SQL Server Checklist

Before Setup

1. Create (or verify) the SQL Server service account.
    a. If network access isn't required consider using the "local service" account. If network access is required use a domain user account. (Hint: Network service is required for over the network backups.)
    b. Consider using the same account for all SQL Server services.
    c. Don't use the "Network Service" account.
    d. (Advanced) Grant the account "Perform Volume Maintenance Tasks" to enable Instant File Initialization.
2. Identify the drives for data and logs
    a. Choose appropriate storage plan for data files, log files and tempdb.
        i. Best: Data, logs and tempdb each on their own RAID-10 partitions with lots of battery-backed write cache.
        ii. Better: Data and log files each on their own RAID-10 partitions
        iii. Pretty good: All data on a RAID-10 partition
        iv. Fair: All data on mirrored drives
        v. RAID-5 rarely provides adequate performance. SCSI gives significantly better performance due to high RPM and command queuing. Prefer high RPM drives to low RPM drives. SQL Server loves random seeks.
    b. (Advanced) Use DISKPART.EXE to align the partitions. This isn't necessary for Windows Server 2008 or higher. See http://msexchangeteam.com/archive/2005/08/10/408950.aspx or Jimmy May's blog.

Setup

1. Only install the services you actually need. For example, don't install Analysis Services if you won't be building cubes. Don't install Report Services if you won't be serving reports.
2. Accept the default collation
3. Verify whether you want to include SQL Server authentication
4. Add a SQL Server administrator
5. Place the data files on the appropriate drives. Review SQL Server directory structure.

Post Setup Configuration

1. Install the most recent service pack. SQL Server 2008 SP1 will (finally!) support slipstreaming.
2. (Optional) Consider installing cumulative updates if they fix a specific problem you're having. These aren't as thoroughly tested as service packs.
3. Install most recent Books Online.
4. Configure Server Properties
    a. Memory
        i. SQL Server's dynamic memory allocation is usually fine.
        ii. (Optional) Use AWE to allocate memory. Typically used in larger installations.
        iii. (Optional) Set the minimum and maximum memory. Set the maximum memory below physical memory.
    b. Security
        i. Verify whether you want SQL Server authentication. Changing this requires a service restart.
        ii. Under Auditing, configure SQL Server to capture failed logins. Consider adding sp_cycle_errorlog weekly and increasing the number of error logs.
    c. Databases
        i. Set the default data and log file locations
    d. Advanced
        i. (Optional) Change the Cost Threshold for Parallelism (MAXDOP) to the number of physical cores in the machine.
5. In Server → Databases → System Databases → model → Properties → Options, change the recovery model to Simple. (CREATE DATABASE copies the model database to the new database.)
6. Configure database mail and test. (Server → Management). You'll need the name or address of your SMTP server. You many need to enable Database Mail.
7. Configure SQL Server Agent
    a. Create an operator for job notifications. This should be assigned to a distribution list rather than an individual user.
    b. In SQL Server Agent → Alert System, configure SQL Server Agent to use the public mail profile created above. This will require a restart of the service.
    c. (Optional) Create Alerts for severity 17 through 25 errors
    d. (Optional) Create Alert for failed login (error 18456)
8. (Optional) Install the performance dashboard reports. These are for SQL Server 2005 only.

Per Database Settings

1. Database File Growth. Set the file growth to a reasonable number, say 50MB.
2. Recovery Model. Set to simple recovery unless you need transaction log backups.
3. Compatibility Mode. Set to match the version of the database server unless you need otherwise.
4. Page Verify. Set to checksum.

Basic Security Review

1. Prefer trusted (Windows) accounts to SQL Server accounts. Prefer groups to individual accounts.
2. Fewer system administrators is better. Fewer database owners is better.
3. Application Security
    a. Best: All access through stored procedures. GRANT EXEC to the schema or individual procedures.
    b. Better: As above but Data Reader granted for dynamic SQL execution
    c. Barely acceptable: Users granted database owner permission
    d. Fail: Users or applications granted system administrator permission

Maintenance Plans

1. Use the maintenance plan wizard to create the plan.
2. Each step can have its own schedule or there can be one master schedule for the entire plan.
    a. Consider putting the backup steps in their own schedule or plan. This helps insulate backups from any problems.
    b. For 95% of servers the entire maintenance plan can run every night.
    c. If you need transaction backups create a separate maintenance plan or schedule.
    d. The default order for tasks is usually fine. Consider moving the shrink database task to the end.
3. Maintenance plans can create a detailed log file of their activities.

Maintenance for the Express Edition

1. Download ExpressMaint from CodePlex
    a. http://www.codeplex.com/ExpressMaint

Maintenance Plan Tasks

1. Check Database Integrity. Check all databases and include indexes. This could be done on a weekly basis.
2. Shrink Database.
    a. Only include a shrink database task for development servers or infrequently used databases. Growing a database is expensive.
    b. If you really want to shrink, run two tasks. In the first choose "Retain freed space…" and in the second choose "Return freed space…"
3. Reorganize Indexes
    a. Don't run this if you Rebuild Indexes.
    b. This is an online operation but doesn't do as good a job.
    c. Suggestion: Run this on all tables in all databases accepting the default values.
    d. This will probably flush memory.
4. Rebuild Indexes
    a. Don't run this if you Reorganize Indexes.
    b. The underlying table is locked while the index is rebuilt unless you have Enterprise (check the "keep online" checkbox).
    c. This will probably flush memory.
5. Update statistics
    a. Suggestion: Run this on all tables in all databases.
    b. This will probably flush memory.
6. Clean Up History
    a. This *ONLY* deletes the history from inside SQL Server. It doesn't delete any backup files.
    b. Suggestion: Accept the defaults.
7. Full Database Backup
    a. Perform a full backup of all databases every night to a remote server.
    b. Use UNC paths rather than mapped drive letters.
    c. Verify backup integrity if you have time.
8. Transaction Log Backup
    a. Only needed for databases in full recovery mode.
    b. Typically used for 15 minute incremental backups.
9. Maintenance Cleanup Task
    a. Deletes the backup files associated with backups.
    b. Set the precedents so that it only deletes prior backups if the backup succeeds. (And watch out for disk space issues!)
    c. Can also delete maintenance plan log files except it doesn't work in SQL Server 2005 SP2. This supposedly will be fixed on SP3.

What to Monitor

1. Test your database restores REGULARLY!
2. Performance
    a. SQL Server : SQL Statistics : Batches/second
    b. SQL Server : Buffer Manager : Page Life Expectancy (should be higher than 300)
    c. Disk performance
        i. Reads/second & Writes /second
        ii. Read duration and Write duration
        iii. Compare to baseline established by using SQLIO.EXE
3. Security
    a. Failed logins in the SQL Server Log
4. Failed Jobs
5. Maintenance Plan History detail
6. Full recovery databases that have no transaction log backups (query sys.databases)
7. SQL Server Profiler for high logical reads, high CPU or long duration.
8. Black box trace for “interesting” events.
9. SQL Server Management Studio reports
    a. Server Dashboard
    b. Top Queries

Tools

1. SQL Server Management Studio
    a. Activity Monitor
2. Profiler
3. SQL Server Configuration Manager – To change service accounts.
4. SQL Server Surface Area Configuration (SQL Server 2005 Only)

