# SQL Server: Database Server Architecture. SQL Server Management Studio

What is the default port used by the SQL Server?

GO

xp\_readerrorlog 0, 1, N'Server is listening on'

GO

1433

Or in CMD type:

Netstat –abn

TCP 0.0.0.0:1433 0.0.0.0:0 LISTENING

[sqlservr.exe]

2. What is a Virtual Account?

Virtual accounts were introduced in Windows Server 2008 R2 and Windows 7, and are managed local accounts that provide the following features to simplify service administration:

* The virtual account is automatically managed.
* The virtual account can access the network in a domain environment.
* No password management is required. For example, if the default value is used for the service accounts during SQL Server setup on Windows Server 2008 R2, a virtual account that uses the instance name as the service name is established in the format NT SERVICE\<SERVICENAME>.

Services that run as virtual accounts access network resources by using the credentials of the computer account in the format <domain\_name>\<computer\_name>$.

3. List and explain one difference between Enterprise Edition and Standard Edition.

The main differences between Standard and Enterprise Edition is scale limits. Enterprise provides either unlimited memory or up to operating system limits. Standard edition is limited to 24 cores, maximum buffer pool size per instance is 128GB, column store segment 32GB, etc Both edition offer almost the same features, but the second is limited.

4. What is a candidate record?

The candidate record is a row that satisfy the WHERE and JOIN conditions.

5. What is the role of model database?

Model database is a template of all databases created on an instance of SQL Server. When you create a new database, the entire contents of the model database, including database options, are copied to the new database. If you modify the model database, all databases created afterward will inherit those changes. You can change most database properties, create users, stored procedures, tables, views, etc – whatever you do will be applied to any new databases. So, using model database you can create easily a new database.

6. Name 3 differences between tempdb and other user or system databases

Create a database with the following specs:

- 3 filegroups for ROWS Data: Primary, Indexes, Data

- each ROWS filegroup with 2 files; initial size to be 16 MB

- Primary filegroup files have auto-growth set to 32 MB, max size set to 16 GB

- Indexes filegroup files have auto-growth set to 64 MB, unlimited

- Data filegroup files have auto-growth set to 128 MB, unlimited

- 1 filegroup for LOG with 2 log files - Transaction logs cannot be put in filegroups

- one log file with initial size of 16 MB, growth of 64 MB, max size set to 16 GB

- one log file with initial size of 16 MB, growth of 1 GB, max size unlimited

Send the database creation sql script.

USE [master]

GO

/\*\*\*\*\*\* Object: Database [Demo3] Script Date: 12/14/2018 11:30:53 AM \*\*\*\*\*\*/

CREATE DATABASE [Demo3]

CONTAINMENT = NONE

ON PRIMARY

( NAME = N'Demo3', FILENAME = N'C:\Program Files\Microsoft SQL Server\MSSQL13.MSSQLSERVER\MSSQL\DATA\Demo3.mdf' , SIZE = 16384KB , MAXSIZE = 16777216KB , FILEGROWTH = 32768KB ),

( NAME = N'Primar1', FILENAME = N'C:\Program Files\Microsoft SQL Server\MSSQL13.MSSQLSERVER\MSSQL\DATA\Primar1.ndf' , SIZE = 16384KB , MAXSIZE = 16777216KB , FILEGROWTH = 32768KB ),

FILEGROUP [Data]

( NAME = N'Data1', FILENAME = N'C:\Program Files\Microsoft SQL Server\MSSQL13.MSSQLSERVER\MSSQL\DATA\Data1.ndf' , SIZE = 16384KB , MAXSIZE = UNLIMITED, FILEGROWTH = 131072KB ),

( NAME = N'Data2', FILENAME = N'C:\Program Files\Microsoft SQL Server\MSSQL13.MSSQLSERVER\MSSQL\DATA\Data2.ndf' , SIZE = 16384KB , MAXSIZE = UNLIMITED, FILEGROWTH = 131072KB ),

FILEGROUP [Indexes]

( NAME = N'Index1', FILENAME = N'C:\Program Files\Microsoft SQL Server\MSSQL13.MSSQLSERVER\MSSQL\DATA\Index1.ndf' , SIZE = 16384KB , MAXSIZE = UNLIMITED, FILEGROWTH = 65536KB ),

( NAME = N'Index2', FILENAME = N'C:\Program Files\Microsoft SQL Server\MSSQL13.MSSQLSERVER\MSSQL\DATA\Index2.ndf' , SIZE = 16384KB , MAXSIZE = UNLIMITED, FILEGROWTH = 65536KB )

LOG ON

( NAME = N'Demo3\_log', FILENAME = N'C:\Program Files\Microsoft SQL Server\MSSQL13.MSSQLSERVER\MSSQL\DATA\Demo3\_log.ldf' , SIZE = 8192KB , MAXSIZE = 2048GB , FILEGROWTH = 65536KB ),

( NAME = N'Log1', FILENAME = N'C:\Program Files\Microsoft SQL Server\MSSQL13.MSSQLSERVER\MSSQL\DATA\Log1.ldf' , SIZE = 16384KB , MAXSIZE = 16777216KB , FILEGROWTH = 65536KB ),

( NAME = N'Log2', FILENAME = N'C:\Program Files\Microsoft SQL Server\MSSQL13.MSSQLSERVER\MSSQL\DATA\Log2.ldf' , SIZE = 16384KB , MAXSIZE = 2048GB , FILEGROWTH = 10366976KB )

GO

ALTER DATABASE [Demo3] ADD FILEGROUP [LOG]

GO

ALTER DATABASE [Demo3] MODIFY FILEGROUP [Data] AUTOGROW\_ALL\_FILES

GO

ALTER DATABASE [Demo3] MODIFY FILEGROUP [Indexes] AUTOGROW\_ALL\_FILES

GO

ALTER DATABASE [Demo3] MODIFY FILEGROUP [PRIMARY] AUTOGROW\_ALL\_FILES

GO

ALTER DATABASE [Demo3] SET COMPATIBILITY\_LEVEL = 130

GO

IF (1 = FULLTEXTSERVICEPROPERTY('IsFullTextInstalled'))

begin

EXEC [Demo3].[dbo].[sp\_fulltext\_database] @action = 'enable'

end

GO

ALTER DATABASE [Demo3] SET ANSI\_NULL\_DEFAULT OFF

GO

ALTER DATABASE [Demo3] SET ANSI\_NULLS OFF

GO

ALTER DATABASE [Demo3] SET ANSI\_PADDING OFF

GO

ALTER DATABASE [Demo3] SET ANSI\_WARNINGS OFF

GO

ALTER DATABASE [Demo3] SET ARITHABORT OFF

GO

ALTER DATABASE [Demo3] SET AUTO\_CLOSE OFF

GO

ALTER DATABASE [Demo3] SET AUTO\_SHRINK OFF

GO

ALTER DATABASE [Demo3] SET AUTO\_UPDATE\_STATISTICS ON

GO

ALTER DATABASE [Demo3] SET CURSOR\_CLOSE\_ON\_COMMIT OFF

GO

ALTER DATABASE [Demo3] SET CURSOR\_DEFAULT GLOBAL

GO

ALTER DATABASE [Demo3] SET CONCAT\_NULL\_YIELDS\_NULL OFF

GO

ALTER DATABASE [Demo3] SET NUMERIC\_ROUNDABORT OFF

GO

ALTER DATABASE [Demo3] SET QUOTED\_IDENTIFIER OFF

GO

ALTER DATABASE [Demo3] SET RECURSIVE\_TRIGGERS OFF

GO

ALTER DATABASE [Demo3] SET DISABLE\_BROKER

GO

ALTER DATABASE [Demo3] SET AUTO\_UPDATE\_STATISTICS\_ASYNC OFF

GO

ALTER DATABASE [Demo3] SET DATE\_CORRELATION\_OPTIMIZATION OFF

GO

ALTER DATABASE [Demo3] SET TRUSTWORTHY OFF

GO

ALTER DATABASE [Demo3] SET ALLOW\_SNAPSHOT\_ISOLATION OFF

GO

ALTER DATABASE [Demo3] SET PARAMETERIZATION SIMPLE

GO

ALTER DATABASE [Demo3] SET READ\_COMMITTED\_SNAPSHOT OFF

GO

ALTER DATABASE [Demo3] SET HONOR\_BROKER\_PRIORITY OFF

GO

ALTER DATABASE [Demo3] SET RECOVERY FULL

GO

ALTER DATABASE [Demo3] SET MULTI\_USER

GO

Present in 1-2 minutes your understanding for one of the below items:

Query Processor

https://docs.microsoft.com/en-us/sql/relational-databases/query-processing-architecture-guide

Storage Engine

https://docs.microsoft.com/en-us/sql/relational-databases/pages-and-extents-architecture-guide

Buffer Manager

https://docs.microsoft.com/en-us/sql/relational-databases/memory-management-architecture-guide

Thread and Task Management

https://docs.microsoft.com/en-us/sql/relational-databases/thread-and-task-architecture-guide

master Database

https://docs.microsoft.com/en-us/sql/relational-databases/databases/master-database

msdb Database

https://docs.microsoft.com/en-us/sql/relational-databases/databases/msdb-database

model Database

https://docs.microsoft.com/en-us/sql/relational-databases/databases/model-database

Resource Database

https://docs.microsoft.com/en-us/sql/relational-databases/databases/resource-database

tempdb Database

https://docs.microsoft.com/en-us/sql/relational-databases/databases/tempdb-database

Collation

https://docs.microsoft.com/en-us/sql/relational-databases/collations/collation-and-unicode-support