BEN CURRY
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Microsoft® SHAREPOINT 2013

POCKET GUIDE

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Ben Curry

Microsoft® SharePoint® 2013

Pocket Guide

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Microsoft® SharePoint® 2013 Pocket Guide

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About the Author

Ben Curry (CISSP, MVP, MCP, MCT) is an author and enterprise architect specializing in knowledge management, BPM, ECM, and collaborative technologies. Ben is a founding Partner at Summit 7 Systems, a company focused on the next generation of Microsoft products, and has been awarded the Most Valuable Professional (MVP) by Microsoft six years in a row.

Ben's philosophy is that the best solutions are inspired by the best ideas, and he encourages his team to continuously generate and share ideas. His numerous publications embody his philosophy. Ben enjoys sharing his ideas as an instructor, both in the IT world and in the marine world. Ben is a Master Scuba Diver Trainer with a passion for diving and spearfishing.

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Dedication

I want to dedicate this book to my best friend and brother, Jim Curry. Jim—you've stood by me my entire life without waiver. I love you, bro.
—Ben Curry

I want to thank my wife, Patricia (P.J.), for your love, infinite support, and continual motivation. You inspire me. For these reasons, and so much more, this book is dedicated to you.
—Jason Batchelor

I dedicate this book to my kids Blake, Evie, and Noah King who are my inspiration.
—Shane King

For my family, near and far, without your love and support I would not be the person I am today. I love you all.
—Jay Simcox

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There were many new features in this product that made it impossible for a single person to write a book in a reasonable amount of time. Thanks first of all to the coauthors: Jason Batchelor, Shane King, and Jay Simcox. They each wrote a substantial portion of the book and really poured their heart and soul into the project. I also want to say a big thank-you to my technical editor, Neil Hodgkinson from Microsoft. He's one of the best guys you'll ever meet and a heck of a SharePoint MCM as well! Thanks, Neil.

I also had three contributing authors: Daniel Webster (one of the best Enterprise Search people you'll find), Joy Curry (site collection guru), and Jason Cribbet. Jason wrote most of the developer content, and if you ever get a chance to work with him, you'll learn a lot and be glad to know him.

Thanks to all the staff at Pearson for believing in the project and helping to bring this book to market. Last, thanks to Jeff Riley, who was a very patient and understanding editor. He helps make us look like we know what we're doing! Thanks, Jeff.

We Want to Hear from You!

As the reader of this book, *you* are our most important critic and commentator. We value your opinion and want to know what we're doing right, what we could do better, what areas you'd like to see us publish in, and any other words of wisdom you're willing to pass our way.

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Introduction

From the beginning of the project, this book was written to be a concise and easy-to-reference guide that you can use when you have questions about SharePoint Server 2013 administration. A thorough index has been provided to help you quickly find the information you need. This is a guide you will want close by when working with the new versions of SharePoint products and technologies.

This book provides administrative procedures, quick answers, tips, and tested design examples. In addition, it covers some of the most difficult tasks, such as scaling out to a server farm and implementing disaster recovery. It also covers many of the new Windows PowerShell commands now needed for building and maintaining SharePoint Server. The text contains illustrative examples of many advanced tasks required to implement a SharePoint Products solution for almost any size organization.

Who Is This Book For?

SharePoint Server 2013 Administrator's Guide covers SharePoint Server 2013 Standard and SharePoint Server 2013 Enterprise editions. This book is designed for the following:

- Administrators migrating from SharePoint Server 2007 and SharePoint Server 2010
- Administrators who are experienced with Windows Server 2008 and Internet Information Services
- Current SharePoint Foundation 2013 and SharePoint Server 2013 administrators
- Administrators who are new to Microsoft SharePoint Technologies
- Technology specialists, such as site collection administrators, search administrators, and web designers

Because this book is limited in size and I wanted to give you the maximum value, I assumed a basic knowledge of Windows Server 2012, Active Directory, Internet Information Services

(IIS), SQL Server, and web browsers. These technologies are not presented directly, but this book contains material on all these topics that relate to the administrative tasks of SharePoint Products.

How Is This Book Organized?

This book was written to be a daily reference for administrative tasks. The capability to quickly find and use information is the hallmark of this book. For this reason, the book is organized into job-related tasks. It has an expanded table of contents and an extensive index for locating relevant answers. In addition, there is an appendix for many of the new SharePoint Server Windows PowerShell cmdlets. If you are looking for a comprehensive guide to implementing SharePoint Products, you should consider purchasing the *SharePoint 2013 Unleashed* book, by Sams Publishing, because this pocket guide has been stripped to the bare essentials required to complete a task. Michael and Colin do a fantastic job with that book, and you'll be glad you own it as well.

I really hope you find the *SharePoint Server 2013 Administrator's Guide to be* useful and accurate. I have an open door policy for email at *bcurry@summit7systems.com*. Because my inbox stays quite full, please be patient; replies sometimes take a week or longer.

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CHAPTER 2

Configuring Farm Operations

- Introducing Central Administration
- System Settings
- Database Management
- Configuring Send To Connections

Core Operations refers to farm-level settings and applications such as Central Administration, server services, settings, and email configuration. Items such as service applications, search, and web applications are such large and important topics that they have dedicated chapters. This chapter will cover the core farm operations not covered elsewhere in the book. Much of this chapter will show you how to set up farm operations that are configured only once, such as Short Messaging Service (SMS) mobile services. Although the interaction with other Microsoft SharePoint Server functional areas will be discussed, you should reference the chapter for each of those functional areas for detailed information.

Introducing Central Administration

At the heart of every server farm is the configuration database. This database stores the majority of your core server farm configuration. The association of Service Applications, configuration of Web Applications and content databases, email settings, server services architecture, farm solutions, and farm features are stored in this database. To manage all this configuration data, you need a tool. Central Administration is the primary administrative tool available to you. How you access

the Central Administration website will depend on what operating system is running on your SharePoint server.

Accessing Central Administration

To access the Central Administration website on a SharePoint server running Windows 2008 R2 SP 2, click through the following path: Start, All Programs, Microsoft SharePoint 2013 Products, SharePoint 2013 Central Administration.

To access the Central Administration website on a SharePoint server running Windows Server 2012, take the following steps:

1. Access the Start page either by using the icon on the right side of the desktop or using the pop-up menu in the lower-left corner.
2. On the Start page find the SharePoint 2013 Central Administration tile and click it. If you do not see the tile, start typing **Share** and it will search for the application.

Figure 2.1 shows Central Administration as installed out of the box.

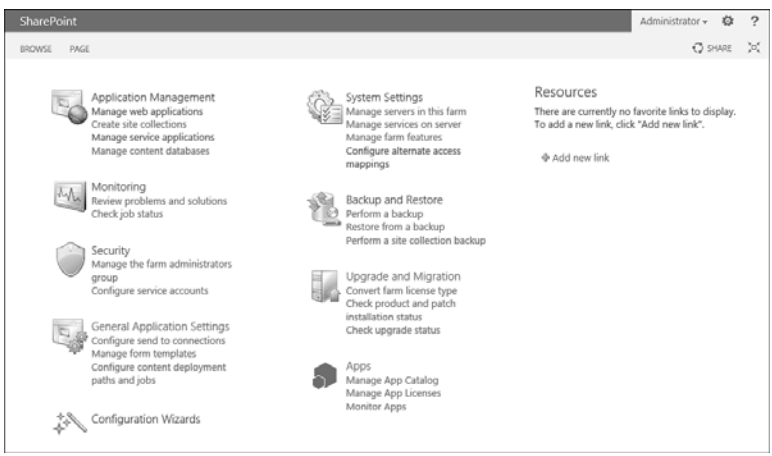

FIGURE 2.1
Central Administration is the primary administrative interface for SharePoint Server 2013.

In addition to Central Administration, much of the SharePoint farm configuration can be managed through the use of Windows PowerShell and STSADM.exe. In fact, as you read through this book, in several situations the use of Windows PowerShell is required. This is because there are

certain configuration tasks that cannot be performed through the Central Administration user interface (UI).

To access the Windows PowerShell console on a SharePoint server running Windows Server 2008 R2 SP2, navigate through the following path: Start, All Programs, Microsoft SharePoint 2013 Products, SharePoint 2013 Administration Shell.

To access the Central Administration website on a SharePoint server running Windows Server 2012, take the following steps:

1. Access the Start page either by using the icon on the right side of the desktop or using the pop-up menu in the lower-left corner.
2. On the Start page find the SharePoint 2013 Management Shell and right-click it.
3. In the taskbar find the icon to Run as Administrator and click it. This runs the management shell with elevated permissions.

Additionally, the stsadm.exe command still exists in SharePoint Server 2013 and can be used where appropriate. We do not recommend using stsadm.exe except in those situations where you may have no other choice or are unable to get Windows PowerShell to perform as desired.

Tip

You can find stsadm.exe in C:\Program Files\Common Files\Microsoft Shared\Web Server Extensions\15\bin. You can either include this directory in your system path or create a shell script to navigate to the directory to make it easier to execute. It can also be executed from the SharePoint Server Management Shell.

Central Administration Architecture

It's important to understand that Central Administration is a site collection contained in a dedicated web application. As such, it has an associated content database for the web application. If you use the SharePoint 2013 Products Configuration Wizard, by default the content database will be named SharePoint_AdminContent_<GUID>, as shown in Figure 2.2. Although it's not difficult, you need to detach the content DB, rename, and reattach if you want to rename it later. Therefore, if you want a different name for your Central Administration content database, it's simpler to create your server farm using Windows PowerShell.

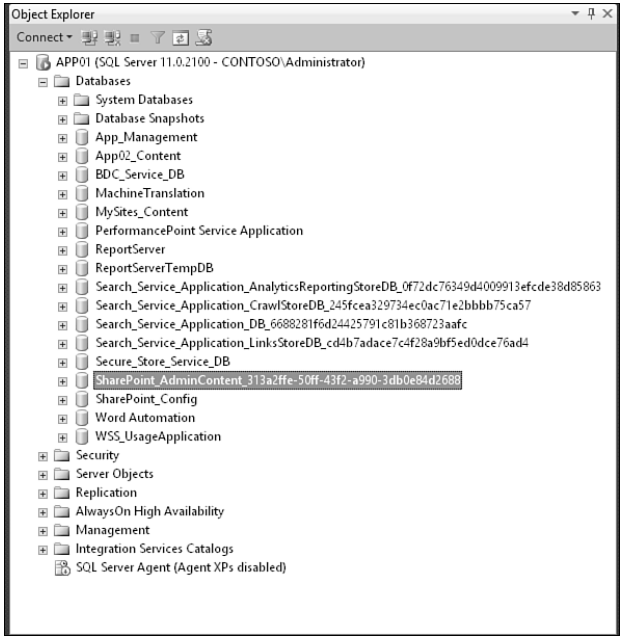

FIGURE 2.2
You can view your Central Administration content database using Microsoft SQL Server Management Studio.

Because Central Administration requires write access to your server farm configuration database, you should never use this web application or associated application pool for collaborative web applications. Doing so could provide a hacker with potential write access through another web application. Central Administration was created automatically when you ran the SharePoint 2013 Products Configuration Wizard and should not be modified. Although Central Administration is technically just another site collection and can be modified as such, a best practice is to leave it in the default state. Only administrators access the site collection, so branding and customization shouldn't be an issue.

As shown in Figure 2.1, Central Administration has nine primary areas:

- **Application Management**—Hosts administrative links to web applications, site collections, service applications, and databases. Chapter 3, "Creating Web Applications and Content Databases," explains this section and associated tasks in depth.

- **System Settings**—Contains your server and server service management, email and text messaging, and other farm management settings. Most of the functionality discussed in this chapter can be found in System Settings.
- **Monitoring**—This area has been greatly expanded in SharePoint Server 2013 and includes Reporting, Analytics, Timer Jobs, Health Analyzer, and Usage information. Chapter 16, "Configuring Sites and Site Collections," covers Reporting and the Health Analyzer in detail. Only the server farm timer jobs are discussed in this chapter.
- **Backup and Restore**—The location where both farm and granular backups and restores are performed. Chapter 14, "Backing Up and Restoring SharePoint 2013," provides more information.
- **Security**—Includes links to manage the farm administrators group, configure farm accounts, manage passwords for those accounts, define blocked file types, configure antivirus settings, manage Web Part security, and control Information Management Policies global settings.
- **Upgrade and Migration**—Upgrade-specific information can be found in Chapter 17, "Upgrading from SharePoint Server 2010."
- **General Application Settings**—Includes external service connections, document conversions, InfoPath forms services, site directory, SharePoint Designer, farm-scoped search settings, and content deployment.
- **Apps**—Includes links to specific configuration and functionality options for the Apps store.
- **Configuration Wizards**—Contains configuration wizards for your installation. Depending on additionally installed products, this screen can present multiple options for the automated configuration of your farm.

As you manage a SharePoint Server 2013 farm, you will perform administrative tasks on a regular basis. Remember that Central Administration is a web-based interface, so you can create favorites in your web browser to save time. Additionally, you will see multiple locations to manage the same item, such as web application general settings, within Central Administration.

Working with the Central Administration Web Application

Although Central Administration is a SharePoint Server web application, it differs from others because you don't create and deploy the web application. Because the deployment of other web applications is done from Central Administration, the provisioning of Central Administration itself is performed at either the command line or via the SharePoint 2013 Products Configuration Wizard. To deploy Central Administration to a server other than the one on which you first installed SharePoint Server, you must install the SharePoint Server binaries and run the SharePoint 2013 Products Configuration Wizard. You can run this wizard using one of the two following methods, depending on the operating system running on your SharePoint server.

To access the SharePoint 2013 Products Configuration Wizard on a SharePoint server running Windows Server 2008 R2 SP2, navigate through the following path: Start, All Programs, Microsoft SharePoint 2013 Products, SharePoint 2013 Products Configuration Wizard.

To access the Central Administration website on a SharePoint server running Windows Server 2012, take the following steps:

1. Access the Start page either by using the icon on the right side of the desktop or using the pop-up menu in the lower-left corner.
2. On the Start page find the SharePoint 2013 Management Shell and right-click it.
3. In the taskbar, find the icon to Run as Administrator and click it. This runs the management shell with elevated permissions.

Be very careful not to disconnect from the server farm, which can be specified with the option shown in Figure 2.3.

After you click Next once, select the Advanced Settings to provision the Central Administration website. Select Use This Machine to Host the Web Site, as shown in Figure 2.4.

You can also use the SharePoint 2013 Products Configuration Wizard to repair a broken Central Administration, assuming it is an Internet Information Services (IIS) configuration error causing the fault. To deprovision Central Administration, choose Yes, I Want to Remove the Web Site from This Machine. You should wait a few minutes to allow the farm configuration to update and also to allow time for the local IIS configuration to update. When the web application is no longer visible from IIS, you can rerun the SharePoint 2013 Products Configuration Wizard to reprovision the Central Administration on that server.

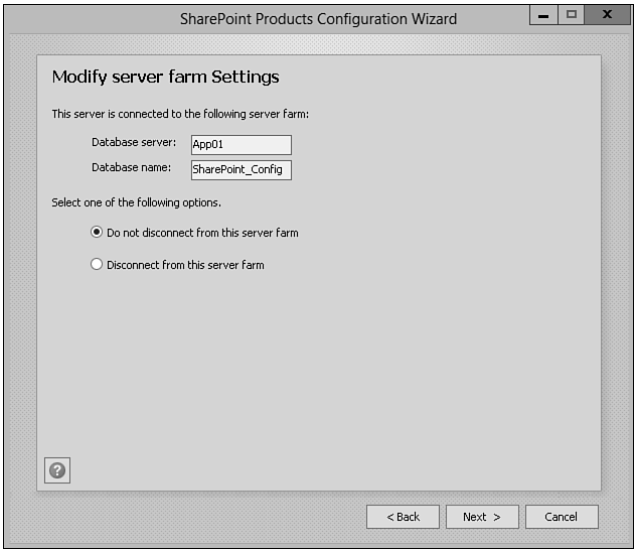

FIGURE 2.3
If provisioning Central Administration, be sure not to disconnect from the server farm.

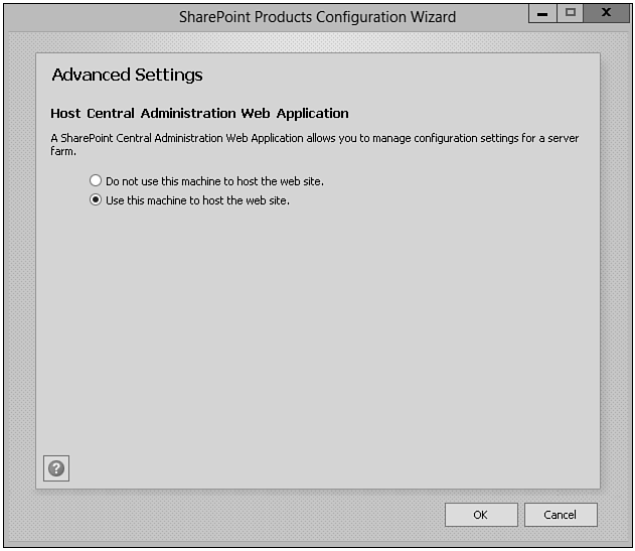

FIGURE 2.4
Select Use This Machine to Host the Web Site, and click OK.

> **Note**
> A web application problem with Central Administration might require you to make a technical support call. The actual content of Central Administration is contained in the associated content database, and farm configuration is contained in the configuration database.

System Settings

The System Settings area of Central Administration contains crucial settings that you need to plan and carefully control modification of. Most of the system settings affect all web applications and associated users in your server farm. System Settings is divided into three sections:

- Servers
- Email and Text Messages (SMS)
- Farm Management

Servers

The Servers section of System Settings gives you, at a glance, visibility into your server farm topology, including your application services topology. It also provides the SharePoint configuration database version and SQL Server name(s).

Servers in Farm

From the Manage Servers in This Farm link, you can see all the servers in your farm, as contained in the configuration database. You'll see five headings beneath the configuration database information:

- **Server**—Lists all servers in your server farm. You can click the Server text itself to sort the list alphabetically.
- **SharePoint Products Installed**—Displays the relevant SKU information about that server.
- **Services Running**—A valuable tool when discovering and troubleshooting a SharePoint Server farm. You are able to quickly see where specific application services are provisioned. If you were troubleshooting the User Profile Service, for example, you could find what server or servers were processing that data. You can then go to the relevant server and begin troubleshooting.

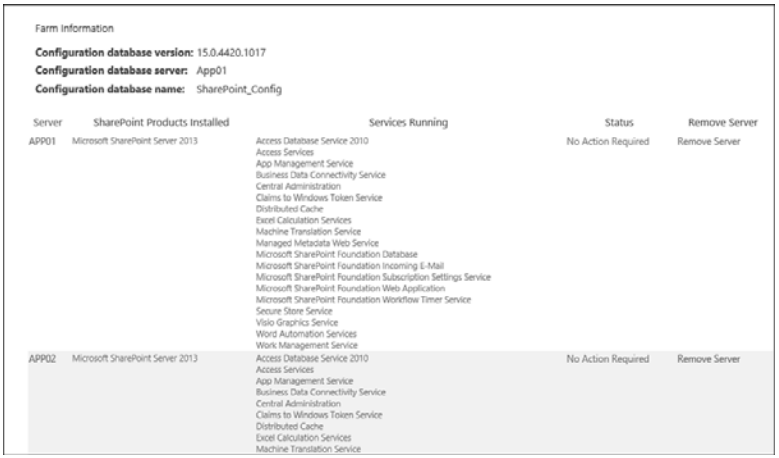

FIGURE 2.5
All farm members and started services can be seen on the Services on Server management page.

Note

Figure 2.5 shows the services provisioned on a server and not necessarily the current status. It's possible that a service is nonfunctional and still shows as running on this screen. It's also possible that a server is completely offline because that status is not displayed.

- **Status**—Displays whether a server action is required or is being performed. Examples of this are service packs, language packs, and platform additions such as Project Server.
- **Remove Server**—Use this option if you want to remove a server's entry in the configuration database. Use this option with caution because it is irreversible. You should need to remove a server using Central Administration only if that server is no longer operational. The best way to remove a server from a farm is using the SharePoint 2013 Products Configuration Wizard on the server you want to remove and then selecting to disconnect it from server farm.

Manage Services on Server

The Manage Services on Server page is used to stop and start farm server services. These services are not Windows Server services. Although

turning one of these services on or off in the configuration database might result in a Windows Service being turned on or off, the consequences of mistakenly stopping a SharePoint service are much worse than stopping a Windows Server service. For example, turning off the SharePoint Server Search service will update the configuration database and remove all entries related to that search server. Therefore, all relevant search content, such as the index, will be deleted, and the associated Windows Server service will be stopped. Basically, everything you start or stop in this screen is making configuration database changes. The timer job will subsequently pick up those changes from the database and modify application services accordingly.

The Manage Services on Server page also controls where processing of information is performed in your server farm. For example, you could have multiple servers in your farm performing the task of Managed Metadata Services. This allows for scalability of processing because it allows each server in the farm to process different server farm services. To stop or start services, you can select the Start or Stop hyperlink. If configuration is required to start, you will be automatically taken to the configuration screen. Don't confuse these services with service applications. Although service applications might use a service on a server, service applications apply across a server farm and exist at a level above services on the server. Always verify you are modifying the correct server, as shown in Figure 2.6.

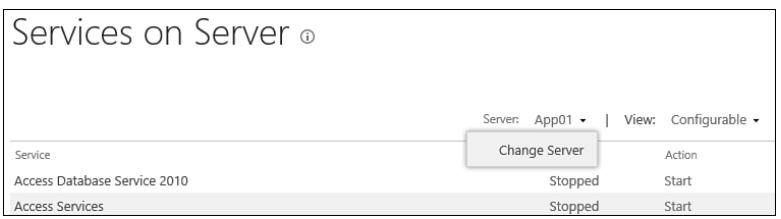

FIGURE 2.6
Verify you are configuring the correct farm before starting or stopping services.

Email and Text Messages

SharePoint Server 2013 provides many ways to communicate via email and mobile text messaging. Pay close attention to the configuration of both incoming email messages and text messages (SMS). There are possible

cost and security issues associated with external, automated farm communications.

Outgoing Email Settings

Outgoing email is primarily used for system alerts. Alerts allow users to be updated when an object changes, such as a list or a document. Depending on the users' choice, they can be alerted immediately, daily, or weekly. Additionally, the system generates messages for workflows and other system content that leverages outgoing email. To configure outgoing email, you need to specify an outbound Simple Mail Transfer Protocol (SMTP) server, as shown in Figure 2.7.

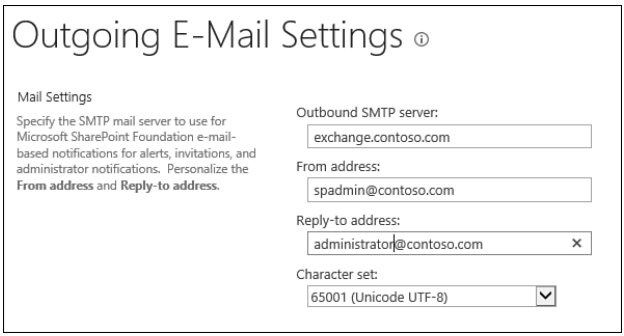

FIGURE 2.7
The From address and Reply-To address values can be different.

Although the From and Reply-To addresses can be different, they usually are not. Allowing a different From address might help you with current Unsolicited Commercial Email (UCE) whitelists, for example. You can also change the character set if needed for a different language. Be sure both the SharePoint Foundation 2013 and SharePoint Server 2013 language packs are loaded for the selected language.

Note

SharePoint Server 2013 cannot send credentials for outbound SMTP. Therefore, you must allow relaying on your SMTP server from SharePoint Server 2013 servers that will send mail. Always confirm that the required TCP ports and DNS entries are correct before troubleshooting a problem with SharePoint Server 2013 outgoing email.

Incoming Email Settings

Configuring incoming email is more complex than configuring outgoing email and requires changes to both your Windows servers and Active Directory configuration. First, you must have an SMTP server loaded on the servers that will accept incoming email. SharePoint Server 2013 does not include an SMTP service, but the default Windows Server SMTP server should work quite well. In Windows Server 2008 and Windows Server 2012, you add the SMTP server from Server Manager, Features.

> **Note**
>
> You must install and configure the SMTP service prior to configuring incoming email. See the steps at the following link: http://technet.microsoft.com/en-us/library/cc262947.aspx#section2

After you have installed the SMTP service, or identified an external SMTP server to use for incoming email and have created and delegated permissions in Active Directory, you can proceed with configuring your farm's Incoming Email settings. If you have enabled the Directory Management Service, distribution lists can be created automatically when enabled for SharePoint Server sites. Creating distribution lists automatically creates a distribution list in Active Directory and keeps it synchronized from SharePoint Server to Active Directory. Doing so allows users to easily send email to SharePoint Server groups when needed.

> **Note**
>
> The Directory Management Service is a one-way service. In other words, users are added to the Active Directory distribution list when they are added to a SharePoint group, but users are not added to the SharePoint group when they are added directly to the Active Directory distribution list.

An additional function of the Directory Management Service is that it automatically creates an Active Directory contact when email–enabling a list or library. Although it is not required or always desired, you can have the email address available in the Global Address List (GAL) after email-enabling a list. If you have not enabled the Directory Management Service, you must manually, or through a custom process, create an entry for each mail-enabled document library and list you want to receive email.

Note

Advanced mode is necessary only when you are not using the SMTP service to get incoming email.

To configure incoming email, navigate to the Incoming Email Settings page at Central Administration, System Settings, Configure Incoming Email Settings:

1. Select Yes to enable sites on this server to receive email.
2. Select Automatic unless you are using an SMTP server other than the native Windows Server SMTP Service. If you are using a third-party SMTP server, be sure to define the email drop folder at the bottom of the page. Be aware that many third-party SMTP servers will not integrate with SharePoint Server 2013.
3. Select Yes to create a distribution group or contact, or select Use Remote if you already have an existing Directory Management Service. If you select Yes *and* you use Exchange Server, you must take additional configuration steps outside of SharePoint 2013:
    - You must delegate permissions to an Active Directory OU to be used for the storage and management of SharePoint Server 2013 contacts and distribution lists.
    - You must ensure that an A record for your SharePoint 2013 server exists in your organization's DNS configuration.
    - You must add an SMTP connector on the Exchange Server. For more information on adding an SMTP connector, see the following link: http://technet.microsoft.com/en-us/library/cc262947.aspx#AddSMTPconnector
4. Specify the Active Directory OU where new distribution lists and contacts will be stored. In this example we have created an OU named SharePointDMS in our Active Directory. Use the distinguished name of the container in the text box: OU=SharePointDMS, DC=contoso, DC=com. Figure 2.8 shows an example of the OU and SMTP server settings.
5. Enter the name of the SMTP server where you will accept incoming email. This server must be a member of the server farm. The Microsoft SharePoint Foundation Timer on this SMTP server monitors the default email drop folder. When it discovers an email with a corresponding incoming email address in SharePoint Server 2013, it routes the email constrained by the list or library settings.

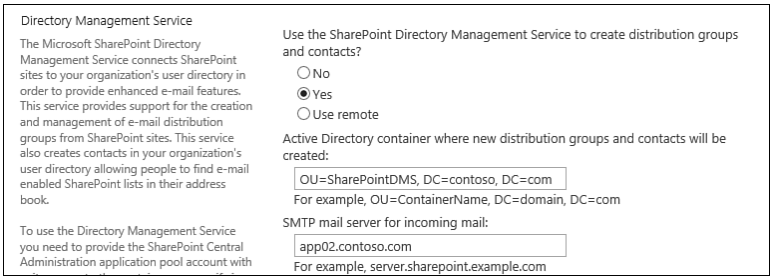

FIGURE 2.8
Carefully enter the path to the container specified for the Directory Management Service.

6. You must decide whether to accept messages from authenticated users or all users. If you decide to accept messages from authenticated users, a Send-To email address must match that of a user with write access on the destination list or library.
7. Select whether to allow the creation of distribution lists. You can configure SharePoint Server 2013 to create contacts in Active Directory without creating distribution lists for synchronization with SharePoint Groups. If you decide to create distribution lists, you also need to decide what level of scrutiny the list names will have. You have four options when managing the creation and modification of distribution groups:
   - Create New Distribution Group
   - Change Distribution Group Email Address
   - Change Distribution Group Title and Description
   - Delete Distribution Group

   Note that there is no approval option when creating contacts. Approval settings exist only for distribution groups.

Note

Give careful consideration to selecting any of the options to make changes to distribution groups. Changes made to existing distribution groups will cause emails sent to those distribution lists to be returned when replied to.

8. You can also define the incoming email server display address. Figure 2.9 shows an example of setting the value. Be aware that only defining the display address will not route email correctly. In this example, the server name is app02.contoso.com, but the display address is contoso.com. Care must be taken to correctly route the email from the SMTP server servicing the contoso.com domain.

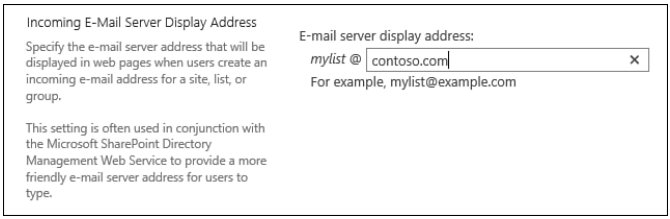

FIGURE 2.9
Verify that you have the routing rule on the SMTP server configured correctly to reflect the incoming email display address.

9. Verify that that DNS has the correct records for routing email. SMTP and SharePoint Server 2013 both need to have the correct DNS configuration before incoming email will function correctly.
10. If you are using Automatic mode, you should configure the Safe Email Servers settings. This setting can force incoming email to route through your safe mail servers that perform antivirus and anti-spam scanning. It can also reduce the surface area for Internet-based attacks. To specify a safe server, enter the IP address—for example, 10.1.1.200. Entering the fully qualified domain name (FQDN) of the mail server will not work.
11. Click OK to complete the configuration.

Incoming email is now configured and can be enabled on your SharePoint 2013 lists and libraries. Figure 2.10 shows an example of the incoming email configuration settings for a document library on a team site.

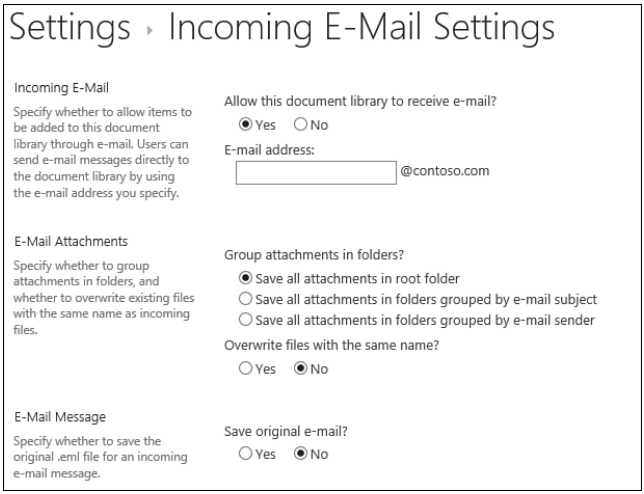

FIGURE 2.10
The incoming email configuration settings of a list or library.

Configuring Mobile Accounts

The Mobile Alert feature allows users to subscribe to alerts with their mobile phones. The idea behind the functionality is that many professionals prefer to get important alerts via mobile text (SMS) rather than via email. Not all users have smart phones or smart phones that are compatible with their corporate email system. Configuring mobile alerts allows notification to almost any cellular telephone. The feature does come with some drawbacks, however. First, you must have a subscription with a third-party SMS provider. The SMS provider acts as a "man in the middle" to relay mobile messages to cellular providers. This comes at a cost. Although the future of this space is widely unknown, current prices range from $.02 USD to $.06 USD per message. You can find a list of SharePoint Server 2013–compatible providers at http://messaging.office.microsoft.com/HostingProviders.aspx?src=O14&lc=1033. There is a constantly changing list, and your costs will vary based on your geographic location and volume of prepaid SMS alerts.

To configure SharePoint 2013 to support mobile accounts using Windows PowerShell, take the following steps:

1. Confirm that the farm account has permissions to access the Internet to send alerts.

2. Obtain the root certificate for the service provider's HTTPS web address.
3. Import the service providers root certificate and create a trusted root authority using Windows PowerShell:
   - Import a trusted root certificate:
     - Click Start, Run, and enter **MMC**; then click Enter.
     - In the Microsoft Management Console, click the File tab and select Add/Remove Snap-in.
     - Select Available Snap-ins, Certificates, Add.
     - In the Certificates Snap-in Wizard, select Computer account and click Next.
     - Click Local Computer.
     - Click Finish.
     - In the Add or Remove Snap-ins Wizard, click OK.
     - In the console tree, expand the Certificates node.
     - Right-click the Trusted Root Certificate Authorities store.
     - Click All Tasks, Import.
     - In the Certificate Import Wizard, click Next.
     - Browse to the location of your trusted root authority certificate, and click Next.
     - Select the option button for Place All Certificates in the Following Store, and browse to the Trusted Root Authority; click Next.
     - Click Finish to complete the wizard.
   - Create the trusted root authority by clicking Start, All Programs, Microsoft SharePoint Server 2013 Products, SharePoint 2013 Management Shell:
     - Right-click Run as Administrator.
   - To get the root certificate, enter the following command:

     ```
     $cert = Get-PfxCertificate <ObtainedCertificatePath>
     ```

   - Create the trusted root authority using the following command at the Windows PowerShell command prompt:

     ```
     New-SPTrustedRootAuthority -Name <Name> -Certificate
     <$cert>
     ```

- <Name> = name of the trusted root authority you want to create.
- <ObtainedCertificatePath> = location of the root certificate file.

- Set the mobile account using Windows PowerShell:

```
Set-SPMobileMessagingAccount -Identity sms -
WebApplication http://portal.contoso.com -ServiceURL
https://yoursmsprovider.com/omsservice.asmx -UserId
user@contoso.com -Password password1
```

To configure a mobile account from Central Administration, take the following steps:

1. Import the trusted root certificate of your service provider using Windows PowerShell as described earlier in step 3a.
2. Create the trusted root authority as described in step 3b.
3. Navigate to the Mobile Account Settings page in Central Administration at Central Administration, System Settings, Configure Mobile Account.
4. Click the Microsoft Office Online link for a list of messaging providers, and select your wireless provider's country and region.
5. Select a service provider from the list. After you have selected the provider you want to use, you will be directed to the provider's website.
6. In the username and password box, type the username and password that you received from the SMS service provider.
7. Click Test Service to verify that the text service is running as expected.
8. Click OK to complete the configuration.

Farm Timer Jobs

The Microsoft SharePoint Foundation Timer service runs on each server in the farm and is the master process for all timer jobs. It is not configurable—that is, it cannot be started and stopped from within Central Administration. It can, however, be restarted if you suspect a problem by going to Windows Server services from Start, All Programs, Administrative Tools, Services. It is listed as SharePoint 2013 Timer. You should not directly modify the logon account or other settings directly from Windows Server. You should restart only if necessary.

Timer jobs are created and deleted by SharePoint Server 2013 features or by developers via custom code. If your developers will deploy timer jobs to support custom code, be sure to test on an environment other than your production servers, and test for 24 hours or longer. Many timer jobs do not immediately display errors. Only time will show if the custom timer job has a problem. Third-party products that create timer jobs should be tested to the same level as custom code. Be sure to test any custom timer jobs before a major service pack or SharePoint Server 2013 version change.

To see the currently defined timer jobs, browse to Central Administration, Monitoring, Review Job Definitions and look at the job definitions. When viewing the Service Job Definitions page, you'll notice approximately 180 timer job definitions in your fully configured SharePoint Server 2013 server farm. This number will vary depending on the number of web applications, configured service applications, and the configuration of core operations. Figure 2.11 shows a portion of the timer jobs in the Server Job Definitions page.

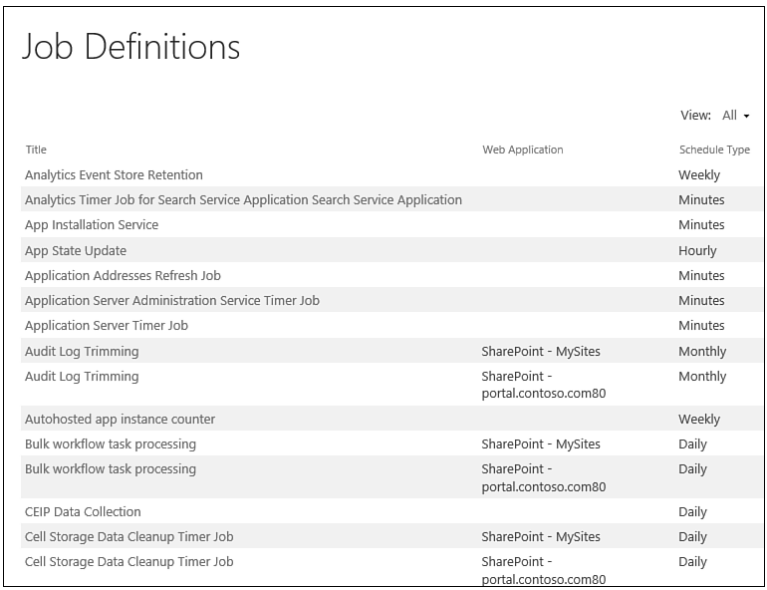

FIGURE 2.11
Every web application you create will instantiate several timer jobs.

Some of these timer job definitions will be minutes, whereas others are hourly, daily, weekly, or monthly. The capability to easily change the timer

job's schedule from the user interface is still available, although caution should be used when modifying the default schedule because it can affect server farm and application functionality. For the most part, you should leave the timer jobs in the default state. For some timer job definitions, such as the Content Type Hub and Content Type Subscriber, you will be very tempted to increase the frequency of the timer job. Although this action will make enterprise content types available sooner and give the subscribing site collections more frequent updates, it comes with a compromise in performance. Timer jobs take both processor power and memory, so you need to weigh the benefits with the performance penalty. Figure 2.12 shows an example of changing the Content Type Subscriber frequency. Also notice that you can click Run Now. This option often negates the need for increasing the frequency of a timer job because you can force an update manually.

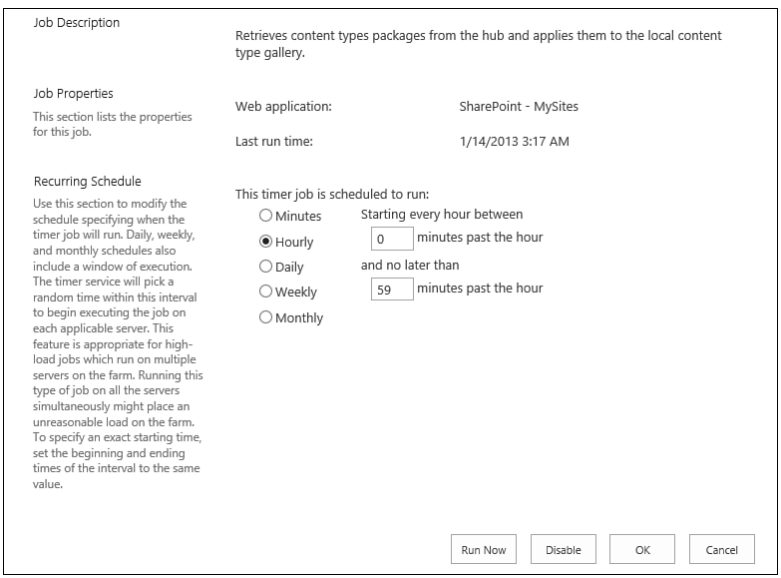

FIGURE 2.12
Click Run Now to manually start a timer job.

Note

Be careful when creating multiple web applications. Although it is often necessary to create multiple web applications for requirements such as My Sites and the Content Type Hub, keeping your web applications to a minimum will increase system performance. Every web application you create automatically generates many timer jobs that consume system resources. So, in addition to the memory space used by the application pool and associated management overhead, you now also have more timer jobs and potential issues with the SharePoint Foundation Timer service.

Although timer jobs run on every server in the farm by default, you can select a preferred server to execute timer jobs on per-content-database basis. Workflows are one of the driving factors to include this functionality. Using this example of workflows will help you understand why server timer job affinity is important.

SharePoint Server 2013 executes workflow actions on the web server that the client was connected to when started. If this workflow must wait to continue because of a scheduled time delay or inaction by the user, the SharePoint 2013 Timer service will handle the workflow execution. In a multiple web server configuration, you can set the preferred server for executing the workflow via the content database that hosts the site collection in question. To set the preferred server for timer jobs, do the following:

1. Browse to the Manage Content Database page, Central Administration, Application Management, Databases, Manage Content Databases.
2. Select the database you want to modify.
3. Select the physical server you want to associate as the preferred server. See Figure 2.13 for an example of setting affinity.

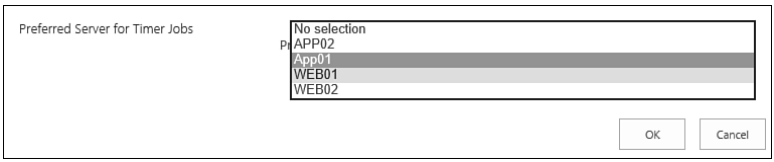

FIGURE 2.13
You can select any server farm member to be the preferred server for a content database.

> **Note**
>
> If the preferred server is unavailable, another will be selected automatically until the preferred server is back online.

In addition to managing the timer job, you can also check the job status from Central Administration, Monitoring, Timer Jobs, Check Job Status (see Figure 2.14).

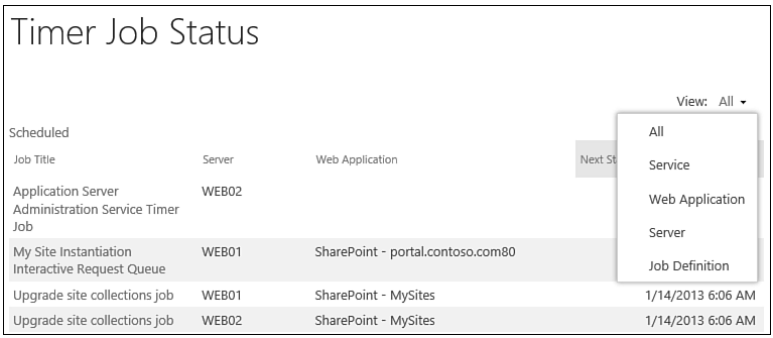

FIGURE 2.14
The Timer Job Status page.

The Timer Job Status page allows you to view the status of scheduled jobs, see running jobs, and view timer job history. You'll find this page useful when troubleshooting problems within your farm. Hung processes, such as workflows or backup and restore, can be deleted to allow for future instances. It is recommended that you not delete timer jobs when you are not sure of the consequences of that action. There is no option for you to delete platform-level jobs; this action would have dire consequences. Instead, they have replaced the delete option with a disable option. Always document your action for future reference if you delete or disable a timer job.

Farm Management

The Farm Management area, located under System Settings, is essentially a bucket for items that are associated with the configuration database or didn't fit neatly elsewhere. The Farm Management functional areas are as follows:

- **Alternate Access Mappings**—Details about this configuration option can be found in Chapter 4, "Creating and Configuring Service Applications."
- **Manage Farm Features, Manage Farm Solutions, and Manage User Solutions**—Details on these options are presented in Chapter 15, "Managing Apps and Solutions."
- **Configure Privacy Options**—This configuration option allows you to decide whether your server farm will automatically connect to Microsoft for the Customer Experience Improvement Program (CEIP), error reporting, and external web-based help. Be careful when turning these on if you are in a secure environment. Many times, servers in a secure environment will not have outbound HTTP enabled. If that is the case, web-based help will not function.

Database Management

The bulk of SharePoint Server 2013 content is almost entirely contained in SQL Server. As such, a properly designed and managed SQL Server infrastructure is critical to a well-running SharePoint Server environment. Because SQL Server has many books dedicated to the product, you'll be introduced only to the topics every SharePoint Server administrator should know in this section. Database management is contained in the Application Management section of Central Administration. The majority of Application Management deals with web applications, service applications, and site collections. Although databases are used with all three of these, there is a dedicated section for database management, as shown in Figure 2.15.

Content Databases

There are many farm-level settings and configuration options you should be aware of with content databases. When the first content database is created during web application creation, it includes several default options. The following configuration options should be taken into consideration when managing content databases:

- Size of the content database
- Number of site collections per content database
- Status of content databases
- Read-only content databases
- Location on the SQL Server physical disk

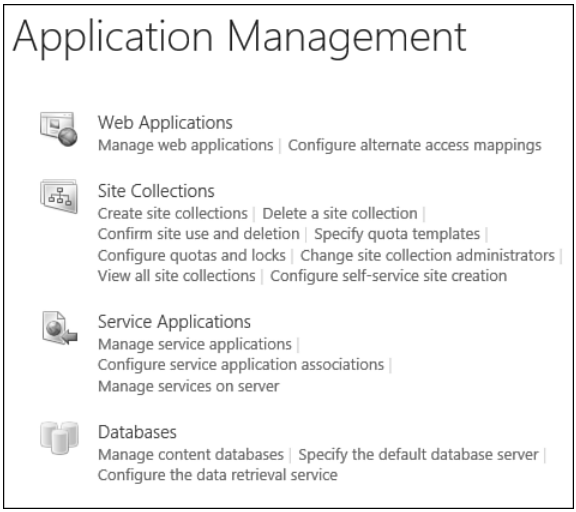

FIGURE 2.15
Databases are contained in the Application Management grouping.

Controlling Database Sizes

SharePoint Server 2013 does not provide direct functionality to limit the content database size. Although SQL Server can provide this option, it is generally recommended that you control the content database sizes with SharePoint Server 2013 site quotas. First, you need to know that site quotas are actually site collection quotas. There is no native method to limit site quotas. Second, you can limit the number of site collections in a database, but you cannot limit the number of sites. Again, the Central Administration interface is ambiguous on sites versus site collections. When we're discussing items within Central Administration, the word "sites" always references site collections. To limit the size of a content database using SharePoint Server options, you need to combine the following three SharePoint Server 2013 settings:

- **Maximum Number of Sites That Can Be Created in This Database**—This setting is found in Central Administration, Application Management, Manage Content Databases, after selecting a content database.
- **Quotas of the Sites (site collections) Contained in the Database**—These settings can be found in Central Administration, Application Management, Configure Quotas and Locks.

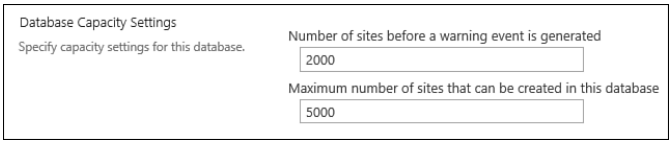

FIGURE 2.16
The Database Capacity Settings in Central Administration enables you to limit the number of sites in each content database.

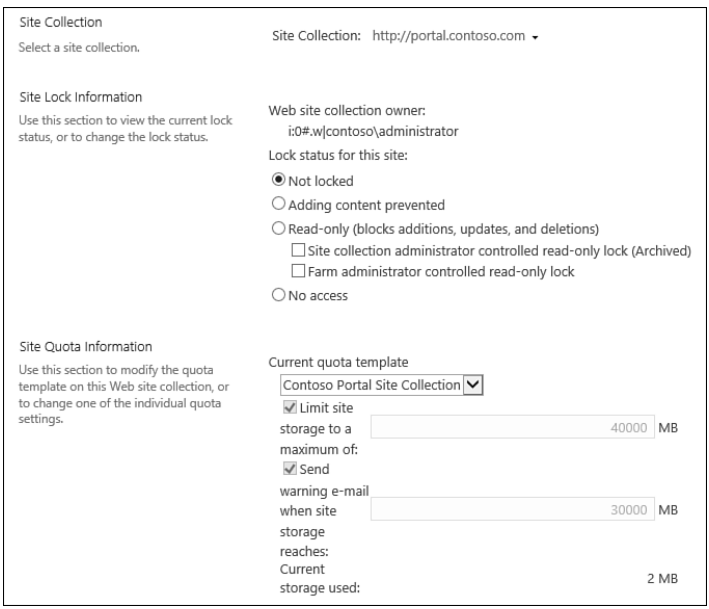

FIGURE 2.17
Site collection quota settings in the Site Collections and Locks section found in Central Administration, Application Management, Configure Quotas and Locks.

- **Percent of Site (site collection) Used for the Second-Stage Recycle Bin**—These settings are located in Central Administration, Manage Web Applications, General Settings on the Web Applications tab.

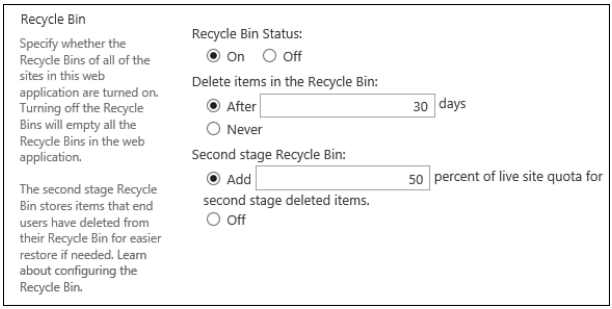

FIGURE 2.18
Configuring the Recycle Bin settings for the web application.

Using the settings just shown, you define the maximum database size by using the following formula:

(Maximum number of sites) × (site quota) ×
(1 + % of live site quota for second stage)

Configuring the Number of Site Collections per Content Database

The default number of sites (site collections) per content database should almost assuredly be changed. The default settings of thousands of sites as the maximum is entirely a fail-safe mechanism in the product. Using the formula previously mentioned, here is the result for a 15,000-site maximum:

15,000 sites × 10GB site quota × 1(.50 second stage) =
possible database size of 219 terabytes

A more likely scenario is this:

20 sites × 10GB site quota × 1(.20 second stage) =
possible database size of 250GB

The maximum database size recommended is somewhere between 200GB and 300GB. Your databases can be much larger in theory, but the practical daily management becomes difficult beyond the recommended limit.

> **Note**
>
> You should be very careful with maximum site collection sizes (the site quota settings). Large, busy site collections are likely to have SQL locking/blocking errors. A general rule is to have large site collections and a few users or small site collections with a large user population.

If you must have large content databases, try to isolate very busy site collections in a dedicated content database. This gives you the flexibility of managing the disk I/O of the site collection at the SQL level.

Configuring Content Database Status

The Content Database Status can be set to either Ready or Offline. The status of Offline is a bit confusing because the real purpose of taking a content database offline is to not allow more site collections to be created therein. In fact, site collections contained in an offline content database can still be seen and written to. The safest way to limit the number of site collections in a content database is by following these steps:

1. Turn off warning events by setting the threshold to zero.
2. Set the maximum number of site collections to the current number listed in the user interface. Be sure to create a new content database before creating a site collection; otherwise, the creation will fail.

Configuring Read-Only Content Databases

SharePoint Server 2013 also supports read-only SQL Server content databases. When you set a content database to Read-Only, the permissions in all site collections will automatically be reflected in the users' web browsers. For example, Figure 2.19 shows an example of a document library contained in a read/write content database, and Figure 2.20 is the same document library after setting the content database to Read-Only.

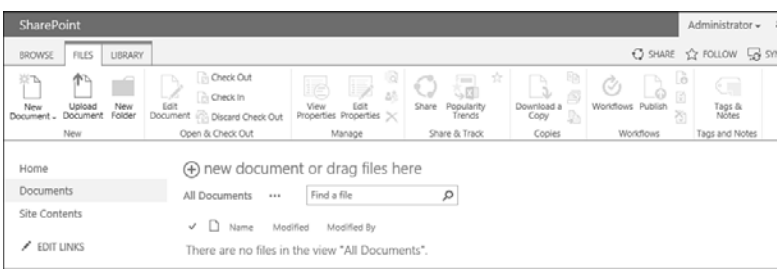

FIGURE 2.19
This is an example of a document library contained in a Read/Write database.

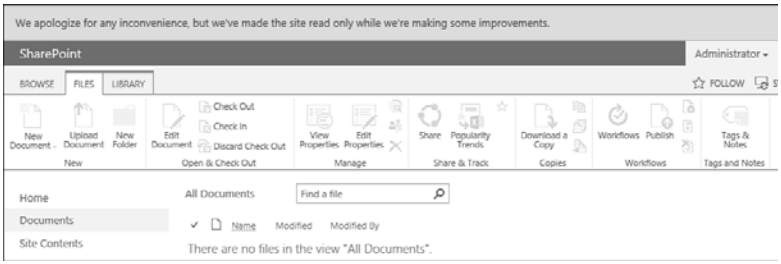

FIGURE 2.20
When the hosting database is set to Read-Only, no editing commands are available, and there will be an informational message across the top of the site.

You can see the current state of a content database by browsing to Central Administration, Application Management, Manage Content Databases, and selecting the relevant database. SharePoint Server 2013 displays only the status, however, and cannot be used to set the database state. To set a database to Read-Only, you must do so from SQL Server Management Studio. To configure a database to be Read-Only, do the following on the SQL Server console:

1. Open SQL Server Management Studio. (Its location will vary based on your version and edition of SQL Server.)
2. Locate the SQL Server database you want to modify, right-click, and select Properties.
3. Select the Options page, and under Other Options scroll down until you see the State options.
4. Locate Database Read-Only and click False, as shown in Figure 2.21.
5. Change the status from False to True, and click OK.
6. Restart the SharePoint Servers in the farm.

Setting the Database Location on a SQL Server Physical Disk

Although SharePoint Server 2013 can create databases and perform a minimal SQL Server database setup, you still want to do basic configuration of the databases on the SQL Server physical disks. Maintenance plans and recovery models can be quite extensive and are not covered in this section. It is recommended that you leave the recovery model as it is set by the SharePoint Server Configuration Wizard, unless you have advanced SQL Server experience and can verify that you'll be in a supported configuration.

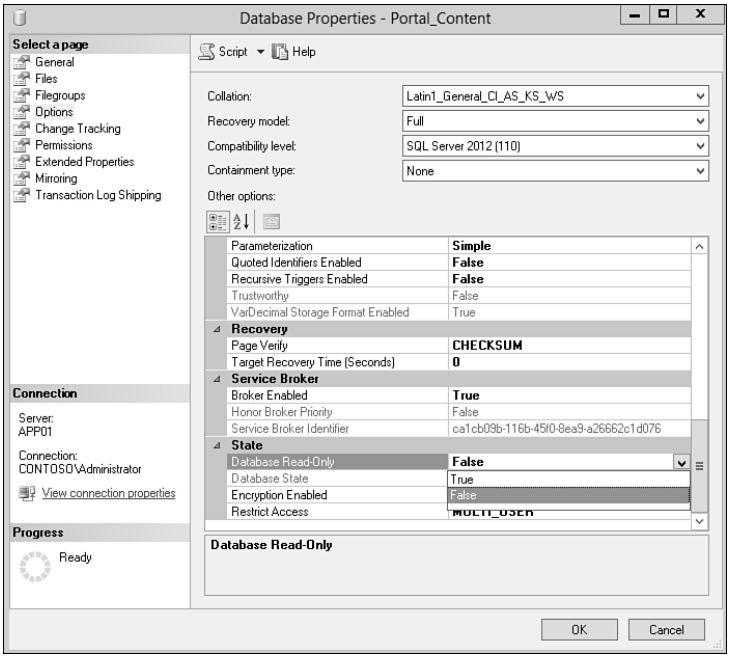

FIGURE 2.21
Select the down-arrow to the right of False to change the database state to Read-Only.

Note

For more information on SQL Server maintenance plans and system configuration, see http://technet.microsoft.com/sqlserver. However, some aspects for regular SQL maintenance do not apply to SharePoint Serve 2013. An example is *autocreate statistics*. SQL DBAs should validate any maintenance plan changes with the SharePoint Administrator before implementation.

If your SQL Server content must be highly available, service a significant number of requests, or both, you should separate the transaction log files and data files. Content is always written to the transaction log first, regardless of the recovery model. This allows the database to be brought back into a consistent state if you need to recover the database using SQL Server restore tools. Next, a SQL Server checkpoint process runs at regular intervals and writes the transactions to the data file.

Note

In the Full Recovery model, transaction logs are retained until you back up the database, at which time the transaction logs are truncated.

When users are viewing your web applications, they are almost always consuming the data file on SQL Server. By contrast, write actions are processed in the transaction log. Therefore, it is safe to assume that in a read-only server farm, the data file physical disk will be the most utilized. Because of the nature of SharePoint Server transactions, the transaction log and data file are usually equally used in a collaborative environment.

By default, SQL Server places both the data files and transaction logs on the same volume on SQL Server. You can change this default behavior by modifying the default SQL Server settings. To change the default location for new databases, do the following on your SQL Server console:

1. Open SQL Management Studio.
2. Right-click the server name and select Properties.
3. Select Database Settings.
4. In the Database Default Locations Settings, choose a previously created volume.

Note that if multiple volumes share the same physical disks, you will not see a performance increase. If possible, you should separate the transaction logs and the data files on separate physical disks and not on the system volume. Figure 2.22 shows an example of changing the data file location to the D: volume and the transaction logs to the L: volume.

Note

For current best practice information on separating the disk location of transaction log files and data files, browse to http://technet.microsoft.com/en-us/library/bb402876.aspx.

Note

For information on testing the SQL Server I/O subsystem, browse to http://technet.microsoft.com/en-us/library/cc966412.aspx.

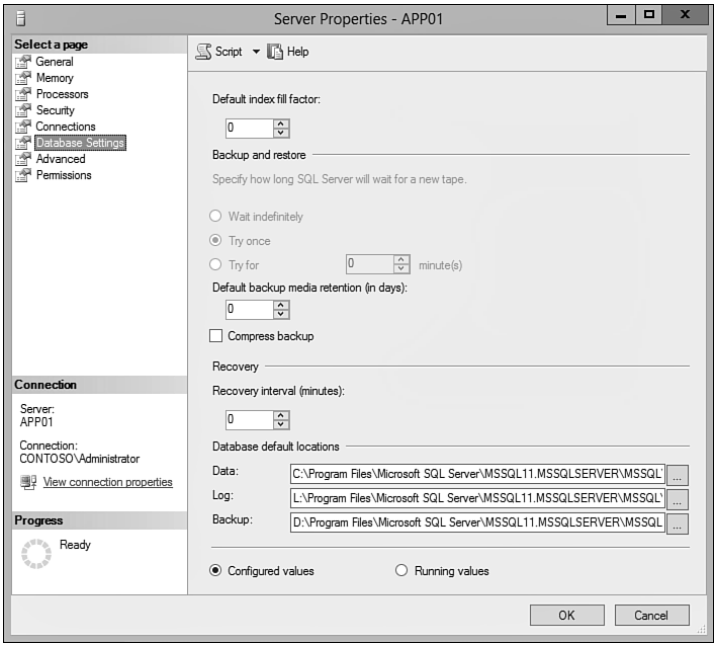

FIGURE 2.22
You can change the database default locations in SQL Server Properties.

Changing the Default Database Server

When you installed SharePoint Server 2013, you selected a database server for the configuration database. The SQL Server you selected became the default content database server. You can change this default at any time from Central Administration, Application Management, Specify the Default Database Server. Unless you are in a specialized environment, do not use SQL Server authentication. Windows Authentication is almost always the correct choice. Do not fill in the Database Username and Password fields when using Windows Authentication. SharePoint Server 2013 automatically configures the SQL Server permissions when using Windows Authentication.

Configuring Data Retrieval Service

The Data Retrieval Service was first introduced in Windows SharePoint Services 2.0 and allowed for a connection to internal or external data sources via web services. SharePoint Server 2013 continues to build on the

service, and it can be configured for the entire server farm or on a per–web application basis. For the most part, you leave this configuration set to default unless you are requested to change it by a designer or developer. For example, you might need to change it when requiring access to stored procedures on a non–SharePoint Server database, external content source (OLEDB), or XML and SOAP web services from within SharePoint Server 2013.

Configure the Data Retrieval Service

To configure the Data Retrieval Service, browse to Central Administration, Application Management, Configure the Data Retrieval Service. There are seven configuration options:

- **Web Application**—Be sure you are selecting the correct web application before continuing. Note that the user interface refers to Global Settings—those are also selected in the web application drop-down menu, as shown in Figure 2.23. By default, the global settings for the Data Retrieval Service load when you access the page. If you select a web application from the drop-down list, you are given the option to inherit the global settings.

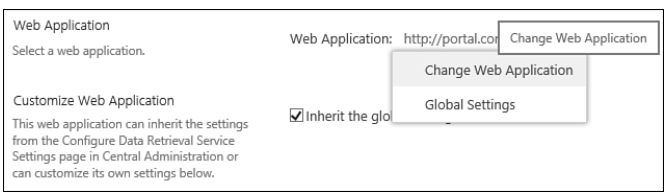

FIGURE 2.23
Select Change Web Application or Global Settings using the drop-down menu.

- **Customize Web Application**—If you want to use web-application scoped settings, clear this option. If you want to override prior web-application changes, you can also select this box to reapply the global settings. This is useful if you made a mistake configuring a specific web application.
- **Enable Data Retrieval Services**—Be careful when deciding whether to turn off this option. Both SharePoint Designer 2013 and Visual Studio 2012 might leverage these services via web parts and custom code. Check with your development team before disabling these services.

- **Limit Response Size**—Unless directed by your development team, the default OLEDB response size should be selected. You should monitor your server's memory utilization if you increase the defaults, and you should do so over a period of several days. Large OLEDB queries can quickly use server memory.
- **Update Support**—This option is disabled by default, but many developers will want to enable this option. A common reason for doing so is that custom code might call a stored procedure in a non–SharePoint Server 2013 database. This is often more efficient than bringing the data into .NET for processing.
- **Data Source Time-Out**—Unless you are calling data sources over a wide area network (WAN), the default timeouts should be sufficient.
- **Enable Data Source Controls**—Data Source Controls allow controls to bind to other controls without the need for custom code. This option is usually enabled.

Configuring Send to Connections

This section walks you through the configuration options of an external service connection in Central Administration and shows you how to connect to a site collection for the purpose of publishing a document.

Before you can use Send to Connections in a site collection, you must first configure the service in Central Administration. The connection is valid for an entire web application, but you must configure an entry to each site collection you want to connect to. In the following example, the destination site collection is http://portal.contoso.com/sites/ISO.

To begin configuration, browse to Central Administration, General Application Settings, External Service Connections, Configure Send to Connections. Always verify you are configuring the correct web application before continuing.

Configuring Site Subscription Settings

SharePoint Server 2013 allows for multitenancy and is primarily targeted at SharePoint Server hosting providers. This allows for isolation of hosted site collections, as well as the capability to consume service applications at the site collection level. This segmentation is known as a *site subscription*. Although most readers will not have their implementations configured in such a fashion because of the complexity involved, you can limit the ability of these tenants to create connections beyond their environment. If you do not have multitenancy configured, this option can be left as the

default. If you do have multitenancy enabled, you must decide whether to allow connections between tenants. This decision is a business, process, and security decision.

Configuring the Content Organizer in the Destination Site

Before you can configure Central Administration for Send to Connections, you must first enable the Content Organizer feature in the destination site. The Content Organizer feature allows settings and rules to route inbound files to the site. Based on the defined settings and rules, the destination site will sort and route files to the appropriate library or even to other site collections.

Enable the Content Organizer in the Destination Site

To enable the Content Organizer in the destination site, do the following:

1. Browse to the site you want files routed to.
2. Select Settings, Site Settings.
3. Under the Site Actions Grouping, select Manage Site Features.
4. Activate the Content Organizer feature.
5. Click Settings, Site Settings, Site Administration, configure Content Organizer Settings and Rules.

> **Note**
>
> For more details on configuring the Content Organizer, see Chapter 9, "Configuring Document Management."

Configuring Multiple Send to Connections

You can configure multiple Send to Connections and even create multiple connections to the same site using different rules. If this is your first connection, just continue completing the form. If this is a subsequent connection, either choose New Connection or select one for editing. Note that you can select the Add Connection control if you want to configure multiple Send To Connections. This prevents the configuration screen from closing and allows you to immediately add another connection. Figure 2.24 shows an example of the Send to Connections configuration page while adding the http://portal.contoso.com/sites/ISO connection.

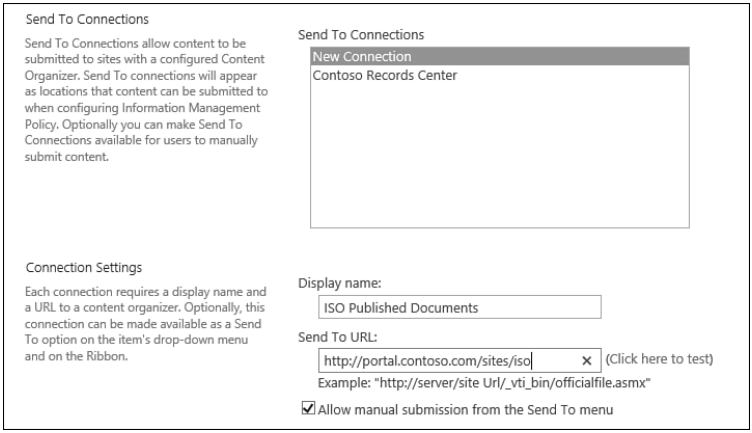

FIGURE 2.24
Highlight New Connection when creating a new Send to Connection.

Note

Before you can add a new Send to Connection, you must first activate the Content Organizer feature in the destination site.

Allowing Manual Submissions

A commonly configured option is to Allow Manual Submissions from the Send To menu, as shown in Figure 2.24. Selecting this option allows users to manually send to the destination site from the user menu in a library. If you do not select this option, you'll have to use another mechanism, such as custom code or SharePoint Designer 2013, to enable the file transfer. If you select to allow manual submissions, the user experience is similar to that shown in Figure 2.25.

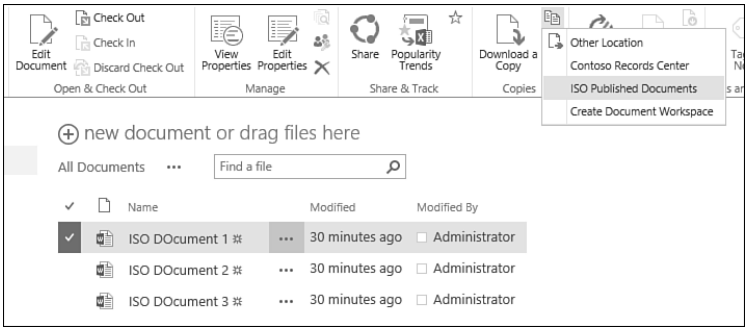

FIGURE 2.25
Select the Send To location from the Copies section of the document library ribbon.

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