



Database Management System

Course Instructor: Dr. Syed Khaldoon Khurshid

Lab Instructor: Ghulam Murtaza

Department of Computer Science

University of Engineering and Technology Lahore

Download MS SQL Server 2019 Developer Edition from the following link

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

Download MS SQL Server Management Studio 18.4 from the following link

<https://docs.microsoft.com/en-us/sql/ssms/download-sql-server-management-studio-ssms?redirectedfrom=MSDN&view=sql-server-ver15>

System Requirements for SQL Server 2019

Operating system

Windows 10 TH1 1507 or greater

Windows Server 2016 or greater

.NET Framework

SQL Server 2016 (13.x) RC1 and later require .NET Framework 4.6 for the Database Engine, Master Data Services, or Replication. SQL Server setup automatically installs .NET Framework. You can also manually install .NET Framework from [Microsoft .NET Framework 4.6 \(Web Installer\) for Windows](#).

Disc Space

SQL Server requires a minimum of 6 GB of available hard-disk space.

Memory

At least 4 GB and should be increased as database size increases to ensure optimal performance.

Processor

- **Minimum:** x64 Processor: 1.4 GHz, **Recommended:** 2.0 GHz or faster
- x64 Processor: AMD Opteron, AMD Athlon 64, Intel Xeon with Intel EM64T support, Intel Pentium IV with EM64T support

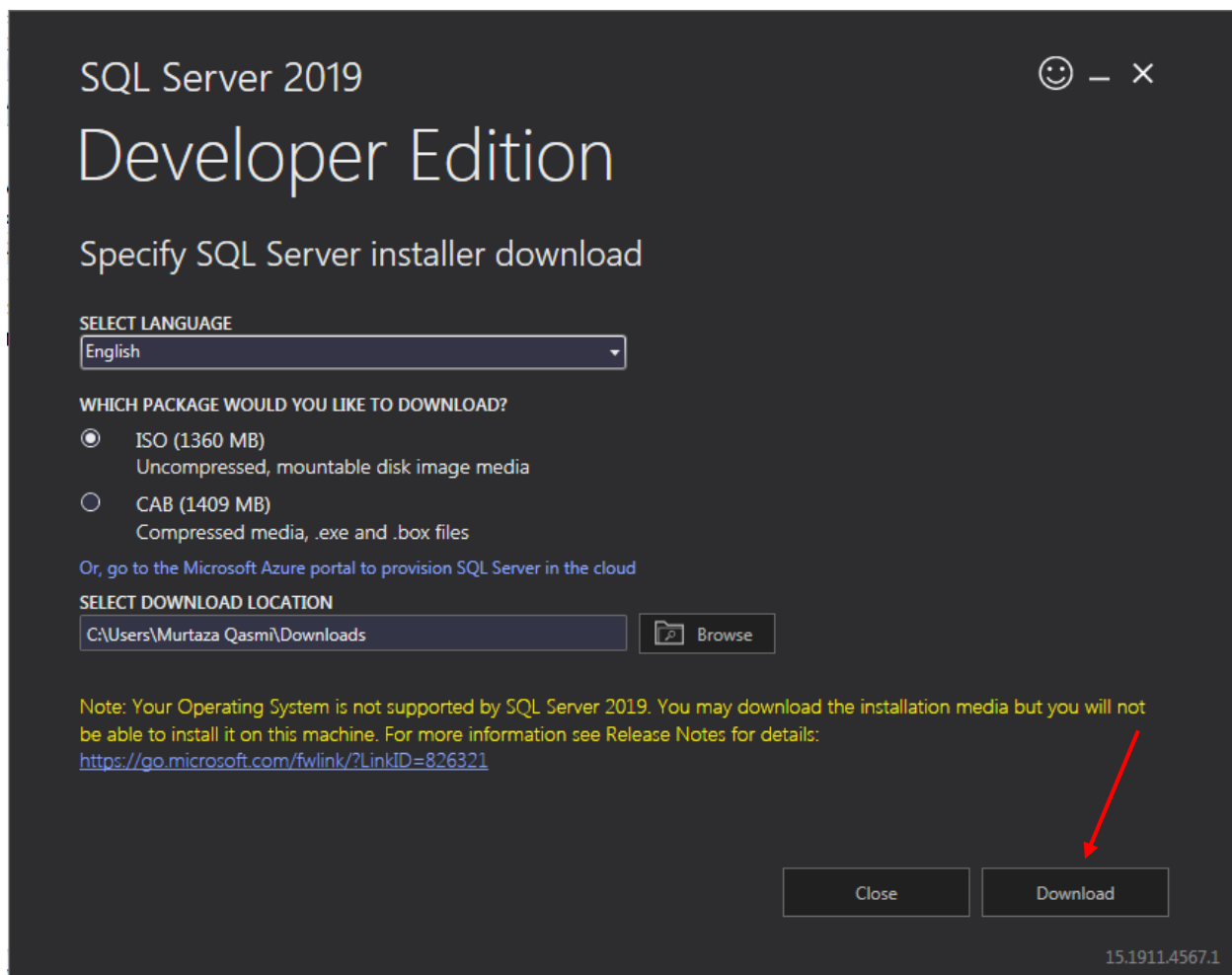
Monitor

SQL Server requires Super-VGA (800x600) or higher resolution monitor.

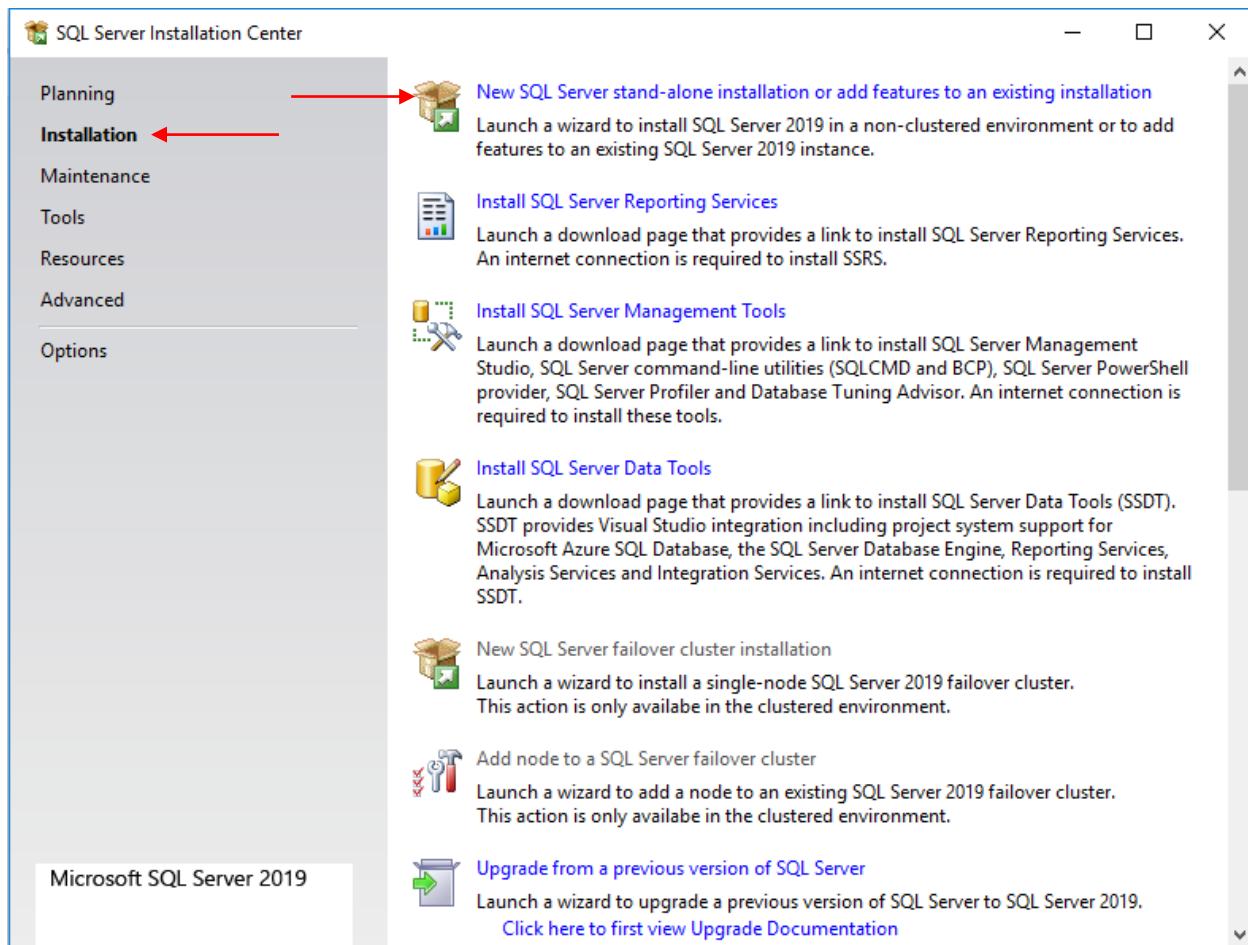
Installation guide

Important Note:

1. connect your system with internet and download the developer edition
2. Login on window with as Administrator



Click on the Installation page and then on 'New SQL Server stand-alone installation or add features to an existing installation'



Since we are installing Developer edition of SQL Server, we will move to default option "Developer" and click Next

The screenshot shows the 'Product Key' step in the SQL Server 2019 Setup wizard. The window title is 'SQL Server 2019 Setup'. The main heading is 'Product Key' with the instruction 'Specify the edition of SQL Server 2019 to install.' On the left is a navigation pane with the following items: Product Key (selected), License Terms, Global Rules, Microsoft Update, Product Updates, Install Setup Files, Install Rules, Feature Selection, Feature Rules, Feature Configuration Rules, Ready to Install, Installation Progress, and Complete. The main area contains explanatory text about validating the instance and specifying a free edition. Two options are available: 'Specify a free edition:' (selected) with a dropdown menu showing 'Developer', and 'Enter the product key:' with an empty text box. At the bottom right are three buttons: '< Back', 'Next >' (highlighted with a blue border), and 'Cancel'.

SQL Server 2019 Setup

Product Key

Specify the edition of SQL Server 2019 to install.

Product Key
License Terms
Global Rules
Microsoft Update
Product Updates
Install Setup Files
Install Rules
Feature Selection
Feature Rules
Feature Configuration Rules
Ready to Install
Installation Progress
Complete

Validate this instance of SQL Server 2019 by entering the 25-character key from the Microsoft certificate of authenticity or product packaging. You can also specify a free edition of SQL Server: Developer, Evaluation, or Express. Evaluation has the largest set of SQL Server features, as documented in SQL Server Books Online, and is activated with a 180-day expiration. Developer edition does not have an expiration, has the same set of features found in Evaluation, but is licensed for non-production database application development only. To upgrade from one installed edition to another, run the Edition Upgrade Wizard.

☒ Specify a free edition:
Developer

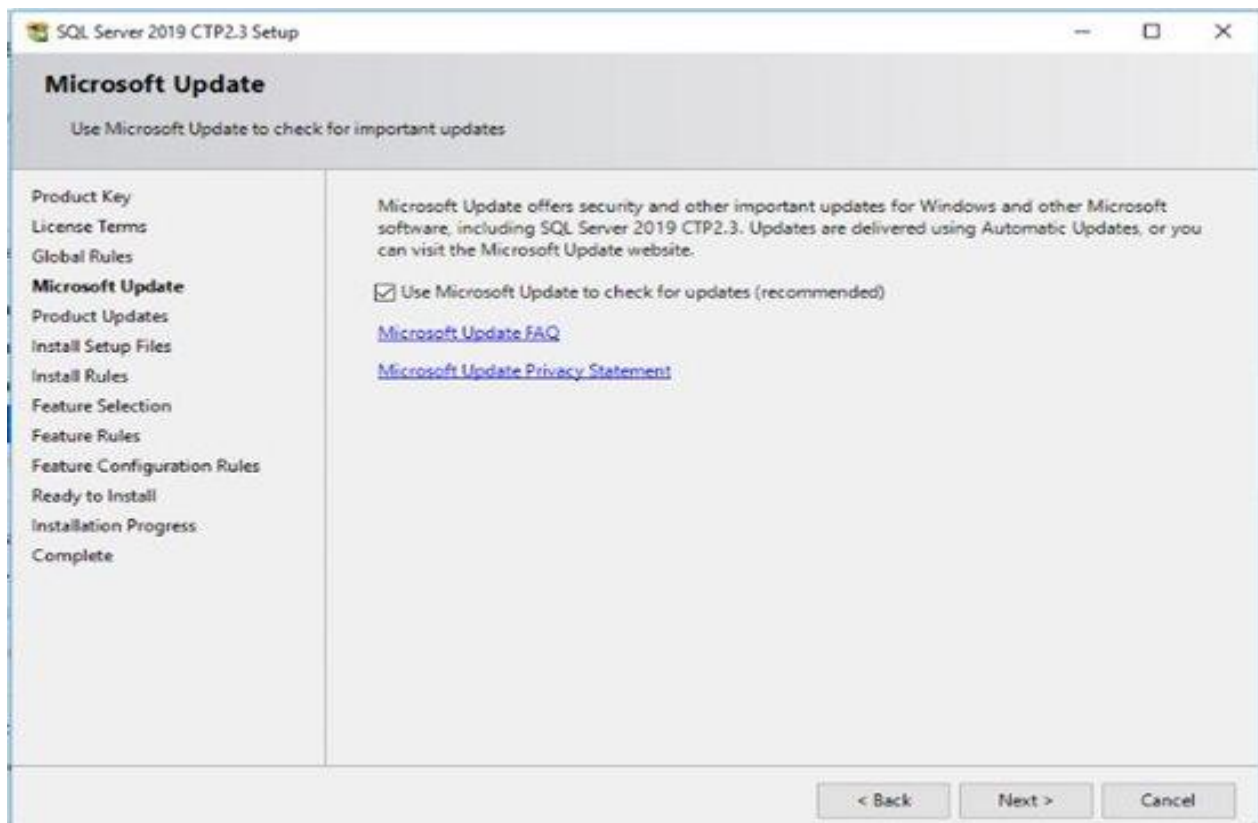
☐ Enter the product key:
-

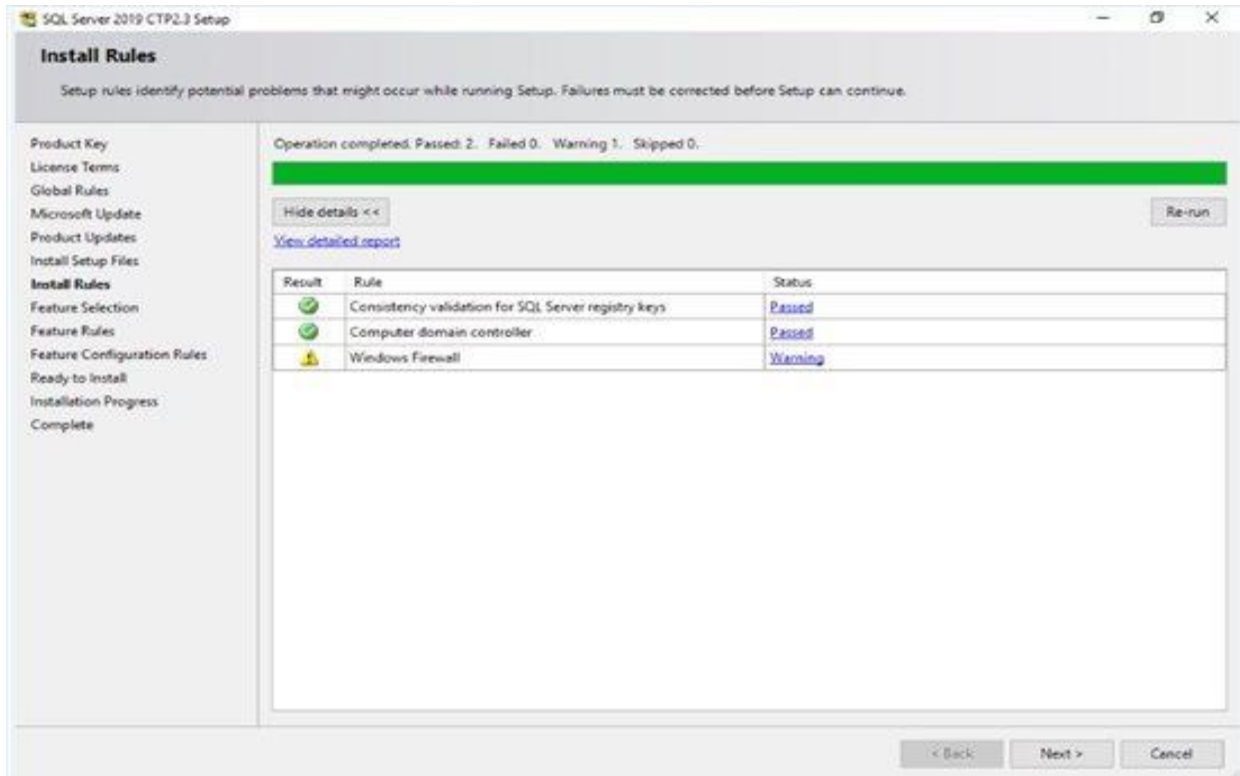
< Back Next > Cancel

Accept the license terms and conditions. Please note the message written here that SQL Server Transmits information about installation experience in performance data to Microsoft to help improve the product.

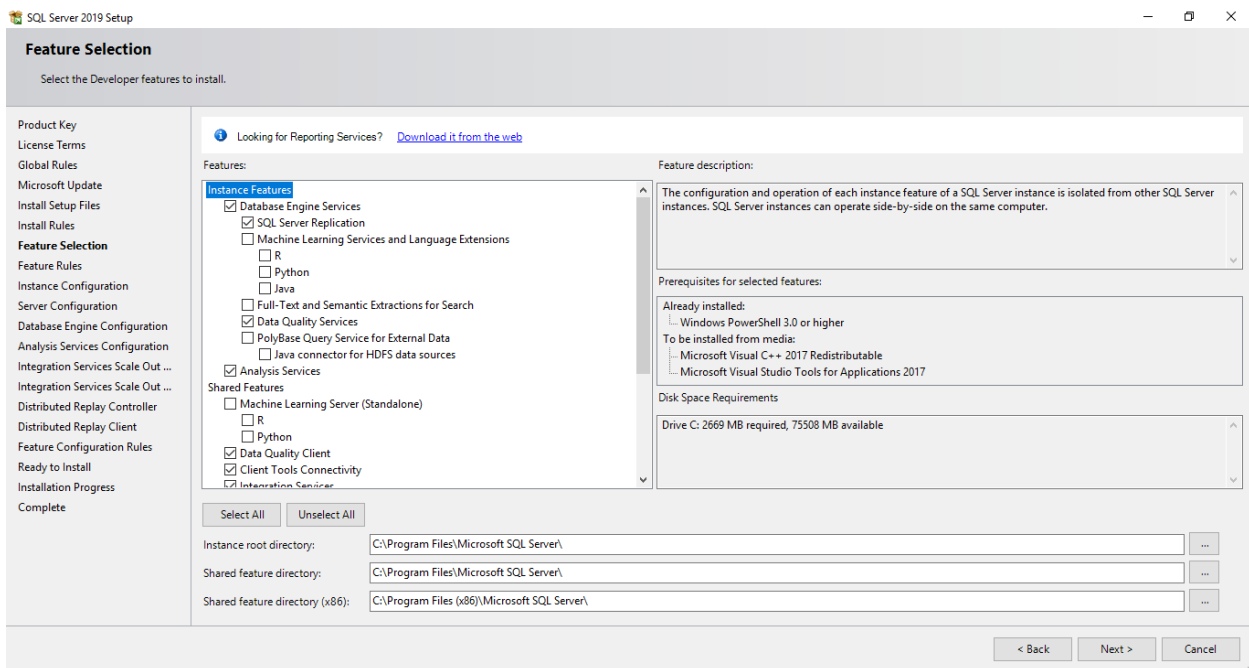
Click on Next. In the next page, it checks for the Global rules and give status information about successful, failed rules. If there are any failed rules, we need to fix those before proceeding with the installation.

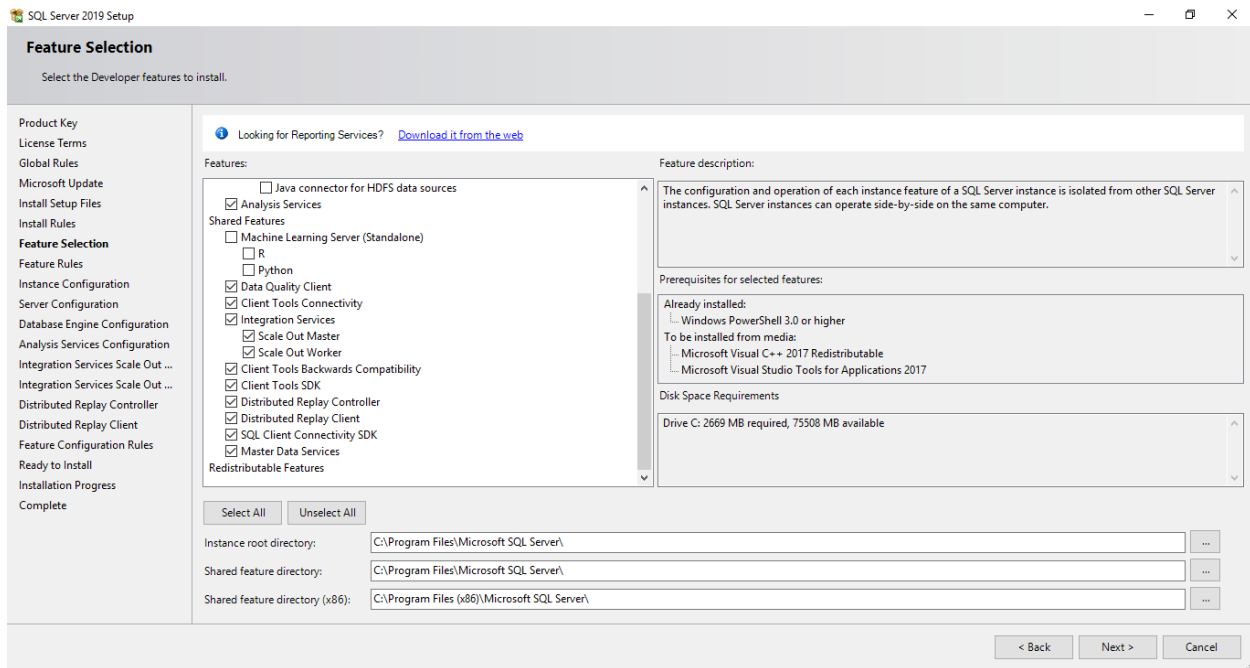
Next Check checkbox “use Microsoft update to check for updates”





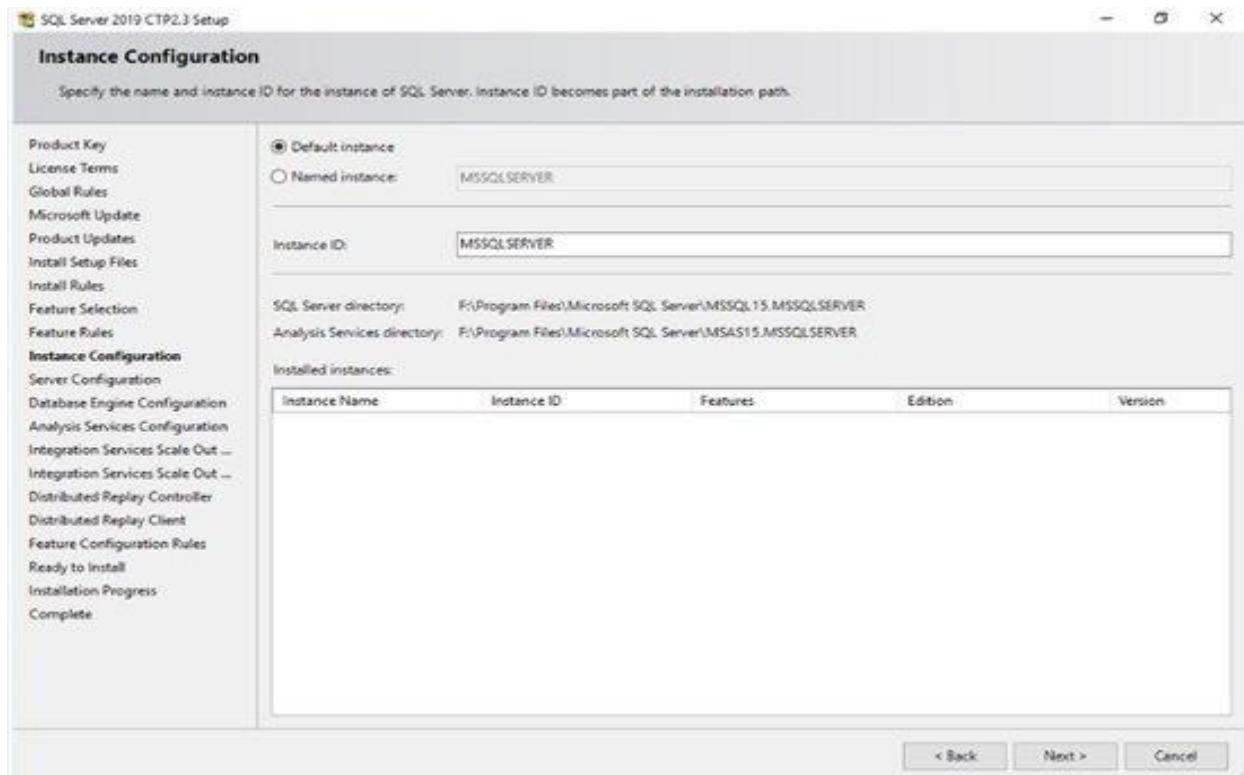
Now we need to select the features, we need to install with this installation.

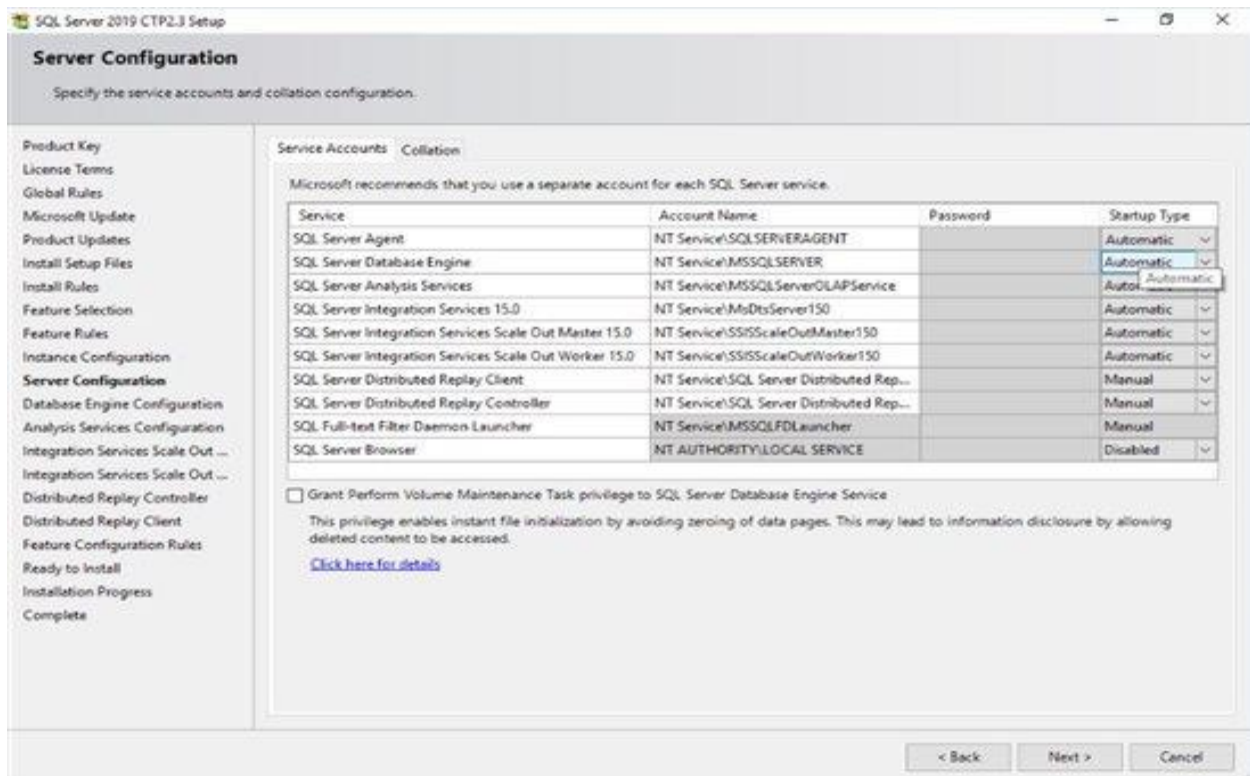




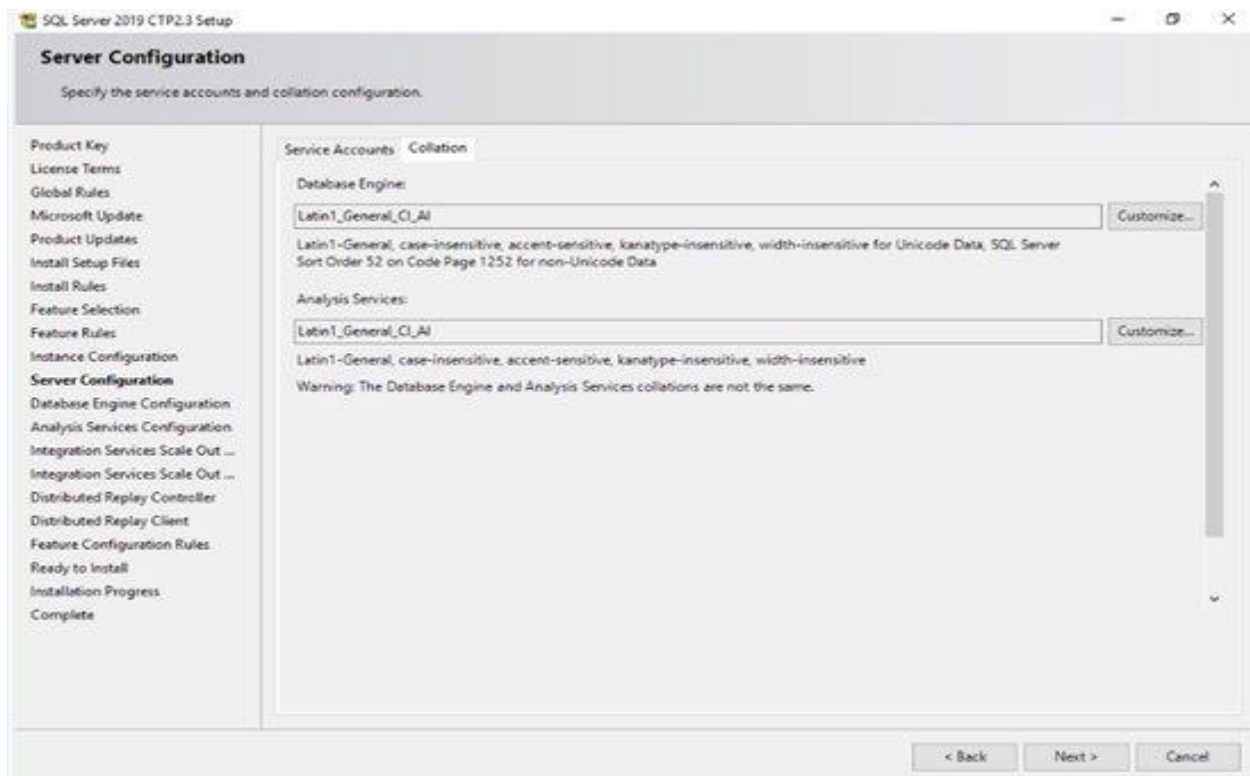
You can choose to install a default or named instance name.

I have selected default instance. If you want can only install named instance, Provide an appropriate name for the named instance.





Check properly about Collation.



Specify Authentication modes (Windows or Mixed mode) and add users to have SQL Server administrators.

The screenshot shows the 'Database Engine Configuration' window in the SQL Server 2019 Setup. The window has a title bar with the text 'SQL Server 2019 Setup' and standard window controls. Below the title bar is a header section with the title 'Database Engine Configuration' and a subtitle 'Specify Database Engine authentication security mode, administrators, data directories, TempDB, Max degree of parallelism, Memory limits, and Filestream settings.'.

The main content area is divided into two panes. The left pane contains a list of configuration steps: Product Key, License Terms, Global Rules, Microsoft Update, Install Setup Files, Install Rules, Feature Selection, Feature Rules, Instance Configuration, PolyBase Configuration, Java Install Location, Server Configuration, Database Engine Configuration (which is highlighted), Analysis Services Configuration, Integration Services Scale Out ..., Integration Services Scale Out ..., Distributed Replay Controller, Distributed Replay Client, and Consent to install Microsoft R

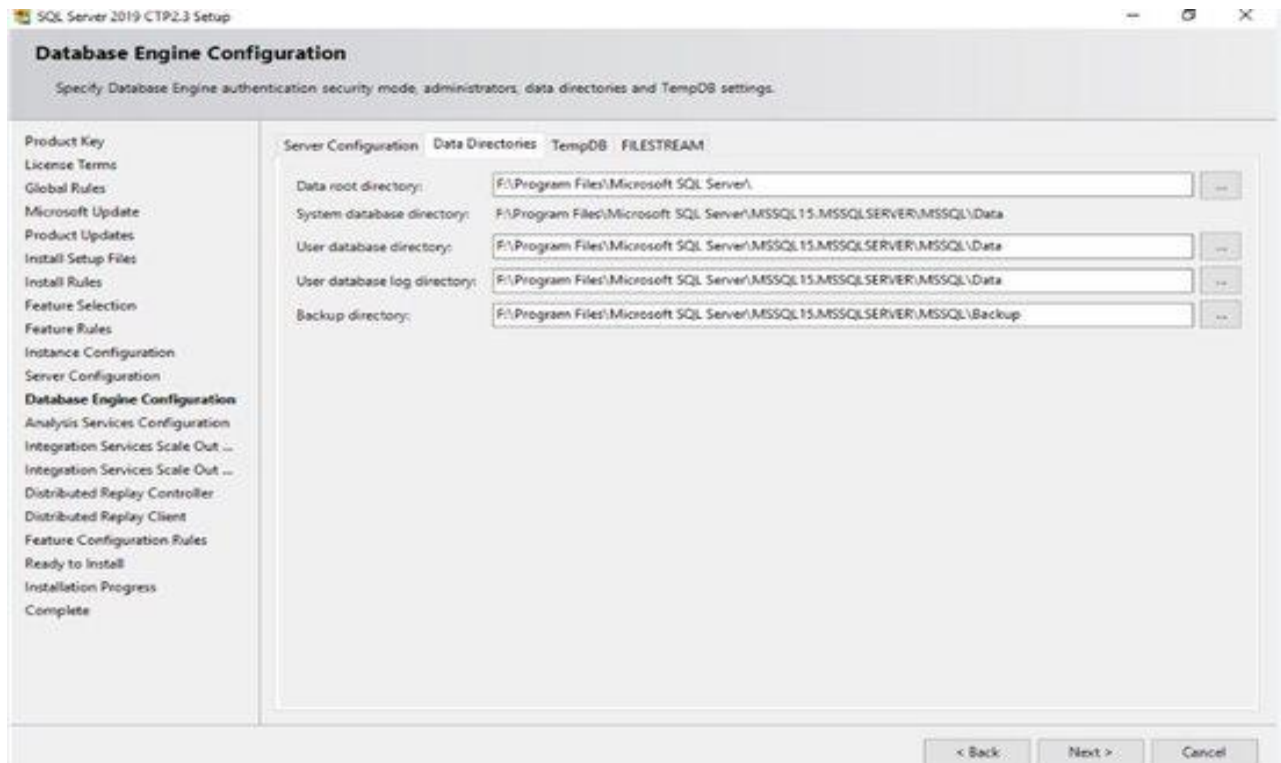
The right pane is titled 'Server Configuration' and contains several tabs: Server Configuration, Data Directories, TempDB, MaxDOP, Memory, and FILESTREAM. The 'Server Configuration' tab is active. It contains the following elements:

- A section titled 'Specify the authentication mode and administrators for the Database Engine.'
- An 'Authentication Mode' section with two radio buttons: 'Windows authentication mode' (which is selected) and 'Mixed Mode (SQL Server authentication and Windows authentication)'.
- A section titled 'Specify the password for the SQL Server system administrator (sa) account.' with two text boxes labeled 'Enter password:' and 'Confirm password:'.
- A section titled 'Specify SQL Server administrators' with a list box containing the entry 'DESKTOP-L60F6MI\Murtaza Qasmi (Murtaza Qasmi)'. Below the list box are three buttons: 'Add Current User', 'Add...', and 'Remove'.
- A text box on the right side of the 'Specify SQL Server administrators' section that reads 'SQL Server administrators have unrestricted access to the Database Engine.'

At the bottom of the window are three buttons: '< Back', 'Next >', and 'Cancel'.

Click on Data Directories and we can specify the data, log files, backup directories here.

You can mention their directories in a different drive. We have local drive one drive so selected only one drive.



Click on TempDB to configure the TempDB configurations.

Ideally, Tempdb should in a different drive.

The screenshot shows the 'Database Engine Configuration' window for SQL Server 2019 CTP2.3 Setup. The 'TempDB' tab is selected, showing the following configuration:

- TempDB data files:** tempdb.mdf, tempdb_mssql_#.ndf
- Number of files:** 4
- Initial size (MB):** 8
- Total initial size (MB):** 32
- Autogrowth (MB):** 64
- Total autogrowth (MB):** 256
- Data directories:** F:\Program Files\Microsoft SQL Server\MSSQL15.MSSQLSERVER\MSSQL\Data
- TempDB log file:** templog.ldf
- Initial size (MB):** 8
- Autogrowth (MB):** 64
- Log directory:** F:\Program Files\Microsoft SQL Server\MSSQL15.MSSQLSERVER\MSSQL\Data

Buttons at the bottom: < Back, Next >, Cancel.

We have selected Tabular mode for SSAS.

SQL Server 2019 Setup

Analysis Services Configuration

Specify Analysis Services server modes, administrators, and data directories.

Product Key
License Terms
Global Rules
Microsoft Update
Install Setup Files
Install Rules
Feature Selection
Feature Rules
Instance Configuration
PolyBase Configuration
Java Install Location
Server Configuration
Database Engine Configuration
Analysis Services Configuration
Integration Services Scale Out ...
Integration Services Scale Out ...
Distributed Replay Controller
Distributed Replay Client
Consent to install Microsoft R ...

Server Configuration | Data Directories

Server Mode:
☐ Multidimensional and Data Mining Mode
☒ Tabular Mode
☐ PowerPivot Mode

Specify which users have administrative permissions for Analysis Services.

DESKTOP-L60F6M1\Murtaza Qasmi (Murtaza Qasmi)	Analysis Services administrators have unrestricted access to Analysis Services.

Add Current User | Add... | Remove

< Back | Next > | Cancel

Analysis Services Configuration

Specify Analysis Services server modes, administrators, and data directories.

<ul style="list-style-type: none">Product KeyLicense TermsGlobal RulesMicrosoft UpdateProduct UpdatesInstall Setup FilesInstall RulesFeature SelectionFeature RulesInstance ConfigurationServer ConfigurationDatabase Engine ConfigurationAnalysis Services ConfigurationIntegration Services Scale Out ...Integration Services Scale Out ...Distributed Replay ControllerDistributed Replay ClientFeature Configuration RulesReady to InstallInstallation ProgressComplete	<div>Server Configuration Data Directories</div> <p>Specify the data directories for SQL Server Analysis Services.</p> <p>Data directory: <input type="text" value="F:\Program Files\Microsoft SQL Server\MSAS15.MSSQLSERVER\OLAP\Data"/> ...</p> <p>Log file directory: <input type="text" value="F:\Program Files\Microsoft SQL Server\MSAS15.MSSQLSERVER\OLAP\Log"/> ...</p> <p>Temp directory: <input type="text" value="F:\Program Files\Microsoft SQL Server\MSAS15.MSSQLSERVER\OLAP\Temp"/> ...</p> <p>Backup directory: <input type="text" value="F:\Program Files\Microsoft SQL Server\MSAS15.MSSQLSERVER\OLAP\Backup"/> ...</p>
--	--

Make sure that 8391 port should open or you can give a different port

The screenshot shows the 'Integration Services Scale Out Configuration - Master Node' window in the SQL Server 2019 Setup. The window has a title bar with the Microsoft logo and the text 'SQL Server 2019 Setup'. Below the title bar is a header area with the title 'Integration Services Scale Out Configuration - Master Node' and a subtitle 'Specify the port number and security certificate for the Scale Out Master node.'.

On the left side, there is a navigation pane with a list of setup steps. The steps are: Product Key, License Terms, Global Rules, Microsoft Update, Install Setup Files, Install Rules, Feature Selection, Feature Rules, Instance Configuration, PolyBase Configuration, Java Install Location, Server Configuration, Database Engine Configuration, Analysis Services Configuration, **Integration Services Scale Ou...** (highlighted), Integration Services Scale Out ..., Distributed Replay Controller, Distributed Replay Client, and Consent to install Microsoft R

The main content area is divided into two sections. The top section is titled 'Specify a port number that the master node uses to communicate with the worker nodes.' and contains a 'Port Number:' label followed by a text box containing the value '8391'. The bottom section is titled 'Select a SSL certificate that is used for the communication between the master node and worker nodes in the scale out topology. A default self-signed certificate is created if you choose to create a new SSL certificate.' and contains two radio buttons. The first radio button is selected and is labeled 'Create a new SSL certificate'. Below it is a text box labeled 'CNs in the certificate:' containing the value 'CN=desktop-l60f6mi; CN=127.0.0.1'. The second radio button is labeled 'Use an existing SSL certificate' and is not selected. Below it is a text box and a 'Browse...' button.

At the bottom of the window, there are three buttons: '< Back', 'Next >', and 'Cancel'.

Integration Services Scale Out Configuration - Worker Node

Specify the master node endpoint and security certificate used by the Scale Out Worker node.

Product Key
License Terms
Global Rules
Microsoft Update
Install Setup Files
Install Rules
Feature Selection
Feature Rules
Instance Configuration
PolyBase Configuration
Java Install Location
Server Configuration
Database Engine Configuration
Analysis Services Configuration
Integration Services Scale Out ...
Integration Services Scale Ou...
Distributed Replay Controller
Distributed Replay Client
Consent to install Microsoft R ...

Provide the master node endpoint which the worker node needs to connect to (e.g. https://[MasterNodeMachineName]:[Port]):

Configure the SSL certificate of master node to trust in this machine. The master's SSL certificate needs to be trusted on this worker node for establishing the connection between worker and master. This is optional if your master certificate has already been trusted, i.e. it's issued by a trusted CA (Certification Authority) on this machine, or the master is installed on the same machine. Otherwise, please provide the master's client SSL certificate, i.e. the certificate is created and self-signed by yourself and the master is not on the same machine.

Distributed Replay Controller

Specify Distributed Replay Controller service access permissions.

Product Key
License Terms
Global Rules
Microsoft Update
Install Setup Files
Install Rules
Feature Selection
Feature Rules
Instance Configuration
PolyBase Configuration
Java Install Location
Server Configuration
Database Engine Configuration
Analysis Services Configuration
Integration Services Scale Out ...
Integration Services Scale Out ...
Distributed Replay Controller
Distributed Replay Client
Consent to install Microsoft R ...

Specify which users have permissions for the Distributed Replay Controller service.

DESKTOP-L60F6MIN\Murtaza Qasmi (Murtaza Qasmi)

Users that have been granted permission will have unlimited access to the Distributed Replay Controller service.

Add Current User

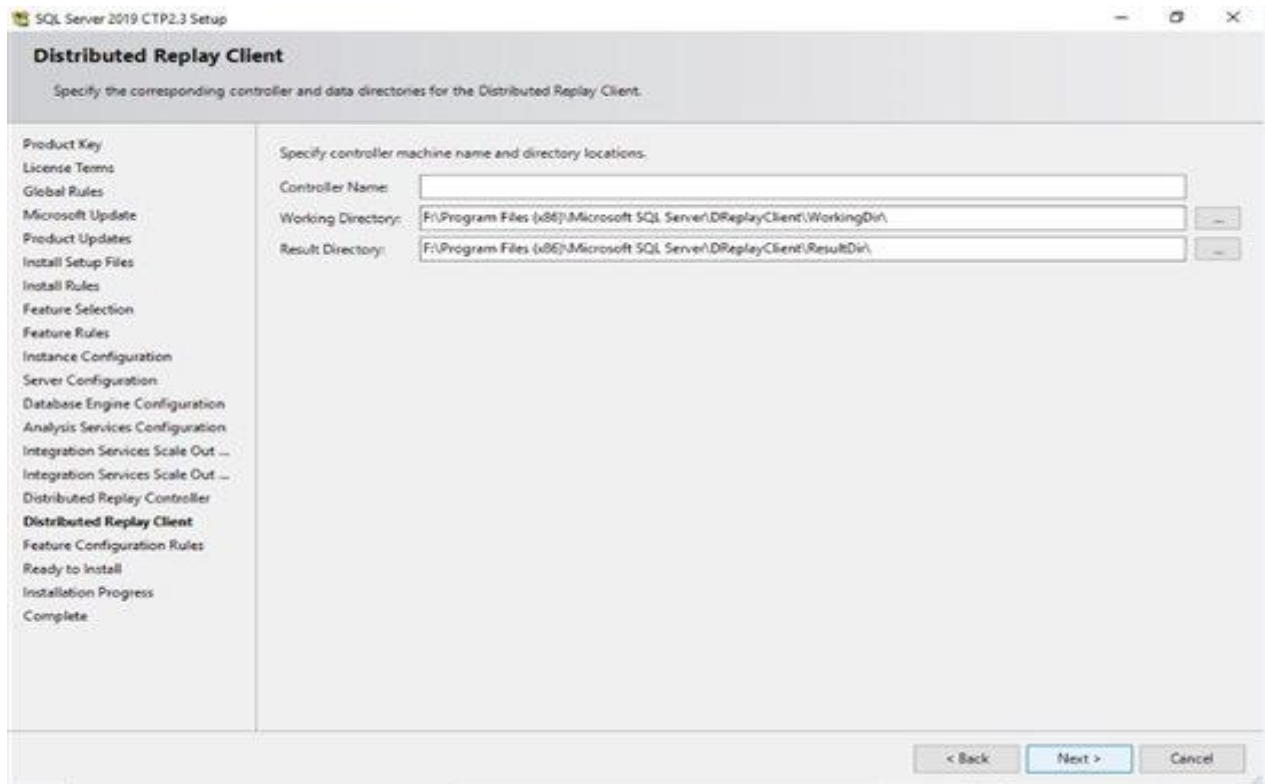
Add...

Remove

< Back

Next >

Cancel



The complete installation will require reboot server.

Complete

Your SQL Server 2019 installation completed successfully.

Product Key
License Terms
Global Rules
Microsoft Update
Install Setup Files
Install Rules
Feature Selection
Feature Rules
Instance Configuration
Server Configuration
Database Engine Configuration
Analysis Services Configuration
Integration Services Scale Out ...
Integration Services Scale Out ...
Distributed Replay Controller
Distributed Replay Client
Feature Configuration Rules
Ready to Install
Installation Progress

Information about the Setup operation or possible next steps:

Feature	Status
✓ Master Data Services	Succeeded
✓ Data Quality Services	Succeeded
✓ Database Engine Services	Succeeded
✓ SQL Server Replication	Succeeded
✓ Analysis Services	Succeeded
✓ SQL Browser	Succeeded

Details:

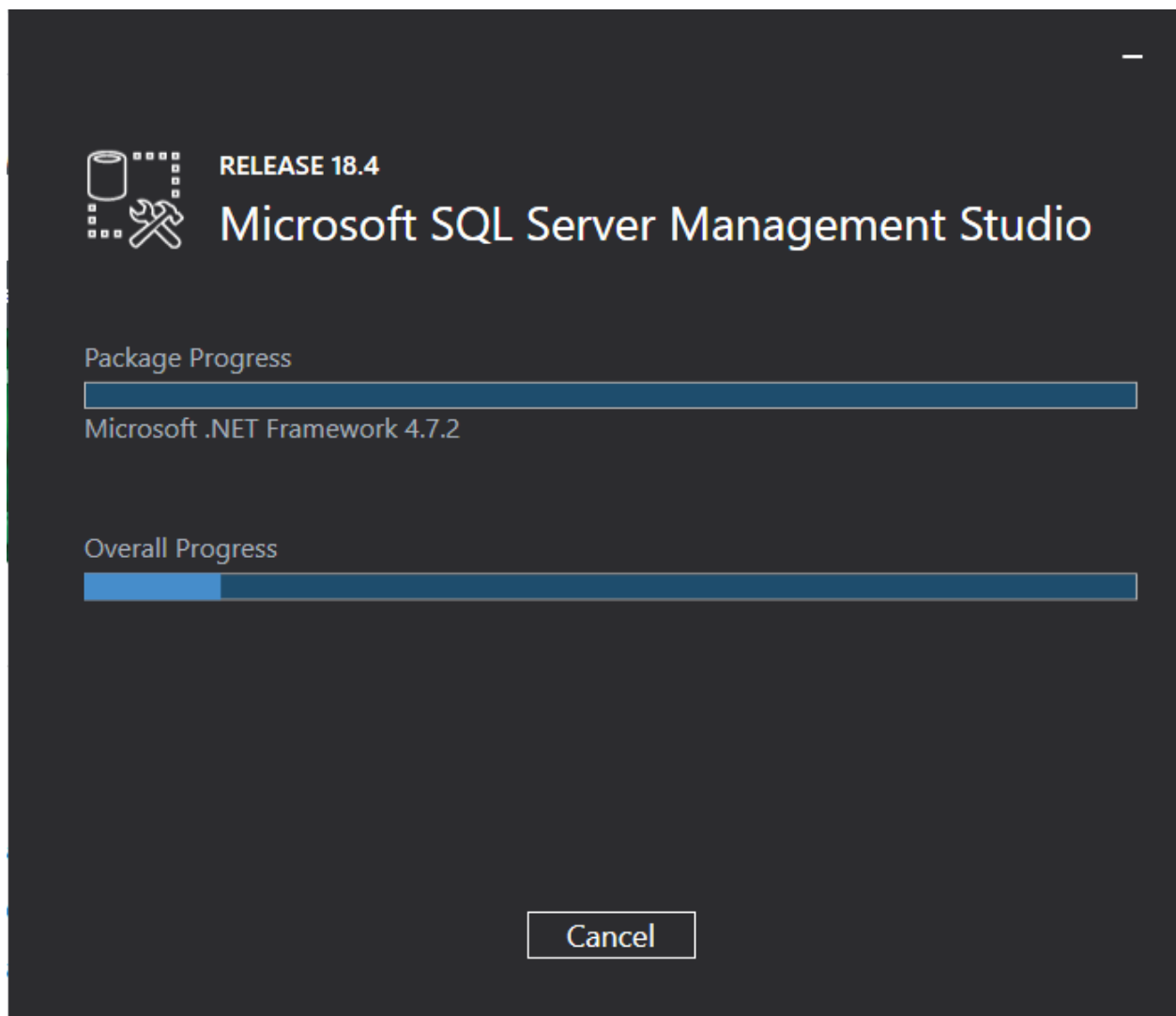
Install successful.

Summary log file has been saved to the following location:

C:\Program Files\Microsoft SQL Server\150\Setup Bootstrap\Log\20200119_173942\Summary_DESKTOP-L60F6MI_20200119_173942.txt

Close

Now we need to Install SQL Server management studio





RELEASE 18.4

Microsoft SQL Server Management Studio

Restart required in order to complete setup.

All specified components have been installed successfully.

The computer needs to be restarted before setup can continue.

Restart

Close