Practice Answers

Chapter 1

Lesson 1

EXERCISE 1: Create Active Directory Accounts

In this exercise, you create accounts for SharePoint administration, services, and access to SQL Server.

1. Log on to SP2010-WFE1 as **CONTOSO\Administrator** with the password **Pa$$w0rd**.
2. Click Start, point to Administrative Tools, and then click Active Directory Users And Computers.
3. Expand contoso.com and then click Service Accounts.
4. Right-click Service Accounts, point to New, and then click User.
5. In the Full Name box, type **SharePoint Administrator and Setup User**.
6. In the User Logon Name box, type **SP_Admin** and click Next.
7. In the Password and Confirm Password boxes, type **Pa$$w0rd**.
8. Clear the User Must Change Password At Next Logon check box.
9. Select the Password Never Expires check box, click Next, and then click Finish.
10. Right-click SharePoint Administrator And Setup User and then click Properties.
11. On the General tab, in the Description box, type **SharePoint Administrator and Setup User**.
12. In the E-mail box, type **SP_Admin@contoso.com** and click OK.
13. Repeat steps 4 to 12 to create the following accounts:
    - Full name: **SharePoint Farm Service**
      User logon name: **SP_Farm**
      Description: **SharePoint Farm Service**
      E-mail: **SP_Farm@contoso.com**
    - Full name: **SharePoint Service Applications**
      User logon name: **SP_ServiceApps**
      Description: **SharePoint Service Applications**
      E-mail: **SP_ServiceApps@contoso.com**
    - Full name: **SharePoint Web Applications**
      User logon name: **SP_WebApps**
      Description: **SharePoint Web Applications**
      E-mail: **SP_WebApps@contoso.com**

- Full name: **SharePoint Search Crawler**
  User logon name: **SP_Crawl**
  Description: **SharePoint Search Crawler**
  E-mail: **SP_Crawl@contoso.com**
- Full name: **SharePoint User Profile Synchronization**
  User logon name: SP_UserSync
  Description: **SharePoint User Profile Synchronization**
  E-mail SP_UserSync **@contoso.com**

14. Close Active Directory Users And Computers.

EXERCISE 2: Create a SQL Server Login for the SharePoint Administrator

In this exercise, you create a login and assign roles on SQL Server for the new SharePoint Administrator account.

1. Click Start, All Programs, Microsoft SQL Server 2008 R2, and then click SQL Server Management Studio.

   Microsoft SQL Server Management Studio opens.
2. In the Server Name box, type **SP2010-WFE1** and then click Connect.
3. Expand Security.
4. Right-click Logins and then click New Login.
5. In the Login Name box, type **CONTOSO\SP_Admin**.
6. In the left pane, click Server Roles.
7. Select the Dbcreator check box.
8. Select the Securityadmin check box.
9. Click OK and close Microsoft SQL Server Management Studio.

EXERCISE 3: Delegate Administration of the SharePoint Server

In this exercise, you add the SharePoint Administrator account to the local Administrators group of the SharePoint server. You will also add the user to the DnsAdmins group in the domain, so that the SharePoint Administrator can create DNS records for web applications in the SharePoint farm.

1. Click Start, point to Administrative Tools, and then click Active Directory Users And Computers.
2. Expand contoso.com and then click Users.
3. In the details pane, double-click DnsAdmins.
4. Click the Members tab, and then click Add.
5. In the Enter The Object Names To Select box, type **CONTOSO\SP_Admin** and then click OK.
6. Close Active Directory Users And Computers.
7. In the taskbar, click Server Manager.
8. Expand Configuration, then expand Local Users And Groups, and then click Groups.

9. In the details pane, double-click Administrators.
10. Click Add.
11. In the Enter The Object Names To Select box, type **CONTOSO\SP_Admin** and then click OK.
12. Click OK again.
13. Close Server Manager.
14. Log off of SP2010-WFE1.

EXERCISE 4: Copy the SharePoint Installation Files to the Server

In this exercise, you make the installation files available by creating a directory, sharing that directory, and then copying the files to it.

1. Mount the SharePoint Server 2010 installation media to the CD/DVD drive of SP2010-WFE1.

   Use the Mount An ISO Image procedure in the Lab Environment Build Guide on the companion media.
2. Log on to SP2010-WFE1 as **CONTOSO\SP_Admin** with the password **Pa$$w0rd**.
3. Start Command Prompt with the Run As Administrator option.
4. Type the following commands, pressing Enter after each command.

   ```
   md "C:\Software\SharePoint Server 2010"
   net share SP2010="C:\Software\SharePoint Server 2010" /GRANT:Everyone,Read
   robocopy /MIR D:\ "C:\Software\SharePoint Server 2010"
   ```

5. Close Command Prompt.

EXERCISE 5: Attempt to Install SharePoint Prerequisites

1. Start C:\Software\SharePoint Server 2010\default.hta.

   The SharePoint Server 2010 Start Page opens.
2. Click Install Software Prerequisites.
3. In the User Account Control dialog box, click Yes.
4. On the Welcome To The Microsoft SharePoint 2010 Products Preparation Tool page, click Next.
5. On the License Terms For Software Products page, select the I Accept The Terms Of The License Agreement(s) check box and click Next.

   The Preparation Tool prepares the server and reports There Was An Error During Installation.
6. Review the information on the page.
7. Click Review The Log File.
8. Click Edit, Find, type **KB976462**, and click Find Next.
9. Examine the log entry and the following entries. Determine whether the entries are related to errors downloading the hotfix for Microsoft Windows (KB976462). If not, click Find Next again and repeat this step.

10. When you have located the entries in the log that relate to the download of the hotfix, locate the log entry that specifies the URL from which the Preparation Tool attempted to download the hotfix.

    The URL is *http://go.microsoft.com/fwlink/?LinkID=166369*.

    This is the URL from which you can manually download the prerequisite.

11. In the Find dialog box, click Cancel.
12. Close the log file.
13. In Microsoft SharePoint Products Preparation Tool, click Finish.
14. On the SharePoint Server 2010 Start Page, click Exit.

EXERCISE 6: Download SharePoint Prerequisites

In this exercise, you obtain the SharePoint prerequisites and save them in a shared folder.

1. Start Command Prompt with the Run As Administrator option.
2. Type the following commands, pressing Enter after each command.

```
md "C:\Software\SharePoint Prerequisites"
net share SP2010Prereqs="C:\Software\SharePoint Prerequisites" /GRANT:Everyone,Read
```

3. On a system with Internet connectivity, browse to ***http://technet.microsoft.com/en-us/library/cc262485.aspx***.
4. Use the links on the page to download the following prerequisites. Save the files to a single folder on your computer.
    - Hotfix for Microsoft Windows (KB976394 for Windows Server 2008, KB976462 for Windows Server 2008 R2)
    - SQL Server 2008 Native Client
    - Windows Identity Foundation (KB974405)
    - Microsoft Sync Framework Runtime v1.0 (x64)
    - Microsoft Chart Controls for Microsoft .NET Framework 3.5
    - Microsoft Filter Pack 2.0
    - Microsoft SQL Server 2008 Analysis Services ADOMD.NET
    - Microsoft Server Speech Platform Runtime (x64)
    - Windows PowerShell 2.0 (for Windows Server 2008)
    - Microsoft Server Speech Recognition Language (Optional component supports phonetic search)
    - Microsoft SQL Server 2008 R2 Reporting Services Add-in for SharePoint Technologies (SSRS) (Optional component supports reporting services integration and Access Web services reporting)

5. Transfer the files you downloaded to the C:\Software\SharePoint Prerequisites folder in SP2010-WFE1. The steps to do this will depend on the configuration of your computer and of your lab environment. Options include the following:
   - Create a DVD or ISO image of the downloaded files, mount the media to the CD/DVD drive of SP2010-WFE1, and then copy the files from the media to the folder. ImgBurn is an excellent, lightweight tool for burning CD/DVD media and for creating ISO images. You can download ImgBurn at *http://www.imgburn.com*.
   - VMware Workstation allows you to share folders between the host and the guest operating system. Click the VM menu, click Settings, and then click the Options tab. Click Shared Folders, click Always Enabled, and then click Add. The Add Shared Folder Wizard will guide you through the process of selecting a folder on the host operating system and assigning it a name that will be exposed within the virtual machine in the path \\vmware-host\Shared Folders*FolderName*.

EXERCISE 7: Create a Script for Offline Installation of SharePoint Prerequisites

In this exercise, you create a PrerequisiteInstaller.Arguments.txt file that contains parameters with paths to the installation files for SharePoint prerequisites.

1. Run C:\Software\SharePoint Server 2010\PrerequisiteInstaller.exe /?.

   The About window opens.

2. Start Notepad.
3. Type the following parameters. The parameters are shown on separate lines to make it easier for you to read. However, you must type the parameters on a single line. You can use Word Wrap in Notepad to facilitate your view.

```
/SQLNCli:\\SP2010-WFE1.contoso.com\SP2010Prereqs\sqlncli.msi
/ChartControl:\\SP2010-WFE1.contoso.com\SP2010Prereqs\MSChart.exe
/KB976462:\\SP2010-WFE1.contoso.com\SP2010Prereqs\Windows6.1-KB976462-v2-x64.msu
/IDFXR2:\\SP2010-WFE1\SP2010Prereqs\Windows6.1-KB974405-x64.msu
/Sync:\\SP2010-WFE1.contoso.com\SP2010Prereqs\Synchronization.msi
/FilterPack:\\SP2010-WFE1.contoso.com\SP2010Prereqs\FilterPack64bit.exe
/ADOMD:\\SP2010-WFE1\SP2010Prereqs\SQLSERVER2008_ASADOMD10.msi
/ReportingServices:\\SP2010-WFE1.contoso.com\SP2010Prereqs\rsSharePoint.msi
/Speech:\\SP2010-WFE1.contoso.com\SP2010Prereqs\SpeechPlatformRuntime.msi
/SpeechLPK:\\SP2010-WFE1\SP2010Prereqs\MSSpeech_SR_en-US_TELE.msi
```

   Verify the path and filename for each prerequisite. The preceding filenames are correct as of the date of press, but may change over time.

4. Click File, click Save, and then, in the File Name box, type **C:\Software\SharePoint Server 2010\PrerequisiteInstaller.Arguments.txt**. Click Save.
5. Close Notepad and the About window.

ON THE COMPANION MEDIA **Alternately, you can copy the PrequisiteInstaller.Arguments .txt file from the companion media (in the Practice Files\01_01 folder) to the C:\Software\ SharePoint Server 2010 folder.**

EXERCISE 8: Perform an Offline, Scripted Installation of SharePoint Prerequisites

In this exercise, you run PrerequisiteInstaller.exe with the script PrerequisiteInstaller.Arguments .txt to perform an offline installation of SharePoint Prerequisites.

1. Run C:\Software\SharePoint Server 2010\PrerequisiteInstaller.exe.
2. In the User Account Control dialog box, click Yes.

   The Microsoft SharePoint 2010 Products Preparation Tool opens.

   Add the */unattended* parameter to the PrerequisiteInstaller.Arguments.txt file to perform a completely unattended installation that will hide the Preparation Tool interface.
3. On the Welcome To The Microsoft SharePoint 2010 Products Preparation Tool page, click Next.
4. On the License Terms For Software Products page, select the I Accept The Terms Of The License Agreement(s) check box and click Next.

   The Preparation Tool prepares the server.
5. On the Installation Complete page, click Finish.

   If the system restarts automatically, log on as CONTOSO\SP_Admin with the password Pa$$w0rd. The Preparation Tool might open automatically after logon. If not, run PrerequisiteInstaller.exe again. Repeat this process until the Installation Complete page appears.

   If errors occur, perform this procedure a second time. Occasionally, errors occur because of the timing of prerequisite installation.

   If errors continue to occur, examine the log file generated by the Preparation Tool to identify the cause of the errors.

   Verify that there are no errors in the PrerequisiteInstaller.Arguments.txt file.
6. Restart SP2010-WFE1.

   Prerequisite installation might continue when you log on. If so, follow the instructions provided by the Preparation Tool. If an error is reported, run the Preparation Tool one more time to determine whether the Preparation Tool can resolve the issue. Restart the system after all prerequisites have been installed successfully.

ON THE COMPANION MEDIA **To ensure that the file is correct, you can copy the PrequisiteInstaller.Arguments.txt file from the companion media (in the Practice Files\ 01_01 folder) to the C:\Software\SharePoint Server 2010 folder on SP2010-WFE1. Then verify that the correct prerequisite installation files exist in the paths specified by each of the 10 parameters in the PrequisiteInstaller.Arguments.txt file.**

Lesson 2

EXERCISE 1A: Install SharePoint Server

In this exercise, you install SharePoint Server 2010 by using the SharePoint Server installation wizard.

1. Log on to SP2010-WFE1 as **CONTOSO\SP_Admin** with the password **Pa$$w0rd**.
2. Run C:\Software\SharePoint Server 2010\default.hta.

   The SharePoint Server 2010 Start page opens.
3. On the SharePoint Server installation page, click Install SharePoint Server.
4. On the User Account Control dialog box, click Yes.

   Microsoft SharePoint Server 2010 opens.
5. Type the product ID you received when you downloaded or otherwise obtained the SharePoint 2010 installation media, and then click Continue.
6. Select the I Accept The Terms Of This Agreement check box and click Continue.
7. Click Server Farm.
8. On the Server Type page, click Complete, and then click Install Now.

   Installation proceeds for approximately 7 to 10 minutes.
9. On the Run Configuration Wizard page, clear the Run The SharePoint Products Configuration Wizard Now check box and click Close.
10. On the SharePoint installation page, click Exit.

EXERCISE 1B: Script the Installation of SharePoint Server

In this exercise, you perform a scripted installation SharePoint Server 2010 by creating a custom Config.xml file.

1. Mount the companion media to the CD/DVD drive of SP2010-WFE1.
2. Log on to SP2010-WFE1 as **CONTOSO\SP_Admin** with the password **Pa$$w0rd**.
3. Open C:\Software\SharePoint Server 2010\Files\SetupFarmSilent.
4. Right-click Config.xml, and then click Properties.
5. On the General tab, clear the Read-only check box.
6. Click Apply and, when an Access Denied message appears, click Continue.
7. Click the Security tab, click Edit, and then click Users.
8. Select the Allow check box next to Full Control.
9. Click OK to close the Permissions dialog box, and then click OK to close the Properties dialog box.
10. Right-click config.xml, and then click Edit.

    Config.xml opens in Notepad.

11. Replace line 11—the *PID* element—with the following line:

    ```
    <PIDKEY Value=" AAAAA-BBBBB-CCCCC-DDDDD-EEEEE " />
    ```

    where *AAAAA-BBBBB-CCCCC-DDDDD-EEEEE* is the product key you received from Microsoft when you obtained SharePoint Server 2010.

    Remove the comment tags <*!*-- and -->.

12. Replace the Display element with the following:

    ```
    <Display AcceptEULA="yes"
             Level="basic"
             CompletionNotice="yes" />
    ```

    In a production environment, you would leave the *Display* element with its default values (Level="none" and CompletionNotice="no") for a completely unattended installation.

    In this practice, you change the values of the *Display* element so that installation can be monitored.

13. Click File, and then click Save.
14. Click File, and then click Exit.
15. Start Command Prompt using the Run As Administrator option.

    The User Account Control dialog box opens.

16. Click Yes.
17. Type the following command on one line, and then press Enter:

    ```
    "C:\Software\SharePoint Server 2010\setup.exe" /config "C:\Software\SharePoint
    Server 2010\Files\SetupFarmSilent\config.xml"
    ```

    Installation takes approximately 7 to 10 minutes. A progress bar is displayed.

    In a production environment in which you have configured the *DisplayLevel* value to "none", you can monitor the progress of the SharePoint installation using any of these methods:

    - Click Start, type **%temp%**, and then press Enter. Open the log named SharePoint Server Setup*.log.
    - Start Task Manager, and then monitor processes including setup.exe, msiexec.exe, mscorsvw.exe, and psconfigui.exe.

18. On the Run Configuration Wizard page, clear the Run The SharePoint Products Configuration Wizard Now check box.
19. Click Close.

EXERCISE 2A: Run the SharePoint Products Configuration Wizard

In this exercise, you configure a single-server SharePoint farm by using the SharePoint Products Configuration Wizard.

1. Click Start, All Programs, Microsoft SharePoint 2010 Products, and then click SharePoint 2010 Products Configuration Wizard.

2. In the User Account Control dialog box, click Yes.

   After a few minutes, the SharePoint Products Configuration Wizard opens.

3. On the Welcome To SharePoint Products page, click Next.

   A message appears to inform you that IIS and SharePoint services may have to be started or reset.

4. Click Yes.
5. On the Connect To A Server Farm page, click Create A New Server Farm, and then click Next.
6. In the Database Server box, type **SP2010-WFE1.contoso.com**.
7. In the Username box, type **CONTOSO\SP_Farm**.
8. In the Password box, type **Pa$$w0rd**.
9. Click Next.
10. On the Specify Farm Security Settings page type **My Farm Pa$$phrase** in the Passphrase and Confirm Passphrase boxes, and then click Next.
11. On the Configure SharePoint Central Administration Web Application page, select the Specify Port Number check box.
12. In the Specify Port Number box, type **9999** and then click Next.
13. On the Completing The SharePoint Products Configuration Wizard page, click Next.

    The Configuring SharePoint Products page indicates the progress of configuration, which takes approximately 5 minutes.

14. On the Configuration Successful page, click Finish.

    Internet Explorer opens and loads the Help Make SharePoint Better page. This is the Customer Experience Improvement survey page of the SharePoint 2010 Central Administration website.

15. Click No, I Don't Wish To Participate.

    The virtual machine does not have Internet connectivity.

16. Click OK.
17. Close Internet Explorer.

    You configure SharePoint in the next exercise.

EXERCISE 2B: Perform a Scripted Configuration of SharePoint Server

In this exercise, you execute a Windows PowerShell script that configures a single-server SharePoint farm.

1. Mount the companion media to the CD/DVD drive of SP2010-WFE1.

> ***ON THE COMPANION MEDIA*** **Use either the Mount an ISO Image or Mount a DVD procedure in the Lab Environment Build Guide on the companion media.**

2. In the task bar, press and hold the Shift key and right-click Windows PowerShell, and then click Run As Administrator.
3. In the User Account Control dialog box, click Yes.
4. Navigate to <cdrom>:\Practice Files\01_02, type the following command, and then press Enter.

   ```
   .\ConfigureSharePoint.ps1
   ```

   The Windows PowerShell Credential Request dialog box opens to prompt you for the credentials of the CONTOSO\SP_Farm account.
5. In the Password box, type **Pa$$w0rd** and then press Enter.
6. When you are prompted for a farm passphrase, type **My Farm Pa$$phrase** and then press Enter.

   After a few moments, configuration status is displayed. Configuration proceeds for 7 to 10 minutes.

   Because the local farm does not yet exist, and will be created by the configuration script, the following warning is expected during the configuration of SharePoint:

   ```
   The Local Farm Is Not Accessible. Cmdlets With FeatureDependencyId Are Not
   Registered.
   ```

   You can monitor the progress of the SharePoint installation by performing these steps:

   a. Start Task Manager, click the Processes tab, and then click Show Processes From All Users.
   b. Monitor processes including powershell.exe, sqlservr.exe, and owstimer.exe.
7. At the Press Enter To Exit prompt, press Enter.
8. Close Windows PowerShell.

   You will configure SharePoint in a later exercise.

EXERCISE 3: Create the SHAREPOINT INSTALLED AND CONFIGURED Snapshot

The SHAREPOINT INSTALLED AND CONFIGURED snapshot captures SP2010-WFE1 after SharePoint binaries have been installed and the SharePoint Products Configuration Wizard has been run. Perform this procedure for each of the following virtual machines: SP2010-WFE1, CONTOSO-DC.

1. Shut down the virtual machine.
2. Unmount any ISO image currently mounted to the CD/DVD drive.

   Use the "Unmount an ISO Image" procedure in the Lab Environment Build Guide on the companion media.
3. Create a snapshot named SHAREPOINT INSTALLED AND CONFIGURED.

> ***ON THE COMPANION MEDIA*** **Use the Create a Snapshot procedure in the Lab Environment Build Guide.**

EXERCISE 4: Run the Farm Configuration Wizard

In this exercise, you deploy services and service applications by using the Farm Configuration Wizard. Before performing this exercise, you must start the virtual machines CONTOSO-DC and SP2010-WFE1, as described in the "Prepare for the Practice" section.

1. Log on to SP2010-WFE1 as **CONTOSO\SP_Admin** with the password **Pa$$w0rd**.
2. Start SharePoint 2010 Central Administration.

   Click Start, All Programs, Microsoft SharePoint 2010 Products, and then click SharePoint 2010 Central Administration.
3. Click Yes in the Users Account Control dialog box.

   After a few moments, Central Administration opens.
4. In the Central Administration Quick Launch, click Configuration Wizards.
5. In the Farm Configuration section, click Launch The Farm Configuration Wizard.

   If the Help Make SharePoint Better page opens, click No, I Don't Wish To Participate.
6. On the Configure Your SharePoint Farm page, click Start The Wizard.
7. In the Service Account section, click Create New Managed Account.
8. In the User Name box, type **CONTOSO\SP_ServiceApps**.
9. In the Password box, type **Pa$$w0rd**.
10. In the Services section, review the list of service applications that will be created by the Farm Configuration Wizard.
11. Clear the User Profile Service Application check box and click Next.

    Farm service applications are created and started. This takes several minutes. Optionally, you can open SQL Server Management Studio and refresh the view of the Databases node to monitor the creation of service application databases.

    When the configuration is complete, the Create Site Collection page opens.
12. On the Create Site Collection page, click Skip. (You will create an intranet in Lesson 3.)
13. On the Initial Farm Configuration Wizard page, click Finish.

EXERCISE 5: Create the FARM CONFIGURATION WIZARD DEFAULTS Snapshot

The FARM CONFIGURATION WIZARD DEFAULTS snapshot captures SP2010-WFE1 after the SharePoint farm has been configured. Perform this procedure for each of the following virtual machines: SP2010-WFE1, CONTOSO-DC.

1. Shut down the virtual machine.
2. Unmount any ISO image currently mounted to the CD/DVD drive.

   Use the Unmount an ISO Image procedure in the Lab Environment Build Guide on the companion media.
3. Create a snapshot named FARM CONFIGURATION WIZARD DEFAULTS.

   Use the Create a Snapshot procedure in the Lab Environment Build Guide on the companion media.

Lesson 3

EXERCISE 1: Register a Managed Account

In this exercise, you register a managed account that will be used as an application pool identity in the next exercise.

1. Log on to SP2010-WFE1 as **CONTOSO\SP_Admin** with the password **Pa$$w0rd**.
2. Start SharePoint 2010 Central Administration.
3. In the User Account Control dialog box, click Yes.
4. In the Central Administration Quick Launch, click Security.
5. In the General Security section, click Configure Managed Accounts.
6. On the Managed Accounts page, click Register Managed Account.
7. In the User Name box, type **CONTOSO\SP_WebApps**.
8. In the Password box, type **Pa$$w0rd**.
9. Click OK.

EXERCISE 2: Create a New Web Application

In this exercise, you create a new web application for the Contoso intranet.

1. In the Central Administration Quick Launch, click Application Management.
2. In the Web Applications section, click Manage Web Applications.
3. On the Web Applications tab of the Ribbon, click New.

   The Create New Web Application page opens.
4. In the Authentication section, click Classic Mode Authentication.
5. In the IIS Web Site section, in the Name box, type **Contoso Intranet**.
6. In the Port box, type **80**.
7. In the Host Header box, type **intranet.contoso.com**.
8. Make no changes to the Security Configuration and Public URL sections.
9. In the Application Pool section, ensure that Create New Application Pool is selected.
10. In the Application Pool Name box, type **SharePoint Web Applications**.
11. In the Application Pool section, under Select A Security Account For This Application Pool, in the Configurable list, select CONTOSO\SP_WebApps.
12. In the Database Name And Authentication section, in the Database Name box, type **SharePoint_Content_Intranet**.
13. Click OK.

    The web application and content database will be created. When it is complete, the Application Created page opens.
14. Click OK.

    The new web application is displayed on the Web Applications Management page.

EXERCISE 3: Create a New Site Collection

In this exercise, you create a new site collection for the Contoso intranet. The new site collection will use the Publishing site definition.

1. In the Central Administration Quick Launch, click Application Management.
2. In the Site Collections section, click Create Site Collections.

   The Create Site Collection page opens.
3. In the Web Application section, confirm that *http://intranet.contoso.com* is selected.

   If not, click the button, click Change Web Application, and then click Contoso Intranet.
4. In the Title box, type **Contoso Intranet**.
5. In the Web Site Address section, confirm that the URL is *http://intranet.contoso.com/*.
6. In the Template Selection section, click the Collaboration tab, and then click Team Site.
7. In the Primary Site Collection Administrator section, in the User Name box, type **CONTOSO\SP_Admin**.
8. Click OK.

   The site collection is created, and the Top-Level Site Collection page opens.
9. Click OK.

EXERCISE 4: Attempt to Open the New Site

In this exercise, you attempt to open the Contoso intranet website.

- In Internet Explorer, in the address bar, type **http://intranet.contoso.com** and then press Enter.

  An Internet Explorer Cannot Display The Webpage error page is displayed.

Question: What is the cause of this error?

Answer: The browser cannot resolve the name intranet.contoso.com. There is no DNS record for intranet.contoso.com.

EXERCISE 5: Add a DNS Host Record for the New Web Application

In this exercise, you remediate the name resolution problem you identified in the previous exercise. You will add a DNS host record that resolves *intranet.contoso.com* to the IP address *10.0.0.21*.

1. Start DNS Manager.

   The Connect To DNS Server dialog box opens.
2. Click The Following Computer, and then, in the text box, type **CONTOSO-DC**.
3. Click OK.
4. Expand CONTOSO-DC, expand Forward Lookup Zones, and then click contoso.com.
5. Right-click contoso.com and then click New Host (A Or AAAA).

   The New Host dialog box opens.

6. In the Name box, type **intranet**.
7. In the IP Address box, type **10.0.0.21**, and click Add Host.

   A DNS message box opens. It informs you that the host record was successfully created.
8. Click OK, click Done, and close DNS Manager.

EXERCISE 6: Attempt to Open the New Site

In this exercise, you attempt to open the Contoso intranet website.

- In Internet Explorer, in the address bar, type **http://intranet.contoso.com** and then press Enter.

  An Internet Explorer Cannot Display The Webpage error page is displayed.

Question: What is the cause of this error?

Answer: The DNS client has cached the negative resolution of *intranet.contoso.com.* Even though there is now a DNS host record for *intranet.contoso.com*, the client continues to refer to its cache, which contains a failed resolution.

EXERCISE 7: Flush the DNS Client Cache

In this exercise, you remediate the name resolution problem you identified in the previous exercise. You will flush the DNS client cache.

1. Click Start, and then click Command Prompt.
2. Type **ipconfig /flushdns** and then press Enter.
3. Close Command Prompt.
5. In Internet Explorer, in the address bar, type **http://intranet.contoso.com** and then press Enter.

   The website begins to load. Because this is the first time that the site has been requested from the server, it must be compiled. This takes several seconds.

   When the Windows Security dialog box opens, continue to the next exercise.

EXERCISE 8: Attempt to Open the New Site

In this exercise, you attempt to open the Contoso intranet website.

   The Windows Security dialog box opens, prompting you to enter credentials to access the website.

1. In the User Name box, type **CONTOSO\SP_Admin**.
2. In the Password box, type **Pa$$w0rd**.
3. Click OK.

   The Windows Security dialog box opens again. It appears that credentials are not being accepted.
4. Repeat steps 1 through 3.

   You are unable to access the intranet.

5. Click Cancel to close the Windows Security dialog box.

Question: What is the cause of this problem?

Answer: The server has loopback checking enabled. This is the default setting on Windows servers. The server refuses requests sent to the website because the source IP address is the same as the destination IP address.

EXERCISE 9: Disable Loopback Checking

In this exercise, you disable loopback checking for the SharePoint server.

1. Click Start, type **regedit,** and then press Enter.

   The User Account Control dialog box opens.
2. In the User Account Control dialog box, click Yes.

   Registry Editor opens.
3. Navigate to HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Lsa.
4. Right-click Lsa, point to New, and then click DWORD (32-bit) Value.

   A new value is created.
5. Type **DisableLoopbackCheck** and then press Enter.
6. Double-click DisableLoopbackCheck.
7. Type **1** (the numeral one) and then press Enter.
8. Close Registry Editor.

EXERCISE 10: Open the New Site

In this exercise, you open the Contoso intranet website.

- In Internet Explorer, in the address bar, type **http://intranet.contoso.com** and then press Enter.

  The website begins to load. Because this is the first time that the site has been requested from the server, it must be compiled. This takes several seconds.

EXERCISE 11: Create and Configure a Company Calendar

In this exercise, you add a company calendar to the Contoso intranet website.

1. Click Site Actions, and then click More Options.
2. On the Create page, click Calendar.
3. In the Name box, type **CompanyCalendar**.
4. Click Create.

   The calendar opens.
5. On the Ribbon, click the Calendar tab, and then click List Settings.

   The List Settings page opens.
6. On the List Settings page, click Title, Description And Navigation.

7. In the Name box, type **Company Calendar**.
8. Click Save.
9. In the Quick Launch, under Lists, click Company Calendar.

EXERCISE 12: Create the CHAPTER 01 Snapshot

The CHAPTER 01 snapshot captures the state of the environment at the end of Chapter 01. Perform this procedure for each of the following virtual machines: SP2010-WFE1, CONTOSO-DC.

1. Shut down the virtual machine.
2. Unmount any ISO image currently mounted to the CD/DVD drive.

   Use the "Unmount an ISO Image" procedure in the Lab Environment Build Guide on the companion media.
3. Create a snapshot named CHAPTER 01.

   Use the "Create a Snapshot" procedure in the Lab Environment Build Guide on the companion media.

Chapter 2

Lesson 1

EXERCISE 1: Add a User to the Farm Administrators Group

In this exercise, you add a user account to the Farm Administrators group.

1. Log on to SP2010-WFE1 as **CONTOSO\SP_Admin** with the password **Pa$$w0rd**.
2. Start SharePoint 2010 Central Administration.
3. In the User Account Control dialog box, click Yes.
4. In the Central Administration Quick Launch, click Security.
5. In the Users section, click Manage The Farm Administrators Group.
6. On the People And Groups - Farm Administrators page, click New.
7. On the Grant Permissions page, type **CONTOSO\PatC**.
8. Click the Check Names button.

   The name changes to Coleman, Pat, and is underlined to indicate that the name was resolved to the name of an existing user account.
9. Click OK.

EXERCISE 2: Sign In as a Different User

In this exercise, you sign in with the account that you just added to the Farm Administrators group.

1. Click SharePoint Administrator and Setup User in the upper-right corner of the page, and then click Sign In As Different User.

   The Windows Security dialog box opens.

2. In the User Name box, type **CONTOSO\PatC**.
3. In the Password box, type **Pa$$w0rd** and click OK.

EXERCISE 3: Assign a Site Collection Owner

In this exercise, you add a site collection owner of the Contoso intranet.

1. In the Central Administration Quick Launch, click Application Management.
2. In the Site Collections section, click Change Site Collection Administrators.
3. In the Secondary Site Collection Administrator box, type **CONTOSO\PatC**.
4. Click the Check Names button.

   The name changes to Coleman, Pat, and is underlined to indicate that the name was resolved to the name of an existing user account.
5. Click OK.

EXERCISE 4: Assign a Site Collection Administrator

In this exercise, you add a site collection administrator of the Contoso intranet.

1. In Internet Explorer, click the New Tab tab.
2. In the address bar, type **http://intranet.contoso.com** and then press Enter.
3. Click Site Actions, and then click Site Settings.
4. In the Users and Permissions section, click Site Collection Administrators.
5. In the Site Collection Administrators list, click at the end of the list, and then type **CONTOSO\AprilM**.
6. Click the Check Names button.

   The name changes to Meyer, April, and is underlined to indicate that the name was resolved to the name of an existing user account.
7. Click OK.

EXERCISE 5: Assign a Site Owner

In this exercise, you add a site owner of the Contoso intranet website.

1. Click Site Actions, and then click Site Permissions.
2. Click Contoso Intranet Owners.
3. Click New to open the Grant Permissions page.
4. Type **CONTOSO\KevinC**.
5. Click the Check Names button.

   The name changes to Cook, Kevin, and is underlined to indicate that the name was resolved to the name of an existing user account.
6. Click OK.

EXERCISE 6: Assign a Service Application Administrator

In this exercise, you delegate administration of the Managed Metadata Service service application.

1. In the Central Administration Quick Launch, click Application Management.
2. In the Service Applications section, click Manage Service Applications.
2. Click the Managed Metadata Service row.

   Do not click the *name* of a service application. Also be certain that you select the row of the service application, not the service application connection.
3. On the ribbon, click Administrators.
4. On the Administrators for Managed Metadata Service page, type **CONTOSO\AprilM**.
5. Click the Check Names button.

   The name changes to Meyer, April, and is underlined to indicate that the name was resolved to the name of an existing user account.
6. Click Add.
7. In the Permissions For Meyer, April box, select the Full Control check box and click OK.

EXERCISE 7: Change the Port of Central Administration

In this exercise, you change the port of Central Administration.

1. Click Start, right-click Command Prompt, and then click Run As Administrator.

   The User Account Control dialog box opens.
2. In the User Account Control dialog box, click Yes.
3. Type the following command and then press Enter:

   ```
   stsadm -o setadminport -port 9998
   ```

   An error message is displayed.
4. Type the following commands and then press Enter:

   ```
   cd "C:\Program Files\Common Files\Microsoft Shared\web server extensions\14\BIN"
   stsadm -o setadminport -port 9998
   ```
5. Switch to Internet Explorer.
6. In the Internet Explorer address bar, type **http://sp2010-wfe1:9998** and then press Enter.

   Central Administration opens. Because the web application must be recompiled and cached, it takes a few moments for this to occur.
7. Switch to Command Prompt.
8. Type the following command and then press Enter:

   ```
   stsadm -o setadminport -port 9999
   ```
9. Switch to Internet Explorer.
10. In the Internet Explorer address bar, type **http://sp2010-wfe1:9999** and then press Enter.

    Central Administration opens. Because the web application must be recompiled and cached, it takes a few moments for this to occur.

Lesson 2

EXERCISE 1: Use Familiar Commands in Windows PowerShell

In this exercise, you start SharePoint Management Shell and use commands with which you are already familiar.

1. Log on to SP2010-WFE1 as CONTOSO\SP_Admin.
2. Click Start, click All Programs, click Microsoft SharePoint 2010 Products, right-click SharePoint 2010 Management Shell, and then click Run As Administrator.

   The Windows Security dialog box appears.
3. Click Yes.
4. Type **dir** and then press Enter.
6. Use the *Get-Alias* cmdlet to answer the following.

   Question: For which cmdlet is *dir* an alias?

   Type **Get-Alias dir** and then press Enter.

   Answer: *Get-ChildItem*.
7. Type **ipconfig /all** and then press Enter.
8. Type **cls** and then press Enter.
9. Type **stsadm -help**.

EXERCISE 2: Delegate Permissions to Use Windows PowerShell to Administer SharePoint

In this exercise, you discover that you do not have permission to use Windows PowerShell to administer an existing content database. You then grant the SP_Admin account permissions to use Windows PowerShell to administer that database.

1. Create a report of all websites in the farm, including Central Administration.

   Type the following command and then press Enter:

   ```
   Get-SPWebApplication -IncludeCentralAdministration | Get-SPSite -Limit ALL |
   Get-SPWeb -Limit ALL
   ```

   An error appears.

   Question: What does the error suggest is the cause of the problem? How can you address this problem?

   Answer: The error indicates that the login for CONTOSO\SP_Admin failed for the SharePoint_Content_Intranet content database. SP_Admin does not have permission to use PowerShell against the database. You can use the *Add-SPShellAdmin* cmdlet to grant the account the permissions it requires.
2. Close SharePoint 2010 Management Shell.
3. Start SharePoint 2010 Management Shell using the Run As Different User option.

   Click Start, All Programs, Microsoft SharePoint 2010 Products, then hold the Shift key and right-click SharePoint 2010 Management Shell, and then click Run As Different User.

   The Windows Security dialog box appears.

4. In the User Name box, type **CONTOSO\Administrator**.
5. In the Password box, type **Pa$$w0rd** and click OK.

   SharePoint 2010 Management Shell opens.
6. Type the following command and then press Enter:

```
Add-SPShellAdmin -username "CONTOSO\SP_Admin" -database (Get-SPContentDatabase
"SharePoint_Content_Intranet")
```

7. Close SharePoint 2010 Management Shell.
8. Start SharePoint 2010 Management Shell using the Run As Administrator option.

   Click Start, All Programs, Microsoft SharePoint 2010 Products, right-click SharePoint 2010 Management Shell, and then click Run As Administrator.
9. In the Windows Security dialog box, click Yes.
10. Create a report of all websites in the farm, including Central Administration.

    Type the following command and then press Enter:

```
Get-SPWebApplication -IncludeCentralAdministration | Get-SPSite -Limit ALL | Get-
SPWeb -Limit ALL
```

EXERCISE 3: Identify and Explore a Windows PowerShell Cmdlet

In this exercise, you identify the command needed to create a new web application, and you explore its built-in documentation.

1. List the SharePoint cmdlets for Windows PowerShell.

   Type the following command and then press Enter:

```
Get-Command -PSSnapin Microsoft.SharePoint.PowerShell
```

   Alternately, type the following command, and then press Enter:

```
Get-Command -Noun SP*
```

2. List the cmdlets that perform tasks related to web applications.

   Type the following command and then press Enter:

```
Get-Command -Noun SP*Web*
```

   Question: What noun represents SharePoint Web applications?

   Answer: *SPWebApplication*.

   Question: Which cmdlet creates a SharePoint Web application?

   Answer: *Create-SPWebApplication*.
3. Display the summary help documentation for the cmdlet.

   Type the following command and then press Enter:

```
Get-Help New-SPWebApplication
```

4. Display usage examples for the cmdlet.

Type the following command and then press Enter:

```
Get-Help New-SPWebApplication -examples
```

Tip: You can press the Up Arrow to select the previously entered command, and then type the additional parameter.

5. Display detailed help for the cmdlet.

   Type the following command and then press Enter:

   ```
   Get-Help New-SPWebApplication -detailed
   ```

   Question: What parameter is required only if the application pool does not already exist?

   Answer: *ApplicationPoolAccount*.

EXERCISE 4: Create a Web Application Using Windows PowerShell

In this exercise, you create a web application, site collection, and top-level site by using Windows PowerShell.

1. Create a web application called *teams.contoso.com*. Use the following specifications and guidance:
   - Name: Contoso Teams
   - Port: 80
   - Host header: http://teams.contoso.com
   - URL: http://teams.contoso.com:80
   - Application pool: SharePoint Web Applications
   - Content database name: SharePoint_Content_Teams

   Type the following command, and then press Enter:

   ```
   New-SPWebApplication -Name "Contoso Teams" -Port 80 -HostHeader
   "teams.contoso.com" -URL "http://teams.contoso.com:80" -ApplicationPool
   "SharePoint Web Applications" -DatabaseName "SharePoint_Content_Teams"
   ```

2. List the available SharePoint website templates.

   Type the following command and then press Enter:

   ```
   Get-SPWebTemplate
   ```

   Question: What is the name of the team site template?

   Answer: STS#0.

3. Create a site collection at the root of the *teams.contoso.com* web application. Use the following specifications and guidance:
   - URL: http://teams.contoso.com
   - Content database for the site collection: SharePoint_Content_Teams
   - Name: Contoso Teams
   - Primary site collection administrator: CONTOSO\SP_Admin
   - Template: the Team Site template

Type the following command and then press Enter:

```
New-SPSite -Url "http://teams.contoso.com" –ContentDatabase
"SharePoint_Content_Teams" -Name "Contoso Teams" -OwnerAlias "CONTOSO\SP_Admin"
-Template "STS#0"
```

4. Create a team site for the Finance department in the teams.contoso.com web application.

   Type the following command and then press Enter:

   ```
   New-SPWeb "http://teams.contoso.com/Finance" -Name "Finance" -Template "STS#0"
   ```

5. Create a team site for the Marketing department in the teams.contoso.com web application. Use tab completion to type the cmdlet and parameter names more efficiently. Use the following specifications and guidance:

   - URL: http://teams.contoso.com/Marketing
   - Name: Marketing
   - Template: the Team Site template

   Type the following command and then press Enter:

   ```
   New-SPWeb "http://teams.contoso.com/Marketing" -Name "Marketing" -Template "STS#0"
   ```

6. Create a new blog site under the Marketing site in the teams.contoso.com web application. Use the following specifications and guidance:

   - URL: http://teams.contoso.com/Marketing/Blogs
   - Name: Marketing Blogs
   - Template: the Blog template

   Type the following command and then press Enter:

   ```
   New-SPWeb "http://teams.contoso.com/Marketing/Blogs" -Name "Marketing Blogs"
   -Template "BLOG#0"
   ```

EXERCISE 5: Generate Reports About Your SharePoint Farm

In this exercise, you generate reports about the websites in your SharePoint farm.

1. List all websites in the teams.contoso.com web application. Create a command that returns all websites in the web application even if the web application contains many site collections and websites.

   Type the following command and then press Enter:

   ```
   Get-SPWebApplication "http://teams.contoso.com" | Get-SPSite -Limit ALL |
   Get-SPWeb -Limit ALL
   ```

2. Assign the Marketing Blogs website to a variable named *$website*.

   Type the following command and then press Enter:

   ```
   $website = Get-SPWeb "http://teams.contoso.com/Marketing/Blogs"
   ```

3. Enumerate the members of an *SPWeb* object by using the *$website* variable and the *Get-Member* cmdlet.

Type the following command and then press Enter:

```
$website | Get-Member
```

4. Enumerate only the properties of an *SPWeb* object by using the *$website* variable and the *Get-Member* cmdlet.

   Type the following command and then press Enter:

   ```
   $website | Get-Member -MemberType Properties
   ```

5. List all of the properties and their values of the Marketing Blogs site by using the *$website* variable and the *Select-Object* cmdlet.

   Type the following command and then press Enter:

   ```
   $website | Select *
   ```

   Question: Which property exposes the fact that the website is a blog?

   Answer: The *WebTemplate* property.

6. Create a report of all websites in the farm, including Central Administration. In the report, show the URL, template, and the last date that the site was updated.

   Type the following command and then press Enter:

   ```
   Get-SPWebApplication -IncludeCentralAdministration | Get-SPSite -Limit ALL |
   Get-SPWeb -Limit ALL | Select Url,WebTemplate,LastItemModifiedDate
   ```

EXERCISE 6: Create Websites by Using a Windows PowerShell Script

In this exercise, you create and execute a Windows PowerShell script to provision websites in the Contoso intranet.

1. Start Notepad.
2. Type the following script:

   ```
   $departments = ("HR","IT","Sales")
   ForEach ($dept in $departments)
   {
   New-SPWeb "http://teams.contoso.com/$dept" -Name "$dept" -Template "STS#0"
   }
   ```

3. Save the script to your desktop with the following name: **CreateSites.ps1**.
4. Switch to SharePoint 2010 Management Shell.
5. Type the following command and then press Enter:

   ```
   C:\Users\SP_Admin\Desktop\CreateSites.ps1
   ```

   The sites are created.

6. Produce a report of all websites in the teams.contoso.com web application.

   Type the following command and then press Enter:

   ```
   Get-SPWebApplication "http://teams.contoso.com" | Get-SPSite -Limit ALL |
   Get-SPWeb -Limit ALL
   ```

7. Produce a report of all websites in a farm, including Central Administration.

   Type the following command and then press Enter:

```
Get-SPWebApplication -IncludeCentralAdministration | Get-SPSite -Limit ALL |
Get-SPWeb -Limit ALL
```

EXERCISE 7: Create the CHAPTER 02 Snapshot

The CHAPTER 02 snapshot captures the state of the environment at the end of Chapter 02. Perform this procedure for each of the following virtual machines: SP2010-WFE1, CONTOSO-DC.

1. Shut down the virtual machine.
2. Unmount any ISO image currently mounted to the CD/DVD drive. Use the "Unmount an ISO Image" procedure in the Lab Environment Build Guide on the companion media.
3. Create a snapshot named CHAPTER 02. Use the "Create a Snapshot" procedure in the Lab Environment Build Guide on the companion media.

Chapter 3

Lesson 1

EXERCISE 1: Add DNS Host Records for New Web Applications

In this exercise, you add DNS host records for web applications you will create in subsequent exercises.

1. Log on to SP2010 as **CONTOSO\SP_Admin** with the password **Pa$$w0rd**.
2. Click Start and then click Command Prompt.

   Command Prompt opens.
3. Type the following commands:

```
dnscmd contoso-dc.contoso.com /RecordAdd contoso.com partners A 10.0.0.21
dnscmd contoso-dc.contoso.com /RecordAdd contoso.com extranet A 10.0.0.21
```

4. Close Command Prompt.

EXERCISE 2: Create a Web Application Using Central Administration

In this exercise, you create a web application for collaboration with partners of Contoso.

1. Click Start, All Programs, Microsoft SharePoint 2010 Products, and then click SharePoint 2010 Central Administration to open the Windows Security dialog box.
2. Click OK to open Central Administration.
3. In the Central Administration Quick Launch, click Application Management.
4. In the Web Applications section, click Manage Web Applications.
5. On the ribbon, click New to open the Create New Web Application page.

6. In the Authentication section, click Classic Mode Authentication.
7. In the IIS Web Site section, click Create A New IIS Web Site.
8. In the Name box, type **Contoso Partner Portal**.
9. In the Port box, type **443**.
10. In the Host Header box, type **partners.contoso.com**.
11. In the Security Configuration section, in the Authentication Provider section, click NTLM.
12. In the Allow Anonymous section, click No.
13. In the Use Secure Sockets Layer (SSL) section, click Yes.
14. In the Public URL section, in the URL box, type **https://partners.contoso.com:443**.
15. In the Application Pool section, click Create New Application Pool.
16. In the Application Pool Name box, type **SharePoint Extranet Applications**.
17. In the Configurable list, select CONTOSO\SP_WebApps.
18. In the Database Name box, type **SharePoint_Content_Partners** and click OK.
19. On the Application Created page, click OK.

EXERCISE 3: Create a Site Collection Using Central Administration

In this exercise, you use Central Administration to create a site collection at the root of the new web application.

1. In the Central Administration Quick Launch, click Application Management.
2. In the Site Collections section, click Create Site Collections to open the Create Site Collection page.
3. In the Web Application section, click *http://intranet.contoso.com*, and then click Change Web Application.
4. In the Select Web Application dialog box, click Contoso Partner Portal.
5. In the Title box, type **Contoso Partner Portal**.
6. In the Description box, type **Sites for collaboration with partners.**
7. In the Web Site Address section, in the URL drop-down list, select the root path (/).
8. In the Template Selection section, click the Collaboration tab, and then click Team Site.
9. In the Primary Site Collection Administrator section, in the User Name box, type **CONTOSO\SP_Admin** and click OK.

   The site collection is created, and the Top-Level Site Successfully Created page opens.
10. Click OK.
11. Open a new tab in Internet Explorer, and browse to ***https://partners.contoso.com***.

    An Internet Explorer Cannot Display The Webpage error page opens. The site cannot be accessed using HTTPS because SSL has not been configured for the IIS Web site associated with the application.

EXERCISE 4: Create a Self-Signed Certificate

In this exercise, you create a self-signed certificate that, in the next exercise, you will bind to the site to enable SSL.

1. Click Start, Administrative Tools, and then click Internet Information Services (IIS) Manager.
2. In the console tree, click SP2010-WFE1.
3. In the IIS section, double-click Server Certificates.
4. In the Actions panel, click Create Self-Signed Certificate to open the Create Self-Signed Certificate dialog box.
5. In the Name box, type **Test Certificate** and click OK.

EXERCISE 5: Create an SSL Binding for an IIS Web Site

In this exercise, will bind the certificate you created in the previous exercise to the Contoso Partner Portal IIS Web site.

1. In the IIS Manager console tree, expand Sites, and then click Contoso Partner Portal.
2. In the Actions panel, click Bindings.
3. In the Site Bindings dialog box, click the existing binding, *https*, and then click Edit.
4. In the Edit Site Binding dialog box, confirm that Type is *HTTPS*.
5. Confirm that IP Address is *All Unassigned*.
6. Confirm that Port is *443*.
7. In the SSL Certificate list, select Test Certificate, click OK, and then click Close.
8. In Internet Explorer, browse to ***https://partners.contoso.com***.

   An error page opens: *There is a problem with this website's security certificate*.

   Question: Why does this error appear?

   Answer: The client (Internet Explorer) cannot validate the identity of the server because the certificate that is presented by the server is not signed by a trusted certificate authority.
9. Click Continue To This Website (Not Recommended).

   The site is loaded, compiled, and cached for first-time access, and then authentication proceeds. The Windows Security dialog box opens.

   Question: Why does this dialog box appear?

   Answer: The URL, *https://partners.contoso.com*, is not in the Internet Explorer Local Intranet Sites or Trusted Sites zone.
10. In the User Name box, type **CONTOSO\SP_Admin**.
11. In the Password box, type **Pa$$w0rd**.
12. Click OK.

    The site is loaded, compiled, and cached for first-time access, and then the site opens.

    If an error appears, refresh the page. It is possible that the client timed out while the site was being loaded by IIS.

EXERCISE 6: Configure Web Application Settings

In this exercise, you enable self-service site creation, configure the Recycle Bin to retain items for 60 days, and prevent users from uploading MP3 files.

1. Switch to the Internet Explorer tab that displays Central Administration, and then, in the Central Administration Quick Launch, click Application Management.
2. In the Web Applications section, click Manage Web Applications.
3. In the list of web applications, click Contoso Partner Portal.
4. In the Web Applications ribbon, click Self-Service Site Creation.

   The Self-Service Site Collection Management page opens.
5. In the Enable Self-Service Site Creation section, click On.
6. Select the Require Secondary Contact check box, and then click OK.
7. In the list of web applications, click Contoso Partner Portal.
8. On the ribbon, click the General Settings drop-down arrow, and then click General Settings.

   The Web Application General Settings page opens.
9. In the Recycle Bin section, in the Recycle Bin Status section, click On.
10. In the Delete Items In The Recycle Bin section, click After.
11. In the text box, type **60** and then click OK.
12. In the list of web applications, click Contoso Partner Portal.
13. On the ribbon, click Blocked File Types.
14. On the Blocked File Types page, place the cursor after MDZ in the list, press Enter, and then type **mp3**.
15. Click OK.
16. Click Start, and then click Notepad.
17. Type **THIS IS A TEST FILE**.
18. Click File, and then click Save.
19. In the navigation panel, click Desktop.
20. In the File Name box, type **TEST.MP3**, click Save, and close Notepad.
21. Switch to the Internet Explorer tab that displays the Contoso Partner Portal site.
22. Click Shared Documents.
23. Click Add Document.
24. On the Upload Document page, click Browse.
25. Click Test, and then click Open.
26. Click OK.

    An error message appears. It indicates that the file has been blocked by an administrator.
27. Click Go Back To Site.

Lesson 2

EXERCISE 1: Configure Anonymous Access

In this exercise, you configure anonymous access to the Contoso Partner Portal that you created in the practice of Lesson 1.

1. Log on to SP2010 as **CONTOSO\SP_Admin** with the password **Pa$$w0rd**.
2. Click Start, All Programs, Microsoft SharePoint 2010 Products, and then click SharePoint 2010 Central Administration.
3. In the Windows Security dialog box, click OK to open Central Administration.
4. In the Central Administration Quick Launch, click Application Management.
5. In the Web Applications section, click Manage Web Applications.
6. Click Contoso Partner Portal.
7. On the ribbon, click Authentication Providers.
8. On the Authentication Providers page, click Default.
9. On the Edit Authentication page, select the Enable Anonymous Access check box and click Save.
10. Close the Authentication Providers page.
11. Open a new tab of Internet Explorer. In the address bar, type **https://partners.contoso.com** and then press Enter.

    An error page opens: *There is a problem with this website's security certificate.*
12. Click Continue To This Website (Not Recommended).

    The site is loaded, compiled, and cached for first-time access, and then authentication proceeds. The Windows Security dialog box opens.
13. In the User Name box, type **CONTOSO\SP_Admin**.
14. In the Password box, type **Pa$$w0rd** and click OK.

    The site is loaded, compiled, and cached for first-time access, and then the site opens.

    If an error appears, refresh the page. It is possible that the client timed out while the site was being loaded by IIS.
15. Click Site Actions and then click Site Permissions.

    The Permissions page opens.
16. On the Permissions page, click Anonymous Access on the ribbon.

    The Anonymous Access page opens.
17. In the Anonymous Users Can Access group, click Entire Web Site and click OK.
18. Close the tab of Internet Explorer that displays the Partners site.
19. Start a new instance of Internet Explorer.

    You must use a new instance to clear the cache of the authenticated sign-in.

20. In the address bar, type **https://partners.contoso.com** and then press Enter.
21. Observe that the Welcome control in the upper-right corner of the page reads "Sign In." This indicates that you are not yet authenticated to the site.
22. Click Site Actions, and then observe that you do not have access to administrative pages as an anonymous user.
23. Close the instance of Internet Explorer that displays the Partners site.

EXERCISE 2: Delete a Web Application

In this exercise, you delete the Contoso Partner Portal site. In the following exercises, you will re-create the application so that it uses Claims Based Authentication.

1. In the Central Administration Quick Launch, click Application Management.
2. In the Web Applications section, click Manage Web Applications.
3. Click Contoso Partner Portal.
4. On the ribbon, click Delete to open the Delete Web Application page.
5. In the Delete Content Databases section, click Yes.
6. In the Delete IIS Web Sites section, click Yes.
7. Click Delete.

EXERCISE 3: Create a Web Application with Claims Based Authentication

In this exercise, you create a web application for collaboration with partners of Contoso. The web application will use Claims Based Authentication with the Windows authentication provider.

1. On the ribbon, click New.

   The Create New Web Application page opens.
2. In the Authentication section, click Claims Based Authentication.
3. In the IIS Web Site section, click Create A New IIS Web Site.
4. In the Name box, type **Contoso Partner Portal**.
5. In the Port box, type **443**.
6. In the Host Header box, type **partners.contoso.com**.
7. In the Security Configuration section, in the Allow Anonymous section, click No.
8. In the Use Secure Sockets Layer (SSL) section, click Yes.
9. In the Claims Authentication Types section, select the Enable Windows Authentication check box.
10. Select the Integrated Windows Authentication check box and then, in the drop-down list, select Negotiate (Kerberos).
11. In the Public URL section, in the URL box, type **https://partners.contoso.com:443**.
12. In the Application Pool section, click Create New Application Pool.
13. In the Application Pool Name box, type **SharePoint Extranet Applications**.

14. In the Configurable list, select CONTOSO\SP_WebApps.
15. In the Database Name box, type **SharePoint_Content_Partners** and click OK.
16. On the Application Created page, click OK.

EXERCISE 4: Create a Site Collection Using Central Administration

In this exercise, you use Central Administration to create a site collection at the root of the new web application.

1. In the Central Administration Quick Launch, click Application Management.
2. In the Site Collections section, click Create Site Collections.
3. In the Web Application picker on the Create Site Collection page, click *http://intranet.contoso.com*, and then click Change Web Application.
4. In the Select Web Application dialog box, click Contoso Partner Portal.
5. In the Title box, type **Contoso Partner Portal**.
6. In the Description box, type **Sites for collaboration with partners**.
7. In the Web Site Address section, in the URL drop-down list, select the root path (/).
8. In the Template Selection section, click the Collaboration tab, and then click Team Site.
9. In the Primary Site Collection Administrator section, in the User Name box, type **CONTOSO\SP_Admin** and click OK.

   The site collection is created, and the Top-Level Site Successfully Created page opens.
10. Click OK.
11. Open a new tab in Internet Explorer, and browse to ***https://partners.contoso.com***.

    An error page opens: *There is a problem with this website's security certificate*.
12. Click Continue To This Website (Not Recommended).

    The site is loaded, compiled, and cached for first-time access, and then authentication proceeds. The Windows Security dialog box opens.
13. In the User Name box, type **CONTOSO\SP_Admin**.
14. In the Password box, type **Pa$$w0rd** and click OK.

    The site is loaded, compiled, and cached for first-time access, and then the site opens.

    If an error appears, refresh the page. It is possible that the client timed out while the site was being loaded by IIS.

EXERCISE 5: Configure Forms Based Authentication

In this exercise, you configure the Contoso Partner Portal to use Forms Based Authentication. You will then examine the Web.config files for the web application, Central Administration, and STS, in which you will identify the locations that you must modify to configure the authentication provider.

You will not complete the configuration of FBA because that requires establishing an external database of users. The Suggested Practice at the end of this chapter gives you the opportunity to complete the process.

1. In the Central Administration Quick Launch, click Application Management.
2. In the Web Applications section, click Manage Web Applications.
3. Click Contoso Partner Portal.
4. On the ribbon, click Authentication Providers.
5. On the Authentication Providers page, click Default.
6. In the Claims Authentication Types section on the Edit Authentication page, select the Enable Forms Based Authentication (FBA) check box.
7. In the ASP.NET Membership Provider Name box, type **MyMembershipProvider**.
8. In the ASP.NET Role Manager Name box, type **MyRoleManager**.

   The provider names must match provider entries in the Web.config files.
9. Click Save.
10. Close the Authentication Providers page.

EXERCISE 6: Configure Web.config Files

In this exercise, you examine the Web.config files for the web application, Central Administration, and STS, in which you will identify the locations that you must modify to configure the authentication provider for FBA. You will not actually complete the configuration of FBA because FBA requires an external database of users. The Suggested Practice at the end of this chapter gives you the opportunity to complete the process.

1. Start IIS Manager.
2. In the console tree, expand the server, SP2010-WFE1. Then expand Sites, and then click Contoso Partner Portal.
3. Right-click Contoso Partner Portal, and then click Explore.

   Windows Explorer opens, focused on the virtual directory of the Contoso Partner Portal IIS site.
4. Double-click Web.config.

   Microsoft Visual Studio Tools for Applications opens, and then Web.config opens.
5. Press Ctrl+F to open the Find And Replace dialog box.
6. Type **connectionStrings** and then click Find Next.

   A message appears that indicates the text was not found. This file does not have an existing <*connectionStrings*> element. In a production environment, a Web.config file might already have a <*connectionStrings*> element, in which case you would simply register the new connection string by inserting an <*add*> element.

The <*connectionStrings*> section must be a child element of <*configuration*>, which is the root element of Web.config. In other words, <*connectionStrings*> must be a first-level element. It is common practice to place it immediately before the <*system.web*> element begins.

7. Press Ctrl+F to open the Find And Replace dialog box.
8. Type **<system.web>** and then click Find Next.

   The beginning of the <*system.web*> element is found.

   Be certain that the <*system.web*> element that you find is a first-level element—a child of <*configuration*>. Some <*system.web*> elements are lower-level children of other elements.
9. Close the Find And Replace dialog box.
10. Inside the <*system.web*> element, find the <*membership*> element.
11. Inside the <*membership*> element, find the <*providers*> element.

    The <*providers*> element contains child <*add*> elements that define each membership provider. You can register a new provider in this element.

    The *name* attribute of the <*add*> element must match the name that you configured as the ASP.NET Membership Provider in the web application. If the provider uses a connection string, the *connectionStringName* attribute must match the *name* of the connection string that you added to the <*connectionStrings*> element.
12. Inside the <*system.web*> element, find the <*roleManager*> element.
13. Inside the <*roleManager*> element, find the <*providers*> element.

    The <*providers*> element contains child <*add*> elements that define each role provider. You can register a new provider in this element.

    The *name* attribute of the <*add*> element must match the name that you configured as the ASP.NET Membership Provider in the web application. If the provider uses a connection string, the *connectionStringName* attribute must match the *name* of the connection string that you added to the <*connectionStrings*> element.
14. Press Ctrl+F to open the Find And Replace dialog box.
15. Type **<PeoplePickerWildcards>** and then click Find Next.

    The beginning of the <*PeoplePickerWildcards*> element is found.

    If the element is not found, ensure that you have not collapsed the view of any XML elements. The Find command only searches text that is visible. The <*PeoplePickerWildcards*> element is a child of the <*SharePoint*> element.
16. Close the Find And Replace dialog box.

    The <*PeoplePickerWildcards*> element defines, for each custom authentication provider, the wildcard that can be used when searching for a user in the People Picker. Without a wildcard definition, the People Picker will locate only the user that is an exact match to the search criteria. With a wildcard defined, you can enter the first characters of the user's name and the search will locate all matching users.

Each wildcard is defined by an *<add>* element in the *<PeoplePickerWildcards>* element. You can register the wildcards for your membership provider and role provider in this element.

The *keys* must match the name of the membership and role providers that have been configured for the web application. For a SQL database, the wildcard value is *%*. For an LDAP directory, the wildcard value is *.

17. Close Microsoft Visual Studio Tools for Applications.

    You should not have made any changes during this tour of Web.config. If you are prompted to save changes, do not save changes.

18. Close the Windows Explorer window that shows the virtual directory of the IIS Web site.
19. In the IIS Manager console tree, click SharePoint Central Administration v4.

Lesson 3

EXERCISE 1: Modify Access Mappings

In this exercise, you allow users to open the Contoso Intranet Web application with the URL *http://intranet*. To do this, you must add an internal URL to the default zone of the application, and you must add a host header binding to the IIS Web site.

1. Log on to SP2010-WFE1 as **CONTOSO\SP_Admin** with the password **Pa$$w0rd**.
2. Click Start, All Programs, Microsoft SharePoint 2010 Products, then click SharePoint 2010 Central Administration.
3. In the Windows Security dialog box, click OK to open Central Administration.
4. In the Central Administration Quick Launch, click Application Management.
5. In the Web Applications section, click Configure Alternate Access Mappings.
6. On the Alternate Access Mappings page, click the Alternate Access Mapping Collection list, which displays Show All, and then click Change Alternate Access Mapping Collection.
7. On the Select An Alternate Access Mapping Collection page, click Contoso Intranet.
8. Click Add Internal URLs.
9. In the URL Protocol, Host And Port box, type **http://intranet**.
10. Confirm that the Zone is Default and click Save.
11. Click Start, Administrative Tools, and then click Internet Information Services (IIS) Manager.
12. In IIS Manager, in the console tree, expand the server, then expand Sites, and then click Contoso Intranet.
13. In the Actions pane, click Bindings.
14. In the Site Bindings dialog box, click Add.
15. In the Add Site Binding dialog box, select http in the Type box.
16. In the Host Name box, type **intranet**, click OK, and then click Close.

17. Open a new tab in Internet Explorer, and browse to ***http://intranet***.

    The Contoso Intranet site opens.

    The first time you open a site, IIS loads, compiles, and caches the site. This can take a while. If the site takes too long to load, an error appears. Refresh the page.

18. Observe that the URL to the home page in the address bar is *http://intranet.contoso.com/SitePages/Home.aspx*.

    A redirector loads the home page of the site. The redirector uses the public URL of the web application zone.

EXERCISE 2: Configure Windows-Claims Authentication

In this exercise, you configure authentication for the Contoso Partners Web application so that Windows Authentication is the only authentication provider. This exercise is intended to ensure that the web application is correctly configured for this practice.

1. In the Central Administration Quick Launch, click Application Management.
2. In the Web Applications section, click Manage Web Applications.
3. Select Contoso Partner Portal.
4. On the ribbon, click Authentication Providers.
5. On the Authentication Providers page, click Default to open the Edit Authentication page.
6. In the Claims Authentication Types section, select the Enable Windows Authentication check box.
7. Select the Integrated Windows Authentication check box, and then select NTLM from the drop-down list.
8. Clear the Enable Forms Based Authentication (FBA) check box and click Save.
9. Close the Authentication Providers page.

EXERCISE 3: Extend a Web Application

In this exercise, you enable users to access the Contoso Partners Web application using *http://extranet.contoso.com* from the internal network, and *https://partners.contoso.com* from the extranet. To do this, you wil extend the web application to a new zone for intranet users, with the URL *http://extranet.contoso.com*. Your information security manager has recommended that you use the host name *extranet* for your internal users so that it is clear to them that content in the web application is for external consumption.

1. In the Central Administration Quick Launch, click Application Management.
2. In the Web Applications section, click Manage Web Applications.
3. Select Contoso Partner Portal.
4. On the ribbon, click Extend.
5. On the Extend Web Application To Another IIS Web Site page, click Create A New IIS Web Site.
6. In the Name box, type **Contoso Partners Extranet**.
7. In the Port box, type **80**.

8. In the Host Header box, type **extranet.contoso.com**.
9. In the Claims Authentication Types section, verify that the new zone is configured to use NTLM as the authentication method.
10. In the Public URL section, in the URL box, type **http://extranet.contoso.com:80**.
11. In the Zone list, select Intranet.

    It might seem counterintuitive to use the *intranet* zone for a zone with the URL *extranet*. Remember that the names of the zones (intranet, extranet, Internet, and custom) have no technical meaning. Furthermore, in this scenario, the zone is for internal users to access the Contoso Partner Portal. Access is from the intranet, using HTTP. The site is an external-facing site on which to collaborate with partners, thus the user-facing name of the zone is *extranet*.
12. Click OK.
13. Open a new tab in Internet Explorer, and browse to ***https://partners.contoso.com***.

    An error page opens: *There is a problem with this website's security certificate.*
14. Click Continue To This Website (Not Recommended).

    The site is loaded, compiled, and cached for first-time access, and then authentication proceeds.

    The Windows Security dialog box opens.
15. In the User Name box, type **CONTOSO\SP_Admin**.
16. In the Password box, type **Pa$$w0rd** and click OK.

    The site is loaded, compiled, and cached for first-time access, and then the site opens.

    The first time you open a site, IIS loads, compiles, and caches the site. This can take a while. If the site takes too long to load, an error appears. Refresh the page.
17. Open a new tab in Internet Explorer, and browse to ***http://extranet.contoso.com***.

    The Contoso Partner Portal site opens.

    The first time you open a site, IIS loads, compiles, and caches the site. This can take a while. If the site takes too long to load, an error appears. Refresh the page.

EXERCISE 4: Configure Authentication on a Zone

In this exercise, you enable anonymous users to access the root site collection of the Contoso Partner Portal as a landing page, from which you can provide links to other sites that require authentication. So that users on non-Windows systems can authenticate to the portal, you will enable Basic authentication as well.

1. In the Central Administration Quick Launch, click Application Management.
2. In the Web Applications section, click Manage Web Applications.
3. Select Contoso Partner Portal.
4. On the ribbon, click Authentication Providers.
5. On the Authentication Providers page, click Default to open the Edit Authentication page.

6. In the Anonymous Access section, select the Enable Anonymous Access check box.
7. In the Claims Authentication Types section, select the Basic Authentication check box and click Save.
8. Close the Authentication Providers page.

EXERCISE 5: Configure Anonymous Access Restrictions

In this exercise, you enforce a security policy of your SharePoint governance plan that requires authenticated access to change any content. You do this by configuring an anonymous access restriction policy on the zone through which anonymous users are allowed to authenticate.

1. In the Central Administration Quick Launch, click Application Management.
2. In the Web Applications section, click Manage Web Applications.
3. Select Contoso Partner Portal.
4. On the ribbon, click Anonymous Policy.

   The Anonymous Access Restrictions policy page opens.
5. In the Zones list, select Default.

   You could select (All Zones), but in this scenario, anonymous authentication is allowed only for the default zone.
6. In the Anonymous User Policy section, click Deny Write and then click Save.

EXERCISE 6: Complete and Validate Anonymous Access

In this exercise, you validate that users must be authenticated to access the Contoso Partner Portal site using the URL *http://extranet.contoso.com*, and that anonymous users can access the site using the URL *https://partners.contoso.com*.

1. Close all instances of Internet Explorer so that cached connections are eliminated.
2. Start Internet Explorer and browse to ***http://extranet.contoso.com***.
3. Click the Welcome control in the upper-right corner that displays SharePoint Administrator and Setup User, and then click Sign Out.

   A Windows Internet Explorer message opens: *The webpage you are viewing is trying to close the window.*
4. Click Yes.

   Internet Explorer closes.

   Question: Why did the window close?

   Answer: Anonymous access is not enabled for the zone.
5. Start Internet Explorer and browse to ***https://partners.contoso.com***.

   An error page opens: *There is a problem with this website's security certificate.*
6. Click Continue To This Website (Not Recommended).

   The site is loaded, compiled, and cached for first-time access, and then authentication proceeds. The Windows Security dialog box opens.

7. Click Cancel to log on as an anonymous user.

   A 401 Unauthorized error page opens.

   Question: Why can you not access the site as an anonymous user?

   Answer: Although anonymous authentication has been enabled for this zone, a site collection administrator has not yet granted access to the site.

8. Press F5 to refresh the page.

   The Windows Security dialog box opens.

9. In the User Name box, type **CONTOSO\SP_Admin**.

10. In the Password box, type **Pa$$w0rd** and click OK.

    The site is loaded, compiled, and cached for first-time access, and then the site opens.

    If an error appears, refresh the page. It is possible that the client timed out while the site was being loaded by IIS.

11. Click Site Actions, and then click Site Permissions.

12. On the Permissions page, click Anonymous Access on the ribbon.

13. On the Anonymous Access page, click Entire Web Site, and then click OK.

14. Close Internet Explorer.

15. Start Internet Explorer and browse to ***https://partners.contoso.com***.

    The Contoso Partner Portal site opens.

16. Observe the Sign In control in the upper-right corner.

    You are connected as an anonymous user.

EXERCISE 7: Create the CHAPTER 03 Snapshot

The CHAPTER 03 snapshot captures the state of the environment at the end of Chapter 03. Perform this procedure for each of the following virtual machines: SP2010-WFE1, CONTOSO-DC.

1. Shut down the virtual machine.

2. Unmount any ISO image currently mounted to the CD/DVD drive. Use the procedure "Unmount an ISO Image" in the Lab Environment Build Guide on the companion media.

3. Create a snapshot named CHAPTER 03. Use the procedure "Create a Snapshot" in the Lab Environment Build Guide on the companion media.

Chapter 4

Lesson 1

EXERCISE 1: Create a Web Application

In this exercise, you create a new web application for departments, teams, and projects.

1. Log on to SP2010-WFE1 as **CONTOSO\SP_Admin** with the password **Pa$$w0rd**.
2. Click Start and then click Command Prompt.
4. When Command Prompt opens, type the following command and then press Enter:

```
dnscmd contoso-dc.contoso.com /RecordAdd contoso.com teams A 10.0.0.21
```

5. Close Command Prompt.
6. Click Start, All Programs, Microsoft SharePoint 2010 Products, right-click SharePoint 2010 Management Shell, and then click Run As Administrator.
7. In the User Account Control dialog box, click Yes to open the SharePoint 2010 Management Shell.
8. Use the *New-SPWebApplication* cmdlet to create a web application for departments, teams, and projects. Use the following specifications and guidance:
   - Name: Contoso Teams
   - Port: 80
   - Host header: *http://teams.contoso.com*
   - URL: http://teams.contoso.com:80
   - Application pool: SharePoint Web Applications
   - Content database name: SharePoint_Content_Teams

   Type the following command and then press Enter:

```
New-SPWebApplication -Name "Contoso Teams" -Port 80 -HostHeader
"teams.contoso.com" -URL "http://teams.contoso.com:80" -ApplicationPool
"SharePoint Web Applications" -DatabaseName "SharePoint_Content_Teams"
```

EXERCISE 2: Create a Site Collection Using Central Administration

In this exercise, you use Central Administration to create a site collection at the root of the new web application.

1. Start SharePoint 2010 Central Administration
2. In the Windows Security dialog box, click OK.
3. In the Central Administration Quick Launch, click Application Management.
4. In the Site Collections section, click Create Site Collections to open the Create Site Collection page.
5. In the Web Application picker, click *http://intranet.contoso.com*, and then click Change Web Application.
6. In the Select Web Application dialog box, click Contoso Teams.
7. In the Title box, type **Contoso Departments, Teams, and Projects**.
8. In the Description box, type **Collaboration sites for Contoso departments, teams, and projects.**
9. In the Web Site Address section, in the URL drop-down list, select the root path (/).

10. In the Template Selection section, click the Collaboration tab, and then click Team Site.
11. In the Primary Site Collection Administrator section, in the User Name box, type **CONTOSO\SP_Admin** and click OK.

    The site collection is created, and the Top-Level Site Successfully Created page opens.
12. Click OK.

EXERCISE 3: Configure Managed Paths

In this exercise, you add a wildcard inclusion path, *depts*, for department site collections in the *teams.contoso.com* web application. You also remove the default wildcard inclusion path, *sites*.

1. In the Central Administration Quick Launch, click Application Management.
2. In the Web Applications section, click Manage Web Applications.
3. In the list of web applications, click Contoso Teams.
4. On the ribbon, click Managed Paths.
5. On the Define Managed Paths page, select the Sites check box and click Delete Selected Sites.
6. In the Add A New Path section, in the Path box, type **depts**.
7. In the Type list, select Wildcard Inclusion.
8. Click Add Path.
9. Review the list of paths and then click OK.

EXERCISE 4: Create a Site Collection by Using Self-Service Site Creation

In this exercise, you enable self-service site creation for the web application, and then use the feature to create a new site collection.

1. In the Central Administration Quick Launch, click Application Management.
2. In the Site Collections section, click Configure Self-Service Site Creation.
3. Confirm that the web application selected in the Web Application list is *http://teams.contoso.com*.

    If not, click the list, click Change Web Application, and then click Contoso Teams.
4. In the Enable Self-Service Site Creation section, click On.
5. Select the Require Secondary Contact check box and click OK to open the Security page.
6. Open a new tab in Internet Explorer and then click the New Tab tab.
7. In the address bar, type **http://teams.contoso.com** and then press Enter.

    The Contoso Departments, Teams, and Projects page opens.
8. In the Quick Launch, click All Site Content.
9. In the Lists section on the All Site Content page, click Announcements.
10. On the Announcements page, click Self-Service Site Creation.
11. Right-click the *http://teams.contoso.com/_layouts/scsignup.aspx* link, and then click Copy Shortcut.

12. Right-click in the address bar, and then click Paste. Press Enter to open the New SharePoint Site page.
13. In the Title box, type **Information Technology**.
14. In the Description box, type **Information Technology department team site**.
15. In the Web Site Address section, in the URL Name box, type **IT**.
16. In the Template Selection section, click the Collaboration tab, and then click Team Site.
17. In the Additional Site Collection Administrators box, type **CONTOSO\AprilM** and click Create.
18. On the Set Up Groups For This Site page, click OK.

    The Information Technology site home page opens.

EXERCISE 5: Create a Content Database Using Central Administration

In this exercise, you use Central Administration to create a content database for the IT departmental team site.

1. In Internet Explorer, switch to the tab displaying Central Administration.
2. In the Central Administration Quick Launch, click Application Management.
3. In the Databases section, click Manage Content Databases.
4. On the Manage Content Databases page, click Add A Content Database.
5. In the Web Application section, click the Web Application picker, and then click Change Web Application to open the Select Web Application dialog box.
6. In the list of web applications, click Contoso Teams.
7. In the Database Name and Authentication section, in the Database Server box, type **SP2010-WFE1.contoso.com**.
8. In the Database Name box, type **SharePoint_Content_Teams_IT** and click OK.

EXERCISE 6: Move a Site Collection to a Different Content Database

In this exercise, you use Windows PowerShell to move a site collection to another content database.

1. In Central Administration, on the Manage Content Databases page, observe that the new content database contains no sites.
2. Switch to SharePoint 2010 Management Shell.
3. Type the following command and then press Enter:

   ```
   Move-SPSite http://teams.contoso.com/depts/IT -DestinationDatabase
   SharePoint_Content_Teams_IT -Confirm:$false
   ```

   An error appears.

   Question: What is the cause of the error?

   Answer: SP_Admin does not have permission to use Windows PowerShell to administer the content database.

4. Click Start, All Programs, Microsoft SharePoint 2010 Products, press and hold the Shift key and right-click SharePoint 2010 Management Shell, and then click Run As Different User.
5. In the User Name box in the Windows Security dialog box, type **CONTOSO\Administrator**.
6. In the Password box, type **Pa$$w0rd** and click OK to open the SharePoint 2010 Management Shell.
7. Type the following command and then press Enter:

```
Add-SPShellAdmin -User CONTOSO\SP_Admin -Database (Get-SPContentDatabase
SharePoint_Content_Teams_IT)
```

8. Close the instance of SharePoint 2010 Management Shell running as CONTOSO\Administrator.
9. Switch back to the instance of SharePoint 2010 Management Shell running as CONTOSO\SP_Admin with the Run As Administrator option.
10. Type the following command and then press Enter:

```
Move-SPSite http://teams.contoso.com/depts/IT -DestinationDatabase
SharePoint_Content_Teams_IT -Confirm:$false
```

11. Type **IISReset** and then press Enter.
12. Switch to Internet Explorer, and then refresh the pages shown in both tabs.

    Because IIS has been reset, it will take a few minutes for the sites to be compiled, cached, and loaded.
13. In Central Administration, on the Manage Content Databases page, observe that the new content database now contains one site.

EXERCISE 7: Create Site Collections in Specific Content Databases Using Windows PowerShell

In this exercise, you create content databases and site collections for several departments in the teams.contoso.com web application.

1. Switch to SharePoint 2010 Management Shell.
2. Type the following command and then press Enter:

```
New-SPContentDatabase -Name SharePoint_Content_Teams_HR -WebApplication
http://teams.contoso.com
```

3. Type the following command and then press Enter:

```
New-SPSite -Url "http://teams.contoso.com/depts/HR" –ContentDatabase
"SharePoint_Content_Teams_HR" -Name "HR" –Description "HR department team site"
-Template "STS#0" -OwnerAlias "CONTOSO\SP_Admin" –OwnerEmail "SP_Admin@contoso.com"
```

4. Start Notepad.
5. Type the following script:

```
$departments = ("Finance","Marketing","Sales")
foreach ($dept in $departments) {
New-SPContentDatabase -Name SharePoint_Content_Teams_$dept -WebApplication
   http://teams.contoso.com
```

```
New-SPSite -Url "http://teams.contoso.com/depts/$dept" –ContentDatabase
   "SharePoint_Content_Teams_$dept" -Name "$dept" –Description "$dept department team
   site" -Template "STS#0" -OwnerAlias "CONTOSO\SP_Admin" –OwnerEmail
   "SP_Admin@contoso.com"
}
```

6. Save the script to your Desktop with the name **CreateDeptSites.ps1**.
7. Switch to SharePoint 2010 Management Shell.
8. Type the following command and then press Enter:

```
.\Desktop\CreateDeptSites.ps1
```

EXERCISE 8: View All Site Collections

In this exercise, you use Central Administration and Windows PowerShell to view selected attributes of all site collections.

1. In the Central Administration Quick Launch, click Application Management.
2. In the Site Collections section, click View All Site Collections.
3. Click the URL of each site collection. Observe the details that are displayed on the right side.
4. Click OK.
5. In SharePoint 2010 Management Shell, type the following command and then press Enter:

```
Get-SPWebApplication "http://teams.contoso.com" | Get-SPSite -Limit ALL | ForEach
{$_ | Get-SPSiteAdministration | Select
URL,Title,Description,RootWebTemplate,OwnerLoginName,OwnerEmail ; $_ | Select
ContentDatabase}
```

6. Compare the output of the command to the following results:

```
Url             : http://teams.contoso.com
Title           : Contoso Departments, Teams, and Projects
Description     : Collaboration sites for Contoso departments, teams, and projects
RootWebTemplate : STS
OwnerLoginName  : CONTOSO\sp_admin
OwnerEmail      : SP_Admin@contoso.com

ContentDatabase : SPContentDatabase Name=SharePoint_Content_Teams

Url             : http://teams.contoso.com/depts/Finance
Title           : Finance
Description     : Finance department team site
RootWebTemplate : STS
OwnerLoginName  : CONTOSO\sp_admin
OwnerEmail      : SP_Admin@contoso.com

ContentDatabase : SPContentDatabase Name=SharePoint_Content_Teams_Finance

Url             : http://teams.contoso.com/depts/IT
Title           : Information Technology
Description     : Information Technology department team site
RootWebTemplate : STS
OwnerLoginName  : CONTOSO\sp_admin
OwnerEmail      : SP_Admin@contoso.com
```

```
ContentDatabase : SPContentDatabase Name=SharePoint_Content_Teams_IT

Url             : http://teams.contoso.com/depts/Marketing
Title           : Marketing
Description     : Marketing department team site
RootWebTemplate : STS
OwnerLoginName  : CONTOSO\sp_admin
OwnerEmail      : SP_Admin@contoso.com

ContentDatabase : SPContentDatabase Name=SharePoint_Content_Teams_Marketing

Url             : http://teams.contoso.com/depts/Sales
Title           : Sales
Description     : Sales department team site
RootWebTemplate : STS
OwnerLoginName  : CONTOSO\sp_admin
OwnerEmail      : SP_Admin@contoso.com

ContentDatabase : SPContentDatabase Name=SharePoint_Content_Teams_Sales
```

7. If the structure or details of the teams.contoso.com web application in your farm are different than what is shown above, make appropriate changes to your farm. Check the work that you performed in previous exercises. If necessary, review the Practice Answers to verify that you performed all steps accurately, and that your CreateDeptSites.ps1 script is correct.

Lesson 2

EXERCISE 1: Create a Site Collection

In this exercise, you delete the existing team site for the Marketing department. You then re-create the site collection for use in this practice.

1. Log on to SP2010-WFE1 as **CONTOSO\SP_Admin** with the password **Pa$$w0rd**.
2. Start SharePoint 2010 Central Administration.
3. In the Windows Security dialog box, click OK to open Central Administration.
4. In the Central Administration Quick Launch, click Applications Management.
5. In the Site Collections section, click Delete A Site Collection.
6. On the Delete Site Collection page, click the Site Collection picker, and then click Change Site Collection.
7. On the Select Site Collection page, click the Web Application list, and then click Change Web Application.
8. On the Select Web Application page, click Contoso Teams.

   The Select Site Collection page opens.
9. On the Select Site Collection page, click /depts/Marketing, click OK, and then click Delete.
10. In the confirmation dialog box, click OK.
11. In the Site Collections section, click Create Site Collections.

12. In the Title box, type **Marketing**.
13. In the Description box, type **Marketing department team site**.
14. In the URL box, type **Marketing**.

    The URL for the site collection should be *http://teams.contoso.com/depts/Marketing*.
15. In the Template Selection section, click the Collaboration tab, and then click Team Site.
16. In the Primary Site Collection Administrator section, in the User Name box, type **CONTOSO\SP_Admin** and click OK.

EXERCISE 2: Manage Default Groups

In this exercise, you manage membership and properties of the default site groups.

1. Open a new tab in Internet Explorer by clicking the New Tab tab.
2. In the address bar, type **http://teams.contoso.com/depts/marketing** and then press Enter.
3. On the Marketing team site, click Site Actions, and then click Site Permissions.
4. Click Marketing Owners.
5. Click the New button arrow, and then click Add Users.

   Alternately, click the New button.
6. In the Users/Groups box on the Grant Permissions page, type **CONTOSO\KevinC**.
7. Click Check Names and then click OK.
8. In the Groups Quick Launch, click Marketing Members.
9. Click the New button arrow, and then click Add Users.

   Alternately, click the New button.
10. In the Users/Groups box on the Grant Permissions page, type **Marketing**.
11. Click Check Names and then click OK.

EXERCISE 3: Create a Subsite

In this exercise, you create a subsite to support collaboration between the marketing team and senior managers around the marketing strategy for the upcoming year.

1. Click Site Actions, and then click New Site.
2. On the Create page, click Team Site and then click More Options.
3. In the Title box, type **Marketing Strategy**.
4. In the URL Name box, type **MarketingStrategy**.
5. In the Permissions section, click Use Unique Permissions.
6. In the Navigation Inheritance section, select Yes and then click Create.

   The New Product Development team site is created, and then the Set Up Groups For This Site page opens.
7. Click OK.

EXERCISE 4: Grant Access to a Site

In this exercise, you grant marketing staff and senior managers access to the Marketing Strategy site.

1. Click Site Actions, and then click Site Permissions.
2. Click Grant Permissions.
3. In the Users/Groups box, type **Marketing; Senior Managers**.
4. Click Check Names.
5. In the Add Users To A SharePoint Group (Recommended) list, select Marketing Strategy Members [Contribute].
6. Click OK.

EXERCISE 5: Delegate Group Membership Management

In this exercise, you delegate the management of group membership in the Marketing Strategy site to select users.

1. Click Site Actions, and then click Site Settings.
2. In the Users And Permissions section, click People And Groups.
3. In the Groups Quick Launch, click Groups. Alternately, click More.

   The All Groups list opens.
4. In the toolbar, click New.
5. In the Name box, type **Marketing Strategy Membership Managers**.
6. In the About Me box, type **Users who can manage the membership of the site's Members group.**
7. In the Group Owner box, confirm that SP_Admin, the SharePoint Administrator And Setup User account, is listed as the owner.
8. Do not assign any permissions to the group.
9. Click Create.
10. Click the New button arrow, and then click Add Users.

    Alternately, click the New button.

    The Grant Permissions page opens.
11. In the Users/Groups box, type **CONTOSO\KevinC; CONTOSO\ToniP**.
12. Click Check Names and then click OK.
13. In the Groups Quick Launch, click Groups. Alternately, click More.
14. In the All Groups list, click Marketing Strategy Members.
15. Click Settings, and then click Group Settings.
16. In the Group Owner box, type **Marketing Strategy Membership Managers** and click OK.
17. In the Groups Quick Launch, click Groups. Alternately, click More.

    The All Groups list opens.

EXERCISE 6: Create a Permission Level

In this exercise, you create a permission level that allows a user to check in a document that had been checked out by another user.

1. In the address bar, type **http://teams.contoso.com/depts/marketing**, and then press Enter.
2. When the Marketing team site opens, click Site Actions, and then click Site Permissions.
3. On the ribbon, click Permission Levels.
4. On the toolbar, click Add A Permission Level.

   The Add A Permission Level page opens. You might first need to click Manage Permission Levels On Parent Web Site, under the See Also Quick Launch.
4. In the Name box, type **Override Check Out**.
5. Optionally, in the Description box, type **Users can check in a document that has been checked out by another user. Users can also discard checkout.**
6. In the Permissions list, select the Override Check Out check box and click Create.

EXERCISE 7: Create a Role and a Role Assignment

In this exercise, you create a group for users who are allowed to override checkout. You then grant the group permission to override checkout for the site.

1. Click Site Actions, and then click Site Settings.
2. In the Users And Permissions section, click People And Groups.
3. In the Groups Quick Launch, click Groups. Alternately, click More.
4. In the All Groups list, click New on the toolbar.
5. In the Name box, type **Checkout Managers**.
6. In the About Me box, type **Users who can manage check out**.
7. In the Give Group Permission To This Site section, select the Override Check Out check box and then click Create.
8. Click the New button arrow, and then click Add Users.

   Alternately, click the New button.

   The Grant Permissions page opens.
9. In the Users/Groups box, type **CONTOSO\KevinC**.
10. Click Check Names and then click OK.
11. Click OK.

EXERCISE 8: Examine Effective Permissions

In this exercise, you examine the effective permissions of a user on the Marketing Strategy site.

1. Click Site Actions, and then click Site Permissions.
2. On the ribbon, click Check Permissions to open the Check Permissions dialog box.

3. In the User/Group box, type **CONTOSO\KevinC**.
4. Click Check Now and then click Close.

EXERCISE 9: Create the CHAPTER 04 Snapshot

The CHAPTER 04 snapshot captures the state of the environment at the end of Chapter 4. Perform this procedure for each of the following virtual machines: SP2010-WFE1, CONTOSO-DC.

1. Shut down the virtual machine.
2. Unmount any ISO image currently mounted to the CD/DVD drive. Use the "Unmount an ISO Image" procedure in the Lab Environment Build Guide on the companion media.
3. Create a snapshot named CHAPTER 04. Use the "Create a Snapshot" procedure in the Lab Environment Build Guide on the companion media.

Chapter 5

Lesson 1

EXERCISE 1: Register a Managed Account for the Service Applications Application Pool

In this exercise, you register CONTOSO\SP_ServiceApps as a managed account so that it can be used to create an application pool for service applications.

1. Start SharePoint 2010 Central Administration.

   The Windows Security dialog box opens.
2. Click OK. Central Administration opens.
3. In the Central Administration Quick Launch, click Security.
4. In the General Security section, click Configure Managed Accounts.
5. Click Register Managed Account.
6. In the User Name box, type **CONTOSO\SP_ServiceApps**.
7. In the Password box, type **Pa$$w0rd**.
8. Click OK.

EXERCISE 2: Create a Managed Metadata Service Application Using Central Administration

In this exercise, you create a Managed Metadata service application to support requirements for taxonomy, folksonomy, and centrally managed content types.

1. In the Central Administration Quick Launch, click Application Management.
2. In the Service Applications section, click Manage Service Applications.
3. On the ribbon, click New, and then click Managed Metadata Service.

   The Create New Managed Metadata Service page opens.

4. In the Name box, type **Managed Metadata Service – Enterprise**.
5. In the Database Server box, type **SP2010-WFE1.contoso.com**.
6. In the Database Name box, type **SharePoint_Service_Metadata_Enterprise**.
7. In the Application Pool section, click Create New Application Pool.
8. In the Application Pool Name box, type **SharePoint Service Applications.**
9. In the Configurable list, select CONTOSO\SP_ServiceApps.
10. Clear the Report Syndication Import Errors check box.
11. Select the Add This Service Application To The Farm's Default List check box.
12. Click OK.

    The service application is created.
13. Verify that the service application connection was created for the Managed Metadata Service – Enterprise service application.

EXERCISE 3: Start the Managed Metadata Web Service Service Instance

In this exercise, you start the service instance of the Managed Metadata Web Service on SP2010-WFE1.

1. In the Central Administration Quick Launch, click System Settings.
2. In the Servers section, click Manage Services On Server.
3. In the services list, in the Managed Metadata Web Service row, click Start.

   The service starts.

EXERCISE 4: Examine Service Application Connection Groups and Application Associations

In this exercise, you examine the farm's default connection group and verify that web applications in the farm are associated with the connection group.

1. In the Central Administration Quick Launch, click Application Management.
2. In the Service Applications section, click Configure Service Application Associations.
3. On the Service Application Associations page, click the View menu, and then click Web Applications.
4. In the list of web applications, in the Application Proxy Group column, click Default.
5. Verify that the newly created Service Application Connection for the Managed Metadata Service - Enterprise is a member of the proxy group, and then click OK.
6. In the Web Application / Service Application column, click Contoso Intranet.
7. Click the drop-down list, and then click [Custom].
8. Observe that you can configure the specific service connections for a web application. Do not make any changes. Click Cancel.
9. Verify that the Contoso Intranet Web application is associated with the application connection group named *default*.

Lesson 2

EXERCISE 1: Delegate Permission to Administer the Term Store

When you create the Managed Metadata Service application by using the Farm Configuration Wizard, you are an administrator of the application, but you are not an administrator of the term store itself, by default. You created the Managed Metadata Service application manually, but in this exercise you verify that you have the ability to administer the term store.

1. Log on to SP2010-WFE1 as **CONTOSO\SP_Admin** with the password **Pa$$w0rd**.
2. Start SharePoint 2010 Central Administration to open the Windows Security dialog box.
3. Click OK to open Central Administration.
4. In the Central Administration Quick Launch, click Application Management.
5. In the Service Applications section, click Manage Service Applications.
6. Click the Managed Metadata Service - Enterprise link to open the Term Store Management Tool.
7. Verify that your account, CONTOSO\SP_Admin, is assigned the Term Store Administrators role.

EXERCISE 2: Add Terms to the Term Store

In this exercise, you create term groups, term sets, and terms.

1. Point at the Managed Metadata Service term store, click the drop-down arrow that appears, and then click New Group.
2. Type **Organization** and then press Enter.
3. Point at the Organization term group, click the drop-down menu of the term group, and then click New Term Set.
4. Type **Departments** and then press Enter.
5. Point at the Departments term set, click the drop-down arrow that appears, and then click Create Term.
6. Type **Finance** and then press Enter.
7. Type **HR** and then press Enter.
8. Type **IT** and then press Enter.
9. Type **Engineering** and then press Enter.
10. Type **Sales** and then press Enter.
11. Point at the Managed Metadata Service term store, click the drop-down arrow that appears, and then click New Group.
12. Type **Sales and Marketing Terms** and then press Enter.
13. Point at the Sales and Marketing Terms term group, click the drop-down menu of the term group, and then click New Term Set.

14. Type **Customers** and then press Enter.
15. Point at the Customers term set, click the drop-down arrow that appears, and then click Create Term.
16. Type **Litware** and then press Enter.
17. Type **Fabrikam** and then press Enter.
18. Type **Tailspin Toys** and then press Enter.
19. Type **Worldwide Importers** and then press Enter.
20. Point at the Worldwide Importers term, click the drop-down arrow that appears, and then click Create Term.
21. Type **Europe** and then press Enter.
22. Type **Americas** and then press Enter.
23. Type **Asia** and then press Enter.
24. Type **Africa** and then press Enter.
25. Type **Australia** and then press Enter.

EXERCISE 3: Import Terms to the Term Store

In this exercise, you import a term set.

1. Point at the Sales and Marketing Terms term group, click the drop-down menu of the term group, and then click Import Term Set.

   The Term Set Import page opens.
2. Click Browse.

   The Choose File To Upload dialog box opens.
3. Browse to **C:\70667TK\Practice Files\05_02**.
4. Click ContosoProducts.csv, and then click Open.
5. Click OK.
6. Verify that the Products term set was imported.

   The three first-level terms are *Gizmos*, *Thingys*, and *Widgets*. Two terms are underneath *Widgets*: *Widget Part A* and *Widget Part B*.
7. Start Notepad.
8. Open C:\ 70667TK \Practice Files\05_02\ContosoProducts.csv.
9. Examine the format of the file and compare the file to the resulting imported term set.

EXERCISE 4: Add a Managed Metadata Column to a Site

In this exercise, you add the two managed metadata columns you created to a site.

1. Open a new tab in Internet Explorer, and then browse to ***http://intranet.contoso.com/sites/SharePoint***.
2. Click Site Actions, and then click Site Settings.

3. In the Galleries section, click Site Columns.
4. Click Create.
5. In the Column name box, type **Contoso Customer**.
6. In the list of column types, click Managed Metadata.
7. In the Group section, click New Group.

   The page must refresh after a Managed Metadata column type is selected.
8. Wait for the page to refresh.
9. Click New Group, and then, in the New Group box, type **Contoso Managed Metadata Columns**.

   Column groups are simply a way to organize columns so that an administrator can locate columns more easily.
10. In the Term Set Settings section, expand Managed Metadata Service, expand the Sales And Marketing Terms, click Customers, and then click OK.
11. Click Site Actions, and then click Site Settings.
12. In the Galleries section, click Site Content Types, and then click Create.
12. In the Name box, type **Customer Proposal**.
14. In the Select Parent Content Type From list, select Document Content Types.
15 In the Parent Content Type list, select Document.
16. In the Groups section, click New Group.
17. In the New Group box, type **Contoso Enterprise Wide Content Types** and click OK.

    Content type groups are simply a way to organize content types so that an administrator can locate content types more easily.
18. Click Add From Existing Site Columns.
19. In the Select Columns From list, select Contoso Managed Metadata Columns.
20. In the Available Columns list, click Contoso Customer, then click Add.

    A message appears.
21. Click OK.
22. Click OK.

EXERCISE 5: Configure Content Type Syndication

In this exercise, you configure content type syndication.

1. Switch to Central Administration.
2. In the Central Administration Quick Launch, click Application Management.
3. In the Service Applications section, click Manage Service Applications.
4. Click the row of the Managed Metadata Service - Enterprise service application.

   Do not click the Managed Metadata Service - Enterprise link. Click an empty part of the row.

5. On the ribbon, click Properties.
6. In the Content Type Hub box, type **http://intranet.contoso.com/sites/SharePoint**.
7. Select the Report Syndication Import Errors check box and click OK.
8. Click the row of the Managed Metadata Service - Enterprise connection.

   Do not click the Managed Metadata Service - Enterprise link. Click an empty part of the row.
9. On the ribbon, click Properties.
10. Select the Consumes Content Types From The Content Type Gallery At http://intranet.contoso.com/sites/SharePoint check box.
11. Click OK.

EXERCISE 6: Publish a Content Type

In this exercise, you publish a content type and you will see the content type in another site collection.

1. Switch to the tab of Internet Explorer that shows the *http://intranet.contoso.com/sites/SharePoint* website.
2. Click Site Actions, and then click Site Settings.
3. Click Site Content Types.
4. Click Customer Proposal.
5. Click Manage Publishing For This Content Type.
6. Observe that the content type is published.

   The content type cannot yet be unpublished or republished because the Content Type Hub timer job has not yet run.
7. Click OK.
8. Switch to Central Administration.
9. In the Central Administration Quick Launch, click Monitoring.
10. In the Timer Jobs section, click Review Job Definitions.
11. Click Content Type Hub.
12. Click Run Now.
13. Click Content Type Hub.
14. Refresh the page until the Last Run Time shows the current time, thus indicating that the job has completed.
15. Click OK.
16. Click Content Type Subscriber on the Contoso Teams row.
17. Click Run Now.
18. Click Content Type Subscriber on the Contoso Teams row.
19. Refresh the page until the Last Run Time shows the current time, thus indicating that the job has completed.

20. Click OK.
21. Switch to the tab of Internet Explorer that shows the *http://intranet.contoso.com/sites/SharePoint* website.
22. Browse to ***http://teams.contoso.com/depts/Sales***.
23. Click Site Actions, and then click Site Settings.
24. Click Site Content Types.

    Observe that in the Contoso Enterprise Wide Content Types group, the Customer Proposal appears.
26. Click Customer Proposal.
27. Observe that you cannot alter columns, information management policies, or workflows for the content type from the subscribing site collection.

EXERCISE 7: Add a Content Type to a Library

In this exercise, you create a document library for proposals and configure the library to use the Contoso Proposal content type.

1. Click Site Actions, and then click New Document Library.
2. In the Name box, type **Proposals** and then click Create.
3. On the ribbon, click Library, and then click Library Settings.
4. Click Advanced Settings.
5. In the Content Types section, in the Allow Management Of Content Types section, click Yes.
6. Click OK.
7. In the Content Types section, click Document.
8. Click Delete This Content Type.
9. When the confirmation prompt appears, click OK.
10. Click Add From Existing Site Content Types.
11. In the Select Site Content Types From list, select Contoso Enterprise Wide Content Types.
12. In the Available Site Content Types list, click Customer Proposal.
13. Click Add.
14. Click OK.

EXERCISE 8: Use a Managed Metadata Control

In this exercise, you add a proposal to the Proposals library and specify the customer by using the Managed Metadata control.

1. In the breadcrumb navigation at the top of the page, click Proposals.
2. Click Add Document.
3. On the Upload Document page, click Browse.
4. Browse to **C:\70667TK\Practice Files\05_02**.

5. Click Litware Proposal, and then click Open.
6. Click OK.
7. Click in the Contoso Customer box.
8. Type **LIT** and then wait. Observe that *Litware* is suggested.
9. Press Enter to accept the suggestion.
10. Delete the text in the Contoso Customer box.
11. Click the Browse For A Valid Choice button.
12. Click Litware, then click Select, and then click OK.
13. Click Save.

EXERCISE 9: Create the CHAPTER 05 Snapshot

The CHAPTER 05 snapshot captures the state of the environment at the end of Chapter 05. Perform this procedure for each of the following virtual machines: SP2010-WFE1, CONTOSO-DC.

1. Shut down the virtual machine.
2. Unmount any ISO image currently mounted to the CD/DVD drive. Use the "Unmount an ISO Image" procedure in the Lab Environment Build Guide on the companion media.
3. Create a snapshot named CHAPTER 05. Use the "Create a Snapshot" procedure in the Lab Environment Build Guide on the companion media.

Chapter 6

Lesson 1

EXERCISE 1: Add the SharePoint Farm Account to the Local Administrators Group

For the User Profile Synchronization Service to start, the CONTOSO\SP_Farm account must be a member of the local Administrators group on the SharePoint server. In this exercise, you assign that membership.

1. On SP2010-WFE1, click Start, right-click Computer, and then click Manage.
2. In Server Manager, expand Configuration, expand Local Users and Groups, and then click Groups.
3. Double-click Administrators.
4. Click Add.
5. Type **CONTOSO\SP_Farm** and then click Check Names.

   The user name is resolved to the SharePoint Farm Service account.
6. Click OK and then click OK again.
7. Close Server Manager.

EXERCISE 2: Register a Managed Account for User Profile Synchronization

In this exercise, you register CONTOSO\SP_UserSync as a managed account so that it can be used to synchronize AD DS accounts with SharePoint user profiles.

1. Start SharePoint 2010 Central Administration.
2. In the Central Administration Quick Launch, click Security.
3. In the General Security section, click Configure Managed Accounts.
4. Click Register Managed Account.
5. In the User Name box, type **CONTOSO\SP_UserSync**.
6. In the Password box, type **Pa$$w0rd**.
7. Click OK.
8. Close Central Administration.
9. Click Start and then click Log Off.

EXERCISE 3: Grant the User Profile Synchronization Account Replicating Directory Changes Permission

In this exercise, you assign the Replicating Directory Changes permission to the CONTOSO\SP_UserSync account.

1. Log on to SP2010-WFE1 as CONTOSO\Administrator with the password **Pa$$w0rd**.
2. Click Start, click Administrative Tools, and then click Active Directory Users And Computers.
3. Click View and then click Advanced Features.
4. Right-click contoso.com and then click Properties.
5. Click the Security tab.
6. Click Add.
7. Type **CONTOSO\SP_UserSync** and then click Check Names.

   The account is resolved to the SharePoint User Profile Synchronization account.
8. Click OK.
9. Scroll down the list of permission to locate the Replicating Directory Changes permission and next to it select the Allow check box.
10. Next to the Replicating Directory Changes All permission, select the Allow check box.
11. Next to the Replicating Directory Changes In Filtered Set permission, select the Allow check box.
12. Next to the Replication Synchronization permission, select the Allow check box.
13. Click OK.
14. Close Active Directory Users And Computers.
15. Click Start and then click Log Off.

EXERCISE 4: Configure the User Profile Service Application

In this exercise, you create and configure a new User Profile service application.

1. Log on to SP2010-WFE1 as CONTOSO\SP_Admin with the password **Pa$$w0rd**.
2. In the Central Administration Quick Launch, click Application Management.
3. Under Service Applications, click Manage Service Applications.
4. Click New, and then click User Profile Service Application.
5. In the Create New User Profile Service Application dialog box, in the Name box, type **User Profile Service Application — Enterprise**.
6. In the Application Pool section, click Create New Application Pool.
7. In the Application Pool Name text box, type **SharePoint User Profile App Pool**.
8. In the Configurable drop-down list, select CONTOSO\SP_UserSync.
9. In the Profile Database section, ensure that the Database Server text box contains **SP2010-WFE1**.
10. In the Database Name text box, type **SharePoint_Service_User_Profiles_Enterprise**.
11. In the Synchronization Database section, ensure that the Database Server text box contains **SP2010-WFE1**.
12. In the Database Name text box, type **SharePoint_Service_User_Sync_Enterprise**.
13. In the Social Tagging Database section, ensure that the Database Server text box contains **SP2010-WFE1**.
14. In the Database Name text box, type **SharePoint_Service_User_Social_Enterprise**.
15. In the Profile Synchronization Instance section, select SP2010-WFE1.
16. In the Default Proxy Group section, select Yes.
17. Click Create.
18. When the User Profile Service Application has been successfully created, click OK.
19. In the Service Applications list, press F5 to refresh the list.

    The new User Profile service application is displayed together with its proxy.

EXERCISE 5: Start the User Profile Services

In this exercise, you start the User Profile Service and the User Profile Synchronization Service.

1. In the Quick Launch, click System Settings.
2. Under Servers, click Manage Services On Server.
3. Ensure that the SP2010-WFE1 server is selected in the Server box.
4. Scroll down to locate the User Profile Service and next to it, click Start.
5. Reboot the SP2010-WFE1 server.
6. Log on as CONTOSO\SP_Admin with the password **Pa$$w0rd**.
7. Start Central Administration.

8. In the Quick Launch, click System Settings.
9. Under Servers, click Manage Services On Server.
10. Ensure that the SP2010-WFE1 server is selected in the Server box.
11. Scroll down to locate the User Profile Synchronization Service and next to it, click Start.
12. In the Select User Profile Application drop-down list, select User Profile Service Application – Enterprise.
13. Enter and confirm the password for the SharePoint farm account, which is **Pa$$w0rd**.
14. Click OK.
15. In the list of services, press F5 periodically until the User Profile Synchronization Service is shown as Started. This may take several minutes.
16. Click Start, right-click Command Prompt, and then click Run As Administrator.
17. Type **iisreset** and then press Enter.
18. Close the command prompt.

EXERCISE 6: Configure Synchronization with the AD DS

In this exercise, you add a connection to the AD DS forest for synchronizing user profiles.

1. In the Quick Launch, click Application Management.
2. Under Service Applications, click Manage Service Applications.
3. Click User Profile Service Application – Enterprise.
4. Under Synchronization, click Configure Synchronization Connections.
5. Click Create New Connection.
6. In the Connection Name box, type **To AD DS**.
7. In the Type box, select Active Directory.
8. In the Forest name text box, type **contoso.com**.
9. Ensure that Auto Discover Domain Controller is selected.
10. In the Account Name text box, type **CONTOSO\SP_UserSync**.
11. In both the Password and Confirm Password boxes, type **Pa$$w0rd**.
12. Click Populate Containers.
13. Expand CONTOSO.
14. Select the People Organizational Unit check box.
15. Click OK.
16. Click Start and then click Log Off.

EXERCISE 7: Configure User Accounts to Import

In this exercise, you set some properties on AD DS user accounts to test user profile synchronization.

1. Log on to SP2010-WFE1 as CONTOSO\Administrator with the password **Pa$$w0rd**.

2. Click Start, click Administrative Tools, and then click Active Directory Users And Computers.
3. Double-click the People Organizational Unit.
4. Double-click April Meyer.
5. Click the Telephones tab.
6. In the Mobile text box, type **0123456789**.
7. Click OK.
8. Double-click Julian Isla.
9. Click the Organization tab.
10. In the Job Title box, type **Contractor**.
11. Click OK.
12. Close Active Directory Users And Computers.
13. Click Start and then click Log Off.

EXERCISE 8: Map a User Profile Field to the AD DS

In this exercise, you map the CellPhone user profile property to the AD DS Mobile property.

1. Log on to SP2010-WFE1 as **CONTOSO\Administrator** with the password **Pa$$w0rd**.
2. In the Central Administration Quick Launch, click Application Management.
3. Under Service Applications, click Manage Service Applications.
4. Click User Profile Service Application – Enterprise.
5. Under People, click Manage User Properties.
6. Scroll down to the Contact Information category.
7. Point to the Mobile Phone property, drop-down the list, and then click Edit.
8. Scroll down to the Add New Mapping section.
9. In the Source Data Connection drop-down list, select To AD DS.
10. In the Attribute drop-down list, select Mobile.
11. In the Direction drop-down list, select Import.
12. Click Add.
13. Click OK.

EXERCISE 9: Configure a Connection Filter

In this exercise, you filter the connection to AD DS so that contractors are not given a user profile.

1. In the Central Administration Quick Launch, click Application Management.
2. Under Service Applications, click Manage Service Applications.
3. Click User Profile Service Application – Enterprise.
4. Under Synchronization, click Configure Synchronization Connections.
5. Point to the To AD DS connection and click Edit Connection Filters in the drop-down list.

6. Under Exclusion Filter For Users, in the Attribute box, select Title.
7. In the Operator box, select Equals.
8. In the Filter box, type **Contractor**.
9. Click Add.
10. Scroll to the bottom of the page and click OK.

EXERCISE 10: Synchronize with the AD DS

In this exercise, you initiate synchronization and observe the results.

1. In the Central Administration Quick Launch, click Application Management.
2. Under Service Applications, click Manage Service Applications.
3. Click User Profile Service Application – Enterprise.
4. Notice that there are zero profiles and the Profile Synchronization Status is Idle.
5. Under Synchronization, click Start Profile Synchronization.
6. Select Start Incremental Synchronization.
7. Click OK.
8. After a few seconds, press F5 to refresh the page.
9. Notice that the Profile Synchronization Status is Synchronizing.
10. Press F5 every few minutes until the Profile Synchronization Status is Idle again.
11. Notice the number of user profiles is now greater than zero.
12. Click Manage User Profiles.
13. In the Find Profiles text box, type **Meyer** and then click Find.
14. Point to the CONTOSO\AprilM profile that appears and then click Edit My Profile in the drop-down list.
15. Scroll down to find the Mobile Phone property. Note its value.
16. Scroll to the bottom and click Cancel and Go Back.
17. In the Find profile text box, type **Isla** and then click Find.
18. Notice the result.

Lesson 2

EXERCISE 1: Create a New Web Application

In this exercise, you create a new web application and set up DNS records to support it.

1. Log on to SP2010-WFE1 as **CONTOSO\SP_Admin** with the password **Pa$$w0rd**.
2. Click Start, click All Programs, click Microsoft SharePoint 2010 Products, and then click SharePoint 2010 Central Administration.
3. In the User Access Control dialog box, click Yes.

4. Under Application Management, click Manage Web Applications.
5. On the ribbon, click New.
6. Under IIS Web Site, click Create A New IIS Web Site.
7. In the Name text box, type **MySites**.
8. In the Port text box, type **80**.
9. In the Host Header box, type **my.contoso.com**.
10. Under Public URL, in the URL text box, type **http://my.contoso.com**.
11. Under Application Pool, select Create New Application Pool.
12. In the Application Pool Name text box, type **SharePoint MySite Application**.
13. In the Configurable drop-down list, click CONTOSO\SP_WebApps.
14. Under Database Name And Authentication, ensure that SP2010-WFE1 appears in the Database Server text box.
15. In the Database Name text box, type **SharePoint_Content_MySites**.
16. Scroll to the bottom of the page and then click OK.
17. When the Application Created dialog box appears, click OK.
18. Click Start and then click Command Prompt.
19. When Command Prompt opens, type the following command and then press Enter:

```
dnscmd contoso-dc.contoso.com /RecordAdd contoso.com my A 10.0.0.21
```

20. Close Command Prompt.

EXERCISE 2: Configure Your New Web Application to Support My Sites

In this exercise, you make the configuration changes that are necessary to support My Sites on the web application you just created.

1. In the list of web applications, select the MySites Web Application.
2. On the ribbon, click Self-Service Site Creation.
3. In the Self-Service Site Collection Management dialog box, click On.
4. Click OK.
5. On the ribbon, click Managed Paths.
6. Under Add A New Path, in the Path text box, type **personal**.
7. In the Type drop-down list, select Wildcard Inclusion.
8. Click Add Path.
9. Click OK.

EXERCISE 3: Create a New Site Collection to Host My Sites

In this exercise, you create a new site collection to host My Sites for users.

1. In the Central Administration Quick Launch, click Application Management.

2. Under Site Collections, click Create Site Collections.
3. Under Web Application, ensure that the http://my.contoso.com web application is selected.
4. Under Title and Description, in the Title text box, type **Contoso My Sites**.
5. In the Description text box, type **This site collection hosts your My Site**.
6. In the URL drop-down list, select http://my.contoso.com/.
7. Under Template Selection, click the Enterprise tab.
8. Select the My Site Host template.
9. Under Primary Site Collection Administrator, in the User name text box, type **CONTOSO\SP_Admin**, and then click Check Names.
10. Click OK.
11. When the new site collection has been created, click OK.

EXERCISE 4: Configure My Sites in the User Profile Service Application

In this exercise, you configure the User Profile service application that you created in Lesson 1 to support My Sites.

1. In the Central Administration Quick Launch, click Application Management.
2. Under Service Applications, click Manage Service Applications.
3. In the list of Service Applications, click User Profile Service Application – Enterprise.
4. Under My Site Settings, click Setup My Sites.
5. Under My Site Host, in the My Site Host Location text box type **http://my.contoso.com/**.
6. Under Personal Site Location, ensure that the Location text box contains the text **personal**.
7. Under Site Naming Format, select User Name (Do Not Resolve Conflicts).
8. Under My Site E-mail Notifications, type **mysite@contoso.com**.
9. Click OK.

EXERCISE 5: Configure a My Site

In this exercise, you create a My Site for Pat Coleman and populate it with content.

1. In the Internet Explorer address bar, type **http://intranet.contoso.com** and then press Enter.
2. Click Site Actions and then click Site Permissions.
3. On the Ribbon, click Grant Permissions.
4. In the Grant Permissions dialog box, in the Users/Groups box, type **CONTOSO\Domain Users** and then click Check Names.
5. Ensure that under Grant Permissions, the Viewers group is selected.
6. Click OK.
7. Close Internet Explorer.
8. Click Start and then click Log Off.

9. Log on to SP2010-WFE1 as **CONTOSO\PatC** with the password **Pa$$w0rd**.
10. Click Start and then click Internet Explorer.
11. In the Address bar, type **http://intranet.contoso.com** and then press Enter.
12. In the top-left of the page, click Coleman, Pat and then click My Site.

    SharePoint forwards Internet Explorer to *http://my.contoso.com*.
13. Click My Profile.
14. Click Edit My Profile.
15. Under About me, type **I'm just trying to keep the IT department running smoothly** or some other text of your choice.
16. Under Picture, click Choose Picture.
17. In the Upload Picture dialog, click Browse.
18. Browse to **C:\7066TK\Practice Files\06_02**.
19. Click PatColeman.jpg and then click Open.
20. Scroll to the bottom of the page, and then click Save And Close.
21. Click What's Happening.
22. Type **I'm setting up My Site for the first time!** and then press Enter.
23. Click My Content.

    SharePoint configures Pat Coleman's personal site for first use. When this process is complete, notice that the page address includes the personal managed path.
24. Under Recent Blog Post, click Create Blog.
25. Under Blog Tools, click Create A Post.
26. In the Posts – New Item dialog box, in the Title text box type **My First Post** or some other text of your choice.
27. In the Body text box type **This is just to test my new blog**.
28. Scroll to the bottom of the dialog box and then click Publish.

    SharePoint displays the new blog entry.

EXERCISE 6: Use Tags to Highlight Content

In this exercise, you use tags and notes.

1. At the top of the personal site, click My Profile.
2. Click Tags And Notes.
3. Notice that no tags or notes are listed in the activities list.
4. Press Ctrl+T to open a new Internet Explorer tab.
5. In the address bar, type **http://intranet.contoso.com** and then press Enter.
6. In the top right of the Contoso Intranet homepage, click I Like It.
7. Click Tags And Notes.

8. Notice that "I like it" already appears as a tag.
9. Add the tags **Contoso** and **Internal**.
10. At the top, click the Note Board tab.
11. Add the note **I think this page needs updating!** or another text of your choice.
12. Close the Tags And Notes dialog box.
13. Switch to the first Internet Explorer tab that displays your My Site profile.
14. Press F5 to refresh the page. Your new tags are displayed in the activities list and the tag cloud.
15. Under Add SharePoint Tags And Notes Tool, right-click the link and then click Add To Favorites.
16. In the Security Alert dialog box, click Yes.
17. In the Add A Favorite dialog box, click Add.
18. Switch to the second Internet Explorer tab that displays the Contoso Intranet home page.
19. Click Favorites and then click Tags And Note Board.

    The Tags And Note Board bookmarklet tool opens and displays the tags and notes you added earlier.
20. Close the Tags And Note Board bookmarklet tool and then close Internet Explorer.
21. Log off of SP2010-WFE1.

EXERCISE 7: Create the CHAPTER 06 Snapshot

The CHAPTER 06 snapshot captures the state of the environment at the end of Chapter 6. Perform this procedure for each of the following virtual machines: SP2010-WFE1, CONTOSO-DC.

1. Shut down the virtual machine.
2. Unmount any ISO image currently mounted to the CD/DVD drive. Use the "Unmount an ISO Image" procedure in the Lab Environment Build Guide on the companion media.
3. Create a snapshot named CHAPTER 06. Use the "Create a Snapshot" procedure in the Lab Environment Build Guide on the companion media.

Chapter 7

Lesson 1

EXERCISE 1: Add Some Documents

To demonstrate search functionality, SharePoint must have some content to index. In this exercise, you copy some documents to a SharePoint document library.

1. Click Start, and then click Internet Explorer.
2. In the address bar, type **http://intranet.contoso.com** and then press Enter.

3. In the Quick Launch, click Libraries.
4. Click Create.
5. Under Filter By, click List, and then click Document Library.
6. In the Name text box, type **SharePoint Whitepapers**.
7. Click Create.
8. Click Add Document.
9. In the Upload Document dialog box, click Browse.
10. Browse to **C:\70667TK\Practice Files\07_01**.
11. Select EvaluateSharePointServer2010-ITPro and then click Open.
12. Click OK.
13. Repeat steps 8 through 12 until all the documents are uploaded to the new library. Alternatively, you can select the Upload Multiple Files option after clicking Add Document.
14. Close Internet Explorer.

EXERCISE 2: Register a Managed Account for the Search Service

In this exercise, you register the SP_Crawl account as a managed account.

1. Click Start, All Programs, Microsoft SharePoint 2010 Products, and then click SharePoint 2010 Central Administration.
2. In the User Account Control dialog box, click Yes.
3. In the Quick Launch, click Security.
4. Under General Security, click Configure Managed Accounts.
5. Click Register Managed Account.
6. Under Account Registration, in the User Name text box, **CONTOSO\SP_Crawl**.
7. In the Password textbox, type **Pa$$w0rd**.
8. Click OK.

EXERCISE 3: Grant Local Group Membership to the Search Service Account

In this exercise, you ensure that the SP_Crawl account has the necessary rights and group membership.

1. Click Start, Administrative Tools, and then click Server Manager.
2. Expand Configuration, expand Local User And Groups, and then click Groups.
3. Right-click the WSS_WPG group and then click Properties.
4. Click Add.
5. Type **CONTOSO\SP_Crawl** and then click Check Names.
6. Click OK and then click OK again.
7. Close Server Manager.

EXERCISE 4: Configure the Search Service Application

In this exercise, you create and configure a Search service application for your farm.

1. In the Central Administration Quick Launch, click Application Management.
2. Under Service Applications, click Manage Service Applications.
3. On the ribbon, click New and then click Search Service Application.
4. In the Server Application Name text box, type **Search Service Application – Enterprise**.
5. Under FAST Service Application, ensure that None is selected.
6. In the Search Service Account drop-down list, select CONTOSO\SP_Crawl.
7. Under Application Pool For Search Admin Web Service, in the Use Existing Application Pool drop-down list, select SharePoint Service Applications.
8. Under Application Pool For Search Query And Site Settings Web Service, in the Use Existing Application Pool drop-down list, select SharePoint Service Applications.
9. Click OK.
10. When the Search Service Application has been created, click OK.

EXERCISE 5: Define Content Sources

In this exercise, you configure content sources for the new Search service application.

1. In the list of service applications, click Search Service Application – Enterprise.
2. In the Quick Launch, under Crawling, click Content Sources.
3. Click Local SharePoint Sites.
4. Review the Crawl Settings and Start Addresses.
5. Under Crawl Schedules, under the Full Crawl box, click Create Schedule.
6. Under Type, click Weekly.
7. Run the crawl every week on Sunday at 1:00 A.M.
8. Click OK.
9. Under Crawl Schedules, under the Incremental Crawl box, click Create Schedule.
10. Under Type, click Daily.
11. Run the crawl everyday at 12:00 A.M.
12. Click OK and then click OK again.

EXERCISE 6: Define Search Scopes

In this exercise, you configure a new search scope that includes only Word documents.

1. In the Quick Launch, under Queries and Results, click Scopes.
2. Click New Scope.
3. In the Title text box, type **Word Documents**.
4. In the Description text box, type **Search all Word documents in the enterprise**.

5. Click OK.
6. In the Word Documents line, in the Update Status column, click Add Rules.
7. Under Search Rule Type, click Property Query.
8. In the Add Property Restrictions drop-down list, select FileExtension.
9. In the = text box, type **doc**.
10. Under Behavior, select Include.
11. Click OK.
12. In the list of Scopes click Word Documents.
13. Under Rules, click New Rule.
14. Under Search Rule Type, click Property Query.
15. In the Add Property Restrictions drop-down list, select FileExtension.
16. In the = text box, type **docx**.
17. Under Behavior, select Include.
18. Click OK.
19. In the Quick Launch, under Administration, click Search Administration.

EXERCISE 7: Initiate a Crawl

In this exercise, you run a full crawl to index the SharePoint farm.

1. In the Quick Launch, under Crawling, click Content Sources.
2. Point to Local SharePoint Sites and click Start Full Crawl in the drop-down list.
3. After a few seconds, press F5 to refresh the page. Notice the status information.
4. Continue refresh the page over several minutes. When the status returns to Idle, in the Quick Launch click Search Administration.
5. Examine the contents of the Crawl History section.

EXERCISE 8: Create an Enterprise Search Center

In this exercise, you create a new Site Collection based on the Enterprise Search Center template.

1. Browse to the Central Administration home page.
2. Under Application Management, click Create Site Collections.
3. Under Web Application, ensure that *http://intranet.contoso.com* appears.
4. In the Title text box, type **Contoso Search**.
5. In the Description text box, type **Use this site to search all Contoso content**.
6. Set the Web Site Address to **http://intranet.contoso.com/sites/search**.
7. In the Template Selection section, click the Enterprise tab, and then click Enterprise Search Center.

8. Under Primary Site Collection Administrator, in the User Name text box, type CONTOSO\SP_Admin and then click Check Names.
9. Click OK.
10. When the process is complete click OK.
11. Reboot SP2010-WFE1.

EXERCISE 9: Query the Index

In this exercise, you run queries against your new search solution. You also configure the intranet site to use your search center site.

1. Log on to SP2010-WFE1 as **CONTOSO\SP_Admin** with the password **Pa$$w0rd**.
2. Click Start and then click Internet Explorer.
3. In the Address Bar, type **http://intranet.contoso.com/sites/search** and then press Enter.
4. In the Search box, type **SharePoint** and then click the Search button.
5. Notice the content types of the returned results.
6. In the Address Bar, type **http://intranet.contoso.com** and then press Enter.
7. Click Site Actions and then click Site Settings.
8. Under Site Collection Administration, click Search Settings.
9. Under Site Collection Search Center, click Enable Custom Scopes.
10. In the text box, type **http://intranet.contoso.com/sites/search/pages**.
11. In the Specify The Dropdown Mode For Search Boxes list, select Show Scopes Dropdown.
12. Click OK.
13. Under Site Collection Administration, click Search Scopes.
14. Click Display Groups.
15. Point to Search Dropdown and click Edit Display Group in the drop-down list.
16. Under Scopes, select the Display check box for the Word Documents scope.
17. Click OK.
18. Browse to ***http://intranet.contoso.com***.
19. Press F5 to refresh the page.
20. Notice the Scopes drop-down list next to the Search box. In this drop-down list select Word Documents.
21. In the Search box, type **SharePoint** and then click the Search button.
22. Notice that the results are displayed by the enterprise search site. Also notice that only Word documents are returned.
23. Close Internet Explorer.
24. Log off of SP2010-WFE1.

Lesson 2

EXERCISE 1: Add a Custom Content Type and a Custom Field

Before you can register a managed property to enable users to search on a custom field, the crawler must have indexed an example of that field. In this exercise, you create a custom field and content type. Later in this practice, you will register the field as a managed property.

1. Log on to SP2010-WFE1 as **CONTOSO\SP_Admin** with the password **Pa$$w0rd**.
2. Click Start and then click Internet Explorer.
3. In the Address Bar, type **http://intranet.contoso.com** and then press Enter.
4. Click Site Actions and then click Site Settings.
5. Under Galleries, click Site Columns.
6. Click Create.
7. Under Name And Type, in the Column Name text box, type **Technology**.
8. Select Single Line Of Text.
9. Under Group, in the Existing Group drop-down list, select Custom Columns.
10. Scroll to the bottom of the page and then click OK.
11. Click Site Actions and then click Site Settings.
12. Under Galleries, click Site Content Types.
13. Click Create.
14. Under Name And Description, in the Name text box, type **Technical Announcement**.
15. In the Description text box, type **Use for technological announcements**.
16. In the Select Parent Content Type From drop-down list, select List Content Types.
17. In the Parent Content Type drop-down list, select Announcement.
18. Under Group, in the Existing Group drop-down list, select Custom Content Types.
19. Click OK.
20. Under Columns click Add From Existing Site Columns.
21. Under Select Columns, in the Select Columns From drop-down list, select Custom Columns.
22. In the Available Columns list, select Technology and then click Add.
23. Click OK.

EXERCISE 2: Add an Item

In this exercise, you configure the Announcements list and create an item for SharePoint to crawl.

1. In the Quick Launch, click Lists.
2. Click Announcements.
3. On the ribbon, in the List Tools group, click the List tab.
4. Click List Settings.

5. Under General Settings, click Advanced Settings.
6. Under Allow Management Of Content Types, click Yes.
7. Scroll to the bottom of the page and click OK.
8. Under Content Types, click Add From Existing Content Types.
9. In the Select Site Content Types From drop-down list, select Custom Content Types.
10. In the Available Site Content Types list, select Technical Announcement and then click Add.
11. Click OK.
12. In the Quick Launch, click Lists.
13. Click Announcements.
14. On the ribbon, in the List Tools group, click the Items tab.
15. On the New Item button, click the down arrow and then click Technical Announcement.
16. In the Title text box, type **Search Center Available**.
17. In the Body text box, type **IT has deployed a new Search Center for the Contoso intranet**.
18. In the Technology text box, type **SharePoint**.
19. Click Save.

EXERCISE 3: Initiate a Crawl

In this exercise, you initiate a full crawl for the Local SharePoint Sites content source.

1. Click Start, All Programs, Microsoft SharePoint 2010 Products, and then click SharePoint 2010 Central Administration.
2. In the User Account Control dialog box, click Yes.
3. Under Application Management, click Manage Service Applications.
4. Click Search Service Application – Enterprise.
5. In the Quick Launch, under Crawling, click Content Sources.
6. Point to Local SharePoint Sites and click Start Full Crawl in the drop-down list.
7. After a few seconds, click Refresh.

   The Status changes to Starting or Crawling Full.
8. Continue to click Refresh until the Status returns to Idle. This may take several minutes.

EXERCISE 4: Configure Managed Properties

In this exercise, now that SharePoint has crawled an example of the Technology field, you register the field as a managed property.

1. In the Quick Launch, under Queries and Results, click Metadata Properties.
2. Click New Managed Property.
3. Under Name And Type, in the Property Name text box, type **Technology**.
4. Ensure that the Text option is selected.

5. Under Mappings To Crawled Properties, click Add Mapping.
6. In the Crawled Property Name box, type **tech**.
7. Click Find.
8. In the Select A Crawled Property list, select ows_Technology(Text).
9. Click OK.
10. Scroll to the bottom of the page and click OK.
11. In the Quick Launch, under Crawling, click Content Sources.
12. Point to Local SharePoint Sites and click Start Full Crawl in the drop-down list.
13. Close Central Administration.

EXERCISE 5: Configure Keywords and Best Bets

In this exercise, you configure a keyword and a best bet for the word *SharePoint*.

1. In Internet Explorer, browse to the ***http://intranet.contoso.com*** site.
2. Click Site Actions and then click Site Settings.
3. Under Site Collection Administration, click Search Keywords.
4. Click Add Keyword.
5. Under Keyword Information, in the Keyword Phrase text box, type **SharePoint**.
6. In the Synonyms text box, type **SharePoint Server 2010; SharePoint Foundation 2010**.
7. Under Best Bets, click Add Best Bet.
8. In the Add Best Bet dialog box, in the URL text box, type **http://intranet.contoso.com/SharePoint%20Whitepapers**.
9. In the Title text box, type **SharePoint Whitepapers**.
10. In the Description text box, type **This library contains a range of technical documents about SharePoint**.
11. Click OK.
12. In the Keyword Definition text box, type **Advanced collaboration software from Microsoft**.
13. Click OK.

EXERCISE 6: Add a Custom Search Page to the Contoso Intranet

In this exercise, you customize the Contoso intranet site by adding a custom search page.

1. In Internet Explorer, browse to the ***http://intranet.contoso.com*** site.
2. Click Site Actions and then click More Options.
3. In the Filter By list, click Page.
4. Click Web Part Page and then click Create.
5. In the Name text box, type **CustomSearch**.

6. In the Choose A Layout Template list, click Full Page, Vertical.
7. In the Document Library drop-down list, select Site Pages.
8. Click Create.
9. In the Full Page Web Part Zone, click Add A Web Part.
10. In the Categories list, click Search.
11. In the Web Parts list, click Search Box and then click Add.
12. Point to the Search Box Web Part, click the down arrow, and then click Edit Web Part.
13. In the Search Box properties, expand Scope Dropdown.
14. In the Dropdown Mode list, select Show Scopes Dropdown.
15. Expand the Miscellaneous section.
16. In the Target Search Results Page URL text box, type **http://intranet.contoso.com/SitePages/CustomSearch.aspx**.
17. Click OK.
18. In the Full Page Web Part Zone, click Add A Web Part.
19. In the Categories list, click Search.
20. In the Web Parts list, click Search Core Results and then click Add.
21. In the Full Page Web Part Zone, click Add A Web Part.
22. In the Categories list, click Search.
23. In the Web Parts list, click Search Best Bets and then click Add.
24. On the ribbon, click Stop Editing.

EXERCISE 7: Query the Index

In this exercise, you test the new search page that you created in Exercise 6. You will also use the keyword and best bet and run a property search.

1. In Internet Explorer, browse to the ***http://intranet.contoso.com*** site.
2. In the Quick Launch, click Libraries.
3. In the list of Document Libraries, click Site Pages.
4. In the list of pages, click CustomSearch.
5. In the Scopes drop-down list, select All Sites.
6. In the Search Box, type **SharePoint**.
7. Click the Search button.
8. Examine the Results page.

   At the top the Search Best Bets Web Part displays the SharePoint Best Bet with the Keyword definition you entered and a link to the SharePoint Whitepaper library. Beneath that, that Search Core Results Web Part displays all items in the farm that contain the word *SharePoint*. The Search Box is displayed at the bottom of the page.

9. Scroll to the bottom of the page.
10. In the Search Box, type **Technology:SharePoint**.

> ***NOTE*** **PROPERTY QUERIES**
>
> **In SharePoint search syntax, a string ending in a colon specifies the name of a managed property. Therefore, when you type the query Technology:SharePoint, the query engine returns only those items in which the Technology column contains SharePoint. Ensure that there are no spaces in the query.**

11. Click the Search button.
12. Examine the results. The query engine does not return the SharePoint Whitepapers because, although they contain the word SharePoint, they do not have a Technology column.

Lesson 3

EXERCISE 1: Create Folders for Index and Temporary Files

In this exercise, you create folders that will hold the extra index partition and temporary crawl files.

1. Log on to SP2010-WFE1 as **CONTOSO\SP_Admin** with the password **Pa$$w0rd**.
2. Click Start and then click Computer.
3. Double-click Local Disk (C:).
4. Click New Folder.
5. Type **Search Files** and then press Enter.
6. Double-click Search Files.
7. Click New Folder.
8. Type **Index Partition 2 Files** and then press Enter.
9. Click New Folder.
10. Type **Crawler 2 Temp Files** and then press Enter.
11. Click New Folder.
12. Type **Query Component 2 Files** and then press Enter.

EXERCISE 2: Create a New Crawl Database

In this exercise, you create a second crawl database.

1. Click Start, All Programs, Microsoft SharePoint 2010 Products, and then click SharePoint 2010 Central Administration.
2. In the User Account Control dialog box, click Yes.
3. Under Application Management, click Manage Service Applications.
4. In the Service Application list, click Search Service Application – Enterprise.
5. Scroll to the bottom of the page and locate the Search Application Topology Web Part.

6. Click Modify.
7. Click New and then click Crawl Database.
8. Ensure that SP2010-WFE1 appears in the Database Server text box.
9. In the Database Name text box, type **SharePoint_Service_Search_Crawl_2**.
10. Click OK.

EXERCISE 3: Create a New Property Database

In this exercise, you create a second property database.

1. Click New and then click Property Database.
2. Ensure that SP2010-WFE1 appears in the Database Server text box.
3. In the Database Name text box, type **SharePoint_Service_Search_Property_2**.
4. Click OK.

EXERCISE 4: Create a New Crawler

In this exercise, you add a new crawler to the SP2010-WFE1 server.

1. Click New and then click Crawl Component.
2. In the Server drop-down list, ensure that SP2010-WFE1 is selected.
3. In the Associated Crawl Database drop-down list, select **SP2010-WFE1\SharePoint_Service_Search_Crawl_2**.
4. In the Temporary Location Of Index text box, type **C:\Search Files\Crawler 2 Temp Files**.
5. Click OK.

EXERCISE 5: Create a New Index Partition

In this exercise, you create a new index partition for the Search service application.

1. Click New and then click Index Partition and Query Component.
2. In the Server drop-down list, ensure that SP2010-WFE1 is selected.
3. In the Associated Property Database drop-down list, select **SP2010-WFE1\SharePoint_Service_Search_Property_2.**
4. In the Location Of Index text box, type **C:\Search Files\Index Partition 2 Files**.
5. Click OK.

EXERCISE 6: Create a New Query Component and Apply Topology Changes

In this exercise, you create a second mirror query component in the index partition you created in Exercise 5. You will also apply all your changes.

1. In the Search Service Topology list, locate the Index Partition New-1 entry.
2. Click Query Component New 1 and then click Add Mirror.
3. In the Server drop-down list, ensure that SP2010-WFE1 is selected.
4. In the Location of Index text box, type **C:\Search Files\Query Component 2 Files**.

5. Click OK.

> ***NOTE*** **PENDING TOPOLOGY CHANGES**
>
> **Notice that all the components you have added are listed as Pending Creation. They are not created until you complete the next step.**

6. Click Apply Topology Changes.

> ***NOTE*** **APPLYING TOPOLOGY CHANGES**
>
> **This process may take several minutes.**

7. When the configuration is complete, click OK.

EXERCISE 7: Run a Full Crawl

In this exercise, you run a full crawl with the new search topology.

1. In the Quick Launch, under Crawling, click Content Sources.
2. Point to Local SharePoint Sites and click Start Full Crawl in the drop-down list.
3. After a few seconds, press F5 to refresh the page.
4. Continue to refresh the page until the Status column displays Crawling Full.
5. Return to Windows Explorer and browse to **C:\Search Files\Crawler 2 Temp Files**.
6. Examine the content of this folder.
7. Browse to **C:\Search Files\Index Partition 2 Files**.
8. Examine the content of this folder.
9. Browse to **C:\Search Files\Query Component 2 Files**.
10. Examine the content of this folder.
11. Close Windows Explorer and return to Internet Explorer.
12. Refresh the Central Administration page until the Status column displays Idle.
13. Close Internet Explorer.
14. Log off of SP2010-WFE1

EXERCISE 8: Create the CHAPTER 07 Snapshot

The CHAPTER 07 snapshot captures the state of the environment at the end of Chapter 7. Perform this procedure for each of the following virtual machines: SP2010-WFE1, CONTOSO-DC.

1. Shut down the virtual machine.
2. Unmount any ISO image currently mounted to the CD/DVD drive. Use the "Unmount an ISO Image" procedure in the Lab Environment Build Guide on the companion media.
3. Create a snapshot named CHAPTER 07. Use the "Create a Snapshot" procedure in the Lab Environment Build Guide on the companion media.

Chapter 8

Lesson 1

EXERCISE 1: Install SharePoint Designer 2010

In this exercise, you install SharePoint Designer 2010. You must have downloaded the tool from the following location before you begin the exercise: *http://www.microsoft.com/downloads/en/details.aspx?FamilyID=d88a1505-849b-4587-b854-a7054ee28d66&displaylang=en*.

1. Double-click SharePointDesigner.exe.
2. In the User Account Control dialog box, click Yes.
3. Select I Accept The Terms Of This License Agreement, and then click Continue.
4. Click Install Now. The wizard installs SharePoint Designer. This may take several minutes.
5. When the installation is complete, click Close.

EXERCISE 2: Create the Fourth Coffee Products Database

In this exercise, you set up the Fourth Coffee products database to use as an example of an external system:

1. Click Start, All Programs, Microsoft SQL Server 2008 R2, and then click SQL Server Management Studio.
2. In the Connect to Server dialog box, click Connect.
3. Right-click Databases and then click New Database.
4. In the Database Name box, type **Fourth_Coffee_Products**.
5. Click OK.
6. Click the File menu, point to Open, and then click File.
7. Browse to the following folder: **C:\70667TK\Practice Files\08_01**.
8. Click FourthCoffeeProducts.sql and then click Open.
9. Click Execute.
10. Expand Databases, expand Fourth_Coffee_Products, and then expand Tables.
11. Right-click dbo.Products and then click Select Top 1000 Rows.
12. Examine the results. This is the sample data for this practice.

EXERCISE 3: Create a Business Data Catalog Service Application

In this exercise, you add a new Business Data Catalog service application to your SharePoint farm:

1. Click Start, All Programs, Microsoft SharePoint 2010 Products, and then click SharePoint 2010 Central Administration.
2. In the User Account Control dialog box, click Yes.

3. Under Application Management, click Manage Service Applications.
4. Click New, and then click Business Data Connectivity Service.
5. Under Name, in the Service Application Name text box, type **Business Data Connectivity – Enterprise**.
6. In the Database Server text box, ensure that **SP2010-WFE1** appears.
7. In the Database Name text box, type **SharePoint_Service_BDC**.
8. Under Application Pool, select Use Existing Application Pool.
9. In the list of application pools, select SharePoint Service Applications.
10. Click OK.
11. When the service application has been created, click OK.
12. On the Central Administration Quick Launch, click System Settings.
13. Under Servers, click Manage Services on Server.
14. Next to Business Data Connectivity Service click Start.

EXERCISE 4: Create a Secure Store Service Application

In this exercise, you add a new Secure Store service application to support the BDC service application you created in Exercise 2:

1. In the Central Administration Quick Launch, click Application Management.
2. Under Service Applications, click Manage Service Applications.
3. Click New and then click Secure Store Service.
4. Under Name, in the Service Application Name text box, type **Secure Store – Enterprise**.
5. In the Database Server text box, ensure that **SP2010-WFE1** appears.
6. In the Database Name text box, type **SharePoint_Service_Secure_Store**.
7. Under Application Pool, select Use Existing Application Pool.
8. In the list of application pools, select SharePoint Service Applications.
9. Click OK.
10. When the service application has been created, click OK.
11. On the Central Administration Quick Launch, click System Settings.
12. Under Servers, click Manage Services On Server.
13. Next to Secure Store Service, click Start.
14. Reboot the SP2010-WFE1 server.

EXERCISE 5: Create and Configure an External Content Type

In this exercise, you use SharePoint Designer to configure a SharePoint BCS external system that connects to a simple SQL Server database. You will also create an external content type and external list to display data from the database:

1. Log on to SP2010-WFE1 as **CONTOSO\SP_Admin** with the password **Pa$$w0rd**.
2. Click Start, All Programs, SharePoint, and then click Microsoft SharePoint Designer 2010.
3. Click Open Site.
4. In the Site Name text box, type **http://intranet.contoso.com**, and then click Open.
5. In the Navigation pane on the left, click External Content Types.
6. On the ribbon, in the New section, click External Content Type.
7. Next to Name, click New External Content Type, and then type **FourthCoffeeProduct**.
8. Next to Display Name, click New External Content Type, and then type **Fourth Coffee Product**.
9. Next to External System, click the link.
10. Click Add Connection.
11. In the Data Source Type list, select SQL Server, and then click OK.
12. In the Database Server text box, type **SP2010-WFE1**.
13. In the Database Name text box, type **Fourth_Coffee_Products**.
14. Ensure that Connect With User's Identity is selected, and then click OK.
15. In the Data Source Explorer, expand Fourth_Coffee_Products and then expand Tables.
16. Right-click Products, and then click Create All Operations.
17. In the All Operations Wizard, click Next.
18. In the Parameter Configuration list, click Product Name.
19. In the Properties pane, click Show In Picker.
20. Click Next and then click Finish.
21. On the ribbon, click Create Lists And Forms.
22. In the Save Confirmation dialog box, click Yes.
23. In the List Name text box, type **Fourth Coffee Products**.
24. In the List Description text box, type **This is the product catalog from our partner, Fourth Coffee**.
25. Click OK.
26. On the ribbon, click Summary View.

EXERCISE 6: Assign Permissions to the External Content Type

In this exercise, you ensure that users have sufficient permission to view and edit external data:

1. Click Start, All Programs, Microsoft SharePoint 2010 Products, and then click SharePoint 2010 Central Administration.
2. In the User Account Control dialog box, click Yes.
3. Under Application Management, click Manage Service Applications.
4. In the Service Applications list, click Business Data Connectivity – Enterprise.

5. On the ribbon, in the View section, select External Content Types.
6. In the list of External Content Types, point to FourthCoffeeProduct, and then, in the drop-down list, click Set Permissions.
7. In the People Picker at the top, type **CONTOSO\SP_Admin** and then click Check Names.
8. Click Add.
9. In the list of permissions, select all four boxes.
10. In the People Picker at the top, type **CONTOSO\Domain Users** and then click Check Names.
11. Click Add.
12. In the list of permissions, select Edit and Execute.
13. Click OK.

EXERCISE 7: Access and Edit External Data

In this exercise, you access and edit data in the SharePoint external list:

1. Click Start, All Programs, Microsoft SQL Server 2008 R2, and then click SQL Server Management Studio.
2. In the Connect To Server dialog box, click Connect.
3. Expand Databases, expand Fourth_Coffee_Products, and then expand Tables.
4. Right-click dbo.Products and then click Select Top 1000 Rows.
5. Examine the results. Note the SalePrice value for Nicaraguan Fair-Trade Ground Coffee.
6. Click Start and then click Internet Explorer.
7. In the Address box, type **http://intranet.contoso.com** and then press Enter.
8. In the Quick Launch, click Fourth Coffee Products.
9. Click Nicaraguan Fair-Trade Ground Coffee.
10. On the ribbon, click Edit Item.
11. In the SalePrice text box, type **4.90**.
12. Click Save.
13. On the ribbon, click New Item.
14. In the ProductID text box, type **0006**.
15. In the ProductName text box, type **Fourth Special Espresso Blend**.
16. In the Description text box, type **This blend is perfect for after dinner**.
17. In the CatalogNumber text box, type **Frth0006**.
18. In the CostPrice text box, type **2.50**.
19. In the SalePrice text box, type **4.50**.
20. Click Save.
21. Click F5 to refresh the page.
22. Switch to SQL Server Management Studio.

23. Click Execute.
24. Examine the results. The changes you made in SharePoint appear.
25. Close all windows and applications.
26. Log off of SP2010-WFE1.

Lesson 2

EXERCISE 1: Configure InfoPath Forms Services

In this exercise, you configure InfoPath Form Services in your farm to wait longer for data connection timeouts:

1. Log on to SP2010-WFE1 as **CONTOSO\SP_Admin** with the password **Pa$$w0rd**.
2. Click Start, All Programs, Microsoft SharePoint 2010 Products, and then click SharePoint 2010 Central Administration.
3. In the User Account Control dialog box, click Yes.
4. Click General Application Settings.
5. Under InfoPath Forms Services, click Configure InfoPath Forms Services.
6. Under Data Connection Timeouts, in the Default Data Connection Timeout text box, type **15000**.
7. In the Maximum Data Connection Timeout text box, type **25000**.
8. Scroll to the bottom of the page and then click OK.

EXERCISE 2: Configure the SharePoint Server State Service

In this exercise, you create and configure that State service application by using Windows PowerShell:

1. Click Start, All Programs, Microsoft SharePoint 2010 Products, and then click SharePoint 2010 Management Shell.
2. Type the following command and then press Enter:

```
Get-SPStateServiceApplication
```

3. Type the following command and then press Enter:

```
$serviceApp = New-SPStateServiceApplication
–Name "State Service Application - Enterprise"
```

4. Type the following command and then press Enter:

```
New-SPStateServiceDatabase -Name "SharePoint_Service_State"
-ServiceApplication $serviceApp –DatabaseServer "SP2010-WFE1"
```

5. Type the following command and then press Enter:

```
New-SPStateServiceApplicationProxy –Name "State Service Application Proxy"
-ServiceApplication $serviceApp –DefaultProxyGroup
```

6. Type the following command and then press Enter:

```
Get-SPStateServiceApplication
```

EXERCISE 3: Install Office 2010

To complete the remaining exercises in this practice, and the exercises in Lessons 3 and 4, you must have Office 2010 installed on the SP2010-WFE1 image. These instructions assume that you have downloaded the evaluation version of Office Professional Plus, but you could also install a licensed version:

1. Locate and double-click the ProfessionalPlus.exe file or insert the Office 2010 disk.
2. If the User Access Control dialog box appears, click Yes.
3. Enter your software key, and then click Continue.
4. Click I Accept The Terms Of This Agreement, and then click Continue.
5. Click Install Now. The installation takes several minutes.
6. When the installation is complete click Close.

EXERCISE 4: Create an Administrator-Approved InfoPath Form

In this exercise, you create a simple Vacation Request InfoPath form and prepare it for administrator approval:

1. Click Start, All Programs, Microsoft Office, and then click Microsoft InfoPath Designer 2010.
2. In the list of Available Form Templates, click Blank Form.
3. Under Blank Form, on the right, click Design Form.
4. Click Click To Add Title, and then type **Vacation Request**.
5. On the ribbon, click the Insert tab.
6. In the list of Tables, click the Two-Column 4 button.
7. Click in the top-left cell, and then type **Full Name**.
8. Click in the top-right cell.
9. On the ribbon, click the Home tab. In the Controls section, click Textbox.
10. In the Fields list, right-click field1 and then click Properties.
11. In the Name text box, type **FullName**, and then click OK.
12. Click in the middle left cell of the new Table, and then type **Start Date**.
13. Click in the middle right cell.
14. On the ribbon, in the Controls section, click Date Picker.
15. In the Fields list, right-click field2 and then click Properties.
16. In the Name text box, type **StartDate**, and then click OK.
17. Click in the lower-left cell of the new Table, and then type **End Date**.
18. Click in the lower-right cell.

19. On the ribbon, in the Controls section, click Date Picker.
20. In the Fields list, right-click field3 and then click Properties.
21. In the Name text box, type **EndDate**, and then click OK.
22. On the ribbon, click File, and then click Advanced Form Options.
23. In the list of Categories, click Security and Trust.
24. Clear the Automatically Determine Security Level check box.
25. Select the Domain option.
26. Click OK.
27. On the ribbon, click File, and then click Save As.
28. In the Folder list, click Desktop.
29. In the File Name text box, type **VacationRequest**, and then click Save.
30. On the ribbon, click File, click Publish, and then click SharePoint Server.
31. In the text box, type **http://intranet.contoso.com** and then click Next.
32. Select the Administrator-Approved Form Template option, and then click Next.
33. In the text box, type **C:\70667TK\Practice Files\08_02\VacationRequest** and then click Next.
34. Next to the list of Columns, click Add.
35. Click FullName and then click OK.
36. Next to the list of Columns, click Add.
37. Click StartDate, and then click OK.
38. Click Next, click Publish, and then click Close.
39. Close InfoPath Designer.

EXERCISE 5: Approve the New Form

In this exercise, you approve the form you created in the last exercise:

1. In Central Administration Quick Launch, click General Application Settings.
2. Under InfoPath Forms Services, click Upload Form Template.
3. Next to the File Name text box, click Browse.
4. Browse to **C:\70667TK\Practice Files\08_02**.
5. Click the VacationRequest form template, and then click Open.
6. Click Verify. When the verification is complete, click OK.
7. Next to the File Name text box, click Browse.
8. Click the VacationRequest form template, and then click Open.
9. Click Upload, and then click OK.
10. In the list of form templates, point to VacationRequest.xsn, drop down the list, and then click Activate To A Site Collection.

11. In the Site Collection box, ensure that http://intranet.contoso.com is selected.
12. Click OK.

EXERCISE 6: Use an Administrator-Approved Form in a Library

In this exercise, you use the new administrator-approved form in the Contoso intranet site:

1. Click Start, and then click Internet Explorer.
2. In the Address bar, type **http://intranet.contoso.com** and then press Enter.
3. In the Quick Launch, click Libraries.
4. In the list of Document Libraries, click Form Templates. Notice that the VacationRequest form template appears in this library.
5. In the Quick Launch, click Libraries, and then click Create.
6. In the list of Templates, click Form Library.
7. Under Form Library, in the Name text box, type **Vacation Requests** and then click Create.
8. On the ribbon, click Library Settings.
9. Under General Settings, click Advanced Settings.
10. Under Content Types, select the Yes option.
11. At the bottom of the page, click OK.
12. Under Content Types, click Add From Existing Site Content Types.
13. In the Select Site Content Types From drop-down list, select Microsoft InfoPath.
14. Click VacationRequest and then click Add.
15. Click OK.
16. In the Quick Launch, click Vacation Requests.
17. On the ribbon, click the Documents tab.
18. Click New Document, and then click VacationRequest.
19. In the Full Name text box, type your name.
20. In the Start Date date picker, select a date sometime in the future.
21. In the End Date date picker, select a date sometime after the Start Date.
22. Click Save.
23. In the File Name text box, type ***Your Name*** **Vacation**, and then click Save.
24. Click Close.

EXERCISE 7: Modify an Existing Form Template

In this exercise, you use InfoPath to modify the default form for a SharePoint list:

1. In the Quick Launch, click Tasks.
2. On the ribbon, click the List tab, and then click Customize Form. InfoPath opens and displays the form.

3. On the ribbon, click the Page Design tab.
4. In the list of themes, select SharePoint – Berry.
5. Click the File tab, and then click Quick Publish.
6. Click OK, and then close InfoPath Designer.
7. On the ribbon, click the Items tab, and then click New Item. The Task form opens with a new theme applied.
8. Close all windows and applications.
9. Log off of SP2010-WFE1.

Lesson 3

EXERCISE 1: Grant Database Permissions to the Service Application

In this exercise, you ensure that the web application pool service account has the right access to the intranet content database.

1. Log on to SP2010-WFE1 as **CONTOSO\SP_Admin** with the password **Pa$$w0rd**.
2. Click Start, All Programs, Microsoft SQL Server 2008 R2, and then click SQL Server Management Studio.
3. In the Connect To Server dialog box, click Connect.
4. Expand Databases, expand SharePoint_Content_Intranet, expand Security, and then expand Users.
5. Right-click Users, and then click New User.
6. In the User Name text box, type **CONTOSO\SP_ServiceApps**.
7. To the right of the Login Name text box, click the Browse button.
8. Type **CONTOSO\SP_ServiceApps**, and click Check Names, and then click OK.
9. In the Database Role Membership list, select db_owner, and then click OK.
10. Close SQL Server Management Studio.

EXERCISE 2: Create an Excel Services Service Application

In this exercise, you create the Excel Services Service Application that is required for Excel spreadsheet publishing:

1. Open SharePoint 2010 Central Administration.
2. Under Application Management, click Manage Service Applications.
3. On the ribbon, click New, and then click Excel Services Application.
4. In the Name text box, type **Excel Services –Enterprise**.
5. Under Application Pool, select Use Existing Application Pool.
6. In the list of application pools, select SharePoint Service Applications and click OK.

EXERCISE 3: Configure the Excel Services Service Application

In this exercise, you configure the Excel Service Application to restrict the size of the workbook cache and extend the connection lifetime for external data. You will also ensure that the Excel Calculation Service is started:

1. In the list of Service Applications, click Excel Services – Enterprise.
2. Click Global Settings.
3. Under Workbook Cache, in the Maximum Size of Workbook Cache text box, type **20000**.
4. Under External Data, in the Connection Lifetime box, type **2500** and click OK.
5. In Central Administration Quick Launch, click System Settings.
6. Under Servers, click Manage Services On Server.
7. Next to the Excel Calculation Services, click Start.

EXERCISE 4: Export a SharePoint External List to a Spreadsheet

In this exercise, you create a custom SharePoint list, populate it with simple data, and then export the list to an Excel Spreadsheet:

1. Open Internet Explorer.
2. In the Address Bar, type **http://intranet.contoso.com**, and then press Enter.
3. In the Quick Launch, click Lists, and then click Create.
4. In the list of Templates, click Custom List.
5. On the right, in the Name text box, type **Sales Figures**, and then click Create.
6. On the ribbon, click List Settings.
7. Under Columns, click Title.
8. In the Column Name text box, type **Representative Name** and click OK.
9. Under Columns, click Create Column.
10. In the Column Name text box, type **Q1 Sales**.
11. Select the Currency column type and click OK.
12. In the Quick Launch, click Sales Figures.
13. Click Add New Item.
14. In the Representative Name text box type **Michael Raheem**.
15. In the Q1 Sales text box, type **32000**.
16. Click Save.
17. Click Add New Item.
18. In the Representative Name text box, type **Henrik Jensen**.
19. In the Q1 Sales text box, type **28500**.
20. Click Save.
21. Click Add New Item.

22. In the Representative Name text box, type **Kelly Rollin**.
23. In the Q1 Sales text box, type **42000**.
24. Click Save.
25. On the ribbon, click the List tab, and then click Export To Excel.
26. In the File Download dialog box, click Open.
27. In the Microsoft Excel Security Notice dialog box, click Enable. Excel displays the data from the new list.
28. On the ribbon, click the Insert tab.
29. In the Charts section, click Column, and then, under 3-D Column, click 3-D Clustered Column.
30. Right-click the new chart, and then click Select Data.
31. Select columns A and B for the chart data source, and then click OK.
32. Click the File tab, and then click Save.
33. In the File Name text box, type **SalesFigures**, and then click Save.

EXERCISE 5: Publish a Spreadsheet to Excel Services

In the exercise, you publish the new spreadsheet to Excel Services:

1. In Excel, click the File tab, and then click Save & Send.
2. Click Save To SharePoint, and then click Publish Options.
3. In the Publish Options dialog box, in the drop-down list select Items In The Workbook.
4. Select Chart 1, select Table_owssvr_1, and then click OK.
5. Click Save and then close Excel.
6. Switch to Internet Explorer, displaying the *http://intranet.contoso.com* site.
7. In the Quick Launch, click Shared Documents.
8. Click the Documents tab, and then click Upload Document.
9. Click Browse, and then browse to the Documents library.
10. Click the SalesFigures spreadsheet, and then click Open.
11. Click OK.
12. Point at the spreadsheet in the document library, and then click View In Browser in the drop-down list. Excel Services renders the chart from the spreadsheet.

EXERCISE 6: Use the Excel Web Access Web Part to Display Data

In this exercise, you add a chart to the intranet home page. The chart will display sales data for Contoso sales representatives.

1. In Internet Explorer, at the top left of the page, click Contoso Intranet.
2. On the ribbon, click the Page tab, and then click Edit.
3. Place the cursor below the Shared Documents Web Part.

4. On the ribbon, click the Insert tab, and then click Web Part.
5. In the Categories list, click Business Data.
6. In the Web Parts list, click Excel Web Access, and then click Add.
7. Under Select A Workbook, click Click Here To Open The Tool Pane.
8. Scroll to the top right of the page to access to Excel Web Access tool pane.
9. Next to the Workbook text box, click the Browse button.
10. In the site structure, click Shared Documents.
11. Click the SalesFigures spreadsheet, and then click OK.
12. At the bottom of the tool pane, click OK.
13. On the ribbon, click the Page tab, and then click Save & Close. The home page displays the chart.
14. Close all windows and applications.
15. Log off of SP2010-WFE1.

Lesson 4

EXERCISE 1: Create an Access Web Services Service Application

In this exercise, you create a new Access Web Services service application by using Central Administration:

1. Log on to SP2010-WFE1 as **CONTOSO\SP_Admin** with the password **Pa$$w0rd**.
2. Open SharePoint 2010 Central Administration.
3. In the User Account Control dialog box, click Yes.
4. Under Application Management, click Manage Service Applications.
5. On the ribbon, click New, and then click Access Services.
6. In the Name text box, type **Access Services – Enterprise**.
7. Under Application Pool, click Use Existing Application Pool, and in the drop-down list, click SharePoint Service Applications.
8. Click OK.

EXERCISE 2: Configure Access Web Services

In this exercise, you configure the new Access Web Services service application to restrict the size of result sets and increase the maximum template size:

1. In the list of service applications, click Access Services – Enterprise.
2. Under Lists and Queries, in the Maximum Columns Per Query text box, type **25**.
3. In the Maximum Rows Per Query text box, type **1000**.
4. Under Templates, in the Maximum Template Size text box, type **50**.

5. Click OK.
6. In the Central Administration Quick Launch, click System Settings.
7. Under Servers, click Manage Services On Server.
8. Next to the Access Database Service, click Start.
9. Close Central Administration.

EXERCISE 3: Create a Web Database

In this exercise, you use the Products template to create a new web database:

1. Open Internet Explorer.
2. In the Address Bar, type **http://intranet.contoso.com** and then press Enter.
3. Click Site Actions, and then click More Options.
4. Under All Categories, click Web Databases.
5. Click Projects Web Database.
6. In the Title text box, type **Contoso Projects**.
7. In the URL Name text box, type **contosoprojects** and then click Create. SharePoint creates the database and displays the Getting Started tab.

EXERCISE 4: Edit the Data in the Browser

In this exercise, you test the new web database by adding a record in the browser:

1. In Internet Explorer, in the Contoso Projects database, click the Customers tab.
2. On the top row, in the First Name cell, type **Jean-Phillipe**.
3. In the Last Name cell, type **Bagel**.
4. In the Email Address cell, type **jpbagel@tailspintoys.com**.
5. In the Company cell, type **Tailspin Toys**.
6. On the second row, in the First Name cell, type **Soren**.
7. In the Last Name cell, type **Francker**.
8. In the Email Address cell, type **sorenf@lucernepublishing.com**.
9. In the Company cell, type **Lucerne Publishing**.

EXERCISE 5: Edit the Data in Access

In this exercise, you test the database by adding data in Access 2010:

1. In Internet Explorer, click Options, and then click Open in Access.
2. In the File Download dialog box, click Open.
3. In the Microsoft Access dialog box, click OK. Access 2010 opens the database.
4. In the Microsoft Access dialog box, click OK.
5. In the Security Warning banner, click Enable Content.

6. Show the Navigation pane, expand Tables, and then double-click Customers. The customers added in Internet Explorer are displayed.
7. In the third row of the Customer table, in the FirstName cell, type **Manoj**.
8. In the LastName cell, type **Svamala**.
9. In the EmailAddress cell, type **manoj.svamala@fabrikam.com**.
10. In the Company cell, type **Fabrikam Inc**.
11. Click File, and then click Sync All. Access sends the new record to the SharePoint server.
12. Close Access 2010.
13. Ensure that Internet Explorer has focus, and then press F5 to refresh the page.
14. Click the Customers tab. The new Customer record is displayed.
15. Close all applications and windows.
16. Log off of SP2010-WFE1.

Lesson 5

EXERCISE 1: Create a Visio Services Service Application

In this exercise, you create a new Visio Services service application by using Central Administration:

1. Log on to SP2010-WFE1 as **CONTOSO\SP_Admin** with the password **Pa$$w0rd**.
2. Open SharePoint 2010 Central Administration.
3. In the User Account Control dialog box, click Yes.
4. Under Application Management, click Manage Service Applications.
5. Click New and then click Visio Graphics Service.
6. In the Visio Graphics Service Application Name text box, type **Visio Services – Enterprise**.
7. Under Application Pool, click Use Existing Application Pool, and then in the drop-down list, click SharePoint Service Applications.
8. Click OK.

EXERCISE 2: Configure Visio Services

In this exercise, you configure the Visio Services drawing cache. Drawings change frequently in your company, so you want to cache rendered drawings for a longer period:

1. In the list of service applications, click Visio Services – Enterprise.
2. Click Global Settings.
3. In the Minimum Cache Age text box, type **15**.
4. In the Maximum Cache Age text box, type **120**.
5. At the bottom of the page, click OK.
6. In the Central Administration Quick Launch, click System Settings.

7. Under Servers, click Manage Services on Server.
8. Next to the Visio Graphics Service, click Start.
9. When the service has started, close Central Administration.

EXERCISE 3: Install Visio 2010

In this exercise, you install Visio 2010 on the SP2010-WFE1 image. These steps assume you have downloaded the Visio 2010 evaluation executable. You can download Microsoft Visio Premium 2010 Evaluation at *http://www.microsoft.com/downloads/en/default.aspx*

1. Locate the Visio 2010 evaluation executable (usually called VisioSingleImage.exe) and double-click it.
2. In the User Account Control dialog box, click Yes.
3. When the installation wizard appears, enter your product key, and then click Continue.
4. Select I Accept The Terms Of This Agreement, and then click Continue.
5. Click Install Now.
6. When the installation is complete, click Close.

EXERCISE 4: Create and Publish a Visio Web Drawing

In this exercise, you create a simple Visio web drawing and publish it to the Contoso intranet:

1. Open Microsoft Visio 2010.
2. In the list of Template Categories, click Network.
3. In the list of Templates, click Basic Network Diagram, and then click Create.
4. From the Shapes pane, drag a Server shape onto the center of the diagram.
5. On the ribbon, click the Insert tab, and then click Text Box.
6. Click next to the Server shape, and then type **WFE Server**.
7. From the Shapes pane, drag a Server shape onto the lower left of the diagram.
8. On the ribbon, click the Insert tab, and then click Text Box.
9. Click next to the Server shape, and then type **Application Server**.
10. From the Shapes pane, drag a Server shape onto the lower right of the diagram.
11. On the ribbon, click the Insert tab, and then click Text Box.
12. Click next to the Server shape, and then type **SQL Server**.
13. In the Shapes pane, click the Quick Shapes section.
14. Drag a PC shape onto the top of the diagram.
15. On the ribbon, click the Insert tab, and then click Text Box.
16. Click next to the PC shape, and then type **Client Computers**.
17. Click File, click Save & Send, and then click Save To SharePoint.
18. Under File Types, click Web Drawing, and then click Save As.

19. Browse to your Documents library.
20. In the File Name text box, type **SharePointFarm**, and then click Save.
21. Close Visio 2010.
22. Click Start, and then click Internet Explorer.
23. In the Address Bar, type **http://intranet.contoso.com** and press Enter.
24. In the Quick Launch, click Shared Documents.
25. On the ribbon, click the Documents tab, and then click Upload Document.
26. Click Browse, and browse to your Documents library.
27. Click the SharePointFarm Visio drawing, and then click Open.
28. Click OK.
29. In the Shared Documents library, point at the SharePointFarm drawing, drop down the list, and then click View In Web Browser. Visio Services renders the drawing in your browser.
30. Experiment with the zoom, page, and shape information tools.

EXERCISE 5: Use the Visio Web Part

In this exercise, you display the web drawing on the Contoso intranet homepage by using the Visio Web Access Web Part:

1. In the top left of the browser window, click Contoso Intranet.
2. On the ribbon, click the Page tab, and then click Edit.
3. Place the cursor under the Shared Documents Web Part.
4. On the ribbon, click the Insert tab, and then click Web Part.
5. In the Categories list, click Business Data.
6. In the Web Parts list, click Visio Web Access, and then click Add.
7. In the Visio Web Access Web Part, under Select a Web Drawing, click Click Here To Open The Tool Pane.
8. Scroll to the top right of the page to access the tool pane.
9. Next to the Web Drawing URL text box, click the Browse button.
10. In the site structure, click Shared Documents.
11. Click the SharePointFarm drawing, and then click OK.
12. Scroll to the bottom of the tool pane, and then click OK.
13. On the ribbon, click the Page tab, and then click Save & Close. The Web Part displays your SharePoint farm drawing.
14. Close all windows and applications.
15. Log off of SP2010-WFE1.

Lesson 6

EXERCISE 1: Install Office Web Applications

In this exercise, you install Office Web Applications:

1. Log on to SP2010-WFE1 as **CONTOSO\SP_Admin** with the password **Pa$$w0rd**.
2. Insert the disk or double-click on the downloaded executable.
3. If the User Account Control appears, click Yes.
4. Enter your product key, and then click Continue.
5. Select I Accept The Terms Of This License Agreement, and then click Continue.
6. Click Server Farm.
7. Choose Complete, and then click Install Now. Office Web Applications are installed.
8. When the installation is complete, click Close.
9. In the SharePoint Products Configuration Wizard, click Next.
10. In the SharePoint Product Configuration Wizard dialog box, click Yes.
11. Ensure that Do Not Disconnect From This Server Farm is selected, and then click Next.
12. Ensure that No This Machine Will Continue To Host The Web Site is selected, and then click Next.
13. Review the settings, and then click Next.
14. When the configuration completes, click Finish. The SharePoint Configuration Wizards page in the Central Administration site appears.
15. Click Start The Wizard.
16. Ensure that the Excel Service, PowerPoint Service, and Word Viewing Service check boxes are select, and then click Next.
17. Click Skip.

EXERCISE 2: Start Shared Services

In this exercise, you ensure that the shared services necessary to support Office Web Applications are running:

1. In Central Administration Quick Launch, click System Settings.
2. Under Servers, click Manage Services On Server.
3. Next to the Excel Calculation Service, click Start if the service is not started.
4. Next to the PowerPoint Service, click Start if the service is not started.
5. Next to the Word Viewing Service, click Start if the service is not started.
6. Close Central Administration.

EXERCISE 3: Upload a Word Document

In this exercise, you create a Word document and upload it to a SharePoint document library:

1. Open Word 2010.
2. Type some text into the document.
3. Click File and then click Save As.
4. Browse to the Documents library.
5. In the File Name text box, type **Web Apps Test** and then click Save.
6. Close Word 2010.
7. Click Start, and then click Internet Explorer.
8. In the Address Bar, type **http://intranet.contoso.com** and press Enter.
9. In the Quick Launch, click Shared Documents.
10. On the ribbon, click the Documents tab, and then click Upload Document.
11. Click Browse, and browse to your Documents library.
12. Click the Web Apps Test document, click Open, and then click OK.
13. In the Shared Documents library, point at the Web Apps Test document, drop down the list, and then click Edit In Browser. Office Web Applications renders the drawing in your browser.

Chapter 9

Lesson 1

EXERCISE 1: Examine a Pre-Upgrade Check Report

In this exercise, you examine a pre-upgrade check report.

- Open C:\70667TK\Practice Files\09_01\PreUpgradeCheck-20110515-201115-338.htm. Examine the information provided in the report.

EXERCISE 2: Create a Web Application

In this exercise, you create a web application in a newly installed SharePoint 2010 farm by running a Windows PowerShell script.

1. Click Start, All Programs, Microsoft SharePoint 2010 Products, then right-click SharePoint 2010 Management Shell, and then click the Run As Administrator option.
2. In the Windows Security dialog box, click Yes.
3. In SharePoint 2010 Management Shell, type the following commands:

```
cd "C:\70667TK\Practice Files\09_01\"
.\09_01_Setup.ps1
```

4. Instructions appear. Press Enter.
5. The Windows PowerShell Credential Request window prompts you for the password of the CONTOSO\SP_WebApps account.

6. In the Password box, type **Pa$$w0rd** and then click OK.

   The script registers SP_WebApps as a managed account, then creates a new web application called teams.contoso.com in a new application pool named SharePoint Web Applications that uses the SP_WebApps managed account as its identity. The script creates a top-level site collection in the web application, using the Team Site template. Finally, the script creates a DNS host (A) record for teams.contoso.com.

7. Disable loopback checking by double-clicking the following registry merge file:

   C:\70667TK\Practice Files\09_01\DisableLoopbackCheck.reg

8. Click Yes.

   A Registry Editor window opens. It prompts you to confirm your action.

9. Click Yes.

   A Registry Editor window opens. It informs you that the values were added to the registry.

10. Click OK.
11. Close SharePoint 2010 Management Shell.
12. Verify that the web application, site collection, and DNS record were created by browsing to *http://teams.contoso.com*.

    It will take some time for IIS to precompile and render the new web application.

EXERCISE 3: Assign SQL Permissions for a Database Attach Upgrade

In this exercise, you assign permissions to the sysadmin role to the SP_Admin account so that the account has permissions to restore and upgrade a content database.

1. Click Start, All Programs, Microsoft SQL Server 2008 R2, then hold the Shift key and right-click SQL Server Management Studio, and then click Run As Different User.

   The Windows Security window opens.

2. In the User Name box, type **CONTOSO\SQL_Admin**.
3. In the Password box, type **Pa$$w0rd** and then click OK.

   SQL Server 2008 R2 Management Studio opens.

4. In the Connect To Server window, in the Server Name box, type **SP2010-WFE1.contoso.com** and then click Connect.
5. In the Object Explorer panel, expand the server node, SP2010-WFE1, expand Security, and then expand Server Roles.
6. Right-click sysadmin and then click Properties.
7. In the Server Role Properties – Sysadmin window, click Add.
8. In the Select Logins window, type **CONTOSO\SP_Admin** and then click OK.
9. Click OK to close the Server Role Properties – Sysadmin window.
10. Close SQL Server Management Studio.

EXERCISE 4: Restore a Backed-Up SQL Database

In this exercise, you restore a content database from a MOSS 2007 farm. The content database contains the team site for the Finance department's collaboration site.

1. Open SQL Server Management Studio.

   Note: After assigning the sysadmin role to the SP_Admin account, there is no need to use the Run As Administrator or Run As Different User options.

   SQL Server 2008 R2 Management Studio opens.
2. In the Connect To Server window, in the Server Name box, type **SP2010-WFE1.contoso.com** and then click Connect.
3. In the Object Explorer panel, expand the server node, SP2010-WFE1, and then expand Databases.
4. Right-click Databases and then click Restore Database.
5. In the Restore Database window, in the To Database box, type **SharePoint_Content_Teams_Finance**.
6. In the Source For Restore section, click From Device, and then click the Browse button.

   The Specify Backup window opens.
7. Click Add.

   The Locate Backup File window opens.
8. Select C:\70667TK\Practice Files\09_01\Teams_Finance_Content.bak, click OK, and then click OK to close the Specify Backup window.
9. In the Select The Backup Sets To Restore list, select the check box next to Teams_Finance_Content-Full Database Backup.
10. Click OK.

    A message appears that the restore completed successfully.
11. Click OK.
12. Close SQL Server Management Studio.

EXERCISE 5: Evaluate a Content Database for Upgrade Readiness

In this exercise, you evaluate the content database to ensure that upgrade is possible.

1. Open SharePoint 2010 Management Shell using the Run As Administrator option.
2. Use the *Test-SPContentDatabase* cmdlet to identify issues that could interfere with the database attach upgrade of SharePoint_Content_Teams_Finance in the web application, *http://teams.contoso.com*.

   Note that the cmdlet reports an error related to a missing setup file for the Web Part Microsoft.Office.Excel.WebUI.dwp. You can ignore this error. In this scenario, you have already tested the upgrade in the lab and you know that the upgrade succeeds despite this error.

3. Click Start, All Programs, Microsoft SharePoint 2010 Products, then right-click SharePoint 2010 Management Shell, and then click Run As Administrator option. In the User Account Control window, and click Yes.
4. In SharePoint 2010 Management Shell, type the following command:

```
Test-SPContentDatabase –Name "SharePoint_Content_Teams_Finance" –WebApplication
"http://teams.contoso.com"
```

   The cmdlet reports an error related to a missing setup file for the Web Part Microsoft.Office.Excel.WebUI.dwp. You can ignore this error. In this scenario, you have already tested the upgrade in the lab and you know that the upgrade succeeds despite this error.

EXERCISE 6: Perform a Database Attach Upgrade

In this exercise, you attach the content database and perform an upgrade of the database.

1. In SharePoint 2010 Management Shell, type the following command:

```
Mount-SPContentDatabase –Name "SharePoint_Content_Teams_Finance" –WebApplication
"http://teams.contoso.com"
```

2. In the Central Administration Quick Launch, click Application Management.
3. In the Databases section, click Manage Content Databases.
4. On the Mange Content Databases page, click the Web Application picker and then click Change Web Application.
5. On the Select Web Application page, click Contoso Team Collaboration.
6. Verify that the status of the SharePoint_Content_Teams_Finance content database is Started.

   Because the content database is a sample that was created in a farm in another domain, it has an invalid site collection administrator.
7. In the Central Administration Quick Launch, click Application Management.
8. In the Site Collections section, click Change Site Collection Administrators.
9. On the Site Collection Administrators page, click the Site Collection picker, and then click Change Site Collection.
10. On the Select Site Collection page, click the Web Application picker, and then click Change Web Application.
11. On the Select Web Application page, click Contoso Team Collaboration.
12. On the Select Site Collection page, click /depts/Finance and then click OK.
13. On the Site Collection Administrators page, the Primary Site Collection Administrator is populated with an account from the source farm.
14. In the Primary Site Collection Administrator box, delete the existing entry, and then type **CONTOSO\SP_Admin**.
15. Click the Check Names button to resolve the name and then click OK.

EXERCISE 7: Manage Visual Upgrade Settings

In this exercise, you perform a visual upgrade of the Finance team site.

1. Open a new tab in Internet Explorer, and then browse to ***http://teams.contoso.com/depts/Finance***.
2. In the Windows Security window, in the User Name box, type **CONTOSO\SP_Admin**. In the Password box, type **Pa$$w0rd**. Click OK.
3. Verify that the upgraded site has the MOSS 2007 look.
4. Click the Site Actions button, which is in the upper-right corner of the page in the MOSS 2007 UI. Then click Visual Upgrade.
5. In the Visual Upgrade section, click Preview The Updated User Interface and then click OK.
6. Verify that the user interface is updated, and that the ribbon appears. Note the Visual Upgrade warning at the top of each page in the site.
7. In the warning, click View Or Modify This Site's Visual Upgrade Settings.
8. In the Visual Upgrade section, click Use The Previous User Interface and then click OK.
9. Navigate to the home page, ***http://teams.contoso.com/depts/Finance***.
10. Click Site Actions and then click Site Settings.
11. In the Look And Feel section, click Title, Description And Icon.
12. In the Visual Upgrade section, click Use The Previous User Interface and then click OK.
13. Examine the site. Verify that the MOSS 2007 UI was applied.
14. Click Site Actions and then click Site Settings.
15. In the Site Collection Administration section, click Visual Upgrade.
16. Examine the options on the Visual Upgrade page.

    These settings are available to site collection administrators. Do not make changes to these settings.
17. Click Site Actions and then click Site Settings.
18. In the Look And Feel section, click Title, Description And Icon.
19. In the Visual Upgrade section, click Update The User Interface and then click OK.

Lesson 2

EXERCISE 1: Block SharePoint Installation

In this exercise, you block SharePoint installation by configuring an entry in the registry of SP2010-WFE2. In a production environment, use Group Policy to deploy the registry entry to computers on which you want to block SharePoint installation.

1. Log on to SP2010-WFE2 as **CONTOSO\Administrator** with the password **Pa$$w0rd**.
2. Open Registry Editor (Regedit.exe).
3. Expand HKEY_LOCAL_MACHINE, then expand Software, expand Policies, and then expand Microsoft.

4. Right-click Microsoft, point to New, and then click Key.
5. Type **Shared Tools** and press Enter.
6. Right-click Shared Tools, point to New, and then click Key.
7. Type **Web Server Extensions** and press Enter.
8. Right-click Web Server Extensions, point to New, and then click Key.
9. Type **14.0** and press Enter.
10. Right-click 14.0, point to New, and then click Key.
11. Type **SharePoint** and press Enter.
12. Right-click SharePoint, point to New, and then click DWORD (32 bit) Value.
13. Type **DisableInstall** and press Enter.
14. Double-click DisableInstall, type **1** and then click OK.
15. Close Registry Editor.

    Alternately, you can double-click \\SP2010-WFE1\C$\70667TK\Practice Files\09_02\BlockSharePointInstall.reg, which will enter the correct value in the registry. In the Open File – Security Warning window, click Run. You will receive two Registry Editor Messages. Click OK for each message.

EXERCISE 2: Verify That SharePoint Installation Is Blocked

In this exercise, you verify that SharePoint installation is blocked on SP2010-WFE1.

1. Run \\SP2010-WFE1\SP2010\Setup.exe.
2. In the Open File – Security Warning window, click Run.

   A Setup Errors message appears. It indicates that installation of SharePoint is not permitted.
3. Click OK.

EXERCISE 3: Enable SharePoint Installation

In this exercise, you enable SharePoint installation by configuring an entry in the registry of SP2010-WFE2. In a production environment, you should use Group Policy to deploy the registry entry to computers on which you want to block SharePoint installation.

1. Open Registry Editor (Regedit.exe).
2. Expand HKEY_LOCAL_MACHINE, expand Software, expand Policies, expand Microsoft, expand Shared Tools, expand Web Server Extensions, expand 14.0, and then expand SharePoint.
3. Double-click DisableInstall, type **0** and then click OK.
4. Close Registry Editor.

   Alternately, you can double-click \\SP2010-WFE1\C$\70667TK\Practice Files\09_02\EnableSharePointInstall.reg, which will enter the correct value in the registry. In the Open File – Security Warning window, click Run. You will receive two Registry Editor Messages. Click OK for each message.

EXERCISE 4: Configure Tracking of SharePoint Installation

In this exercise, you configure a container for Service Connection Points in Active Directory Domain Services.

1. Log on to CONTOSO-DC as **CONTOSO\Administrator** with the password **Pa$$w0rd**.
2. Open ADSI Edit from the Administrative Tools program group.
3. Click Action and then click Connect To.
4. In the Connection Settings window, click OK.
5. In the console tree, click Default Naming Context and then expand Default Naming Context.
6. Click DC=contoso,DC=com, and then expand DC=contoso,DC=com.
7. Click CN=System.
8. Right-click CN=System, click New, and then click Object.
9. In the Create Object dialog box, in the Select A Class box, click Container and then click Next.
10. In the Value box, type **Microsoft SharePoint Products** as the container name and then click Next.
11. Click Finish.
12. Right-click the container (CN=Microsoft SharePoint Products) and then click Properties.
13. Click the Security tab and then click Advanced.
14. Click Add.
15. In the Select Users, Computers, Service Accounts, Or Groups box, type **Authenticated Users** and then click OK.
16. In the Permission Entry For Microsoft SharePoint Products dialog box, in the Permissions list, select the Allow check box for Create serviceConnectionPoint objects and then click OK.
17. Click OK to close each open window. Do not close ADSI edit.

EXERCISE 5: Add Service Connection Points for Existing Farm Servers

In this exercise, you configure a container for Service Connection Points in Active Directory Domain Services.

1. Log on to SP2010-WFE1 as **CONTOSO\SP_Admin** with the password **Pa$$w0rd**.
2. Click Start, All Programs, Microsoft SharePoint 2010 Products, and then click SharePoint 2010 Management Shell.
3. Type the following two commands:

```
$TopologyURI = Get-SPTopologyServiceApplication | select URI

Set-SPFarmConfig –ServiceConnectionPointBindingInformation $TopologyURI
```

4. When prompted to confirm the action, type **Y** and then press Enter.
5. On CONTOSO-DC, in ADSI Edit, in the console tree, click CN=Microsoft SharePoint Products.
6. In the details pane, right-click the serviceConnectionPoint object and then click Properties.

7. Locate the value of the *serviceBindingInformation* attribute.
8. Close ADSI Edit.

EXERCISE 6: Prepare the Farm and Servers

In this exercise, you configure the firewall on the server running SQL Server to allow inbound connections, and you will delegate SP_Admin permissions to install SharePoint on SP2010-WFE2.

1. On SP2010-WFE1, click Start and then type **Firewall**.
2. Click Windows Firewall With Advanced Security.
3. In the console tree, click Inbound Rules.
4. In the Actions panel, click New Rule.

   The New Inbound Rule Wizard appears.
5. On the Rule Type page, click Port and then click Next.
6. On the Protocol and Ports page, in the Specific Local Ports box, type **1433** and then click Next.
7. On the Action page, click Allow The Connection and then click Next.
8. On the Profile page, review the default settings and then click Next.
9. On the Name page, in the Name box, type **SQL Server (Inbound TCP 1433)** and then click Finish.
10. Close Windows Firewall With Advanced Security.
11. On SP2010-WFE2, open Server Manager.
12. In the console tree, expand Configuration, expand Local Users And Groups, and then click Groups.
13. Double-click Administrators.
14. Click Add.
15. In the Select Users, Computers, Service Accounts Or Groups window, in the Enter The Object Names To Select box, type **CONTOSO\SP_Admin** and then click OK.
16. Click OK to close the Administrators Properties window, and then close Server Manager.
17. Log off of SP2010-WFE2.

EXERCISE 7: Install SharePoint Prerequisites

In this exercise, you install SharePoint prerequisites on SP2010-WFE2.

1. On SP2010-WFE1, copy C:\70667TK\Practice Files\09_02\PrequisiteInstallerArguments.txt to the C:\Software\SharePoint 2010 folder.

   The file may already exist from a previous exercise. Replace the existing file.

   Open and examine the file. It is a script that points to the location of SharePoint prerequisites. Close the file.
2. Log on to SP2010-WFE2 as **CONTOSO\SP_Admin** with the password **Pa$$w0rd**.

3. Verify that you can access \\SP2010-WFE1\SP2010Prereqs by opening the shared folder.
4. Open \\SP2010-WFE1\SP2010.
5. Run PrerequisiteInstaller.exe.
6. In the User Account Control window, click Yes.

   SharePoint prerequisites are installed.

   If the computer restarts, log on as **CONTOSO\SP_Admin** with the password **Pa$$w0rd**.
7. After the Microsoft SharePoint 2010 Products Preparation Tool is complete, open the *%TEMP%* folder. Open the most recent log file with a name beginning with Prerequisiteinstaller. Scroll to the end of the file. Confirm that prerequisites were installed successfully.

   If prerequisite installation did not complete—for example, if a restart interrupted installation—return to step 4.

EXERCISE 8: Install SharePoint

In this exercise, you install SharePoint on SP2010-WFE2.

1. On SP2010-WFE2, run \\SP2010-WFE1\SP2010\Setup.exe.
2. In the User Account Control window, click Yes.

   The Microsoft SharePoint Server 2010 Setup Wizard opens.
3. On the Enter Your Product Key page, enter your product key and then click Continue.
4. On the Read The Microsoft License Terms page, select the I Accept The Terms Of This Agreement check box and then click Continue.
5. On the Choose The Installation You Want page, click Server Farm.
6. On the Server Type page, click Complete and then click Install Now.

   The Installation Progress page displays the status of installation.
7. On the Run Configuration Wizard page, click Close.

   SharePoint Products Configuration Wizard opens.

EXERCISE 9: Add a Server to the SharePoint Farm

In this exercise, you add SP2010-WFE2 to the farm.

1. On the Welcome to SharePoint Products, click Next.

   A SharePoint Products Configuration Wizard message opens. It warns you that Internet Information Services will be restarted during the configuration of SharePoint.
2. Click Yes.
3. On the Connect To A Server Farm page, click Connect To An Existing Server Farm and then click Next.
4. On the Specify Configuration Database Settings page, in the Database Server box, type **SP2010-WFE1.contoso.com**.

5. Click Retrieve Database Names.
6. In the Database Name box, select SharePoint_Config (the default value) and then click Next.
7. On the Specify Farm Security Settings page, in the Passphrase box, type **My Farm Pa$$phrase** and then click Next.
8. On the Completing the SharePoint Products Configuration Wizard page, click Next.

   The Configuring SharePoint Products page indicates the progress of configuration tasks.
9. On the Configuration Successful page, click Finish.
10. In the Central Administration Quick Launch, click System Settings.
11. In the Servers section, click Manage Servers In This Farm.
12. Verify that SP2010-WFE2 has been added to the farm.

    Optionally, in SharePoint 2010 Management Shell, run the following command:

```
Get-SPFarm | Select Servers
```

EXERCISE 10: Create and Register a Managed Account

In this exercise, you create and register a managed account for websites that will be accessible over the Internet, so that such sites can be run in an application pool that is isolated from intranet sites.

1. Log on to CONTOSO-DC as **CONTOSO\Administrator** with the password **Pa$$w0rd**.
2. Open Active Directory Users And Computers.
3. In the console tree, expand contoso.com and then click the Service Accounts OU.
4. Right-click Service Accounts, point to New, and then click User.
5. In the New Object – User window, in the Full Name box, type **SharePoint Internet Accessible Web Sites**.
6. In the User Logon Name box, type **SP_InternetWebApps** and then click Next.
7. In the Password and Confirm Password boxes, type **Pa$$w0rd**.
8. Clear the User Must Change Password At Next Logon check box and then click Next.
9. Review the configuration of the new account and then click Finish.
10. Log on to SP2010-WFE1 as **CONTOSO\SP_Admin** with the password **Pa$$w0rd**.
11. Open Central Administration.
12. In the Central Administration Quick Launch, click Security.
13. In the General Security section, click Configure Managed Accounts.
14. Click Register Managed Account.
15. In the User Name box, type **CONTOSO\SP_InternetWebApps**.
16. In the Password box, type **Pa$$w0rd**.
17. Click OK.

EXERCISE 11: Configure Automatic Password Change

In this exercise, you configure automatic password change for the new managed account.

1. In the Central Administration Quick Launch, click Security.
2. In the General Security section, click Configure Managed Accounts.
3. Click the Edit icon next to CONTOSO\SP_InterneWebApps.
4. In the Automatic Password section, select the Enable Automatic Password Change check box.
5. Click Monthly, and then click By Day: Starting Every Month.
6. Configure automatic password change to occur at 2:00 A.M. on the first Sunday of every month.
7. Click OK.

Chapter 10

Lesson 1

EXERCISE 1: Create a New Site

In this exercise, you create a new SharePoint site in the IT site collection. During subsequent exercises you will add custom components to the new site:

1. Click Start, and then click Internet Explorer.
2. In the Address Bar, type **http://teams.contoso.com/depts/it** and then press Enter.
3. Click Site Actions, and then click New Site.
4. In the list of site templates, click Blank Site.
5. On the left, click More Options.
6. In the Title text box, type **Marketing Tools**.
7. In the Description text box, type **This site is for Marketing personnel to manage sales leads**.
8. In the Web Site Address text box, type **Marketing**.
9. Click Create.

EXERCISE 2: Add Site Columns and a Content Type

In this exercise, you create a custom content type and new site columns to go with it:

1. Click Site Actions and then click Site Settings.
2. Under Galleries, click Site Columns.
3. Click Create.
4. In the Column Name text box, type **Lead Address**.

5. In the list of column types, select Multiple Lines of Text.
6. Scroll to the bottom of the page and click OK.
7. Click Create.
8. In the Column Name text box, type **Contact Name**.
9. In the list of column types, select Single Line of Text.
10. Scroll to the bottom of the page and click OK.
11. Click Create.
12. In the Column Name text box, type **Lead Type**.
13. In the list of column types, select Choice.
14. Under Additional Column Settings, in the Type Each Choice On A Separate Line text box, type:

    Trade Show

    Referral

    Web Search
15. Scroll to the bottom of the page and click OK.
16. Click Site Actions and then click Site Settings.
17. Under Galleries, click Site Content Types.
18. Click Create.
19. In the Name text box, type Lead.
20. In the Description text box, type **Stores leads for marketing personnel**.
21. Under Parent Content Type, in the Select Parent Content Type Form drop-down list, select List Content Types.
22. In the Parent Content Type drop-down list, select Item.
23. Click OK.
24. Under Columns, click Add From Existing Site Columns.
25. Under Select Columns, in the Select Columns From drop-down list, select Custom Columns.
26. In the Available Columns list, click Contact Name and then click Add.
27. In the Available Columns list, click Lead Address and then click Add.
28. In the Available Columns list, click Lead Type and then click Add.
29. Under Select Columns, in the Select Columns From drop-down list, select Core Contact and Calendar Columns.
30. In the Available Columns list, click Company and then click Add.
31. Click OK.

EXERCISE 3: Create a SharePoint List

In this exercise, you create a list to store marketing leads:

1. Click Site Actions and then click More Options.
2. Under Filter By, click List.
3. Click Custom List and then click More Options.
4. In the Name text box, type **Leads**.
5. In the Description text box, type **Place your sales leads here**.
6. Under Display This List On The Quick Launch, click Yes.
7. Click Create.
8. On the ribbon, click List Settings.
9. Under General Settings, click Advanced Settings.
10. Under Content Types, select Yes.
11. Scroll to the bottom of the page and then click OK.
12. Under Content Types, click Add From Existing Site Content Types.
13. In the list of Available Site Content Types, select Lead and then click Add.
14. Click OK.
15. In the list of Content Types, click Item.
16. Under Settings, click Delete This Content Type, and then click Yes.

EXERCISE 4: Create and Edit a Web Part Page

In this exercise, you create and edit a new Web Part page to be the home page for the Marketing site:

1. Click Site Actions and then click More Options.
2. Under Filter By, click Library.
3. Click Document Library and then click More Options.
4. In the Name text box, type **Pages**.
5. In the Description text box, type **Stores marketing site pages**.
6. Under Navigation, select No.
7. Under Document Template, select Web Part Page, and then click Create.
8. On the ribbon, click the Documents tab and then click New Document.
9. In the Name box, type **MarketingHome**.
10. In the Choose A Layout Template list, select Full Page Vertical and then click Create.
11. On the ribbon, click Make Homepage and then click OK.
12. In the Web Part Zone, click Add A Web Part.
13. In the Categories list, click Lists And Libraries.

14. In the Web Parts list, click Leads and then click Add.
15. On the ribbon, click Stop Editing.

EXERCISE 5: Install SharePoint Designer

In this exercise, you install SharePoint Designer 2010. You must download the tool from the following location before you begin the exercise: *http://www.microsoft.com/downloads/en/details.aspx?FamilyID=d88a1505-849b-4587-b854-a7054ee28d66&displaylang=en*.

1. Double-click SharePointDesigner.exe.
2. In the User Account Control dialog box, click Yes.
3. Select I Accept The Terms Of This License Agreement and then click Continue.
4. Click Install Now. The wizard installs SharePoint Designer. This may take several minutes.
5. When the installation is complete, click Close.

EXERCISE 6: Edit a Master Page

In this exercise, you create and edit the master page for the Marketing site:

1. Click Start, All Programs, SharePoint, Microsoft SharePoint Designer 2010.
2. Under Open SharePoint Site, click Open Site.
3. In the Site Name text box, type **http://teams.contoso.com/depts/IT/Marketing** and then click Open.
4. In the Navigation pane, click Master Pages.
5. In the list of Master pages, select v4.master.
6. On the ribbon, click Copy and then click Paste.
7. Right-click v4_copy(1).master and then click Rename.
8. Type **marketing.master** and then press Enter.
9. Select marketing.master and then, on the ribbon, click Edit File. SharePoint Designer displays the Page Editor.
10. At the bottom left of the page, click Code to view the HTML code editor.
11. On the ribbon, click Find.
12. In the Find What text box, type **</head>** and then click Find Next.
13. In the Find And Replace dialog box, click Close.
14. In the Code Editor, just before the </head> tag, add the following lines:

```
<style type="text/css">
   body
   {
           background-color:#CC6600;
   }
</style>
```

15. Click Save and then click Yes.

16. Close the Page Editor.
17. In the list of Master Pages, select marketing.master.
18. On the ribbon, click Set as Default.
19. Switch to Internet Explorer displaying the Marketing site.
20. Refresh the page. The new background color is displayed.

EXERCISE 7: Create a Workflow

In this exercise, you create a simple workflow for the Marketing site:

1. Switch to SharePoint Designer.
2. In the Navigation pane, click Lists and Libraries.
3. On the ribbon, in the New section, click SharePoint List and then click Tasks.
4. In the Name text box, type **Follow Up Tasks**.
5. In the Description text box, type **Tasks for converting leads into sales** and then click OK.
6. In the Navigation Pane, click Workflows.
7. On the ribbon, in the New section, click List Workflow and then click Leads.
8. In the Name text box, type **Leads Processing Workflow**.
9. In the Description text box, type **Creates tasks for marketing staff** and then click OK. SharePoint Designer creates the new workflow and displays the Workflow Editor.
10. Click within Step 1.
11. On the ribbon, in the Insert section, click Action and then click Create List Item.
12. In Step 1, click This List.
13. In the Create New List Item dialog box, in the List drop-down list, select Follow Up Tasks.
14. In the list of fields, click Title and then click Modify.
15. In the To This Value text box, type **Review the new sales lead** and then click OK.
16. Click OK again.
17. In the Navigation pane, click Workflows.
18. Click Leads Processing Workflow.
19. Under Start Options, select Start Workflow Automatically When An Item Is Created.
20. On the ribbon, click Save and then click Publish.
21. When the workflow has been published, close SharePoint Designer.
22. In Internet Explorer, browse to the Marketing site homepage.
23. Under Leads, click Add New Item.
24. In the Title text box, type **Fourth Coffee's head of purchasing**.
25. In the Contact Name text box, type **Alex Darrow**.
26. In the Lead Type list, select Trade Show.
27. In the Company text box, type **Fourth Coffee** and then click Save.

28. Click Site Actions, and then click All Site Content.
29. Under Lists, click Follow Up Tasks. The workflow has created a new task for your Lead.

EXERCISE 8: Save the Site as a Site Template

In this exercise, you package your changes into a site template and download the SharePoint solution file for later use:

1. In Internet Explorer, in the Marketing site, click Site Actions and then click Site Settings.
2. Under Site Actions, click Save Site as Template.
3. In the File Name text box, type **MarketingTools**.
4. In the Template Name text box, type **Marketing Tools**.
5. In the Template Description text box, type **This template includes all the tools used by marketing personnel**.
6. Click OK.
7. When the operation is complete, click OK.
8. Click Site Actions and then click Site Settings.
9. Under Site Collection Administration, click Go to Top Level Site Settings.
10. Under Galleries, click Solutions. The MarketingTools solution file is displayed in the list.
11. Click Marketing Tools and then click Save.
12. Browse to the Desktop, and then click Save.
13. In the Download dialog box, click Close.
14. Close all windows and log off the SP2010-WFE1 server.

Lesson 2

EXERCISE 1: Enable a Feature

In this exercise, you enable one of the built-in SharePoint features at the site collection level. You will also enable a feature at the site level:

1. Log on to SP2010-WFE1 as **CONTOSO\SP_Admin** with the password **Pa$$w0rd**.
2. Click Start, Internet Explorer.
3. In the Address bar, type **http://teams.contoso.com/depts/marketing** and then press Enter.
4. Click Site Actions and then click Site Settings.
5. Under Site Collection Administration, click Site Collection Features.
6. Scroll down to locate the Search Server Web Parts feature.
7. In the Status column, click Activate.
8. Click Site Actions and then click Site Settings.
9. Under Site Actions, click Manage Site Features.
10. In the Status column for Content Organizer feature, click Activate.

EXERCISE 2: Upload and Activate a Site Template

In this exercise, you upload the site template you created in the first Practice to the Marketing site collection. You also activate the solution:

1. Click Site Actions and then click Site Settings.
2. Under Galleries, click Solutions.
3. On the ribbon, click the Solutions tab and then click Upload Solution.
4. In the Upload Document dialog box, click Browse.
5. Browse to the Desktop and click the MarketingTools.wsp solution file.
6. Click Open and then click OK.
7. In the Solution Gallery dialog box, click Activate.

EXERCISE 3: Create a Site from a Site Template

In this exercise, you create and test a new site in the Marketing site collection based on the Marketing Tools site template you created in Practice 1:

1. Click Site Actions and then click New Site.
2. Under All Categories, click Blank & Custom.
3. Click MarketingTools.
4. In the Title text box, type **Marketing Tools**.
5. In the URL Name text box, type **marketingtools** and then click Create. The new site is created and displayed. Notice that the master page you created is in use, and that the Leads and Follow Up Tasks lists are in place.
6. In the Quick Launch, click Leads.
7. Click Add New Item.
8. In the Title text box, type **Litware's VP of Partnering**.
9. In the Contact Name text box, type **Chad Niswonger**.
10. In the Lead Type list, select Referral.
11. In the Company text box, type **Litware Inc** and then click Save.
12. In the Quick Launch, click Follow Up Tasks.
13. If the list is empty, refresh the page.
14. A new task is displayed. This was created by the workflow.
15. Close all windows and log off SP2010-WFE1.

EXERCISE 4: Upload and Activate a Farm Solution

In this exercise, you upload and activate a solution to the farm solution list. The solution file used is a simple tool that displays whether it is running inside or outside the sandbox:

1. Log on to SP2010-WFE1 as **CONTOSO\Administrator** with the password **Pa$$w0rd**.
2. Click Start, All Programs, Microsoft SharePoint 2010 Products, SharePoint 2010 Central Administration.

3. In the User Account Control dialog box, click Yes.
4. In the Central Administration Quick Launch, click System Settings.
5. Under Farm Management, click Manage Farm Solutions. There are no entries in the list.
6. Click Start, All Programs, Microsoft SharePoint 2010 Products, SharePoint 2010 Management Shell.
7. Type the following command and then press Enter:

```
Add-SPSolution –LiteralPath "C:\70667TK\Practice Files\10_02\DetectSandbox.wsp"
```

8. When the cmdlet has completed, switch back to Central Administration.
9. Refresh the list of farm solutions. The DetectSandbox.wsp solution appears.
10. Click DetectSandbox.wsp and then click Deploy Solution.
11. Click OK.
12. Close all windows and log off SP2010-WFE1.
13. Log on to SP2010-WFE1 as **CONTOSO\SP_Admin** with the password **Pa$$w0rd**.
14. Click Start and then click Internet Explorer.
15. In the Address bar, type **http://teams.contoso.com/depts/marketing** and then press Enter.
16. Click Site Actions and then click Site Settings.
17. Under Site Collection Administration, click Site Collection Features.
18. Next to the Detect Sandbox Web Part Feature, click Activate.
19. On the top navigation, click Marketing Tools.
20. On the ribbon, click Page and then click Edit Page.
21. In the left Web Part Zone, click Add A Web Part.
22. In the Categories list, click Custom.
23. In the Web Parts list, click DetectorPart and then click Add.
24. On the ribbon, click Stop Editing. The Sandbox Detector Web Part shows that it is operating outside the sandbox.

EXERCISE 5: Retract and Remove a Farm Solution

In this exercise, you retract and remove a farm solution:

1. Click Start, All Programs, Microsoft SharePoint 2010 Products, SharePoint 2010 Central Administration.
2. In the User Account Control dialog box, click Yes.
3. In the Central Administration Quick Launch, click System Settings.
4. Under Farm Management, click Manage Farm Solutions.
5. Click Detectsandbox.wsp.
6. Click Retract Solution and then click OK.

7. Close all windows and log off SP2010-WFE1.
8. Log on to SP2010-WFE1 as **CONTOSO\Administrator** with the password **Pa$$w0rd**.
9. Click Start, All Programs, Microsoft SharePoint 2010 Products, SharePoint 2010 Management Shell.
10. Type the following command and then press Enter:

```
Get-SPSolution
```

11. Type the following command and then press Enter:

```
Remove-SPSolution –Identity detectsandbox.wsp
```

12. When you are asked for confirmation, type **Y** and then press Enter.
13. Type the following command and then press Enter:

```
Get-SPSolution
```

14. The command returns no solutions because there are no longer any in the farm.
15. Close all windows and log off SP2010-WFE1.

Lesson 3

EXERCISE 1: Set Resource Usage Quotas

In this exercise, you set a large resource usage quota for user solutions in the Marketing site collection:

1. Log on to SP2010-WFE1 as **CONTOSO\SP_Admin** with the password **Pa$$w0rd**.
2. Click Start, All Programs, Microsoft SharePoint 2010 Products, SharePoint 2010 Central Administration.
3. In the Central Administration Quick Launch, click Application Management.
4. Under Site Collections, click Configure Quotas And Locks.
5. Click the Site Collection box and then click Change Site Collection.
6. Click the Web Application box and then click Change Web Application.
7. Click Contoso Teams.
8. Click /depts/Marketing and then click OK.
9. Under Sandboxed Solutions Resource Quota, in the Limit Maximum Usage text box, type **500**.
10. In the Send Warning Email When Usage Per Day Reaches text box, type **200** and then click OK.
11. Click Start and then click Internet Explorer.
12. In the Address bar, type **http://teams.contoso.com/depts/marketing** and then press Enter.

13. Click Site Actions and then click Site Settings.
14. Under Galleries click Solutions. Notice that the new resource quota applies.

EXERCISE 2: Examine Resource Usage Quota Indicators

In this exercise, you use Windows PowerShell to examine the indicators that SharePoint uses to calculate resource quota points:

1. Click Start, All Programs, Microsoft SharePoint 2010 Products, SharePoint 2010 Management Shell.
2. Type the following command and then press Enter:

```
[Microsoft.SharePoint.Administration.SPUserCodeService]::Local.ResourceMeasures
```

3. Examine the results.

EXERCISE 3: Block a User Solution

Farm administrators can block a user solution to ensure that it is never used in a SharePoint farm. In this exercise, you use this tool:

1. In the Central Administration Quick Launch, click System Settings.
2. Under Farm Management, click Manage User Solutions.
3. Under Add A New Solution To Block, click Browse.
4. Browse to the Desktop and then click MarketingTools.wsp.
5. Click Open.
6. In the Message text box, type **This solution has been blocked** and then click Block.
7. At the bottom of the page, click OK.

EXERCISE 4: Enable Remote Mode Load Balancing

In this exercise, you enable remote mode load balancing for the SharePoint farm and enable the Sandboxed Code Service:

1. In the Central Administration Quick Launch, click System Settings.
2. Under Farm Management, click Manage User Solutions.
3. Under Load Balancing, click Requests To Run Sandboxed Code Are Routed By Solution Affinity.
4. Click OK.
5. Under Servers, click Manage Services On Server.
6. In the Status column for Microsoft SharePoint Foundation Sandboxed Code Service, click Start.
7. Close all windows and log off SP2010-WFE1.

Chapter 11

Lesson 1

EXERCISE 1: Install SQL Server 2008 R2 on the Domain Controller

In this exercise, you install SQL Server 2008 R2 on the CONTOSO-DC image so that in the next exercise you can mirror the Intranet content database.

> ***IMPORTANT*** **SQL SERVER AND DOMAIN CONTROLLERS**
>
> **In a production environment is not recommended that you install SQL Server on any domain controller. This procedure is only appropriate in a lab or demonstration environment.**

1. Connect to the CONTOSO-DC virtual machine.
2. Log on as **CONTOSO\Administrator** with the password **Pa$$w0rd**.
3. Click Start, click Administrative Tools, and then click Windows Firewall With Advanced Security.
4. Under Overview, click Windows Firewall Properties.
5. In the Firewall State drop-down list, select Off and then click OK.
6. Close Windows Firewall with Advanced Security.
7. Mount the ISO image or DVD of SQL Server 2008 R2 to the CD/DVD drive of CONTOSO-DC.

   Use the procedure "*Mount an ISO Image or Mount a DVD*" in the section "*Virtual Machine Procedures*" in the Lab Environment Build Guide.
8. In the virtual machine, in the AutoPlay window, click Run Setup.exe.

   If the AutoPlay window does not open, run D:\Setup.exe.
9. In the User Account Control dialog box, click Yes.

   After a few moments, the SQL Server Installation Center opens.
10. In the SQL Server Installation Center, in the left navigation panel, click Installation.
11. Click New Installation Or Add Features To An Existing Installation. After a few moments, SQL Server 2008 R2 Setup opens and performs a rule check.
12. When the rule check is complete, click OK.
13. On the Product Key page, if you have a product key, click Enter The Product Key and then type your product key. Alternatively, click Specify A Free Edition and then, in the drop-down list, select Evaluation.
14. Click Next.
15. Click I Accept The License Terms and then click Next.

16. Click Install. Setup support files are installed and a rule check is run.
17. Click Next.
18. Select SQL Server Feature Installation and then click Next.
19. On the Feature Selection page, select the following check boxes:
    - Database Engine Services
    - SQL Server Replication
    - Reporting Services
    - Management Tools – Basic
    - Management Tools – Complete check box
20. Click Next.
21. When the rule check is complete, click Next.
22. On the Instance Configuration page, ensure that the following configuration is specified:
    - Default instance
    - Instance ID: MSSQLSERVER
23. Click Next.
24. On the Disk Space Requirements page, click Next.
25. On the Server Configuration page, on the Service Accounts tab, in the Account Name box next to SQL Server Agent, type **CONTOSO\SQL_SERVICE**.
26. In the Password box next to SQL Server Agent, type **Pa$$w0rd**.
27. Repeat steps 25 and 26 for the SQL Server Database Engine and SQL Server Reporting Services accounts and then click Next.
28. On the Database Engine Configuration page, in the Specify SQL Server Administrators section, click Add Current User.
29. Click Add.
30. In the Select Users, Computers, Or Groups dialog box, type **CONTOSO\SQL_Admin** and then press Enter.
31. Click Next.
32. On the Reporting Services Configuration page, click Install The SharePoint Integrated Mode Default Configuration and then click Next.
33. On the Error Reporting page, click Next.
34. A rule check is run. When it is complete, click Next.
35. On the Ready To Install page, click Install.
36. When the installation is complete, click Close.
37. Close the SQL Server Installation Center.

EXERCISE 2: Back Up the Intranet Content Database

To set up database mirroring, you must back up the database primary partner and restore it on the mirror server. In this exercise, you back up the Intranet content database to a file share on the CONTOSO-DC virtual server. You will also configure the SQL Server to enable mirroring:

1. On the CONTOSO-DC virtual server, click Start, and then click Computer.
2. Double-click the C:\ drive and then click New Folder.
3. Type **Backups** and then press Enter.
4. Right-click the Backups folder, click Share With, and then click Specific People.
5. Type **CONTOSO\SQL_Admin** and then click Add.
6. In the Permission Level column, select Read/Write in the SQL Server Administrator drop-down list.
7. Click Share and then click Done.
8. Right-click the Backups folder and then click Properties.
9. Click the Security tab, click Edit, and then click Add.
10. Type **CONTOSO\SQL_Service** and then click OK.
11. Click OK twice.
12. Connect to the SP2010-WFE1 virtual server.
13. Log on as **CONTOSO\SQL_Admin** with the password **Pa$$w0rd**.
14. Click Start and then click Computer.
15. Double-click the C:\ drive and then click New Folder.
16. Type **Backups** and then press Enter.
17. Click Start, click Administrative Tools, and then click Windows Firewall With Advanced Security.
18. Under Overview, click Windows Firewall Properties.
19. In the Firewall State drop-down list, select Off and then click OK.
20. Close Windows Firewall With Advanced Security.
21. Click Start, All Programs, Microsoft SQL Server 2008 R2, Configuration Tools, and then click SQL Server Configuration Manager.
22. Expand SQL Server Network Configuration and then click Protocols For MSSQLSERVER.
23. Right-click TCP/IP and then click Enable.
24. Close SQL Server Configuration Manager.
25. Click Start, All Programs, Microsoft SQL Server 2008 R2, and then click SQL Server Management Studio.
26. In the Connect To Server dialog box, click Connect.
27. Right-click SQL Server Agent and then click Start.
28. Expand Databases.

29. Right-click SharePoint_Content_Intranet, click Tasks, and then click Back Up.
30. Under Destination, click Remove to remove the default destination from the list.
31. Click Add.
32. In the File Name text box, type **C:\Backups\IntranetDatabase.bak** and then click OK.
33. Click OK.
34. When the backup is complete, click OK.
35. Right-click SharePoint_Content_Intranet, click Tasks, and then click Back Up.
36. In the Backup Type drop-down list, select Transaction Log.
37. Under Destination, click Remove to remove the IntranetDatabase.bak file from the list.
38. Click Add.
39. In the File Name text box, type **C:\Backups\IntranetTransactionLogs.bak** and then click OK.
40. Click OK.
41. When the backup is complete, click OK.
42. In Windows Explorer, browse to **C:\Backups**.
43. Select both files and then press CTRL-C.
44. At the top of Windows Explorer, click in the address bar, type **\\CONTOSO-DC\Backups** and then press Enter.
45. Right-click in the folder and then click Paste.

EXERCISE 3: Restore the Intranet Content Database on the Mirror Partner

In this exercise, you restore the database on the CONTOSO-DC virtual server in preparation for configuring mirroring. You will also configure SQL Server properties and logins to enable mirroring:

1. Switch to the CONTOSO-DC virtual server.
2. Click Start, All Programs, Microsoft SQL Server 2008 R2, Configuration Tools, and then click SQL Server Configuration Manager.
3. Expand SQL Server Network Configuration and then click Protocols For MSSQLSERVER.
4. Right-click TCP/IP and then click Enable.
5. Close SQL Server Configuration Manager.
6. Click Start, All Programs, Microsoft SQL Server 2008 R2, and then click SQL Server Management Studio.
7. In the Connect To Server dialog box, click Connect.
8. Right-click SQL Server Agent, and then click Start.
9. Expand Security.
10. Right-click Logins and then click New Login.
11. In the Login Name text box, type **CONTOSO\SP_Farm** and then click OK.
12. Right-click Logins and then click New Login.

13. In the Login Name text box, type **CONTOSO\SP_Admin** and then click OK.
14. Right-click Databases and then click New Database.
16. In the Database Name text box, type **SharePoint_Content_Intranet** and then click OK.
17. Right-click SharePoint_Content_Intranet, click Tasks, click Restore, and then click Database.
18. Under Source For Restore, click From Device and then click the Browse button.
19. In the Specify Backup dialog box, click Add.
20. In the Selected Path text box, type **C:\backups**.
21. In the File Name text box, type **IntranetDatabase.bak** and then click OK.
22. Click OK.
23. Select the check box for the backup set you just added.
24. In the Select A Page pane, click Options.
25. Select the Overwrite The Existing Database option.
26. Under Recovery State, click Leave The Database Non-Operational.
27. Click OK.
28. When the restore is complete, click OK.
29. Right-click SharePoint_Content_Intranet, click Tasks, click Restore, and then click Transaction Log.
30. Under Restore Source, click From File Or Tape and then click the Browse button.
31. In the Specify Backup dialog box, click Add.
32. In the Selected Path text box, type **C:\backups**.
33. In the File Name text box, type **IntranetTransactionLogs.bak** and then click OK.
34. Click OK.
35. In the Select A Page pane, click Options.
36. Under Recovery State, click Leave The Database Non-Operational.
37. Click OK.
38. When the restore is complete, click OK.

EXERCISE 4: Mirror the Intranet Content Database

In this exercise, you configure mirroring from the principal database on the SP2010-WFE1 server to the restored database on the CONTOSO-DC server:

1. Switch to the SP2010-WFE1 virtual server.
2. In SQL Server Management Studio, expand Databases.
3. Right-click SharePoint_Content_Intranet, click Tasks, and then click Mirror.
4. Click Configure Security. The Configure Database Mirroring Security Wizard starts.
5. Click Next.
6. On the Include Witness Server page, select No, and then click Next.

7. On the Principal Server Instance page, leave all values at their defaults, and then click Next.
8. On the Mirror Server Instance page, select Browse For More from the Mirror Server Instance drop-down list.
9. In the Connect To Server dialog box, in the Server Name text box, type **CONTOSO-DC** and then click Connect.
10. Click Next.
11. On the Service Accounts page, in the Principal text box, type **CONTOSO\SQL_Service**.
12. In the Mirror text box, type **CONTOSO\SQL_Service** and then click Next.
13. Click Finish.
14. When the endpoints have been configured, click Close.
15. In the Database Properties dialog box, click Do Not Start Mirroring.
16. Click Start Mirroring.

EXERCISE 5: Configure the Intranet Web Application

In this exercise, you configure SharePoint to automatically fail over to the mirrored database partner:

1. Log off of the SP2010-WFE1 server.
2. Log on as **CONTOSO\SP_Admin** with the password **Pa$$w0rd**.
3. Click Start, All Programs, Microsoft SharePoint 2010 Products, and then click SharePoint 2010 Central Administration.
4. In the User Account Control dialog box, click Yes.
5. Under Application Management, click Manage Content Databases.
6. In the Web Application box, ensure that http://intranet.contoso.com is selected.
7. In the list of content databases, click SharePoint_Content_Intranet.
8. Scroll down to the Failover Server section.
9. In the Failover Database Server text box, type **CONTOSO-DC**.
10. Scroll to the bottom of the page and click OK.
11. Close Central Administration.

Lesson 2

EXERCISE 1: Create a List in the Teams Site

In this exercise, you create a list and some items in the Teams site collection for use in later exercises:

1. Click Start and then click Internet Explorer.
2. In the address bar, type **http://teams.contoso.com** and then press Enter.
3. In the Quick Launch, click Lists.
4. Click Create.

5. In the list of List Templates, click Announcements.
6. On the right, in the Name text box, type **Disaster Recovery Testing** and then click Create.
7. Click Add New Announcement.
8. In the Title text box, type **Current Testing Tasks**.
9. In the Body text box, type **Test Recycle Bin** and then press Enter.
10. In the Body text box, type **Test configuration backup** and then press Enter.
11. In the Body text box, type **Test unattached databases** and then click Save.

EXERCISE 2: Configure the Recycle Bin

In this exercise, you configure the retention times for the Teams site collection Recycle Bins:

1. Click Start, click All Programs, click Microsoft SharePoint 2010 Products, and then click SharePoint 2010 Central Administration.
2. In the User Account Control dialog box, click Yes.
3. Under Application Management, click Manage Web Applications.
4. Select Contoso Teams and then, on the ribbon, click General Settings.
5. Scroll down to locate the Recycle Bin section.
6. Under Delete Items in the Recycle Bin, type **40** in the text box.
7. Under Second Stage Recycle Bin, type **60** in the text box.
8. Click OK.

EXERCISE 3: Delete and Recover Items from the Recycle Bin

In this exercise, you use the Recycle Bin to restore accidentally deleted items:

1. Switch to the Internet Explorer instance that shows the Teams site collection.
2. In the Quick Launch, click Disaster Recovery Training.
3. Select Current Testing Tasks and then, on the ribbon, click Delete Item.
4. In the confirmation dialog box, click OK.
5. In the Quick Launch, click Recycle Bin.
6. Select Current Testing Tasks and then click Delete Selection.
7. In the confirmation dialog box, click OK.
8. Click Site Actions and then click Site Settings.
9. Under Site Collection Administration, click Recycle Bin.
10. In the Quick Launch, click Deleted From End User Recycle Bin.
11. In the list of items, select Current Testing Tasks and then click Restore Selection.
12. In the confirmation dialog box, click OK.
13. Click the Home link.
14. In the Quick Launch, click Disaster Recovery Testing. The Current Testing Tasks announcement has reappeared in the list.

EXERCISE 4: Back Up the Farm Configuration

In this exercise, you use the SharePoint Central Administration backup tools to protect the farm configuration settings:

1. Click Start and then click Computer.
2. Double-click Local Disk (C:).
3. Click New Folder.
4. Type **backups** and then press Enter.
5. Switch to the Internet Explorer instance that shows the Central Administration Site.
6. In the Quick Launch, click Backup And Restore.
7. Under Farm Backup And Restore, click Perform A Backup.
8. Under Select Component To Back Up, select the box next to the Farm object.
9. Scroll to the bottom of the page and click Next.
10. Under Backup Type, ensure that Full is selected.
11. Under Back Up Only Configuration Settings, select Back Up Only Configuration Settings.
12. In the Backup Location text box, type **C:\backups**.
13. Click Start Backup.
14. Monitor the Backup And Restore Job Status page. Every few seconds the page refreshes and shows details of the backup status.
15. When the Phase value show completed, switch to Windows Explorer.
16. Open the C:\Backups folder. This folder contains the table of contents manifest file. The subfolder contains the backed-up data.

EXERCISE 5: Back Up a Content Database

In this exercise, you use the SQL Server backup tool to protect the Teams content database:

1. Click Start, All Programs, Microsoft SQL Server 2008 R2, and then click SQL Server Management Studio.
2. In the Connect To Server dialog box, in the Server Name box, type **localhost** and then click Connect.
3. Expand Databases.
4. Right-click SharePoint_Content_Teams, click Tasks, and then click Back Up.
5. In the Description text box, type **Testing the SQL Backup Tools for SharePoint Recovery**.
6. Under Destination, click Remove and then click Add.
7. In the File Name box, type **C:\backups\sqlbackuptest.bak** and then click OK.
8. Click OK. SQL Server executes the backup task.
9. When the backup has completed, click OK.
10. Switch to Windows Explorer and browse to the **C:\backups** folder. Notice the new .bak file.

EXERCISE 6: Restore a Content Database to an Unattached Database

In this exercise, you restore the backup you just created to a new, unattached content database:

1. Switch to SQL Server Management Studio.
2. Right-click Databases and then click New Database.
3. In the Database Name text box, type **SharePoint_Content_Teams_Unattached** and then click OK.
4. Right-click the new database, click Tasks, click Restore, and then click Database.
5. Under Source for Restore, click From Device and then click the Browse button.
6. In the Specify Backup dialog box, click Add.
7. In the Select The File Tree View, browse to the **C:\backups** folder, click the sqlbackuptest.bak file, and then click OK.
8. In the Specify Backup dialog box, click OK.
9. In the Backup Sets list, next to the only entry, select the check box.
10. In the Select A Page pane, click Options.
11. Select the Overwrite The Existing Database option.
12. In the Restore The Database Files As list, in the top Restore As field, type the following:

    ```
    C:\Program Files\Microsoft SQL Server\MSSQL10_50.MSSQLSERVER
    \MSSQL\DATA\SharePoint_Content_Teams_Unattached.mdf.
    ```

13. In the bottom Restore As field, type the following:

    ```
    C:\Program Files\Microsoft SQL Server\MSSQL10_50.MSSQLSERVER\MSSQL\DATA
    \SharePoint_Content_Teams_Unattached_log.ldf.
    ```

14. Click OK.
15. When the restore operation is complete, click OK.

EXERCISE 7: Export a List from an Unattached Content Database

In this exercise, you export a list from the unattached content database SharePoint_Content_Teams_Unattached so that you can import it into the intranet site in the next exercise.

1. Switch to the Internet Explorer instance that shows the Central Administration site.
2. In the Quick Launch, click Backup And Restore.
3. Under Granular Backup, click Recover Data From An Unattached Content Database.
4. Under Database Name And Authentication, in the Database Name text box, type **SharePoint_Content_Teams_Unattached** and then click Next.
5. Under Site Collection, click the Site tool, and then click Change Site.
6. Click the / site, and then click OK.
7. Click the List tool, and then click Change List.
8. Select the Disaster Recovery Testing list, and then click OK.

9. Under Operation To Perform, select Export Site Or List, and then click Next.
10. Under File Location, in the Filename text box, type **c:\backups\DisasterRecoveryTestingList.cmp**.
11. Click Start Export. SharePoint shows the Granular Backup Job Status page.
11. Occasionally click Refresh. When the Current Job Status returns to No Operation In Progress, the export is complete.

EXERCISE 8: Import a List to the Intranet Site Collection

In this exercise, you import the Disaster Recovery Testing list into the intranet site collection. This task can only be completed by using the *Import-SPWeb* PowerShell cmdlet.

1. Click Start, All Programs, Microsoft SharePoint 2010 Products, and then click SharePoint 2010 Management Shell.
2. Type the following command:

```
Import-SPWeb –Identity http://intranet.contoso.com
–Path c:\backups\DisasterRecoveryTestingList.cmp
```

3. When the operation is complete, click Start and then click Internet Explorer.
4. In the address bar, type **http://intranet.contoso.com** and then press Enter.
5. In the Quick Launch, click Lists.
6. Click the Disaster Recovery Testing list. Notice that this list, together with the Current Testing Tasks item, has been imported into the intranet site from the Teams site.

Chapter 12

Lesson 1

EXERCISE 1: Configure Diagnostic Logging and Usage Data Collection

In this exercise you configure locations for diagnostic logging and usage data. You also increase the amount of diagnostic information recorded.

1. Click Start and then click Computer.
2. Double-click the C: drive.
3. Click New Folder and then type **SPLogs**.
4. Double-click the SPLogs folder.
5. Click New Folder and then type **UsageData**.
6. Click New Folder and then type **TraceLogs**.
7. Click Start, All Programs, Microsoft SharePoint 2010 Products, and then click SharePoint 2010 Central Administration.

8. In the User Account Control dialog box, click Yes.
9. In the Central Administration Quick Launch, click Monitoring.
10. Under Reporting, click Configure Usage and Health Data Collection.
11. Select the Enable Usage Data Collection check box.
12. Under Events to log, clear the Content Import Usage check box.
13. Clear the Content Export Usage check box.
14. Under Usage Data Collection Settings, in the Log File Location text box, type **C:\SPLogs\UsageData**.
15. Select the Enable Health Data Collection check box.
16. Scroll to the bottom of the page and click OK.
17. Under Reporting, click Configure Diagnostic Logging.
18. Under Event Throttling, in the list of Categories, expand SharePoint Server.
19. Select the Event Throttle check box.
20. Select the SP Cache check box.
21. In the Least Critical Event To Report To The Event Log drop-down list, select Verbose.
22. In the Least Critical Event To Report To The Trace Log drop-down list, select Verbose.
23. Clear the Enable Event Log Flood Protection check box.
24. Under Trace Logs, in the Path text box, type **C:\SPLogs\TraceLogs**.
25. Click OK.
26. Switch back to Windows Explorer and double-click the UsageData folder. Notice that a log file has been created.
27. Browse to the **C:\SPLogs\TraceLogs folder**. Notice that a log file has been created.

EXERCISE 2: Configure a Data Collector Set in Performance Monitor

In this exercise, you create a data collector set in Performance Monitor and add several relevant counters to it:

1. Click Start, Administrative Tools, and then click Performance Monitor.
2. Expand Data Collector Sets.
3. Right-click User Defined, point to New, and then click Data Collector Set.
4. In the Name text box, type **SharePoint Analyzer**.
5. Select the Create Manually (Advanced) option and then click Next.
6. Select the Performance Counter check box and then click Next.
7. Click Add.
8. In the Available Counters list, expand the Processor object.
9. Click % Processor Time and then click Add.
10. In the Available Counters list, expand the Memory object.

11. Click Page Faults/Sec and then click Add.
12. In the Available Counters list, expand the SharePoint Foundation object.
13. Click Current Page Requests and then click Add.
14. Click OK.
15. In the Sample Interval text box, type **1**.
16. Click Finish.
17. Right-click the SharePoint Analyzer data collector set, and then click Properties.
18. Click the Directory Tab.
19. To the right of the Root Directory text box, click Browse.
20. Select the C:\SPLogs folder and then click Make New Folder.
21. Type **PerfMonLogs** and then click OK.
22. Click OK again.

EXERCISE 3: Simulate User Activity

In this exercise, you start the data collector set you just created, and simulate user activity:

1. Right-click the SharePoint Analyzer data collector set you just created, and then click Start.
2. Click Start and then click Internet Explorer.
3. In the Internet Explorer address bar, type **http://intranet.contoso.com** and then press Enter.
4. When the page has loaded, wait for a few seconds.
5. Press F5 to refresh the page. Repeat this step several times.
6. In the Quick Launch, click Site Pages.
7. In the Pages list, click How To Use This Library.
8. In the Quick Launch, click Calendar.
9. Optionally, browse other pages in the site.
10. Switch to Performance Monitor.
11. Right-click SharePoint Analyzer and then click Stop.

EXERCISE 4: Examine Performance Logs

In this exercise, you examine the performance data you just recorded:

1. In Performance Monitor, under Monitoring Tools, click Performance Monitor.
2. In the top left of the chart, click the View Log Data button.
3. On the Source tab, click the Log Files option, and then click Add.
4. Browse to the **C:\SPLogs\PerfMonLogs** folder.
5. Open the subfolder and click DataCollector01.
6. Click Open.
7. Click OK.

8. On the Performance Counter toolbar, click the Add Counter button (green plus sign) to add a counter to the chart.
9. Expand the Memory object, click the Page Faults/Sec counter, and then click Add.
10. Expand the Processor object, click the % Processor Time counter, and then click Add.
11. Expand the SharePoint Foundation object, click the Current Page Requests counter, and then click Add.
12. Click OK.
13. In the toolbar at the top of the chart, click the Highlight button.
14. In the list of Counters at the bottom of the page, click the Page Faults/Sec counter.
15. Note the average value for this counter.
16. In the list of Counters at the bottom of the page, click the % Processor Time counter.
17. Note the average value for this counter.

EXERCISE 5: Enable the Developer Dashboard

In this exercise, you put the developer dashboard into On Demand mode by issuing Windows PowerShell commands:

1. Click Start, All Programs, Microsoft SharePoint 2010 Products, and then click SharePoint 2010 Management Shell.
2. When the prompt appears, type the following command and then press Enter:

```
$DevDashboardSettings = [Microsoft.SharePoint.Administration.SPWebService]::
ContentService.DeveloperDashboardSettings;
```

3. Type the following command and then press Enter:

```
$DevDashboardSettings.DisplayLevel = 'OnDemand';
```

4. Type the following command and then press Enter:

```
$DevDashboardSettings.RequiredPermissions = 'EmptyMask';
```

5. Type the following command and then press Enter:

```
$DevDashboardSettings.TraceEnabled = $true;
```

6. Type the following command and then press Enter:

```
$DevDashboardSettings.Update();
```

7. Close the SharePoint 2010 Management Shell.

EXERCISE 6: Examine the Performance Data in the Developer Dashboard

In this exercise, you examine the data in the developer dashboard:

1. Switch to Internet Explorer.
2. In the Address bar, type **http://intranet.contoso.com** and then press Enter.

3. In the top right, click the developer dashboard icon.
4. Scroll down to locate the developer dashboard.
5. Note which page component took the longest time to render.
6. Close all windows and log off of SP2010-WFE1.

Lesson 2

EXERCISE 1: Examine Health Analyzer Alerts

In this exercise, you examine the Health Analyzer alerts in your farm:

1. Log on to SP2010-WFE1 as **CONTOSO\SP_Admin** with the password **Pa$$w0rd**.
2. Click Start, All Programs, Microsoft SharePoint 2010 Products, and then click SharePoint 2010 Central Administration.
3. In the User Account Control dialog box, click Yes.
4. Note that there is no red banner on the Central Administration homepage.
5. In the Central Administration Quick Launch, click Monitoring.
6. Under Health Analyzer, click Review Problems And Solutions. No reports are displayed.

EXERCISE 2: Configure Health Analyzer Timer Jobs

In this exercise, you configure the schedule for a timer job that underpins Health Analyzer. You also manually start the timer job:

1. In the Central Administration Quick Launch, click Monitoring.
2. Under Timer Jobs, click Review Job Definitions.
3. Click Health Analysis Job (Daily, Microsoft SharePoint Foundation Timer, All Servers).
4. In the Starting Every Day Between drop-down list, select 1 AM.
5. In the And No Later Than drop-down list, select 5 AM.
6. Click Run Now.

EXERCISE 3: Configure a Rule Definition

In this exercise, you edit a Health Analyzer rule definition and configure it to run less frequently:

1. In the Central Administration Quick Launch, click Monitoring.
2. Under Health Analyzer, click Review Rule Definitions.
3. Scroll down to the rules in the Configuration category.
4. Click Trial Period For This Product Is About To Expire.
5. On the ribbon, click Edit Item.
6. In the Schedule drop-down list, click Monthly.
7. Click Save.

EXERCISE 4: Diagnose Problems by Using Health Analyzer

In this exercise, you simulate a SharePoint problem by stopping a web service. You will observe how Health Analyzer highlights the problem and resolve it:

1. In the Central Administration Quick Launch, click Monitoring.
2. Under Health Analyzer, click Review Rule Definitions.
3. Scroll to the bottom of the list and click the right arrow to view the second page of rules.
4. Under the Availability category, click The Security Token Service Is Not Available.
5. On the ribbon, click Run Now, and then click Close.
6. In the Central Administration Quick Launch, click Monitoring.
7. Under Health Analyzer click Review Problems and Solutions. Note any problems listed.
8. Click Start, Administrative Tools, and then click Internet Information Services (IIS) Manager.
9. In the Connections pane, expand the server node, and then click Application Pools.
10. Right-click the SecurityTokenServiceApplicationPool and then click Stop.
11. Switch to Central Administration.
12. In the Quick Launch, click Monitoring.
13. Under Health Analyzer, click Review Rule Definitions.
14. Scroll to the bottom of the page and click the right arrow to view the second page.
15. Click The Security Token Service Is Not Available and then click Run Now.
16. Click Close.
17. In the Quick Launch, click Monitoring.
18. Under Health Analyzer, click Review Problems and Solutions. You should see a warning about the Security Token Service.
19. Click the warning to view more details.
20. Click Close.
21. Switch back to Internet Information Services (IIS) Manager.
22. Right-click the SecurityTokenServiceApplicationPool and then click Start.
23. Close Internet Information Services (IIS) Manager and return to Central Administration.
24. In the list of problems and solutions, click the Security Token Service warning.
25. On the ribbon, click Reanalyze Now.
26. Refresh the list of problems. After a few seconds, the warning should disappear.
27. Close all windows and log off of SP2010-WFE1.

Lesson 3

EXERCISE 1: Configure and Execute the Usage Data Import Timer Job

In this exercise, you adjust the schedule for the timer job that collates usage data:

1. Log on to SP2010-WFE1 as **CONTOSO\SP_Admin** with the password **Pa$$w0rd**.
2. Click Start, All Programs, Microsoft SharePoint 2010 Products, and then click SharePoint 2010 Central Administration.
3. In the User Account Control dialog box, click Yes.
4. In the Central Administration Quick Launch, click Monitoring.
5. Under Reporting, click Configure Usage and Health Data Collection.
6. Under Log Collection Schedule, click the Log Collection Schedule link.
7. In the list of timer jobs, click Microsoft SharePoint Foundation Usage Data Import.
8. Under Recurring Schedule, configure the timer job to run every 10 minutes.
9. At the bottom of the page, click Run Now.

EXERCISE 2: Create a State Service Application

Before the Web Analytics service application can run fully, you must have a functional State service application. In this exercise, you create such a service application in the Contoso farm:

1. Click Start, All Program, Microsoft SharePoint 2010 Products, and then click SharePoint 2010 Management Shell.
2. When the prompt appears, type the following command and then press Enter:

```
$serviceapp = New-SPStateServiceApplication –Name "State Service Application
-Enterprise"
```

3. Type the following command and then press Enter:

```
New-SPStateServiceDatabase –Name "SharePoint_Service_State" –ServiceApplication
$serviceapp
```

4. Type the following command and then press Enter:

```
New-SPStateServiceApplicationProxy –Name "State Service Application Proxy"
–ServiceApplication $serviceapp
```

5. Close SharePoint Management Shell.

EXERCISE 3: Create a Web Analytics Service Application

In this exercise, you install and configure the Web Analytics service application:

1. In the Central Administration Quick Launch, click Application Management.
2. Under Service Applications, click Manage Service Applications.

3. On the ribbon, click New, and then click Web Analytics Service Application.
4. In the Name text box, type **Web Analytics Service Application – Enterprise**.
5. Under Application Pool, select Use Existing Application Pool, and then in the drop-down list, select SharePoint Service Applications.
6. Under Database Server, in the Server Name text box, type **SP2010-WFE1**.
7. In the Staging Database Name text box, type **SharePoint_Service_WebAnalytics_Staging**.
8. In the Reporting Database Name text box, type **SharePoint_Service_WebAnalytics_Reporting**.
9. Click OK.
10. When the process is complete, click OK.
11. In the Central Administration Quick Launch, click System Settings.
12. Under Servers, click Manage Services On Server.
13. To the right of the Web Analytics Data Processing Service, click Start.
14. To the right of the Web Analytics Web Service, click Start.

EXERCISE 4: Configure a Web Analytics Workflow

In this exercise, you configure a Web Analytics Workflow to run a report on a chosen schedule:

1. Open Internet Explorer. In the Address bar, type **http://intranet.contoso.com** and then press Enter.
2. Click Site Actions and then click Site Settings.
3. Under Site Administration, click Workflow Settings.
4. Click Add A Workflow.
5. In the Select A Workflow Template list, select Schedule Web Analytics Reports.
6. In the Name text box, type **Top Pages Report**.
7. Click Next.
8. In the Recipient people picker, type **CONTOSO\SP_Admin** and then click the Check Names button to the right.
9. In the Message (Optional) text box, type **There is a new top pages report**.
10. In the Web Analytics Reports list, select the Top Pages check box.
11. Click Finish.

EXERCISE 5: View Web Analytics Reports

In this exercise, you view a Web Analytics report for the Contoso intranet.

IMPORTANT **WAIT BEFORE PROCEEDING**

You must give the Web Analytics service application time to collate data and compile reports before performing this procedure. This may take up to 24 hours.

1. Open Internet Explorer. In the Address bar, type **http://intranet.contoso.com** and then press Enter.
2. Click Site Actions and then click Site Settings.
3. Under Site Actions, click Site Web Analytics Reports.
4. In the Quick Launch, under Traffic, click Top Pages
5. Examine the details in the report. You can also explore the other reports in the Quick Launch.
6. Close all windows and log off SP2010-WFE1.

Lesson 4

EXERCISE 1: Configure Resource Throttling

In this exercise, you configure resource throttling parameters for the Contoso Intranet Web application:

1. Log on to SP2010-WFE1 as **CONTOSO\SP_Admin** with the password **Pa$$w0rd**.
2. Click Start, All Programs, Microsoft SharePoint 2010 Products, and then click SharePoint 2010 Central Administration.
3. In the Central Administration Quick Launch, click Application Management.
4. Under Web Applications, click Manage Web Applications.
5. In the list of web applications, click Contoso Intranet.
6. On the ribbon, in the General Settings drop-down list, click Resource Throttling.
7. In the List View Threshold text box, type **2000**.
8. In the List View Threshold for Auditors and Administrators text box, type **5000**.
9. In the List View Lookup Threshold text box, type **6**.
10. Scroll to the bottom of the page and click OK.

EXERCISE 2: Enable the Publishing Feature

The output and object caches require the site-level Publishing feature. In this exercise, you enable this feature:

1. Click Start, and then click Internet Explorer.
2. In the Address bar, type **http://intranet.contoso.com** and then press Enter.
3. Click Site Actions and then click Site Settings.
4. Under Site Collection Administration, click Site Collection Features.
5. Scroll down to locate the SharePoint Server Publishing Infrastructure feature.
6. To the right of this feature, click Activate.
7. Click Site Settings and then click Set Settings.
8. Under Site Actions, click Manage Site Features.

9. Scroll down to locate the SharePoint Server Publishing feature.
10. To the right of this feature, click Activate.
11. Click Contoso Intranet to return to the site homepage.

EXERCISE 3: Configure SharePoint Caches

In this exercise, you edit the web.config file for the Contoso Intranet Web application to enable the BLOB Cache, the Object Cache, and the Output Cache:

1. Click Start, Administrative Tools, and then click Internet Information Services (IIS) Manager.
2. In the Connections pane, expand SP2010-WFE1 and then expand Sites.
3. Right-click Contoso Intranet and then click Explore.
4. Right-click the Web.config file and then click Open With.
5. Expand Other Programs, click Notepad, and then click OK.
6. Click Edit and then click Find.
7. In the Find What text box, type **<BlobCache** and then click Find Next.
8. In the Find dialog box, click Cancel.
9. Set the *maxSize* attribute in the BlobCache tag to **5**.
10. Set the *enabled* attribute to **true**.
11. Locate the <ObjectCache> tag. This is usually the next line after the <BlobCache> tag.
12. Set the *maxSize* attribute to **200**.
13. Locate the <OutputCacheProfiles> tag. This is usually the next line after the <ObjectCache> tag.
14. Set the *useCacheProfileOverrides* attribute to **true**.
15. Click File and then click Save.
16. Close Notepad.