## **How-To Install SQL Server Express Edition in Windows**

## What is SQL Server Express edition?

SQL Express is a free and feature-limited edition of SQL Server that has been being published since the SQL Server 2005 version and it still continues to be published by Microsoft. Nowadays, Microsoft has released the Express edition of SQL Server 2019. We can use this edition for lightweight datadriven mobile, desktop or web applications. However, when we decide to use this edition, the supported features have to be checked in the <u>Editions and supported features of SQL Server 2019</u>. For example, the database size can not exceed 10 GB and the SQL Server Agent feature is not supported by the Express editions. As a result, we must take the limited features into consideration before planning to use the SQL Express Editions.

In this article, we will learn how to install **SQL Server 2019 Express** edition step by step, and we will also mention some useful tips for the installation.

## **Download SQL Server Express edition**

We can download the express edition of SQL Server 2019 from the <u>Microsoft official web site</u>. On this download page, we can find out the express edition download link. When we click the **Download now** link, we can begin the download process:



#### Or, download a free specialized edition

After downloading the setup package, we can start the installation steps. We will right-click the installation file which is named **SQL2019-SSEI-Expr.exe** and select the **Open** option in order to start the installation process. In this step, we must make sure that the logged-on user already has the necessary rights to install the programs on the computer. Otherwise, we can face problems during the installation steps:

1		
SQL2019-SS		Open
I-Expr.exe	•	Run as administrator
		Troubleshoot compatibility
		Pin to Start
	2	Edit with Notepad++

After starting the installation, we have to choose the installation type of the SQL Express edition:



The **Basic** installation method is the quickest and easiest installation method to install the SQL Server Database Engine with the default configuration.

The **Download Media** option also allows us to download the setup files for offline installations:

SC	© – ×			
E:	xpress Edition			
Sp	ecify SQL Server installer down	load		
SELE( Engl	CT LANGUAGE ish	•		
WHIC	CH PACKAGE WOULD YOU LIKE TO DOWNLOAD?			
0	Express Core (248 MB) SQL Server Engine only			
0	Express Advanced (789 MB) SQL Server Engine, Full Text Services, and Reporting	g Services		
0	LocalDB (53 MB) Lightweight version of Express Edition with all of its	programmability featu	ures, but runs in user m	ode
Or, g	o to the Microsoft Azure portal to provision SQL Server in the	e cloud		
SELE	CT DOWNLOAD LOCATION			
C:\D	ownloads	P Browse		
		Close	< Previous	Download
				15.1911.4567

The **Custom** installation method offers more advanced installation options so that we can configure the features and other options of the SQL Server installation. We will use the **Custom** installation method. In the next screen, we will set the path of the setup files to be downloaded and then click the **Install** button:

sql Server 2019 Express Edition			© – ×
Specify SQL Server media downlo	ad target loc	ation	
MEDIA LOCATION C:\SQL2019	Browse	MINIMUM F 6563 MB DOWNLOA 259 MB	TREE SPACE
	Close	< <u>P</u> revious	Install 15.1911.4567.1

The downloading process will be started and the elapsed time for this operation can be varying according to your internet connection speed:



## **Installing SQL Server Express edition**

After the completion of the download, the **SQL Server Installation Center** will meet us. In this screen, besides installing the SQL instance, we are able to install SQL Server Reporting Service, SQL Server Management Studio or SQL Server Data Tools and we can also upgrade the installed version of SQL Server.

Now, we will select the **New SQL Server stand-alone installation or add features to an existing installation** option to start the installation:



We will accept the license terms and other details on the Licence Terms screen and click Next:

1 SQL Server 2019 Setup	_		×
License Terms To install SQL Server 2019, y	you must accept the Microsoft Software License Terms.		
License Terms Global Rules Product Updates Install Setup Files Install Rules Feature Selection Feature Rules Feature Configuration Rules Installation Progress Complete	MICROSOFT SOFTWARE LICENSE TERMS MICROSOFT SQL SERVER 2019 EXPRESS These license terms are an agreement between you and Microsoft Corporation (or its affiliates). They apply to the software named above, which includes the media or you received it, if any. The terms also apply to any Microsoft services or software u (except to the extent such services or updates are accompanied by new or addition terms, in which case those different terms apply prospectively and do not alter you Microsoft's rights relating to pre-updated software or services). IF YOU COMPLY THESE LICENSE TERMS, YOU HAVE THE RIGHTS BELOW FOR EACH SERVER YOU PROPERLY LICENSE. BY USING THE SOFTWARE, YOU ACCEPT THESE TERMS. DO NOT ACCEPT THEM, DO NOT USE THE SOFTWARE. INSTEAD, RETURN IT	one o pdate nal ur or WITH OU IF YC TO TH	f h s U DU HE
	SQL Server transmits information about your installation experience, as well as other usage and performance data, to Microsoft to help improve the product. To learn more about data process privacy controls, and to turn off the collection of this information after installation, see the documentation.	i opy sing an	Print
	< <u>B</u> ack <u>N</u> ext >	Cance	al

The **Global Rules** screen will be launched and, the SQL Server Setup will be checked the computer configurations:

1 SQL Server 2019 Setup			_		$\times$
Global Rules					
Setup Global Rules identify pro corrected before Setup can co	oblems that r ntinue.	night occur when you install SQL Server Setup support files. Fa	ilures must be		
License Terms Global Rules Product Updates Install Setup Files Install Rules	Operation Hide det <u>View deta</u>	a completed. Passed: 8. Failed 0. Warning 0. Skipped 0. tails << <u>iled report</u>		Re-	run
Feature Rules Feature Configuration Rules Installation Progress Complete	Result © © © © © © © © © © © © ©	Rule         Setup administrator         Setup account privileges         Restart computer         Windows Management Instrumentation (WMI) service         Consistency validation for SQL Server registry keys         Long path names to files on SQL Server installation media         SQL Server Setup Product Incompatibility         Edition WOW64 platform	Status Passed		
		< Back	Next >	Cance	:1

The **Product Update** screen checks the latest updates of the SQL Server Setup and if we don't have an internet connection, we can disable the **Include SQL Server product updates** option:

1 SQL Server 2019 Setup		_		$\times$
Product Updates				
Always install the latest update	es to enhance your SQL Server security and performance.			
License Terms Global Rules <b>Product Updates</b>	Include SQL Server product updates			
Install Rules			Skip S	Scan
Feature Selection Feature Rules Feature Configuration Rules Installation Progress Complete				
	Read our privacy statement online			
	< Back Next >		Cancel	

In the **Install Rules** screen, the potential issues will be checked by SQL Setup that might be occurred during the installation. We will click the **Next** button and skip the next step:

t SQL Server 2019 Setup			_		×
Install Rules					
Setup rules identify potential p can continue.	roblems that	might occur while running Setup. Failures must be corrected bef	ore Setup		
License Terms Global Rules Product Updates Install Setup Files	Operation Hide det <u>View detai</u>	completed. Passed: 3. Failed 0. Warning 1. Skipped 0. ail <u>s</u> << <u>led report</u>		<u>R</u> e	-run
Feature Selection Feature Rules Instance Configuration Java Install Location Server Configuration Database Engine Configuration Consent to install Microsoft R Consent to install Python Feature Configuration Rules Installation Progress Complete	Result © (2) (2) (2) (2) (2) (3) (3) (4) (4) (5) (4) (5) (5) (5) (5) (5) (5) (5) (5	Rule         Consistency validation for SQL Server registry keys         Computer domain controller         Windows Firewall         SQL 2019 minimum CTP for Upgrade and Side by Side Support	Status Passed Warning Passed		
		< <u>B</u> ack	<u>N</u> ext >	Canc	el

In the **Feature Selection** screen, we can select the features which we want to install. For this installation, we will disable the following features:

- Machine Learning Services and Language Extensions
- Full-Text and Semantic Extractions For Search
- PolyBase Query Service for External Data
- LocalDB

At the same time, we can specify the installation path of the SQL Server through the **Instance root directory** option:

to SQL Server 2019 Setup			- 0	×
Feature Selection Select the Express features to in	nstall.			
License Terms Global Rules Product Updates Install Setup Files Install Rules Feature Selection Feature Rules Instance Configuration Server Configuration Database Engine Configuration Feature Configuration Rules Installation Progress Complete	Looking for Reporting Servic Eeatures:     Instance Features     SQL Server Replication     Machine Learning Ser     R     Python     Java     Full-Text and Semanti     PolyBase Query Servic     Java connector for Shared Features     Client Tools Connectivity     Client Tools Solk     SQL Client Connectivity S     LocalDB     Redistributable Features     Select <u>A</u>    <u>Unselect All</u> Instance goot directory:	C:\Program Files\Microsoft SQL Serv	Feature description:         Includes extensions that enable integration with R, Python, Java and other programming languages using standard T-SQL statements.         Prerequisites for selected features:         Already installed:         Windows PowerShell 3.0 or higher         Microsoft Visual C++ 2017 Redistributable         Disk Space Requirements         Drive C: 1314 MB required, 8269 MB available	< >
	Shared feature directory:	C:\Program Files\Microsoft SQL Serv	er\	
	Shared feature directory ( <u>x</u> 86):	C:\Program Files (x86)\Microsoft SQ	. Server\	
			< <u>B</u> ack <u>N</u> ext > Cancel	

In the **Instance Configuration** screen, we will give a name to the SQL instance but we will not change the default name of the installation. Click the **Next** button:

📸 SQL Server 2019 Setup					-		×
Instance Configuration							
Specify the name and instance	ID for the instance of SQL	Server. Instance ID becon	nes part of the installation path.				
License Terms Global Rules Product Updates Install Setup Files Install Rules Feature Selection Feature Rules Instance Configuration Server Configuration	O Default instance Named instance: SQL Server directory: Constalled instances:	QLExpress QLEXPRESS	SQL Server\MSSQL15.SQLEXPRES	s			
Database Engine Configuration Feature Configuration Rules Installation Progress Complete	Instance Name	Instance ID	Features	Edition		/ersion	
				< Back	Next >	Canc	el .:

In the **Server Configuration** screen, we can determine the startup type of the SQL Server Database Engine and SQL Server Browser services. We will not change the default options:

📸 SQL Server 2019 Setup				-		×
Server Configuration	d collation configuration.					
License Terms Global Rules Product Updates Install Setup Files Install Rules Feature Selection Feature Rules Instance Configuration <b>Server Configuration</b> Database Engine Configuration Feature Configuration Rules Installation Progress Complete	Service Accounts       Collation         Microsoft recommends that you use a separate account for         Service       SQL Server Database Engine         SQL Server Browser         Grant Perform Volume Maintenance Task privilege to St         This privilege enables instant file initialization by avoid content to be accessed.         Click here for details	r each SQL Server service. Account Name NT Service\MSSQLSSQLEXPRESS NT AUTHORITY\LOCAL SERVICE QL Server Database Engine Service ing zeroing of data pages. This may lead to in	Password	Startu Auton Disabl	ıp Type ed ted	
			< Back Next	>	Cance	el

At the same time, we can determine the service account of the SQL Server Database Engine and SQL Server Browser. In the **Collation** tab, we can customize the Server collation option of the SQL Server:

髋 SQL Server 2019 Setup		-		×
Server Configuration				
Specify the service accounts an	d collation configuration.			
License Terms Global Rules Product Updates Install Setup Files Install Rules Feature Selection Feature Rules Instance Configuration <b>Server Configuration</b> Database Engine Configuration Feature Configuration Rules Installation Progress Complete	Service Accounts       Collation         Database Engine:       SQL_Latin1_General_CP1_CI_AI         Latin1-General, case-insensitive, accent-insensitive, kanatype-insensitive, width-insensitive for Unicode Data, SQL Server Sort Order 54 on Code Page 1252 for non-Unicode Data		Customize	
	< <u>B</u> ack <u>N</u> ext >	•	Cance	ł

In the **Database Engine Configuration** screen, we will specify the authentication mode of the SQL Server. We have two options on this screen.

In the **Windows authentication** mode, the SQL logins are controlled by the Windows operating systems and it is best practice to use this mode.

In the **Mixed Mode**, the SQL Server can be accessed with both Windows authentication and SQL Server authentication. For this installation, we will select the Mixed Mode option, so we will set the password of the sa login of the SQL Server and we will also add a windows login. We can directly add the current windows user to the windows through the **Add Current User** button:

🃸 SQL Server 2019 Setup						-		$\times$
Database Engine Confi	guration							
Specify Database Engine auther settings.	ntication security mode, admin	nistrators, data o	directories, TempDB	, Max degree	e of parallelism, Memory limits, and	Filestream		
License Terms Global Rules Product Updates Install Setup Files Install Rules Feature Selection Feature Rules Instance Configuration Server Configuration Database Engine Configuration Feature Configuration Rules Installation Progress Complete	Server Configuration Data Specify the authentication Authentication Mode <u>Windows authenticatio</u> <u>Mixed Mode (SQL Server</u> Specify the password for t Enter password: <u>Confirm password</u> : <u>Specify SQL Server adminis</u> <u>Specify SQL Server adminis</u> <u>Add Current User</u>	a Directories Te n mode and adm on mode the SQL Server s istrators	empDB Memory ninistrators for the on and Windows aut system administrato	User Instance Database Eng thentication) r (sa) accoun	es FILESTREAM jine. t. SQL Server administrators have un Database Engine.	restricted acces	ss to the	
					< <u>B</u> ack	<u>N</u> ext >	Cance	el i

In the **Data Directories** tab, we can set the default directory of the database and backup files:

髋 SQL Server 2019 Setup		_		×
Database Engine Config	guration			
Specify Database Engine authen settings.	tication security mode, administr	rators, data directories, TempDB, Max degree of parallelism, Memory limits, and Filestream		
License Terms Global Rules Product Updates	Server Configuration Data Dir	ectories TempDB Memory User Instances FILESTREAM C:\Program Files\Microsoft SQL Server\		
Install Setup Files	System database directory:	C:\Program Files\Microsoft SQL Server\MSSQL15.SQLEXPRESS\MSSQL\Data		
Feature Selection	User database directory:	C:\Program Files\Microsoft SQL Server\MSSQL15.SQLEXPRESS\MSSQL\Data		
Feature Rules	User database <u>l</u> og directory:	C:\Program Files\Microsoft SQL Server\MSSQL15.SQLEXPRESS\MSSQL\Data		
Instance Configuration Server Configuration	Bac <u>k</u> up directory:	C:\Program Files\Microsoft SQL Server\MSSQL15.SQLEXPRESS\MSSQL\Backup		
Feature Configuration Rules Installation Progress Complete				
		< <u>B</u> ack <u>N</u> ext >	Can	cel

In the **TempDB** tab, we can set the number and size of the tempdb files. For this installation, we will not change these settings and click the **Next** button:

髋 SQL Server 2019 Setup		-	- 🗆	×
Database Engine Config Specify Database Engine authen settings.	guration	administrators, data directories, TempDB, Max degree of parallelism, Memory limits, and Filestream		
License Terms Global Rules Product Updates Install Setup Files Install Rules Feature Selection Feature Rules Instance Configuration Server Configuration Database Engine Configuration Feature Configuration Rules Installation Progress Complete	Server Configuration TempDB data files: Number of files: Initial size (MB): Autogrowth (MB): Data directories:	Data Directories       TempDB       Memory       User Instances       FILESTREAM         tempdb.mdf       Image: Comparison of the system	<u>A</u> dd <u>R</u> emove	
	TempDB log file: Initial gize (MB): Autogrowth (MB): Log directory:	templog.ldf  Setup could take longer with large initial size.  G4  C:\Program Files\Microsoft SQL Server\MSSQL15.SQLEXPRESS\MSSQL\Data		
		< <u>B</u> ack <u>N</u> ext >	Cance	

**Tip:** If you predict over workload on the TempDB database for your SQL Server, you can change the number of the tempdb files. Microsoft recommended the <u>following rule</u> as a best practice:

"As a general rule, if the number of logical processors is less than or equal to eight, use the same number of data files as logical processors."

In the **Installation Progress** screen, we can follow the progress of the installation:

🃸 SQL Server 2019 Setup		-		×
Installation Progress				
License Terms Global Rules Product Updates Install Setup Files Install Rules Feature Selection Feature Rules Instance Configuration Server Configuration Database Engine Configuration Feature Configuration Rules Installation Progress Complete	Install_conn_info_Cpu64_Action : MsiPublishAssemblies. Publishing assembly information			
	Next >	•	Cancel	

In the final step, the **Complete** screen meets us and it gives information about the result of the installation:

1 SQL Server 2019 Setup		-		×
Complete				
Your SQL Server 2019 installati	ion completed successfully with product updates.			
License Terms Global Rules	Information about the Setup operation or possible next steps:			^
Product Updates	Database Engine Services     Succeeded			
Install Setup Files Install Rules Feature Selection Feature Rules Instance Configuration Server Configuration Database Engine Configuration Feature Configuration Rules Installation Progress <b>Complete</b>	SQL Server Replication       Succeeded         SQL Browser       Succeeded         SQL Writer       Succeeded         Client Tools Backwards Compatibility       Succeeded         Client Tools SDK       Succeeded         Client Tools SDK       Succeeded         Details:       Install successful.			~
	I Summary log file has been saved to the following location:			
			Close	•

## **Test connection to SQL Server Express**

After installing the SQL Express, we are able to connect to the SQL Server Database Engine over the <u>SQL Server Management Studio</u>. The following server notation can be used to open a connection to SQL Engine:

COMPUTERNAME\SQLEXPRESS

🖵 Connect to Server	2	×
	SQL Server	
Server type:	Database Engine ~	1
Server name:	COMPUTERNAME\SQLEXPRESS ~	2
Authentication:	SQL Server Authentication	1
Login:	sa	~
Password:	****	
	Remember password	
	Connect Cancel Help Options >>	

At the same time, we can test the connection SQL Server Engine through the command prompt.

### For the Windows authentication:

```
SQLCMD -S COMPUTERNAME\SQLEXPRESS
SELECT @@VERSION
GO
```

#### For the SQL authentication:

```
SQLCMD -S COMPUTERNAME\SQLEXPRESS -U sa -P sa_password
SELECT @@VERSION
GO
```



# How to enable TCP/IP connection for the SQL Server 2019 Express edition?

We can use **TCP/IP** protocol to connect the SQL engine after the installation but this protocol will be disabled by default. To enable the TCP/IP protocol:

- Open SQL Server Configuration Manager and find the Protocols for SQL Express option
- Enable the **TCP/IP** protocol



- Right-click to TCP/IP and select Properties menu item
- Change TCP Port to 1433 under the IPAII tab

<b>E</b>	Sq	Server Configur	ation Manager				X
File Action View Help							
🛞 SQL Server Configuration Manager (Local)	Protocol Name	Status					
SQL Server Services	Shared Memory	Enabled					
SQL Server Network Configuration (32bit	Vamed Pipes	Disabled					
SQL Native Client 11.0 Configuration (32)	TCP/IP	Enabled					
⊿ SQL Server Network Configuration				2	x	Π	
Protocols for MSSQLSERVER		ICP/IP P	roperties	-			
▶ .♣. SQL Native Client 11.0 Configuration	Protocol IP Add	resses					
	TCP Dynamic	Ports			~		
	TCP Port		1433				
	□ IP8						
	Active		Yes				
	Enabled		No				
	IP Address		127.0.0.1				
	TCP Dynamic	Ports					
	TCP Port		1433				
	E IP9						
	Active		Yes				
	Enabled		No				
	IP Address	P. 4	fe80::5efe:192.168.1.101%1	15			
	TCP Dynamic	Ports	1422	_			
			1455		=		
	TCP Dynamic	Ports					
	TCP Port	T OILS	1433	_			
					~		
	TCP Port						_
	TCP port						
							 _
	L				_		
		OK Car	ncel <u>A</u> pply	Help			

• Restart SQL Server (SQLEXPRESS)

Sql Server Configuration Manager				-	- 🗆 X
Dosya Eylem Görünüm Yardım					
← ➡   2   🖾   📓   0 💿 👁					
SQL Server Configuration Manager (Local)	Name	er	State Stopped	Start Mode Other (Boot, System,	Log On As NT AUTHORITY\LOC
<ul> <li>SQL Server Network Configuration (32bit)</li> <li>SQL Native Client 11.0 Configuration (32bit)</li> <li>Client Protocols</li> <li>Aliases</li> <li>SQL Server Network Configuration</li> <li>Protocols for SQLEXPRESS</li> <li>SQL Native Client 11.0 Configuration</li> <li>Client Protocols</li> <li>Aliases</li> </ul>	SQL Server (SQLE	KPRESS) Start Stop Pause Resume Restart Özellikler Yardım	Running ipped	Automatic Other (Boot, System,	NT Service\MSSQLS

# Conclusion

In this article, we learned how to install SQL Server Express step by step with details. By following these steps, we can easily complete the installation process of the SQL Server 2019 Express edition.

Courtesy: <a href="https://www.sqlshack.com/how-to-install-sql-server-express-edition/">https://www.sqlshack.com/how-to-install-sql-server-express-edition/</a>

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