SQL Server Administration Notes

Monitoring, Security & Permissions - Admin Notes

1. Monitoring SQL Server

- Activity Monitor (SSMS), Performance Monitor, DMVs (e.g., sys.dm_exec_requests)

2. SQL Server Profiler - Create a New Trace

Steps: Launch Profiler New Trace Connect Template Events Filters Run

3. Auditing DB

- Server-level audit supported in all editions

- DB-level audit supported in Enterprise only

Steps: Create Audit Create Audit Specification Enable View Logs

4. Resource Governor

- Controls CPU/memory usage via Pools, Workload Groups, Classifier Function

5. Server-Level Roles

- Fixed roles: sysadmin, serveradmin, dbcreator, etc.

- All users are in 'public' role by default

6. Manage Server Logins & Database Users

- CREATE LOGIN, CREATE USER, GRANT/REVOKE server and DB permissions

7. Logon Triggers

- Used for restrictions, auditing; caution: can block access

Managing Data - Backup, Restore & File Movement

1. Backup Types:

- Full, Differential, Log, Copy-Only, Filegroup, Partial

SQL Server Administration Notes

2. Taking a Backup:

Example:

BACKUP DATABASE MyDB TO DISK = 'D:\Backups\MyDB_full.bak' WITH INIT;

3. Moving Backup Files:

- Move .bak to desired location (e.g., MSSQL\Backup)

4. Detach & Move DB:

ALTER DATABASE MyDB SET OFFLINE;

EXEC sp_detach_db 'MyDB';

-- Move MDF & LDF to new location

5. Attach DB:

CREATE DATABASE MyDB ON (FILENAME='path\MyDB.mdf'), (FILENAME='path\MyDB_log.ldf') FOR ATTACH;

6. Restore from Backup:

RESTORE DATABASE MyDB FROM DISK = 'path\MyDB_full.bak' WITH MOVE...

Ensuring Data Integrity

1. No Duplicate IDs:

- Use PRIMARY KEY or UNIQUE constraint

2. Indexing:

- Every table should have at least one index

- Clustered Index (one per table), Non-clustered Index (for frequent queries)

3. Additional Constraints:

- FOREIGN KEY: Enforce referential integrity
- CHECK: Validate column data (e.g., Age > 0)
- NOT NULL: Ensure mandatory fields

High Availability Options

1. Replication:
- Types: Transactional, Merge, Snapshot
- Use for distribution and scalability

2. Log Shipping:
- Back up logs on Primary Ship to Secondary Restore
- Manual failover, used for DR

3. Database Mirroring:
- Principal, Mirror, Witness
- Modes: High Safety (sync), High Performance (async)

4. Always On Availability Groups:
- Enterprise Edition
- Automatic failover, readable secondaries, listener for app connectivity

Comparison:

Feature	Replication	Log Shipping	Mirroring	Always On
Failover	No	Manual	Auto (w/ witness)	Auto
Editions	All	All	Enterprise	Enterprise
Use Case	Scaling	DR	HA	HA + Read Scale