Microsoft® Office SharePoint® Server 2007 Administrator's Companion

Bill English with the Microsoft SharePoint Community Experts

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Chapter 5

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This chapter focuses on the installation of Microsoft Office SharePoint Server 2007. The goal of the chapter is to prepare you to plan for the installation of Office SharePoint Server 2007 and Microsoft Windows SharePoint Services 3.0. You will also learn how to add and remove servers from a server farm. This chapter also covers the process for uninstalling the products and items that are not removed during the uninstall process.

Installing SharePoint Server 2007 is a straightforward process, but some of the decisions you'll make are pivotal to your farm deployment. There's much to learn, so let's get started.

The Product Feature Matrix

The first installation decision you'll make is to select the appropriate SharePoint product for your implementation. In general, Windows SharePoint Services 3.0 offers only collaboration tools, but is covered by the operating system license. SharePoint Server 2007 is offered in two editions: Standard and Enterprise. The binaries installed are the same for both the Standard and Enterprise editions, but some features are disabled in the Standard edition. The same installation source is used for both editions, and the choice of Standard or Enterprise is determined by the Product Key entered during installation. An installation of Standard Edition can be upgraded to Enterprise in Central Administration without performing additional installation. To change from Enterprise to Standard however requires an uninstall and reinstall of the product. Table 5-1 provides a feature comparison of Windows SharePoint Services 3.0 and the two versions of SharePoint Server 2007.

Table 5-1 Feature Comparison

	Windows SharePoint Services 3.0	SharePoint Server 2007 Standard Edition	SharePoint Server 2007 Enterprise Edition
Services	Central Administration Site Administration Incoming Email Windows SharePoint Services 3.0 Search Windows SharePoint Services 3.0 Web Application	Web Content Services: Publishing, Content Deployment, Variations Portal Services: Profiles, Audiences, Personalization Document & Records Management Office Search Document Conversions	Excel Server InfoPath Forms Line Of Business Interoperability (Business Data Catalog)

Table 5-1 Feature Comparison

	Windows SharePoint Services 3.0	SharePoint Server 2007 Standard Edition	SharePoint Server 2007 Enterprise Edition
Features	Mobility Shortcut URL Team Collaboration Lists Standard Content Type Definitions Standard Field Definitions Issue Tracking Workflow Alerts Discussions RSS Feeds Data Connection Library	Document Center Enhancements Translation Management Library Publishing Slide Library Office Server Standard (User profiles, Search, Personalization, and so on) Workflows (Approval, Collect Signatures, Collect Feedback, Disposition, Translation Management) Reporting	Office Enterprise: Business Data Catalog, Forms services, Excel services, Key Performance Indicator and various Business Intelligence Web Parts
Site Templates	Blank, Team, Document Workspace, Wiki, Blog, Meeting Workspaces	Records Center, My Site Host, Document Center, Personalization, Site Directory, Report Center, Search Center, Search Center with tabs, Publishing Portal, Collaboration Portal, Publishing, Publishing with workflow	

Hardware Recommendations

Before you install and configure SharePoint Server 2007, make sure your servers have the recommended hardware and software. For a small server farm, you need at least one server performing all SharePoint roles and one server acting as a database server. The server computers should meet the following requirements:

- **Web server and application server** Dual-processor computer with processor clock speeds of 2.5 gigahertz (GHz) or higher and a minimum of 2 gigabytes (GB) of RAM.
- **Database server** Dual-processor computer with processor clock speeds of 2.0 GHz or higher and a minimum of 2 GB of RAM.

Field experience shows us that nearly everyone now is purchasing hardware with a minimum of 4 GB of RAM. This amount is preferred and should be considered a best practice in all but the smallest environments.

Preparing for Installation

Before installing SharePoint Server 2007, you'll also need to consider three different server roles: Web application server, database server, and Active Directory. These roles are described in this section. A detailed discussion of hardware and software requirements can be found in Chapter 3, "Design Considerations and Deployment."

Web/Application Server

The server hosting the SharePoint components must have the following minimum software configuration:

- Microsoft Windows Server 2003 (Standard, Enterprise, Datacenter, or Web Edition) with Service Pack 1 (SP1).
- Microsoft .NET Framework 3.0 installed, which includes Microsoft Windows Workflow Foundation
- Microsoft Internet Information Services (IIS) in IIS 6.0 worker process isolation mode, with Microsoft ASP.NET 2.0 installed and enabled. IIS 6.0 is in the correct mode unless you upgraded the Web server from Windows 2000 to Windows Server 2003. Upgraded Web servers default to IIS 5.0 mode and need to be changed to IIS 6.0 mode.
- NTFS file system.

Database Server

SharePoint requires SQL databases and prefers Windows Authentication. SharePoint is hardware agnostic, so the hardware configuration, physical location of the SQL server, and location of the databases—such as a storage area network (SAN)—is fine with SharePoint as long as SharePoint can communicate efficiently with its databases. SharePoint is unaware of any non-SharePoint databases on the SQL server. If you have multiple named instances of SQL, identify the instance you are using for SharePoint as part of identifying the SQL server.

Therefore, the SQL Server configuration characteristics are flexible and include the following:

- Any operating system version that supports Microsoft SQL Server 2000 or 2005.

- Microsoft SQL Server 2005 or Microsoft SQL Server 2000 with Service Pack 3 (SP3) or later.
- The database server does not have to be dedicated to SharePoint.
- Optionally, the database server can be an SQL cluster.

Active Directory

Planning is essential for every part of implementing SharePoint. A crucial part of preparing for installing SharePoint Server 2007 is planning the various Active Directory accounts that will be needed throughout your implementation, not just for the installation process. The time that you spend on this process will be appreciated when you do not have to modify the accounts later.

Accounts Requirements

SharePoint Server 2007 will require many dedicated accounts. These accounts are discussed in greater detail in the Security Accounts section of Chapter 3. Before beginning your installation, plan for and create these dedicated accounts with these considerations:

- Provide the appropriate rights and permissions so that they are available when needed.
- The dedicated accounts need to have passwords that do not automatically expire.

User and Service Accounts

It is strongly recommended that you use a dedicated account to log in and install Windows SharePoint Services and SharePoint Server 2007 servers. This account can also be used as the identity of the Central Administration site application pool, or it can be unique. By design, the Welcome menu displays "system account" if that account is used to log on to any application pool or Web site. This behavior continues even if the application pool identity is changed to the Network Service. This means your administrator account should not be used as an application pool identity or to install an SharePoint Server 2007 server.

Table 5-2 provides a detailed list of the accounts that are required by a SharePoint Server 2007 farm installation.

Table 5-2 Accounts Required by an SharePoint Server 2007 Farm Installation

Account	Purpose	Scope	Used by	Needed	Requirements
Setup User	User account that is used to run setup on each server.	Farm	Person installing	Setup	Member of the administrator group on each Web front-end (WFE) server and application server computer in the farm. Member of the following SQL Server groups with SQL Security administrator and database creator rights on SQL servers.
SQL Server Service	This is the security context used By Central Administration for creating databases and other SQL configurations.	Farm	MSSQLSERVER, SQLSERVERAGENT	Setup	Member of the administrators group on each server on which setup runs, administrators group on each SQL Server computer, database system administrator, and member of the SQL security administrator and database creator SQL Server groups.
Server Farm	This account is also referred to as the *database access account*.	Farm	Central administration site application pool identity	Setup	Member of administrators group on each WFE server and application server computer in the farm with SQL security administrator and database creator rights on SQL Servers. Database Owner (DBO) for all databases and additional permissions on WFE server and application server computers are automatically configured for this account when SharePoint is installed.
SSP App Pool		App	SSP App Pool Identity	SSP Creation	No configuration is necessary. The following permissions are automatically configured for this account when SharePoint is installed: DBO for the Share Service Provider (SSP) content database, read/write permissions for the SSP content database, read/write permissions for content databases for Web applications that are associated with the SSP, read permissions for the configuration database, read permissions for the central administration content database, and additional permissions on WFE server and application server computers.
SSP Service Account	Used to run timer jobs and for interserver communications.	Farm	SSP Timer service; SSP Web services	SSP Creation	Same as SSP App Pool Account

Table 5-2 Accounts Required by an SharePoint Server 2007 Farm Installation

Account	Purpose	Scope	Used by	Needed	Requirements
Windows SharePoint Services Search	Used as the service account for the Windows SharePoint Services Search service. There is only one instance of this service, and it is used by all SSPs.	Farm	Windows SharePoint Services 3.0 Search service	SSP Creation	Must be a domain account, but must not be a member of the farm administrators group. Permissions automatically configured for this account when SharePoint is installed include the following: read/write permissions for content databases for Web applications, read permissions for the configuration database, and read/write permissions for the Windows SharePoint Services Search database.
Search Default Content Access Account	The default account used by a specific SSP to crawl content. It is used when an account is not specified for a content source.	App	Windows SharePoint Services 3.0 Search service	SSP Creation	Must be a domain account, but must not be a member of the farm administrators group. It requires read access to external or secure content sources that you want to crawl using this account. Additional permissions for this account are automatically configured when SharePoint is installed.
Search Specific Content Access Account	This is an optional account that is configured to replace the default content access account to crawl a specific content source.	Rule	Windows SharePoint Services 3.0 Search service	Create a new crawl rule	Read access to external or secure content sources that this account is configured to access.

Table 5-2 Accounts Required by an SharePoint Server 2007 Farm Installation

Account	Purpose	Scope	Used by	Needed	Requirements
User Profile and Properties Content Access Account	Account used to connect to a directory service, such as Active Directory, a Lightweight Directory Access Protocol (LDAP) directory, Business Data Catalog (BDC) application, or other directory source and used to import profile data from a directory service. Note: If no account is specified, the Search Default Content Access account is used. If the Search Default Content Access account does not have read access to the directory or directories that you want to import data from, you will need to specify a different account. You should plan for one account per directory connection.	App	Profile Import	SSP Creation	Read access to the directory service. For an Active Directory service connection that enables Server Side Incremental, the account must have the Replicate Changes permissions for Active Directory directory services provided by Windows 2000 Server. This permission is not required for Windows 2003 Active Directory. Manage user profiles right. View rights on entities used in Business Data Catalog import connections.
Excel Services Unattended Service Account	Excel Calculation Services uses this account to connect to data sources that require user name and password strings for authentication. The SSP App Pool account is used if none is specified. For security, plan to use a low-privileged account that does not have the database privileges of the SSP App Pool Account.	App	Excel Services Service	SSP Creation	Read/write access to the Excel data sources.

Table 5-2 Accounts Required by an SharePoint Server 2007 Farm Installation

Account	Purpose	Scope	Used by	Needed	Requirements
App Pool Identity	Used to access content databases associated with the Web application. Plan one for each application pool.	App	Web Applications	App Pool Creation	No configuration is necessary. SQL Server privileges that are automatically assigned to this account are member of Database Owners Group for content databases associated with the Web application, read/write access to the associated SSP database only, and read permission for the configuration database. Additional privileges for this account on WFE servers and application servers are automatically configured by SharePoint.

Installing SharePoint Server 2007

SharePoint Server 2007 installation is much more modular than previous versions. The installation walkthrough involves the following processes that can be accomplished by different individuals or roles in production environments:

- Installation process
- Run the Configuration Wizard
- Assign services
- Create the corporate intranet portal

Running Through the Installation

To begin the installation process for SharePoint Server 2007, complete the following steps:

1. Log in to your computer using the installation account that was previously created.
2. Start the SharePoint Server setup program from your source files, which are located on either a network or CD.
3. Enter your product key on the Enter Product Key page. Note in Figure 5-1 that the page confirms the correct key before permitting you to proceed.

Figure 5-1 Enter Product Key page

4. Accept the end-user license agreement (EULA) on the End-User License Agreement page.

5. Next you need to decide which installation type is required for your system. (See Figure 5-2.) Your decision will determine the number of configuration pages you see during installation, as well as the installation process and results.

Figure 5-2 The Installation Types page

The Basic, or single-server, option installs the product on a single server with no options of later adding other servers or building a farm. This limitation exists because this option installs and uses Microsoft SQL Server 2005 Embedded Edition. A basic installation does not present any opportunity to change from the default options. Use the basic installation only when you know your deployment will not grow very large and will not ever need to scale out with additional servers.

Advanced Options

If you choose the Advanced option, you are presented with a page that has three tabs: Server Type, File Location, and Feedback. (See Figure 5-3.) We'll discuss your options on each of these three tabs in this section.

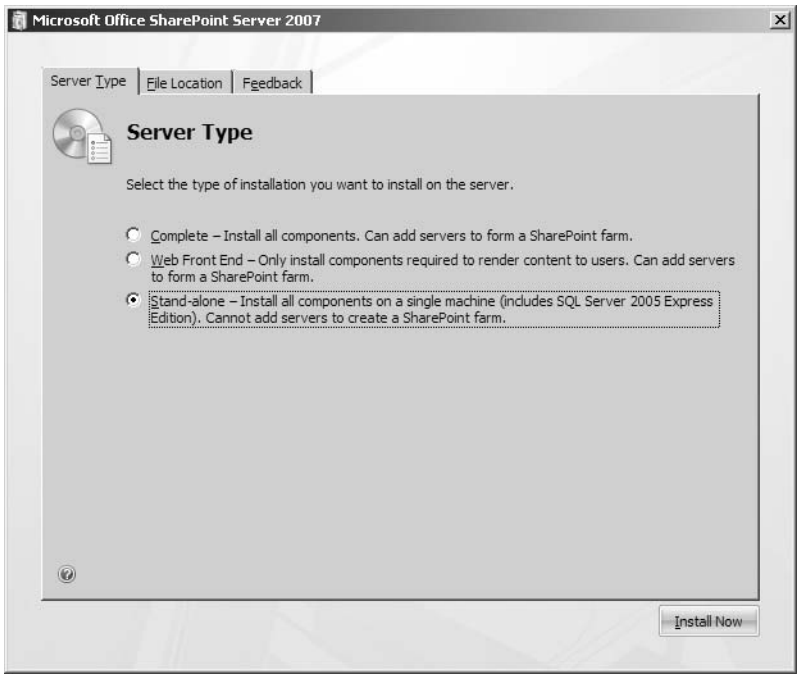

Figure 5-3 The first of the advanced options tabs

The Server Type tab presents three installation options. The first option we'll mention is the Stand-alone option. This option is the same as Basic on the previous page except that you now have the options on the other two tabs to configure along with setting up a basic server. The second option is the Web Front End option. This option installs only the services required for Web services and features. This option will require a reinstall if you need to support other services on this server later. You should have a Complete installation on one server before starting a WFE installation so that the Shared Services Provider (SSP) services will be available for the WFE.

> **Note** In most cases, you'll not want to choose the Web Front End option because it limits your ability to quickly change a server's role without reinstalling the SharePoint binaries on the WFE server.

Finally, the Complete installation option installs all the SharePoint binaries on the server necessary to perform any or all roles and to deploy either a Standard or Enterprise edition of this product in your environment. Services and features can be turned on and off as needed on each server that has a Complete installation when you expand or shrink your farm.

Both Web Front End and Complete will require the selection of an SQL server, preferably a remote server. For a small environment or for test purposes, you can install SharePoint

Server 2007 on a server that is running as a domain controller, SQL server, and Exchange Server services. But except in rare circumstances, it is not a best practice to do this.

The remaining two tabs can be used to customize your installation as follows:

- **File Location** Allows you to choose alternate locations for your binaries. Choices made on this tab will not affect the installation location of the common files, which will be discussed later in this chapter during the review of installation changes to your system.
- **Feedback** Allows you to choose whether or not to participate in the Microsoft feedback program.

Installation Complete

This will be the first indication that, to permit separation of roles, this product is very modular in its installation and configuration. At this point, you have only installed the binaries. No databases have been created, and no modifications have been made to IIS. In your environment, another team might be involved in configuring the server. If this is the case, that team will run the Configuration Wizard later. However, for the purpose of this chapter, it is assumed that you are responsible for all tasks.

The Configuration Wizard

The Welcome page (shown in Figure 5-4) explains the information you will need to provide during the configuration.

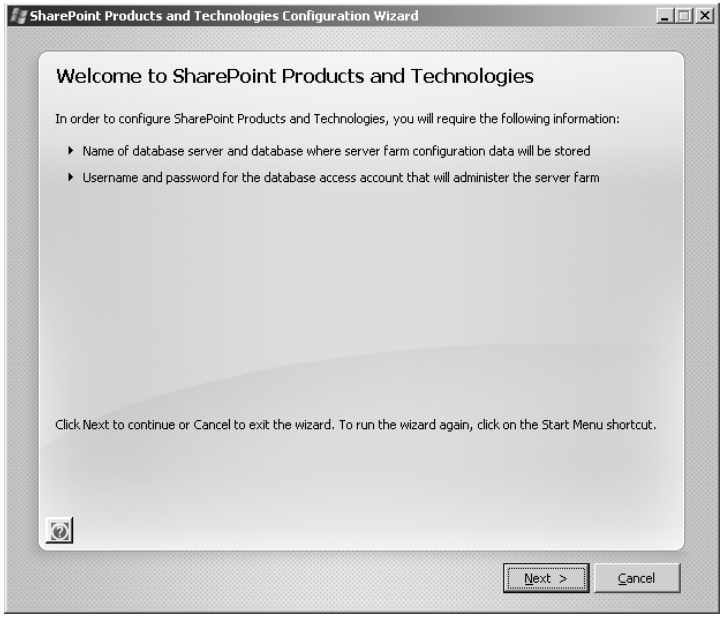

Figure 5-4 Configuration Wizard Welcome page

When you click Next, a warning dialog box is displayed explaining that some services will need to be restarted during the configuration. This does not present issues if you are working with a new, dedicated Web server. However, if your server is currently serving other Web sites, restarting the Web services will disrupt services, which might be unacceptable during certain time periods. If this is the case, you'll need to perform this action during off-hours. Also, it is highly recommended that you check network connectivity and DNS resolution from the server to the SQL server prior to running the wizard.

Server Farm Connection

Farm membership is defined by servers that are registered with the same configuration database. To join an existing farm, the server must use the same configuration database that the other servers are using. (See Figure 5-5.) If you want to set up a new farm, you need to create a new configuration database. You also need to know the SQL service account and password to join it to the farm. As was discussed earlier, in most instances this will be a domain account.

Best Practices Best practice is to always use domain accounts to install, configure, and secure your SharePoint deployment. If you use local server accounts and then later want to move to a domain environment, all your accounts in the farm and the Web applications need to be reassigned to domain accounts. This can be a challenging activity that can be avoided by simply using domain accounts initially.

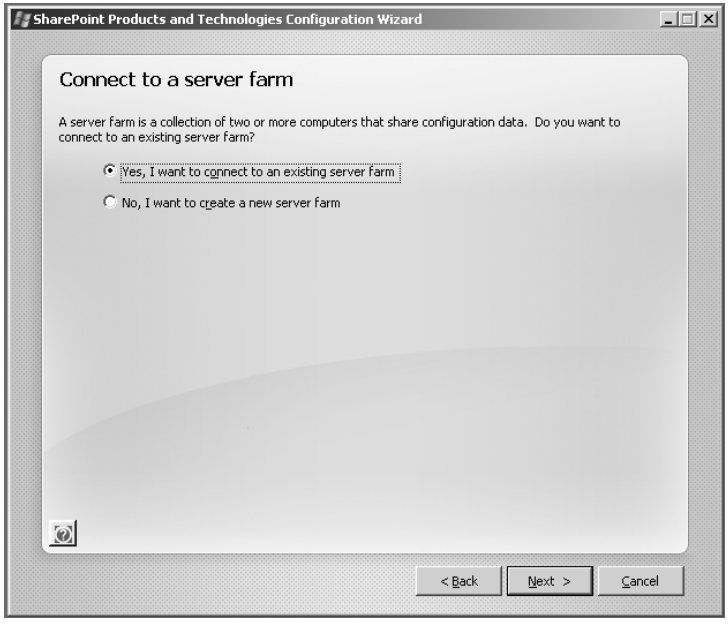

Figure 5-5 Farm connection choices

Create a New Farm

When you configure a new farm, you must specify a SQL Server instance and a new configuration database name. (See Figure 5-6.) At this point, you should have a naming convention in place not only for the configuration databases, but also for the other databases that will be configured later. You also need the SQL account username and password that has db_creator and db_security admin permissions on your SQL server. If this is your first SharePoint deployment, you need to ensure this account is also a member of the local Administrator's group on the SharePoint server. (See Table 5-2.)

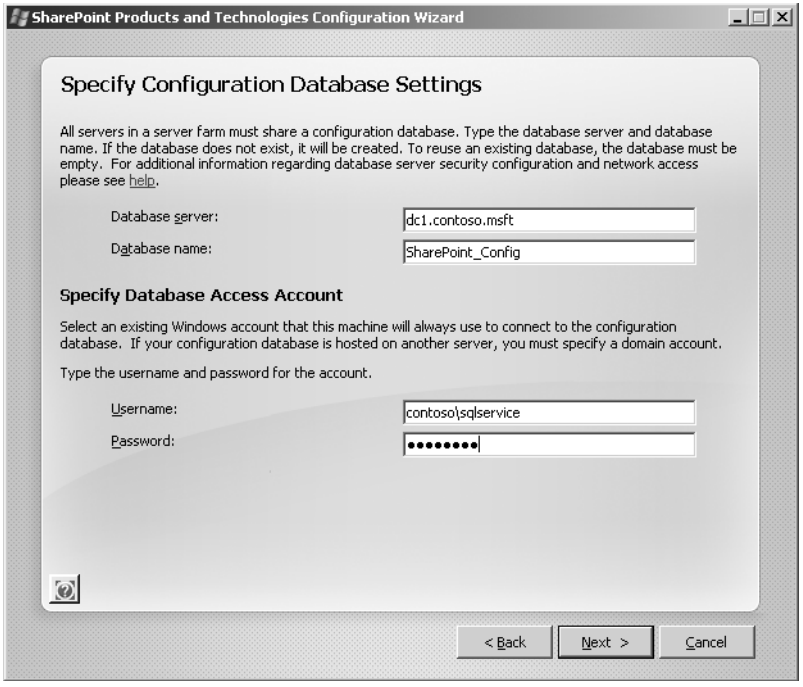

Figure 5-6 Specify Configuration Database Settings page

The username being requested on this page also will be used by the application pool in the Central Administration Web site. This is the same application pool account that was discussed earlier that has the appropriate rights on the SQL server and on all members of the farm. This is the security context for central administrative functions in SQL. In other words, all the system calls between the SharePoint servers and the SQL server will be committed within the security context of the Central Administration application pool account.

Note Remember that in SharePoint, user accounts should always be entered as domainname\username to distinguish them from local accounts.

Create the Central Administration Web Application

On the next page (shown in Figure 5-7), you instruct setup to create the Central Administration Web application. On this page, you can use the randomly generated port number or specify your own port number. In addition, you can choose if you want the Central Administration Web site to use Kerberos or NTLM authentication.

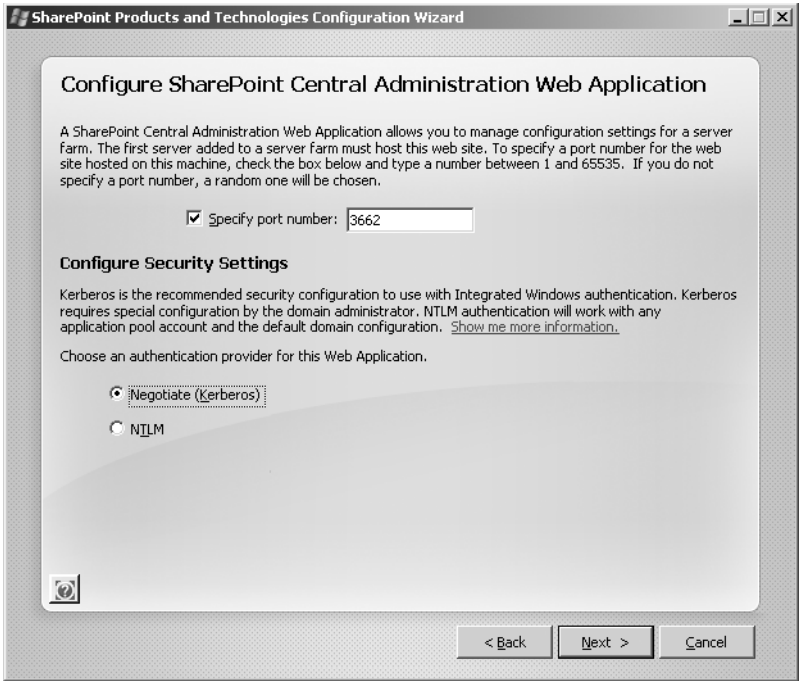

Figure 5-7 Configuration page for the Central Administration Web application

> **Important** Choose your port number carefully. You cannot change the port number for Central Administration after SharePoint is installed.

The choice between Kerberos and NTLM authentication is important. In most cases, you will use NTLM because even though Kerberos authentication is more secure and more efficient, it must be supported throughout your environment. The Kerberos option will require you to configure service principal names (SPNs) for your accounts used as application pool identities. The Negotiate (Kerberos) option will allow IIS to authenticate users with Kerberos or NTLM authentication if the user's machine cannot access the KDC (Key Distribution Center) or has an unsynchronized clock.

Enabling Kerberos Authentication

Kerberos authentication requires special configuration. When creating a Central Administration Web application, choose Kerberos as your authentication mechanism and configure an SPN for your Web application pool process account identity by using the setspn.exe tool from Support.cab in the Support folder of your server install CD or the Windows Server Resource Kit. Enter the following at a command prompt:

```
setspn.exe -A HTTP/ServerName Contoso\UserName
```

In this example, *ServerName* is your IIS system name, *Contoso* is the name of our Active Directory Domain, and *UserName* is the identity of the Web application's application pool.

For more information about configuring Kerberos, see Microsoft Knowledge Base article 832769, "How to Configure Windows SharePoint Services to Use Kerberos Authentication," found at *http://support.microsoft.com/default.aspx/kb/832769*.

Complete Wizard Input

At this point, the Configuration Wizard has sufficient information to begin. Review the accuracy of the information (shown in Figure 5-8) before you click Next. If necessary, back up and make changes.

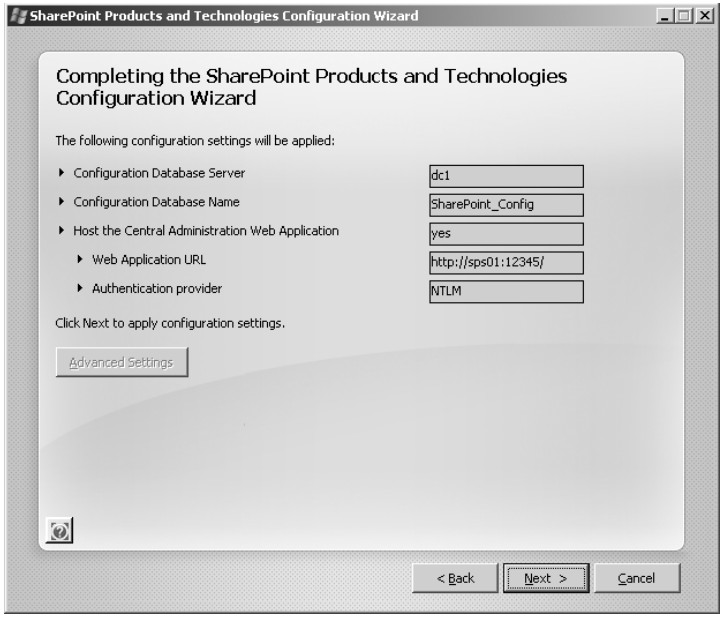

Figure 5-8 Completing the wizard

Once you click Next, a progress screen displays while the following actions are taken:

1. Initialize SharePoint products and technologies configuration.
2. Create configuration database.
3. Install Help collections.
4. Secure SharePoint resources.
5. Install and register SharePoint services.
6. Install and register SharePoint features.
7. Provision the SharePoint Central Administration Web application.
8. Install Web application files.
9. Finalize SharePoint products and technologies configuration, followed by IIS reset.

Moving to Central Administration

When the installation has been successfully completed, the wizard presents a report on its actions. When you click Finish, you are directed to the SharePoint Central Administration Web page. To open the Central Administration page, you need to add it to your Trusted Sites zone in Internet Explorer. The default settings of Internet Explorer require authentication for all Trusted Sites. To pass through your current logon credentials, you need to either modify the settings for Trusted Sites zone in Internet Explorer or add the Web site to the Local Intranet zone using the Sites button. If you are using a proxy server to access the Internet, ensure that your local sites are listed as local addresses in the Bypass Proxy Server For Local Servers dialog box.

Understanding the Default Databases and Changes from the Database Structure in SharePoint Portal Server 2003

The installation of SharePoint Server 2007 implements many changes to the database structure, particularly when compared to SharePoint Portal Server 2003. As part of the reduction in resource overhead of a portal, setup creates only one content database for each Web application, unlike the three databases that were created for each portal in SharePoint Portal Server 2003.

The Configuration database, which was always central to a farm, has taken on many new important roles. One major shift you will see is that the configuration database must be backed up for disaster recovery. In SharePoint Portal Server 2003, the configuration data-

base was rebuilt "on-the-fly" during a recovery operation. In SharePoint Server 2007, the configuration database is restored from backup. However, members of the farm still must check the configuration database constantly to see whether their role in the farm has changed, as well as to check where all the other roles within the farm are located. By default, each server in the farm checks with the configuration database every 30 seconds.

The Job Server role in SharePoint Portal Server 2003 has been eliminated in SharePoint Server 2007. The configuration database now stores information on the various jobs, their parameters, and their schedules. In addition, many SharePoint settings formerly stored only in an individual member's registry are now also stored in the configuration database, as well as the IIS metabase configurations and file system changes on the WFE servers. When new applications are "created" in Central Administration, the information is first placed in the configuration database and then all WFEs complete the appropriate actions on their servers. This new centralized storage enables quick duplication when a new WFE is added to the farm, and it allows for replication of local changes on the WFE members. This also means that changes to a Web application's configurations in IIS Manager made after the Web application has been created are not written to the configuration database. Best practice is to not make configuration changes to this Web application using the IIS Manager after the Web application has been created.

In addition to the configuration database, the following databases are created as part of the installation and configuration of SharePoint Server 2007:

- **Admin_content database** Stores the information related to lists, document libraries, tasks, and so on of the Central Administration site. You can add information and documents to the site.
- **SSP database** Each SSP requires a database for service-specific data. The SSP database stores any nonsearchable data that needs to be accessed by multiple sites. This data includes, but is not limited to, the following:
  - User information imported from Active Directory or another directory—for example, people profiles
  - Calculated audiences and organizational hierarchies
  - Security information needed for the rights for the administrative delegation of the SSP site
  - Business Data Catalog (BDC)–related imported data
  - Business application data such as Service Advertising Protocol (SAP)
  - Business Intelligence (BI) methods
  - Site usage data
  - IPFS session state information

- **SSP search database** Separated from the SSP database primarily to ease the management of these databases. The SSP search database also enables a database administrator to back up other Office Server databases at a more granular level. One SEARCH database is created per SSP. The search database contains frequently changing search-related data that is created during the search indexing process, such as crawl properties, document properties, and propagation properties. This is similar to the metadata information stored in the Embedded Database Engine (edb) database by the search service of SharePoint Portal Server 2003. The SEARCH database serves as the data store for the following:
  - Search metadata (also called the *property store*)
  - History log
  - Search log
  - Calculation tables for crawl statistics
  - Links tables and statistical tables

  These SSP databases do not contain the index created by the gatherer service.
- **Content databases** Used for site collections to store all Office Server data, including the following data:
  - All site details
  - Structure details
  - User content
  - Files
  - Security information
  - InfoPath form server templates
  - Excel server data

A significant change in database structure is the creation of content databases for each application regardless of the application's function. So although we no longer get the extra _serv and _prof databases for each portal as we did in SharePoint Portal Server 2003, we do get content databases for the Shared Service Provider (SSP) application, the Web Services application, and the Central Administration application. These content databases serve the same functions as those of every other Web application's content database.

Modifying Your Farm

Technically, your farm exists as soon as you create the configuration database with the first Complete installation type. Depending on your design, you can immediately begin to expand your farm with additional servers to support WFE or other functions. You might need to move search, index, personal sites host, Excel services, and other services to separate hardware to reduce workload on the WFE.

Alternatively, your farm can continue for some time as a single server hosting all services (other than SQL Server) until performance monitoring indicates a need to expand. We recommend that the SQL server always be on a separate server except in very small production implementations or development and staging implementations.

Adding Servers to Your Farm

The installation process is the same for additional servers as for the first server in the farm except for the installation type selection that you make. Your only options are Complete or Web Front End. You can choose to always use Complete and turn off services not required for the WFE server when installing a WFE so that you retain the flexibility of changing roles later. If you use the WFE option and choose to add other services to the server later, you must reinstall SharePoint Server 2007 to add the new functionality to the server.

When you run the Configuration Wizard, however, you must choose to join the farm by picking the appropriate configuration database that defines the farm. The information in the configuration database will be used to configure SharePoint Server 2007 on the new server. The existing configuration database names can be retrieved after you identify the database server.

After the Configuration Wizard completes, you will define the role of the new server in Central Administration by starting and stopping services. If you're coming from a SharePoint Portal Server 2003 background, you'll find that there is no server selection screen with clean check boxes. Instead, starting and stopping services in Central Administration on each server is the method you'll use to assign server roles in the farm. This is much more granular in defining roles, and the hard-coded farm structures of SharePoint Portal Server 2003 are gone.

Understanding How Your Server Has Changed as a Result of Installing SharePoint Server 2007

Sometimes, especially for troubleshooting purposes, you'll need information on how the SharePoint installation changed your server. In this section, we will review how the installation of SharePoint Server 2007 modifies the following:

- File system
- Registry
- IIS 6.0
- Databases

File System Changes

The binaries were installed in the location specified during installation. The default location is C:\Program Files\Microsoft Office Servers\12.0. Here you will find global files for the installation and applications. For instance, the C:\Program Files\Microsoft Office Servers\12.0\Data\Applications\(instance ID)\Config folder contains global configuration files used by the search engine, like the language-specific noise word and Thesaurus files along with the Thesaurus schema xml file. Other folders are also installed as follows:

- **Projects** This is the location for the various indexes.
- **Single sign-on** Common files are installed to C:\Program Files\Microsoft Shared \Microsoft Office 12\ Single Sign-on.
- **Global executables** C:\Program Files\Common Files\Microsoft Shared \OFFICE12 contains the dll's used globally.
- **1033** This folder is used for US English. Other folders will appear as you install additional language packs.
- **Setup files** Critical setup files that might be needed later for re-running certain aspects of the setup and Configuration Wizard are placed at C:\Program Files\Common Files\Microsoft Shared\SERVER12.
- **Web services** Common files are installed to C:\Program Files\Microsoft Shared\Web server extensions\.
- **The new "12 hive"** C:\Program Files\Common Files\Microsoft Shared \Web server extensions\12 is the equivalent of what we affectionately called the "60 hive" in SharePoint Portal Server 2003.

Some files that you find here are global, some are language specific (En-us or enus is US English), and some are application (Web site) specific.

In addition, there is a hierarchy to many of the files. For instance, in C:\Program Files\Common Files\Microsoft Shared\Web server extensions\12\Data\Config, you will find another set of noise word and thesaurus files that supersede those discussed previously. In the C:\Program Files\Common Files\Microsoft Shared\Web server extensions\12\Data\Applications\SPS2\Config folder, you will find a set of noise word and thesaurus files that are specifically for the SPSv2 application. Under this folder, you will also find other search files and logs specific to this application.

In the C:\Program Files\Common Files\Microsoft Shared\Web server extensions\12\TEMPLATE\LAYOUTS folder, you will find the administrative pages address by the _layouts relative path on your sites. Also, in the C:\Program Files\Common Files\Microsoft Shared\Web server extensions\12\TEMPLATE\images is the _images relative path for images addressable anywhere in your sites.

Registry Changes

The Configuration Wizard makes hundreds of registry entries as it installs and registers dlls, services, and features. For example, the installation of SharePoint Server 2007 adds several entries to the registry under HKEY_LOCAL_MACHINE\Software\Microsoft\Office Server and HKEY_LOCAL_MACHINE\Software\Microsoft\Shared Tools\Web Server Extensions\12.0.

The creation of the first SSP adds 48 keys to the registry, many of which have up to 36 entries within the key. These changes are found in a file named RegistryBlob.reg located in the SSP: C:\Program Files\Microsoft Office Servers\12.0\Data\Office Server\Applications\(Site GUID) directory.

Configuring the Search and Index server adds 186 keys to the registry, many of which have up to 53 entries within the key. These changes are found in a file named RegistryBlob.reg located in the C:\Program Files\Microsoft Office Servers\12.0\Data\Applications\(site GUID) directory. These registry changes are also stored in the configuration database so that other WFEs can replicate them.

Web Sites and Application Pools

No changes were made to IIS during the installation of SharePoint Server 2007. However, the Configuration Wizard made several changes, including the following ones:

- The following two application pools were created:
  - SharePoint Central Administration v3 using the SQL service account specified during the wizard
  - OfficeServerApplicationPool using the Network Service account

- The Central Administration Web site was created using the SharePoint Central Administration 3.0 application pool.
- The Office Server Web Services Web site was created using the OfficeServerApplicationPool.

With SharePoint Server 2007, new Web sites and new application pools, such as Corporate Portal, must be created from within Central Administration so that the process includes storing the configuration in the configuration database. Also, modifications to IIS configuration, with the exception of adding more host headers, should be made with Central Administration.

Removing Servers from Your Farm

How you remove a server from the farm will depend on the future use of the server. In both instances, if you have other members of the farm, you should modify the roles of the members before removing a server that supports a critical role.

If you want to move a server from one farm to another, run the Configuration Wizard and choose to disconnect from the configuration database. You can now run the wizard again and connect to another configuration database to join the new farm or create a new configuration database for a new farm. If you are going to uninstall SharePoint Server 2007 from the server, you do not need to run the Configuration Wizard, as the uninstall program will remove the appropriate configuration database settings. (See the "Uninstalling SharePoint Server 2007" section later in the chapter.)

Installing Windows SharePoint Services 3.0

The Windows SharePoint Services 3.0 installation prerequisites and process are the same as for SharePoint Server 2007 with only a limitation of options. Other than their titles, the screens look exactly like those in the SharePoint Server 2007 installation and Configuration Wizard with some limitations unique to Windows SharePoint Services 3.0.

Running Through the Installation

The first page with options presents the same Basic and Advanced choices as before with essentially the same results. The Basic option installs on the server using SQL Express with no installation options and no capability of expanding into a farm later.

Figure 5-9 presents the Advanced page that differs from SharePoint Server 2007. There are only two options: Web Front End and Stand-alone.

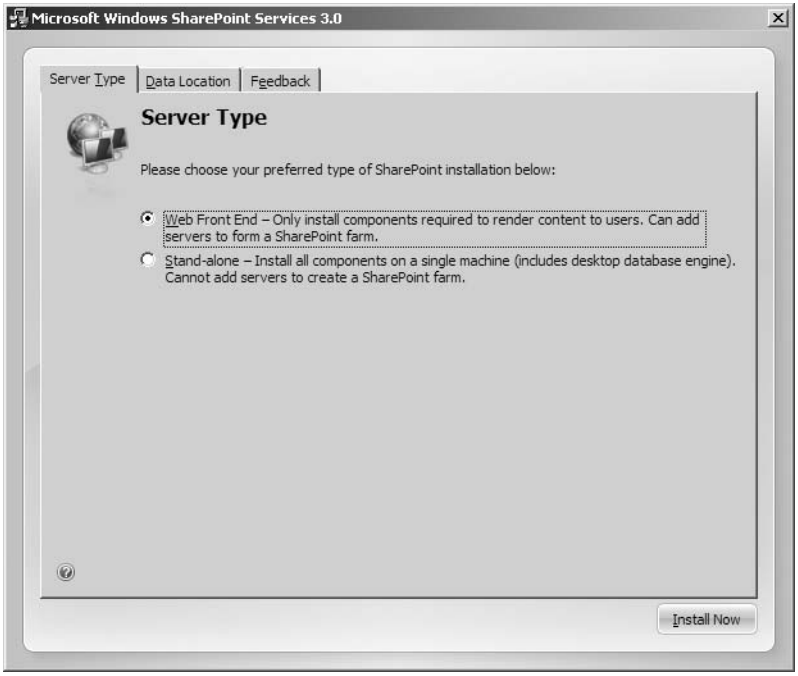

Figure 5-9 Advanced page of the Windows SharePoint Services 3.0 installation

WFE Installation

Because Windows SharePoint Services 3.0 provides only Web services, the WFE choice is similar to the Complete option with SharePoint Server 2007. This option uses a remote SQL database and has the option to expand the farm to have multiple load-balanced servers.

Stand-Alone Installation

As with SharePoint Server 2007, this option installs SQL Embedded and cannot be expanded.

Uninstalling SharePoint Server 2007

To remove SharePoint Server 2007 from the server entirely, simply uninstall the product using Add/Remove Programs in Control Panel. The setup program that uninstalls the program modifies the configuration database and reverses other modifications accomplished during the installation, including changes made to IIS 6.0. In the case of a Basic or Stand-alone installation using SQL Embedded, SQL Embedded is uninstalled as well but the SQL client tools remain.

With Add/Remove Programs, the product is uninstalled, including all program files except for those that might contain custom information. The following program files however are not removed:

- Noise word and thesaurus files
- Webconfig files for applications
- Index files
- Database files, including the configuration database

These files remain in their original locations, so the directory structure remains as well. This allows the farm to be rebuilt using another server and the same databases, files, and index.

Uninstalling Windows SharePoint Services 3.0

As with SharePoint Server 2007, use Add/Remove Programs to uninstall Windows SharePoint Services 3.0 from your server. This will remove all changes to IIS but leave the log files, the web.config for Central Administration and Site Administration, and the databases, including the search database.

Summary

This chapter covered the installation and farm configuration for both SharePoint Office Server 2007 and Windows SharePoint Services 3.0. In many instances, these will be ongoing processes, so the chapter also included the preparation steps and a summary of decisions required before beginning installation, modifying the farm by adding and removing servers, making changes to the servers during installation, and removing the services. Some of the best practices from this chapter were as follows:

- Except in very small implementations, use a separate server to provide SQL Server services.
- Use domain accounts if there is any possibility of having more than one member of the farm or if you are using SQL Server services on a separate server.
- Create accounts and determine naming conventions prior to beginning installation.
- Choose a Complete installation for Web front-end servers to provide more flexibility in modifying farm roles without requiring a reinstallation.