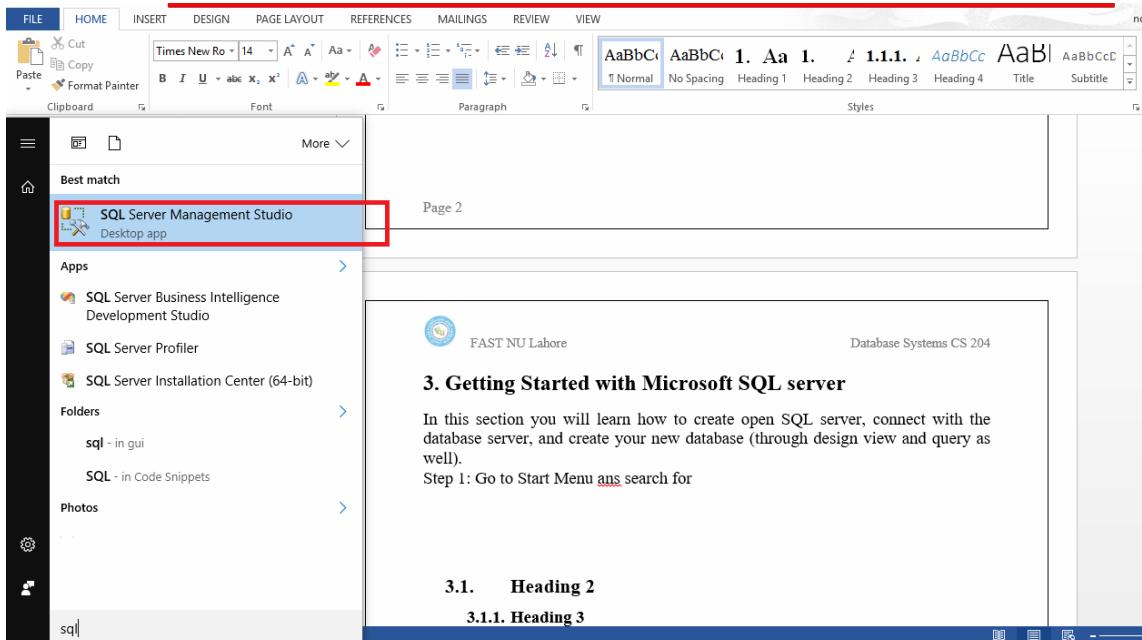
Step 17: Installation completed



Your installation is completed and you'll get a link of a log file of the installation to check if there are any problems. Click close to complete the installation process.

Step 2: Open SQL server management Studio

Go to Start Menu and search for SQL Server Management Studio, open it



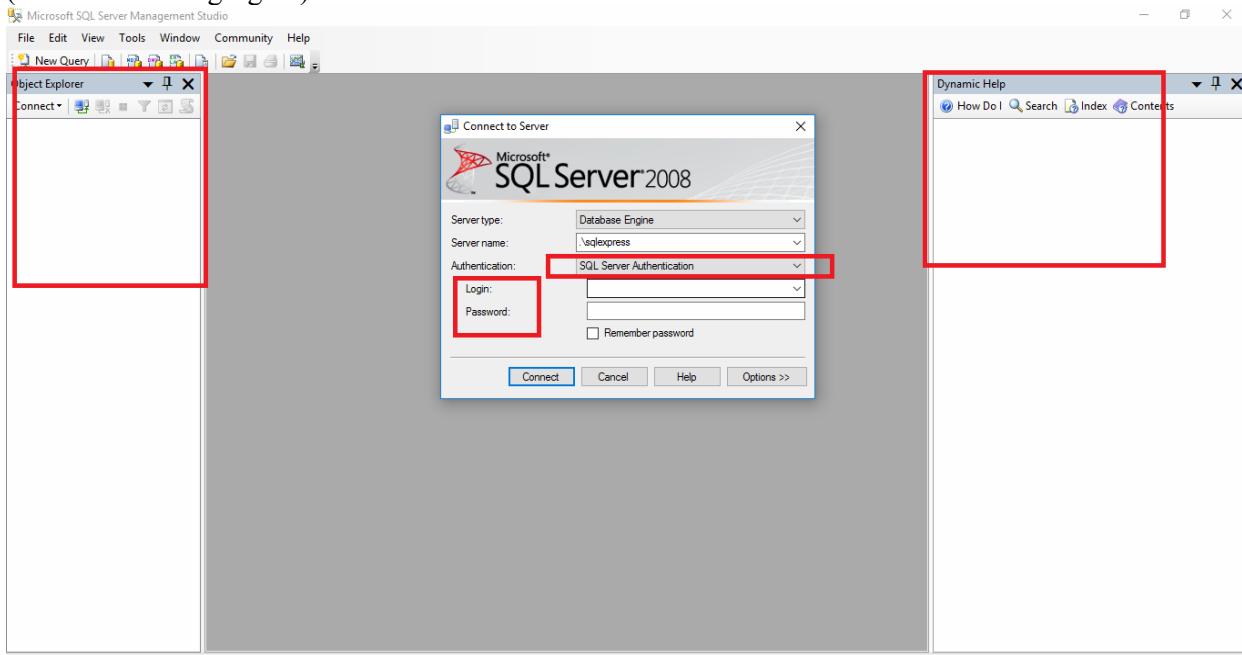
Step 3: Connect to Server

On the left side you have Object Explorer which you will use to explore all your databases and any object you create such as tables, on right there is Dynamic Help.

In the middle you can see Connect to server dialogue box.

Select SQL Server Authentication from Authentication Drop down

Ask for login and password from your lab instructor and press Connect (refer to following figure)

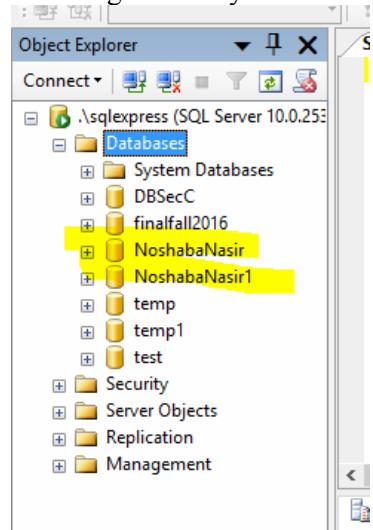


>>After this your SQL server is connected (as shown in following figure)

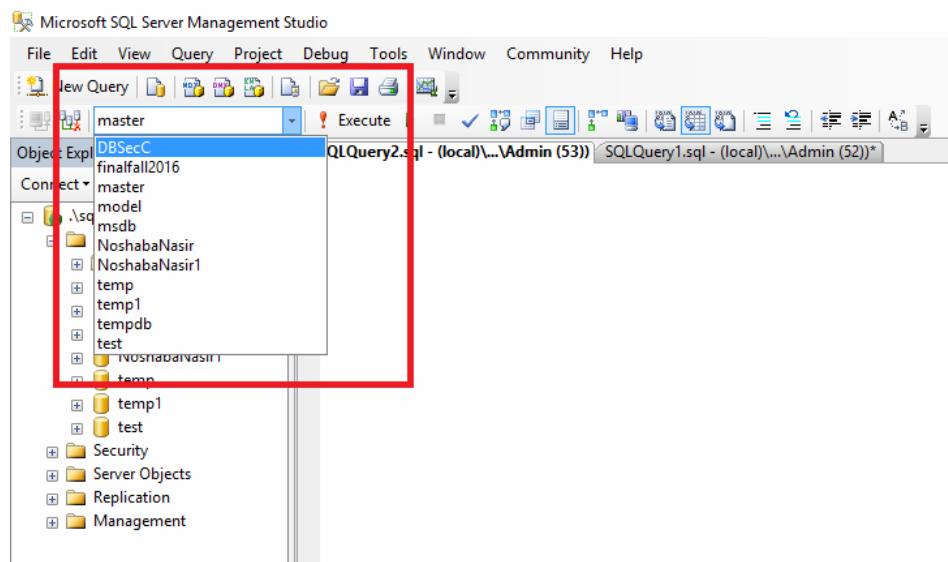


Step 5: View and use your database

If you expand the Database from object explorer, you can see all of the databases that exist of the server, including the newly created ones (as shown in following figure).



To use your database, make sure to select your database from drop down menu (as shown in following figure).



Or you can use the following query to use your database.

Use <databaseName>

Data Types

Exact Numerics

bigint	numeric
bit	smallint
decimal	smallmoney
int	tinyint
money	



Approximate Numerics

float	real
-----------------------	----------------------

Date and Time

date	datetimeoffset
datetime2	smalldatetime
datetime	time

Character Strings

char	varchar
text	

Unicode Character Strings

nchar	nvarchar
ntext	

Binary Strings

binary	varbinary
image	