

A silent installation of SQL Server involves installing the software without user interaction, typically using a configuration file or command-line parameters.

Below are the detailed steps for performing a silent installation of SQL Server:

1. Prepare the SQL Server Media

- Obtain the SQL Server installation media or ISO file.
- Extract the contents to a folder, or mount the ISO file to a drive.

2. Create a Configuration File

The configuration file contains all the necessary parameters for the installation. This file can be generated using the SQL Server Installation Center or created manually.

- Generate the Configuration File:
 - Run the SQL Server setup using the GUI (`setup.exe`).
 - Go through the installation wizard until the "Ready to Install" page.
 - Click on "Save" to save the configuration file. This file will have a `.ini` extension and can be found in the specified location.
 - You can then cancel the installation, as you will use the configuration file for the silent install.

- Sample Configuration File (ConfigurationFile.ini):

; Microsoft SQL Server Configuration File

[OPTIONS]

PID="XXXXX-XXXXX-XXXXX-XXXXX-XXXXX" ; Product key

ACTION="Install" ; Installation action

FEATURES=SQLENGINE,REPLICATION,FULLTEXT,RS ; Features to install

INSTANCENAME="MSSQLSERVER" ; Default instance name

SQLSVCACCOUNT="NT Service\MSSQLSERVER" ; SQL Server service account

SQLSYSADMINACCOUNTS="DOMAIN\Administrator" ; SQL Server admin accounts

AGTSVCACCOUNT="NT Service\SQLSERVERAGENT" ; SQL Server Agent account

SECURITYMODE="SQL" ; Authentication mode

SAPWD="StrongPassword" ; SQL Server SA password

TCPENABLED=1 ; Enable TCP/IP protocol

INSTALLSQLDATADIR="C:\SQLData" ; Data directory

INSTALLSQLSHAREDDIR="C:\Program Files\Microsoft SQL Server" ; Shared directory

UPDATEENABLED="True" ; Enable product updates

IACCEPTSQLSERVERLICENSETERMS="True" ; Accept license terms

3. Run the Silent Installation

Use the command line to run the silent installation with the configuration file.

- Open Command Prompt as Administrator:
 - Navigate to the directory where `setup.exe` is located.
- Run the Installation Command:

```
setup.exe /ConfigurationFile="C:\path\to\ConfigurationFile.ini"
```

- Optional Parameters:
 - If you want to pass parameters directly through the command line, you can override those in the configuration file. For example:

```
setup.exe /Q /ACTION="Install" /IACCEPTSQLSERVERLICENSETERMS="True" /FEATURES=SQLENGINE  
/INSTANCENAME="MSSQLSERVER" /SQLSVCACCOUNT="NT Service\MSSQLSERVER"  
/SAPWD="StrongPassword"
```

- `/Q` or `/QS`: Specifies the user interface level. `/Q` is for a completely silent installation, while `/QS` is for a quiet installation with a progress bar.

4. Monitor the Installation

- Log Files:
 - By default, SQL Server setup logs the installation process in the `C:\Program Files\Microsoft SQL Server\150\Setup Bootstrap\Log` folder.
 - You can specify a custom log file location by adding `/INDICATEPROGRESS` and `/UIMODE=AutoAdvance` to the command:

```
setup.exe /ConfigurationFile="C:\path\to\ConfigurationFile.ini" /INDICATEPROGRESS /UIMODE=AutoAdvance  
/QUIET /IACCEPTSQLSERVERLICENSETERMS
```

- The log files include `Summary.txt` and detailed logs that can be used to troubleshoot any issues.

5. Post-Installation Steps

- Verify Installation:
 - Check the SQL Server services to ensure they are running correctly.
 - Use SQL Server Management Studio (SSMS) to connect to the new SQL Server instance.
- Apply Updates:
 - If you didn't enable automatic updates during installation, apply the latest SQL Server updates manually.
- Configure SQL Server:
 - Set up additional features or configurations like backups, maintenance plans, and security settings.

6. Automate Using Scripts

- If you need to deploy SQL Server silently across multiple servers, consider scripting the installation using PowerShell or batch scripts. This can automate the process and ensure consistency.

7. Troubleshoot Issues

- If the silent installation fails, review the log files mentioned earlier.
- Common issues include incorrect parameters in the configuration file, insufficient permissions, or missing prerequisites.

By following these steps, you can efficiently perform a silent installation of SQL Server, which is particularly useful for large-scale deployments or automated setups.