Q. What are the SQL Server Editions have you used?

In our current environment, we are using SQL Server Enterprise Editions of SQL Server 2008 R2, SQL Server 2012, and SQL Server 2014. Most of our instances are running on SQL Server 2012. However, we are still using SQL Server 2008 R2 for few applications. It is because these are still not certified to run on SQL Server 2012. I have upgraded most of the SQL Server 2008 R2 instances to SQL Server 2012 except those does not support by the underneath applications.

Currently, we are testing SQL Server 2014 and we are planning to SQL Server 2008 R2 and 2012 to SQL Server 2014 in future.


Q. What are the SQL Server Versions have you used?

SQL Server 2000
SQL Server 2008 R2
SQL Server 2012
SQL Server 2014

Q. How do you find Edition and Version of SQL Server you are using?
Option 1:
Run the following query:
SELECT @@VERSION

Option 2:
From Management Studio, Right click on Server Properties

Q. How do you connect Default and named instance of SQL Server
For Default instance (MSSQLSERVER) all you need is the Server name (Computer Name) or IP address and related credentials.
For named instance, it requires the Server name and Instance Name and it requires typing DGMSHAAIMPROD1 (server name\instance name)

Q. How do you verify if the Database Server is running or not?
There are many different options available like

Option 1:
From windows services, find the SQL Server Service and look for status
Steps: Start > Control Panel > Administrative tools > Services and then look for SQL Server Service

Option 2:
Type: Services and then look for SQL Server Service

Option 3:
From SQL Server Configuration Manager

Q. How do shutdown or start Database Server?
Steps: Start > Control Panel > Administrative tools > Services and then look for SQL Server Service and then either shutdown or start the server and can use many other options as mentioned above

Q. How much hard disk space do you need to install SQL Server Database Software?
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About 4 GB hard disk space is needed depending on what features of SQL Server are being installed. However, it is important to keep in mind that at least 10 GB Free space is required for operational and better performance requirement.

Q. What is SQL Server Instance?
SQL Server installation offers two options to install on any machine or server:
- SQL Server Default instance (MSSQLSERVER)
- SQL Server Named instance (Example - DGSQLElProd14)

When install SQL Server as a default instances, the name of the instance is MSSQLSERVER and can only be ONE default instance on one machine/server.

If you have to install more than one instance of SQL server on a single server, you will have to install named instance, there is no such limit on named instances, however you want to consider how each instance will consume the resources on your machine.

You can connect to SQLSERVER default instance using just the machine name that sql server default instance is installed in using multiple client tools such as management studio or sql connect client etc. OR you can use “.” A dot which means, point me to the default SQL Server instance.

Q. What kind of problems have you encountered during the installation? How did you solve those problems?
1. Firewall problem – Windows and third party firewall – require to stop both. McFee/Norton, CASPERESKI or any other Firewall running on the server
2. In Windows Server 2012 for SQL Server 2008 R2 –SP 2 of Windows Server is required
3. Space problem – Not space was allocated to create required databases
4. Some features were not installed cleanly – due to firewall was enabled
5. DotNet Framework 3.5 SP1 was not installed, which is required for versions of SQL Server to install like SQL Server 2008 R2, 2012, and 2014

Q. How do you prepare your server to install SQL Server database Software?
For your information, we are using Dell PowerEdge 3100, 2900, 2950, 2850 and IBM Think Server RACK
1. Create installation documentation or use existing installation documentation if already exist
2. Verify Operating System (OS) and OS SP (Service Pack) Requirements
3. Verify 32 or 64 bit architecture of OS
4. Verify hardware, memory, CPU, and other software requirements like DotNet
5. Configuration hardware by identifying and creating directory for Data file, Log file, TEMPDB, System DBs, and Backup location for local backup of Databases
6. Stop or disable firewall
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7. Enable DotNet Framework like 3.5 SP1 and others like 4.0 for SQL Server 2012 and 4.5 for SQL Server 2014 and 2016. It is important to keep in mind that DotNet Framework 3.5 SP1 is required for all versions
8. Create service account and grant local admin permission or use the existing AD (Active Directory) Service Account and grant local admin permission on the new server
9. Get license from supervisor
10. Install Database Software according to company standard policy
11. Configure Database Server network
12. Verify Installation
13. Verify it is working by
   a. Connecting to the Database Server and
   b. By creating Database, and other objects like tables, views, index etc
14. Notify Supervisor regarding completion of installation

Q. Services for SQL Server should run manual or automatic?

It should be Automatic. It is because if for any reason like power failure computer will require to shut down or for computer maintenance purposes if computer restarted, SQL Server Database Server will not start by itself. However, if we keep the service to start automatic, SQL Server Database Server will start automatically from any failure or shutdown.

Q. What is a service account?

A service account is an account that is used for managing services. For an example, if we use an account for managing SQL Server related services that will consider as SQL Server Service Account. Here is an example of recommended name for service account for SQL Server SQLDBA, SQLAdmin, DBA etc.

Q. Do you recommend to use different accounts for different/each services?

It does not really as long as we have a password change policy in place. In our workplace, we change password in every 90 days. So, it is secured enough.

Q. Tell me a scenario when you should not use difference service account for different services?

Database Engine and Database Agent services must be using same service account if you need to HA (High Availability solutions) example: Database Mirroring

3. What kind of CPU do you need for SQL Server Database Server?

a. Types of CPU: According to Microsoft Recommendation Intel architecture should be used - quad core, or XEON type of CPU machine, i3, i5, i7,
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4. How much memory do you need to install SQL Server?
a. At least 4 GB. However, depends DB Size, number of users, type of activities, and also depends on type of CPU, applications, jobs running, other technologies like HA, and what else is running on the server like SharePoint, Reporting Server, Web Apps/Server

What are the tools you have used to manage SQL Server Databases?

1. SQL Server Management Studio (SSMS)
2. SQL Server Query Analyzer and Other tools like
3. DMV (Dynamic Management View)
4. DMF (Dynamic Management Function)
5. SQL Server Profiler
6. Database Tuning Advisor
7. SQL Execution Plan and other
8. Third Party tools like Idera, Red Gate, SQL Sentry, OpNet, SolarWinds

Where do we store data in a database?
All data are stored in tables of a database

Q. What are the differences between Standard and Enterprise Edition of SQL Server?
a. Cost:
b. Performance since more memory and CPU can be used by the SQL Server
c. Security Feature: Data encryption, audit,
d. Compression
e. Partitioning
f. AlwaysOn database option available in SQL Server 2012 and higher versions
g. In Memory database option available in SQL Server 2012 and higher versions

Q. What are the different authentication modes in SQL Server? Advantages and disadvantages of modes and which is one better?
a. Modes: Windows and Mixed
b. Advantage:
i. Windows: Allows to be able to use Single Sign-On (SSO) SSO does not require to provide logins and password to access/use any applications. Same logins and password will be used for the all applications. It gets the login credentials from AD (Active Directory), highly secured. Sometime, I think this mode is more secured account and account rights is managed from single server (AD Server) – is disabled centrally all access is blocked, rights can be controlled from one place
ii. **Mixed**: SSO still possible for SQL Server. If there are any users does not have AD account, must require to use Mixed mode, I would consider this mode is more secure since it requires credentials for each and every single apps

c. **Disadvantage** –

i. **Windows**: If someone does not have AD account will not be able to use any apps, If system is not being locked, someone else might access applications, Security is compromised ie would allow to access all apps since it is SSO Every single user require to have AD account first before an account in DB system can be created

ii. **Mixed**: However, SSIS functionality can be achieved for apps, Accounts and rights management is decentralized and credentials are managed in each apps separately - more administrative work, more risk of making makes, cost more, require to remember all apps someone had had access, some cases might be impossible or hard to manage the standard policy (naming and password complexity) ie different apps may have diff stand policy as it would require diff pass combinations, and it is also risky (disabled, access rights, hard to keep track on rights, apps, active, inactive)

9. Which authentication mode is more secured?

10. Differences between Windows Admin Account used as SQL Admin and SA account
a. SA account is built-in account

11. What is TCP/IP port number? Can you change and if can, how do you change?
a. 1433

12. What are the steps for post installation configuration?
a. Configure accessibility: TCP/IP – allows users to access the DB server from anywhere, from any application, Named pipe (ODBC), Shared Memory (allows only local connection)
b. ODBC (Open Database Connectivity): It is a protocol to open a connection to Database System. Connection requires by who: apps, human being/users. However, all apps does not use the ODBC protocol to connect database. There are some apps, which only support ODBC protocol to connect to databases. Example, some third party apps (Troubleshooting), TEA (Telework eForm Agreement), WebTA, SAA,

13. What are the verification and validation methods for installation?
a. It is a process to verify an app is installed and configured properly ie SQL Server
b. For SQL Server:
   i. Should see the success installation confirmation message and verify installation log
   ii. Services related SQL Server/apps/Oracle/MySQL/Firewall can be stopped or stared
   iii. Be able to connect
iv. Be able to create, delete, insert, update DB, table, records

v. 14. What are the things you need to do before installing SQL Server?
   a. Disable firewall

b. Verify system meets all the requirements: Dotnet, Windows installer, Service account, Storage (RAID 1 or RAID 10), Windows SP, CPU, Memory
c. Storage configuration: Determination of files locations (Data file, Log file, Backup File, TempDB files, System DB files)
d. Documentation

15. What are the requirements to configure ODBC connection for an application from SQL Server?

16. How long does it take to install SQL Server?
   a. 20 to 45 minutes depending system resources

17. Does it require applying SP for OS before installing SQL Server 2008 R2 or 2012?
   a. It may require you to apply SP on windows depending on windows version ie on Windows 2008 require SP2 for SQL Server 2008 R2 and 2012

What are the services in SQL Server?

1. SQL Server Database Engine  
2. SQL Server Agent Service  
3. SQL Server Reporting Services (SSRS)
4. SQL Server Integration Services (SSIS)
5. SQL Server Browser

What are the system/Resource databases?

1. Master  
2. MSDB  
3. TEMPDB  
4. Model  
5. Distribution (Optional: Will automatically be created if Replication is configured for any database on the server)

Why do you need to upgrade Databases and Server?
There are many reasons to upgrade database server to higher versions like:

1. Microsoft will no longer provide support
2. No SP (Service Pack) will be released. So, it is a big security problem
3. Applications require higher version of Database Server
4. Management requires to move with the newer version of SQL Server
5. Risk of security
6. Does not support other updated version of applications used by the company

We use Dell/EMC/HP Servers for our Database servers. However, we have some servers that Dell is no longer providing technical support.

What are differences between data file and Log File?

**Data File:** Contains actual data that we store in database

**Log File:** Contains data temporarily. As we insert records in a database first all data are written in Log File and then in every 15 minutes (Default Time) data will be written to Data File from Log File

How do you change authentication Mode from windows to SQL or SQL Server to Windows?

From instance properties > Security > Change authentication

What is collation?

It determines Case insensitivity, accent sensitivity, Sorting order of records in database

John, john, joHn, and joHN All will be treated as same since case insensitive

What is named pipe?

For any application that that requires to use ODBC protocol to connect with the Database server, Named pipe protocol must be enabled.

This is a protocol (Rule) to connect to Database Server
1. Require to use either ODBC (Open Database Connectivity) or JDBC protocol
2. Configure Either ODBC or JDBC
3. Use system DSN (Data Source Name)
3. ODBC or JDBC can be configured using either Windows Authentication or SQL Serve Authentication
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What is TCP/IP?
This is a protocol to connect to Database Server. With users or applications can use this protocol to connect to Database Server.

Protocol:
1. Require to use **IP address** or Computer Name
2. Can use windows Authentication or SQL Serve Authentication

We will decommission some of SQL Server Machines/Servers. What is your approach? What are the steps you will follow? How do you migrate a database for one server to another?

7. Install SQL Server Software on the new machine/server
8. Backup databases from the old machine and restore those on the machine
9. Transfer the logins from the old machine to the new machine
10. Transfer the maintenance plans
11. Configure **Connections** in Database Server for Applications:
   1. Coordinate with app team and provide information of the new server (Server Name or IP Address or both)
   2. If any applications are using ODBC connections, need to recreate and provide those ODBC information to the app team ODBC: Open Database Connectivity

Do you install Database Software, Master Database, Temp Database and other databases like user databases in the same directory?

No. If we keep everything in the same directory, we will have bad performance, applications will be slow and all other related tasks will suffer from bad performance.

Here is an example where everything is installed on the same directory,
18. How do you determine which SP you need for your SQL Server?
19. How do you configure memory and CPU for SQL Server?
21. Why should you disable the firewall?
22. What kind of permission do you need to install SQL server?
23. What is cumulative SP?
24. How often do you apply SP?
26. Where do you download SP and SQL Server?
28. Do you need a domain account?
29. What is the difference between instance feature and shared feature?
31. How much does the licensing cost?
32. What kind of licensing does your company have?
33. When you buy a license for SQL Server, what are the things you need to consider?