

SQL Server Administration

- Database administrators need to handle all facets of managing Microsoft SQL Server ranging from installation and patching to creating databases to managing permissions that allow users to use the databases.
- However, more than anything, they are responsible for protecting the data and maintaining performance levels.
- They often act as internal advisors on how to use SQL Server effectively. It is a critical role because if a database is offline or when losing data, the business and its customers immediately feel the impact.
- This SQL Server administration provides you with the knowledge and skills you need to administer SQL Server database servers effectively.
- This is for database administrators and developers, who want to administer SQL Server successfully.

To learn about the DBA, you should have knowledge on the following fundamental database concepts.

- [System databases](#) – introduce you to system databases and their purposes.

Backup and Recovery models

- [Recovery model](#) – learn about SQL Server recovery models including simple, full, and bulk-logged.
- [Backup types](#) – introduce to you three backup types including full backup, differential backup, and transaction log backup.

[Full backup](#) – show you how to create a full backup of a database.

[Differential Backup](#) – learn about differential backups and how to create and restore a differential backup.

[Transaction Log Backup](#) – explain the transaction log backup and how to back up and restore a database from transaction log backups.

Creating Roles and Logins

- [Create Login](#) – create a login account to log in to the SQL Server.
- [Create User](#) – create a new user in the current database.
- [Grant permissions](#) – grant permissions on a securable to a principal.
- [Revoke permissions](#) – revoke previously granted permissions on a securable from a principal.
- [Alter Login](#) – show you how to modify the properties of a login.
- [Alter User](#) – rename a user, map the user with a new login account, or change the default schema of a user to another.
- [Drop Login](#) – delete a login account from the SQL Server.
- [Drop User](#) – remove a user from the current database.

Managing Roles

- [Roles](#) – learn about database roles.
- [CREATE ROLE](#) – show you how to add a new role to the current database.
- [ALTER ROLE](#) – learn how to rename a role, add a member to a role, and remove a member from an existing role.
- [DROP ROLE](#) – walk you through the steps of removing a role from the current database.

Database Mail

- [Database Mail](#) – configure Database Mail and send email messages to users using SQL Server Database Engine.

Blocking & Deadlock

- [Blocking](#) – understand the blocking in SQL Server.
- [Deadlock](#) – learn about the deadlock and how to simulate a deadlock in SQL Server.

Table Partitioning

- [Create a partitioned table](#) – learn about table partitioning and how to create a partitioned table.
- [Partitioning an existing table](#) – show you how to partition an existing table.

Database snapshots & contained databases

- [Database Snapshot](#) – learn about the database snapshots and how to create a database snapshot for the reporting or testing purposes
- [Contained Databases](#) – introduce you to contained databases and how to create a contained database.

Import / Export Data

- [BCP](#) – learn how to use the SQL Server BCP utility to bulk copy data between an SQL Server instance and a file.
- [BULK INSERT](#) – show you how to use the BULK INSERT statement to load data from a file into a table.

SQL Server DBA Roles and Responsibilities

As a DBA we have to perform the following tasks,

1. Maintaining the availability of the database by minimizing downtime.
2. In data recovery, we have to minimize the data loss in case of failures by implementing high availability.
3. Provide high security in accessing the databases externally.
4. Need to monitor the performance of the server, and implement various techniques to increase the performance
5. Regularly monitor database growth, disk space SQL Server Logs, and Event viewer logs to avoid issues and to identify any bottlenecks.

DBA Roles / Daily Activities:

1. As part of the DBA team need to provide 24/7 production support to clients and users.
2. Work on user requirements and problems that come in the form of tickets.
3. Responding to alerts that we receive in the form of an email from third-party monitoring tools.
4. Make sure all the maintenance jobs are running successfully.
5. Make sure all backup jobs are executed successfully without any issues on all servers.
6. Checking SQL server logs to identify bottlenecks.
7. Checking drive spaces on critical servers to ensure that there is an ample amount of space
8. Regularly monitor data file growth, log file growth, and database growth as part of capacity planning.
9. Maintain documentation of all the tasks and issues that you encounter for future reference.
10. Check whether all SQL services are running (or) not.

Objective of SQL Server Database Administrator

1. Backup and Restore
2. Managed Logins and Server Roles
3. Implement and maintain Indexes
4. Import and Export Data
5. Manage SQL Server Agent
6. Manage and Configure Databases
7. Compression
8. Identify and Resolve Concurrency Problems
9. Collect and Analyse Troubleshooting Data
10. Audit SQL Server Instances
11. Plan installation, and install SQL Server and related services
12. Implement a Migration Strategy and many more.

At the end, you will be much more versed in what it means to be a SQL Server Database Administrator.