

# SQL Server 2012: Installation and Configuration

## Module 4: Installing SQL Server 2012

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# Introduction

- **There are several important choices to make during installation**
  - These affect security, performance, scalability, and maintainability
- **Selecting which instance and shared features to install**
  - Only install the features you actually need now
- **Instance configuration**
  - Default instance or a named instance
- **Specifying service accounts**
  - You must select which accounts to use for each service
  - Changing SQL Server Agent to automatic startup
- **Database Engine configuration tasks**
  - Server configuration tab
  - Data directories tab
  - FILESTREAM tab
- **Error reporting**
  - Disabled by default

# Selecting Which Features to Install

- **Only install the features you actually need right now**
  - This reduces your attack surface
  - It reduces resource usage
  - It also reduces your patch surface, so fewer reboots are required
- **It is relatively easy to add additional features later**
  - Don't install features now that you "might" need later
  - Simply run setup from the Control Panel
- **Use a development or test instance for experimentation**
  - You can install all features there for learning purposes
  - You can use Developer Edition on a workstation
  - You can use the free Enterprise Evaluation Edition for experimentation

# Feature Selection Screen

**SQL Server 2012 Setup**

## Feature Selection

Select the Enterprise features to install.

**Navigation:**

- Setup Support Rules
- Setup Role
- Feature Selection**
- Installation Rules
- Instance Configuration
- Disk Space Requirements
- Server Configuration
- Database Engine Configuration
- Error Reporting
- Installation Configuration Rules
- Ready to Install
- Installation Progress
- Complete

**Features:**

**Instance Features**

- ☒ Database Engine Services
- ☐ SQL Server Replication
- ☐ Full-Text and Semantic Extractions for Search
- ☐ Data Quality Services
- ☐ Analysis Services
- ☐ Reporting Services - Native

**Shared Features**

- ☐ Reporting Services - SharePoint
- ☐ Reporting Services Add-in for SharePoint Products
- ☐ Data Quality Client
- ☐ SQL Server Data Tools
- ☐ Client Tools Connectivity
- ☐ Integration Services
- ☐ Client Tools Backwards Compatibility
- ☐ Client Tools SDK
- ☒ Documentation Components
- ☒ Management Tools - Basic
  - ☒ Management Tools - Complete
- ☐ Distributed Replay Controller
- ☐ Distributed Replay Client

**Feature description:**

Includes the Database Engine, the core service for storing, processing and securing data. The Database Engine provides controlled access and rapid transaction processing and also provides rich support for sustaining high availability. The Database Engine also provides support for the utility control point in the SQL Server Utility. Only Database Engine Services and Analysis Services can be clustered.

**Prerequisites for selected features:**

**Already installed:**

- Microsoft .NET Framework 4.0
- Windows PowerShell 2.0
- Microsoft .NET Framework 3.5

**To be installed from media:**

- Microsoft Visual Studio 2010 Shell

**Buttons:** Select All, Unselect All

**Directories:**

Shared feature directory: C:\Program Files\Microsoft SQL Server\

Shared feature directory (x86): C:\Program Files (x86)\Microsoft SQL Server\

**Navigation:** < Back, Next >, Cancel, Help

# Instance Configuration

- **You must choose between the default instance or a named instance of SQL Server**
  - You can have only one default instance of SQL Server
    - Normally, the first installed instance is the default instance
  - You can have up to 49 named instances of SQL Server on a machine
    - There is a 16-character limit for the name of a named instance
- **It is more common for production servers to only have a single instance of SQL Server installed**
  - Multiple instances compete for resources
  - Multiple instance are harder to manage and maintain
- **Named instances are more useful for development and testing**
  - They allow you to have different versions of SQL Server on the same machine

# Instance Configuration Screen

SQL Server 2012 Setup

## Instance Configuration

Specify the name and instance ID for the instance of SQL Server. Instance ID becomes part of the installation path.

- Setup Support Rules
- Setup Role
- Feature Selection
- Installation Rules
- Instance Configuration**
- Disk Space Requirements
- Server Configuration
- Database Engine Configuration
- Analysis Services Configuration
- Reporting Services Configuration
- Error Reporting
- Installation Configuration Rules
- Ready to Install
- Installation Progress
- Complete

☒ **Default instance**

☐ **Named instance:**

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Instance ID:

Instance root directory:  ...

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SQL Server directory: C:\Program Files\Microsoft SQL Server\MSSQL11.MSSQLSERVER

Analysis Services directory: C:\Program Files\Microsoft SQL Server\MSAS11.MSSQLSERVER

Reporting Services directory: C:\Program Files\Microsoft SQL Server\MSRS11.MSSQLSERVER

Installed instances:

Instance Name	Instance ID	Features	Edition	Version

< Back

Next >

Cancel

Help

# Specifying Service Accounts

- **You need to specify accounts for each SQL-related service**
  - These should be the domain accounts that were previously created
  - This will depend on which services you decide to install:
    - SQL Server Agent service
    - SQL Server Database Engine service
    - SQL Server Analysis Services service
    - SQL Server Reporting Services service
    - SQL Server Integration Services 11.0 service
- **You must enter the credentials for each account during setup**
  - You need to have the Account Name and Password for each one

# Server Configuration Screen

**SQL Server 2012 Setup**

## Server Configuration

Specify the service accounts and collation configuration.

Setup Support Rules  
Setup Role  
Feature Selection  
Installation Rules  
Instance Configuration  
Disk Space Requirements  
**Server Configuration**  
Database Engine Configuration  
Error Reporting  
Installation Configuration Rules  
Ready to Install  
Installation Progress  
Complete

Service Accounts Collation

Microsoft recommends that you use a separate account for each SQL Server service.

Service	Account Name	Password	Startup Type
SQL Server Agent	NT Service\SQLSERVERAGENT		Automatic ▼
SQL Server Database Engine	NT Service\MSSQLSERVER		Automatic ▼
SQL Server Browser	NT AUTHORITY\LOCAL SERVICE		Disabled ▼

< Back   Next >   Cancel   Help



# Changing SQL Server Agent Properties

- **By default, the SQL Server Agent service is set to Manual start**
  - You should change this to Automatic start during installation
  - Otherwise you may forget to change it later
  - This is especially important for replication and for log shipping
- **Use SQL Server Configuration Manager to change it later**
  - Do not use the Windows Services applet to make changes to SQL Server-related services
  - The Windows Services applet does not handle all SQL Server settings properly

# Database Engine Configuration Tasks 1

- **Server Configuration tab**
- **You must choose the Authentication Mode**
  - Windows authentication mode
    - More secure, but requires domain logins
  - Mixed Mode authentication
    - Less secure, but required for many legacy applications
    - With Mixed Mode you must enter a system administrator password
      - Make sure to use a strong password, and don't forget what it is
- **You should also add at least one SQL Server administrator**
  - Typically, you add your current Windows domain account
  - You can add more administrators after installation

# Database Engine – Server Configuration tab

The screenshot shows the 'SQL Server 2012 Setup' window, specifically the 'Database Engine Configuration' tab. The window title bar reads 'SQL Server 2012 Setup'. The main heading is 'Database Engine Configuration' with the subtitle 'Specify Database Engine authentication security mode, administrators and data directories.' On the left is a navigation pane with the following items: 'Setup Support Rules', 'Setup Role', 'Feature Selection', 'Installation Rules', 'Instance Configuration', 'Disk Space Requirements', 'Server Configuration', 'Database Engine Configuration' (which is highlighted), 'Error Reporting', 'Installation Configuration Rules', 'Ready to Install', 'Installation Progress', and 'Complete'. The 'Server Configuration' sub-tab is active, showing instructions to 'Specify the authentication mode and administrators for the Database Engine.' Under 'Authentication Mode', there are two radio buttons: 'Windows authentication mode' (unselected) and 'Mixed Mode (SQL Server authentication and Windows authentication)' (selected). Below this, there is a prompt to 'Specify the password for the SQL Server system administrator (sa) account.' with two password input fields labeled 'Enter password:' and 'Confirm password:', both containing masked characters. Underneath the password fields is a section to 'Specify SQL Server administrators' with a list box containing the entry 'GLENN\SANDY8\Glenn (Glenn)'. Below the list box are three buttons: 'Add Current User', 'Add...', and 'Remove'. To the right of the list box is a text box containing the message: 'SQL Server administrators have unrestricted access to the Database Engine.' At the bottom of the window are four buttons: '< Back', 'Next >', 'Cancel', and 'Help'.

SQL Server 2012 Setup

## Database Engine Configuration

Specify Database Engine authentication security mode, administrators and data directories.

Setup Support Rules  
Setup Role  
Feature Selection  
Installation Rules  
Instance Configuration  
Disk Space Requirements  
Server Configuration  
**Database Engine Configuration**  
Error Reporting  
Installation Configuration Rules  
Ready to Install  
Installation Progress  
Complete

Server Configuration | Data Directories | FILESTREAM

Specify the authentication mode and administrators for the Database Engine.

Authentication Mode

☐ Windows authentication mode

☒ Mixed Mode (SQL Server authentication and Windows authentication)

Specify the password for the SQL Server system administrator (sa) account.

Enter password: .....

Confirm password: .....

Specify SQL Server administrators

GLENN\SANDY8\Glenn (Glenn)

Add Current User | Add... | Remove

SQL Server administrators have unrestricted access to the Database Engine.

< Back | Next > | Cancel | Help

# Database Engine Configuration Tasks 2

- **Data Directories tab**
- **Make sure to change the default data directories**
  - They will be on the C: drive by default, which is usually not optimal
  - They are located on the Data Directories tab, so they are easy to miss
- **Change these from the defaults:**
  - User database directory
  - User database log directory
  - Temp DB directory
  - Temp DB log directory
  - Backup directory

# Database Engine – Data Directories

The screenshot shows the 'SQL Server 2012 Setup' window, specifically the 'Database Engine Configuration' step. The left sidebar lists various setup options, with 'Database Engine Configuration' highlighted. The main area is divided into three tabs: 'Server Configuration', 'Data Directories', and 'FILESTREAM'. The 'Data Directories' tab is active, displaying a list of directories for the database engine. Each entry consists of a label, a text box with the current path, and a browse button (three dots). The paths are as follows:

Directory Type	Current Path
Data root directory:	C:\Program Files\Microsoft SQL Server\
System database directory:	C:\Program Files\Microsoft SQL Server\MSSQL11.MSSQLSERVER\MSSQL\Data
User database directory:	P:\SQLData
User database log directory:	L:\SQLLogs
Temp DB directory:	T:\TempDB
Temp DB log directory:	T:\TempDB
Backup directory:	M:\SQLBackups

At the bottom of the window, there are four buttons: '< Back', 'Next >', 'Cancel', and 'Help'.

# Database Engine Configuration Tasks 3

- **FILESTREAM tab**
- **If you are going to use the FILESTREAM feature, you need to enable it here**
  - Enable FILESTREAM for Transact-SQL access
    - Required before the other options are available
  - Enable FILESTREAM for file I/O streaming access
    - Allows Win32 streaming access for FILESTREAM
  - Windows share name
    - The name of the file share where the FILESTREAM data will be stored
  - Allow remote clients to have streaming access to FILESTREAM data
    - You must enable this in order for remote access to function

# Database Engine - FILESTREAM

The screenshot shows the 'SQL Server 2012 Setup' window, specifically the 'Database Engine Configuration' step. The left sidebar lists various setup options, with 'Database Engine Configuration' highlighted. The main area has three tabs: 'Server Configuration', 'Data Directories', and 'FILESTREAM'. The 'FILESTREAM' tab is active, showing three checked options: 'Enable FILESTREAM for Transact-SQL access', 'Enable FILESTREAM for file I/O access', and 'Allow remote clients access to FILESTREAM data'. A text field for 'Windows share name' is set to 'MSSQLSERVER'. At the bottom, there are buttons for '< Back', 'Next >', 'Cancel', and 'Help'.

SQL Server 2012 Setup

## Database Engine Configuration

Specify Database Engine authentication security mode, administrators and data directories.

- Setup Support Rules
- Setup Role
- Feature Selection
- Installation Rules
- Instance Configuration
- Disk Space Requirements
- Server Configuration
- Database Engine Configuration**
- Error Reporting
- Installation Configuration Rules
- Ready to Install
- Installation Progress
- Complete

Server Configuration | Data Directories | **FILESTREAM**

☒ Enable FILESTREAM for Transact-SQL access

☒ Enable FILESTREAM for file I/O access

Windows share name:

☒ Allow remote clients access to FILESTREAM data

< Back   Next >   Cancel   Help

# Error Reporting

- **Microsoft collects telemetry information about fatal SQL Server errors for these components:**
  - Database Engine
  - SQL Server Agent
  - Analysis Services
  - Reporting Services
  - Integration Services
  - Replication
- **This is very useful information for Microsoft**
  - This helps them improve the product over time
- **It is your decision whether to allow this or not**
  - You can change this setting later
    - Use the Error and Usage Report Settings dialog



# Error Reporting Screen

SQL Server 2012 Setup

## Error Reporting

Help Microsoft improve SQL Server features and services.

Setup Support Rules  
Setup Role  
Feature Selection  
Installation Rules  
Instance Configuration  
Disk Space Requirements  
Server Configuration  
Database Engine Configuration  
**Error Reporting**  
Installation Configuration Rules  
Ready to Install  
Installation Progress  
Complete

Specify the information that you would like to automatically send to Microsoft to improve future releases of SQL Server. These settings are optional. Microsoft treats this information as confidential. Microsoft may provide updates through Microsoft Update to modify feature usage data. These updates might be downloaded and installed on your machine automatically, depending on your Automatic Update settings.

[See the Microsoft SQL Server 2012 Privacy Statement for more information.](#)

[Read more about Microsoft Update and Automatic Update.](#)

☒ Send Windows and SQL Server Error Reports to Microsoft or your corporate report server. This setting only applies to services that run without user interaction.

< Back   Next >   Cancel   Help

# Summary

- **Proper SQL Server installation is very important**
  - Provides better performance, scalability and security
  - Reduces the amount of configuration work needed after installation
  - Makes the instance easier to maintain in the future
- **Take your time and be detail oriented**
  - It is very easy to miss important settings

# What is Next?

- **Module 5 will cover post-installation configuration tasks for SQL Server 2012**
  - The importance of updating SQL Server 2012
  - Obtaining Service Packs and Cumulative Updates
  - Setting instance-level properties with the SSMS user interface
  - Setting instance-level properties with T-SQL
  - Configuring tempdb data files
  - Adding common instance-level trace flags