Microsoft SQL Server Installation Guide

For SQL Server 2019 Developer

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Continental Digital Academy

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Introduction

These instructions are used by students enrolled in Continental Digital Academy courses.

The document begins with discussion SQL Server editions and how they are utilized in our courses, downloading SQL Server from Microsoft and installing SQL Server itself. We continually update this document; please let us know of problems you encounter, or questions not answered.

The examples in the main document are for the Microsoft Windows family, including Windows Server 2016 & Windows 10.

These setup instructions are for SQL Server 2019 Developer Edition, however, can be used in installing other versions from 2012 and 2016 families.

SQL Server Overview

You or may not have various opinions about SQL Server and other database systems, but you can be confident that SQL Server has many of the advanced features available in relational database management systems, and that SQL Server is widely used worldwide. SQL Server supports many of the ANSI/ISO SQL standards, so when you learn SQL Server, you are mainly close to the portable standards. SQL Server, developed by Microsoft, runs on Windows platforms, and on Linux as well. SQL Server is scalable and supports both clustering and cloud computing through Azure to surpass the performance and reliability of any single platform. SQL Server is an in-demand, capable database system.

SQL Server Editions

SQL Server is released in several editions. To simplify your selection, we will focus on the Developer and the Express editions. The express edition will work just fine, however for the course we recommend that you use the Developer Edition. The Developer Edition has the same full feature set as the Enterprise Edition with the exception of the license. Production environments cannot be implemented using the Developer Edition. Please refer to the SQL Server Web site for comparison of editions. https://www.microsoft.com/en-us/cloud-platform/sql-server-editions.

The Developer Edition is especially useful for those students who plan to investigate advanced SQL Server. Our installation instructions explain which features you may find useful.

The Express Edition can be used. The Express Edition is a free version of SQL Server which is a

smaller version that places limits on the size of the database, computing capacity and feature set.

For additional details on the features supported by both the Developer (Enterprise), Express as well as other editions please refer to the Features Supported by the Editions of SQL Server which can be found here: https://download.microsoft.com/download/2/9/0/290f991b-5971-42e5-bb2c- 81f700622b2e/SQL%20Server%202019%20Editions%20Datasheet.pdf

SQL Server Express Edition

This guide covers the installation of the Developer edition of SQL Server which is suitable for all classes. For installing the Express edition follow the instructions in the *SQL Server Express Installation Guide* instead of the instructions in this document.

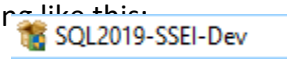
Downloading SQL Server Installer

Microsoft SQL Server Download site

You will find the Developer addition download from the Microsoft SQL server download site.

https://www.microsoft.com/en-us/sql-server/sql-server-downloads

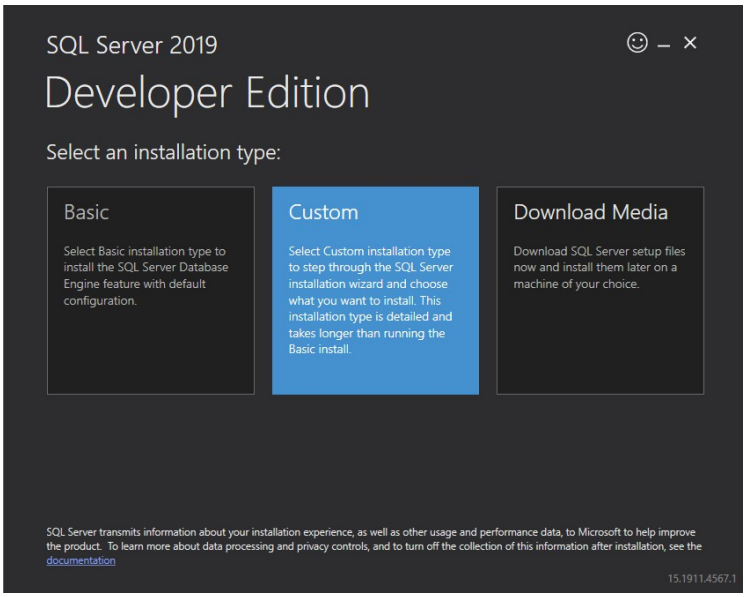
Once the download is complete, go to the destination folder (i.e. *downloads* folder on your computer). The installation file will look something like this:



Click on the install file to begin the install process.

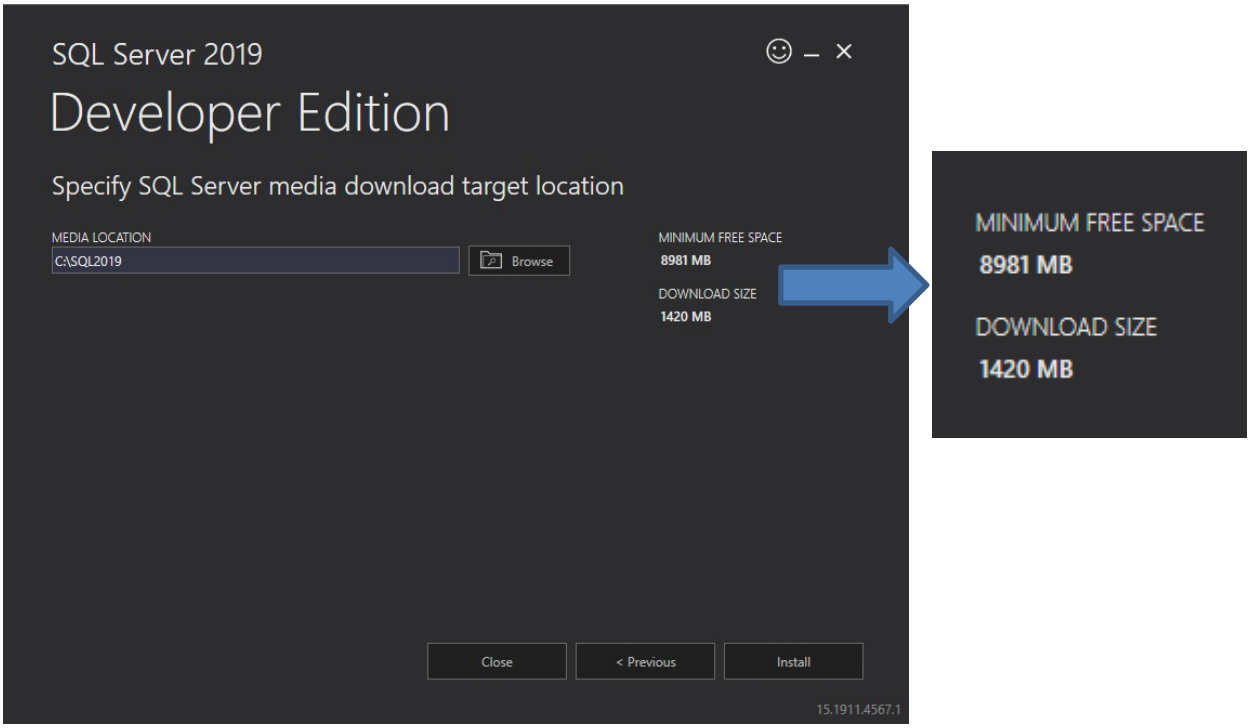
Installing SQL Server Developer Edition

1. Once the installation starts, you will be presented with installation type. We will focus on the

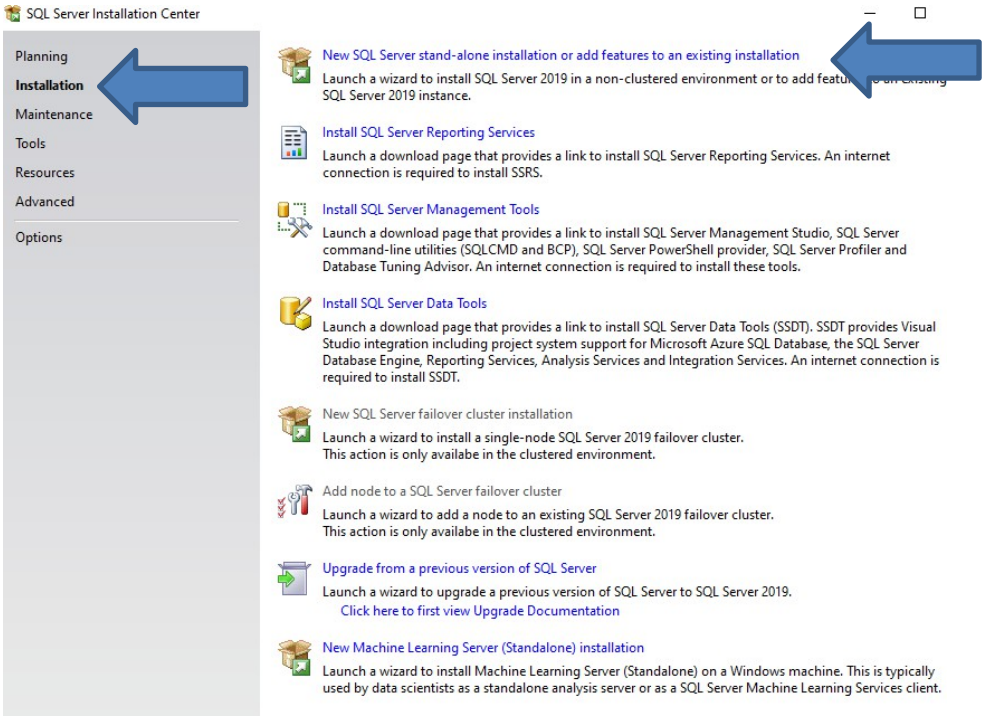


Custom install and explain various features of the installation.

2. Choose the **Media Location** path. Note the minimum free space and download size and press **Install**.

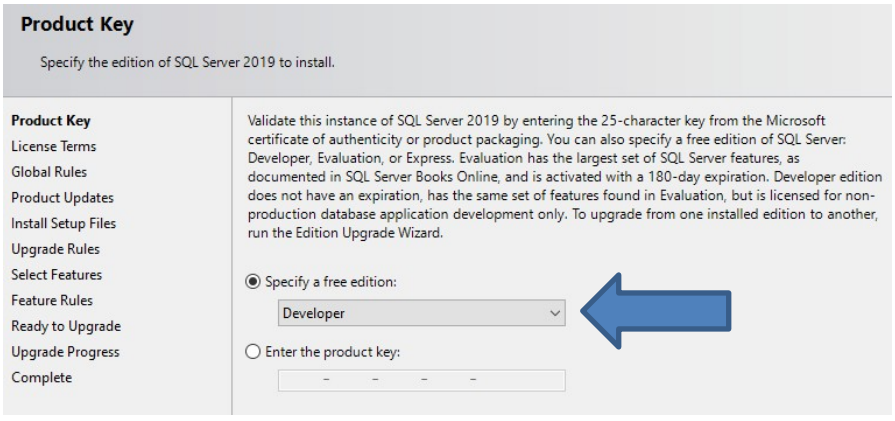

SQL Server 2019
Developer Edition
Specify SQL Server media download target location
MEDIA LOCATION
C:\SQL2019
Browse
MINIMUM FREE SPACE
8981 MB
DOWNLOAD SIZE
1420 MB
Close
< Previous
Install
15.1911.4567.1
MINIMUM FREE SPACE
8981 MB
DOWNLOAD SIZE
1420 MB

3. Once the SQL Server Installation Center launches choose **Installation** tab (second from the right).
4. In most cases you will want to run a **New SQL Server New SQL Server stand-alone installation**, but other options are available, for example if you have a previous



version of SQL Server installed, you have an option to update.

5. On the Product Key page make sure that the selected Edition is "**Developer**" click *Next*.

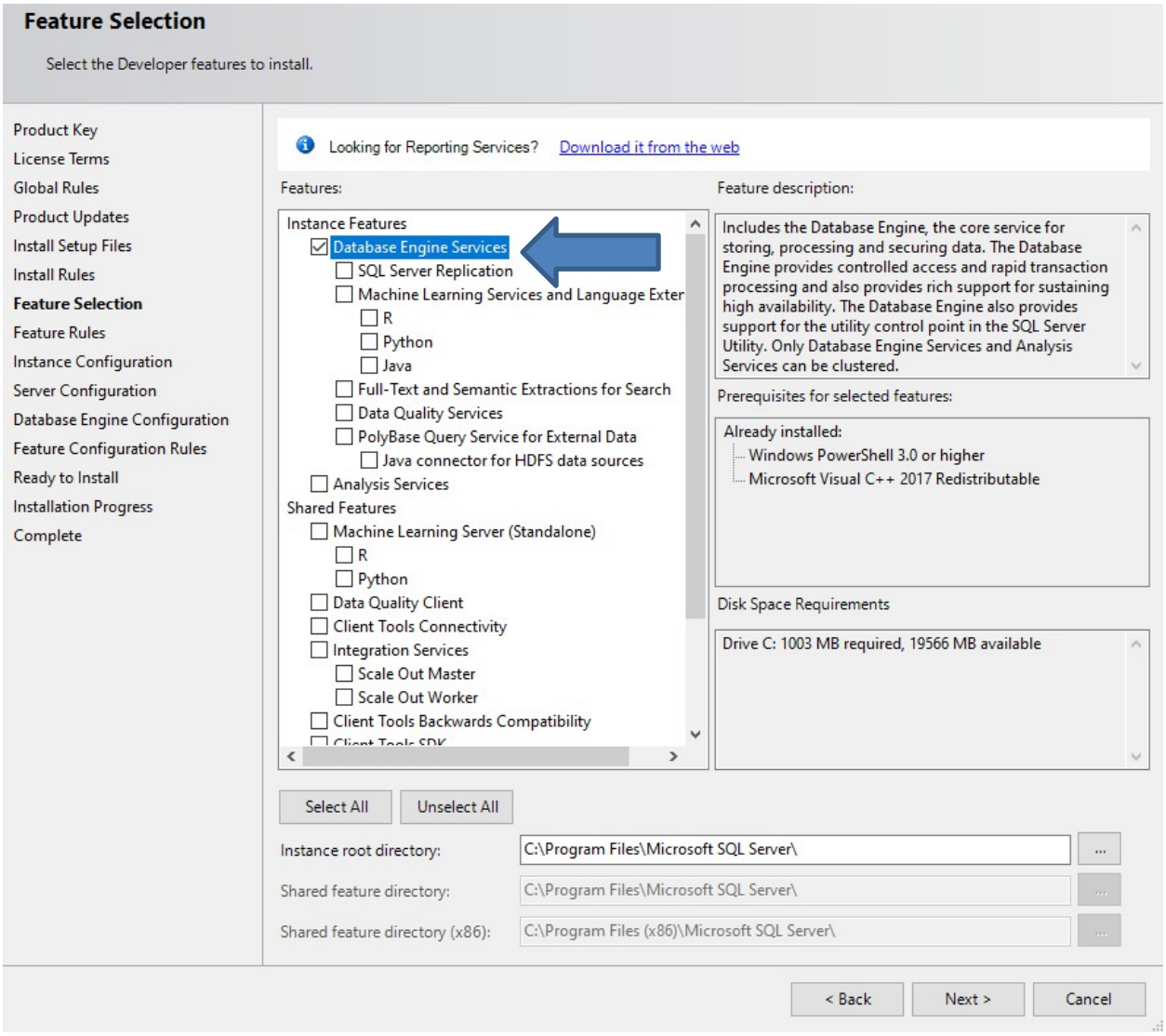


6. On the License Terms page, check the box next to *"I accept the license terms"* and click *Next.*

7. Setup will check if needed install Setup Support Files. Click **Next** when complete.

Feature installation:

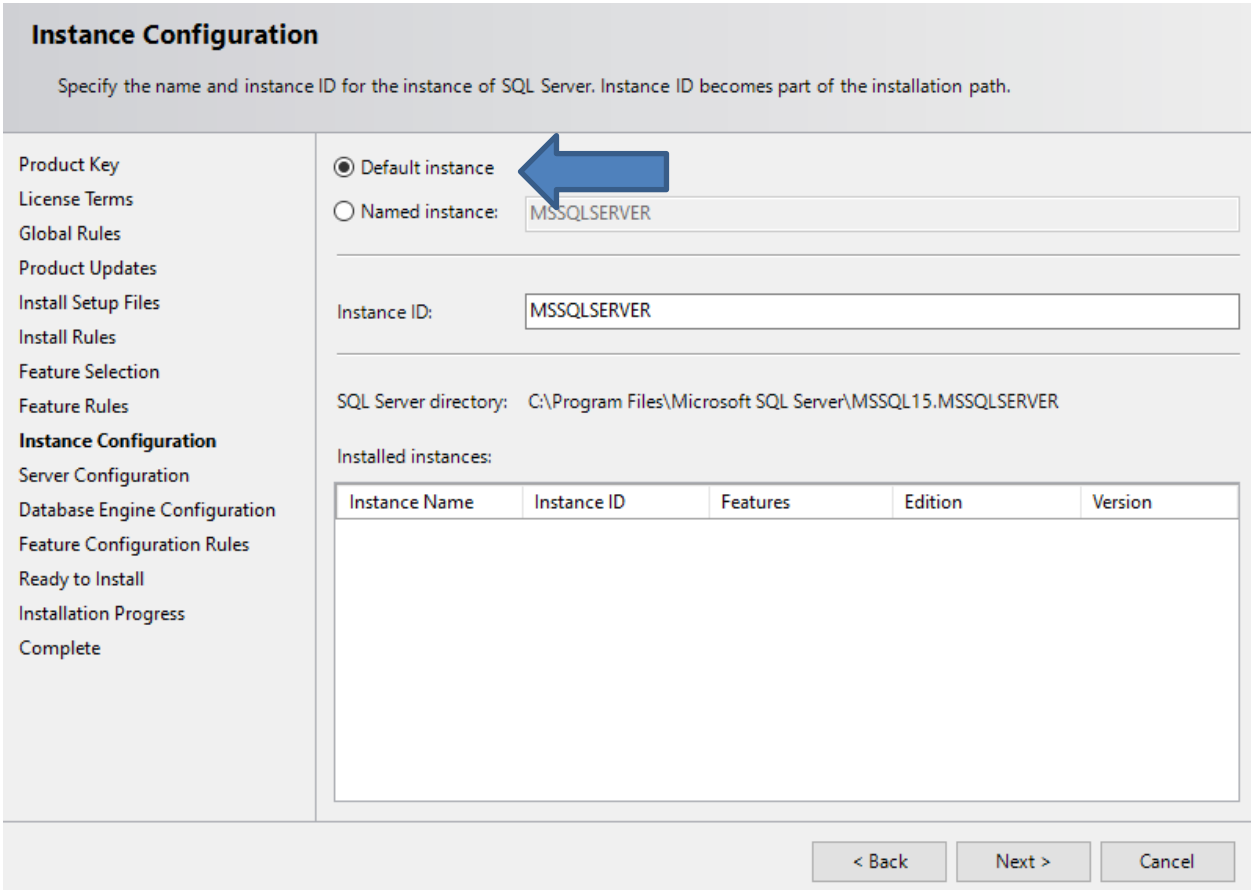
8. Select the components of SQL server to install on your computer.
   Select **Database Engine Services,** this is the minim requirement to use SQL Server



- In addition to what is listed above please review these descriptions to see which features you might be interested in for advanced topics for the term project.
- Instance root Directory and Shared Features Directory: Note the paths where SQL server will install the components (default is Program Files folder within C drive.)

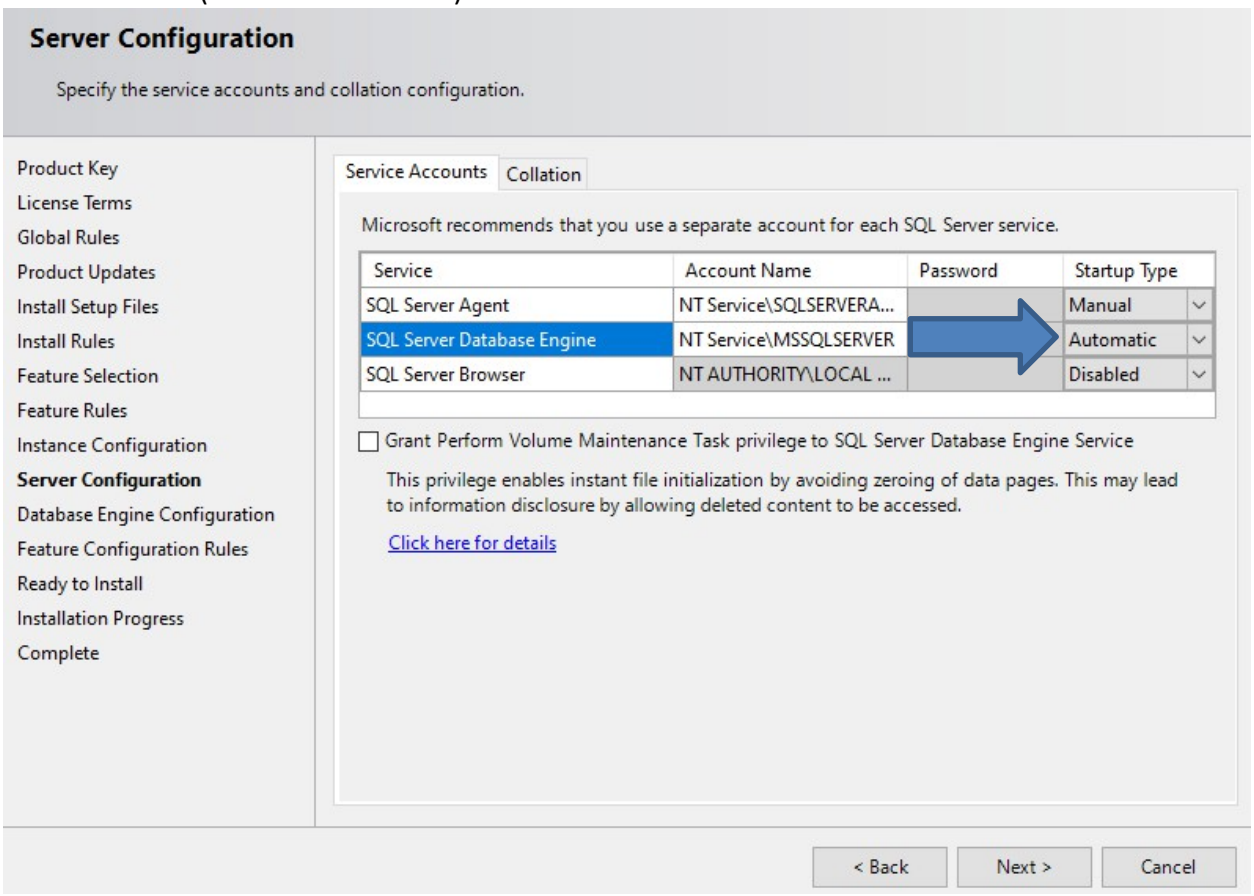
Instance Configuration

9. Generally, you can leave the Default Instance and the default Instance ID. The Named instances would be used if you want to create multiple instances of SQL Server on the same machine. Click Next when complete.



Server Configuration

10. Review Server Configuration options.
    a. Account Names: We suggest that you leave these set to defaults provided by the installer as outlined below.
    b. Startup types: If you would like to have SQL Server running at all times on your computer, the Startup Type should be Automatic (which is the default) otherwise you can set it to Manual and start it when you need to use SQL Server so that it does not take up system resources such as RAM. Leave the other services to default (Manual & Disabled).



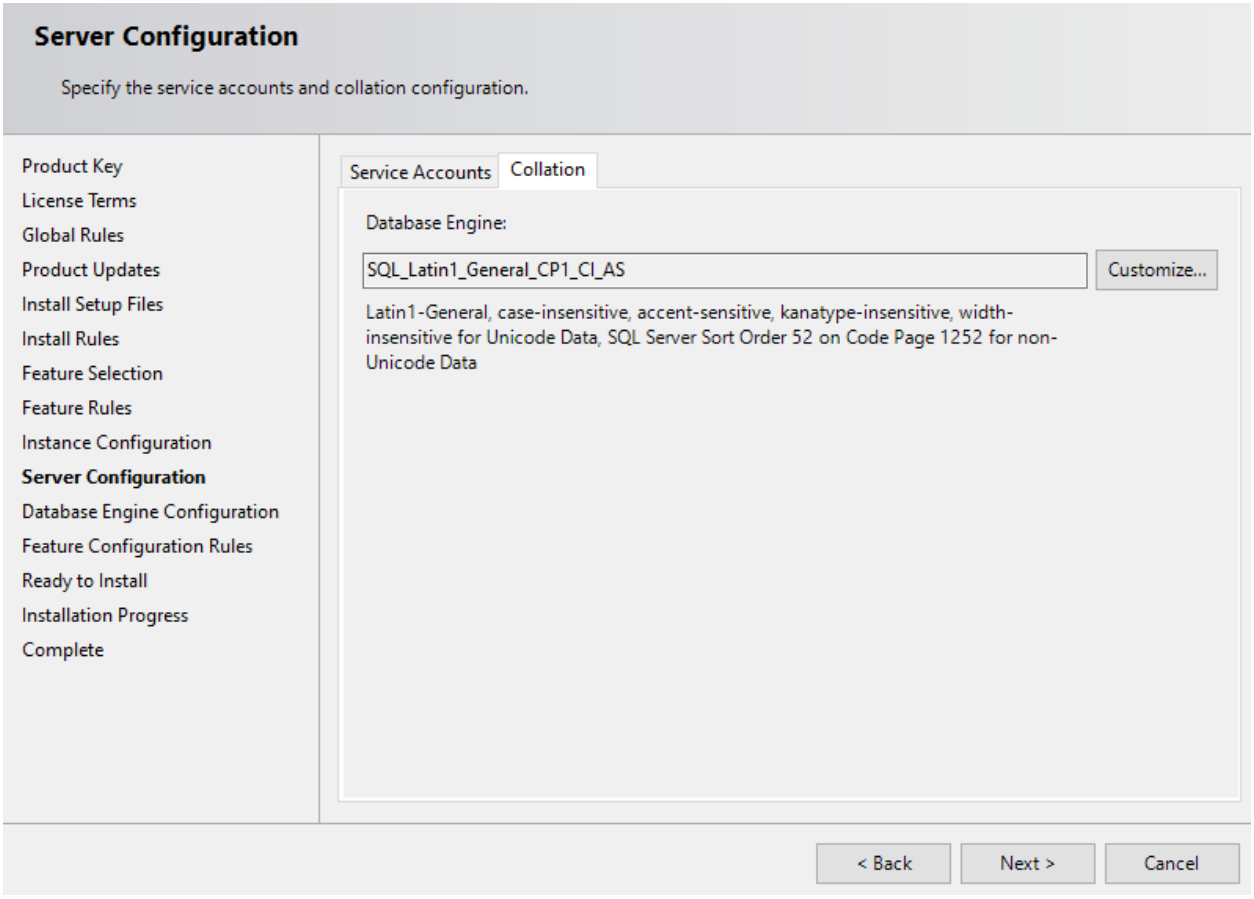
- A few additional detailed explanations:
    c. **SQL Server Agent** is used for running scheduled jobs, such as backups, scheduled SQL scripts and db maintenance. If this was a production

environment you would want this service set to automatic.

d. You will need **SQL Server Database Engine** to run SQL Server. Since DBMS uses a lot of system recourses, we would recommend running it manually when you need it.
e. If you installed other components for SQL Server for advanced topics, you should also set them to manual so that they don't run on system startup.
f. SQL Server Browser can be left disabled.

g. You do not need to select Grant Perform Volume Maintenance Task privilege to SQL Server for the course, however if performing installs in production environments this is recommended for data confidentiality. Note the link on the page for additional details.

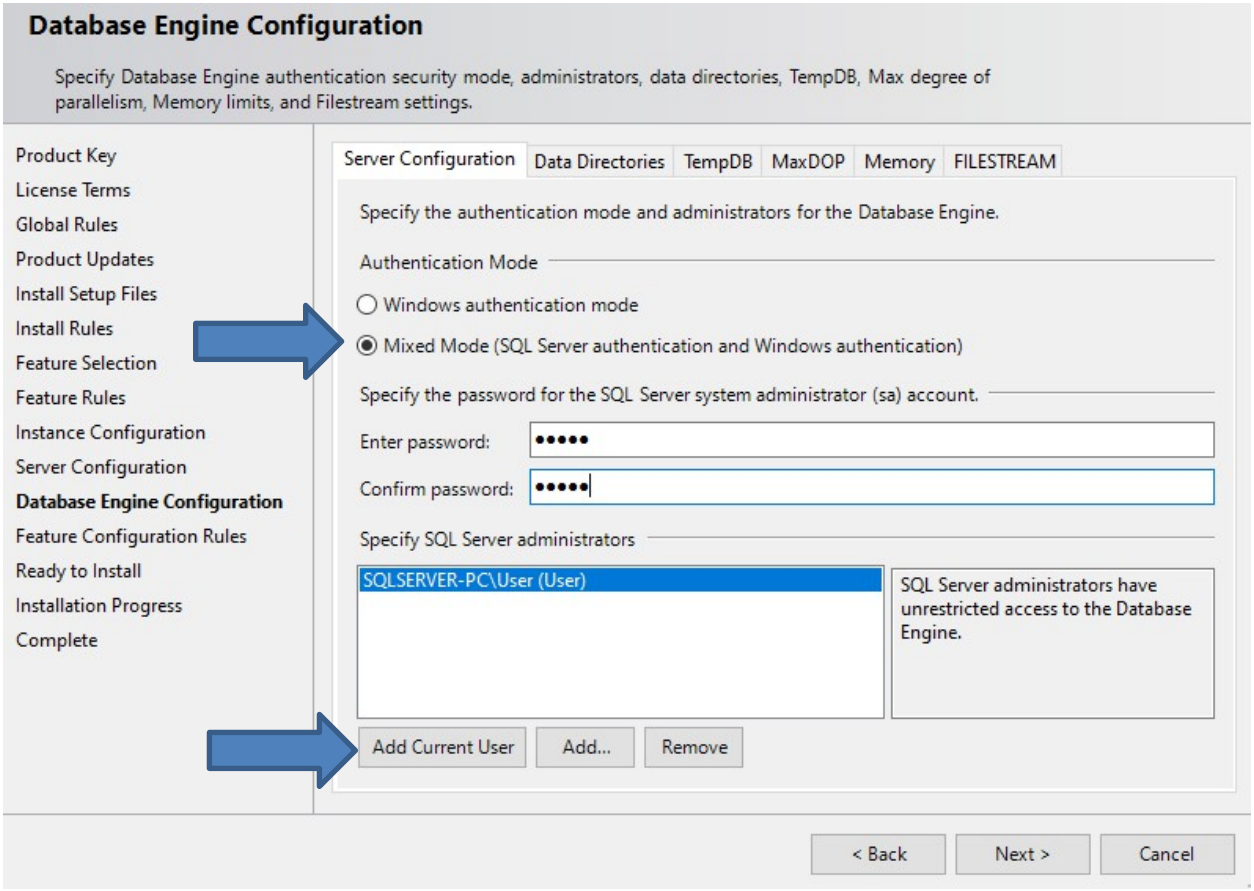
h. Check the collation tab at the top. For our purposes this can be left at default, SQL_Latin1_General_CP1_CI_AS, which is Latin1-General case insensitive accent sensitive. Collation defines the sorting rules, case and accent sensitivity for character data, for example you can choose a different language or set it to be case sensitive. Some applications require for you to choose a specific collation.



Database Engine Configuration

Server Configuration:

- Authentication mode:
  - Windows authentication: will only use your windows account privileges to connect to SQL Server.
  - Mixed mode: adds a local SQL system administrator (SA) account **IMPORTANT**: We highly recommend using **Mixed Mode** so that there is an additional built in SA account with a separate user name and password as well as your built-in windows account in case you have issues logging in.
- **IMPORTANT**: Make sure to add users (such as your account) to SQL Server Administrators (click on **Add Current User**) if it is not already there.
- These accounts will allow you to log into SQL Server.
- Note that the server itself does not need these accounts and runs as a service which you specified in previous step.



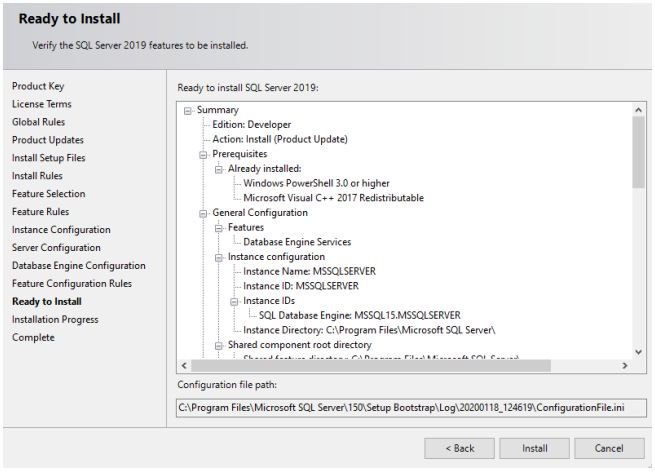
- A few additional detailed explanations:
    a. You can leave Data Directories to defaults. Data Directories can be changed if you have a multiple disk environment and for performance want to separate out where

different parts of the DBMS go. For example, in production environments the LOG components should go on a separate disk array, which will improve performance of the system.

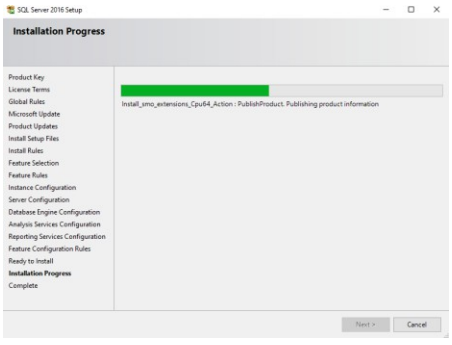
- For additional tuning you can explore the TempDB, Max Degree of Parallelism and Memory settings. TempDB system database used by SQL Server. For additional details please review the following link: https://msdn.microsoft.com/en-us/library/ms190768.aspx As an example, this page allows you to customize auto-growth settings for the TempDB. For the courses leaving the defaults is fine.
- If you are installing SQL Server for CS779 you might want to enable FILESTREAM if you plan to explore large file types such as Binary language objects (BLOB). As with many other features, this can be enabled at a later time.

Error Reporting, Installation Configuration Rules, & Ready to Install

- Review selected features and click **Install**, Installation will begin, this will take some time.



- This will take some time



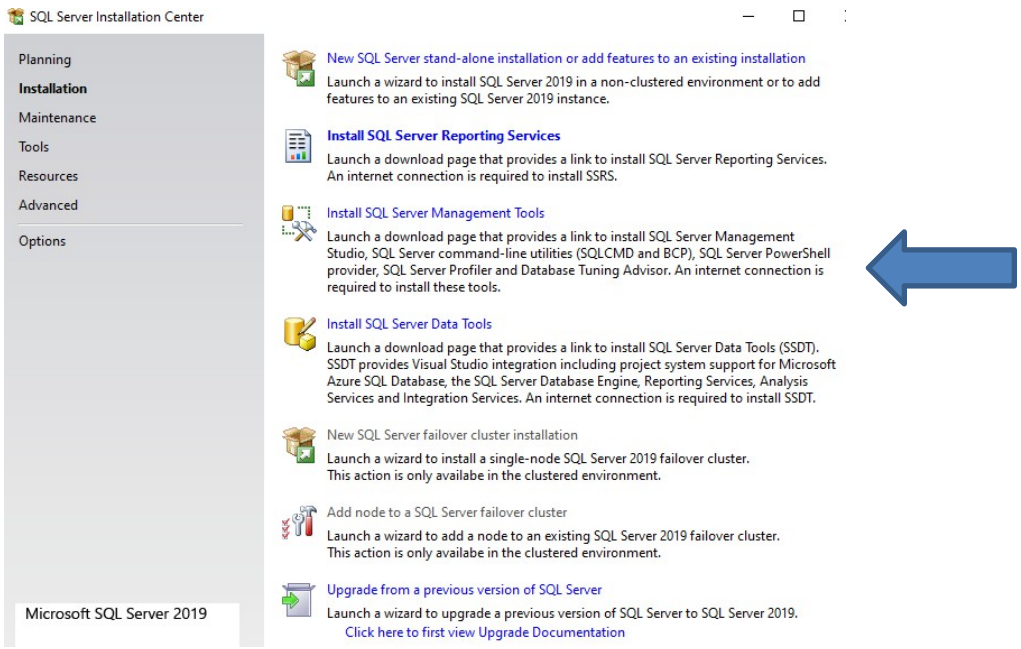
- Once the installation is complete Congratulations SQL Server Install

is complete, click close.

SQL Server Management Tools

You will need SQL Server Management Tools to work with SQL Server, this is the user interface that include components such as the Query interface as well as components for advanced topics such as analysis and integration services as well as the database tuning advisor. SQL Server, like other modern relational databases, uses a client-server architecture. The database itself is the server and contains all of the data and the capability to add, modify, delete, and access the data. A client is needed to connect to the database and perform specific commands. The most popular client by far for SQL Server is SQL Server Management Studio (SSMS), which you will install in this section. SSMS is very capable and provides many powerful conveniences and capabilities.

<u>It is required that you install the Management Tools Complete for all courses</u>.



Download SQL Server Management Studio (SSMS)

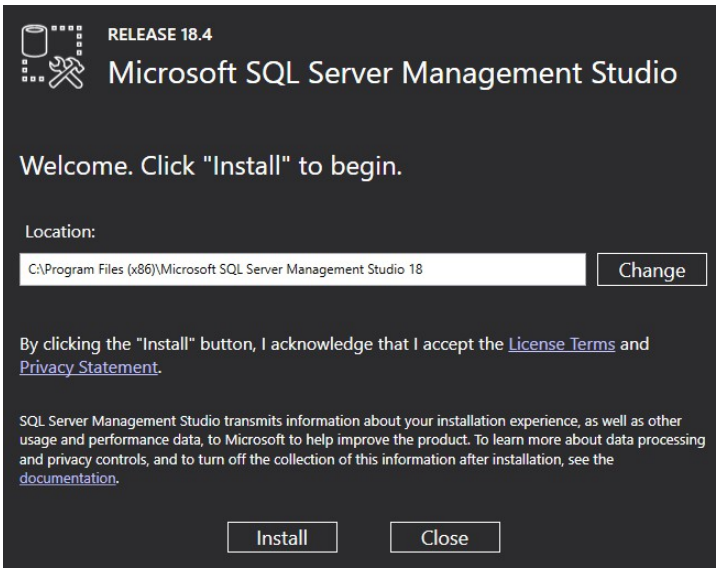
You will be brought to a web page to download the latest release of SQL Server Management Studio. Click on the link to download the latest release and save the file to a location you can remember.

Download SSMS

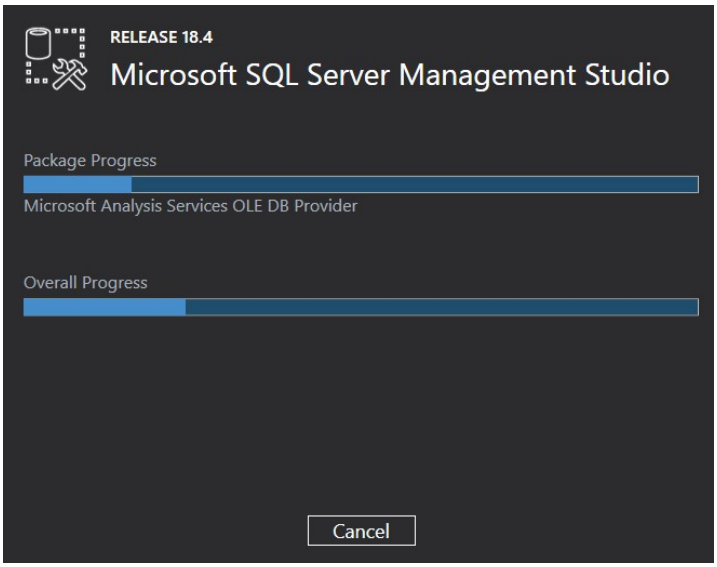
Download SQL Server Management Studio (SSMS)

Install SQL Server Management Studio (SSMS)

Once downloaded, run the SSMS installer. The first screen that appear is shown below.



Click the “Install” button to begin. A progress screen will appear similar to the following.



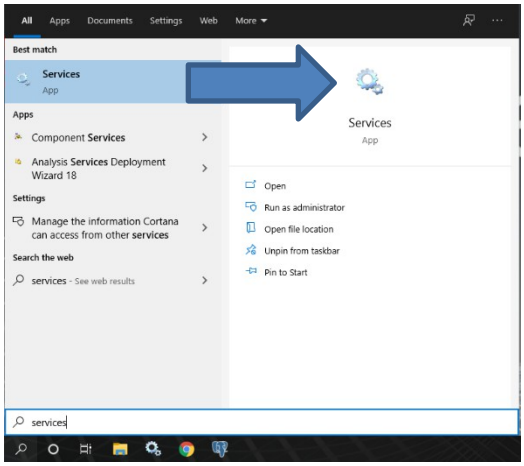
Let it progress through until completion, then you will see a screen indicating successful setup, click close. Congratulations! SSMS is now installed.

Working with and connecting to SQL Server

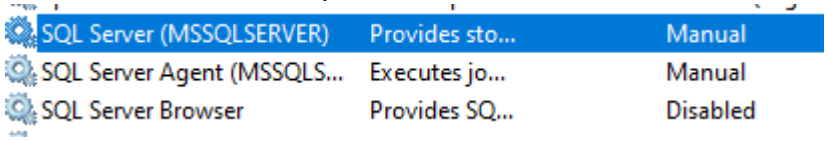
You have installed both SQL Server and SSMS. There are just a few more steps you need in order to start using your database to complete assignments -- connecting to your database and creating a database for assignments.

Starting & Stopping SQL Server (optional)

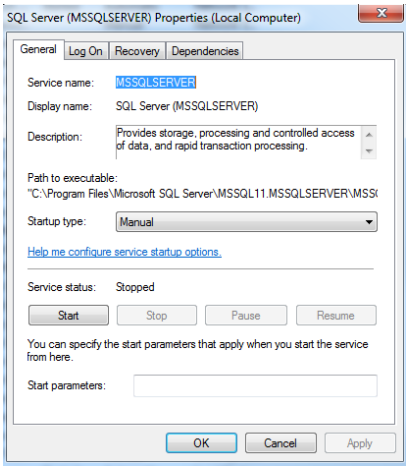
IMPORTANT: If during setup you selected for SQL Server to **start manually** (see page 10 of this guide) then you will need to start SQL Server services. Click on Search at the bottom of the Winds screen and type in **Services** in the search



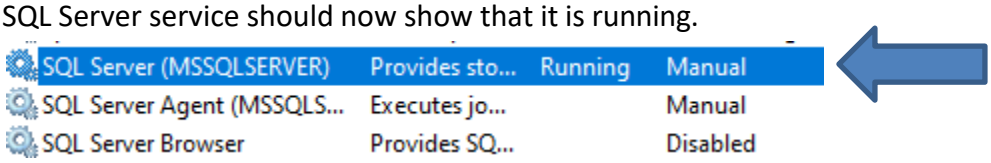
- Scroll down the list until you see the SQL Server services.



- Start the following service: SQL Server (Instance Name)



- SQL Server service should now show that it is running.

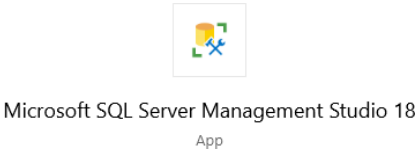


Notes:

- When you are no longer using SQL Server, you can shut the service down to save on system resources.
- You can also change the startup type to be automatic while the course is running to save you the step of turning this on and off.
- You may want to put the services shortcut to your desktop for quick access

Starting SQL Server Management Studio

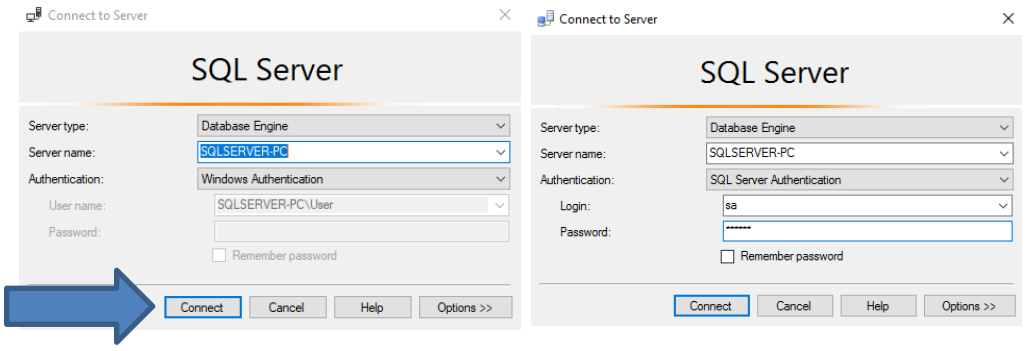
- To work with SQL Server, you will use the **SQL Server Management Studio.** You will find it under Microsoft SQL Server Tools program group or type in in the Windows Search bar.



- You may want to put the SQL Server Management Studio shortcut to your desktop or pin it to the Windows Task bar for quicker access.

Connecting SQL Server

- In the Connect to Server dialog box:
    - Server Type: Database Engine (default)
    - Server Name: This is your system name (default).
    - Authentication: Use
        - Windows Authentication (default) and your account OR
        - The SQL Server Authentication with Login: SA and password which you created during the install and click **Connect**.



You have just connected to your database through SQL Server Management Studio!