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Chapter 8

Installing and Upgrading Microsoft SQL Server 2005

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Now that you have a good understanding of the different editions of Microsoft SQL Server 2005 Server, the platforms on which it can be run, and capacity planning and storage configuration concepts, let's get to the next most important step: installing SQL Server 2005.

This chapter provides a detailed look at the planning necessary before installation and the step-by-step installation process using the graphical user interface and the command line. You will also learn how to upgrade to SQL Server 2005 from earlier versions, how to configure SQL Server features and services using the new SQL Server Surface Area Configuration tool, and how to uninstall SQL Server 2005 components.

Preinstallation Planning

Before installing SQL Server 2005, it is extremely important that you plan the installation process well and have all the relevant information necessary for the installation process. This will help ensure a smooth installation experience and prevent unnecessary postinstallation changes.
This section explains some of the important configuration options you need to have decided on before starting the installation. While the graphical user interface-based installation method is relatively easy and many users like to adopt a “discover-as-you-go” approach, I have found time and again that this is not the most productive approach. The time supposedly saved by not planning out the installation is spent either cancelling and restarting the installation, or debugging and resolving incorrect configuration options after the installation is complete. Both of these cases are undesirable. I highly recommend that you read the following sections to understand the various planning considerations and then decide which ones are applicable and important to your deployment.

Minimum Hardware Requirements

SQL Server 2005 has a well-defined set of minimum hardware requirements that need to be met for SQL Server 2005 installation. These requirements are listed in Table 8-1. These are only the bare minimum requirements for SQL Server 2005 installation; they do not guarantee good performance. Refer to Chapter 6, “Capacity Planning,” to determine the appropriate hardware resources required for your particular deployment.

<table>
<thead>
<tr>
<th>Resource</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitor</td>
<td>At least 1024 × 768 pixel resolution (SVGA) if using graphical tools</td>
</tr>
<tr>
<td>Pointing device</td>
<td>Microsoft mouse or compatible pointing device</td>
</tr>
<tr>
<td>DVD drive</td>
<td>Only required if installing from DVD media</td>
</tr>
<tr>
<td>Network card</td>
<td>Only required if accessing via the network</td>
</tr>
<tr>
<td>Processor</td>
<td><strong>32-bit systems:</strong>&lt;br&gt;• Processor type: Pentium III-compatible or higher&lt;br&gt;• Processor speed: 600 MHz minimum&lt;br&gt;&lt;br&gt;<strong>64-bit systems:</strong>&lt;br&gt;• Processor type (IA64): Itanium processor or higher&lt;br&gt;• Processor type (x64): AMD Opteron, AMD Athlon 64, Intel Xenon with Intel EM64T support and Intel Pentium IV with EM64T support&lt;br&gt;• Processor speed: 1 GHz minimum</td>
</tr>
<tr>
<td>Memory (RAM)</td>
<td>Minimum 512 MB, recommended 1 GB</td>
</tr>
</tbody>
</table>

During installation, the System Configuration Checker (SCC) will display an error message and terminate the installation if the system does not meet the minimum processor type requirements. SCC will issue a warning if the minimum processor speed or the recommended memory requirements are not met.
Note If you have 1 GB of memory in the system, the SQL Server 2005 installation wizard may incorrectly flag a warning stating that the current system does not meet the recommended hardware requirements. This is an anomaly in the installer. If you’re sure that system does meet the minimum requirements, you can ignore this message.

The disk space requirements for the SQL Server executables and samples vary based on the components selected for installation. Table 8-2 lists the disk space utilized by the different SQL Server 2005 components.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Disk Space Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Database engine, replication, and full-text search</td>
<td>150 MB</td>
</tr>
<tr>
<td>Analysis Services</td>
<td>35 KB</td>
</tr>
<tr>
<td>Reporting Services and Report Manager</td>
<td>40 MB</td>
</tr>
<tr>
<td>Notification Services engine, client, and rules components</td>
<td>5 MB</td>
</tr>
<tr>
<td>Integration Services</td>
<td>9 MB</td>
</tr>
<tr>
<td>Client Components</td>
<td>12 MB</td>
</tr>
<tr>
<td>Management Tools</td>
<td>70 MB</td>
</tr>
<tr>
<td>Development Tools</td>
<td>20 MB</td>
</tr>
<tr>
<td>SQL Server Books Online and SQL Server Mobile Books Online</td>
<td>15 MB</td>
</tr>
<tr>
<td>Samples and sample databases</td>
<td>390 MB</td>
</tr>
</tbody>
</table>

The maximum disk space required if all of the components and samples are selected is approximately 750 MB.

Selecting the Processor Architecture

As mentioned in Chapter 2, “SQL Server 2005 Editions, Capacity Limits, and Licensing,” each SQL Server 2005 edition is available on the 32-bit (IA-32), 64-bit (IA64), and 64-bit (x64) platforms. To make sure that the software installs correctly and performs well, make sure that you install the correct executables SQL Server 2005 platform version for your operating system and hardware. While combinations such as installing the IA64 SQL Server 2005 software on a 32-bit system will simply not install and result in an error message, some combinations like 32-bit software on the x64 platform may work but not perform properly.
Installing Internet Information Services

If you plan to install Microsoft SQL Server 2005 Reporting Services, you will require Internet Information Services (IIS) 5.0 or later installed on the server before SQL Server 2005 setup is started. You can install IIS using the following steps:

1. Click Start, then select Control Panel (or select Settings and then Control Panel), and then double-click Select Add or Remove Programs in Control Panel.
2. In the left pane, click Add/Remove Windows Components.
3. Select Application Server in the Windows Components Wizard that opens, and then select Details.
4. Select the check box next to Internet Information Services (IIS) in the Application Server dialog box that appears, then click OK, and then click Next.
5. You may be prompted to insert your Windows media CD, so you may want to have this available during installation.

In general, having IIS installed on your server is not recommended unless it is absolutely required. If you do not plan to use Reporting Services on your server, I’d recommend you do not install IIS and ignore the warning messages that are displayed during the installation process.

Components to Be Installed

Unlike earlier versions of SQL Server, which required invoking separate installation processes for the different components, SQL Server 2005 has a fully integrated setup through which all the components can be installed together via a single installation process. You can select any combination of the following components for installation:

- SQL Server Database Services
- Analysis Services
- Reporting Services
- Notification Services
- Integration Services
- Workstation components, books online, and development tools

Depending on the Microsoft SQL Server components you choose to install, the following 10 services are installed:

1. **SQL Server Main**  
   SQL Server database engine

2. **SQL Server Agent**  
   Used for automating administrative tasks, executing jobs, alerts, and so on
3. **SQL Server Analysis Services** Provides online analytical processing (OLAP) and data mining functionality for Business Intelligence (BI) applications

4. **SQL Server Reporting Services** Manages, executes, renders, schedules, and delivers reports

5. **SQL Server Notification Services** Platform for developing and deploying applications that generate and send notifications

   **Note** When you install SQL Server Notification Services, a service is not installed by default and will not appear under Services in the Control Panel. The service is configured only when you build an application and register a service to run that application.

6. **SQL Server Integration Services** Provides management support for Integration Services package storage and execution

7. **SQL Server Full Text Search** Enables fast linguistic searches on content and properties of structured and semistructured data by using full-text indexes

8. **SQL Server Browser** Name resolution service that provides SQL Server connection information for client computers

9. **SQL Server Active Directory Helper** Publishes and manages SQL Server services in Windows Active Directory

10. **SQL Server VSS Writer** Allows backup and restore applications to operate in the Volume Shadow-copy Service (VSS) framework

I recommend that you be selective and install only the components you actually plan to use. This will limit the number of unnecessary services that run on your server and prevent them from consuming precious server resources like disk space, memory, processor, and so on.

**Service Accounts**

All SQL Server 2005 services require a login account to operate. The login account can be either a local service account, a domain user account, a network service account, or a local system account.

- **Local Service account** This is a built-in account that has the same level of access as members of the users group. This low-privileged access limits the damage that can be done in case the service gets compromised. This account is not effective for use with services that need to interact with other network services since it accesses network resources with no credentials.
■ Domain User account  As the name suggests, this account corresponds to an actual domain user account. This account is preferred when the service needs to interact with other services on the network.

■ Network Service account  This account is similar to the Local Service account, except that services that run as the Network Service account can access network resources with the credentials of the computer account.

■ Local System account  The Local System account is a highly privileged account and should be used very selectively. You should be careful not to confuse this account with the Local Service account. With respect to privileges, they are at opposite ends of the spectrum.

Best Practices  You should always configure a service to run with the lowest effective privileges that can be used.

Table 8-3 lists the default accounts for each of the 10 SQL Server services. You can change these as required, but always consider the limitations and security exposures explained previously.

Table 8-3  SQL Server Service Default Accounts

<table>
<thead>
<tr>
<th>SQL Server Service</th>
<th>Default Account</th>
</tr>
</thead>
<tbody>
<tr>
<td>SQL Server</td>
<td>Domain User</td>
</tr>
<tr>
<td>SQL Server Agent</td>
<td>Domain User</td>
</tr>
<tr>
<td>SQL Server Analysis Services</td>
<td>Domain User</td>
</tr>
<tr>
<td>SQL Server Reporting Services</td>
<td>Domain User</td>
</tr>
<tr>
<td>SQL Server Notification Services</td>
<td>N/A</td>
</tr>
<tr>
<td>SQL Server Integration Services</td>
<td>Network Service</td>
</tr>
<tr>
<td>SQL Server Full-Text Search</td>
<td>Same account as SQL Server</td>
</tr>
<tr>
<td>SQL Server Browser</td>
<td>Domain User</td>
</tr>
<tr>
<td>SQL Server Active Directory Helper</td>
<td>Network Service</td>
</tr>
<tr>
<td>SQL Server VSS Writer</td>
<td>Local System</td>
</tr>
</tbody>
</table>

Before you start installation, make sure that all domain accounts required to configure the services during setup have been created and are available for use.

Multiple Instances and Side-by-Side Installation

Microsoft SQL Server 2005 supports multiple instances of the database engine, Analysis Services, and Reporting Services to be installed side-by-side on the same computer. Side-by-side installations are completely separate instances and not dependent on each other.
in any way. You can choose to have any combination of side-by-side installs of SQL Server 7.0, SQL Server 2000, or SQL Server 2005 listed as supported in Table 8-4.

Table 8-4 Supported Side-by-Side Installations

<table>
<thead>
<tr>
<th>Side-by-Side Install</th>
<th>SQL Server 2000 (32-bit)</th>
<th>SQL Server 2000 (64-bit)</th>
<th>SQL Server 2005 (32-bit)</th>
<th>SQL Server 2005 (IA64)</th>
<th>SQL Server 2005 (x64)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SQL Server 7.0</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>SQL Server 2000 (32-bit)</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>SQL Server 2000 (64-bit)</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>SQL Server 2005 (32-bit)</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>SQL Server 2005 (IA64)</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>SQL Server 2005 (x64)</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

If you already have an instance of SQL Server installed on your system, you should decide before starting the installation process whether you’d like to upgrade it (as explained later in this chapter) or install a new SQL Server 2005 instance on the side.

Licensing Mode

As explained in Chapter 2, SQL Server 2005 can be installed using a per-processor licensing model, a user client access license (user CAL) licensing model, or a device client access license (device CAL) licensing model. Before starting the installation process, you should determine the licensing model you plan to use and secure the required licenses.

Collation

A *collation* determines the rules by which character data is sorted and compared. SQL Server 2005 has two groups of collations: Windows collations and SQL collations. SQL collations are provided primarily as a compatibility option with earlier versions of SQL Server. You should use these if you plan to use replication with databases on earlier versions of SQL Server or if your application requires a specific SQL collation of an earlier SQL Server version. For all other cases, you should use the Windows collation.

**Best Practices** You should decide on an organization-wide collation and use it for all your SQL Server 2005 servers so you’re assured of consistency for all server-to-server activity.

The collation specified during the installation process becomes the SQL Server instance’s default collation. This collation is used for all the system databases and any user databases that do not explicitly specify a collation.
Authentication Modes

SQL Server supports two authentication modes: Windows authentication mode and mixed mode.

- **Windows authentication mode** This authentication mode permits users to connect only by using a valid Windows user account. With Windows authentication, SQL Server validates the account credentials using information from the Windows operating system. The Windows authentication mode optionally provides password policy enforcement for validation for strong passwords, support for account lockout, and password expiration. The sa user (“sa” is short for “system administrator”) is disabled when Windows authentication is selected.

- **Mixed mode** This authentication mode permits users to connect using either Windows authentication or SQL Server authentication. Users who connect through a Windows user account are validated by Windows, while users who connect using SQL Server login are validated by SQL Server. The sa user is enabled when mixed mode is selected and a password prompt appears during the installation process.

**Best Practices** Never use a blank or weak password for the sa account.

It is recommended that you use strong passwords for all users who will log in to SQL Server 2005. A strong password must be six or more characters long and have at least three of the following types of characters:

- Uppercase letters
- Lowercase letters
- Numbers
- Non-alphanumeric characters

Although Windows authentication is the recommended authentication mode and more secure than mixed mode, many applications require mixed mode authentication. You should evaluate your application needs and select the authentication based on that.

Security Considerations

A large part of the long-term security of your server environment is dictated by some relatively simple and inexpensive best practices you can adopt during the planning and installation phase. To make your SQL Server installation as secure as possible, the following are recommended:

- Physically secure the server and make it accessible only to authorized personnel.
- Have at least one firewall between the server and the Internet.
■ Enforce strong passwords for all SQL Server accounts and enable password policies and password expiration.
■ Create service accounts with least privileges.
■ Run separate SQL Server services under separate Windows accounts to prevent one compromised service from being used to compromise others.
■ Use NTFS instead of a FAT file system.
■ Disable all unnecessary protocols, including NetBIOS and server message block (SMB), on the servers.

Note Disabling the NetBIOS protocol may cause connectivity problems if you’re using DHCP. You may want to check with your system administrator before disabling any protocols.

Installing SQL Server 2005

Once you’ve completed the preinstallation planning and have all the required information available, you are ready to install SQL Server 2005. SQL Server 2005 can be installed on your local server using either the SQL Server 2005 Installation Wizard or the command prompt installation. If you’re new to SQL Server or plan to install just a couple of servers, I recommend you use the Installation Wizard. The command prompt-based installation is often slightly trickier and better suited to experienced users who need to perform multiple similar installations and want to automate the process. SQL Server also provides the option of installing just the SQL Native Access Client (SNAC) connectivity libraries on the server; this process is explained in detail later in this chapter. This is particularly useful for client systems that need to use SNAC to connect to the SQL Server 2005–based server. All of these installation methods are explained in detail in the following sections.

Note Installing to a remote server, which was possible in earlier versions of SQL Server, is not supported in SQL Server 2005. To install SQL Server 2005 onto a remote server, you need to log in remotely to the server and run the setup program, or remotely execute the command prompt installation on the remote server.

Installing SQL Server 2005 Using the Installation Wizard

The SQL Server 2005 Installation Wizard is a Windows installer-based program that interactively guides you through the entire installation process. The Installation Wizard has built-in tools for performing appropriate configuration and error checking and provides meaningful warning and error messages.
The following steps explain how to install a new nonclustered SQL Server 2005 instance on your local server. If you already have an instance of SQL server installed on your server, some of the windows shown in the figures may not be presented or may be slightly different. This is because the Installation Wizard reuses the information already available on the system; for example, the Registration dialog box (step 8) will not prompt you for the PID if you’ve already installed the same version of SQL Server 2005 on the system before.

1. Log in to the system as Administrator or as a user who has administrator privileges on the server.

**Note**  The SQL Server 2005 Setup program can be invoked in many ways. In most cases, the program automatically starts when the SQL Server 2005 DVD media is inserted into the DVD drive or when a remote network share is mapped onto the server. If the program is not automatically loaded, you can navigate to the Servers directory and double-click the Splash.hta program. With either of these approaches, the Start dialog box, shown in Figure 8-1, appears.

![Start dialog box](image)

Figure 8-1  SQL Server Setup—Start window.
2. The Start window presents options to prepare and install the server as well as access other information. To install SQL Server 2005, click the "Server components, tools, Books Online, and samples" option in the Start window.

3. The End User License Agreement (EULA) window appears. Read the agreement and select the I Accept the Licensing Terms and Conditions check box. Selecting the check box will activate the Next button. Select Next.

4. The Installing Prerequisites dialog box, shown in Figure 8-2, appears, and the software components required prior to installing SQL Server 2005 are installed. Select Install. This step may take several minutes to complete.

   **Note**  You may see a different list in Figure 8-2 if some of the components have already been installed via a previous install, or by some other application.

5. The Welcome page for the Installation Wizard appears. Select Next.

6. The System Configuration Check (SCC) page appears. At this point, the Installation Wizard scans the system for conditions that do not meet the minimum requirements and displays the status for each action with a message for the errors and a warning, as shown in Figure 8-3.
7. Once the SCC has completed scanning the computer, the Filter button in the lower-left corner is activated and can be used to filter the output to Show All Actions, Show Errors, Show Successful Actions, or Show Warnings in the window. You can only view the actions that are relevant, for example if there are no errors the Show Errors option is not activated. Correspondingly, the Report button in the lower-right corner can be used to view a report in a report format, save the report to a file, copy the report to the Clipboard, or send the report as e-mail. Once SCC completes the configuration check, click Next to continue with the setup.

**Note** If the SCC determines a pending action that must be completed before proceeding, for example a pending reboot operation, it will block the setup by not activating the Next button and force you to complete the pending actions.

8. The setup performs some additional checks that may take a few minutes and then displays the Registration Information page. On the Registration Information page, enter information in the Name, Company, and Product Key text boxes. Select Next to continue.

9. The Components To Install page displays, as shown in Figure 8-4. On this page, select the components to be installed that you identified during the preinstallation planning.
10. To select specific subcomponents for any of the components, you can select the Advanced button on the lower-right side of the page, which will display the Feature Selection dialog box as shown in Figure 8-5.

Figure 8-5  SQL Server Setup—Feature Selection dialog box.
In this dialog box, you can select the Will Be Installed On Local Hard Drive option to install the feature but not all the subcomponents of the feature, select the Entire Feature Will Be Installed On Local Hard Drive option to install the feature and all the subcomponents of the feature, or select the Entire Feature Will Be Unavailable option to not install the feature. Once you have selected the appropriate services, select Next to continue.

**Note**  The sample databases and sample code and applications are not installed by default even when the Documentation, Samples, and Sample Databases feature is selected. To install these, select the Advanced button and explicitly select them for installation, as shown in Figure 8-5, or select the Entire Feature Will Be Installed On Local Hard Drive option for the Documentation, Samples, And Sample Databases feature.

11. The Instance Name page, shown in Figure 8-6, appears. On this page, you can select the instance to be either a Default Instance or a Named Instance. If you select Named Instance, the text box in which you need to enter a valid instance name is activated. You can select the Installed Instances button in the lower right of the page to view the instances already installed on the system. If a default or named instance is already installed on the server and you select it, the setup will upgrade it and present you the option of installing additional components. This is explained in the section on upgrading to SQL Server 2005 later in this chapter. Click Next to continue.

![Figure 8-6  SQL Server Setup—Instance Name page.](image-url)
Note  A server can have only one default instance of SQL Server. This implies that if you have SQL Server 2000 installed on your server as a default instance and you do not want to upgrade it, you should install the SQL Server 2005 as a named instance.

12. The Service Account page, shown in Figure 8-7, is displayed. This page is used to specify the accounts the services use to log in. You can either specify the same account for all the services installed or select the Customize For Each Service Account check box and specify the login accounts for each service selected for installation individually. You can then select the login account to use one of the built-in system accounts (Local Service, Network Service, or Local System) by clicking on the Use The Built-in System Account radio button and selecting the appropriate account from the drop-down list, or you can specify a domain user by selecting the Use A Domain User Account radio button and entering a domain user name, password, and domain. In the Start Services At The End Of Setup section, you can select the check boxes next to the services you would like to start automatically every time the system is started. Click Next to continue.
13. The Authentication Mode page, shown in Figure 8-8, appears. On this page, click the appropriate radio button to select either Windows Authentication Mode or Mixed Mode (Windows Authentication And SQL Server Authentication). If you use the mixed mode, you will need to enter and confirm the login password for the sa user. Click Next to continue.

![Figure 8-8 SQL Server Setup—Authentication Mode page.](image)

14. The Collation Settings page, shown in Figure 8-9, appears. On this page you can choose to customize the collation for each individual service being installed using the Customize For Each Service Account check box, or you can use the same collation for all the services. For the collation, you can select either Collation Designator And Sort Order or SQL Collations (Used For Compatibility With Previous Versions Of SQL Server) using the radio buttons. If you are using the collation designator and sort order, select the language (for example, Latin1_General for the English language) from the drop-down list and the appropriate check boxes below. If you are using the SQL Collations, select the desired one from the scrollable list below the radio button. Click Next to continue.
15. If you selected to install Reporting Services, the Report Server Installation Options page, shown in Figure 8-10, appears. You can use the radio buttons on this page to choose to Install The Default Configuration for Reporting Server or Install But Do Not Configure The Server. You can select the Details button located in the upper right of the page to view the details of the Report Server installation information. If a Secure Sockets Layer (SSL) certificate has not been installed on the server, a warning message is displayed. Since reports often contain sensitive information, it is recommended that you use SSL in most installations. Select Next to continue.
16. The Error And Usage Report Settings page, shown in Figure 8-11, appears. On this page, you can select the two radio buttons, Automatically Send Error Reports For SQL Server 2005 To Microsoft Or Your Corporate Error Reporting Server and Usage Data For SQL Server 2005 To Microsoft, to set the desired default action. This data is collected for information purposes only, and selecting either of these options will not have any adverse effects on the performance of your system. Select Next to continue.

![Figure 8-11](image.png)

**Figure 8-11** SQL Server Setup—Error And Usage Report Settings page.

17. The Ready To Install page, shown in Figure 8-12, appears. You can review the summary of features and components selected for installation. To make any changes, select the Back button and go back in the installation process until the relevant page appears. For the most part, the installation process will retain your selections so that you don’t have to re-enter all of the information after backtracking through the pages. Select Install to continue.

18. The Setup Progress page, shown in Figure 8-13, appears. At this point in the installation process, the selected services are actually installed and configured on your system. This step may take a while to complete and is dependent on the speed of your processor and the disk being installed to. The page continuously updates the progress bar to reflect the installation status of the individual components and will reset for each component being installed. To view the log file for the component installation status, you can click the component name. When all of the steps are completed, select Next to continue.
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Figure 8-12  SQL Server Setup—Ready To Install page.

Figure 8-13  SQL Server Setup—Setup Progress page.

19. The Completing Microsoft SQL Server 2005 Setup page, shown in Figure 8-14, appears. On this page, you view the summary log. You can also select the Surface Area Configuration Tool to configure SQL Server 2005 as explained in the Surface Area Configuration section that follows. Click Finish to complete the installation.
20. Restart the system if the setup prompts you to do so.

Note If you need to add or remove components to a default or named instance of SQL Server 2005, you can do so by selecting Add Or Remove Programs in Control Panel, selecting the SQL Server 2005 instance you want to modify, and then clicking the Change or Remove buttons.

Installing SNAC Using the Installation Wizard

1. Log in to the system as Administrator or as a user who has administrator privileges on the server.

Note The SQL Server 2005 Setup program can be invoked in many ways. In most cases, the program will start automatically when the SQL Server 2005 DVD media is inserted into the DVD drive or when a remote network share is mapped onto the server. If the program is not automatically loaded, you can navigate to the Servers directory and double-click the Splash.ha program.

2. The Start window appears, similar to what is shown in Figure 8-1. Select Run The SQL Native Client Installation Wizard.

3. The Welcome page of the wizard appears. Click Next to continue.
4. The License Agreement page appears. Read and accept the terms in the license agreement and click Next.

5. The Registration Information page appears. Enter your name and the name of your organization in the text fields and click Next.

6. The Feature Selection page, shown in Figure 8-15, appears. Select the program features you want to install and click Next.

![Figure 8-15 SQL Native Client Installation—Feature Selection page.]

**Note** The Client Components contain the SNAC network library files and should be selected if you are installing SNAC on a client for connectivity.

7. The Ready To Install The Program page appears. Click Install.

8. After the installation process completes, click Finish.

### Installing SQL Server 2005 Using the Command Prompt

Unlike earlier versions, SQL Server 2005 does not have an unattended install recorder and playback mechanism. Instead, it ships with a powerful command prompt installation option, which can be used to install, modify, or uninstall SQL Server components and perform certain maintenance tasks. With command prompt installation, you can choose either to specify all the input parameter directly on the command line or to pass them in using a settings (.ini) file.

The syntax for a command prompt installation is shown in the following example.

```plaintext
Start /wait <DVD Drive>\Servers\setup.exe /qb INSTANCENAME=MSSQLSERVER
ADDLOCAL=SQL_Engine SQLACCOUNT=advadmin SQLPASSWORD=Pa55wD
AGTACCOUNT=advadmin AGTPASSWORD=Pa55wD SQLBROWSERACCOUNT=advadmin
SQLBROWSERPASSWORD=Pa55wD
```
In this example, the SQL Server 2005 database engine is installed as a default instance using the account advadmin and password Pa55wd.

**Important** Since the password is clearly visible in the code, it presents a potential security risk and should be used carefully. Do not leave any references to a password such as this in an unprotected script file.

The command prompt installation can be used to customize every option in the installation process. Table 8-5 lists the command prompt installation options and gives a brief description of each.

**Table 8-5 Command Prompt Installation Options**

<table>
<thead>
<tr>
<th>Command Prompt Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>/qb</td>
<td>Installation is done in quiet mode with basic GUI information displayed, but no user interaction is required.</td>
</tr>
<tr>
<td>/qn</td>
<td>Installation is done in quiet mode with no GUI displayed.</td>
</tr>
<tr>
<td>Options</td>
<td>This parameter is for the Registration Information dialog box and must be specified when using a settings file.</td>
</tr>
<tr>
<td>PIDKEY</td>
<td>This parameter is used to specify the registration key. [Note: Do not specify the hyphens (-) that appear in the key.]</td>
</tr>
<tr>
<td>INSTALLSQLDIR</td>
<td>This parameter is used to specify the installation directory for the instance specific binary files.</td>
</tr>
<tr>
<td>INSTALLSQLSHARDDIR</td>
<td>This parameter is used to specify the installation directory for Integration Services, Notification Services, and Workstation components.</td>
</tr>
<tr>
<td>INSTALLSQLDATADIR</td>
<td>This parameter is used to specify the installation directory for the SQL Server data files.</td>
</tr>
<tr>
<td>INSTALLASDATADIR</td>
<td>This parameter is used to specify the location for the Analysis Services data files.</td>
</tr>
<tr>
<td>ADDLOCAL</td>
<td>This parameter is used to specify the components to install. ADDLOCAL=ALL installs all the components. Setup fails if ADDLOCAL is not specified. (Note: Feature names are case sensitive.)</td>
</tr>
<tr>
<td>REMOVE</td>
<td>This parameter specifies which components to uninstall. The INSTANCENAME parameter must be used in conjunction with this parameter.</td>
</tr>
</tbody>
</table>
### Table 8-5  Command Prompt Installation Options (continued)

<table>
<thead>
<tr>
<th>Command Prompt Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSTANCENAME</td>
<td>This parameter specifies the name of the instance. MSSQLSERVER is used to represent the default instance. This parameter must be specified for instance-aware components.</td>
</tr>
<tr>
<td>UPGRADE</td>
<td>This parameter is used to specify which product to upgrade. The INSTANCENAME parameter must be used in conjunction with this parameter.</td>
</tr>
<tr>
<td>SAVESYSDB</td>
<td>This parameter can be used during uninstall to specify not to delete system databases.</td>
</tr>
<tr>
<td>USESYSDB</td>
<td>This parameter is used to specify the root path to the system databases data directory during upgrade.</td>
</tr>
<tr>
<td>SQLACCOUNT, SQLPASSWORD, AGTACCOUNT, AGTPASSWORD, ASACCOUNT, ASPASSWORD, RSACCOUNT, RSPASSWORD</td>
<td>These parameters are used to specify the service accounts and passwords for the services. A service account and password need to be provided for each service selected for installation.</td>
</tr>
<tr>
<td>SQLBROWSERAUTOSTART, SQLAUTOSTART, AGTAUTOSTART, ASAUTOSTART, RSAUTOSTART</td>
<td>These parameters are used to specify the startup behavior of the respective service. When set to 1, the service will start automatically; when set to 0, the service must be started manually.</td>
</tr>
<tr>
<td>SECURITYMODE and SAPWD</td>
<td>SECURITYMODE=SQL is used to specify mixed mode authentication. SAPWD is used to specify the password for the sa account.</td>
</tr>
<tr>
<td>SQLCOLLATION and ASCOLLATION</td>
<td>These parameters are used to set the collations for SQL Server and Analysis Services, respectively.</td>
</tr>
<tr>
<td>REBUILDDATABASE</td>
<td>This parameter is used to rebuild the master database.</td>
</tr>
<tr>
<td>REINSTALLMODE</td>
<td>This parameter is used to repair installed components that may be corrupted.</td>
</tr>
<tr>
<td>REINSTALL</td>
<td>This parameter is used to specify the components to reinstall and must be specified when using REINSTALLMODE. REINSTALL parameters use the same values as ADDLOCAL parameters.</td>
</tr>
<tr>
<td>RSCONFIGURATION</td>
<td>This parameter is applicable only if Reporting Services or Report Manager is installed. It is used to specify whether to configure the service.</td>
</tr>
<tr>
<td>SAMPLEDATABASESERVER</td>
<td>This parameter is used to specify the server and instance name to which the sample databases should be attached.</td>
</tr>
</tbody>
</table>
More Info

For a complete list of parameters and their possible values, refer to the SQL Server Setup Help by double-clicking <DVD Drive>\Servers\Setup\help\1033\setupsq19.chm and searching for ‘How to: Install SQL Server 2005 from the Command Prompt’.

In the next few sections, we will see how these parameters can be used in combination to perform a variety of operations such as installing a default instance with all the components, installing a named instance with mixed mode authentication, adding components to an existing instance, and using a settings file to pass in the installation parameters.

Installing a Default Instance

This is one of the most commonly used command prompt–based installation scenarios. The following command installs all of the SQL Server 2005 components in a default instance (MSSQLSERVER) on the local server. A Windows administrator account called advadmin with a password of Pa55wD is used for all the services.

```
start /wait <DVD Drive>\Servers\Setup\Setup.exe /qb INSTANCENAME=MSSQLSERVER
ADDLOCAL=ALL SAPWD=Pa55wD SQLACCOUNT=advadmin SQLPASSWORD=Pa55wD
AGTACCOUNT=advadmin AGTPASSWORD=Pa55wD ASACCOUNT=advadmin ASPASSWORD=Pa55wD
RSACCOUNT=advadmin RSPASSWORD=Pa55wD SQLBROWSERACCOUNT=advadmin
SQLBROWSERPASSWORD=Pa55wD
```

Best Practices

If you plan to store these commands as script files, you should make sure to store them in a secure location with the correct permissions, since they contain unencrypted passwords.

Installing a Named Instance with Mixed Authentication

The following command installs database engine and management tools components on a named instance of SQL Server 2005 called SS2K5 with mixed authentication and the

<table>
<thead>
<tr>
<th>Command Prompt Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DISABLENETWORKPROTOCOLS</td>
<td>This parameter is used to set up the start-up state of the network protocols.</td>
</tr>
<tr>
<td>ERRORREPORTING</td>
<td>This parameter is used to configure SQL Server to send reports from any fatal errors directly to Microsoft.</td>
</tr>
</tbody>
</table>
Latin1_General_Bin collation. A Windows administrator account called advadmin with a password of Pa55wD is used for all the services.

```
start /wait <DVD Drive>\Servers\setup.exe /qb INSTANCENAME=SS2K5
ADDLOCAL=SQL_Engine,SQL_Data_Files,Client_Components,Connectivity,SQL_Tools90
SECURITYMODE=SQL SQLCOLLATION=Latin1_General_Bin SQLAUTOSTART=1
AGTAUTOSTART=1 SAPWD=Pa55wD SQLACCOUNT=advadmin SQLPASSWORD=Pa55wD
AGTACCOUNT=advadmin AGTPASSWORD=Pa55wD SQLBROWSERACCOUNT=advadmin
SQLBROWSERPASSWORD=Pa55wD
```

Adding Components to an Existing Instance

The command prompt installation method can also be used to add components to an existing SQL Server 2005 instance. The following command adds the Analysis Server components with the Latin1_General_Bin collation setting to an existing instance named SS2K5. Once again, a Windows administrator account called advadmin with a password of Pa55wD is used for all the services.

```
start /wait <DVD Drive>\Servers\setup.exe /qb INSTANCENAME=SS2K5
ADDLOCAL=Analysis_Server,AnalysisDataFiles ASCOLLATION=Latin1_General_Bin
SAPWD=Pa55wD ASACCOUNT=advadmin ASPASSWORD=Pa55wD
```

Installing Using a Settings (.ini) File

All the command prompt installation examples we’ve seen so far have specified the setup options directly on the command line. This approach works well but is not very easy to use given that the commands are usually rather long and prone to typos. Also, the commands need to be re-typed for each use and cannot be easily persisted across sessions. To circumvent these problems, SQL Server 2005 allows you to use a settings file with which you can pass in the desired command prompt options. A settings file is a text file which contains a list of setup parameters.

The following example settings file specifies the options that can be used to install all SQL Server 2005 components using the mixed mode authentication and the Latin1_General_BIN collation for both SQL Server database as well as Analysis Server.

```
[Options]
USERNAME=Mike
COMPANYNAME=Microsoft
PIDKEY=ADDYOURVALIDPIDKEYHERE
ADDLOCAL=ALL
INSTANCENAME=MSSQLSERVER
```
SQLBROWSERACCOUNT=advadmin
SQLBROWSERPASSWORD=Pa55wD

SQLACCOUNT=advadmin
SQLPASSWORD=Pa55wD

AGTACCOUNT=advadmin
AGTPASSWORD=Pa55wD

ASACCOUNT=advadmin
ASPASSWORD=Pa55wD

RSACCOUNT=advadmin
RSPASSWORD=Pa55wD

SQLBROWSERAUTOSTART=1
SQLAUTOSTART=1
AGTAUTOSTART=1
ASAUTOSTART=0
RSAUTOSTART=0

SECURITYMODE=SQL
SAPWd=Pa55wD

SQLCOLLATION=Latin1_General_BIN
ASCOLLATION=Latin1_General_BIN
DISABLENETWORKPROTOCOLS=2

**Note** A sample template file (Template.ini) listing all the configurable parameters is provided with the SQL Server media and can be found in the same directory as the Setup.exe program.

The settings file is specified using the /settings option of the command prompt installation. For example, the following command passes in the SqlInstall.ini file containing the setup parameters to the setup program.

```
start /wait <DVD Drive>\Servers\setup.exe /qb /settings C:\SqlInstall.ini
```
Best Practices  Since the settings files contain logins, passwords, and product keys, you should always store them in a secure location with the appropriate file permissions.

Upgrading to SQL Server 2005

If you have an existing installation of SQL Server, you can choose to upgrade it to SQL Server 2005 instead of installing a new instance. SQL Server 2005 supports direct upgrade paths from SQL Server 7.0 with SP4 and SQL Server 2000 with SP3 or later versions. Table 8-7 lists the versions of SQL Server and the possible direct upgrade path to the corresponding SQL Server 2005 edition. Before upgrading from one edition to another, you should always verify that all the functionality you are currently using is supported in the edition being upgraded to.

Table 8-7  Supported Upgrade Paths to SQL Server 2005

<table>
<thead>
<tr>
<th>Upgrade from</th>
<th>Supported Upgrade Paths</th>
</tr>
</thead>
<tbody>
<tr>
<td>SQL Server 7.0 Enterprise Edition SP4</td>
<td>SQL Server 2005 Enterprise Edition</td>
</tr>
<tr>
<td>SQL Server 7.0 Developer Edition SP4</td>
<td>SQL Server 2005 Enterprise Edition</td>
</tr>
<tr>
<td>SQL Server 7.0 Desktop Edition SP4</td>
<td>SQL Server 2005 Standard Edition</td>
</tr>
<tr>
<td>SQL Server Desktop Engine (MSDE) 7.0 SP4</td>
<td>Upgrade not supported</td>
</tr>
<tr>
<td>SQL Server 2000 Enterprise Edition SP3 or later versions</td>
<td>SQL Server 2005 Enterprise Edition</td>
</tr>
<tr>
<td>SQL Server 2000 Developer Edition SP3 or later versions</td>
<td>SQL Server 2005 Developer Edition</td>
</tr>
<tr>
<td>SQL Server 2000 Standard Edition SP3 or later versions</td>
<td>SQL Server 2005 Standard Edition</td>
</tr>
</tbody>
</table>
Table 8-7  Supported Upgrade Paths to SQL Server 2005 (continued)

<table>
<thead>
<tr>
<th>Upgrade from</th>
<th>Supported Upgrade Paths</th>
</tr>
</thead>
<tbody>
<tr>
<td>SQL Server 2000 Personal Edition SP3 or later versions</td>
<td>SQL Server 2005 Standard Edition</td>
</tr>
<tr>
<td></td>
<td>SQL Server 2005 Workgroup Edition</td>
</tr>
<tr>
<td></td>
<td>SQL Server 2005 Express Edition</td>
</tr>
<tr>
<td></td>
<td>SQL Server 2005 Express Edition</td>
</tr>
<tr>
<td>SQL Server 2005 x64 (64-bit) Developer Edition</td>
<td>SQL Server 2005 x64 (64-bit) Developer Edition</td>
</tr>
</tbody>
</table>
A SQL Server 2000 32-bit instance running on the 32-bit subsystems of an x64 system cannot be upgraded to run on the 64-bit subsystem directly. If you require converting your 32-bit SQL Server instance to SQL Server 2005 (64-bit), you will need to install SQL Server 2005 on the 64-bit server as a new instance and then move the database over. You can move the databases either by backing them up from the 32-bit system and restoring them on the 64-bit system, or by detaching the databases from the 32-bit system, copying them over to the 64-bit system and attaching them to the 64-bit system. In either case, you will need to do some additional housekeeping tasks such as recreating logins, reconfiguring replication, and so forth on the new 64-bit server instance.

English-language versions of SQL Server can be upgraded to an English-language or any other localized version of SQL Server 2005. However, localized versions of SQL Server can be upgraded only to localized versions of SQL Server 2005 of the same language. In addition, SQL Server 2005 does not support cross-version instances, implying that all the components (for example, Database Engine, Analysis Services, and Reporting Services) within a single instance must be the same.

**SQL Server Upgrade Advisor**

SQL Server Upgrade Advisor is a stand-alone tool that can help you analyze your SQL Server 7.0 or SQL Server 2000 database for possible incompatibilities before being upgraded to SQL Server 2005 and help you proactively resolve them. Although most well-designed SQL Server databases should be seamlessly upgradeable to SQL Server 2005, there are some scenarios in which SQL Server 2005 has tightened up on checking for compliance with SQL standards and disallows certain nonstandard code constructs. The Upgrade Advisor is a great way to quickly and easily check for such cases.

The following sections explain the steps to install and use the Upgrade Advisor.
Installing SQL Server Upgrade Advisor

The SQL Server Upgrade Advisor is a stand-alone tool that must be installed via a separate installation process. To install SQL Server Upgrade Advisor:

1. Log in to the system as Administrator or a user who has administrator privileges on the server.

   **Note** The SQL Server 2005 Setup program can be invoked in many ways. In most cases, the program will automatically start when the SQL Server 2005 DVD media is inserted into the DVD drive or when a remote network share is mapped onto the server. If the program does not load automatically, you can navigate to the Servers directory and double-click the Splash.hta program.

2. From the Start window, from the Prepare section, select Install SQL Server Upgrade Advisor.

3. On the Welcome page, click Next.

4. The License Agreement page appears. Read and accept the terms of the license agreement by selecting the radio button, and then click Next.

5. The Registration Information page appears. Enter your name and the name of your organization and click Next.

6. The Feature Selection page appears. On this page, leave the Upgrade Advisor feature selected. You can change the directory to which Upgrade Advisor will be installed by using the Browse button. You can also view the disk cost by using the Disk Cost button. Click Next to continue.

7. The Ready To Install The Program page appears. Click Install.

8. The Setup Wizard will install the Upgrade Advisor and should report a successful completion message. Click Finish to complete the installation.

Using SQL Server Upgrade Advisor

The Upgrade Advisor is built from two components: the Upgrade Advisor Analysis Wizard and the Upgrade Advisor Report Viewer.

**Upgrade Advisor Analysis Wizard** This tool helps analyze the SQL Server 7.0 or SQL Server 2000 instance for issues that can cause the upgrade to fail or your application to falter after the upgrade. The wizard does not modify the instance in any way and can be run as many times as you like.
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■ Upgrade Advisor Report Viewer  This tool is used to view the list of issues found by the Analysis Wizard.

The typical sequence of events when using the Upgrade Advisor includes executing the Update Advisor, gathering the recommendations, taking the recommended corrective actions, and rerunning Upgrade Advisor to verify the changes. While this process can be completed in a single pass, I have often found it to require a couple of iterations before all the issues are resolved.

The following steps explain the process of using the SQL Server Upgrade Advisor Analysis Wizard and viewing the report using the Upgrade Advisor Report Viewer:

1. To open SQL Server 2005 Upgrade Advisor click the Start button, and then point to All Programs, then Microsoft SQL Server 2005, and then select SQL Server 2005 Upgrade Advisor. The Upgrade Advisor Start window appears, as shown in Figure 8-16.


3. The SQL Server Components page appears, as shown in Figure 8-17. Enter the name of the server you want to run Upgrade Advisor against. You can choose to query the server and automatically populate the appropriate check boxes for the components by clicking on Detect, or you can choose to manually select the check boxes. Click Next to continue.
4. The Connection Parameters page, shown in Figure 8-18, appears. Select the instance name (select MSSQLSERVER for the default instance), select the authentication mode, and enter the login credentials if using the SQL Server authentication mode. Click Next.

5. The SQL Server Parameters page appears, as shown in Figure 8-19. Select the check boxes for the databases to be analyzed. Additionally, if you want to analyze trace files and SQL batch files, select the appropriate check boxes as well. Click Next.
6. Based on the components you selected for analysis in step 3, the appropriate component parameter page displays. Enter the requested information for each, and then click Next.

7. The Confirm Upgrade Advisor Settings page appears, as shown in Figure 8-20. Review the information and click Run to execute the analysis process. You can select the Send Reports To Microsoft check box if you want to submit your upgrade report to Microsoft. Re-executing the Upgrade Advisor process causes any previous reports to be overwritten.

![Figure 8-19 SQL Server 2005 Upgrade Advisor—SQL Server Parameters page.](image)

![Figure 8-20 SQL Server 2005 Upgrade Advisor—Confirm Upgrade Advisor Settings page.](image)
8. The Upgrade Advisor Progress page appears, as shown in Figure 8-21. The analysis may take several minutes to complete and is dependent on the number of components selected. Once the analysis is completed, you can select Launch Report to view the report that was generated or exit the wizard by clicking Close.

![Figure 8-21](image1.png)

**Figure 8-21** SQL Server 2005 Upgrade Advisor—Upgrade Advisor Progress page.

9. When you select Launch Report in step 8 or the Launch Upgrade Advisor Report Viewer option shown in Figure 8-16, the window shown in Figure 8-22 appears. From this window, you can choose to view all the issues for all the components together or filter the view using the Instance Or Component and Filter By drop-down lists. Clicking on the + next to a line item expands the display to show a more detailed description. You also can use the This Issue Has Been Resolved check box on each line item to mark the task resolved, which will then delete it from the current report.

![Figure 8-22](image2.png)

**Figure 8-22** SQL Server 2005 Upgrade Advisor—View Report window.
Upgrade Procedure

The procedure to upgrade an earlier version of SQL Server to SQL Server 2005 is very similar to the procedure for a new SQL Server 2005 installation. To upgrade a version of SQL Server 7.0 or SQL Server 2000, start with steps 1 through 9 listed in the section “Installing SQL Server 2005 Using the Installation Wizard.” Then follow these steps:

1. When the Instance Name page appears, select the default or named instance to upgrade. To upgrade a SQL Server default instance already installed on your system, click Default Instance, and then click Next to continue. To upgrade a SQL Server named instance already installed on your system, click Named Instance, and then enter the instance name in the text field below, or click the Installed Instances button, select an instance from the Installed Instances list, and click OK to automatically populate the instance name text field. After you have selected the instance to upgrade, click Next to continue.

   Note If you want to do an upgrade, make sure you specify the name of the existing default or named instance correctly. If the instance specified does not exist on the system, the Installation Wizard will install a new instance instead of performing an upgrade.

2. The Existing Components page, shown in Figure 8-23, appears. On this page, you can select the check boxes next to the components you want to upgrade (the list of components is based on the SQL Server instances and versions installed on your system and, therefore, may be different than what is shown in Figure 8-23). You can also view the details of the listed components by clicking on the Details button in the lower-right corner. Click Next to continue with the upgrade.

Figure 8-23 SQL Server Upgrade—Existing Components page.
Troubleshooting. You should make sure that the SQL Server 2005 edition to which you’re trying to upgrade is listed in Table 8-7 as a valid upgrade path. If not, the setup process will block the upgrade by graying out the component selection check boxes.

3. The Upgrade Logon Information page appears. On this page, click the appropriate radio button to select either the Windows Authentication Mode or the Mixed Mode (Windows Authentication and SQL Server Authentication). If you select to use the mixed mode, you will need to enter and confirm login password for the sa user. Click Next to continue.

4. The upgrade process will analyze the instance and then display the Error And Usage Report Settings page. On this page, you can select one of two radio buttons to Automatically Send Error Reports To Microsoft Or Your Corporate Error Reporting Server, or to Automatically Send Feature Usage Data For SQL Server 2005 To Microsoft, to set the desired default action. This data is collected for information purposes only, and selecting either of these options will not have any adverse effects on the performance of your system. Click Next to continue.

5. On the Ready To Install page, review the components selected for upgrade, and then click Install to upgrade them.

Post-Upgrade Steps
The procedure explained previously upgrades the SQL Server database executables to SQL Server 2005; however, this may not be sufficient to ensure optimal performance and functioning of your application. In addition to upgrading to SQL Server 2005, you will need to complete the following tasks manually to upgrade your individual databases and do some housekeeping tasks:

1. **Register servers**. After upgrading to SQL Server 2005, you must reregister your servers.

2. **Set database compatibility to 90**. After an upgrade, SQL Server 2005 automatically sets the database compatibility level for each database to the level of the previous SQL Server version. For example, if you upgrade SQL Server 2000 to SQL Server 2005, the database compatibility level for all the upgraded user databases will be set to 80 (SQL Server 2000). You should change the database compatibility level for each of your databases to SQL Server 2005 (90) by executing the `sp_dbcmptlevel` stored procedure command shown below from one of the SQL Server tools like SQL Server Management Studio.
Best Practices You should always run your databases in the 90 compatibility level for SQL Server 2005 and avoid setting the compatibility level to an earlier version to permanently work around any incompatibilities you encounter after an upgrade.

3. Execute update statistics You should update statistics on all tables. This ensures that the statistics are current and help optimize query performance. You can use the `sp_updatestats` stored procedure to update the statistics on all user tables in your database.

4. Update usage counters You should run DBCC UPDATEUSAGE on all upgraded databases to correct any invalid row or page counts, for example DBCC UPDATEUSAGE (‘AdventureWorks’).

5. Configure the surface area You should enable the required SQL Server 2005 features and services using the SQL Server 2005 Surface Area Configuration tool explained later in this chapter.

6. Repopulate full-text catalogs The upgrade process disables full-text on all databases. If you plan to use the full-text feature, you should repopulate the catalogs. You can do this using the `sp_fulltext_catalog` stored procedure.

---

**Reading the SQL Server 2005 Setup Log Files**

SQL Server 2005 setup has a significantly enhanced logging mechanism wherein all actions performed by setup are logged in an easy-to-read format. The master log file for the setup process is named `Summary.txt` and is located under: %ProgramFiles%\Microsoft SQL Server\90\Setup Bootstrap\LOG\. This file contains a summary for each component being installed. The following is a typical `Summary.txt` log file fragment.

```text
Microsoft SQL Server 2005 9.00.1399.06
-------------------------------
Service Pack 1 (Build 3790)
Time : Thu Jan 12 22:38:12 2006
```
You can use the Summary.txt file to examine the details of a component installation process by referring to the log file name listed on the respective Log File line. This is particularly useful when a component fails to install and the installation process needs to be debugged. The individual component log files are created in text format and stored in the %ProgramFiles%\Microsoft SQL Server\90\Setup Bootstrap\LOG\Files directory.

---

**Uninstalling SQL Server 2005**

Similar to the installation process, SQL Server 2005 can be uninstalled using either an uninstall wizard or the command prompt. The following sections explain both of these methods in detail.

**Uninstalling SQL Server 2005 Using the Uninstall Wizard**

1. To begin the uninstall process, click the Start button, select Control Panel (or select Settings and then Control Panel), and then in Control Panel, double-click Add Or Remove Programs.
2. In the left pane, click Add/Remove Windows Components.

3. Select the SQL Server 2005 component to uninstall. The Change and Remove buttons are then displayed. Click Remove. This starts the SQL Server 2005 Uninstall Wizard.

4. The Component Selection page, shown in Figure 8-24, is displayed. On this page, you can select the installed instance and common components you’d like to uninstall. You can select the Report button to view the list of SQL Server 2005 components and features installed on your computer. The report displays the versions, editions, any updates, and the language information for each installed component and feature. Click Next.

![Figure 8-24 SQL Server 2005 Uninstall—Component Selection page.](image)

5. The Confirmation page is displayed. Review the list of components and features that will be uninstalled.

6. Click Finish to uninstall the selected components. The Setup Progress window appears and displays the uninstall status for each component. When the uninstall process is completed, the window will close automatically.

**Note** The Add Or Remove Programs window may continue to display some of the components as installed even though they’ve been uninstalled. This is because the Add Or Remove Programs window does not auto-refresh. The easiest way to refresh the window is to close it and then click Add Or Remove Programs in the Control Panel again.
Uninstalling SQL Server 2005 Using the Command Prompt

As mentioned earlier, SQL Server 2005 can be uninstalled from the local server by specifying the REMOVE option in command prompt. When the option is specified with the ALL parameter, all the instance aware components are uninstalled. For example, the following command uninstalls all components from an instance called SS2K5 on the local server.

```
start /wait <DVD Drive>\Servers\setup.exe /qb REMOVE=ALL INSTANCENAME=SS2K5
```

**Note** To uninstall the default instance, specify INSTANCENAME=MSSQLSERVER.

The command prompt can also be used to selectively uninstall specific components of a SQL Server 2005 instance. For example, the following command uninstalls the Analysis Server components from the default instance of SQL Server on the local server in silent mode with no GUI displayed (/qn).

```
start /wait <DVD Drive>\Servers\setup.exe /qn REMOVE=Analysis_Server,AnalysisDataFiles INSTANCENAME=MSSQLSERVER
```

**Note** The REMOVE option can also be used in conjunction with the ADDLOCAL option. While these two are seemingly orthogonal actions, they can be used very effectively to simplify the installation command. For example, to install all the components of SQL Server 2005 except Notification Services, you can install all the components (ADDLOCAL=ALL) and use the REMOVE option to exclude Notification Services, as shown in the following example query.

```
start /wait <DVD Drive>\Servers\setup.exe /qn ADDLOCAL=ALL REMOVE=Notification_Services INSTANCENAME=MSSQLSERVER
```

An alternative is to specify all the components of SQL Server 2005 except Notification Services individually as comma-separated parameters to the ADDLOCAL option.

These commands do not uninstall the SQL Native Access Client (SNAC) component from the server. To uninstall SNAC, execute the command (where C is the boot drive).

```
start /wait C:\Windows\System32\msiexec /qb /X <DVD Drive>\Servers\setup\sqlncli.msi
```
Using SQL Server Surface Area Configuration

SQL Server 2005 by default disables some features, services, and connections for new installations in order to reduce the attackable surface area and, thereby, help protect your system. This security scheme is new in SQL Server 2005 and is very different from earlier versions, which by default always enable all installed components.

The SQL Server Surface Area Configuration tool is a new configuration tool that ships with SQL Server 2005 and can be used to enable, disable, start, or stop features, services, and remote connectivity. This tool provides a single interface for managing Database Engine, Analysis Services, and Reporting Services features and can be used locally or from a remote server.

The following steps list the process used to invoke and use the SQL Server Surface Area Configuration tool:

1. Click the Start button and point to All Programs. Point to Microsoft SQL Server 2005, select Configuration Tools, and then select SQL Server Surface Area Configuration.

2. The SQL Server Surface Area Configuration start window, shown in Figure 8-25, appears. From this window, you can specify the server you want to configure by selecting the link adjacent to Configure Surface Area For Localhost. In the Select Computer dialog box that appears, select Local Computer or Remote Computer and enter the name of the remote computer in the text box if necessary. Click OK to continue.

![Figure 8-25 SQL Server Surface Area Configuration—Start window.](image-url)
3. Click the Surface Area Configuration For Services And Connections link to enable or disable Windows services and remote connectivity or the Surface Area Configuration For Features link to enable or disable features of the Database Engine, Analysis Services, and Reporting Services.

4. Click the Surface Area Configuration for Services and Connections link to set the startup state (Automatic, Manual, or Disabled) for each of the installed services and Start, Stop, or Pause the respective service. In addition, you can use this link to manage the connectivity options by specifying whether local connections only or local and remote connections are permitted, as shown in Figure 8-26.

![Figure 8-26 Surface Area Configuration For Services And Connections dialog box.](image)

**Real World Error While Connecting Remotely**

I have found that one of the most common problems for folks using SQL Server 2005 Express, Evaluation, or Developer Editions is not being able to connect to the server from a remote system. The error message returned when trying to connect remotely is as follows:

"An error has occurred while establishing a connection to the server. When connecting to SQL Server 2005, this failure may be caused by the fact that under the default settings SQL Server does not allow remote connections. (provider: SQL Network Interfaces, error: 28 - Server doesn’t support requested protocol) (Microsoft SQL Server, Error: -1)"
As mentioned earlier, SQL Server 2005 by default disables several network protocols to reduce the possible attack surface area. In line with this principle, the SQL Server 2005 Express, Evaluation, and Developer Editions disallow remote connections to the server, and that is why you cannot connect to the server remotely. You can easily remedy the situation by using the SQL Server Surface Area Configuration tool, selecting Remote Connections, and then selecting the Local And Remote Connections and Using Both TCP/IP/IP And Named Pipes options.

5. Click the Surface Area Configuration For Features link. The window shown in Figure 8-27 appears. This window provides a single interface for enabling or disabling the installed components listed in Table 8-6.

Note To configure a component, the component has to be running. If the component is not running, it will not be displayed as shown in Figure 8-27.

Table 8-6 Surface Area Configuration for Features

<table>
<thead>
<tr>
<th>Component</th>
<th>Configurable Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Database Engine</td>
<td>Ad hoc remote queries</td>
</tr>
<tr>
<td></td>
<td>CLR integration</td>
</tr>
<tr>
<td></td>
<td>DAC</td>
</tr>
<tr>
<td></td>
<td>Database Mail</td>
</tr>
<tr>
<td></td>
<td>Native XML Web Service</td>
</tr>
<tr>
<td></td>
<td>OLE Automation</td>
</tr>
<tr>
<td></td>
<td>SQL Server Service Broker</td>
</tr>
<tr>
<td></td>
<td>SQL Mail</td>
</tr>
<tr>
<td></td>
<td>Web Assistant</td>
</tr>
<tr>
<td></td>
<td>xp_cmdshell</td>
</tr>
<tr>
<td>Analysis Services</td>
<td>Ad hoc data mining queries</td>
</tr>
<tr>
<td></td>
<td>Anonymous connections</td>
</tr>
<tr>
<td></td>
<td>Linked objects</td>
</tr>
<tr>
<td></td>
<td>User-Defined Functions</td>
</tr>
<tr>
<td>Reporting Services</td>
<td>Scheduled Events and Report Delivery</td>
</tr>
<tr>
<td></td>
<td>Web Service and HTTP Access</td>
</tr>
<tr>
<td></td>
<td>Windows Integrated Security</td>
</tr>
</tbody>
</table>
Best Practices  These days security is a major concern for almost all deployments. To reduce the surface area for a possible attack, be selective about the features you enable and have a policy for enabling only those that you plan to use. It is also worthwhile to use the SQL Server Surface Area Configuration tool periodically and disable features that you are no longer using.

sac Utility

The sac utility can be used to import or export Microsoft SQL Server 2005 surface area settings. This utility is very useful in cases where the same surface area configuration needs to be replicated on multiple servers. To configure multiple servers with the same setting, you can configure the surface area on one server using the graphical SQL Server Surface Area Configuration tool and then use the sac utility to export the setting to a file. This file can then be used to import the setting into remote servers using the same utility. The sac utility (Sac.exe) is located under the directory:

%Program Files%\Microsoft SQL Server\90\Shared

The following command can be used to export the surface area configuration settings for all default instance settings of a server named HOTH into an XML-formatted file called sacSetting.txt.

```bash
sac out C:\sacSettings.txt -S HOTH -U sa -P Pa55wD -I MSSQLSERVER
```
This file can then be imported into some other server using the in option. The following command imports the sacSettings.txt file into a server called NABU.

```
sac in C:\sacSettings.txt -S NABU
```

**More Info**  The sac utility is very powerful and provides the flexibility of exporting and importing settings for specific services as well as Features and Network settings. The entire list of options for this utility can be found at [http://msdn2.microsoft.com/en-us/library/ms162800.aspx](http://msdn2.microsoft.com/en-us/library/ms162800.aspx).

**Summary**

Installing the software is the first step towards using SQL Server 2005. Although it is a relatively easy task, it is important to do preinstallation planning, select the correct installation options, and perform all of the postinstallation configuration steps to ensure an optimal installation and to avoid having to make repairs or patches postinstallation.

In this chapter, you’ve learned about the Installation Wizard and command prompt-based options available for installing the SQL Server 2005 components. You also learned about the new SQL Server 2005 Upgrade Advisor and how it can assist you in ensuring a smooth upgrade process, and how the SQL Server Surface Area Configuration tool and sac utility can be used to configure SQL Server 2005.