

SQLskills Immersion Event

IE0: Accidental/Junior DBA

Module 8: Checklists



Hardware Checklist

- **Processor selection based on workload**
 - OLTP – faster single-threaded performance and clock speed over cores
 - DW/DSS – higher core counts for parallel task processing
- **Maximize memory based on edition**
 - Install 72GB+ RAM for 2012 Standard Edition – allows SQL to use all 64GB
 - Install 160GB+ RAM for 2014+ Standard Edition – allows SQL to use all 128GB
- **Storage configuration**
 - Configure storage based on performance requirements not size in GB
 - Isolate transaction logs on RAID 10 where practical/possible
 - Verify performance baseline using SQLIO before production use

Installation Checklist (1)

■ Hardware and OS

- ❑ Update BIOS, hardware firmware, device drivers
- ❑ Windows Updates applied
- ❑ Power Management configured for High Performance
- ❑ Lock Pages in Memory and Perform Volume Maintenance added to service account in Local Security Policy

■ SQL Server setup

- ❑ Only install required services
- ❑ Configure Service Accounts with low privilege local or domain account
- ❑ Authentication mode – Windows vs Mixed
- ❑ Default paths for data, log, tempdb, and backups changed from C:

Installation Checklist (2)

■ Instance configuration settings

- ❑ Enable remote DAC
- ❑ Remove BUILTIN\Administrators group
- ❑ Configure 'max server memory', 'max degree of parallelism', 'cost threshold for parallelism', 'compress backup', 'backup checksum', and 'optimize for ad hoc workloads' sp_configure options
- ❑ Configure tempdb files
- ❑ Configure fixed TCP port and firewall rules for the instance
- ❑ Configure ;-T3226 and ;-T1118 startup parameters for service
- ❑ Configure SQL Agent to start automatically for stand alone instances
- ❑ Configure Database Mail and necessary firewall or anti-virus rules
- ❑ Configure SQL Operator in SQL Agent for notifications
- ❑ Configure SQL Agent Alerts for high severity errors

Database Checklist

- **Validate database settings**

- Collation
- Recovery model (affects backup/restore strategy)
- Auto Create Statistics (enabled)
- Auto Update Statistics (enabled)
- Auto Update Statistics Asynchronously
- Parameterization (SIMPLE by default, change only after thorough testing)
- Page Verify (CHECKSUM)
- Auto-shrink (disabled)

- **Change database settings in 2016 to override instance settings if needed:**

- Max Degree of Parallelism
- Cardinality Estimator Version
- Query optimization hotfixes

Security Checklist (1)

■ Server security

- Physically secured with limited access to hardware
- Reviews of server access lists and Windows logins annually
- Principal of least privilege applied to service accounts
- Anti-virus software installed with exclusions configured
- Backup media stored securely

■ Authentication

- Separate accounts used for administration purposes
- Password policies and expiration enforced for logins
- Secure 'sa' account password if using mixed mode authentication
- Limit access to fixed server roles; sysadmin and securityadmin specifically
- Configure failed login auditing

Security Checklist (2)

- **Authorization**

- Principal of least privilege applied
- Database roles created to simplify permissions management

- **Auditing**

- Compliance auditing enabled according to requirements

- **Database encryption**

- Backup database encryption key, server certificate and master key
- Restore database backup to validate encryption key backup and steps required to recover from a disaster
- Perform periodic test restores to ensure the database encryption key backup is still correct for the encrypted database (key rotation may change the key)

Disaster Recovery Checklist

- **Service Level Agreements**

- Downtime SLA established and tracked against for outages
- Data-loss SLA established and tested against
- Redundant components tested to validate configuration routinely
- SLAs reviewed at least annually to ensure they continue to meet business requirements and remain realistic for the workload

- **Disaster recovery planning**

- Requirements gathering
- Requirements ordering
- Limitations gathering
- Trade-off/compromise
- Technology evaluation and choice
- Implementation
- Testing and validation (repeatedly on a schedule)

Maintenance Checklist

- **Critical maintenance tasks automated**
 - Backups
 - Consistency checks with DBCC CHECKDB
 - Index fragmentation removal
 - Update statistics
- **Logging and alerts configured for jobs**