

THE EXPERT'S VOICE® IN OFFICE AND SHAREPOINT

Office and SharePoint 2010 User's Guide

Integrating SharePoint with Excel,
Outlook, Access and Word

Empowering productivity for the Microsoft Office 2010 user

Michael P. Antonovich

Apress®

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For my wife of 33 years, Susan, and our wonderful daughter, Natasha. I love you both.

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About the Author



■ **Michael P. Antonovich** graduated from Lehigh University with a bachelor's degree in chemical engineering in 1976 and a MBA in 1980, but his career almost from the start evolved toward computers and application development. He started working with large mainframe systems but quickly developed a keen interest in microcomputers when Apple introduced its Apple II, for which he wrote his first book in 1983. Over the years, he has learned many different systems, applications, and programming languages, but the first development environment he felt really strong about was FoxBase and later FoxPro. During the 90s, he published four books on FoxPro before the Internet and SQL Server bug bit him.

In addition to his full-time jobs developing applications, he has conducted dozens of different computer training classes for companies and universities over the years. Since his first SharePoint book, Michael has become a regular speaker at many of the SQL Saturday, Code Camp, and SharePoint Saturday events in the state of Florida, having presented nearly two dozen sessions in the last three years. He also has been serving on the

Information Technology Advisory Committee of Valencia Community College.

In 2003, he joined the IT team of Orange County Public Schools as they prepared to launch a major new student tracking system. But the lure of the Internet along with a "little" product called SharePoint pulled him back into Internet development in the fall of 2006, when he took on the task of heading up the technical team to develop a new SharePoint portal for the school district that would provide all users with a single, consistent, easy-to-use interface. Since then, his team has completed the refresh and branding of all district Internet and intranet sites. They also worked with representatives from each of the over 170+ schools in the district to create new branded sites that follow a common site template providing consistency in locating information across the schools. Currently, Michael's team is preparing for a refresh of the branding for both the schools and intranet sites to enhance the consistency between sites further and to take advantage of the new SharePoint 2010 features. They are also committed to expanding the number of applications embedded or run through SharePoint employee sites to help reduce the district's paper usage and improve operating efficiencies. Orange County Public Schools is the 10th largest school district in the United States.

About the Technical Reviewer



■ **Razi bin Rais** is a Microsoft technology specialist with focus on Microsoft SharePoint Products and Technologies. Razi has extensive experience in designing, implementing and supporting enterprise solutions using Microsoft SharePoint Server. Razi has authored numerous articles published online and also worked with Microsoft MSL as a SME on several SharePoint 2010 courses. Razi is also a speaker for INETA and GITCA, and had led many sessions in several industry trade show conferences including the Microsoft TechDays, ISV innovation Days, Community Technology Updates and SharePoint Saturdays. For his community involvement and contribution, he has also been awarded the Microsoft MVP award for SharePoint Services since 2007. Razi blogs at <http://razi.spaces.live.com> and can be reached at razibinrais@live.com.

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To the entire SharePoint team at Microsoft, thanks for continuing the feature expansion of such a tremendously powerful and solid development platform like SharePoint. Keep the vision. It brings together the best of the Internet with the best of Microsoft Office in a way that boosts productivity to astronomical heights. It is truly an 'office' game-changer.

To my everyday SharePoint Team of the last three years, special thanks to Mike Healey for helping all of us understand web parts, workflows and general SharePoint administration tasks. A big thanks to Suyin Ferro Rams for all the work you have done to develop applications that we can deploy through SharePoint. Thanks also to Serena Wright for guiding us as our unofficial project manager through the last three years of successfully deploying hundreds of Internet and intranet sites, and over 170 branded school sites. Finally thanks to Robert Curran, our Applications Director, who believed in our ability to succeed during the last three years as we built all of our district's sites and supported our 'One Portal – One View' vision originally proposed by Charles Thompson. As you know Robert, we are not done yet.

I also want to give a shout out of thanks to Andy Warren of End-to-End Training in Orlando, FL for getting me out of the office and involved in the original SQL Saturday (yes, my other passion is SQL Server), an activity that has led to other speaking opportunities.

A huge Thank You has to go to my wife Susan for understanding that writing a book takes a lot of time away from other things, not just for a few days, but for months. Moreover, thank you God above for making all of this possible and for giving me my wife and daughter without whom all of this would have little meaning.

Then there are the uncountable seminars, webinars, newsletters, white papers, blogs, books, and other information sites I have read over the last three years on SharePoint, Office, and SQL Server.

Finally, thanks to all the production people at Apress for their parts in making this book not only happen, but also look so good. You make the process easy.

Introduction

Since the release of SharePoint 2007, the popularity of SharePoint has grown each year. With the new release of SharePoint 2010, Microsoft has further expanded the feature set. Some of the improvements include changing the way you connect to external data sources, adding the ability to display Visio diagrams directly in the browser, publishing Access applications to a web site and more. Visually, they have made editing the content of your pages more like working in Office with the addition of the ribbon interface. It is my belief that SharePoint is the biggest change to the way you and I work in our offices since ... well ... since Microsoft Office. Word showed us how to write and edit more efficiently on a computer screen than we ever could with a typewriter.

Over the years, Microsoft Office has become so pervasive that it is almost impossible to get an office job today if you do not have a firm understanding of at least Microsoft Word and Microsoft Excel. Perhaps now it is time to add SharePoint to that list of job requirements. SharePoint can help organize where you save your documents as well as how you archive them into Records Centers to preserve them. Sharing documents and other files with coworkers insures that there is only a single version of the truth. The need to print documents to send them to others is all but eliminated through the ability to create and use collaboration sites and SharePoint Workspaces. Creating applications quickly and with minimal programming has been enhanced with the ability to publish Access applications in SharePoint so that anyone with a browser can access and interact with them. The new Business Connectivity Services lets you gather data from many data sources creating a single view of the information important to you and your coworkers. Of course, you can still create your corporate web sites and even internal employee intranet sites using the same tools and methodologies you learn while working with your collaboration sites.

We have all heard of that utopia of a paperless society where information flows at the speed of light from its point of creation to each user who must review, approve, and use it. However, the electronic revolution of the 1990s and 2000s did not free us from paper. Perhaps the Internet was not the solution, although it was an enabling technology that made our vision of the office of the future possible. As a result, the rising tide of paper on most information workers' desks seems to have gotten bigger. Perhaps the tools of the last two decades were just not ready. Perhaps we were simply missing that keystone software tool that brings it all together into a compelling argument.

Is SharePoint that tool? I believe that it can be the enabler that brings our dream of a paperless society into reality.

Oh, you say you have heard of SharePoint, but thought that it was just a portal for a company's web site. Yes, it is that, but that is only one part of this many-faceted tool.

SharePoint sits on top of the many technologies. It borrows a lot from web development. However, it also integrates tightly into the Microsoft Office products, giving them the ability to accomplish goals like the following:

- Create shared document libraries that users can access from anywhere they can get an Internet connection or to work on those documents offline and then synchronize their changes with the document library the next time they connect to their corporate intranet.
- Present electronic forms that people interactively complete, rather than forcing them to download and print the form, write on it, send it back, and then have someone enter the data into a computer program interface.
- Store multiple versions of documents so a revision history can be retained or to archive a copy of a document into your company's permanent records archival center.
- Display business information in Excel-style pages, dashboards and Key Performance Indicator (KPI) lists that change interactively to help managers make better decisions.
- Use agile application development with Microsoft Access to meet the needs of various departments and groups within your corporate environment and deploy that application to run on the user's browser so they can truly access it anywhere. By deploying through Access Services on SharePoint, these applications are secure, backed up, and easily maintained, since they only have a single source for the data, the forms, and the reports.

In the last three years, a large number of IT people worldwide started using SharePoint. They are creating web sites and collaboration sites by the thousands every day. And that is good. However, SharePoint will not reach its full potential until every computer user who knows how to use Microsoft Office can also use SharePoint together with their favorite Office application, such as MS Word, Outlook MS Excel, or MS Access.

This does not mean you need to know how to install SharePoint or even how to configure it (although understanding a little of the configuration would not hurt). However, it does mean that you need to know how to create and use libraries, lists, and many other features. It means that you need to learn how to use Office tools like Word, Outlook, Excel, and Access to not only create and maintain your own files on a SharePoint site, but also to store files on a centralized server at your company that you can access from anywhere you can get an Internet connection. It should no longer make a difference whether you are connecting through your home computer or using your laptop and wireless connection at a resort while on vacation. You could even be at your local library using its public computers. Perhaps you will even access your information from your cell phone or tablet computer. Anywhere. Any time. The dream of connecting to your corporate data exists today and is only a connection away.

However, there is more than just accessing your files. You can share your files easily with your colleagues or even the project consultant who works in a different city. Let's create workflows without resorting to programming so that, when you create a document, you can automatically send it to someone else for review or approval. Let's see how to consolidate lists, calendars, and tasks from multiple sources. Let's discover how to create forms for others to use directly from their browser. But most of all, let's see how you can become more productive and efficient using your favorite Microsoft Office tools together with SharePoint, without needing to spend months learning how to program first.

The revolution in the way you will work in an office began three years ago with SharePoint 2007. Are you ready? You already know how to use the basic Microsoft Office tools. Now, let me show you how to leverage those tools to enhance your productivity and free you from that paper avalanche hanging off the side of your desk.

Who This Book Is For

This book is for those of you who have been using Microsoft Office perhaps for years to get your daily work done and now are looking for ways to share your work with your coworkers and to collaborate with them. You may not really want to learn programming. You would rather leave that for others. However, you are willing to use the tools and features that programmers make available to you if it makes your job easier or helps you get your work done quicker. Sure, maybe with some programming skills and some time (perhaps a lot of time), you could make SharePoint do many other things that it just cannot do out of the box. If that is your goal, there are many other excellent books on the market that will take you down that road. However, for now you just need to get the most out of your Microsoft Office tools as quickly as possible. Are you one of those people willing to learn a new tool if it makes your job easier, faster, and perhaps even fun? If that describes you, then you are (or can become) a power user of Microsoft Office. You can become that indispensable person in your office that other people come to when they need to do something in Office and SharePoint but don't quite know how to begin.

With the release of both a new Microsoft Office 2010 suite and SharePoint Server 2010, this could be your best time to take that next step in productivity at your office. You can lead the way to increased collaboration between project and department staff members, build the content for your company intranet and Internet sites, and go green by reducing the use of paper in your office by using electronic forms redirected with workflows. Perhaps you dream of a day when you will not need a single sheet of paper on your desktop to get your work done. Perhaps your dream is to enable your coworkers to collaborate from anywhere around the world. Perhaps you dream of a day when you can work from home without having to commute hours each week to and from your office or burn more of our precious oil sitting in traffic jams. If this sounds like I am describing you, then this book is your starting point toward that future.

Contacting the Author

You can contact the author by email at mike@micmin.org. I will be establishing a blog, at www.micmin.org/blog.aspx, to go along with this book; there from time to time I will post additional tips and tricks related to collaboration between Microsoft Office and SharePoint 2010.



An Overview of SharePoint

This book first went on sale as Microsoft introduced SharePoint 2010, a remarkable follow-up to the highly successful SharePoint 2007 product. It is hard to believe that it was only three years ago that SharePoint 2007 debuted as enterprise-level application solution for organizations deploying various combinations of internet, intranet, and extranet sites. It was so successful that Gartner placed SharePoint 2007 in its 2008 leader's quadrant for Horizontal Portal Products, Enterprise Content Management, and Information Access Technology. By heavily leveraging Microsoft's Office family products, the SharePoint environment allows teams to work together and collaborate even when separated across the country or the globe.

SharePoint 2010 continues in that fine tradition by enhancing its collaboration features. Throughout the latest release of this product, you will find many improvements over 2007; some little items, others fairly major. Together these improvements make SharePoint 2010 your platform of choice for deploying any web-based information or applications web site for your company or customers.

There are many opportunities to exploit SharePoint's features. For some, you need a fair amount of programming expertise. However, for power users of Microsoft Office, you can easily manipulate many of the features directly through the interface with little to no coding experience. In this book, I will focus on helping you extract the most benefit from SharePoint using familiar Microsoft Office tools such as Outlook, Word, Excel, PowerPoint, and Access. I will also help you explore some of the lesser-known tools such as InfoPath to build and deploy forms, Groove (renamed SharePoint Workspace) to create custom local collaboration groups that integrate with SharePoint, and SharePoint Designer for those who may want to do a little custom branding or create their own custom page layouts. Overall, this book concentrates on collaboration-type activities as opposed to Internet site development. However, many of the same techniques used in collaboration sites apply just as well when working with web pages, web parts, libraries, and lists.

In this chapter, you will first discover the basic hierarchy consisting of site collections and sites used in SharePoint site development. Think of it as creating the framework of a new building. Next, you will see how to build out that framework with pages, libraries, lists, and more. You will also learn how to set permissions for users and how to define and inherit permissions from one site to another. You will gain an understanding of how permissions affect what a user can do within a site, from creating new content to just viewing someone else's content. Next, you will build a document library and learn how to use Microsoft Word to add and edit documents stored in that library. Then I will show you how to preserve the integrity of your editing with the Check Out and Check In facility for documents. Finally, you will explore the use of versioning to keep track of changes and to control what information others can view.

Subsequent chapters explore SharePoint's other features, from lists through web pages, but in all cases, you will discover how to integrate your current knowledge of Microsoft Office tools with your SharePoint activities. My goal is not to make you a SharePoint administrator or even a SharePoint programmer; rather, my goal is to make you a power user when it comes to working with SharePoint and Microsoft Office.

For those of you who may have used Windows SharePoint Services 3.0 (WSS 3.0) for collaboration within your company, you may be pleased to know that WSS lives on but with a new name, SharePoint Foundation 2010. Although I will not single out features of SharePoint Foundation 2010, much of what I cover in collaboration applies to that product as well. In fact, Microsoft is currently expected to market at least several different versions of SharePoint 2010:

- SharePoint Server 2010: Intranet Scenarios
 - Enterprise Client Access License
 - Standard Client Access License
- SharePoint Server 2010: Internet/Extranet Scenarios
 - SharePoint Server 2010 for Internet Sites, Enterprise
 - SharePoint Server 2010 for Internet Sites, Standard
- FAST Search versions
 - FAST Search Server 2010 for SharePoint
 - FAST Search Server 2010 for Internet Business
- Entry Level/Pilot solutions
 - SharePoint Foundation 2010
 - SharePoint Online
 - SharePoint Online for Internet Sites

Site Collections, Sites, and Sub-sites

SharePoint organizes content around a container structure referred to as a site. In fact, when you first install SharePoint on a server it creates a site used to manage the entire *SharePoint farm* called Central Administration. However, other than your SharePoint administrator, most users typically never interact with Central Administration. A site can contain sub-sites and those sub-sites can contain additional sub-sites. The top-level site defines the overall site collection. You may begin your interaction at this top-level site or at one of the sub-sites in the site collection. A SharePoint installation can have multiple site collections. To support SharePoint, you may need more than a single server to support the database, indexing, searching, applications, etc. All of these servers together constitute a SharePoint farm.

SharePoint Farms

Some of you may have heard the term SharePoint farm and wondered what they were talking about. Surely, they don't grow SharePoint in the fields outside of Redmond, Washington. Rather, the SharePoint farm is a name given to the collection of all of the servers that make your SharePoint installation work. At its simplest, you could build a farm with a single server on which you have everything installed. Small companies may get along fine with a single server installation. However, as your site grows, you may find the need to move SQL Server to a separate physical server. Next, you might add separate web servers. Then, as your site continues to grow, you might need a separate server for searching or indexing your sites or perhaps a server to host other applications that you want to run from within SharePoint. As you can see, your server needs can grow from single machines to multiple machines sort of like... well... like weeds on a farm.

You create site collections only from within Central Administration. Your SharePoint administrator can create multiple site collections within what is called a web farm and may define different site collections for different purposes. All other SharePoint users typically cannot create their own site collection but must work within the one given to them from their SharePoint administrator. Therefore, I will not go into creation of site collections in detail in this book.

A site collection forms the container in which you build all sub-sites. Your organization may have one site collection or they may have many, perhaps one for each department or each division. However, no matter how many site collections you have, you build each of your other sites as sub-sites beneath one, and only one, of these site collections. Interestingly, the site collection must contain at least one site referred to as the *top-level site* of the site collection, and from within it, you can display pages, lists, and libraries. It is from within any site that you can build a sub-site, another container inside the larger container. This may remind you of nested Russian dolls, but that image is incomplete. Unlike nested Russian dolls, a site can have more than one sub-site directly beneath it. To that extent, the hierarchy is more like a family with each parent site having no children, one child, or multiple children. Figure 1-1 shows typical but very simple site hierarchy architecture in SharePoint.

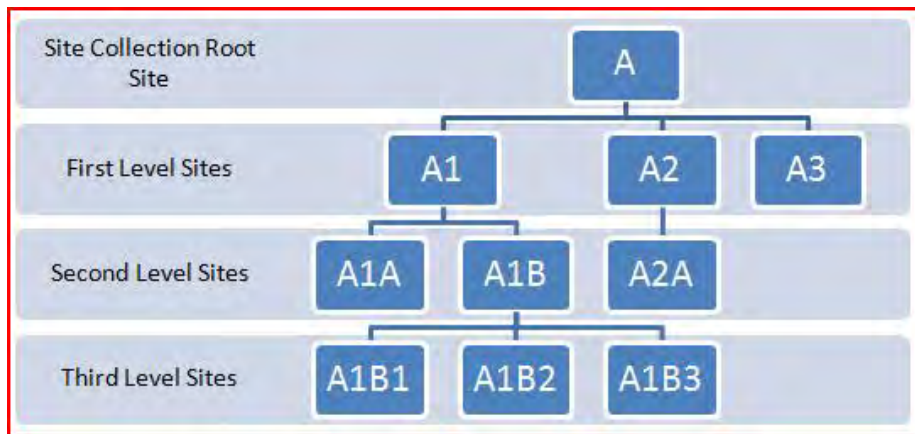


Figure 1-1. Site architecture

Another interesting thing about site collections is that each site collection can be stored within a separate database in SQL Server or you can combine multiple site collections within a single database. Storing each site collection in a separate content database makes it easy to back up and restore individual site collections. Storing multiple site collections in a single database means that there are fewer backup jobs for the DBA to manage. Using separate databases means that each database could reside on a different drive through partitioning. So is it best to place all of your site collections within a single SQL database or should you place each site collection in a separate database? The answer is not clearly one or the other. It is not that black or white. Rather it probably is a little of both. SharePoint administrators try to limit the number of site collections in each database depending on the amount of activity each site is going to get and its expected size. They do this for the following reasons:

- Improved performance within SharePoint may occur by grouping sites within one database that are read more often than updated.
- Data can be retrieved faster if you spread databases across multiple disk drives.
- Keep the number of site collections in some content databases small if the data updates frequently and the loss of data could be critical. This also makes backups and restores faster because each database is smaller.
- Special site collections created for shorter-term projects can be more easily archived and removed when they are no longer needed if you store them in their own site collection.

When considering which site collection should hold which site, you might be interested in grouping sites with similar user permissions together in one site collection so that you can manage the permissions at the top level of the site collection. You could then allow each sub-site to inherit the permissions of its parent. Only if a sub-site needs its own unique permissions would you need to break inheritance and define custom permissions.

So what goes into a site other than child sites? Each site you create supports groups of related pages, libraries, and lists. Think of this as your site's content that you can view using a web browser. In terms of content, a site typically focuses on specific topics, groups of people, or related activities. Each site has a home page, called its *default page*, which is the first page users see when going to the site. This default page usually provides navigation to the other pages in the site, either through menus or links. Each subsequent site page supports content ranging from lists to libraries to plain text and images. Once created, together they form what looks like a traditional web site.

SharePoint calls users who have the ability to change content within a site *content creators*. As a content creator within SharePoint, you have the authority to control the appearance and content of pages. No longer must you submit content changes to a web design person or web master and then wait for him to incorporate the changes into your organization's web pages. If you defined the site for collaboration, you may work with groups of people within your organization who also have permission to update lists, documents, and even content pages.

As mentioned previously, a site can have one or more *sub-sites*. While a sub-site inherits many of its properties from its parent site, you can also give it its own identity, properties, and objects. You use sub-sites to divide further the focus or topic of the higher-level site. For example, if one site represents a department, a sub-site might represent a project or a team within that department.

While you typically store all content for a site within that site, there is no reason why you cannot reference content from sub-sites. In fact, the top-level site (the first site at the root of the site collection) has several *special object collections*. One is called Site Collection Images and the other is Site Collection Documents. Both are libraries specifically designed to share files across any of the sub-sites within that site collection.

Perhaps you're thinking that creating a site from scratch sounds a little intimidating. Indeed, before SharePoint, the prospect of creating sites to support an entire organization would probably require a team of developers and months of time. However, SharePoint streamlines the process of building sites by providing a collection of *templates* for pages and for various object types that you can place on those pages to help get you started. Of course, as you progress in your SharePoint knowledge, you can add to these templates with your own or those from third-party developers. While this book focuses on collaboration sites, let's start with a quick overview of all the site types you can create out of the box with SharePoint. I'll begin with collaboration sites.

Site Collection Templates

SharePoint 2010 provides five types of site collection templates, as shown in Figure 1-2. Each template provides a unique starting point for creating a new site collection. However, just because each site collection template initially defines specific unique features and web parts, it does not limit your subsequent customization of the site. In fact, SharePoint allows you to customize a site created with one template with features and web parts found in another. You can even create your own custom templates starting from one of the supplied templates. So let's see what each site collaboration template type provides by beginning with the collaboration type templates.

Collaboration Templates

Collaboration templates help you create sites that support a high degree of interaction between the users who have access to those sites. In fact, most people who go to collaboration sites go there to add information or respond to existing information, not just to look at what is there. SharePoint 2010 provides six different templates that it classifies as collaboration style templates that it uses to create a top-level site in a new site collection. You can also use most of these as sub-sites. Figure 1-2 shows the available collaboration templates. Let's take a brief look at each of them.

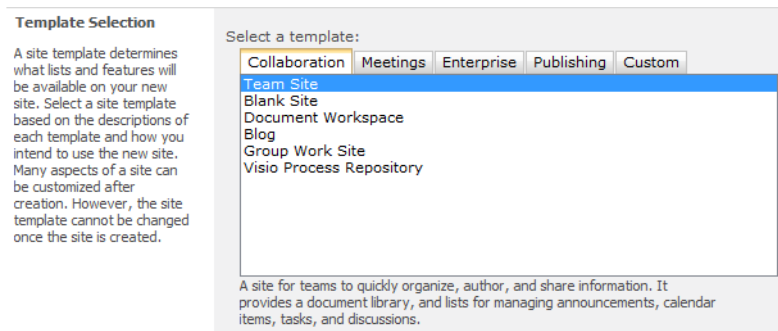


Figure 1-2. Collaboration templates

Team Site

A team site template serves as a fast, out-of-the-box starting point for content created by and for work teams. For that reason, it may become your favorite site template for building collaboration sites. It provides a common area for creating and sharing of information using document libraries and lists. It lets you establish project calendars, track individual and project tasks, and facilitate discussions among the team members.

Figure 1-3 shows the home page of a team site created by the SharePoint administrator to be the top-level site in a new site collection. I have made several additions to it so I can identify the different areas of the page that you need to become familiar with, as I will refer to them often throughout this book. As you begin work in this chapter, I will assume that your SharePoint administrator has created a team site for you to use in order to practice your new skills in this and subsequent chapters. If not, go ask for one now. I'll wait.

■ **Note** A team site created within SharePoint includes a My Site link in the My Profile drop-down menu of your user name found in the upper right of the screen. Your profile page then contains links to tags and notes that you may have created. It also contains links to your organization information, colleagues, and memberships. Of course, the amount of information stored in your profile page will depend on whether users at your organization choose to use the profile features. The **Site Actions** button appears on the upper left side of the screen for those users who have permission to use one or more of the options in the resulting drop-down menu. Users who can only view the site will not see this button. The following examples assume that you have the necessary permissions to edit site content. Anything described here that you cannot see on your site is probably due to permission settings, and you should ask your SharePoint administrator if you can get those rights at least within your practice site collection.

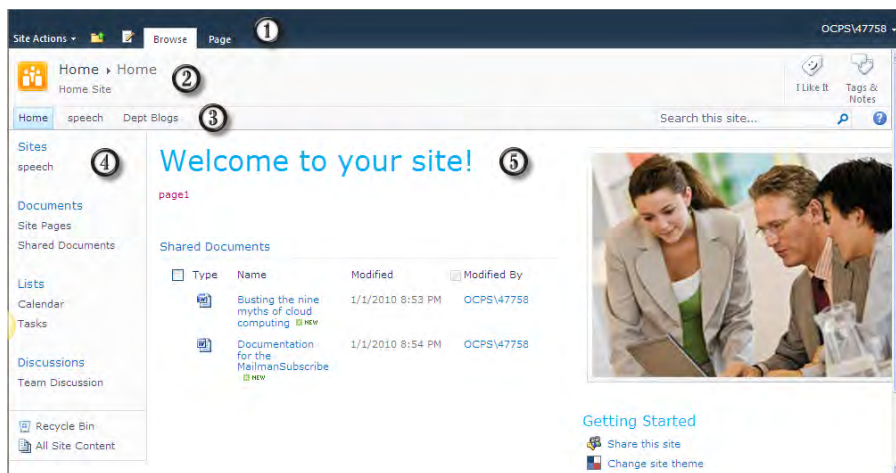


Figure 1-3. The major sections of a SharePoint page

1. The top banner of the site begins with the Site Actions drop-down menu on the left side. This menu only appears for users who have edit rights within the site. Next is the Navigate Up icon displayed as a folder with an up-pointing arrow. Clicking this option from any page shows the site hierarchy from the top-level site to the current page. You can click on any of the intermediate levels to navigate immediately to that level. The next icon looks like a page with a pencil on it; this is the Edit icon. This icon lets you edit the current page, assuming you have the necessary permissions. This icon also activates the Editing Tools for the page and opens the Format Text ribbon allowing you to immediately start making changes to text on the page. When in edit mode for the page, this icon changes to a Save link. Next is the word **Browse**, which represents the default display mode for the page. Clicking **Browse** while editing a page hides the ribbons but leaves the page in edit mode. Clicking the word **Page** opens the page in edit mode like the Edit icon but displays the Page ribbon, which includes various actions that you can perform against the page itself. Finally, on the far right of this banner SharePoint displays the name of the currently logged-in user. If you access the site anonymously, you will see the words **Log In** instead. Your user name serves as a drop-down menu that includes options that allow you to go to your profile, change your settings, sign in as a different user, and even sign out of the site.

■ **Tip** The site developers in some organizations have multiple accounts representing different permission sets so that they can log in and view pages as other users would see them. For example, members of the IT department may have a second account that allows them to manage any site in the entire SharePoint farm.

2. The Title Area begins on the left with the site logo followed immediately by the name of the site and then by the name of the page. Beneath the site name, SharePoint displays the site description. On the right side of the title area, you will find several buttons depending on the options your SharePoint Administrator has turned on. The first one shown in this image allows you to add a suggested tag to the page, such as the one shown here that simply says that you like the page. If you want to tag the page with your own text string or if you would like to add a note to the page, click on the **Tags & Notes** button found on the far right. This button opens a dialog that has two tabs, one for tags and one for notes. You can add public and private tags on the first page. Tags typically consist of individual words or short phrases. Most people use tag words to identify related content. The page creator may then create a page with the new tag cloud web part, which displays the tag words in various sizes based on the frequency of their use. When a user clicks on a tag in the cloud, it displays a list of the pages where people entered those tag words so users can find related content. The second option of this button lets you create notes about the page. Notes differ from tags in that notes are more likely to consist of sentences or even paragraphs commenting on the page.

3. The Top Link Bar lists the sub-sites defined under the current site. When a user creates a new site, they have the option of whether to include the site in the top link bar of the parent site. They also have the option of whether to use the parent's top link bar or to begin a new top link bar beginning with the current site. Even though this removes the link to the parent site on the Top Link bar, the user can still return to the parent site by using the Navigate Up icon mentioned in the top banner. On the right side of the top link bar, you will find the Search and the Help buttons.
4. The Quick Launch area located along the left side of the page provides one-click access navigation to selected sites, documents, and lists. Depending on your permissions, you can customize what appears in this area and the Navigation Bar.
5. The Main Content area takes up the rest of the page. SharePoint divides this area into one or more content sections. You can add content in each area consisting of text libraries, lists, and other web parts to customize your page.

Blank Site

The blank site template is SharePoint's version of a blank sheet of paper. The person creating a site with this template must build the site's page content from scratch. Until you have developed some familiarity with the other built-in site templates and have experience customizing them with the available web parts, you may want to skip over the blank site. On the other hand, experienced site developers often prefer the blank site template because they do not have to waste time deleting or moving web parts and features that they do not want to use or that they want to appear elsewhere. Instead, they can focus on building what they do want.

Document Workspace

SharePoint provides a document workspace template designed around creating a place where a group can work collaboratively on a single document. It facilitates this through a document library along with task lists for to-do items and lists to track resources consisting of both people and things. These sites are generally temporary and when work is finished on the document, it is published to a document library on another site after which the site administrator or SharePoint Administrator deletes the workspace.

Blog

Blog sites generally exist for an individual or team to post major ideas or observations. Blog sites usually do not allow users to edit prior postings by others, but users can post comments to individual blog entries. Blog entries typically appear in reverse chronological order, making it easier for readers to see the most recent entries. Newsgroups, a close analogy to blogs, have a similar structure but typically post entries in a chronological hierarchy beginning with the initial entry.

Bloggers (blog site contributors) typically use blog sites to discuss their projects or favorite subjects, or to provide additional information or viewpoints on what they are working on or just about themselves. In fact, most of the people who created entries on newsgroups now use blog sites instead. In addition, many organizations use internal blog sites to document their work effort on projects by creating daily or weekly entries detailing the progress made since the last entry. For those *Star Trek* fans

out there, you can think of a blog site as a written analogue to the Captain’s Log. Maybe a future release will add voice-to-text translations for blogs.

Group Work Site

This template is another groupware alternative to allow teams to work together. It includes a group calendar to track schedules, circulation, phone-call memo lists, task lists, and a Document library.

Visio Process Repository

The Visio Process Repository template allows teams to view, share, and store Visio process diagrams. It provides, by default, a versioned document library for storing the Visio diagrams as well as lists to manage announcements, tasks, and discussions related to those diagrams.

Meeting Templates

Meeting templates comprise the second template type and provide predefined configurations that include specific web parts in the default site template to support tracking information related to meetings. SharePoint refers to these sites as *workspaces* rather than sites because they provide tools, web parts, and resources specifically oriented toward facilitating the activities of workgroups for a relatively short-term activity. Once that activity is complete, you can archive and delete the site. Meeting workspaces include lists and documents, links, and team member information.

While each meeting template has a unique combination of web parts that defines its character, always remember that you can customize the appearance of your meeting workspace to include web parts typically found in other templates. So let’s look at the provided meeting templates as listed in Figure 1-4.

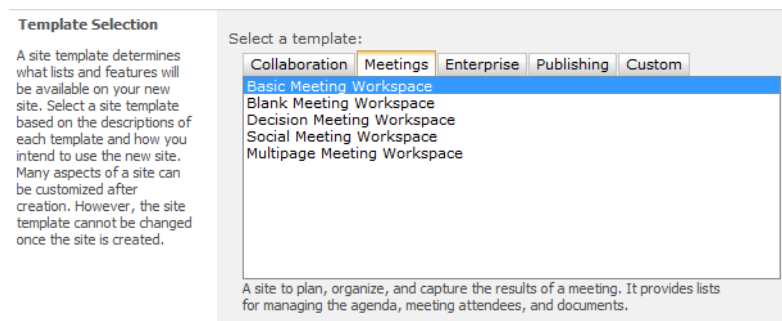


Figure 1-4. Meeting templates

Basic Meeting Workspace

Most meetings have common requirements to help members plan, conduct, and document them. Things like agendas, attendee lists, and libraries for documents reviewed in preparation for the meeting, during the meeting, or as follow-up to the meeting define a few of the important components of a basic meeting workspace.

Blank Meeting Workspace

The Blank Meeting workspace template, like its name implies, starts with no predefined pages containing specific web parts. This template best suits the experienced site designer who prefers to start with a clean site rather than spending time deleting web parts from a predefined template.

Decision Meeting Workspace

People call meetings for a variety of purposes. You might hold a meeting to brainstorm new ideas or plan the steps of a new project. You could hold informational meetings to update your staff about activities in other groups or departments. You might even call a meeting to evaluate lessons learned after a project ends. However, if your organization is anything like ours, you probably call many meetings just to make a decision.

This workspace template includes web parts to document objectives, agendas, and attendees. It includes a document library that holds documents relevant to the decision at hand. It also provides a means to create a task list prior to the meeting, document the decision, and follow up on assigned tasks.

Social Meeting Workspace

The Social Meeting workspace includes features that help plan for special events such as company picnics, awards presentations, and conferences. This workspace includes discussion boards, picture libraries, directions to the event, and lists of things to bring.

Multipage Meeting Workspace

This template includes many of the features found in a basic meeting workspace but is organized over multiple pages. Of course, the other workspace templates permit the addition of more pages as well, but you may like to start with the preconfigured pages in this template.

Enterprise Site Types

As the name implies, the Enterprise Site Types only become available with the enterprise version of SharePoint 2010. I will touch on some of these later, but for now let's preview what templates SharePoint 2010 adds for the enterprise user. Figure 1-5 shows the enterprise templates.

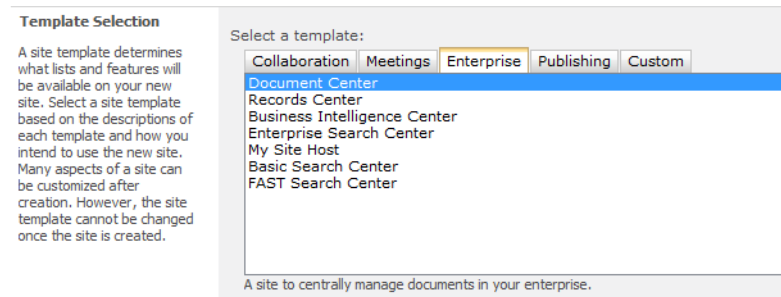


Figure 1-5. Enterprise templates

Document Center

The Document Center template allows you to manage documents from a central location for organizations with a large volume of content and/or a large number of documents.

Records Center

The Records Center template supports records routing and can track and route records based on rules you define. It can hold records based on a date or approval status, store records with incomplete information separately so you can address them manually, and separately store records that do not match any existing routing rules. Unlike content added to most other SharePoint sites, you cannot edit records after you add them to the records center repository.

Records Centers

Most organizations have a Records Center—a central repository where documents are sent for long-term storage. They typically retain these documents for legal or tax reasons for a specified number of years.

Users do not create records in a Records Center. They create records in document libraries or other sites. Once they no longer actively need those documents, they send them to the Records Center to be stored and managed until they are destroyed. Typically, your organization's legal department exercises some level of control over the operation of the Records Center and the rules used for retaining records.

Business Intelligence Center

The Business Intelligence Center is a site to display data in the form of BI reports, scorecards, dashboards, data connections, status lists, status indicators, etc. It is a good starting site for displaying Excel Services Workbooks and for performing analysis of data from multiple sources, creating visual charts of data, and displaying dashboards. Many organizations will find the Business Intelligence Center a useful way to build sites for management to review the status of projects.

Enterprise Search Center

The Enterprise Search Center site template creates search pages. By default, the Welcome page contains two tabs to identify different types of searches. The first is a general search. The second tab allows you to search for information about people. In addition, you can add more tabs to focus on other search criteria, search scopes, or result types.

My Site Host

You can only use the My Site Host template from the Central Administration area because it creates a container to host all other personal sites. Furthermore, you should only use this template once for each User Profile Service Application. In other words, if you get all your user information from one source like Active Directory, you need only provision this site once. On the other hand, if you use Active Directory for your employees, but perhaps another tool for extranet users, you should create two top-level host sites.

Once you create the My Site container, individual users can create their own My Site homepage (from their name drop-down) to track newsfeeds of interest to them, create content pages and libraries for their personal documents, and perhaps create their own personal blog of their work activities. Of course, one of the key advantages of storing their personal files in their My Site library is that, unlike their local hard drive, their My Site is backed up regularly.

Basic Search Center

The Basic Search Center template creates the necessary pages for general search results and advanced searches. You can easily customize this site with little to no code to provide a good search experience for users. Common features that you might change range from the basic look and feel of the search page to the number of results returned to the users from a search.

FAST Search Center

The FAST Search Center template is another one that is only available from Central Administration and is similar to Enterprise Search Center. FAST (Fast Search & Transfer) Search adds several capabilities to the standard SharePoint search including document preview that shows thumbnails of Word and PowerPoint documents right in the search results. Fast also lets you rerun the search based on a selected search result item to find similar items; it can automatically eliminate duplicate results of the same item found in different locations. Deep Results refinement lets you surface results that you might not otherwise see and you can sort on managed properties such as author and document size. The refinement options found on the left side of the results page provide drill-down capability filtered on the refinement and the general search results. Users of FAST Search can also subscribe to an RSS feed of the search results and create an alert to rerun the query at predefined intervals that can notify the user of changes in the results.

Publishing Sites (only available from Central Administration)

SharePoint 2010 adds two special site collection types that you can only create from Central Administration, shown in Figure 1-6, related to publishing content: Publishing Portal and Enterprise Wiki. Organizations use these site templates to create internet or intranet sites either for the entire

organization or for specific groups within the organization. They support features such as the page editing toolbar, content editor, and several web parts specific to creating internet and intranet portals. While this book does not focus on creating web portals, it may be useful to know what publishing sites offer in case you need to use them.

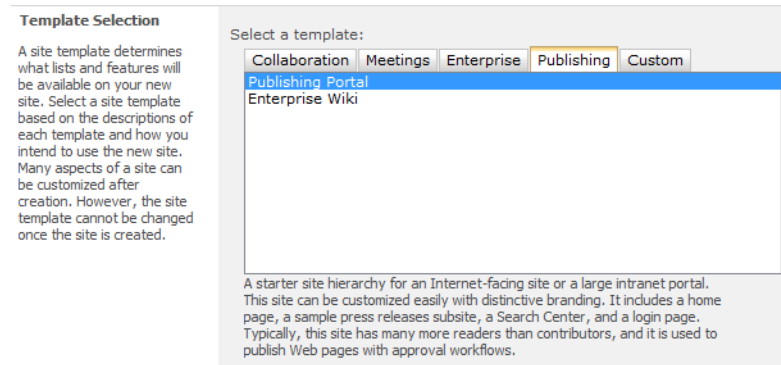


Figure 1-6. Publishing templates

Publishing Portal

The Publishing Portal's focus is as a starting point for a hierarchy of Internet-facing sites and pages. You can also use it to organize an intranet portal for use by your employees. Publishing sites typically have more readers than creators, unlike collaboration sites where the creators are the readers. Also unlike collaboration sites, you typically publish content here subject to approval before others can see it. Often SharePoint developers customize the look and feel of sites to establish a branding via themes, custom master pages, and CSS files. Organizations often use the Publishing Portal template to publish information that they want the public to see.

Enterprise Wiki

Wiki means *quick* or *fast* in Hawaiian, and therefore the Enterprise Wiki site template provides a quick way to share and discuss information. The users with content creation rights in these sites can easily edit the content and link new pages using keywords in the topic text. Wiki sites generally consist of a set of collaborative web pages to which users can easily contribute content. Links between the pages of a wiki site allow readers to branch from the main topic to related topics as they appear in the text as hyperlinks. For example, you might use a wiki to publish tricks and tips for various applications within your organization. Links might refer to similar tricks described on other pages. You can also use pages to present definitions for technical terms your organization uses, organizational information, project definitions, and additional useful pieces of information.

■ **Note** Typically, only your SharePoint Farm Administrator has the permissions necessary to create top-level site publishing templates described here.

Other Site Templates

You can use most of the site collection templates examined in the last section not only as the top-level site in a site collection, but also to define a sub-site. The exceptions to this dual use include:

- Business Intelligence Center
- My Site Host
- Publishing Portal

However, SharePoint provides additional site templates that may only appear as sub-sites depending on the type of site collection from which you begin. As you will see later, you can create sub-sites beneath any top-level site of a site collection (assuming you have site creation permissions). Figure 1-7 shows the site creation screen and some of the possible site templates available.

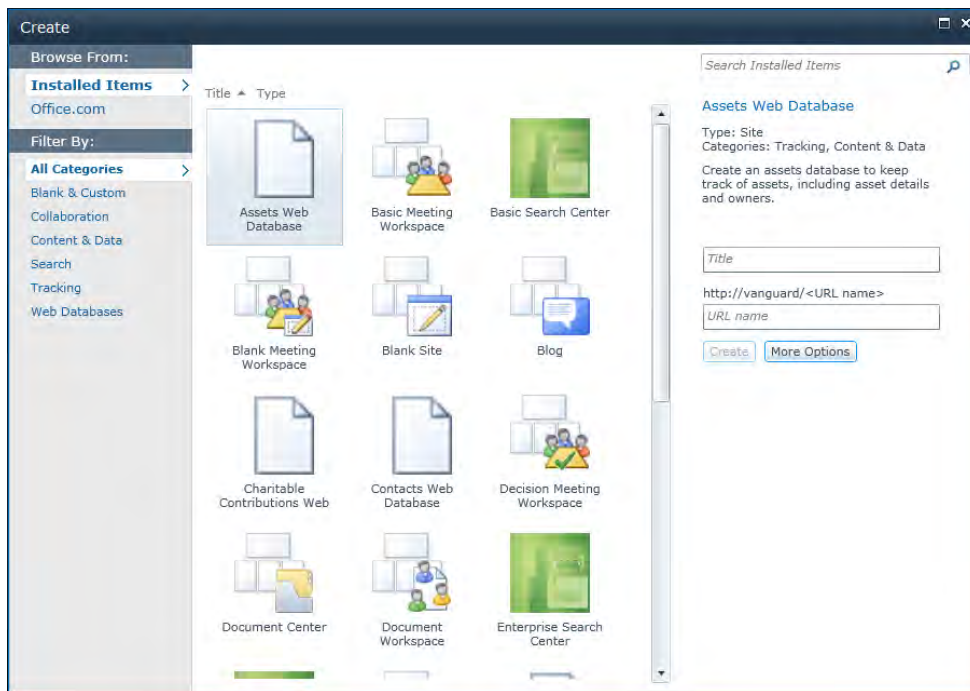


Figure 1-7. Publishing templates

If you do not have Silverlight running with your browser, your experience on this screen and many others will be different. Figure 1-8 shows a tabbed version of the **Create** page with the recommendation to install Silverlight to improve the user experience.

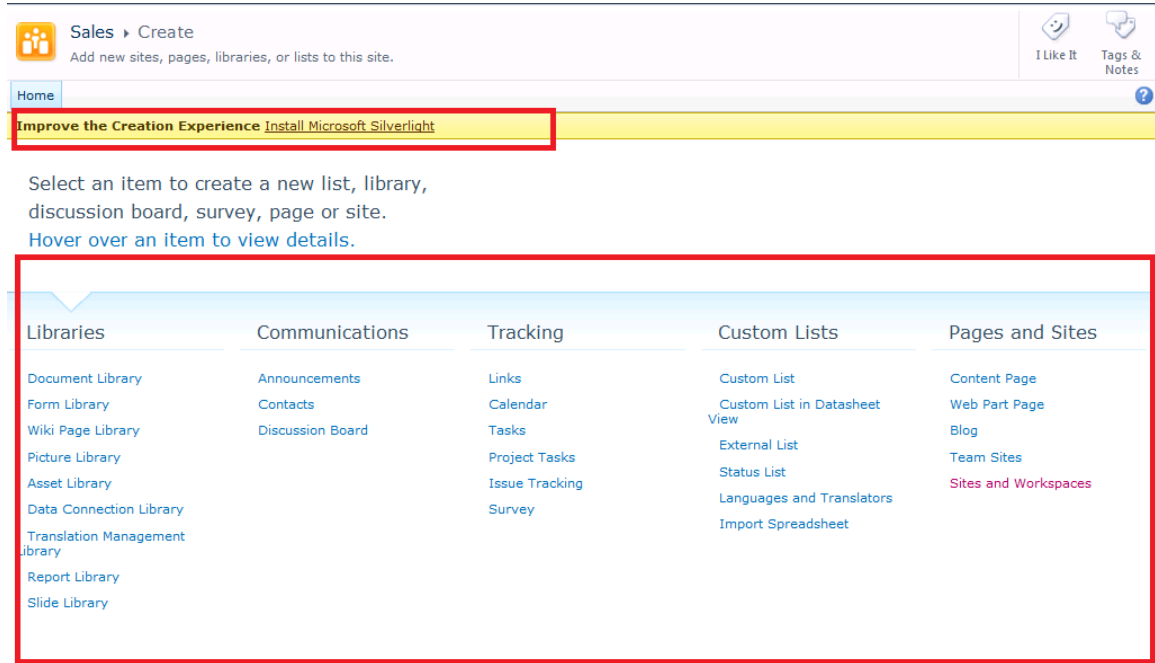


Figure 1-8. Publishing templates

For now, note that SharePoint categorizes sites differently when you create a sub-site under a top-level site or another site as compared with the organization of templates when creating a top-level site for a new site collection from within Central Administration. In fact, Figure 1-7 shows the user experience from a computer with Silverlight installed. If you have a computer that does not have Silverlight, your experience (and many other screens throughout SharePoint) will appear more like their SharePoint 2007 versions using tabs (like Figure 1-8). For the purpose of all images in this book, I will assume a machine with Silverlight installed. Note that with Silverlight, instead of a tabbed window, you can select these categories from the heading **Filter By** option in the left column of the figure. Also note that you can use many of these templates to create a top-level site in a new site collection. Some of the new templates that you can use when creating a sub-site include:

- Assets Web Database
- Charitable Contributions Web
- Contacts Web Database
- Issues Web Database

- Personalization Site
- Projects Web Database
- Publishing Site
- Publishing Site with Workflow
- Enterprise Wiki

Applications Site Types

Application site types are a new addition to SharePoint 2010. SharePoint provides several built-in but fully functional examples of how to build an application type site based on a Microsoft Access database and using Access Services. At the time of writing, five applications are included. That could change by the product release date or as additional applications become available.

Assets Web Database

You can use the Assets Web Database site template to create a sub-site to track assets, their details, their owners, and more.

Charitable Contributions

The Charitable Contributions application is another Access application running within SharePoint that tracks information about fundraising campaigns. It lets you track donations by contributor, campaign events, and tasks.

Contacts Web Database

The Contacts Web Database application lets you manage information about people. This can represent people in a team, a project, or company. You can track who each person works with and identify customers and partners.

Issues Web Database

The Issues Web Database application template provides a ready-to-use site that uses an Access application within SharePoint to track and report on software development bugs and issues. As with the other applications, SharePoint displays the Access forms and reports from this application directly within the SharePoint page.

Projects Web Database

While SharePoint 2007 provided lists to track tasks within individual projects, it was difficult to track multiple projects. The Projects Web Database application lets you not only track the tasks for multiple projects, but also to assign those tasks to individuals.

Additional Site Templates

SharePoint provides a few additional site templates that are not applications using Access. You can use two of these site templates within a top-level site created with the Publishing Portal site collection template. The third site template, the Personalization site, is optimized to work under the My Site Host site collection.

Personalization Site

The Personalization Site template allows users to create custom views of available site information. Users of a personalized site can define navigation to pages important to them, bypassing the navigation of the main site to which it belongs.

Publishing Site

SharePoint designed Publishing Sites specifically to display basic content on web pages. Developers of internet or intranet sites often use the Publishing Site template as a starting point. However, you can include document and image libraries as well as lists and other web part objects.

Publishing Site with Workflow

SharePoint bases the Publishing Site with Workflow template on the Publishing Site template but adds the ability to include workflows. Workflows might require documents to have approval before making them available for the general user to view.

Lists and Library Types

One of the most basic objects that you can add to most sites is a library. Libraries store documents, images, reports, and other objects. Some libraries serve as a general collection point for different types of documents. On the other hand, you can create other libraries for very specific purposes with only particular file types allowed. Thus, the type of library you need depends on what type of information you want to store in the library. Let's examine a few of the basic library types found in a typical collaboration site, as shown in Figure 1-9.

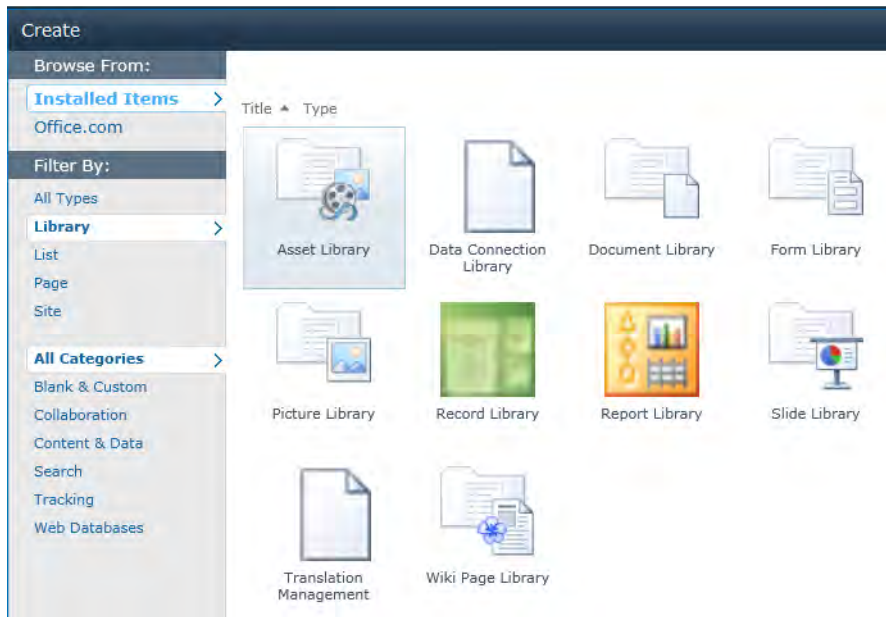


Figure 1-9. Library templates

Asset Library

The Asset Library is a new library type that provides a place to store, share, and manage many rich media assets from images to audio and video files. With SharePoint 2010's support of streaming videos, the Asset Library provides a better library type to store media files.

Data Connection Library

If you need to work with external data sources, meaning data outside of a SharePoint list, you need to create data connections to those data sources. With the new Business Connectivity Services (BCS), your data connections can both read and write data to an external data source. I will return to look at creating, storing and using data connections in several of the later chapters, including the chapters on InfoPath and Access.

Document Library

The Document Library is the most common library type. It can hold practically any file type normally found on your computer's hard disk. A document library, like a disk directory, can store various file types with little or no relationship to each other. However, good file management applies as much to SharePoint libraries as it does to your hard disk. Just as you might create different directories for different types of files, projects, or applications, you should consider creating and managing multiple document libraries so all files in one document library have a common focus, perhaps even a common

type. Of course, you can use metadata columns and filtered views to display different subsets of a document library's files and avoid the use of multiple libraries and even folders within the libraries. Chapter 4 covers more details on using document libraries.

Form Library

The Form Library stores the XML source documents for forms created with Microsoft Office InfoPath. Users with InfoPath installed on their local computer can store form definitions in any document library, but then publish them as templates to form libraries. I cover working with InfoPath and Form Libraries in more detail in Chapters 9 and 10.

Picture Library

The Picture Library provides a common place to store images used in content pages on your site. You might also use a picture library to store images or photographs for your sales or marketing staff to help them provide a consistent message. Picture libraries also provide a storage location for pictures used in web pages. By default, some site templates, such as the publishing templates, create a library called Images specifically for images used on web pages. In addition, the top-level site in a site collection creates a library called Site Collection Images. Chapter 12 covers more details about the picture library.

Report Library (SharePoint 2010 Enterprise Edition only)

The Report Library stores web pages and documents that work with web parts to track metrics, goals, and business intelligence information. Chapter 8 examines the Report Library in detail.

Record Library

The Record library is essentially a document library, but focused on storing important business information that you must often retain for legal and/or tax reasons. You will return to this library in Chapter 12 when I talk about creating a Record Center.

Slide Library

SharePoint provides the Slide Library to work specifically with Microsoft PowerPoint for the storing of individual slides. Chapter 12 explores the Slide Library in detail.

Translation Management Library (SharePoint 2010 Enterprise Edition only)

You will find the Translation Management library only in the enterprise edition of SharePoint 2010, where advanced site designers use it to manage translation workflows. A translation management workflow manages the process of routing a document to designated translators read from a Language and Translators list. The workflow notifies each translator for the document of the task. As each translator finishes the translation of their copy of the document, they can mark their part of the workflow as complete. The entire workflow is not complete until all translators for the document have finished their translations.

Wiki Page Library

The previous section briefly mentioned wiki sites and defined them as a forum for users to add their own linkable content on individual topics. Therefore, it should come as no surprise that wiki sites need a special type of library to support user collaboration. SharePoint uses the Wiki Page Library as the storage container to hold wiki page content.

These are not the only libraries that SharePoint supports. However, if you learn how to work with at least these libraries, you can work with any other libraries you may find on your SharePoint installation.

Permissions and Groups

When you, as SharePoint administrator, set up a top-level site, you need to determine who can view, edit, and design pages and content on the site. You may have a very simple site that everyone can view, or you may want to limit your site to only the people in your company, your department, or your project. You also need to decide who can contribute content to your site, who can make design change, and who can approve content for publishing sites before making it visible to the public. At first, you may think that you can do this on a person-by-person basis, but for most sites, you typically have groups of people to whom you want to assign the same rights. In fact, after careful analysis, you may only have a small number of groups that require unique rights. For that reason, SharePoint allows you to associate users together in groups and then assign permission levels to those groups. Then, when you need to assign permissions to a new user, you can simply determine in which group they should belong and assign them to that group to define their permissions automatically.

One of the first groups you will probably encounter is the site owner group. When you create a new site collection, you can associate up to two site collection administrators to it. Although you can get by with one site collection administrator, I always recommend a backup. For the top-level site of the site collection, these two administrators automatically receive owner rights. In a similar fashion, anyone who has the permission to create new sites automatically becomes an owner for any sites they create. Site owners can then add other users and groups to the site, customize or delete items within a site, and create and delete additional sub-sites under the current site. Therefore, if you, as SharePoint administrator, have turned on the My Sites functionality of SharePoint, each user is the owner of at least one site, their personal My Site.

Note that you, as SharePoint administrator, also determine whether the sites allow anonymous access as long as you enable anonymous access at the web application level. Then the site creator for every site created below the top-level site can enable or disable anonymous access as long as she enables anonymous access for its parent site.

■ **Note** Before the site collection administrator can turn on or off anonymous access to a site, the SharePoint Farm administrator must go into Central Administration and turn anonymous access on for the web application. This is done by going through the **Authentication Providers** option of the **Security** settings and selecting the **default** zone. On the resulting authentication property page, she can set the type of authentication (Windows, Form, or Web Single Sign On) and enable anonymous access, among other things.

The person who creates a site, even a top-level site, automatically becomes an owner of that site. The site owners have the permissions needed to add additional users to one or more of the site groups or

create their own new groups with custom permissions. New sites begin with either the permission groups from their parent site if the site inherits its permissions during creation or a default of three groups when you create a site with unique permissions. A top-level site also begins with these three default groups as described below. Notice that each group name begins with the site name.

<Site Name> Visitors

This group defines the lowest default security group, and SharePoint associates it with the Read permission level, which allows the group members to only view pages and items. They cannot contribute content. They may have the ability to create a Self-Service Site if the SharePoint administrator activates that feature. They serve as an administrator in these sites only. For every other site, the Read permission level grants the following individual permissions:

- View Items: View list items including documents in libraries.
- Open Items: View document source with server-side file handles.
- View Versions: View past versions of list and document items.
- Create Alerts: Create alerts for changes to lists and libraries.
- View Application Pages: View forms, views, and application pages.
- Use Self-Service Site Creation: Create a web site using Self-Service Site Creation (your SharePoint Administrator may have turned this permission off depending on your company policies).
- View Pages: View pages in a web site.
- Browse User Information: View information about site users.
- Use Remote Interfaces: Use SOAP, Web DAV, the Client Object Model and SharePoint Designer to access this web site (your SharePoint Administrator may have turned this permission off depending on your company policies).
- Use Client Integration Features: Use features that launch client applications.
- Open: Allow users to open a web site, list, or folder to access items within it.

While your SharePoint administrator typically handles the creation of permission levels and security groups, you might be interested to know that SharePoint supports 32 different individual permissions, which you can combine in various ways into permission levels. The default Read permission level includes only the permissions previously listed.

<Site Name> Members

SharePoint associates this group with the predefined permission level: **Contribute**. Compared to the Visitors group, this permission level has additional rights to add, edit, and delete items to lists and libraries, including page libraries. Users in this group can work with web parts and create content. However, they may or may not be able to create new lists or libraries depending on how the SharePoint administrator defined the permission to manage lists, which, by default, SharePoint does not grant. In addition, any content they create or update may require approval by a person with approval rights before others can see it. Members of this group typically cannot approve the content they create.

<Site Name> Owners

SharePoint associates the **Owners** group with the **Full Control** permission level. By default, this permission level includes all 32 individual permissions and you cannot edit it. Users assigned to this group can view, add, update, delete, approve, and customize all aspects of the site. They also have the ability to add new users and groups, as well as assign permissions and create new sites. If you do not want to grant quite this much access, you must create your own custom permission level.

Should you decide not to include a new user in one of the predefined site groups, you can assign them to a permission level directly using the options in the **Grant Permission** section of the page shown in Figure 1-10. Initially, SharePoint defines several permission levels, of which three are directly associated with one of the site groups just discussed:

- **Full Control:** Users with this permission level share the same permissions as the Site Owners and have full access to all functionality of the site.
- **Design:** A designer can manage lists and libraries, create pages, and customize them. They may approve pages created by the Site Member group. They can also override Check Out locks on lists and library items created by contributors. They do not have the ability to add or manage users, create or delete sub-sites, manage alerts, or enumerate permissions.
- **Contribute:** Contributors can view, add, update, and delete content on the site including items and documents, but they cannot approve that content on sites that require approval. Therefore, visitors to the site cannot see their changes until someone with the permission to approve them does so.
- **Read:** Users with this group permission can view pages and list items just like members with the View permission, and they can also download documents.
- **View Only:** Users with this permission level can view pages, list items, and documents. Furthermore, if the document has a server-side file handler, they can view the document only through that file handler.
- **Approve:** Members of this group can edit and approve pages, list items, and documents created by others before publishing them.
- **Manage Hierarchy:** This group's members can create sites and edit pages, list items, and documents.
- **Restricted Read:** This group can read pages and documents, but cannot view historical versions or user permissions.
- **Records Center Web Service Submitters:** Use this group specifically with the Records Center site to grant permissions to users who need to submit content to the site via Web Services.

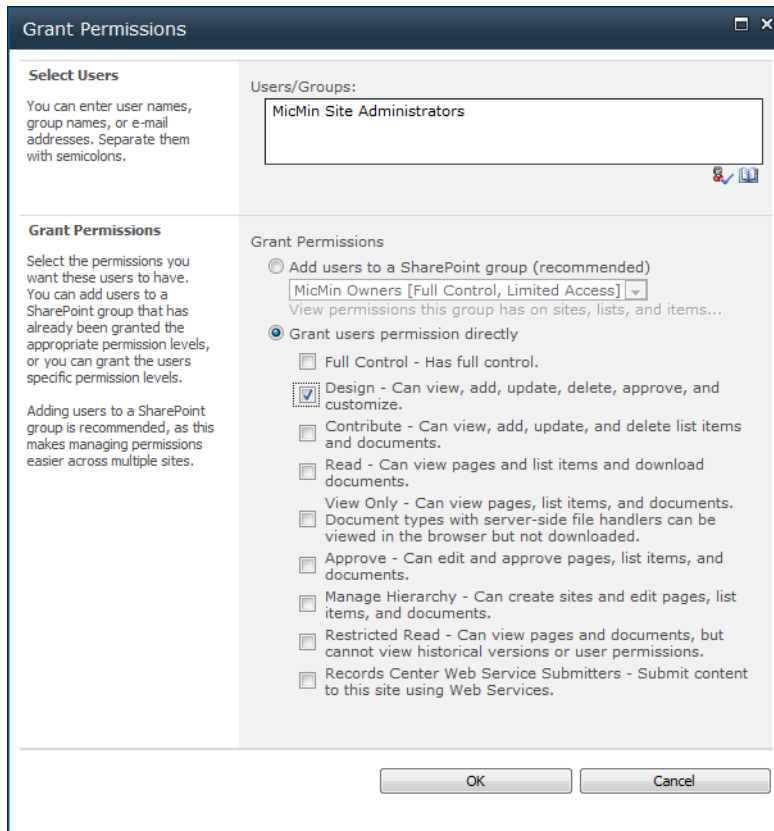


Figure 1-10. *Permission options*

In addition to the default groups, you can add other groups or edit the permissions of existing groups. For example, suppose you want to create a separate group that has almost all the permissions of a site owner, but you want to withhold the following permissions from this group:

- Approve Items
- Apply Themes and Borders
- Apply Style Sheets

To do this, open your site and click on the **Site Actions** drop-down menu on the upper left of the page. Then select **Site Settings**. From the **Site Settings** page, select **Site Permissions** found in the **Users and Permissions** group of the **Site Settings** page. Figure 1-11 shows this page.

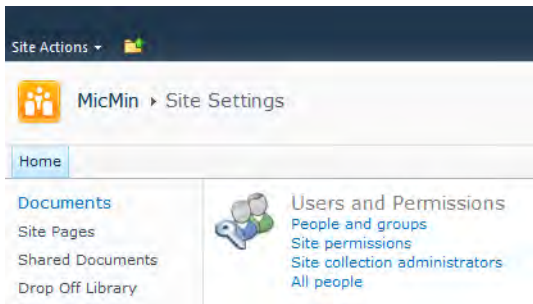


Figure 1-11. Site Actions menu

The **Site Permissions** page shown in Figure 1-12 displays options to let you create new user groups; grant, edit, and remove permissions; define new permission levels; and set or reset the site collection administrators if you are in a top-level site. For now, your goal is to create a new group called Site Administrators that has a new permission level called Site Administrator.

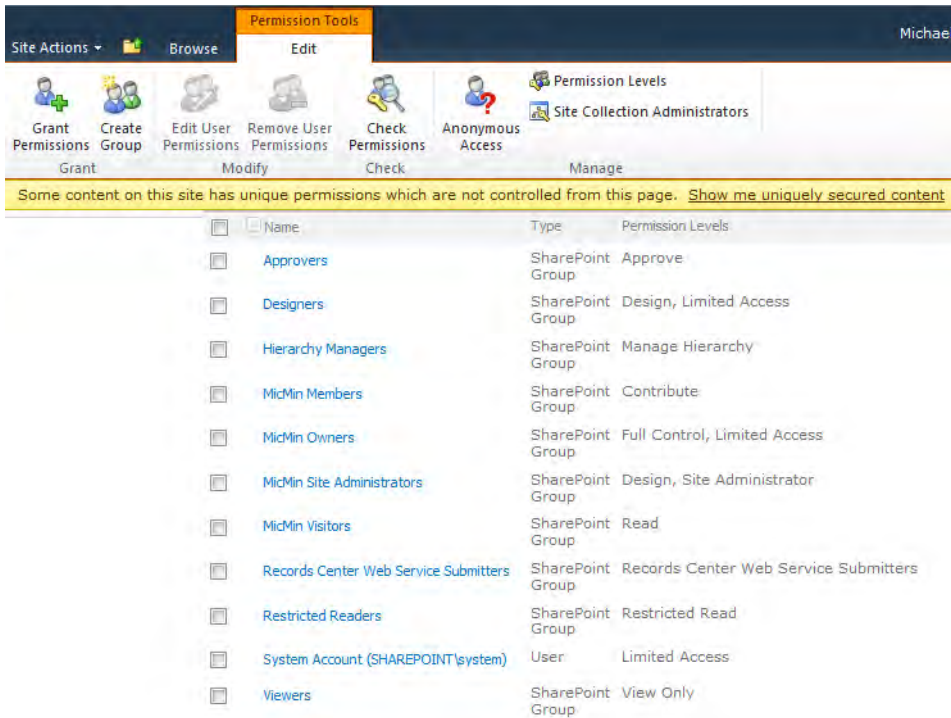


Figure 1-12. Selecting permission levels

■ **Note** If you are not in the top-level site of the site collection Figure 1-12 will appear somewhat different. If the site owner created the site by inheriting permissions, you must first click on the option **Stop Inheriting Permissions** that will appear in the **Inheritance** group.

SharePoint breaks down these options into five sections within the ribbon:

- **Grant:** This section includes options to create groups and grant initial permissions to a group.
- **Modify:** SharePoint enables the options in this section only after you select one or more of the user/groups in the list below the ribbon so that you can modify the permissions of that group. [This group only appears if you can edit the permissions.]
- **Check:** This option opens a separate window in which you must enter the name of the user or group you want to check. It then lists the permissions for the selected user or group and identifies whether they received permissions directly or through membership in another group.
- **Manage:** This section allows you to manage the permissions in any of the permission levels or to create your own. You may also be able to manage access requests and the site collection administrators for the site depending on your permissions. [This group only appears if you can edit the permissions.]
- **Inheritance:** This section will either let you Stop Inheriting Permissions or to Manage Parent permissions if the current sub-site inherits permissions from the parent site, or it will display a button to allow you to Inherit Permissions again from the parent if you previously broke inheritance. [This group only appears for sub-sites of the top-level site.]

Below the ribbon, you will see the groups currently defined for the site and their permission levels. You can change the permission level associated with the group by selecting the group using the check box to the immediate left of the group name and then clicking **Edit user permissions** in the **Modify** group of the ribbon. You can create new groups by clicking the **Create Group** option in the **Grant** section of the ribbon. You will return to this option to create a new group in a minute.

Before adding the new group Site Administrators, let's create the new permission level Site Administrator. You must create permission levels at the top-level site even if you only use them in one of the sub-sites. If you are not at the top-level site, when you click **Permission Levels** in the **Manage** group of the **Permission Tools** ribbon, you will not see a **Create** option. Rather, you will see in the left navigation a link to **Manage Permissions Levels on Parent Web Site**. To continue, you can click this link to return to the permission levels of the top-level site.

Next, to create a custom permission level, you have two choices: either change the permissions associated with an existing permission level or create a new permission level with your unique permissions. Then assign it to an existing or new site group. However, before you decide what to do, let's examine what permissions make up each permission level.

The **Permission Levels** page shown in Figure 1-13 displays the currently defined permission levels in the current site collection. Notice that you cannot access the **Full Control** and **Limited Access** permission levels. These levels must always exist, and their definitions cannot change. The Full Control level belongs to site owners and insures that these users always have full permissions over the site. The

Limited Access level belongs to site guests who only have limited access to specific lists or documents libraries, not the entire site.

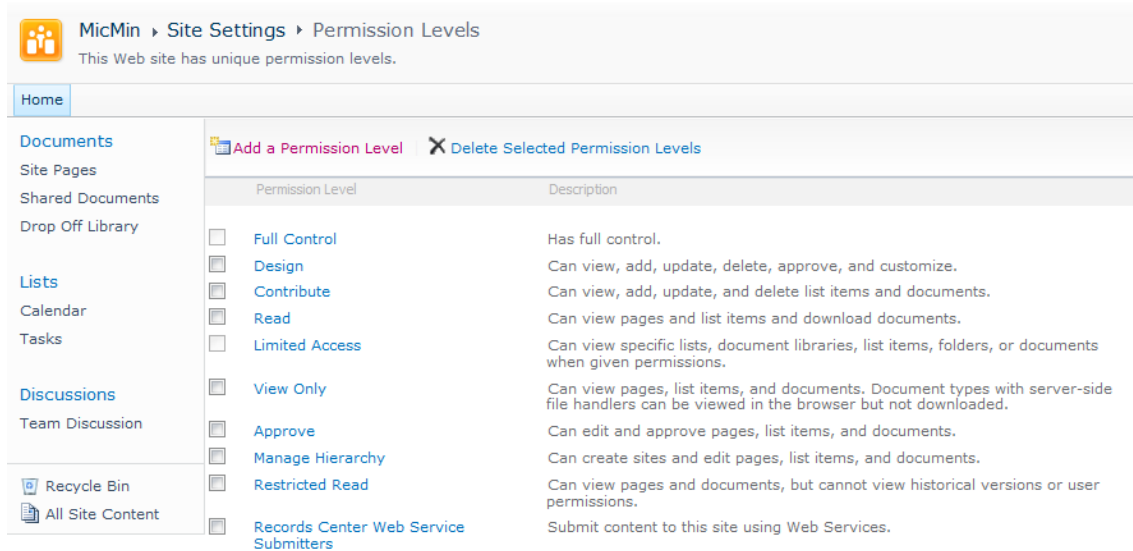


Figure 1-13. Reviewing permission levels

In your case, you want to add a new permission level called **Site Administrator**. Users with this permission will be able to do almost everything a site owner can do except approve pages and apply themes and styles. Begin by clicking the **Add a Permission Level** menu option near the top of the page to display the page shown in Figure 1-14. The first section asks you to provide a name and description for the new level. Then you can select from the possible permissions. SharePoint categorizes permissions into three major groups:

- List Permissions: Relates to list objects including libraries.
- Site Permissions: Relates to sites.
- Personal Permissions: Relates to personalization.

Note that in order to save space, the following image only displays the first portion of the **Add a Permission Level** page.

<p>Name and Description</p> <p>Type a name and description for your permission level. The name is shown on the permissions page. The name and description are shown on the add users page.</p>	<p>Name:</p> <p>Site Administrator</p> <p>Description:</p> <p>Site Administrators can manage the entire web site but cannot approve items nor can they change themes or styles.</p>
<p>Permissions</p> <p>Choose which permissions to include in this permission level. Use the Select All check box to select or clear all permissions.</p>	<p>Select the permissions to include in this permission level.</p> <p><input type="checkbox"/> Select All</p> <p>List Permissions</p> <p><input checked="" type="checkbox"/> Manage Lists - Create and delete lists, add or remove columns in a list, and add or remove public views of a list.</p> <p><input checked="" type="checkbox"/> Override Check Out - Discard or check in a document which is checked out to another user.</p> <p><input checked="" type="checkbox"/> Add Items - Add items to lists and add documents to document libraries.</p> <p><input checked="" type="checkbox"/> Edit Items - Edit items in lists, edit documents in document libraries, and customize Web Part Pages in document libraries.</p> <p><input checked="" type="checkbox"/> Delete Items - Delete items from a list and documents from a document library.</p> <p><input checked="" type="checkbox"/> View Items - View items in lists and documents in document libraries.</p> <p><input type="checkbox"/> Approve Items - Approve a minor version of a list item or document.</p> <p><input checked="" type="checkbox"/> Open Items - View the source of documents with server-side file handlers.</p> <p><input checked="" type="checkbox"/> View Versions - View past versions of a list item or</p>

Figure 1-14. Adding a permission level definition

Of course, you can select all permissions by either clicking each permission check box individually or by checking the **Select All** option. Then just deselect the permissions you do not want to grant for the current level definition. When satisfied with the permission settings selected for your new level, click **Create** to build the new permission level definition. Returning to the **Permission Levels** page, you now see the Site Administrator permission level as shown in Figure 1-15.

MicMin ▶ Site Settings ▶ Permission Levels
This Web site has unique permission levels.

Home

Documents
Site Pages
Shared Documents
Drop Off Library

Lists
Calendar
Tasks

Discussions
Team Discussion

Recycle Bin
All Site Content

[Add a Permission Level](#) [Delete Selected Permission Levels](#)

Permission Level	Description
<input type="checkbox"/> Full Control	Has full control.
<input type="checkbox"/> Design	Can view, add, update, delete, approve, and customize.
<input type="checkbox"/> Contribute	Can view, add, update, and delete list items and documents.
<input type="checkbox"/> Read	Can view pages and list items and download documents.
<input type="checkbox"/> Limited Access	Can view specific lists, document libraries, list items, folders, or documents when given permissions.
<input type="checkbox"/> View Only	Can view pages, list items, and documents. Document types with server-side file handlers can be viewed in the browser but not downloaded.
<input type="checkbox"/> Approve	Can edit and approve pages, list items, and documents.
<input type="checkbox"/> Manage Hierarchy	Can create sites and edit pages, list items, and documents.
<input type="checkbox"/> Restricted Read	Can view pages and documents, but cannot view historical versions or user permissions.
<input type="checkbox"/> Records Center Web Service Submitters	Submit content to this site using Web Services.
<input type="checkbox"/> Site Administrator	Site Administrators can manage the entire web site but cannot approve items nor can they change themes or styles.

Figure 1-15. Your new permission level appears in the list.

At this point, you might go back to the Site Permissions page for your site and add a group specifically for Site Administrators using the **Create Group** option in the **Grant** section. On the **New Group** page, enter a group name **Site Administrators** along with a description. You will see other options that allow you to add an owner for the group (typically the site owner), change group settings, and handle membership requests. I will not detail these options here because your SharePoint administrator typically defines standards for most of these options for you. The important selection is the last one in which you can assign a permission level to this new group. Then finish creating the group by clicking the **Create** button at the bottom of the page, as shown in Figure 1-16.

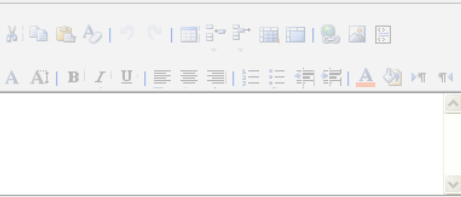


<p>Name and About Me Description</p> <p>Type a name and description for the group.</p>	<p>Name: <input type="text" value="Site Administrators"/></p> <p>About Me: <div style="border: 1px solid gray; padding: 5px;">  </div> </p>
<p>Owner</p> <p>The owner can change anything about the group such as adding and removing members or deleting the group. Only one user or group can be the owner.</p>	<p>Group owner: <input type="text" value="Antonovich, Michael P. ;"/>  </p>
<p>Group Settings</p> <p>Specify who has permission to see the list of group members and who has permission to add and remove members from the group.</p>	<p>Who can view the membership of the group? <input checked="" type="radio"/> Group Members <input type="radio"/> Everyone</p> <p>Who can edit the membership of the group? <input checked="" type="radio"/> Group Owner <input type="radio"/> Group Members</p>
<p>Membership Requests</p> <p>Specify whether to allow users to request membership in this group and allow users to request to leave the group. All requests will be sent to the e-mail address specified. If auto-accept is enabled, users will automatically be added or removed when they make a request.</p> <p>Caution: If you select yes for the Auto-accept requests option, any user requesting access to this group will automatically be added as a member of the group and receive the permission levels associated with the group.</p>	<p>Allow requests to join/leave this group? <input type="radio"/> Yes <input checked="" type="radio"/> No</p> <p>Auto-accept requests? <input type="radio"/> Yes <input checked="" type="radio"/> No</p> <p>Send membership requests to the following e-mail address: <input type="text"/></p>
<p>Give Group Permission to this Site</p> <p>Specify the permission level that you want members of this SharePoint group to have on this site. If you do not want to give group members access to this site, ensure that all checkboxes are unselected.</p> <p>View site permission assignments</p>	<p>Choose the permission level group members get on this site: http://aelmosscustom4/CodeCamp</p> <p><input type="checkbox"/> Full Control - Has full control.</p> <p><input type="checkbox"/> Design - Can view, add, update, delete, approve, and customize.</p> <p><input type="checkbox"/> Contribute - Can view, add, update, and delete list items and documents.</p> <p><input type="checkbox"/> Read - Can view pages and list items and download documents.</p> <p><input type="checkbox"/> View Only - Can view pages, list items, and documents. Document types with server-side file handlers can be viewed in the browser but not downloaded.</p> <p><input checked="" type="checkbox"/> Site Administrator - Site Administrator role can manage the entire web site but cannot approve items nor can they change themes or styles.</p>
<p><input type="button" value="Create"/> <input type="button" value="Cancel"/></p>	

Figure 1-16. Define the properties of your new group

After clicking **Create**, SharePoint finishes creating the group and opens the **People and Groups** page with the new group selected so you can continue by adding users to the group. Notice in Figure 1-17 that SharePoint automatically adds the **Group Owner** as a member of the new group.

■ **Tip** You can nest one group inside another group. This can be faster than removing users from one group and adding them to another. For those familiar with Active Directory, you can add Active Directory groups as users within a SharePoint group to associate all users in that Active Directory group with the permissions associated with the SharePoint group.

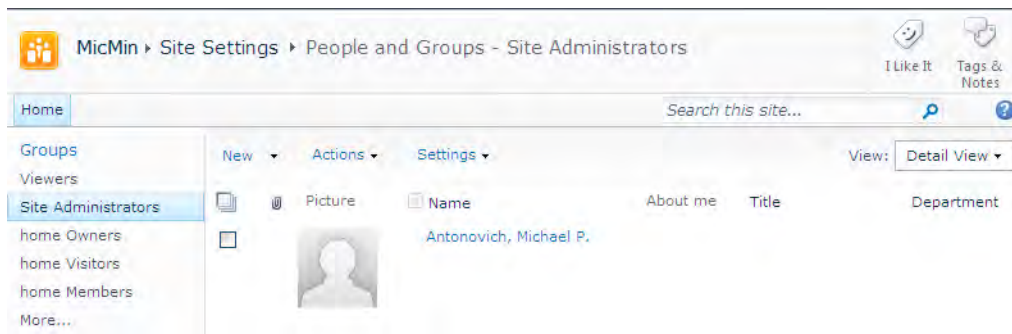


Figure 1-17. Your new group appears in the groups list on the left of *People and Groups*.

In summary, before adding users to a group, you need to determine what groups you need and what permissions those groups should have. Then you can work with your SharePoint administrator to create those groups with the right permissions and ensure that she adds users to the appropriate group.

Adding a Document Library

In most cases, when you first create a collaboration site, you get a default document library called **Shared Documents**. In a publishing site, SharePoint calls the default document library **Documents** but is essentially the same thing. However, you may want to create additional document libraries with their own names. In fact, just as you would use multiple directories on your local hard disk or your file server for different file types or projects, you might consider using multiple document libraries in SharePoint to organize your site's documents.

Why Do I Need More than one Document Library?

Document libraries can contain hundreds, even thousands, of documents. You can store different types of documents in a library, although the most common type will probably be Office documents such as Word, Excel, and PowerPoint files. However, you can also save text files, PDFs, and many other file types. You can group files by type in different folders. You can also group files by their creator in different folders. In fact, you can create folders for any criteria you might want. SharePoint 2010 also introduces the concept of Document Sets which you will learn more about in Chapter 4. Even if you don't use different folders, you can create different views of your document library to show only those documents in these groups by using a column in the library to filter the files. So why would you ever need to create more than one document library?

One of the best reasons I can offer for having more than one document library in a site occurs when different groups of people need different access rights to documents at different stages in the document's life. A good example is purchase orders. Suppose that anyone in the department can create a purchase order in the site's main shared documents library. However, once the department head signs the purchase order, you must move it to another document library where only the department head and perhaps the secretarial staff can still open and edit the document. In this new document library, the rest of the department only has view rights so that no one can modify an approved purchase order, yet the information is still accessible to everyone.

Another good reason for multiple libraries relates to defining different default document types (discussed in the next section) or content types (discussed in Chapter 10 in relation to InfoPath forms) in each library.

To create a new document library, click **View All Site Content** from the **Quick Launch** area of your collaboration site or from the **Site Actions** drop-down list if the **Quick Launch** area is not currently visible. The **All Site Content** page shows your current document libraries and lists. If someone has already created document libraries other than the **Shared Documents** library, you will see them here. Notice that you will see additional libraries to hold pages, forms, images and more in the **Document Libraries** section. Next, click the **Create** option at the top of the page to display the **Create** dialog shown in Figure 1-18.

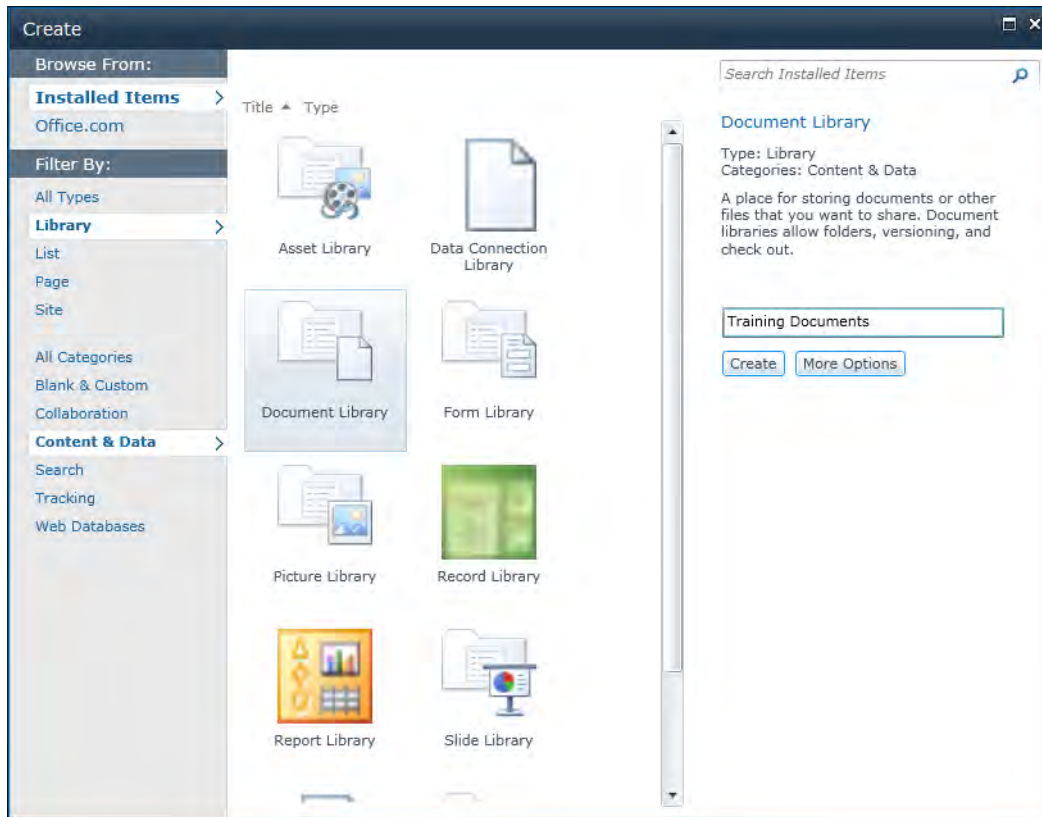


Figure 1-18. Adding a new document library

■ **Tip** You can also go directly to the Create page by clicking **More Options** from the **Site Actions** menu.

The **Create** dialog lets you create several different object types for your site. SharePoint divides these object types into four basic categories:

- Library
- List
- Page
- Site

Select the object type **Library** to display the available types of libraries you can create. With all the possible libraries displayed, you can narrow your choices by selecting a category. Figure 1-18 shows only those libraries that belong to the category **Content & Data**.

Locate and click the **Document Library** icon. The column on the right provides a short description of the library type selected and prompts you for the library name. You can use any character string as a name, but the name must be unique at least within the current site. There are additional options that you can select when defining a library. However, only the library name is mandatory. To specify the other options, click the **More Options** at the bottom of this right column.

Figure 1-19 shows the options you can define for your new document library. Besides specifying a name for your new library, you can provide a description for the library and define whether the library appears in the **Quick Launch** menu.

Figure 1-19. Defining document library properties

By default, new libraries do not support versions. In other words, when you make changes to documents in the library, the changes replace the previous copy stored in the library. This document mode uses the least amount of storage space, but it leaves you unable to retrieve a previous document version to compare changes or to revert back to a previous version should you accidentally delete a section of text and need to retrieve it. You will learn a little later how to fine-tune your version history to keep a limited number of prior versions, thus striking a balance between storage space and the ability to recover past versions.

The last option lets you select a default document template when creating a new document within SharePoint for this library. Each library can have only one default template, so you should select the most appropriate document template for the library. This template also defines the default content type for that library. While you can store multiple types of files within a document library, the default template defines the type of file SharePoint creates for you if you simply pressed the **New** button when displaying the library's contents.

After defining the options for your new library, click **Create** to build it. SharePoint opens the library after creating it. If you do not see one of the ribbons when the library's **All Documents** page displays,

you are in what SharePoint calls **Browse** mode. You can return to this mode at any time by clicking the **Browse** tab. To open any of the other ribbons, click one of the other displayed tabs. In particular, you should see that under the tab **Library Tools**, there are two sub-tabs representing two separate ribbons. The **Documents** ribbon contains options to manage your documents such as creating new documents, uploading documents, editing documents, etc. The **Library** ribbon contains options to manage the way your new library appears on the screen including defining different views for the library, permissions, and defining additional columns, filters, and sort orders.

If you open the **Documents** ribbon, you can add documents to your library from your local or network drives by using the **Upload Document** option or you can create new documents using the default template defined when you created the library by using the **New Document** option from the **New** section of this ribbon.

■ **Tip** While you can upload documents of different types into a single library, you may consider creating a separate library for each major document type you need to store, especially if you define a custom template for your document library. There are several advantages to this. First, the user does not have to decide which content type to use; they just click **New Document**. Second, you don't have to define different views to support the different metadata that might be associated with different content types. I will cover this topic in later chapters when discussing metadata with libraries and multiple content types. For example, Chapter 10 discusses how you can publish multiple InfoPath forms as separate content types to a single library.

Knowing Your Document Templates

The Document Template section shown in Figure 1-19 allows you to define a default template to use when you create a new document directly from within the library. The default list of available templates on my computer includes the following document types:

- Microsoft Office Word 97–2003 document
- Microsoft Office Excel 97–2003 spreadsheet
- Microsoft Office PowerPoint 97–2003 presentation
- Microsoft Office Word document
- Microsoft Office Excel spreadsheet
- Microsoft Office PowerPoint presentation
- Microsoft Office OneNote section
- Microsoft Office SharePoint Designer Web page
- Basic page
- Web Part page

You might ask why this list includes some office products twice. The difference between the two Word templates is that the template named Microsoft Office Word document defaults to a Word 2007/2010 document style using the .docx format, whereas Microsoft Office Word 97-2003 defaults to the earlier .doc format. A similar difference accounts for the multiple Excel and PowerPoint entries.

Each of these predefined templates opens blank Office templates or web pages. However, your SharePoint administrator may have also preinstalled document templates. For example, a folder for expense reports may have a blank formatted expense report form created in Word or Excel. Just remember that this list of available templates does not limit what you can save within the library. They merely define a default document type when you create a new document from within the library.

Adding a Document to Your New Library

When most people start using SharePoint for collaboration, one of their first tasks is to create a document library to store files that they want to share with others. If you had your SharePoint administrator create a team site for you or if you created it yourself, you probably noticed that a **Shared Documents** library already exists in your site. This library appears under **Documents** in the **Quick Launch** menu along the left side of the main site screen.

To open the **Shared Documents library**, click it. SharePoint opens a screen that displays a list of your shared documents. Of course, a new library would not have documents in it yet. To create your first document, display the **Documents** ribbon and click the bottom half of the **New Document** button as shown in Figure 1-20.

■ **Note** Buttons that display a down-pointing arrow open a drop-down menu of multiple options. The first or top option in the menu corresponds to the default choice that SharePoint executes if you click the top half of the button instead of the bottom half.

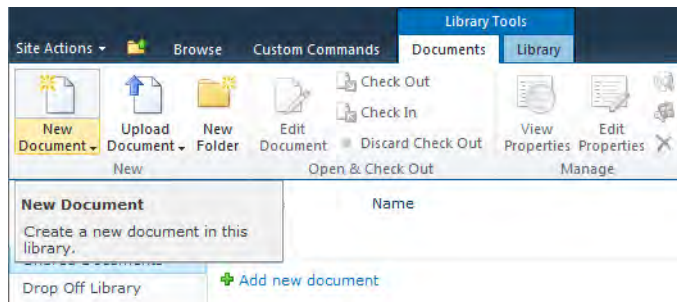


Figure 1-20. Creating a new document

SharePoint attempts to create and open a new document based on the default document template defined for this library. If this is not what you want, you can change the default template for the library even after creating the library. One way to do this is by pointing to a different file in the **Forms** folder of the library. If you have owner rights to the site, you can place any Microsoft Office document in this

folder and select it as the default document template. For example, if you have a standardized expense report and want to use it in a separate document library, add a blank copy of that expense report to the **Forms** folder of the library as described in the following sidebar. Then point the document template URL for the library to that form. Then when you click **New** in this library, SharePoint displays a blank expense report for you to fill in rather than just a blank Word document.

Change the Default Template for a Document Library

Using the next 11 steps, you can change the default template for an existing document library to the Microsoft Office document of your choice or any other document type that your users' computers recognize.

1. Create the document you want to use and save it to your desktop (if it is a Word document, save it as a .docx or .dotx).
2. In SharePoint, open the library from the Quick Launch area or click **View All Site Content** if your library does not appear in the Quick Launch, and then click on your library's name.
3. Select the **Library** ribbon and then click the option **Open with Explorer** in the **Actions** section.
4. Using a separate window, browse to the template you created in step 1.
5. Right-click the file and select **Copy**.
6. Click back on the window that holds the library's **Forms** folder. If you do not see the Forms folder, select **Tools** from the menu bar and then select **Folder Options**. Click the **View** tab and then from the **Advanced Settings** list, click the option **Show hidden files and folders**. You should now see the **Forms** folder.
7. Right-click a blank area and paste the template in this folder.
8. Close the Explorer window.
9. From the **Settings** section of the **Library** ribbon, select **Library Settings**.
10. Click Advanced Settings under the General Settings column.
11. Change the template URL in the **Document Template** section to point to the file you just pasted to the forms folder. The URL should look like

<LibraryName>/Forms/<TemplateName>

where <LibraryName> is the library name and <TemplateName> is the name of the document pasted into the **Forms** folder in step 7. Notice that this is a relative reference URL.

The next time you create a new document in this library, it defaults to the new document. Chapter 10 shows how to set the default library template to an InfoPath form using content types.

Assume that you now want to create a new document on this site based on your new Microsoft Word template. Click **New Document**. Edit the new document as you would any other new Word document and, when finished, click **Save** in the **Office Button** of Word. Notice that when the **Save As** dialog box appears, it does not display files from your local directories. Rather, it displays a reference to the Shared Documents site.

Next, enter a name for the document. Notice at the bottom of the **Save As** dialog box shown in Figure 1-21 that the document type simply says **Word Document** but formats the document with the .docx extension. When I created my site and the document library, I selected **Word Document** as the default document type. Your document library default may vary. You can also click the check box before **Maintain compatibility with previous versions of Word** if you need to store documents in the .doc format. Notice also that you can update some of the document's metadata including the Authors and Title properties.

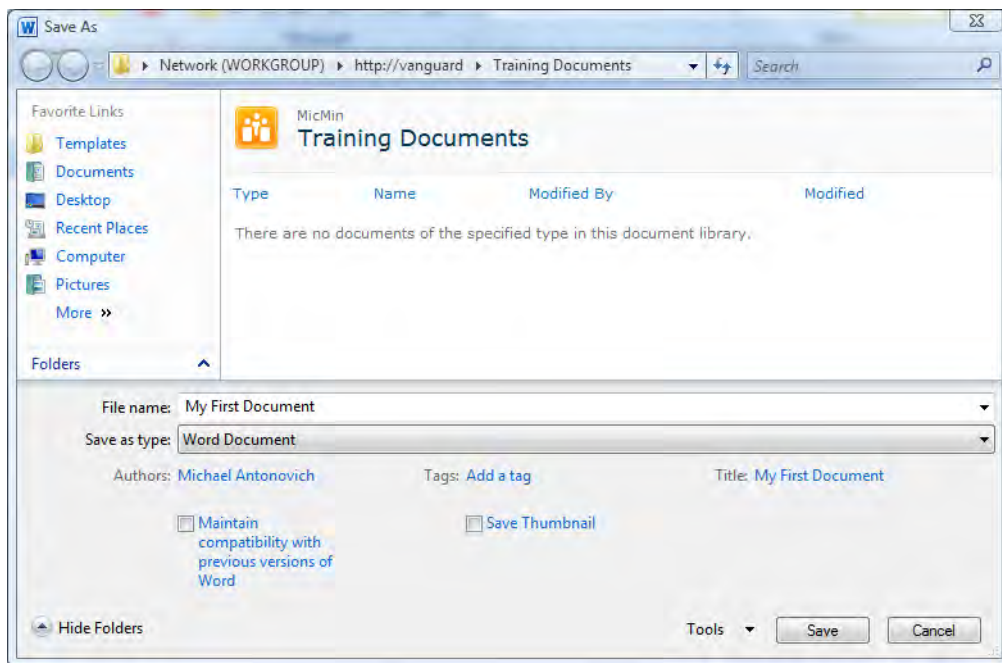


Figure 1-21. Saving your new document to SharePoint

Figure 1-22 shows that upon returning to the Shared Documents page in SharePoint, you see your new document. SharePoint displays at least three default properties for each document and perhaps more depending on the library settings. The first column, **Type**, displays an icon representing the document type. Windows Explorer uses these same icons for its file types. Clicking the icon opens the file or folder. The second column displays the document name. Notice the green text after your file name: **NEW**. SharePoint automatically adds this text to new documents to indicate recently added files. This indicator displays for 2 days, and then SharePoint automatically removes it. In the meantime, it helps site visitors identify new documents, which can be especially useful if you have many people adding documents to the library.

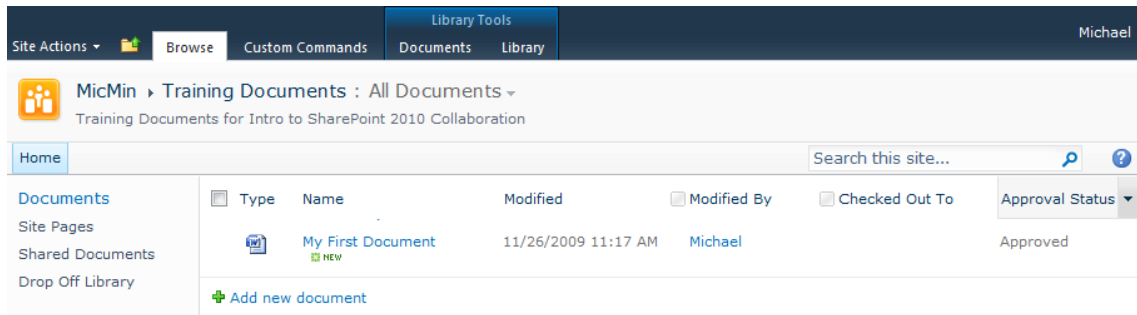


Figure 1-22. Viewing your first saved document in the library

In the third column, SharePoint displays the date and time that the file was last modified. SharePoint then displays the SharePoint name of the person who made the modification in the fourth column.

If you click the person's name, a screen appears with information about that user. If the site administrator who added the user included their e-mail address in their profile or if your organization is using any presence indicator such as Microsoft Windows Messenger version 4.6 or later, MSN Messenger version 4.6 or later, and Microsoft Office Communication server 2005 or later, you can send an e-mail to that person by clicking their e-mail address. In addition to the user's name and e-mail address, this screen can include the person's photo, department, job title, and other information defined in their profile.

The fifth column shown in Figure 1-22 appears only when the library requires checking out the document to edit it. It tracks who has this document currently locked for editing. Chapter 2 covers the purpose of this property in more detail. For now, remember that SharePoint shows this column in your library view only if you practice safe editing with Check In and Check Out.

The sixth column shown in Figure 1-22 only appears if the document library has the **Require content approval for submitted items** setting from the library's **Versioning Settings** page enabled and shows the current status of the document. In this column, a status of **Draft** indicates that either this is a new unpublished document or the document creator has made and saved changes to the last published version of the document but has not yet submitted the document for publication. A status of **Pending** indicates that she has submitted changes for approval and a status of **Approved** indicates that the current version is the approved and published version. You'll learn more about the document approval process in the "Require Document Approval to Hide Drafts—A Simple Workflow" section later in this chapter.

Adding Columns to a View

Documents have many more properties than shown in Figure 1-21. As with the Checked Out To column, SharePoint does not display some document properties unless you ask it to. In fact, whenever you see a list or library, you are looking at a view of the list or library, never the actual list or library. Views define which columns appear as well as whether you see all the items or just selected items based on a filter and sort criteria.

To add another column to the Shared Document library list, click **Library Settings** in the **Settings** group of the **Library** ribbon. Then scroll down to the **Views** section and click the **All Documents** view. The displayed page allows changes to the view name, columns, sort, filter, and other properties. For now, focus on the **Columns** group. Notice that it displays over a dozen possible columns, of which only a few have their check box selected. Scan the list until you find the column **Checked Out To**. Select this column by clicking the check box to its left.

You may have also noticed the drop-down lists to the right of each column. The numbers in these fields define the column order from left to right when displayed. To change the order, click the column you want to reposition and change the position value. SharePoint adjusts affected columns between the old and the new value to make room for the moved column. When you are done making changes to the view, click **OK** at the top or bottom of the page to save your changes.

Now when you return to the Shared Documents library, you see the new column telling you who checked out the document. As with the **Modified By** column, you can use the information stored about the user to send an e-mail to them asking when they might finish using the document.

If the person in the **Modified By** or **Checked Out To** column also uses MSN Messenger, Live Messenger, or a compatible presence awareness application such as Microsoft Office Communicator, an icon appears before the person's name. The color of the ball indicates the user's status as shown in Table 1-1. When you hover over the colored ball, it opens a menu as shown in Figure 1-23.

Table 1-1. Messenger Status Indicator

Color of Icon	Status
Green	Online
Orange/Red	Busy/In a call
Yellow	Be right back/Away/Out to lunch

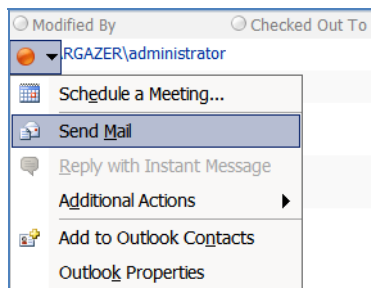


Figure 1-23. Options for Modified By person

Uploading a Document

If you previously created documents that you now want to upload to your Shared Documents site, click the **Upload Document** option in the **Library** ribbon. If you click on the lower part of the button, you see a drop-down menu that lets you upload a single document or upload multiple documents. Figure 1-24 shows the **Upload Document** screen if you choose to upload a single document.

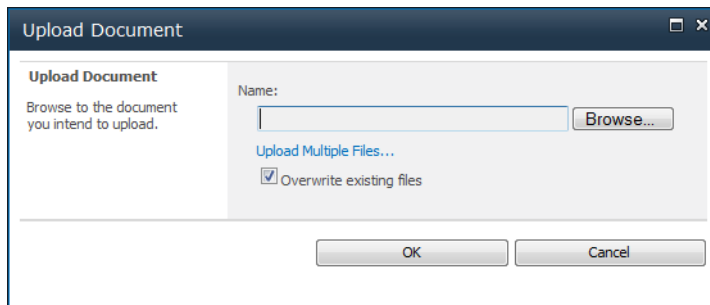


Figure 1-24. *Uploading a document*

In this screen, you have three options for selecting files to upload:

- You can directly enter the name of the document that you want to upload.
- You can click the Browse button to open a browse window to find and select the file to upload.
- You can click the Upload Multiple Files option to upload more than one file in a single operation.

I'll let you explore the first two options on your own since they are straightforward. However, the third option proves rather useful when uploading groups of existing documents. When you click this link, the window shown in Figure 1-25 appears. You would see this same window if you selected the **Upload Multiple Documents** option from the **Upload Documents** menu.

■ **Note** The window that appears when you select the Upload Multiple Documents could look different from Figure 1-24 if you are using Microsoft Office 2007. Note that the figures in the book are the Office 2010 version of the screens. In some cases, the functionality may exist but in a different form in Office 2007; in a few cases, it may not exist at all in earlier Office versions.

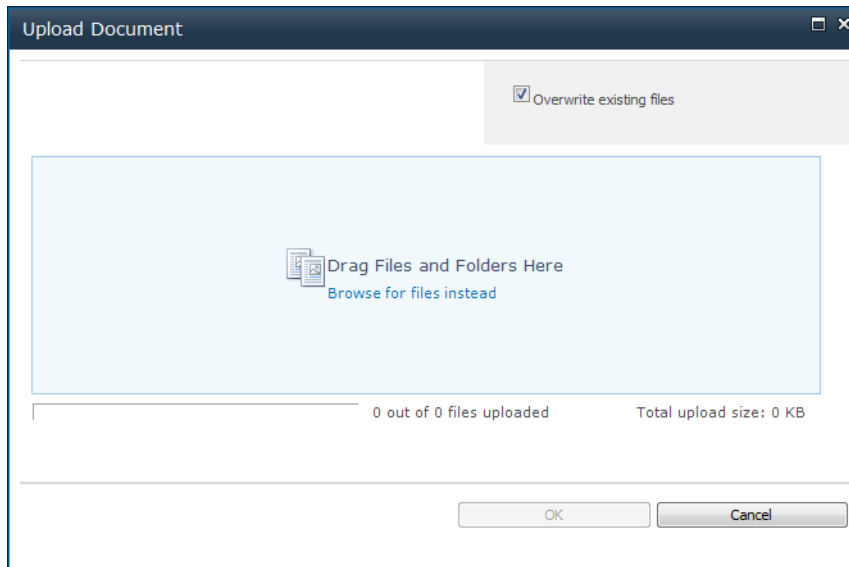


Figure 1-25. Upload multiple documents screen

■ **Caution** Although it may seem at first to be a good idea to check the option **Overwrite existing files**, this option allows you to overwrite a more recent version of a document with an older version from the upload selection without any warning.

Note that this screen consists of an area where you can drop in files that you want to upload. You can click the option **Browse for files instead** to open Windows Explorer to select your files. Of course, you can also work from an instance of Windows Explorer previously opened outside of SharePoint. In either case, navigate to the folder that contains the file(s) you want, select the files, and then click and drag them into the text area in the middle of SharePoint's **Upload Document** window. You can select files from any folder you can access, including other computers or network shares.

As mentioned above, there has been a dialog change when uploading multiple documents depending on the version of Microsoft Word installed on the client machine. The most significant improvement is the ability to upload files from more than one folder or drive at one time. Simply navigate to each folder that has a file you want to upload, and drag it to the SharePoint **Drag Files and Folders Here** section. When you have added all the files you need into this area, click the **OK** button.

Note also that you can check the box **Overwrite existing files** to replace files already in the SharePoint directory with copies from your copy location. If you do not check this option and you select a file whose name already exists in the library, SharePoint does not upload the file, even if the file selected has a more recent modified date than the version SharePoint has. Figure 1-26 shows several files after dragging them into the upload area. Note that SharePoint tells you how many files you are about to upload and the total upload size. Why is the upload size important? Most SharePoint administrators limit the size of an upload. In fact, the default limit is 50 MB. That limit does not apply to individual files in a multi-file upload, but rather to the total size of the upload.

■ **Note** The library did not have versioning turned on for Figure 1-25. If you turn on versioning, SharePoint replaces the option to overwrite existing files with a message to add the file as a new version to existing files.

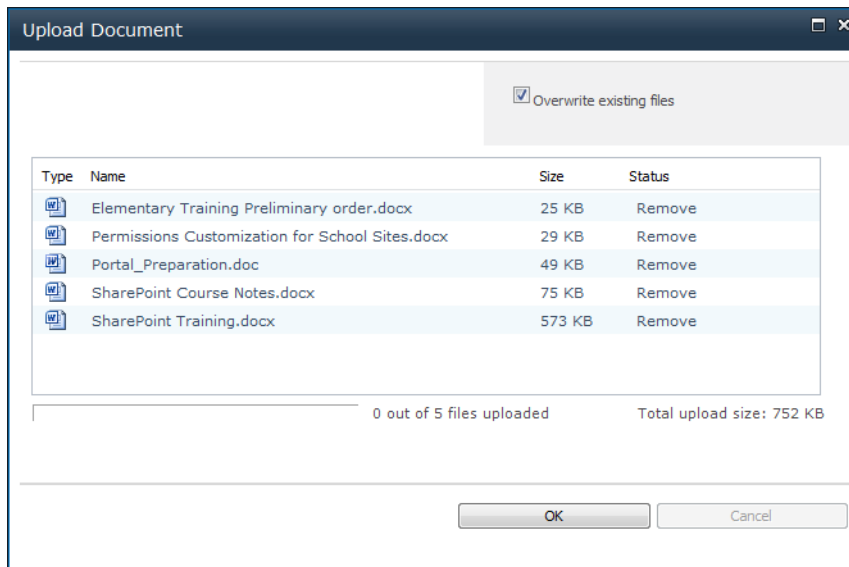


Figure 1-26. Selecting multiple files to upload

To complete your selection, click the **OK** button. SharePoint takes a few moments to retrieve and upload your files. The amount of time needed depends on the number of files you are uploading, their sizes and the speed of your network. However, SharePoint does display a progress bar as it uploads the files.

■ **Note** By default, sites limit uploads to 50MB for the entire upload, whether the upload consists of a single file or multiple files. However, this setting can be changed by your SharePoint administrator by going into **Central Administration**, selecting **Manage web applications** from the **Application Management** section, select the web application (SharePoint - 80, if you used the default install options), then open the drop-down menu for **General Settings** in the **Web Applications** ribbon, and then select **Resource Throttling**. On the Resource Throttling page, scroll down until you find the **Maximum Upload Size** options. Here you can change the 50MB limit to another value. If you exceed the 50MB upload limit because your upload includes multiple files, you may successfully upload your files as a series of smaller upload groups or even individually, as long as each upload group is less than 50MB. One additional factor that could affect your ability to upload large files is the session timeout setting controlled by IIS and your network speed.

Figure 1-27 shows the Shared Documents library after uploading the selected documents from Figure 1-26.

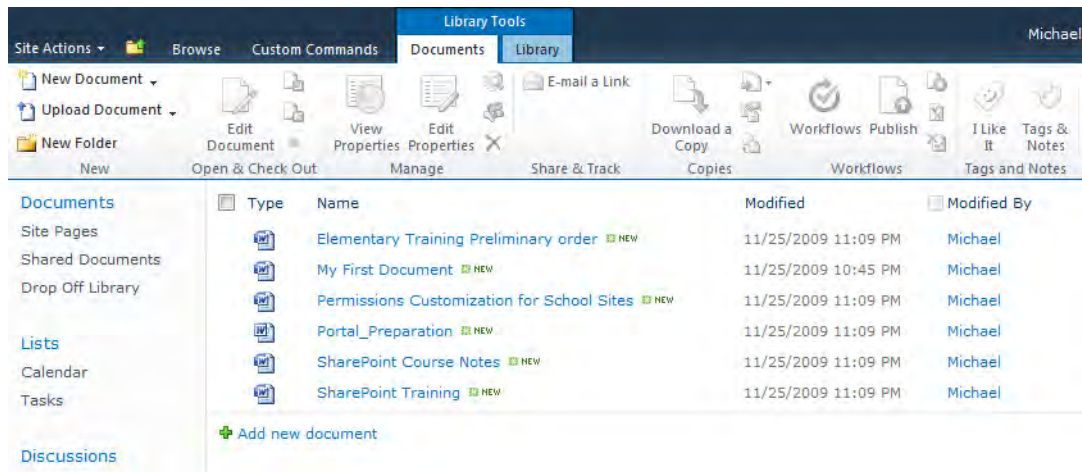


Figure 1-27. Shared Documents library after uploading multiple documents

■ **Tip** When you upload multiple documents, they appear initially in your library as checked out to you. If you want to check all of them in, you could use the individual item's drop-down menu by hovering over the item's name to display the drop-down button to its right and then select the command to check in the item. However, a faster method is to click the check box to the left of each library item as you select each checked-out file and then select the command **Check In** from the **Documents** ribbon.

While most of the files uploaded in Figure 1-26 came from Word 2010, I also uploaded a Word 2003 file named `Portal_Preparation` found in the middle of the list in Figure 1-27. If you do this, how can you tell a Word 2003 document from a Word 2007 document? The icons to the left of the file name do have a small difference (look at the upper left side of the icon), but an easier way exists. When you position your mouse over the document icon, a tooltip style box appears below the cursor with the full file name, and the file name also displays in the Status Bar at the bottom of the screen. Either way, the file name's extension suggests the version of Word used to save that document.

You can change the sort order of your document list by clicking the column header by which you want to sort. The first time you click the column header, SharePoint sorts that column in ascending order, and it displays a small up arrow to the right of the column name. The second time you click the column header, SharePoint sorts that column in descending order and adds a small down arrow to the right of the column name.

You can also sort a column by placing your mouse over a column header to highlight it. On the right side of the column header, a drop-down arrow appears. Click this arrow to open a menu that allows you to sort the column. In addition to sorting, the drop-down list also allows you to filter the list based on values in the selected column. Figure 1-28 shows that you can filter document types.

■ **Note** You cannot filter the **Name** column.

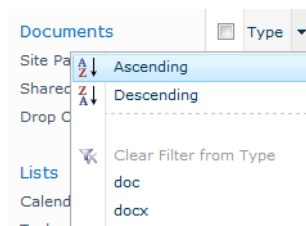


Figure 1-28. Filtering the shared documents in a library

If you select the `.doc` filter from the type column, the library displays only the `Portal_Preparation` document because it is a Word 2003-formatted document. SharePoint does not delete the Word 2007-formatted documents when it applies this filter, it merely hides them. Although you can only define a single filter per column, you could add an additional filter on another column, in which case SharePoint displays only documents that match the filters from both columns.

■ **Note** A column with an active filter displays a funnel to the right of the column name.

To remove filters, open the drop-down for each column that has a filter and select the **Clear Filter** option.

Displaying Documents in the Datasheet View

Before looking at how to edit a document in the library, let's look at two other ways to view your documents. You can access both methods from the **Library** ribbon at the top of the **Shared Documents** page.

Figure 1-29 shows the first alternative library view: **Datasheet View**.

■ **Note** Datasheet View requires a datasheet component compatible with SharePoint 2010. It also requires that your web browser support ActiveX controls and that you have support turned on.

	Name	Modified	Modified By	Checked Out To	Approval Status
Documents	Elementary Training Preliminary order.docx	11/25/2009 11:09 PM	Michael		Approved
Site Pages					
Shared Documents	My First Document.docx	11/25/2009 10:45 PM	Michael		Approved
Drop Off Library	Permissions Customization for School Sites.docx	11/25/2009 11:09 PM	Michael		Approved
Lists	Portal_Preparation.doc	11/25/2009 11:09 PM	Michael		Approved
Calendar	SharePoint Course Notes.docx	11/25/2009 11:09 PM	Michael		Approved
Tasks	SharePoint Training.docx	11/25/2009 11:09 PM	Michael		Approved

Figure 1-29. Library displayed in Datasheet View mode

As you can see, this view displays the same information as the **Standard View**. In **Datasheet View**, notice the icon in the upper-left corner of the table. This icon resembles the icon used by Access. In fact, SharePoint uses the Access engine to display the list of documents as a table.

This view also supports the ability to sort and filter the information displayed. However, rather than hovering over the column header with your mouse as in **Standard View**, click the down arrow to the right of the column header name, as shown in Figure 1-30, to open the menu.

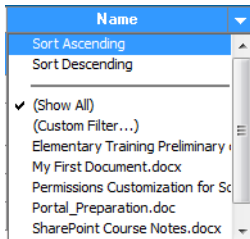


Figure 1-30. *Sorting and filtering in Datasheet View mode*

Notice that the sort options appear at the top of the list in this figure. Beneath the sort options, you find the filter options. In addition to filtering on specific values found in the selected column, you can define a custom filter. This feature can help locate documents in large libraries when you only remember part of the file name. Figure 1-31 creates a custom filter for values of the **Name** column that begin with the word “SharePoint.”

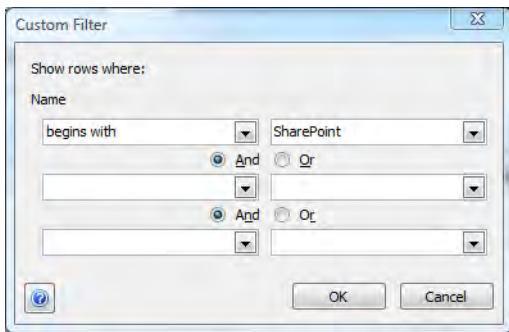


Figure 1-31. *Defining a custom filter*

■ **Note** You can filter on any displayed column within the library using this method. For example, if the document list displays a **Created By** column, you can filter on documents created by a specific person.

When defining a custom filter, you can specify up to three expressions for the filtered column. You can then connect each of these expressions with either an *And* or an *Or*. When you connect expressions with *And*, the expressions on either side of the connector must be true for a document to appear in the library list. When you connect expressions with *Or*, only one of the two expressions must be true for the document to appear. If you use expressions connected with both *And* and *Or* connectors, SharePoint executes the expressions from the left to the right. The *And* expression does not have precedence over the *Or* expression.

To turn a filter off, select the option (**Show All**) from the drop-down menu (Figure 1-30).

■ **Tip** Use the Datasheet View to make changes to several columns across many of the documents in the library. You can edit the data in the columns in this mode just like you edit data in an Access table view. Additional discussion on using lists appears in Chapter 2.

Displaying Documents in Windows Explorer

The last way to look at the document library in this chapter begins by opening the **Library** ribbon and choosing the option **Open with Explorer** in the **Actions** section. This command opens a separate window and displays the documents using Windows Explorer. This view supports an interesting feature. If you open a second Windows Explorer session from your desktop, you can drag and drop files between the two windows. In other words, this view provides another way to upload documents into SharePoint libraries. In Figure 1-32, you see two separate Windows Explorer sessions. The top window belongs to the SharePoint Shared Documents library and the bottom window is a Windows Explorer view of files on my E drive. The figure shows that I have just selected the file **Sites of Interest.doc** from my E drive on my local machine and I am dragging it into the **Shared Documents** library.

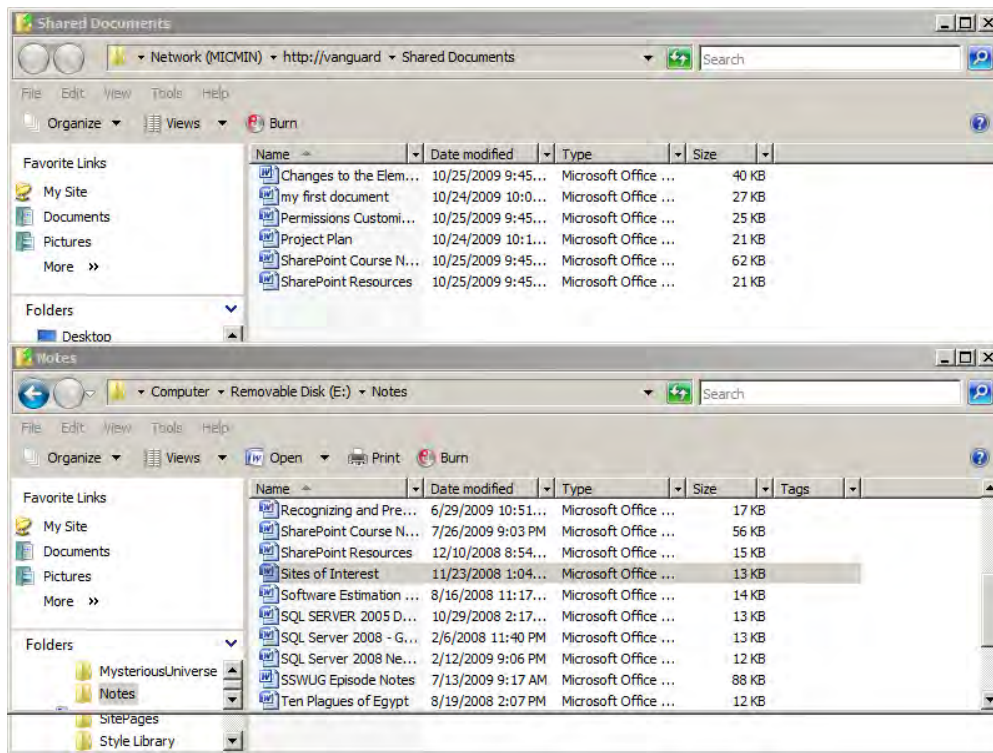


Figure 1-32. Dragging and dropping documents into SharePoint

When you return to your SharePoint window, you may need to refresh your page, but you will see that the new file now appears in the **Shared Documents** library.

■ **Tip** You can also open two different libraries in SharePoint using Windows Explorer mode to copy and paste documents between the libraries. You can also move documents from one folder in a library to another folder in the same library.

You can also use copy and paste keystrokes between libraries displayed in Windows Explorer mode by selecting documents from one library, pressing **Ctrl+C**, then navigating to the other library (or folder) and pressing **Ctrl+V** to copy the file.

Editing Documents Stored in Your Library

After you have saved several documents to your library, you probably want to edit them. You can choose from several ways to edit a document depending on your currently selected library view, Standard View or Datasheet View.

Editing a Word Document from Standard View

Suppose you want to edit one of the Word documents previously added to the library. Open the **Shared Documents** library. Position your mouse over the name of the document you want to edit. Notice that SharePoint surrounds the document name with a box and a drop-down arrow to the right. It also underlines the document name, changing it to a hyperlink. You can edit this document by either clicking the document icon or its hyperlinked name.

For now, let's assume that this SharePoint library does not require Check Out before opening the file. You will see how to require Check Out a little later when you visit the Versioning settings in the List Settings. How SharePoint tries to open your document depends on your version of Word. By default, Word 2007 tries to open documents in read-only mode. You should open documents this way if you only want to view, download, or print a copy of the document. This allows other people to open the document for editing. However, if you need to edit the document, click the **Edit Document** button that Word 2007 displays in a bar across the top of the opened document. This option allows you to switch to edit mode as shown in Figure 1-33.

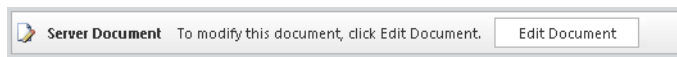


Figure 1-33. *Switching a document to edit mode*

Once in edit mode, make your changes to the document and save them by clicking **Save** in the Office Button menu.

On the other hand, if you open the document with Word 2010 and do not require Check Out of the document, Word then supports simultaneous editing of the document by multiple people. More on this new capability appears in Chapter 4.

You can also begin editing a document by clicking the down arrow displayed to the right of the document name when you position your mouse over the name to open the document's drop-down menu. This drop-down menu shows available options. Select **Edit in Microsoft Office Word** as shown in Figure 1-34 to edit the document.

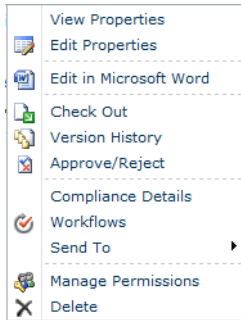


Figure 1-34. Choosing Edit in Microsoft Office Word

Editing a Document from Datasheet View

If you prefer to use the **Datasheet View** of your documents, you can still initiate editing of a document by right clicking in the **Name** field of the document you want to edit. This also opens a drop-down menu of available options. Click the **Document** option to display a submenu. This submenu, shown in Figure 1-35, provides options to open the document in **Read-Only** or **Edit** mode. You can also review the prior versions of the document if the library tracks versions.

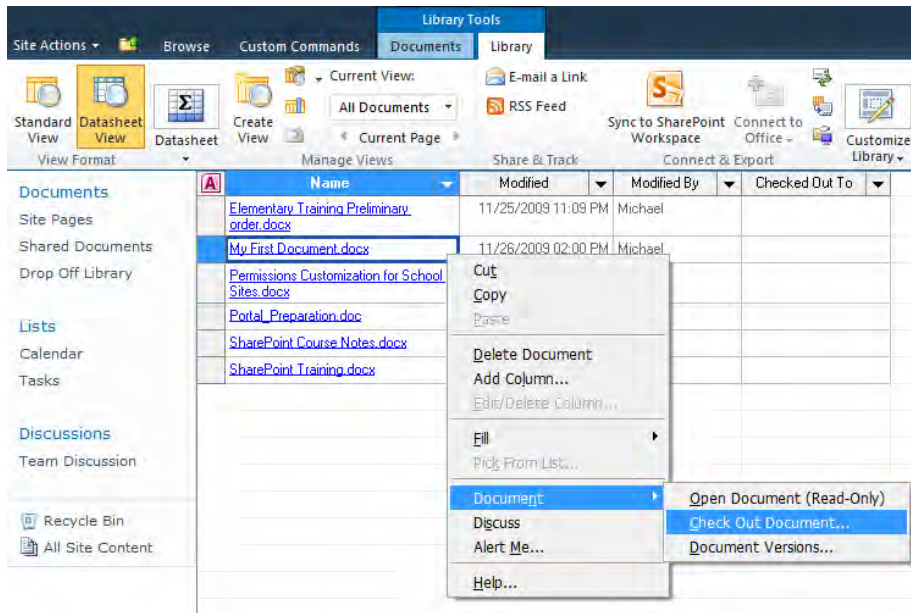


Figure 1-35. Document options in the DataSheet View

The **Check Out Document** option opens the document in **Edit** mode, assuming no one else has the document open for editing. If they do, SharePoint can only open the document in **Read-Only** mode.

So now you know several different methods of opening a document for editing. However, what happens when someone attempts to open your document while you have it open in edit mode?

Simple Locking of Documents

When you open a document in edit mode with one of the preceding methods, Word 2007 tells SharePoint to lock the document temporarily. SharePoint 2010 also locks the document if you check out the document before editing it. In either case, if another user attempts to open the document while you have it open, they receive a warning message similar to the one shown in Figure 1-36.

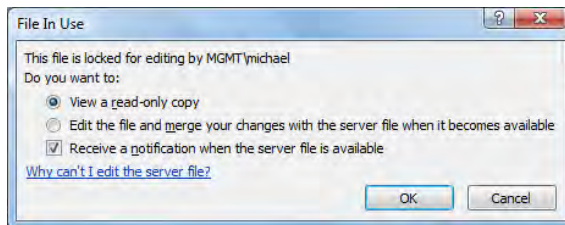


Figure 1-36. File in Use message

When SharePoint locks a file, it gives you two choices of what to do:

- Open a read-only copy.
- Edit the file and merge your changes with the server file when it becomes available.

In addition to these two options, you can choose to receive notification when the file is available. This notification is now available with both file-in-use options.

Let's assume that you really do need to edit the document, not just view or print it. In that case, opening a read-only copy is not an option. Therefore, you might select the second option. However, if you do this, you will need to open both your copy of the document and the SharePoint version of the document later using Word's Compare feature to merge your changes into the SharePoint version. This sounds like a lot of extra work, so let's assume that you just open a read-only copy of the document and then select the option to receive a notification when the server file is available.

With this option, you can ask SharePoint to notify you when the other person closes their copy of the document so you can edit it. In the meantime, you can review the current document to see if you want to make other changes or you could just open another application window to proceed to another task while you wait for access to the document. Maybe you even contact the person who has the document open and ask them to finish their changes quickly. In any case, once they check their version of the document back into the library, SharePoint sends you the message shown in Figure 1-37.

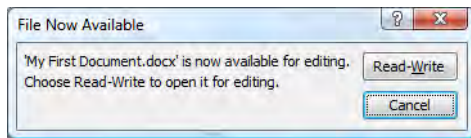


Figure 1-37. File Now Available message

When you receive this message, click the **Read-Write** button to begin editing the document, or if you no longer need to make the changes, click the **Cancel** button to make the file available to others.

For most quick changes, working in Edit mode as described in this section with the automatic locking that SharePoint provides may not pose a problem. If you are using Word 2010, this may actually be the preferred way to make minor changes to documents. However, the default SharePoint locking does not last forever. In fact, depending on the operating system used by the person editing the document, the lock may only guarantee exclusive use of the document for 10 minutes, according to Microsoft's Knowledge Base article 899709. Thus, if you need more time than that to edit the document, you could have a concurrency problem.

What Is a Concurrency Problem?

A concurrency problem occurs when two or more people edit a document at the same time but only the changes for one of them can be saved. For example, suppose you open a document using Word 2007 from the Shared Documents library. After 30 minutes, you leave for lunch without closing the document. Now Natasha from the office down the hall opens the same document. Since more than 30 minutes have passed since you opened the document, the implicit lock on the document has expired. Therefore, Natasha, unaware of your changes, opens the document, makes her quick changes, and saves them. Finally, you come back from lunch an hour later and realize that you have not closed your document. So you click **Save** and close the document.

Later that same day, Natasha goes back into the document to check one of her changes and discovers that she cannot see her changes. Furthermore, the document looks entirely different from the one she edited. She wonders who deleted her changes.

Well, you did delete her changes, but not intentionally. When you came back from lunch and saved the document, SharePoint happily overwrote the existing version in the library, the one containing Natasha's changes.

While such implicit locks may seem like an easy solution, for a quick change the use of explicit locks is a safer practice. You can explicitly lock files manually, or you can make it easy for users by forcing SharePoint to check out (lock) each document whenever someone tries to edit it. SharePoint called this process of creating explicit locks document Check Out and Check In.

Why Use Check Out and Check In?

Using Check Out locks a document before opening it for editing. This manually applied lock stays in place until you decide to check the document back in, which means you can keep a document checked out for an hour, a day, or even longer without worrying about someone else making changes to the document while you have it. Think of Check Out as getting exclusive control to a file, like checking a book out of a physical library. While you have it checked out, no one else can check it out. (Well, almost no one. I'll get to that in a moment.) However, unlike your public library, when you check out a document from a SharePoint library, other people can come in and open a read-only copy of the last saved version.

Checking out a document has other advantages. Both the **Standard View** and the **Datasheet View** can show you the name of the person who has control of the document. Therefore, if you really need to get to that document, you can just walk down the hall, call them on the phone, or instant message them to ask when they will finish editing the document so you can open it to make your changes.

However, the real benefit of checking out a document to edit it occurs when you plan on working on the document changes offline. Even Word 2010's ability to support simultaneous editors does not work when you edit the document offline.

How to Check Out a Document

To check out a file manually when using **Standard View**, open the drop-down menu for the document and select **Check Out** as shown in Figure 1-38.

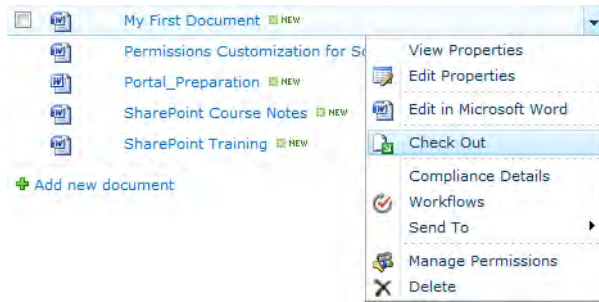


Figure 1-38. Checking out a document in Standard View

After you check out a file, you still must return to the drop-down menu to select **Edit** to open the document. However, from the time you check out a file until the time that you check it back in, you have exclusive access to the file. Remember to display the **Checked Out To** column in your **Shared Documents** view to see who has documents checked out.

■ **Note** The Checked Out To column should appear automatically in your default view when you set **Required Check Out** to Yes in the **Versioning settings** option of the **List Settings** found in the **Library** ribbon.

This Checked Out To column option does not exist if you rely on the automatic locks provided by simple document editing. Another advantage of using Check Out occurs when others attempt to edit the document you have checked out. The **File in Use** dialog box previously shown in Figure 1-36 displays the name of the user who has the file open for editing. Figure 1-39 shows an example of how the **Standard View** looks when someone has checked out the document “My First Document.”

■ **Tip** Even if you use Microsoft Word 2010, which supports simultaneous editing of documents, you may still want to check out a document if you plan on working on the document offline.

Type	Name	Modified	Modified By	Checked Out To	Approval Status
	Elementary Training Preliminary order <small>NEW</small>	11/25/2009 11:09 PM	Michael		Approved
	My First Document <small>NEW</small>	11/25/2009 10:45 PM	Michael	Michael	Approved
	Permissions Customization for School Sites <small>NEW</small>	11/25/2009 11:09 PM	Michael		Approved
	Portal_Preparation <small>NEW</small>	11/25/2009 11:09 PM	Michael		Approved
	SharePoint Course Notes <small>NEW</small>	11/25/2009 11:09 PM	Michael		Approved
	SharePoint Training <small>NEW</small>	11/25/2009 11:09 PM	Michael		Approved

[+ Add new document](#)

Figure 1-39. Checked out files listed in Standard View

If you check out a document and realize you picked the wrong document or you no longer need to save changes to that document, select the **Discard Check Out** option. This option only appears in the drop-down menu when you have a document checked out.

When you check out a document, SharePoint asks whether you want to save a copy of the document in your local drafts folder as shown in Figure 1-40. If you do not click this option, SharePoint creates a copy on the server that you can edit. However, only by saving a copy of the document in your local drafts folder when you check it out can you work on the file offline, a topic that I discuss further in Chapter 4.



Figure 1-40. Saving a copy in your local drafts folder

■ **Note** You may need to make your SharePoint site a trusted site in your Internet Explorer Security options before you can use your local drafts folder to transfer the file back and forth between your local machine and the server.

Once you check out a document, you can edit the document for hours or even days if necessary. When you are done, make sure that you save your changes, close Word, and then check in the document. Saving your changes and closing Word does not automatically check in the document. Good office etiquette requires that you only check out a file for as long as necessary to make your changes. Keeping a file checked out longer than necessary merely prevents others from getting their work done.

If someone did not notice the checked out information in the Shared Documents listing and attempted to edit this document anyway, they would receive the warning shown in Figure 1-41.

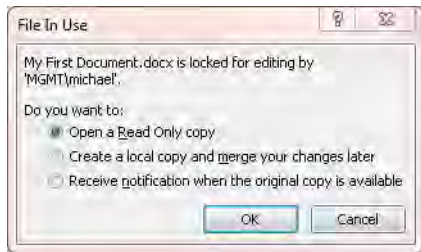


Figure 1-41. File in Use warning

Checking Documents Back Into the Library

When you do not turn versioning on, SharePoint does not make your saved changes visible until you check the document back into the library. This functionality differs from editing a document without checking it out. In that case, every time you save the document, whether you close Microsoft Word or not, other users can see your changes.

When you do turn versioning on, each time you save your changes, SharePoint can create a minor version of the document. When you check in the document, other users with permission to edit can open the most recent document version and make further edits. Minor versions of the document may or may not be visible to users with only Read permission, depending on the **Draft Item Security** setting in the library's **Versioning settings**. Thus, you can use this setting to determine whether users with only Read permissions can see minor versions of the document. When you check out a document to your local drafts folder, SharePoint remains unaware of changes until you check the document back in because you are working with a local copy of the document. Upon checking it back in, you can assign the update a minor or a major revision number and provide revision comments.

When you close the Word session used to edit the document, a message prompt reminds you that SharePoint does not make changes visible to other users until you check the document in. If you have not finished all your changes but merely want to go to lunch, click **No**. However, if you have finished, click **Yes** to check your document back in as shown in Figure 1-42.

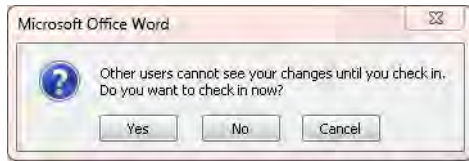


Figure 1-42. Prompt to check in changes

If your document library does not use versioning or if it only keeps major versions, you will see the dialog shown in Figure 1-43. In this case, you only need to supply an optional comment before saving the file.

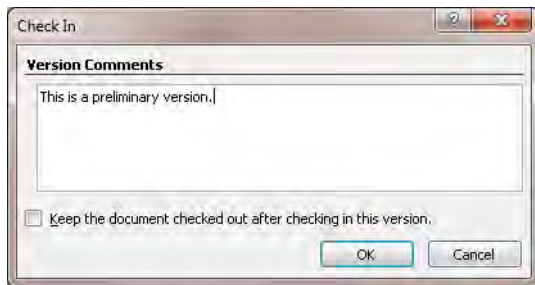


Figure 1-43. Select Check In version and add comments via the Check In dialog box.

When you check in changes with major and minor versioning turned on, SharePoint provides several alternatives to label your new version as shown in Figure 1-44.

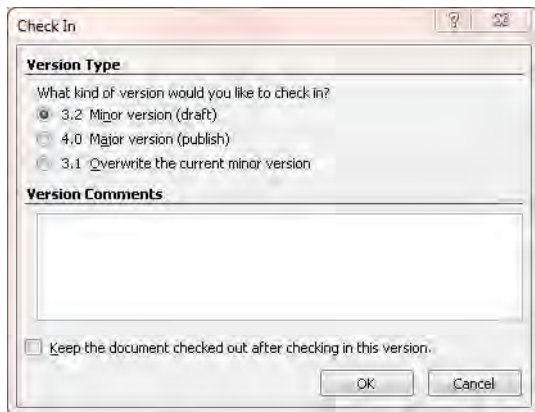


Figure 1-44. Select alternative check-in versions

■ **Note** You will not see the **Check In** dialog box if your site does not use versioning.

By default, SharePoint labels your checked-in version with the next available version number. If your site only uses major versioning (whole numbers), SharePoint automatically increments the version by one. If your site uses minor versioning, SharePoint increments the number to the right of decimal. You must decide whether to accept the next available minor version number or instead use the next major version number. How you decide is up to you, but if you made major changes to a document and have completed those changes, you probably should go with the next major version number. Another point to remember is that users with view rights typically can see only the last major version saved based on the Draft Item Security setting of the document library. How your SharePoint administrator has set versioning in your library may also influence which option you can choose.

In addition to selecting the version for your changes, you can enter comments about the new version. In the comments section, you should include information about the changes you made, who requested them, who approved them, or what impact the change will have on your organization. You can view these comments when you display a document's version history (which you'll learn more about in the upcoming section, "Tracking Document Versions").

Overriding a Check Out

Previously, I stated that a document checked out by a user cannot be edited by anyone else. However, suppose you absolutely must get into a document, but the person who checked it out has left for a two-week Mediterranean cruise. If you have administrator rights to the Shared Documents library, you can right-click the document and select **Check In** to bring up a dialog box asking you to confirm that you want to override the Check Out as shown in Figure 1-45.

■ **Tip** If you do not have the rights to override a checked-out document, contact your SharePoint administrator or the site owner. They can override a Check Out for you if necessary.

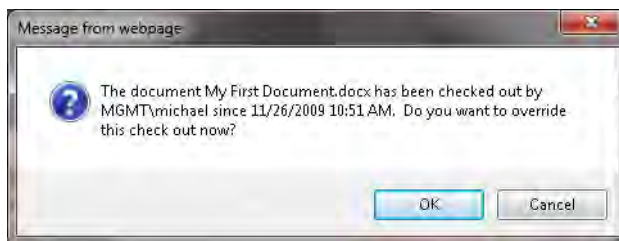


Figure 1-45. Overriding a Check Out.

When an administrator overrides a checked-out document, the user who originally checked out the document may lose some of their changes unless they edited it from their local drafts folder. Therefore,

it is good office etiquette to let the other user know that you had to override their checked-out document while they were out of the office.

■ **Note** While it is possible to open your local draft copy of a document, save it in a different location, and then compare it to the current version of the document in SharePoint using Microsoft Word's document compare feature to recover any of your changes when someone else overrides your Check Out, this process is time consuming.

Tracking Document Versions

When your SharePoint administrator turns on document versioning, SharePoint stores multiple copies of each document, representing saved changes to the document. To see the versions for a document, click the down arrow when positioning your mouse over a document's name in a library and select **Version History**. Figure 1-46 displays the versions for a typical document.

No. ↓	Modified	Modified By	Size	Comments
3.6	11/26/2009 10:55 AM	administrator	27.7 KB	
3.5	11/26/2009 10:50 AM	administrator	27.7 KB	
3.4	11/26/2009 10:38 AM	Michael	27.4 KB	
3.3	11/26/2009 10:35 AM	Michael	26 KB	
	Approval Status	Draft		
3.2	11/26/2009 10:09 AM	Michael	26 KB	
	Approval Status	Pending		
3.1	11/26/2009 10:06 AM	Michael	25.9 KB	
	Approval Status	Draft		
3.0	11/26/2009 10:05 AM	Michael	25.9 KB	This is a preliminary version.
2.0	11/26/2009 10:01 AM	Michael	25.9 KB	
	Approval Status	Pending		
This is the current published major version				
1.0	11/25/2009 10:45 PM	Michael	27.7 KB	
	Title	My First Document		
	Approval Status	Approved		

Figure 1-46. Displaying a document's version history

Notice the version history of the selected document includes both major and minor revisions. Recall that whole numbers define major versions and decimal numbers like 2.1 identify minor versions.

Depending on how you use your Shared Documents library, you may not want to track minor versions, especially if you are not using an approval process on document changes. However, if you do use an approval process, then you can hide minor versions of a document from those who can only view your documents. Users with edit rights to the library can perform additional edits on the document as long as it is not checked out. Once everyone has completed their changes to the document, you can save it with the next major version number by starting the approval workflow process. Still, only a content approver can publish a new version of a document. Until then, everyone other than content creators in that library continues to view the last published (major) version.

Your SharePoint administrator may also limit the number of both major and minor versions that SharePoint stores. After all, the more versions you retain, the more disk space you need. As an example, a SharePoint administrator may limit the library to storing only the last three major releases and perhaps the minor releases made since the last major version. Figure 1-47 shows how a SharePoint administrator might configure versions so that only users with permission to edit can view minor releases and only minor versions since the last major version are stored.

<p>Content Approval</p> <p>Specify whether new items or changes to existing items should remain in a draft state until they have been approved. Learn about requiring approval.</p>	<p>Require content approval for submitted items?</p> <p><input type="radio"/> Yes <input checked="" type="radio"/> No</p>
<p>Document Version History</p> <p>Specify whether a version is created each time you edit a file in this document library. Learn about versions.</p>	<p>Create a version each time you edit a file in this document library?</p> <p><input type="radio"/> No versioning</p> <p><input type="radio"/> Create major versions Example: 1, 2, 3, 4</p> <p><input checked="" type="radio"/> Create major and minor (draft) versions Example: 1.0, 1.1, 1.2, 2.0</p> <p>Optionally limit the number of versions to retain:</p> <p><input checked="" type="checkbox"/> Keep the following number of major versions: <input type="text" value="3"/></p> <p><input checked="" type="checkbox"/> Keep drafts for the following number of major versions: <input type="text" value="1"/></p>
<p>Draft Item Security</p> <p>Drafts are minor versions or items which have not been approved. Specify which users should be able to view drafts in this document library. Learn about specifying who can view and edit drafts.</p>	<p>Who should see draft items in this document library?</p> <p><input type="radio"/> Any user who can read items</p> <p><input checked="" type="radio"/> Only users who can edit items</p> <p><input type="radio"/> Only users who can approve items (and the author of the item)</p>
<p>Require Check Out</p> <p>Specify whether users must check out documents before making changes in this document library. Learn about requiring check out.</p>	<p>Require documents to be checked out before they can be edited?</p> <p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>

Figure 1-47. Defining versioning settings

■ **Tip** To change the version settings, open your document library and display the Library ribbon. Next, select **Library Settings** in the **Settings** group. On the **List Settings** page, select **Versioning settings** in the **General Settings** section.

Promoting a Prior Version to the Current Version

Occasionally, you may need to return to a previous version of a document. Perhaps management has rescinded the change you added to a policy document, and they want the previous policy statement reinstated. Of course, you could edit the current document and hope to reverse all changes, returning the document to its previous content. That could entail a major effort fraught with the potential of missing a change. It is far easier to simply view the version history for the document and select the prior version, making it the current version.

To do this, first check out the document from the **Standard View**. This action automatically creates a new minor version if you did not already have the document checked out. Then select **Version History** in the document's drop-down menu. Next, position your mouse over the **Modified Date/Time** of the version you want, and click the **Restore** option in the item's drop-down menu as shown in Figure 1-48.

■ **Note** If you do not first check out the document before you attempt to restore a prior version, SharePoint displays an error message informing you to check out the document.

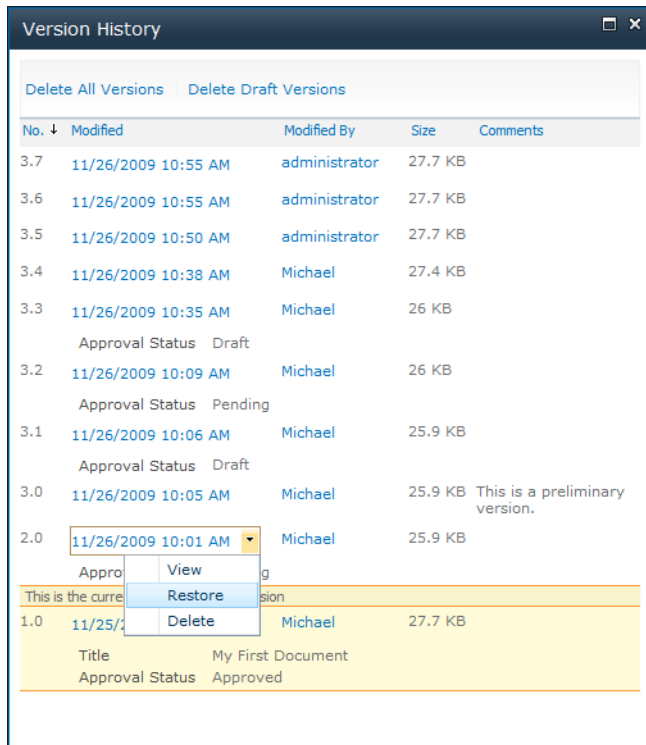


Figure 1-48. Restoring a prior document version

SharePoint prompts with a warning that you are replacing the current version of the document with the selected version. Click **Yes** to proceed.

When you refresh the display of the current page, you should see the selected prior version of the page.

Publishing Documents to Your Document Library

If your site requires content approval, all documents first enter a draft state. While you can set the **Draft Item Security** option in **Versioning settings** to allow any user the right to read draft items, I do not generally recommend this. Rather, you typically want to limit the ability to see draft versions to only users who can edit items in the current library or to users who can approve items in the current library. Of course, the creator of the draft can always see the draft version. This is true whether you are tracking versions of the item or not.

The situation is a little more complex when you do not require content approval. In this case, if you do not track versions, then every time you save changes to an item, those changes are immediately visible to everyone. In fact, even if you only keep major versions (published versions), everyone still sees immediately any changes you make to an item. Only when you keep major and minor versions can you choose to hide the minor versions (drafts) from all users and limit the visibility of those drafts to other users of the library.

With that basic understanding, how does that affect publishing your documents? Well, you should consider a document published immediately if you do not require content approval no matter whether you track versions or not. On the other hand, any time you require content approval, whether you track versions or not, SharePoint does not consider your changes published until someone with approval rights has approved them. During that time, you can determine who can view those drafts.

When you turn off all versioning, management of the document library becomes informal. While this practice minimizes the amount of space needed by your site, if you ever need a prior version of a document, you may be out of luck unless you can restore one from a backup copy of the SharePoint database. However, retrieving documents from a backup copy of the database requires time and a separate place to restore it. Such extra work will not earn you any bonus points with your SharePoint administrator.

The library example above has major and minor versioning enabled. To publish your most recent document, return to your Shared Documents folder and open the drop-down menu associated with that document. If it shows the document as still checked out because the **Check In** option appears, click the **Check In** option, and choose how you want to save your changes. You can save your changes as a new minor version, you can replace the current minor version, or you can publish the next major version. Figure 1-49 show these options.

Figure 1-49. Publishing a restored document during Check In

If you choose to leave the document as a minor version, you can always return to the library later in **Standard View**, open the drop-down menu for the specific document, and click **Publish a Major Version**. When published this way, you can still add comments, as shown in Figure 1-50. Adding comments to a published document lets you identify what has changed since the last major version.

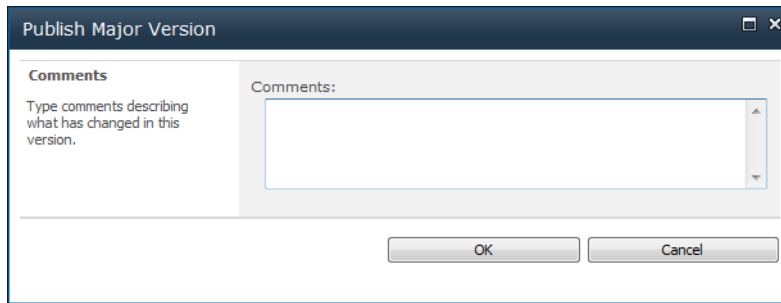


Figure 1-50. Publishing a major version

Click **OK** to submit your request to publish this version for approval. If the site does not require approval, saving a document as a major version makes it public immediately. However, if your document library requires approval, saving a major version merely sets the status of the page to **Pending** as shown in Figure 1-51.

Type	Name	Modified	Modified By	Checked Out To	Approval Status
	Elementary Training Preliminary order <small>NEW</small>	11/25/2009 11:09 PM	Michael		Approved
	My First Document <small>NEW</small>	11/26/2009 11:14 AM	Michael		Pending
	Permissions Customization for School Sites <small>NEW</small>	11/25/2009 11:09 PM	Michael		Approved
	Portal_Preparation <small>NEW</small>	11/25/2009 11:09 PM	Michael		Approved
	SharePoint Course Notes <small>NEW</small>	11/25/2009 11:09 PM	Michael		Approved
	SharePoint Training <small>NEW</small>	11/25/2009 11:09 PM	Michael		Approved

Add new document

Figure 1-51. Viewing document approval status

When a SharePoint library requires approval of documents, it automatically adds the column **Approval Status**. To approve the document, log in as someone with approval permission. By the way, site owners automatically have approval permissions. If you have approval permission, go to the Shared Documents page and open the drop-down menu for the document. You now have a new option in this drop-down: **Approve/Reject**. Clicking **Approve/Reject** displays the page shown in Figure 1-52.

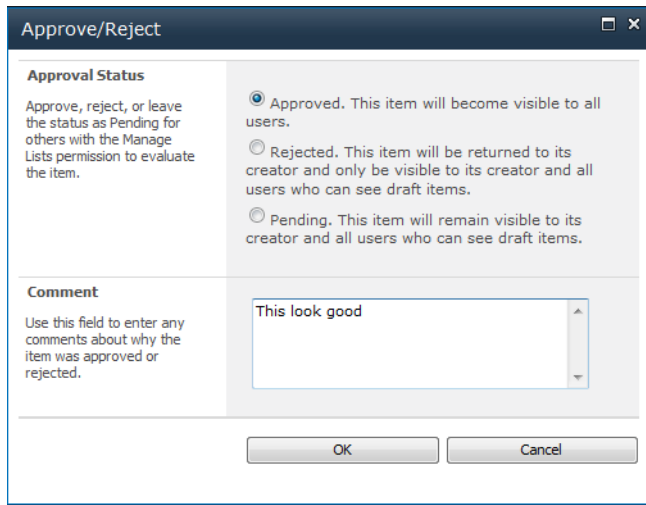


Figure 1-52. Approving a document for publishing

As you can see in this figure, approvers have three actions from which to select:

- **Approved:** The document becomes visible to all users.
- **Rejected:** The document does not become visible to other users.
- **Pending:** The document remains in its current state. Approvers should use this option when asking for further clarification.

No matter what action the approver selects, they can include a comment. An approver should always include comments when rejecting a document or sending it back pending additional work, information, etc. When the approver selects **Approved** and clicks **OK**, SharePoint publishes the page changing its status to **Approved**. Now all site viewers can see the updated document.

Figure 1-53 looks at the version history for this document. You see a new major release (5.0) now listed and SharePoint removes all the minor releases from version 4.0. This occurs because the version setup defined in Figure 1-47 tells SharePoint to retain only one set of minor releases, which means only the minor release since that last major release.

No. ↓	Modified	Modified By	Size	Comments
This is the current published major version				
5.0	11/26/2009 11:17 AM	Michael	23.2 KB	
4.0	11/26/2009 11:07 AM	administrator	25.9 KB	
3.0	11/25/2009 10:45 PM	Michael	27.7 KB	
	Title	My First Document		
	Approval Status	Approved		

Figure 1-53. New major release after publishing document

Require Document Approval to Hide Drafts—A Simple Workflow

Workflows constitute an important feature of collaboration. Most business environments pass documents created by one person to two or more people for review, further editing, and ultimately approval before publishing them. In the distant past (20 years ago), organizations implemented workflows by physically transferring a document from one office to another via interoffice mail or by walking it from one office to another. More recently, e-mail replaced the need to move most documents between offices physically. However, even with e-mail, each person in the approval process must know to whom they are sending the document next. But all those e-mails and attachments clogged up everyone's inbox. Workflows automate that entire process and eliminate the load on Exchange servers created by passing the entire document as an attachment to the e-mail.

Workflows manage the stages of a document from initial draft through editing, approval, and publishing. It can determine who should receive the document next based on the specific action taken by the current person. Perhaps most important, since SharePoint carries out all steps in the workflow electronically, it is possible to locate where each document exists in the flow and where bottlenecks slow down the approval process.

For simple document approval, use the Document Library's **Versioning settings**. Open the library you want to work with and choose **Library Settings** from the **Settings** group in the Library ribbon. From the settings page, click **Versioning settings** in the **General Settings** group. Next, define the versioning settings similar to those shown in Figure 1-54. These settings turn on content approval for new and edited items.

Use major and minor version history to track multiple draft versions prior to publishing a major version. In this example, setting the number of major versions to 3 means that SharePoint only retains the three most recent approved versions of the document. Once you have four or more approved versions of a document, SharePoint automatically deletes the oldest one. Similarly, setting the draft for major versions to 1 means that SharePoint retains only drafts made to the most recent published version. As soon as you approve the document again, SharePoint deletes those drafts from that previous approved version. These settings help you conserve space used by storing multiple copies of a document while retaining the ability to recover from recent accidents.

Then set the **Draft Item Security** so that only users with edit rights to the library can view the draft documents. Finally, select the **Require Check Out** option to force SharePoint users to check out the document before editing it.

<p>Content Approval</p> <p>Specify whether new items or changes to existing items should remain in a draft state until they have been approved. Learn about requiring approval.</p>	<p>Require content approval for submitted items?</p> <p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>
<p>Document Version History</p> <p>Specify whether a version is created each time you edit a file in this document library. Learn about versions.</p>	<p>Create a version each time you edit a file in this document library?</p> <p><input type="radio"/> No versioning</p> <p><input type="radio"/> Create major versions Example: 1, 2, 3, 4</p> <p><input checked="" type="radio"/> Create major and minor (draft) versions Example: 1.0, 1.1, 1.2, 2.0</p> <p>Optionally limit the number of versions to retain:</p> <p><input checked="" type="checkbox"/> Keep the following number of major versions: 3 <input type="text"/></p> <p><input checked="" type="checkbox"/> Keep drafts for the following number of major versions: 1 <input type="text"/></p>
<p>Draft Item Security</p> <p>Drafts are minor versions or items which have not been approved. Specify which users should be able to view drafts in this document library. Learn about specifying who can view and edit drafts.</p>	<p>Who should see draft items in this document library?</p> <p><input type="radio"/> Any user who can read items</p> <p><input checked="" type="radio"/> Only users who can edit items</p> <p><input type="radio"/> Only users who can approve items (and the author of the item)</p>
<p>Require Check Out</p> <p>Specify whether users must check out documents before making changes in this document library. Learn about requiring check out.</p>	<p>Require documents to be checked out before they can be edited?</p> <p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>

Figure 1-54. Library versioning settings for document approval

A simple workflow begins with the content creator. While working on a document, SharePoint sets the document status to **Draft**. Once the content creator completes their changes for a document, they submit it for approval, which changes the status to **Pending**. An approver may approve, reject, or leave a document in a pending state (refer back to Figure 1-52). Some approvers may have permission to perform basic editing tasks, or their rights may limit them to verifying the information in the document. If the approver rejects the document, SharePoint sets the status to **Rejected**. Similarly, SharePoint changes the status of an approved document to **Approved**.

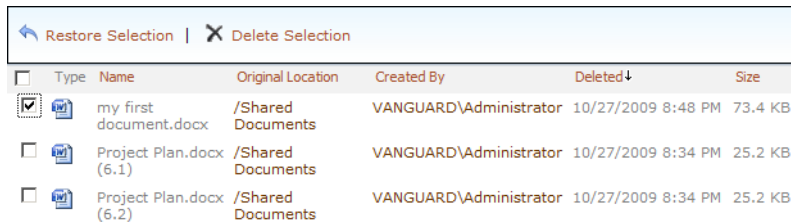
This simple workflow for a document allows documents to remain hidden while in draft mode, usually requiring a person other than the content creator to approve the document. However, at this level, SharePoint provides no dynamic notification to approvers when the user submits a document for approval. Nor does SharePoint provide notification to the content creator when the approver changes the document status to approved or rejected. Rather all parties must constantly monitor the status of documents in the various libraries. If you only have a single library, this may not seem like a major inconvenience. However, if you support several sites, each of which has multiple document libraries and lists, manually checking the status of documents and lists will probably not happen on a regular basis. In Chapter 2, you will see how to set up alerts and RSS feeds, which you could use to monitor changes to

your libraries. What would make this workflow useful is e-mail notification when a task passes from one person to another. I will return to this issue in Chapter 10 to show you how to build simple workflows with e-mail notification using SharePoint Designer.

Recovering Accidental Deletions with the Recycle Bin

When you delete a document from your Shared Documents library, SharePoint prompts to confirm that you really want to delete the file. You may ask why you would need to worry about accidental deletions. I did too at first, until I realized that with more than one person having access to a site, not everyone may realize the value of the documents you decide to publish.

Should someone accidentally delete a document, SharePoint supports a recycle bin, which, like the recycle bin on your desktop, allows recovery of deleted files. For example, suppose you accidentally deleted the file `My first document.docx` from the Shared Documents folder and then realized that you really need to keep that document. Your first thought should be to check the **Recycle Bin** option found at the bottom of the Quick Links menu on the left of the Shared Documents page. This option, shown in Figure 1-55, displays a page listing all the documents deleted within the last 30 days.






Restore Selection Delete Selection		Type	Name	Original Location	Created By	Deleted↓	Size
<input checked="" type="checkbox"/>		my first document.docx	/Shared Documents	VANGUARD\Administrator	10/27/2009 8:48 PM	73.4 KB	
<input type="checkbox"/>		Project Plan.docx (6.1)	/Shared Documents	VANGUARD\Administrator	10/27/2009 8:34 PM	25.2 KB	
<input type="checkbox"/>		Project Plan.docx (6.2)	/Shared Documents	VANGUARD\Administrator	10/27/2009 8:34 PM	25.2 KB	

Figure 1-55. The Recycle Bin collects all deleted documents.

To recover a document, click the check box to the left of the document and click the **Restore Selection** option at the top of the page.

When you delete a document, you delete all versions of that document as well. You may be surprised to learn that when you recover a document from the Recycle Bin you also recover all versions of that document as well. So, rather than thinking of files in your document library as single files, think of them as a collection of files with the same name.

■ **Tip** You can ask your SharePoint administrator to change the length of time deleted items stay in the Recycle Bin. To do so, they can go into Central Administration and select the **Application Management**. Next, select **Manage web applications** in the **Web Applications** group. Identify the web application containing the Site Collection for which you want to edit properties. By default, this would be `SharePoint - 80`. Click on the web application name to select it. Then open the **General Settings** drop-down menu found in the **Manage** group of the **Web Applications** ribbon and select the **General Settings** option. Scroll down the General Settings dialog until you find the **Recycle Bin** property group.

Here the SharePoint administrator can change the functionality of the Recycle Bin. For example, they can define the size of the second stage recycle bin that holds items that users delete from their Recycle Bin. Your SharePoint administrator can configure this second recycle bin as an additional percentage of the live site quota for the site collections created in the current web application. However, it should be noted that the setting to delete items after x days, where x defaults to 30 days after the item is initially deleted, applies to both the primary user recycle bin and the secondary recycle bin.

Summary

This chapter began by looking at SharePoint's hierarchical structure starting with a top-level site and then nesting additional sites within it. With the standard edition of MOSS 2010, you have collaboration and meeting site templates. The enterprise edition of MOSS augments these with enterprise and publishing templates. Remember that templates provide a starting point for building your site. You can always add features that are available in one template to other templates as well. This allows you to customize a template no matter which one you start with.

Next, you saw how to add users and permissions to a site. By default, when you create a new site under the top-level site or a sub-site, you can simply inherit the permissions used from its parent. This saves you time. However, if you need to customize the permissions or the users who have access to your site, you can add users for specific sites as well as assign them to custom group definitions having custom permission levels.

After defining which users can access a site, you can start building content for the site. You saw here how to use the document library to hold Microsoft Word files. However, it can hold other file types as well. Using Microsoft Word, you saw how to create new documents in the library as well as how to upload existing documents. Once uploaded, anyone with a compatible client application can edit a document stored in a library. However, unless the library forces you to first check out the documents or you manually check out the document, you could run into concurrency problems. Microsoft Word 2010 handles this potential problem by managing changed content at the paragraph level, but Word 2007 tries to lock the entire file. Of course, when you check out a document, you have exclusive rights to edit the entire document. Just remember to check the document back in so others can see your changes and to allow others to make further changes to the document.

Document versions allow you to track changes made to the document. You can track both major and minor versions. Keep in mind that visitors to your site may only be able to read major versions. Therefore, a good practice is to use minor versions as working documents within your team until you are ready to publish the final version as the next major version.

You can also use the document approval feature to allow documents to remain hidden until someone with approval permission can release the document. Organizations often use this model when publishing information that the public can view on Internet pages. They may grant everyone in the organization the permission to create new documents or to edit existing documents. However, until an approver reviews those documents, the public cannot see them.

Finally, the chapter closed with a brief look at the Recycle Bin. This feature helps you recover documents you accidentally delete. As you will learn in later chapters, it also works with many other SharePoint objects.

The next chapter extends this introduction to using SharePoint lists and Chapter 3 completes the introduction by looking at adding content to site pages.



SharePoint Lists

Everything Is a List

Well, perhaps not everything. However, SharePoint stores most content information in lists, or variations of lists. This should come as no surprise, considering that SharePoint uses SQL Server as a storage container for not only all content information but also all the information used to define the appearance of your site. Of course, lists themselves translate well into the table paradigm of databases since they consist of rows and columns of information.

■ **Note** SharePoint does not save each list as a separate table. Rather, it combines information from all tables together in a special table schema, but since you are not studying how to read the SharePoint database files here, but rather how to use the SharePoint features, this difference will not matter to your understanding. One important note: directly modifying the SharePoint database files in SQL Server will terminate all Microsoft support for your installation.

One could say that SharePoint even stores the document libraries discussed in Chapter 1 in a special type of list. By adding unique attributes to those of a basic list, SharePoint can create not only other types of lists, but also libraries for documents, images, and pages. This chapter examines a selection of SharePoint's built-in lists and then explores how to create and use custom lists on collaboration pages.

■ **Tip** It is possible to store large data files outside of SharePoint using SQL Server FILESTREAM RBS Provider. While this solution is not for everyone, it could help those SharePoint users who are pushing the 4GB database limitation of SQL Server Express. Note that, although this solution does remove large files from the SQL database, it adds another point of failure since it relies on storing the file on another network file share or storage solution such as Documentum. Note that performance may take a hit due to the extra jump to get the data. If you are reaching the 4GB limit for other reasons (such as just a huge amount of normal size content), you may just want to consider upgrading your SQL Server edition.

Exploring SharePoint's Built-in List Types

Lists provide the easiest way to store information in SharePoint using a familiar paradigm. You probably have several lists going right now: important work tasks at the office, grocery items to buy on your way home, and home improvement projects for the weekend. SharePoint provides a variety of ways to keep this information electronically in predefined lists. It groups them into six categories:

- **Blank & Custom:** Blank and custom lists allow you to define your own list columns and views. They are ideal when importing data from other sources such as spreadsheets and external data sources. They also allow you to build list structures that are significantly different from the other list templates.
- **Collaboration:** Out of the box, SharePoint provides only a single collaboration style list, the Discussion Board. This list lets you easily manage discussion threads. You can even configure the list to hide entries until someone approves them.
- **Content & Data:** This group includes those lists most often used to display content on pages.
- **Search:** This category includes lists that viewers often use to search for specific information such as events on a calendar or tasks within a project.
- **Tracking:** These lists track things such as personal and project tasks, issues, and language and translation workflows.
- **Web Databases:** Out of the box, this category has no list templates.

In the first part of this chapter you will examine most of the available lists to learn how they can be used. The second part of this chapter focuses on how to instantiate and modify these lists as well as how to publish a list through a collaboration page. Let's begin with a couple of predefined lists found in the Content & Data group so you can learn how lists work before learning how to build custom lists from a blank or custom template.

Content & Data Lists

A **Content & Data** list generally facilitates the collection and display of information on a site. You'll use it to explore the basic interaction between the columns and the items of the list. Let's assume that you are beginning from a brand new Team Site created when you started Chapter 1. You can work with one of

the existing content lists by choosing **View All Site Content** from the **Site Actions** button or by clicking the **Lists** link in the **Quick Access** menu to the left of the page.

As mentioned in Chapter 1, the **All Site Content** page displays all the libraries and lists defined in the current site. Even when starting to use a new site, most site templates automatically add several default libraries and lists for you. One of the lists you should see in your team site is an **Announcements** list. Figure 2-1 shows the available lists in a default **Team Site**.

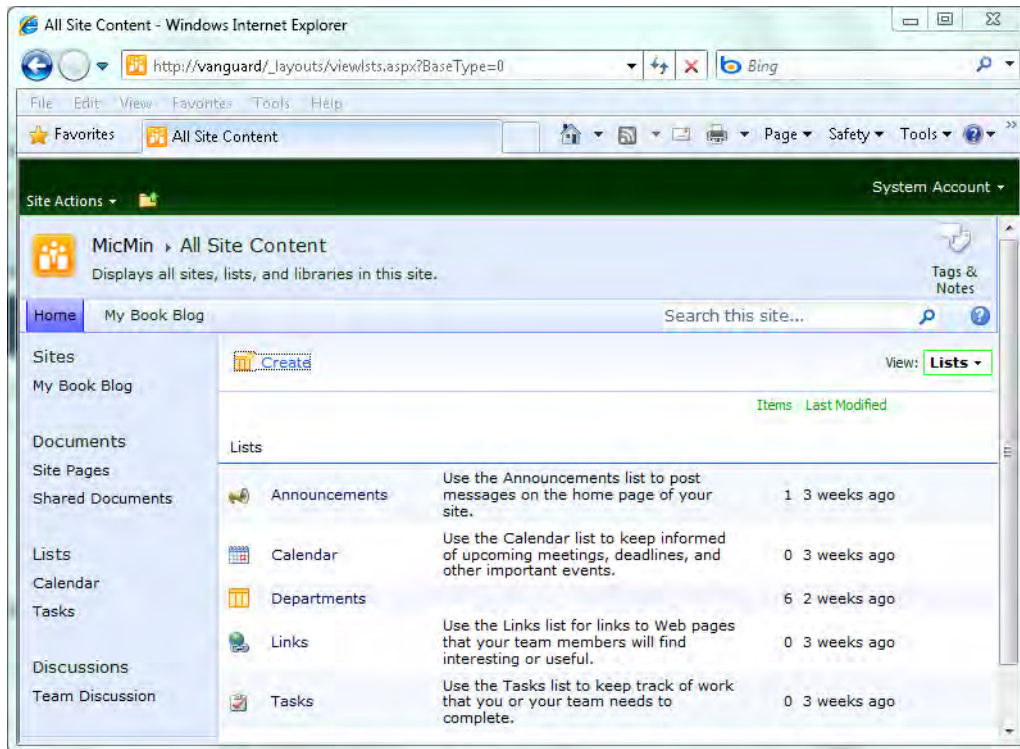


Figure 2-1. The Create page lists the various content objects you can create.

Both libraries and lists display the object names, the description, the number of items in the list or library, and the last date when someone made a change to the list or library. Let's begin by looking at the Announcements list that SharePoint installs with one default item. To open any list, just click on its name.

Announcements List

Several collaboration site templates include by default an announcements list. Use this list to display upcoming events, news, or activities that you want your site readers to know about. An announcement item consists of several pre-defined columns including a title, a body, and an expiration date. This list

has two additional columns, Created By and Modified By, that SharePoint automatically populates when the user adds or changes an item. Let's focus on just the first three columns for now.

Figure 2-2 shows the **Announcements** list with its one default event. Each SharePoint list consists of a set of columns. Some columns appear in nearly every list. Other columns add unique capabilities to a list. In the Announcements list shown in Figure 2-2, you see four columns (you may not think of the first two as data columns even though nearly every list supports them). The first column is, in fact, a checkbox that allows you to select one or more items from the list and perform a common operation such as deleting the items, checking the items in or out, or publishing the items. The ability to perform an action on more than one item in a list or library at a time is a new SharePoint 2010 feature. Depending on how you want to use the list, you may want to turn this checkbox column off. (See the “Working with List Views” section for details on turning this feature on and off.)

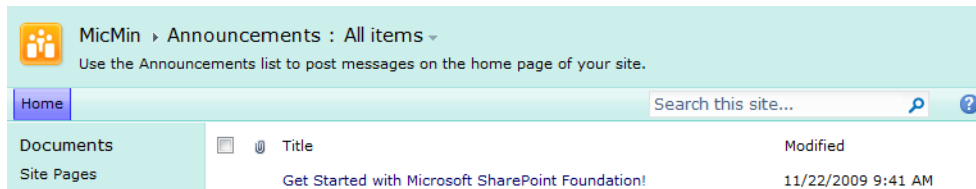


Figure 2-2. This announcements list includes attachments.

■ **Tip** When defining the view definition used to display announcements, open the **Filters** section, select the **Expires** column, and set it to be greater than or equal to **[Today]**. This filtered view hides expired announcements.

The second column shows a paperclip indicating that you can include an attachment to the list item. For example, you may add a supporting document to a list item by attaching that document. (If your list will never need attachments, you may want to define a view for the list that does not include this column.) The third column holds the title of the announcement. The Title column is another common column in nearly every list. It typically serves as a link between the list item and an edit page where you can change the information in the list. Finally, the fourth column shows the date and time of the item's last modification.

As mentioned earlier, the Announcements list has two additional columns. To see these columns, click on the Title value of the item to display a window showing the editable columns of the list. You can't directly edit the data displayed in this form unless you edit permissions for lists as discussed in Chapter 1. However, if you do have edit permissions, the **View** ribbon of this window displays the **Edit Item** icon in the **Manage** group. Click this icon to display the edit form for this list item, as shown in Figure 2-3.

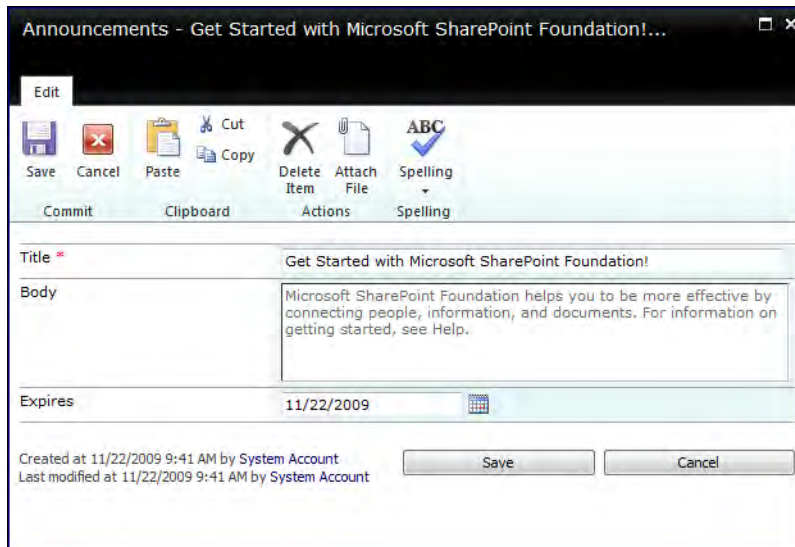


Figure 2-3. This announcements list includes expiration dates.

Note that the Title column has a red asterisk after the column name. The red asterisk indicates columns that require a value; you cannot leave it blank. Each announcement item also has a Body and an Expires date field. The Body column provides a multi-line text area where you can provide additional details about the announcement. The Expires column lets you select a date when the announcement expires. In this case, the announcement refers to the Get Started with Microsoft SharePoint Foundation announcement, which has an expired date of 11/22/2009. If you think about it, what good is an announcement of an event that displays after the event has occurred? Ideally, you would like your web site to remove past events from your announcements list automatically so that you would not need to monitor your site continually to remove them manually. Unfortunately, SharePoint will not do that even with an Expires date, at least not without creating a custom view that can compare the Expires column to the current date. However, you will learn how to do exactly that in the “Sorting and Filtering Lists” section.

For now, let’s focus on the other options in the **Edit** ribbon. Let’s associate another file to a list item by making it an attachment. You will find the **Attach File** option in the **Actions** group of the **Edit** ribbon. Click this option to display a dialog box that allows you to define the attachment. Before defining an attachment, however, upload the file to a library on your site. Never define an attachment to a file on your local system. However, you may want to attach to files on a network file share to conserve database space and reduce redundancy, especially if you are using SharePoint Foundation with an internal database with a 4GB database limit.

You can also cut, copy, and paste text within any column value field using the options in the Clipboard group. You can save and cancel any changes you make. You can even delete the item from the list.

■ **Note** If you delete an item from a list that has an attachment to another file in a SharePoint library, SharePoint does not delete that file. While you could handle this situation with SharePoint Event Handlers, the focus of this book is for the non-developer; therefore this solution will not be covered here.

The last item in the **Edit** ribbon is the **Spell Check** option. Click this option to spell check any text field in your list. In the Announcements list, spell check looks at the text in both the Title and Body column.

When you click anywhere within the Body text, a new set of ribbons appears at the top of the dialog. In fact, two ribbons appear under the common heading of Editing Tools. The first ribbon, **Format Text**, allows you to perform basic text editing such as font style, paragraph formatting, and text style. You can even display the HTML of the text and edit the raw formatting of the text.

■ **Caution** Only edit the HTML of a content area if you have experience working in HTML.

The second ribbon is **Insert**. It includes an option that allows you to insert tables, pictures, and links into a text field of an item. There is also an option in this ribbon to upload a file from your local machine to one of the document libraries on the site. After uploading the document, SharePoint automatically inserts a link to the document into the text at the current cursor position.

Adding Items to Your New List

Now that you know your way around an existing list, how do you add items to it? First, return to the default list view of the Announcements list as shown in Figure 2-2.

SharePoint opens a list in **Browse** mode, meaning that it displays the default list view along with the tabs for the other ribbons. You can always remove the visible ribbon commands by returning to Browse mode. Since you want to add a new announcement, you need to display the **Items** ribbon in the **List Tools** ribbon group. The **Items** ribbon allows you to add new items as well as edit and delete items. You can also change permissions for the item and view the item's history if your list or library tracks versions of each item.

In this case, click **New Item** in the **New** group to add another announcement. This action opens the edit dialog for the list item, letting you supply the column values for a new item in the list using the same dialog as shown in Figure 2-3. Click **Save** in the **Commit** group of the **Edit** ribbon to save your new announcement. After saving the announcement, you can return to the list view to see the new announcement. Figure 2-4 shows the Announcements list after adding several announcements.

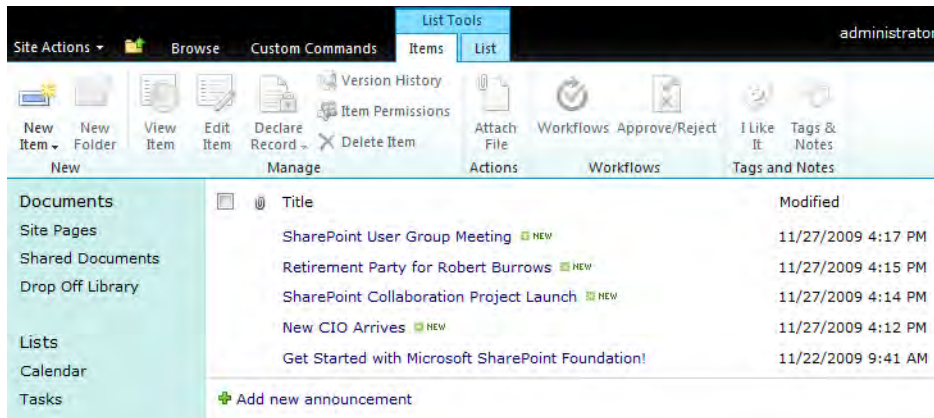


Figure 2-4. The Announcements list displaying several new announcements

One of the enhancements made to SharePoint 2010 involves the ability to edit list items not only from the default list view, but also from any page that displays the list as part of that page's content. The "Working with List Views" section later in this chapter covers this in more detail.

Contacts List

The second Content & Data list type to look at is the Contacts list. Because the team site does not automatically create a contacts list for you, you need to create this list before you begin using it. If you click **Lists** in the **Quick Access** menu, you can then click **Create** from the top of the **All Site Content** page to select the type of list you want to create. Figure 2-5 shows the available Content & Data lists. Click on the **Contacts** icon and then provide a name for the list. SharePoint requires unique names for lists and libraries. However, a list has additional properties you can set by clicking on the button **More Options**.

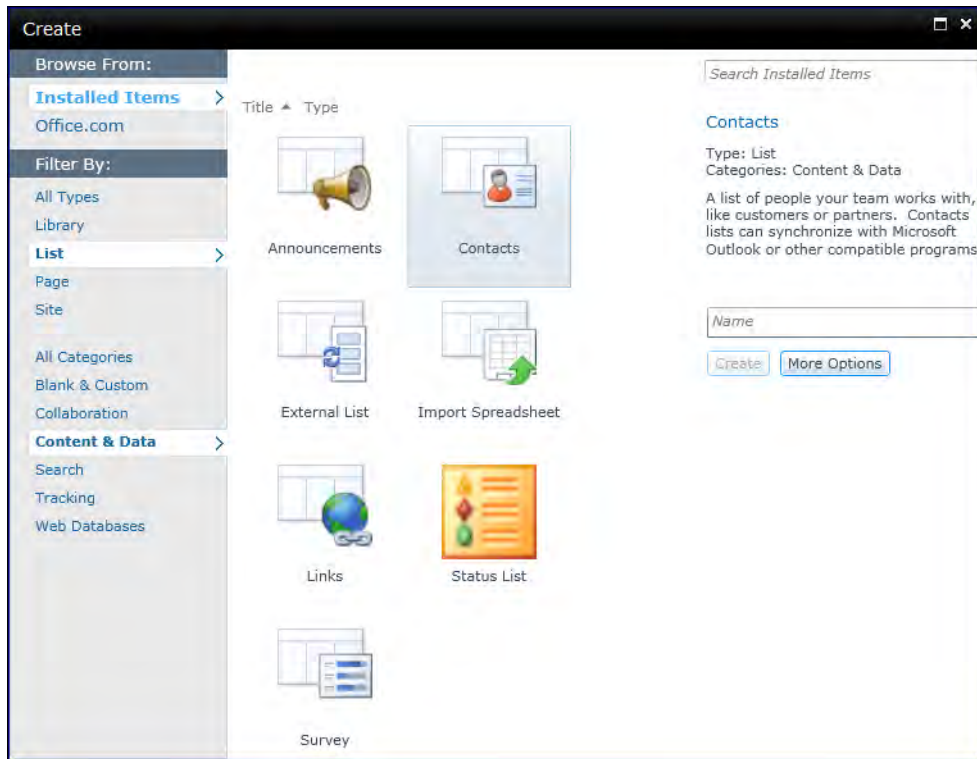


Figure 2-5. *Creating a Contacts List*

As you can see in Figure 2-6, the **More Options** button displays a second page in the **Create** dialog that prompts for a description of the list and asks whether you want to include a link for this list in the **Quick Launch** area. If you do not include a separate link, users can still navigate to your list by clicking the Lists heading to display the available lists within the site.

The **Description** field in this dialog displays its text in the Description column of Figure 2-1. Note that the description may be helpful to your users in determining the purpose of each of your lists. If you create a list without supplying a description, you can always return to the list to modify its properties to provide a description.

■ **Caution** SharePoint determines the size of the dialog box based on the size of the browser window so that the dialog box fits inside the window. If you start with a relatively narrow window, you may find that it truncates the details of the Create dialog. On closer examination, you should see a horizontal scroll bar at the bottom of the dialog that will let you scroll to see the contents of the dialog. However, to avoid this inconvenience, you should always begin with a maximized browser window before opening any command that displays a dialog box. The best way to insure this is to keep your browser set to Maximize.

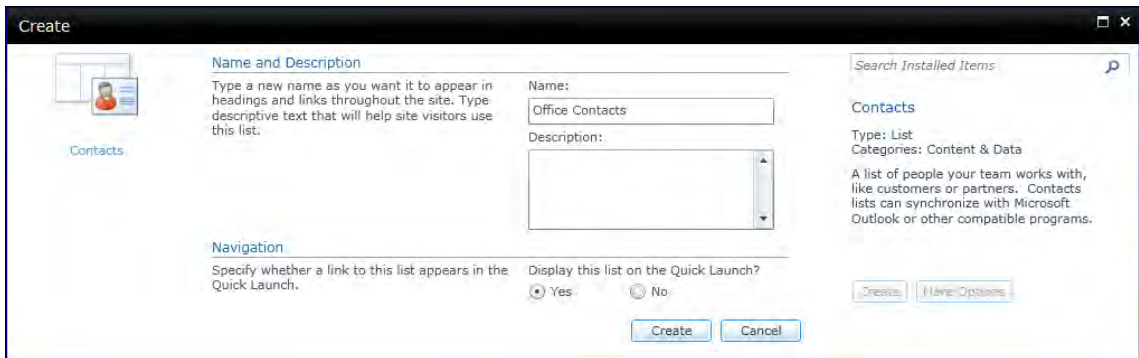


Figure 2-6. More Options for the Contacts List

After you define the properties for the list, click **Create** to begin using the list. You can see in Figure 2-7 that the list displays several columns across the top of the page including Last Name, First Name, Company, Business Phone, Home Phone, and E-mail Address. What if you do not need the Company name column because all of the contacts in your list are part of your company? And instead of Business Phone, you would rather have just their phone extension? You can easily update the columns in your contact list by going to the **List Tools** ribbon group and selecting the **List Settings** in the **List** ribbon.

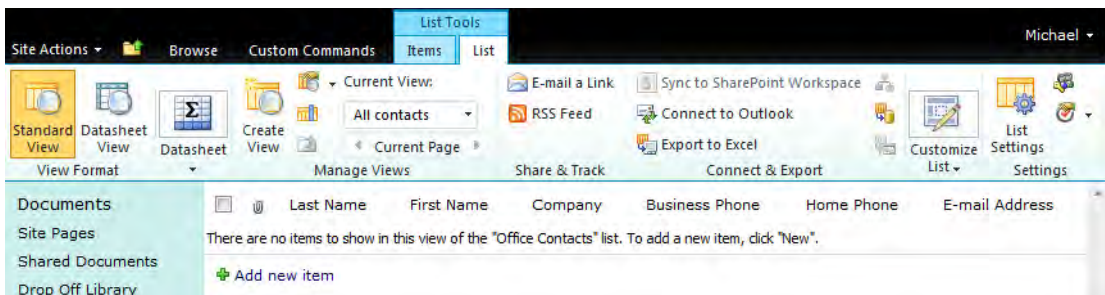


Figure 2-7. Viewing the Default Contacts Columns

The List Settings page consists of six parts:

- **List Information:** You cannot edit this section because it displays basic information about the name and location of the list.
- **General Settings:** The options in this section open dialogs that allow you to modify basic parameters defining the list.
- **Permissions and Management:** This section provides options to change permissions to the list and to manage features such as workflows and policies for the list.
- **Communications:** This section allows you to turn on or off RSS settings for the list as long as the SharePoint Farm Administrator has enabled RSS at the farm level.
- **Columns:** Use this section to review and edit the columns that define the list.
- **Views:** This section lists all currently defined views for the list.

If you are new to SharePoint, you may wonder if you must display all columns in a list. The simple answer is no. A list consists of a collection of columns (think of columns as fields) arranged by items (think of items as rows). You create or modify views for that list to display the specific columns and rows you want. First, you should notice that the list definition on the list settings page has many more columns than displayed in Figure 2-7. Therefore, before adding a new column to a list, see if there's a column you can use as-is or if you can rename one that's not in use. Only if you need a unique column should you consider adding a new column.

For example, you want a column for just the contact's business extension. Why not use the Business Phone column and redefine the column name. To do this, click on the column name to display the column properties. Change the **Column Name** from Business Phone to Business Extension. Leave the column type set to **Single line of text**. However, you may want to consider reducing the **maximum number of characters** from the default of 255 to a more realistic 3 to 5 characters depending on the size of your telephone extensions. Then scroll to the bottom of the page and click **OK**. Figure 2-8 shows the **Change Column** page for the Business Phone/Extension page.

<p>Name and Type</p> <p>Type a name for this column.</p>	<p>Column name: Business Extension</p> <p>The type of information in this column is:</p> <p><input checked="" type="radio"/> Single line of text <input type="radio"/> Multiple lines of text <input type="radio"/> Choice (menu to choose from) <input type="radio"/> Number (1, 1.0, 100) <input type="radio"/> Currency (\$, ¥, €) <input type="radio"/> Date and Time</p>
<p>Additional Column Settings</p> <p>Specify detailed options for the type of information you selected.</p>	<p>Description: <input type="text"/></p> <p>Require that this column contains information:</p> <p><input type="radio"/> Yes <input checked="" type="radio"/> No</p> <p>Enforce unique values:</p> <p><input type="radio"/> Yes <input checked="" type="radio"/> No</p> <p>Maximum number of characters: <input type="text" value="5"/></p> <p>Default value:</p> <p><input checked="" type="radio"/> Text <input type="radio"/> Calculated Value <input type="text"/></p>
<p><input checked="" type="checkbox"/> Column Validation</p>	
<p style="text-align: center;"> <input type="button" value="Delete"/> <input type="button" value="OK"/> <input type="button" value="Cancel"/> </p>	

Figure 2-8. The Change Column page

Next, consider the other request not to use the column Company name. You could click on the column named Company and from the **Change Column** page, click the **Delete** button at the bottom of the page to remove this column. However, you may not want such an extreme solution. Perhaps all you really need to do is to remove the column from the list's default view. Just because you don't use a column doesn't mean that you must delete it from the list.

Return to the **List Settings** page and scroll to the bottom of the page to display the **Views** section. A list can have many views, with each one displaying a different set of columns, a different sort order, or a different filter. While you can have many views for any one list, you can only have one view designated as the default view. SharePoint uses the default view when you open the list from your available libraries and lists. To edit the view, click the **view name** to display the **view definition**, as shown in Figure 2-9.

■ **Tip** From the display of the list itself, you can quickly modify the view by selecting the command **Modify View** from the **Manage Views** group of the **List** ribbon.

Name

Type a name for this view of the list. Make the name descriptive, such as "Sorted by Author", so that site visitors will know what to expect when they click this link.

View Name:

Web address of this view: [http://vanguard/Lists/Office Contacts/ AllItems .aspx](http://vanguard/Lists/Office%20Contacts/AllItems.aspx)

This view appears by default when visitors follow a link to this list. If you want to delete this view, first make another view the default.

Columns

Select or clear the check box next to each column you want to show or hide in this view of this page. To specify the order of the columns, select a number in the **Position from left** box.

Display	Column Name	Position from Left
<input checked="" type="checkbox"/>	Attachments	1
<input checked="" type="checkbox"/>	Last Name (linked to item with edit menu)	2
<input checked="" type="checkbox"/>	First Name	3
<input checked="" type="checkbox"/>	Company	4
<input checked="" type="checkbox"/>	Business Extension	5
<input checked="" type="checkbox"/>	Home Phone	6
<input checked="" type="checkbox"/>	E-mail Address	7
<input type="checkbox"/>	Address	8
<input type="checkbox"/>	City	9
<input type="checkbox"/>	Company Phonetic	10
<input type="checkbox"/>	Content Type	11
<input type="checkbox"/>	Country/Region	12
<input type="checkbox"/>	Created	13
<input type="checkbox"/>	Created By	14
<input type="checkbox"/>	Edit (link to edit item)	15
<input type="checkbox"/>	Fax Number	16
<input type="checkbox"/>	First Name Phonetic	17
<input type="checkbox"/>	Folder Child Count	18
<input type="checkbox"/>	Full Name	19
<input type="checkbox"/>	ID	20
<input type="checkbox"/>	Item Child Count	21
<input type="checkbox"/>	Job Title	22
<input type="checkbox"/>	Last Name	23
<input type="checkbox"/>	Last Name Phonetic	24
<input type="checkbox"/>	Last Name (linked to item)	25
<input type="checkbox"/>	Mobile Number	26
<input type="checkbox"/>	Modified	27
<input type="checkbox"/>	Modified By	28
<input type="checkbox"/>	Notes	29
<input type="checkbox"/>	State/Province	30
<input type="checkbox"/>	Type (icon linked to document)	31
<input type="checkbox"/>	Version	32
<input type="checkbox"/>	Web Page	33
<input type="checkbox"/>	ZIP/Postal Code	34

Figure 2-9. Viewing the Default Contacts columns

The view definition consists of a dozen sections; you will only deal with the second, **Columns**, here. This section displays all currently defined columns for the list. The check boxes to the left of the column names indicate whether that column appears when displaying the view. As you can see, even a default view does not necessarily include all the available columns. To include another column in the view, select the checkbox to the left of the column name. To exclude a column already displayed in the view, uncheck the checkbox to the left of the column name.

To the right of the column names you see a drop-down list. Each drop-down list has a different number in it and they are sequential from top to bottom. SharePoint lists use this column to indicate the order of the columns from left to right when you display the view. To change the order, you need only open the drop-down list and assign the column a new numeric value to indicate its new position. SharePoint takes care of the hard work to rearrange the rest of the columns to insert the column in the position you selected. For example, if you wanted to move the e-mail address so that it appears immediately after the contact's name, you could open the drop-down list for e-mail and change its position from '7' to '4'. Notice that, when you do this, SharePoint automatically renumbers all the columns between 4 and 7.

To finish this example, uncheck the check box before the column **Company** since you decided not to display that column, and then click **OK** at the bottom of this dialog. After saving your changes, SharePoint displays the Office Contacts list with your new view definition. You will learn more about views in the “Defining Views for Your List” section of this chapter.

The contacts list, by default, includes hyperlink fields. The first type of hyperlink field occurs on the contact's last name. SharePoint creates this hyperlink automatically to link each item to an edit page that displays all the data for that contact. All lists have one field that can open the edit page. By default, SharePoint normally names this column **Title**. However, you can rename the column to something more appropriate for your list, such as Last Name.

A second type of hyperlink exists on the e-mail address column. All hyperlink columns consist of two parts, one part defines what displays to the list viewer and the second part is the actual link used to open a page or application when someone clicks on the link. In the case of the e-mail address, clicking on the e-mail address automatically opens your e-mail application and creates a blank message for this contact. The contact's e-mail address in the link portion of this column must begin with `mailto:`. The hyperlink column type can also reference a web address either within your SharePoint site or anywhere on the Internet by prefixing the address with `http://` or `https://` as appropriate.

External List

The External list is new to SharePoint 2010. It allows you to display data from a data source outside of SharePoint as if it were a list built within SharePoint. Thanks to the new read/write capability of Business Connectivity Services (BCS), which replaces the Business Data Catalog (BDC) from Microsoft Office SharePoint Server 2007, you can define a connection to almost any type of external data source, such as another SQL Server database or an Oracle database. Once you have a connection defined, you can instantiate any table from that data source to display and use it from within SharePoint as if it were just another SharePoint list. You'll examine this new feature in more detail in a later chapter.

Import Spreadsheet

If you already created your data list in Excel, you can quickly and easily import that data into a SharePoint spreadsheet without re-entering all the data. Chapter 7 discusses how to import Excel data and how you can work with both SharePoint and Excel.

Links List

You might think of the Links list as one of the simpler lists in the Content & Data group. It consists of a collection of links to other pages or other web sites. Many page designers use the Links list as a container to hold the links they want to display on the web pages they build. A Links list might even provide the data for a simple menu to pages on your site or related sites.

While SharePoint provides several ways to add links to a web page, the Links list is an easy to maintain structure. However, once you have more than a dozen links, you might be tempted to start grouping your links to organize them using either separate folders or even separate lists. A better design choice adds a custom column to the list. With a custom column, you can create views that filter the links. Whether you use a separate column for each filtered view or a single column with different values or even a multi-valued column becomes a design decision. The advantage of not organizing your links in folders or in separate lists is manageability. You can easily group items in different views by defining different filtering columns. If you store everything by folders or separate lists, it is difficult to create views that combine and reuse links in different ad hoc ways.

■ **Tip** SharePoint 2010 builds collaboration pages on a Wiki page, which allows you to link pages on your site easily without using a Links list. However, for links outside of the current site, you might use the Links list or similar technique to make them easier to find and maintain.

Figure 2-10 shows two examples of a possible site menu using a Links list. The top one, called **My Links**, displays links in a custom view that includes only the URL column from a Links list. You might use a menu such as this one to link to objects that you do not include in the Quick Access area on the left side of the page or to pages outside of your site.

The second list instance uses a different view of the same Links list. In this view, the first column identifies the item type (folder or link) using different icons for each type. The second and third columns display the URL and Notes for the link respectively. The “Defining Views for Your List” section provides further details on how to customize and create views. Chapter 3 explains how to add views to a page, as shown in Figure 2-10.

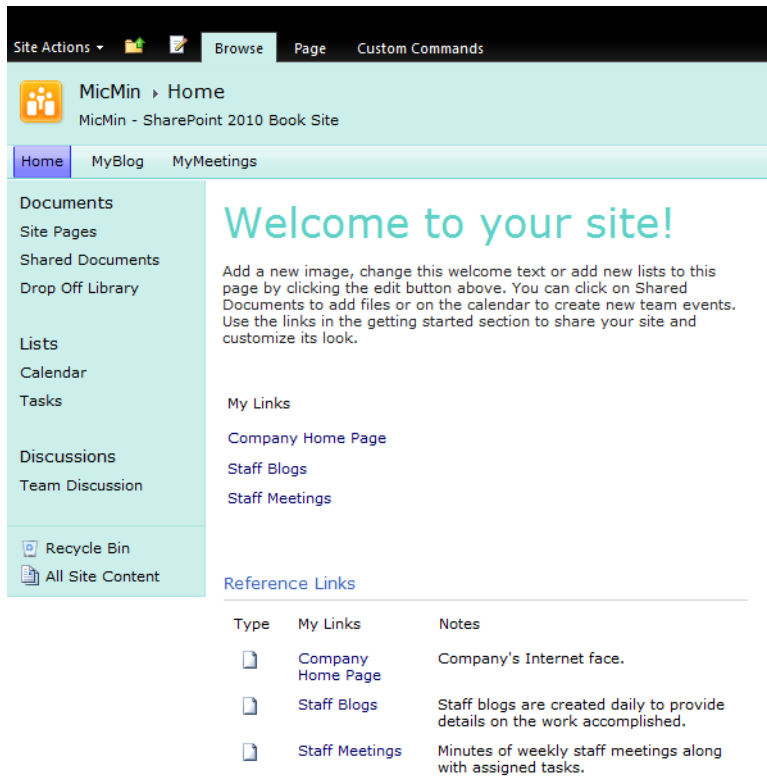


Figure 2-10. A Links list can provide hyperlinks to internal and external pages and sites.

Status List

The status list provides a way to track and display goals using colored icons that indicate how successful you have been at reaching those goals. I cover this list type in detail in the “Introduction to KPIs” Section in Chapter 8.

Survey List

The last list template in the Content & Data category is the Survey list. This list provides an example of a highly specialized list. It displays its columns as a questionnaire or a poll for the reader to complete rather than a list of columns and rows. You begin the same way when creating a new survey list by assigning a name and description to a new survey. However, surveys have two additional options that you must set when you create the list.

The first option asks whether you want to display the respondent’s name in the survey. Some people like to have the respondent’s name in the survey so they can contact her for additional comments related to her responses. However, if your survey asks questions such as the respondent’s satisfaction

with current management policies or the effectiveness of the respondent's immediate supervisor, they may not be entirely honest in their responses unless you make the survey anonymous.

The second option you must specify lets you decide whether a single user can respond to a survey only once (no stuffing the ballot boxes here please). Even if the user responds to an anonymous survey, if the survey is on a collaboration site that requires a log in, a hidden field can track the user name and thus restrict users to one response per survey.

Next, you create your survey questions. SharePoint provides 13 built-in question types from which to choose. The question types range from simple text responses to multiple choice answers and even rating scale questions using a Likert scale. Each question type has its own unique settings. You can make individual questions required. Some question types allow multiple value selections. You can also set minimum and maximum value limits to numeric questions.

The Likert Scale

A Likert scale survey attempts to determine the respondent's level of agreement with a statement by selecting a value from 1 to n based on how strongly he agrees or disagrees with the statement. A simple example might be as follows:

SharePoint provides a good collaboration framework for the work environment.

1. Strongly Disagree
2. Disagree
3. Neither Agree nor Disagree
4. Agree
5. Strongly Agree

Some scales do not include a central choice like the third choice above where the respondent does not really have to make a choice on one side or the other of the question. Other scales might include more values. However, the more values that separate the two extremes of the scale, the more difficulty respondents have deciding between the choices.

A concept known as *central tendency bias* refers to a respondent who avoids extreme responses. In a scale of only 1 to 5, such a bias forces a respondent's answers to the three middle values. This bias provides one argument for scales with more choices.

Two other common reactions in Likert scales include the *acquiescence bias* where respondents tend to agree with all statements and the *social desirability bias* in which respondents tend to select answers based on what they think the surveyor expects. This latter bias often appears as a problem with non-anonymous surveys in a work environment where respondents feel that their responses could affect their career.

Surveys support branching logic. Rather than building a survey in which the user answers every question, you can create a questionnaire that branches to different questions depending on how the user responds to a question, thus customizing the survey based on the individual's earlier question responses.

Figure 2-11 shows the user view of an available survey. The user initially sees only the name of the survey along with a brief description and its creation date. The user also sees the number of responses already submitted. To respond to the survey, they should click the link **Respond to this Survey** found at the top of the survey or click the title of the survey depending on where you display the survey. Both actions open a separate page to display the survey. The menu bar of this screen also has the option **Respond to this Survey** that you can use to start the survey.

The screenshot shows a SharePoint page for a survey titled "Collaboration Training Survey" by MicMin Associates. The page includes a navigation menu with links for Home, blog, Visio, Bugs, Charity, and Projects. A left-hand menu lists "Surveys", "Documents", "Shared Documents", "Training Documents", and "WebPages". The main content area features a "Respond to this Survey" link, "Actions", and "Settings" options. Below this is a table with the following details:

Survey Name:	Collaboration Training Survey
Survey Description:	This survey should be given to all participants at the end of the collaboration training.
Time Created:	10/31/2009 1:58 PM
Number of Responses:	0

Figure 2-11. Displaying a notification of survey availability

When the user opens this example survey, SharePoint displays a page with the questions, as shown in Figure 2-12. Notice that for yes/no questions, SharePoint uses a check box that when checked indicates **Yes** and when left blank indicates **No**. Although you can set the default value to either **Yes** or **No** when you define the questions for the survey, neither default choice really guarantees that the respondent actually made the response. A more accurate way to ask even a simple yes/no question might use the **Choice** question type. When using this question type, include a default option **NA** to indicate that the respondent has not made a choice or simply leave the default value blank.

Collaboration Training Survey - New Item

Finish Cancel

* indicates a required field

On what date did you attend the collaboration class? *

10/31/2009

Did you have experience with building collaboration sites prior to attending class?

What was your opinion of this class. *

	Strongly Disagree				Strongly Agree
	1	2	3	4	
I learned new techniques that I can apply to my site from this class.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	
This class materials were presented clearly	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	
The instructor did a good job presenting the materials	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	
The instructor keep the class on task	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	
The handout materials augmented the class instruction	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	
I would recommend this class to my co-workers	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	

Finish Cancel

Figure 2-12. Responding to a survey

Steps to create survey in Figure 2-12

1. Navigate to the site where you want to create the survey.
2. Select **Site Actions** ► **View All Site Contents**.
3. Click the **Create** button from the top of the page.
4. Select from the available list types, the survey list.
5. Provide a name for the site: Collaboration Training Survey.
6. Click **More Options**.
7. Enter an optional description.
8. Choose whether to display the survey in the **Quick Launch** area.
9. In the **Survey Options** section, choose not to show the user names and choose not to allow multiple responses.
10. Click **Create** to begin entering survey questions.

11. Enter the first survey question: On what date did you attend the collaboration class?
12. From the question types, select Date and Time
 - a. The screen now refreshes to show additional settings for this question type
13. Select Yes for the question **Require a response to this question**.
14. For the question **Enforce unique values**, select No.
15. For the question **Date and Time Format**, select Date Only.
16. For the **Default** value, select (None).
17. Click the **Next Question** button at the bottom of the page.
18. Enter the second question: Did you have experience building collaboration sites prior to attending class?
19. From the question types, select Yes/No (checkbox).
20. After the page refreshes, select No as the **Default** value in the additional settings.
21. Click the **Next Question** button at the bottom of the page.
22. For the last question, enter the text: What was your opinion of this class.
23. From the question types, select: Rating Scale.
24. After the page refreshes, select Yes for the prompt **Require a response to this question**.
 - a. The next setting property lets you enter any number of sub-questions. To add more than one sub-question, press **Enter** at the end of each line before beginning the next sub-question.
25. Enter the first sub-question: I learned new techniques that I can apply to my site from this class.
26. After pressing **Enter**, type the second sub-question: The class materials were presented clearly.

27. After pressing **Enter**, type the third sub-question: The instructor did a good job presenting the materials.
 28. After pressing **Enter**, type the fourth sub-question: The instructor kept the class on task.
 29. After pressing **Enter**, type the fifth sub-question: The handout materials augmented the class instruction.
 30. After pressing **Enter**, type the sixth sub-question: I would recommend this class to my co-workers.
 31. Next you must select the **Number Range: 4**
 32. Next specify the **Range Text** replacing Low with: Strongly Disagree and High with Strong Agree. Change the middle box to a blank since you have no middle value.
 33. Deselect if necessary the **Show N/A** option.
 34. Click **Finish** to complete the survey.
-

As mentioned previously, you can click the survey title to open a separate page displaying only the survey. This page has some options listed at the bottom. The first option asks whether the user wants to show a graphical summary of responses, as shown in Figure 2-13. This view makes it easy to interpret the survey results. Beneath that, a second option lets you show all responses. The initial list shown with this option only shows a default response identifying name that includes a simple numeric sequence indicator, the name of the responder (if not anonymous), the date the survey was taken, and whether they completed the survey.

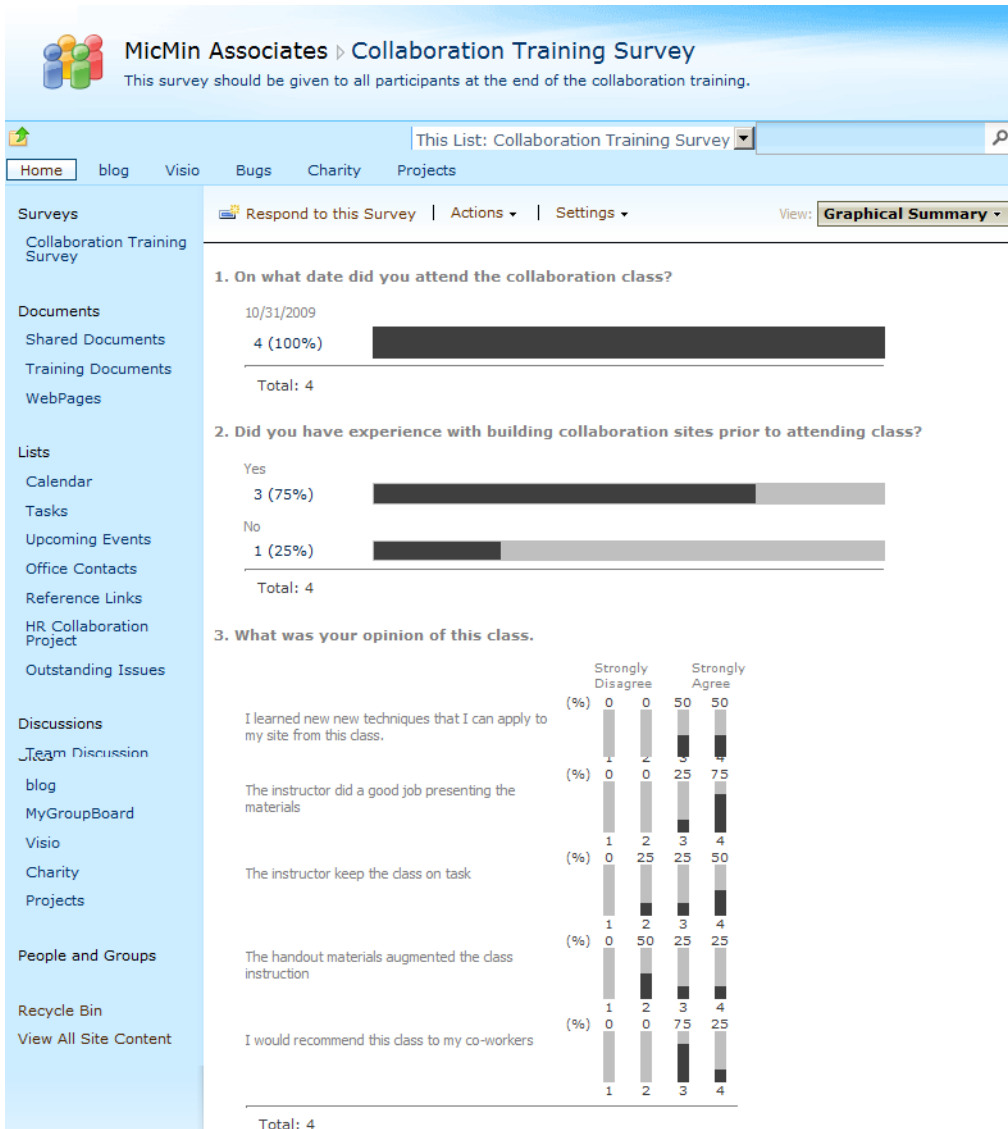


Figure 2-13. Displaying survey results graphically

■ **Note** One of the survey’s Advanced Setting options allows the survey builder to determine whether other users can see everyone’s responses or just their own. Of course, the survey builder as well as the site owners can always view all survey results. However, allowing potential respondents to first view prior results might distort their responses (see the sidebar “The Likert Scale” for types of bias in surveys). They may even decide that, based on the overwhelming direction of current responses, their opinion may not matter and thus not take the survey.

Collaboration Lists

Out of the box, SharePoint only provides one list classified as a collaboration list, the Discussion Board. SharePoint places this list in the collaboration category because a discussion implies more than one person, as most people do not have discussions with themselves. (Although I have to wonder if that person walking down the street talking to himself really has a Bluetooth connection for his phone.) So let’s look at how the discussion board works.

Discussion Board List

The discussion board reminds some people of an Internet-style newsgroup. Both discussion boards and newsgroups support multiple messages related to each topic. Both objects allow you to group messages chronologically or by thread subject. A SharePoint discussion board supports columns such as the discussion subject and body, the name of the user who created the message, and the creation date, as well as user-defined columns. You might implement a discussion board list on topics where you want feedback from members of your organization or when you need to provide a place where they can post comments, questions, or concerns. Figure 2-14 shows a discussion board for a new collaboration project used to obtain opinions from the staff concerning features needed for collaboration.

The screenshot shows a SharePoint interface for a Discussion Board list. The top navigation bar includes 'Site Actions', 'Browse', 'Custom Commands', 'List Tools' (with 'Items' and 'List' sub-options), and the user name 'MPATrainer'. Below the navigation is a breadcrumb 'MicMin > Team Discussion : Subject' and a description: 'Use the Team Discussion list to hold newsgroup-style discussions on topics relevant to your team.' A search bar is present with the text 'Search this site...'. On the left, a 'Sites' sidebar lists 'My Book Blog' and 'Web Services'. The main content area displays a table of discussion subjects.

Subject	Created By	Replies	Last Updated
Future Training Topics NEW	Mike Antonovich	0	1/1/2010 6:52 PM
Custom Web Parts Needed NEW	System Account	0	1/1/2010 6:52 PM
Collaboration Site Branding NEW	System Account	3	1/1/2010 7:19 PM

At the bottom of the list, there is a '+ Add new discussion' link.

Figure 2-14. Showing subjects from a discussion board list

Figure 2-14 shows a listing of discussion topics by subject. Note that the first and second discussion threads have no replies yet, while the third topic already has three replies. To view these replies, click the subject. This action displays a new page with only the messages related to the selected subject. By default, SharePoint displays the messages in a flat view, meaning that the messages simply appear in sequence based on the Modified date column. However, there is another built-in view for this list, called the *threaded view*, which displays the messages in a hierarchy view.

■ **Note** To display a view other than the default view, use the **List** ribbon and open the drop-down list in the **Custom Views** group to display and select from available views. You can also click on the last item of the breadcrumbs in the title bar of the list to open a dropdown list of all the defined views for the current list.

In a threaded view, SharePoint indents a message reply a small amount from the message to which it replies. Multiple replies to the same message have the same indent. In Figure 2-15, user “Administrator” responded to the original message from “Michael.” However, both “MPATrainer” and “Susan” responded to the Administrator’s message. Note that, from this view, you can reply to any message at any level within the thread by clicking the **Reply** button to the right on the reply header.

■ **Note** When SharePoint groups the messages by thread, it sorts by **Modified date**. Therefore, you need to rely on the amount of indenting for each message to determine to which message each message replies. You can also click the link **Show Quoted Messages** at the bottom of a message to see just the messages in the current response’s hierarchy.

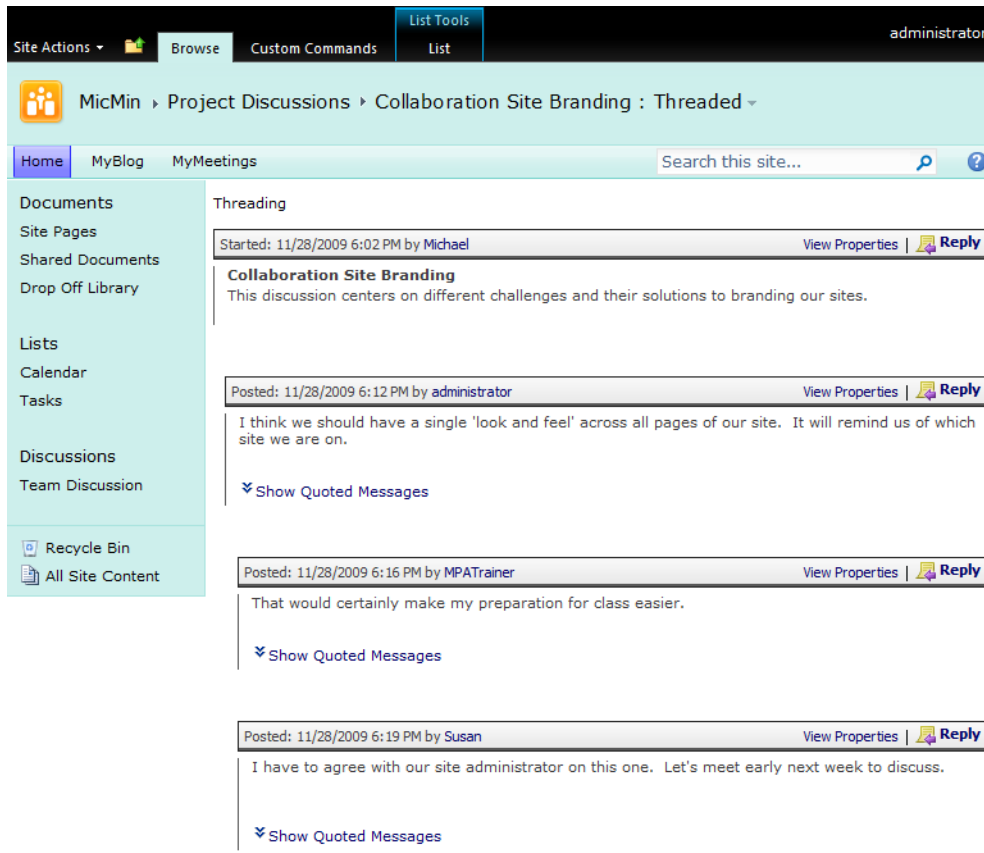


Figure 2-15. Showing threaded messages within a discussion board subject

Over time, a single message can spawn multiple branches off the main thread as people explore different issues. Using the thread view to display messages helps organize what might otherwise be a confusing chronological sequence of messages into a rational conversational sequence.

Searching Category

Although this category includes the Calendar and Project Tasks lists, I will reserve discussion of the Project Tasks list for the Tracking Category, which also includes the Project Tasks list.

Calendar List

The calendar list shares similarities to the announcements list. Both display events and activities. However, the calendar list extends this functionality showing events in a familiar month, week, or daily

graphical layout similar to what you already use in Outlook. Even better, the calendar list integrates with Outlook 2003 and later. Chapter 5 explores the calendar list's capabilities more fully.

Figure 2-16 shows a basic calendar list with three upcoming events. The default view displays the date and time of the events along with the event title and description. The calendar list includes the built-in views:

- **All Events:** This view displays all past, present, and future events.
- **Current Events:** This view displays all present and future events only.

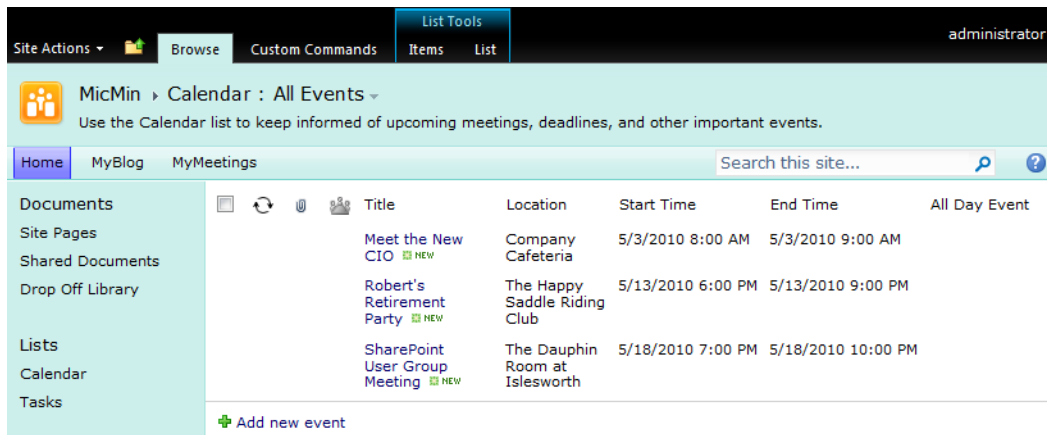


Figure 2-16. Calendar list using the All Events view

In addition to a list-style view, the calendar list includes special views that display calendar data by month, by week, or by day. Figure 2-17 shows an example of the month view of the same events shown in Figure 2-16.

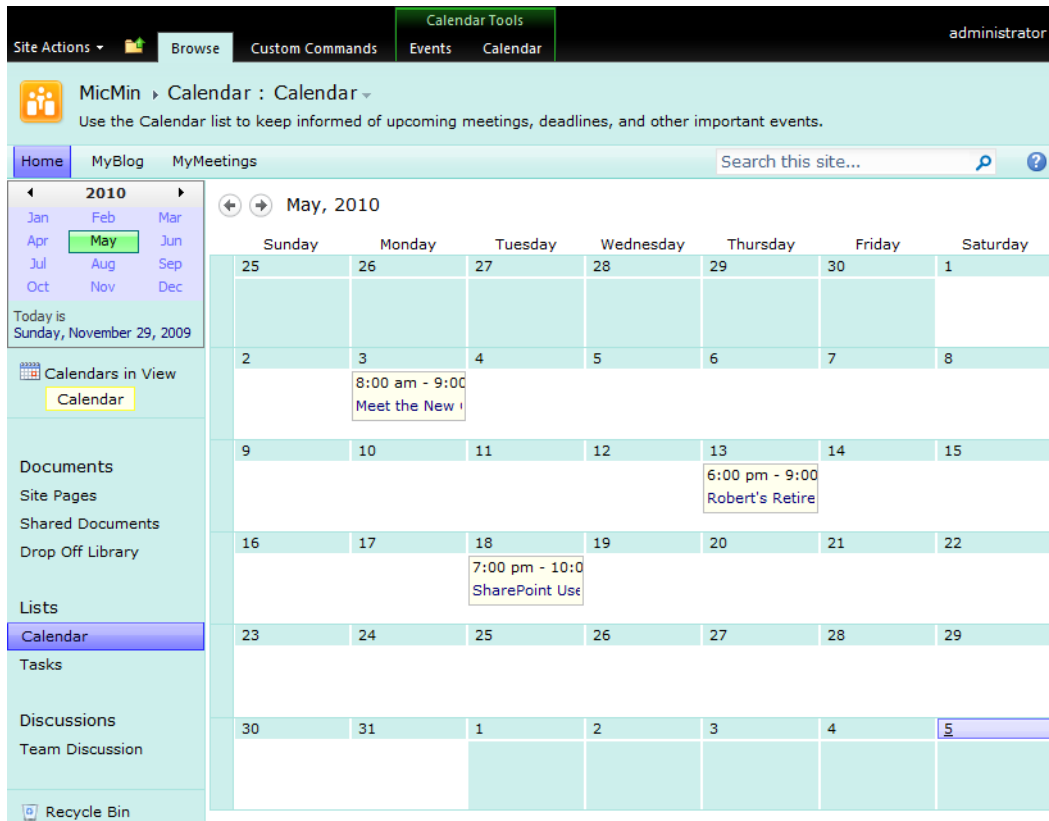


Figure 2-17. Calendar list's monthly view

The calendar list has another interesting feature. It shares its events with events in your local copy of Outlook so you can access your schedules no matter where you store your events, meetings, and appointments. For example, you might use a SharePoint site to track information about your project. Within this site, your project manager maintains a single calendar of major events related to the project. You can merge this site calendar with your Outlook calendar to build a single consolidated view of all your events. Chapter 5 explores in depth how to work with calendar lists through Outlook.

■ **Tip** Don't like the way your list view displays on a web page? Change it! Click the small down arrow to the right of the list name on the web page and select **Modify Shared Web Part**. A dialog box appears to the right of your page. You may need to scroll horizontally to see it. Find the **Selected View** property in this dialog and choose a different view from the drop-down list. Click **OK** to apply and exit this dialog box and return to the normal page view mode. The next chapter covers more on displaying views on web pages.

Tracking Lists

You can create a variety of tracking lists by clicking **More create options** from the **Site Actions** menu. Tracking lists contain information such as links to other pages or sites, calendar events, tasks, issues, or even surveys. You will find these lists under the **Tracking** group:

- **Tasks**
- **Project Tasks**
- **Issue Tracking**
- **Agenda (available only in Meeting sites)**

Tasks List

If you use the Tasks list in Outlook to manage your to-do lists or the to-do lists of your staff, you have some idea of how such lists help organize your workday. The SharePoint tasks list also includes columns that let you enter task titles, descriptions, start dates, due dates, status, and task percent completion. You can assign (depending on your permissions) tasks to other users. Then you can change the view to see all tasks, just tasks assigned to you, tasks due today, or all active tasks.

■ **Tip** You can define an alert to receive notification by e-mail when someone creates a new task and assigns it to you. But a better method is to turn on the **E-Mail Notification** option in the list's **Advanced Settings** (See **List Settings** in the **Settings** group of the **List** ribbon) to send an e-mail about the task when you assign ownership of the task using the **Assigned To** field.

What is an Alert?

An *alert* is a flag set within SharePoint to notify you via e-mail when a change occurs to the selected item. You can define when you want to receive alerts and for what types of changes you want them. Their real value is that they eliminate the need to monitor lists and libraries manually to track changes or additions. I cover alerts in more detail in the “Using Alerts to Notify You of List Changes” section later in this chapter

If you manage work for other users, the tasks list might help you organize your staff's work. Since even completed tasks remain in the list, you could create a filtered list view to show your boss all the tasks completed by your staff in the last reporting period. With a few custom fields, you could also create views to track hours expended per task. Tracking actual time to complete tasks can help you estimate required time for similar tasks in the future. You can also use this information to bill back your group's time if you manage a consulting group. By adding a field for completion dates, you could compare the difference from the task due dates to determine whether your staff can keep up with the workload or whether you need to request additional staff.

Figure 2-18 shows a simple tasks list.

Title	Assigned To	Status	Priority	Due Date	% Complete	Predecessors
Survey the HR Department for their collaboration needs <small>NEW</small>	Susan	In Progress	(2) Normal	6/1/2010	75 %	
Finish building all the Collaboration hardware <small>NEW</small>	Michael	In Progress	(2) Normal	5/15/2010	90 %	
Build Collaboration Site for HR <small>NEW</small>	Michael	Not Started	(2) Normal	8/1/2010	0 %	Survey the HR Department for their collaboration needs; Finish building all the Collaboration hardware
Test site for HR and load initial data <small>NEW</small>	MPATrainer	Not Started	(2) Normal	8/15/2010	0 %	Build Collaboration Site for HR
End-User Training for HR <small>NEW</small>	MPATrainer	Not Started	(2) Normal	8/31/2010	0 %	Test site for HR and load initial data

Figure 2-18. Tasks list for a project in progress

As with the calendar list, you can integrate the tasks list with Outlook. Chapter 5 explores these capabilities.

Project Tasks List

The project tasks list at first looks similar to the previous tasks list in that it supports the same basic fields. However, while the items in the tasks list might represent tasks from multiple independent projects or even tasks, the items in the project tasks list generally represents related tasks for a single project. In fact, as you enter items in this list, SharePoint uses the start and due dates to define a bar in a Gantt chart automatically as the list's default view.

Gantt Charts

You use a **Gantt chart** in project management as a way to visually show the sequence of tasks in a project along a horizontal timeline. It also shows the status of the project by shading each task line based on its percent completion, which when compared to the current date on the horizontal timeline provides a visual estimate of the project's status.

A list of the major tasks in a project appears to the left of the chart. The right side of the chart consists of a timeline depicting days or weeks in the project, depending on the time scale. Each row on the Gantt chart identifies one specific task within the project. The horizontal band to the right of the task name identifies

the start and end of the project along the timeline. If one task depends on another task, lines from the end of the first task connect to the start of the next task to indicate that the second task depends on the completion of the first task. SharePoint depicts each task with two horizontal bands. The wider band represents the entire planned time span from the start date to the end date of the task. The inner band indicates the percent completion. If this inner band is missing, the task has not yet started. If the inner band started on time but extends beyond the outer band, the task was underestimated. Across the top of the chart is a calendar ribbon from which you can identify the current date. Any task in which the inner band does not reach the current date is behind schedule. Any task in which the inner band stretches beyond the current date is ahead of schedule. Thus you can visually compare the bands for each task to the current date to estimate the status of each project task.

Figure 2-19 shows a Gantt chart for a simple project: five items necessary to implement a collaboration site for the Human Resources (HR) department of an organization. Suppose that today is 5/1/2010. You could quickly see that you are ahead of schedule on these tasks. On the other hand, if today were 6/1/2010, you would clearly be behind schedule.

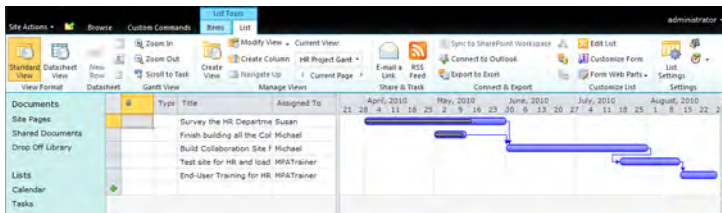


Figure 2-19. Project tasks list displaying a Gantt chart

Of course, this Gantt chart for a single project does not show Michael's involvement in three other projects that have a higher priority than this project. As a result, he could not devote the necessary time to this project to keep it running on schedule. The project task list does not, by itself, combine information from multiple projects to facilitate seeing relationships between projects and how that might impact resource availability. You may want to consider implementing Microsoft's Project Server 2010 along with Microsoft SharePoint Server 2010 to manage multiple projects.

Issue Tracking List

The issue tracking list also looks similar to the tasks list in that it tracks independent activities that might involve multiple projects or activities. Your organization may use an issue tracking list to track customer support calls, risk mitigation activities, or other issues that do not necessarily relate solely to one project. In addition to the fields supported by the tasks list, the issue tracking list classifies items by categories. A category might represent a department, application, project, team, or any other grouping, or it could simply indicate the severity of the issue.

■ **Tip** The Issue Tracking list defines the categories as part of the definition of the list. If you do not like the default categories, simply edit the column properties by going through List Settings and create your own categories.

You can also associate an item in the list with other items already in the list. This is a great way to tie together related issues where solving one issue may resolve or at least partially resolve another issue. Figure 2-20 shows an example of an issue tracking list created by a Customer Care group.

Issue ID	Title	Assigned To	Issue Status	Priority	Due Date
1	Build a new collaboration site for the Technology Planning Group	Michael	Active	(2) Normal	6/1/2010 8:00 AM
2	Train the Finance staff on the use of their new collaboration site	MPATrainer	Active	(2) Normal	7/1/2010 8:00 AM
3	The Ad Links application appears to be broken again	administrator	Active	(1) High	5/1/2010 1:00 PM
4	Payroll needs help setting up their permissions	Susan	Active	(2) Normal	6/20/2010 10:15 AM

Figure 2-20. An issue tracking list tracks outstanding issues for the company.

Other Lists

SharePoint makes several other lists available when you select **Create** from the **All Site Content** page. Some lists are only available with certain site templates. For example, the first five lists shown below only exist with a meeting site.

- **Agenda:** Create an outline of meeting topics, who will cover them, and the amount of allotted time for each topic.
- **Decisions:** Used to track decisions made at the meeting.

- **Objectives:** Used to inform attendees of the meeting goals before they attend the meeting.
- **Text Box:** Used to insert custom text, instructions, messages, or quotes into a meeting.
- **Things to Bring:** List of things the meeting attendees should bring to the meeting such as handouts, projectors, laptops, power cables, etc.

Figure 2-21 shows an example of what a meeting site could look like with several of the special meeting lists on the main page. Keep in mind that once you have a meeting site definition that works for your organization, you can create a custom template of that site so you can reuse it to create other meeting sites.

The screenshot shows a SharePoint meeting site interface. At the top, there's a navigation bar with 'Site Actions', 'Browse', and 'Page' tabs, and a user profile 'administrator'. Below the navigation bar, the site title 'MyMeetings' and 'Home' are displayed. A search bar is present with the text 'Search this site...'. The main content area is divided into several sections:

- Mission Statement:** A text box containing the text: "To create an efficient electronic environment to enhance productivity of all employees." Below it is an 'Edit text' link.
- Objectives:** A list containing one objective: "To convert all paper forms to electronic InfoPath forms by end of calendar year." Below it is an 'Add new item' link.
- Project Decisions:** A table with columns 'Decision', 'Contact', and 'Status'. It contains two entries:

Decision	Contact	Status
Evaluate Current Forms to Determine What Must Be Retained	Marilyn G.	Final
Determine who will pay for SAN storage	Robert M.	Pending Approval

 Below the table is an 'Add new item' link.
- Attendees:** A table with columns 'Name', 'Edit', and 'Response'. It contains two entries:

Name	Edit	Response
Michael		Accepted
Susan		Accepted

 Below the table is a 'Manage attendees' link.
- Agenda:** A table with columns 'Subject', 'Owner', and 'Time'. It contains five entries:

Subject	Owner	Time
Reading of minutes from last meeting	Project Manager	10:00 to 10:05 AM
Discussion of Old Business	All Participants	10:05 to 10:30 AM
Challenge of the Week	All Participants	10:30 to 10:45 AM
New Business	Project Leads	10:45 to 11:25 AM
Closing Remarks	Project Manager	11:25 to 11:30 AM

 Below the table is an 'Add new item' link.
- Things to Bring:** A table with columns 'Item', 'Owner', and 'Comment'. It contains one entry:

Item	Owner	Comment
Projector and Laptop	Jerry B.	Needed for every meeting. Setup 5 minutes before meeting start

 Below the table is an 'Add new item' link.

Figure 2-21. A typical meeting site with several meeting specific lists

It is typical for a site template to have specialized libraries or lists designed specifically for that site. However, you are not limited to just the lists defined by the site. You can also create custom lists. These lists begin with only the required Title column (that you can rename). You can then add your own columns to this basic list definition to create a list that meets your specific needs. The Import Spreadsheet list is a custom list that is especially useful when you need to bring data from an Excel spreadsheet into SharePoint without having to retype everything. I will cover many of its special features in subsequent chapters.

SharePoint 2010 also adds a Languages and Translators list. This list works with the Translation Management workflows and the Translation Management Library to assign translation tasks based on the languages involved.

Editing Data into Your List

Earlier in this chapter, you saw how to perform simple data editing within your list. You saw how to edit the information using one of two view styles, Standard view or Datasheet view. To begin editing data in an existing list, open the list by going to **Site Actions ► View All Site Content** and then clicking on the name of the list where you want to work.

Lists typically open in Standard view. Notice that one of the columns that typically appear has the name Title. As mentioned, you can rename this column to make it more suitable for your needs. The important thing is that this column links each item in the list to an edit page where the user can modify the data in the other columns.

■ **Tip** If the linked column does not appear in a different color, you can also determine which column links to the edit page by slowly passing your mouse over each column in the item (or row). A drop-down arrow appears to the right of the column value for the field linked to the edit page.

You cannot edit the column data directly in the Standard view. You must click on the value in the Title column to open a form that first displays the data for that item. You must then click **Edit item** in the header of that form to open an editable view of the data. Figure 2-22 shows the form that first displays the column data for an item along with the View ribbon and Figure 2-23 shows the form used to edit the item.



Figure 2-22. Displaying an individual item in the Upcoming Events list

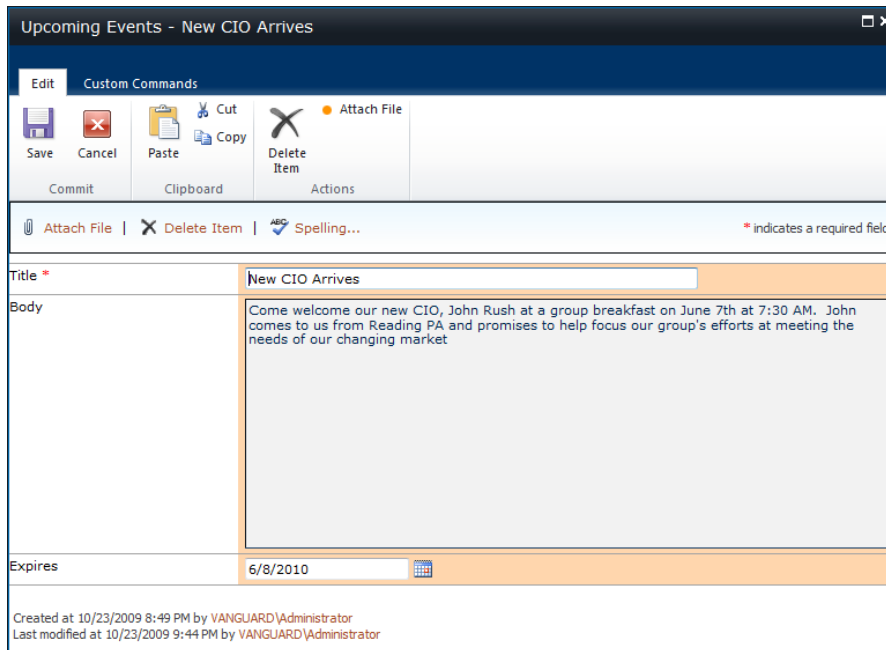


Figure 2-23. Displaying the edit form of the Upcoming Events list for an item

On this edit page, you can change the item's data and then click **Save** in the **Commit** group of the **Edit** ribbon.

If you only need to change a few values in one or two items in a list, this may be a good technique to edit the data. However, if you need to make many changes to the data, you may want to consider switching to Datasheet view for the list. You can do this at any time by selecting **Datasheet View** in the **View Format** group of the **List Ribbon**. This view style, as shown in Figure 2-24, resembles an Excel spreadsheet or an open Access table in that it allows you to edit any column value in any row by simply clicking on it and making your changes.

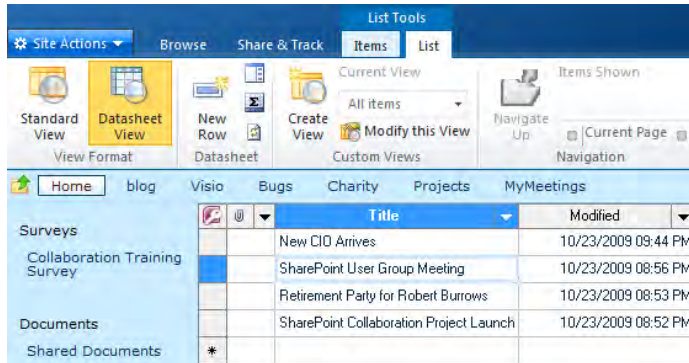


Figure 2-24. Displaying a list using DataSheet view

SharePoint automatically saves your changes every time you move from one row (or item) to another. However, the real advantage of editing multiple data elements using the Datasheet view comes from the flexibility of editing and moving around your data. Table 2-1 shows some of the major keystroke shortcuts available in Datasheet view.

Table 2-1. Keystroke Shortcuts in DataSheet View

Key	Action
Arrow keys	Left and right move through the text of the cell and to the next or previous cell. Up and down move to the same column in the previous or next row.
Ctrl+A	Used to extend the selection to all cells in the entire list.
Ctrl+C	Copies the contents of the current cell to the clipboard.
Ctrl+End	Moves to the last cell in the last row of the list.
Ctrl+Home	Moves to the first cell in the first row of the list.
Ctrl+Shift+End	Used to extend the selection to all cells from the current cell to the last cell in the list.

Key	Action
Ctrl+Shift+Home	Used to extend the selection to all cells from the current cell to the first cell in the list.
Ctrl+Spacebar	Used to extend the selection to all cells in the current column.
Ctrl+V	Pastes the contents of the clipboard to the current cell.
Ctrl+X	Cuts the contents of the current cell and places it on the clipboard.
Ctrl+Z	Undoes the last edit.
Delete	Deletes the current contents of the current cell.
End	Moves to the last cell in the row.
Enter	Moves to the same cell in the next row.
Esc	Restores the previous value to the current cell (like an Undo).
F1 Opens	Help.
F2	Puts the current cell in Edit mode with the cursor at the end of the text.
F8	Opens the Datasheet Task Pane.
Home	Moves to the first cell in the row.
Page Down	Moves to the next page.
Page Up	Moves to the previous page.
Shift+Arrow Key	Used to extend the selection of cells in the direction of the arrow.
Shift+F8	Hides the Datasheet Task Pane.
Shift+F10	Opens a context menu for the current cell.
Shift+Spacebar	Used to extend the selection to all cells in the current row.
Shift +Tab	Moves one cell to the left.
Tab	Moves one cell to the right.

■ **Caution** Although it is possible to use the **Enter** key to enter data into all of the rows for one column before moving to the next column, if any of your other columns are required fields, this action fails. SharePoint tries to save each row when you exit the row and it cannot exit a row if any column that requires data remains blank. If your current view does not include all columns, this can be confusing when the required column does not appear in the view.

When you finish working in datasheet mode, you can click the **Standard View** button in the **View Format** group of the **List** ribbon.

Working with List Views

I started this chapter assuming that you have been following along using a Team site. For example, the team site automatically includes the Announcements list on the site's home page. As you made changes to the Announcements list, adding or modifying the content of individual announcements, you may have noticed that the content changed on the home page to reflect the changes you made in the list. However, it is important to know that the view of the list on the home page of the site is not the same thing as the list itself. In fact, if you were to make a change to the structure of the view from the list itself, perhaps by adding or removing a column, changing the sort order, or applying a filter, those changes would not appear in the announcements section of the home page. Only changes to the list data immediately appears in the home page view of the list.

Why do some changes appear and others do not? That is a fair question and one that perplexes many SharePoint users. The key to understanding this apparent inconsistency comes from the understanding that the list itself does not appear on a site page, only a view of that list appears. Changing the data displayed by that view does not require a change to the view definition itself. Therefore, data changes flow through the view definition to the page. However, when you change the underlying view definition, you must refresh the view definition stored within the page with the new view definition defined in the list.

Let's suppose that you only wanted to display the announcement title and not the modified date as originally shown at the beginning of this chapter. You have two ways to make this change. One way makes the change to the view definition directly stored within the page. Making the change this way has no effect on the original view definition back in the list. I call this a disjointed change because the view used on the page no longer reflects any changes made to the supposedly same view back in the list. If you want to make both views match again, you must open the view definition in the list and make the same changes there that you made to the view definition in the page. If you only made a few changes, you may be able to successfully change both views, but as the number of changes increases, the chances of missing one or more of the changes from one view to another increases.

■ **Tip** If all you need to do is change the view used on the page and do not care about the view in the list, you can easily edit the list right from the page. Place the page in edit mode. Then click anywhere in the list to display the **List Tools** ribbon group. Then click the **Modify View** option in the **Manage Views** group of the **Lists** ribbon.

The second way to make the change starts by making the change in the existing view definition in the list or by creating a new view definition in the list. Using this method makes the change in the list, but the changes do not immediately appear in the page that displays the list. To correct the page display, you must open the definition of the list on the web page and refresh the view definition. I prefer making changes to views using this second method because I only have to make the changes to one copy of the view and then simply refresh the other instance of that view on the page. The following paragraphs describe the steps needed to use this method.

First, open the original list and through the **List Settings** page, select the view you want to modify, make your changes to the view, and then save the view. In this case, to show only the **Title** column, you would need to open the **All Items** view and deselect all the columns except for the Title column. If you also want to remove the check box that appears to the left of the title column in the list, scroll down to the section **Tabular View** and deselect the check box **Allow individual item checkboxes**. Click **OK** to save the changes to the view.

Next, navigate to the page that displays the view. (I know we have not yet really discussed how to place lists on web pages. I will cover that topic in Chapter 3. If you follow the steps listed here, you should still be able to accomplish the goal.) Place the page in **Edit** mode and locate the web part that holds the list. Find and click on the small down-pointing arrow to the right of the list title. The drop-down menu that appears includes the option **Modify Shared Web Part**. Click this option to open a panel of properties for this list instance on the current page. If you do not see this panel, you may notice the horizontal scroll bar at the bottom of the page. Use the scroll if necessary to view the area to the right of your page. There you should find a panel with several options. The first two prompts include drop-down boxes. The first drop-down box allows you to select which view from the current list's views you want to use to display data on this page. SharePoint selects the default view for the list initially. However, you may want to create a custom view to limit the columns, change the sort, or apply a filter to the data that users see. In this example, select the **All Items** view to refresh the definition of the view for the page. Then click **OK** at the bottom of this panel to stop editing the web part's properties.

■ **Caution** When you apply a view to a page, SharePoint merely makes a copy of the view definition on the page. If you go to the list and subsequently change that view's definition, the page does not automatically know about the change. Rather, you must re-edit the page and re-apply the view to the page to update the latest changes to the view definition.

The second drop-down box allows you to change the **Toolbar** type. By default, the list does not display a link on the page to add new data to your list. You can limit additions to your list by setting the **Toolbar Type** to **No Toolbar**. (Of course, only users with the **Add** items permission can add to a list in the first place). The **Show Toolbar** option displays a header bar like you see when you open the list directly providing the ability to sort and filter the list. However, if you only want to allow users to add records easily to your list, change the **Toolbar Type** to **Summary Toolbar** and click the **OK** button in the list properties panel. SharePoint now displays a link beneath the list **Add new announcement**. Clicking it displays a blank version of the dialog shown in Figure 2-25, allowing the user to add values for a new list item. Remember, this only works if the user has permission to add announcements to the list.

Finally, you can add items to your list by opening your list directly by going through **Site Actions** to **View All Site Content** and then clicking on the desired list. Once opened, click in a blank area of the list to display the **List Tools** ribbon group. Select the **Items** ribbon and then click on the upper portion of the **New Item** option in the **New** group to show the same window, as shown in Figure 2-25.

The first field in this new window, named Title, has a red asterisk after the name. This asterisk indicates that an announcement must have a title before SharePoint can save it. Entering data into the other fields is optional.

The screenshot shows the 'Announcements - New Item' dialog box. At the top, there is a ribbon with 'Edit' and 'Custom Commands' tabs. The ribbon contains several groups of buttons: 'Save', 'Cancel', 'Paste', 'Copy', 'Attach File', 'Commit', 'Clipboard', and 'Actions'. Below the ribbon is a toolbar with 'Attach File' and 'Spelling...' options. The main form area has a 'Title *' field containing 'Next SharePoint User Group Meeting' and a 'Body' field containing text about a meeting on May 12, 2010. An 'Expires' field is set to '5/13/2010'.

Figure 2-25. Adding a new announcement item

Click the **OK** button when you have finished entering the data for the current list item. SharePoint automatically returns you to the list page where you can see the new item in the **Announcements** list, as Figure 2-26 shows.

■ **Note** The position of the new item within the list depends on the sort order used by the default view of the list.

Welcome!

to your new team site, some of the things you can do here are:

The screenshot displays a SharePoint team site dashboard. At the top left, there is an 'Announcements' section with a settings gear icon. Below it is a navigation bar with 'New', 'Actions', and 'Settings' dropdown menus. The main content area is divided into three columns. The left column contains the 'Announcements' list, which has been updated with a new item. The middle column shows 'Shared Documents' with a table of files. The right column contains 'My Menu', 'Reference Links', and 'Customize This Site' sections.

<input type="checkbox"/>	@ Title	Modified
<input type="checkbox"/>	Next SharePoint User Group Meeting	10/31/2009 11:10 PM
<input type="checkbox"/>	Free Training	10/31/2009 10:40 PM
<input type="checkbox"/>	Get Started with Windows SharePoint Services!	10/22/2009 10:27 PM

<input type="checkbox"/>	Type	Name	Modified	Modified By
<input type="checkbox"/>	Word Document	Changes to the Elementary School Template	10/27/2009 8:29 PM	VANGUARD\Administrator
<input type="checkbox"/>	Word Document	jobs.valenciacc	11/7/2009 3:03 PM	VANGUARD\Michael
<input type="checkbox"/>	Word Document	my first document	10/26/2009 9:10 PM	VANGUARD\Michael
<input type="checkbox"/>	Word Document	Permissions Customization for School Sites	10/25/2009 9:45 PM	VANGUARD\Administrator
<input type="checkbox"/>	Word Document	Project Plan	10/27/2009 8:34 PM	VANGUARD\Administrator
<input type="checkbox"/>	Word Document	SharePoint Course Notes	10/25/2009 9:45 PM	VANGUARD\Administrator
<input type="checkbox"/>	Word Document	SharePoint Resources	10/25/2009 9:45 PM	VANGUARD\Administrator
<input type="checkbox"/>	Word Document	The Universe Episodes	11/8/2009 7:28 PM	VANGUARD\Michael
<input type="checkbox"/>	Word Document	TheUniverseEpisodes	11/8/2009 7:28 PM	VANGUARD\Michael

Figure 2-26. Updated Announcements list displaying the newly added item

Building a Custom List

Even though SharePoint provides a wide variety of lists out of the box, you may have a requirement that no template completely satisfies. If one of the templates comes close to meeting your needs, you may want to use it and add a few additional columns, modify a few, or even delete a few to build exactly what you want. However, if your requirements differ greatly from any of the available templates you saw in the first part of this chapter, then creating a custom list from scratch can be the best choice to satisfy your specific needs.

If you have the **Create** permission for lists, you may find creating a new list easier than editing an existing one. Let's see how to begin a new list. First, click **View All Site Content** from the **Site Actions** menu. On the Create page, previously shown in Figure 2-17, select the **List** type and the **Blank &**

Custom category. From the displayed icons, select **Custom List** as shown in Figure 2-27. Like most other lists, you must provide a list name that is unique within your site. You should also provide a description that informs your site readers about the purpose of your list. To provide a description, click the **More Option** button before clicking the **Create** button.

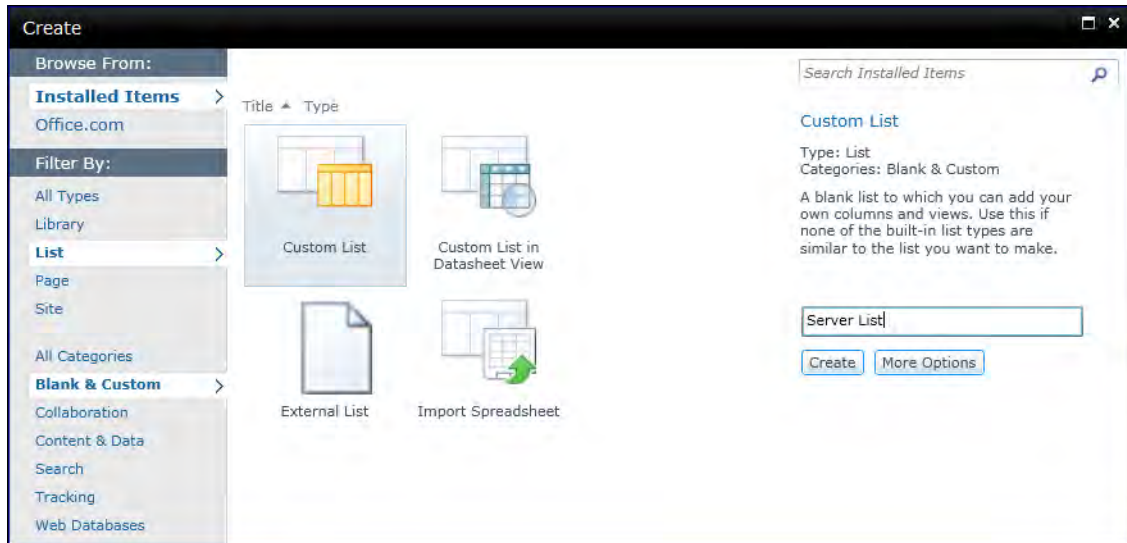


Figure 2-27. Creating a custom list

Under the navigation section, you can choose whether to include the list in the Quick Launch area. If you do not, users can still navigate to your list by clicking either **Lists** or **View All Site Content** in the Quick Launch area. Of course, it is always possible to come back later and change this setting through the **List Settings**, so do not fret too much over deciding whether to include the list in the Quick Launch area. Also, keep in mind that list instances become “web parts” that you can add to any page within a web part zone.

Next, define the columns for your list. After you click **Create**, SharePoint displays an empty list. By default, a list must have at least one column, which SharePoint names **Title**. In fact, if you only need a single column, you can use that one column, perhaps renaming it to something more appropriate. While you can rename the Title column, you cannot delete it. Even after renaming the Title column to something you do want, you will probably need to add a few more columns to that initial list.

■ **Tip** To add or rename a list column, select **List Settings** from the **Settings** group of the **List** ribbon while displaying the list. For example, within the **Columns** section, locate the Title column and click on it to edit the properties of the column. Here you can change the **Column Name** of the column and then click **OK** to save your update.

From the **List** ribbon, click **Create Column** from the **Settings** group. The top portion of the Create Column page, shown in Figure 2-28, lets you name your new column and select its field type.

The screenshot shows the 'Create Column' dialog box in SharePoint. The dialog is titled 'Name and Type' and is used to define a new column. It includes a 'Name and Type' section for naming and selecting a field type, an 'Additional Column Settings' section for detailed options, and a 'Column Validation' section. The 'Name and Type' section shows 'Server Type' as the column name and 'Single line of text' as the selected field type. The 'Additional Column Settings' section includes a description field, a 'Require that this column contains information' checkbox (set to 'No'), an 'Enforce unique values' checkbox (set to 'Yes'), a 'Maximum number of characters' field (set to 255), and a 'Default value' section with 'Text' selected and an 'Add to default view' checkbox checked. The 'Column Validation' section is currently collapsed. The dialog has 'OK' and 'Cancel' buttons at the bottom.

Figure 2-28. Adding a column to the list

You must define unique column names within a list instance. However, you can use the same name for columns in different list instances even within the same site. When it comes to data types, SharePoint provides a collection of column types from which to choose:

- **Single line of text:** Short text entries
- **Multiple lines of text:** Long text entries
- **Choice:** Select one or more items from a predefined list of choices
- **Number:** Any integer, real, or percentage number
- **Currency:** A number with currency formatting
- **Date and time:** A Date or a Date and Time value
- **Lookup:** Select a value from another list
- **Yes/No:** A check box
- **Person or group:** Works with Authenticated users within SharePoint
- **Hyperlink or picture:** Links to other pages, documents, web sites, or e-mail addresses
- **Calculated:** Calculation based on other columns in the current list
- **External Data:** Data outside of SharePoint accessed through the BCS
- **Managed Metadata**
- **Publishing:** Image, HTML, schedule end date, schedule start date; available only as site columns
- **Audience targeting:** Automatically added if you turn on audience targeting for a list or library. This option is not selectable as a user-defined column type.

■ **Tip** If you plan to use the column as a linking field in a master-detail relationship, it helps clarify your design intent if you use the same column names in both tables.

You will probably never use all these column types in a single list. In fact, some types only appear in lists available through SharePoint enterprise features or when using specific site templates.

Depending on the selected column type, the second half of the column definition page refreshes to display prompts for specific properties for that column. These properties include settings to make the column required, to limit the maximum length of strings, to provide minimum and maximum values for numeric fields, and more.

When defining a column, the last property determines whether this field appears on the default view for the list.

■ **Note** The default view is not the same as the form displayed by SharePoint when you add a new item to the list. The form that SharePoint creates to enter new list items or edit existing ones always displays all columns defined in the list. You cannot edit this form. However, the default view for a list consists of a unique combination of columns, filters, sort orders, and other characteristics used to display a subset of the list on a page. SharePoint optionally adds columns to the default view for you as you define the columns in your list. You can create additional views for a single list and you can change which one is the default. However, you can only define one view per list as the default view. If you add new columns after changing which view is the default view, you may end up with no view that includes all columns from the list. Of course, you can always modify a view definition to add or remove columns.

After you click **OK** to add a new column, SharePoint returns to the **List Settings** page from where you can add more columns or edit existing ones. If you have finished defining the columns for your list, you can return to the list view by clicking on the list name in the header.

Figure 2-29 shows a custom list after adding several columns, but before items have been added. At any time, you can repeat this process to add more columns. In fact, you can add several thousand columns in a standard list. After you add more than a couple columns, that last setting that asks whether to add the column to the default view becomes more important. For lists with many columns, you may only want to display the most essential ones in the default view. Readers can always click the item's title field (the one linked to the edit menu) to display a page with all the item's columns, or they can switch to a different view that displays a different subset of columns from the list.

■ **Tip** If you want to use the Datasheet view to edit your list data, you should have at least one master view that includes all columns and rows in your list. Otherwise, you may encounter problems trying to save rows that have required columns that the view does not display.

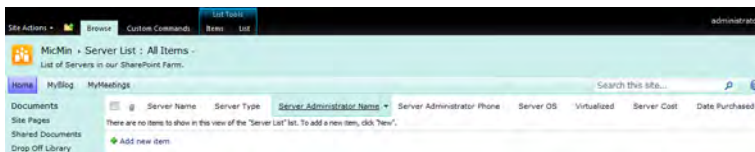


Figure 2-29. Default list view

Limits and Performance

The latest release of SharePoint does not have limits on lists and columns within lists as restrictive as prior versions. Microsoft says that SharePoint supports lists of as many as several million records. However, practical concerns related to usability still affect how you design lists. Can you imagine scrolling horizontally to view hundreds or thousands of columns? Do you really need a list with more than 2,000 columns? As a result, SharePoint uses a throttling setting to limit the number of items a user can query and display at a time. The default limit is 5,000 items for most users, and 20,000 items for super users. This is still a large number of items to format for a single web page! One possible way to override this limit via code uses the `RequestThrottleOverride` property in `SPQuery`. Another possible workaround involves creating two or more lists that you link in a master-detail relationship to retrieve only a subset of records at a time.

For those readers with a web background, talk of performance limits when displaying large lists should come as no surprise. The performance of web pages has always degraded as the size of a table displayed on the page increased. While Internet connections have improved, these improvements only push further out the size of a list or table before users notice performance issues. That's because at least two factors influence the performance of a web page. First, the sheer quantity of data clearly affects the time needed to download the entire dataset. However, the formatting of a web page can also be a very time-intensive task. The key to improving performance for large tables involves splitting tables into smaller units. You can accomplish this with a set of separately filtered views or with a view that uses paging capability to display a limited number of items at a time. Using the properties of views, you can easily limit the number of items displayed at a time. Furthermore, all views should only include the minimal number of columns needed for the current display.

Finally, if you really need lists with a large number of items, maybe what you really need is a table built in Access or SQL and then displayed in SharePoint. Chapter 6 examines ways to use Access with SharePoint.

After you finish adding the columns you need into your list, you can begin adding items by clicking **New Item** from the **New** group of the **List** ribbon. Regardless of how many columns you include in the default view, SharePoint includes all columns from the list in the form that it generates when adding a new item. Figure 2-30 shows the form created from the Custom list to maintain a corporate Server List.

Figure 2-30. Item entry form for the Server List

■ **Note** The description for a column appears beneath the data entry controls on the generated Edit page.

After you see the new item data form for the first time, you may decide to change the data type description or the name of one or more of the list columns to help users understand what you want them to enter. You might even decide to change the data type of one or more columns. This example uses a choice list in the form of a drop-down list to allow the user to select the server type. Similarly, you may not want to allow the user to enter the Server Operating System (OS). Because the list of possible operating systems changes relatively infrequently, you prefer to have the user select the OS from a list that you can easily update with new operating system names as they become available. Let's see how you can modify this Server Operating System column to be a choice type column.

Modifying the Column Types in Your List

To modify a column of a SharePoint list that you or a colleague created, begin by opening the list. Let's open the Server List described in the previous section on custom lists. Select **List Settings** from the **List** ribbon.

This option opens the List Settings page for the selected list, as shown in Figure 2-31. Locate the column you want to modify in the **Columns** section of this page and click the column name. SharePoint then displays a page with possible changes you can make to the column. For many columns, you can change the column name as well as its type.



Figure 2-31. Modifying a list's settings

■ **Note** You cannot change the column type of the **Title** column. However, as mentioned previously, you can change its name. In addition, SharePoint cannot convert several column types such as multiline text fields and date time fields to other column types. Data types that you can convert to other types include the single line of text, number, currency, and yes/no column types.

Initially, you defined the Server OS column using the single line of text column type. However, this could result in problems as users incorrectly spell their entries. Even if they do correctly spell the entry, a value of Microsoft Windows 7 would not match an entry of Windows 7 or even MS Windows 7; this could cause sorting and filtering errors when trying to analyze the results. Therefore, for a column with a limited number of values that change only occasionally, a better design uses a choice type column. Fortunately, it is easy to change the single line of text column to a choice column by just changing the column type. Figure 2-32 shows the **Server OS** column definition after conversion to a choice type column. A choice type begins with a set of possible drop-down values that you supply. SharePoint can then display the choice type using a drop-down list, a set of radio buttons, or a set of check boxes.

Site Actions administrator

MicMin > Server List > List Settings > Change Column
Use this page to edit a column of this list.

Home MyBlog MyMeetings ?

Documents

Site Pages

Shared Documents

Drop Off Library

Lists

Calendar

Tasks

Outstanding Issues

Discussions

Team Discussion

Recycle Bin

All Site Content

Name and Type

Type a name for this column.

Column name:

The type of information in this column is:

Single line of text
 Multiple lines of text
 Choice (menu to choose from)
 Number (1, 1.0, 100)
 Currency (\$, ¥, €)
 Date and Time

Additional Column Settings

Specify detailed options for the type of information you selected.

Description:

Require that this column contains information:
 Yes No

Enforce unique values:
 Yes No

Type each choice on a separate line:

Display choices using:
 Drop-Down Menu
 Radio Buttons
 Checkboxes (allow multiple selections)

Allow 'Fill-in' choices:
 Yes No

Default value:
 Choice Calculated Value

Column Validation

Figure 2-32. Modifying a column's type

Building Choice Lists for Columns

In many lists, the reader selects values for a column from a drop-down list. You define drop-down lists when you create the column definition using the choice type. You then display possible values in one of three ways: a drop-down menu, a set of radio buttons, or a group of check boxes.

Only the check box option allows the user to select multiple values for the column.

Developers use a drop-down list to save space when the number of choices exceeds more than four or five.

Radio buttons save keystrokes by displaying all values without needing to open a drop-down and they force the user to select only a single value.

Notice also that the settings in this figure allow the user to enter her own value rather than selecting one from the list. Use this option only if you do not know all possible values the user might enter. Also, know that misspelled entries may complicate filtering, sorting, and selecting the data later.

Finally, the choice type supports a default value. If you do not want to force a default value, leave the text box blank. An advantage of leaving the default value blank is that any value returned by the list absolutely reflects a selection made by the user.

If this is your only change, click **Save** to update the list definition. When you return to the list and add the next item, you will see the new drop-down option for the **Server OS** column shown in Figure 2-33.

Server List - New Item

Edit

Save Cancel Paste Copy Attach File Spelling

Commit Clipboard Actions Spelling

Server Name *

Server Type

Web Server

Specify your own value:

Enter the type of server such as File, Print, SharePoint, Database, Web Front End, Indexing, Application

Server Administrator Name

Name of the person responsible for this server

Server Administrator Phone

Contact phone number (cell, land line, other) for the person responsible for the server

Virtualized

Is this server virtualized?

Server Cost

Cost of this server when purchased

Date Purchased

Date server was purchased

Server OS

Windows 2008

Operating systems used by our company's servers

Save Cancel

Figure 2-33. Updated item entry form

You can make changes to other columns in the same way. Note, however, that if you make changes to value limits such as maximum lengths, these restraints only apply to new data added to the list or when you edit and save an existing item. It does not automatically apply to all previous items.

■ **Caution** SharePoint allows you to change the columns of a list at any time. However, with a survey list, changing the survey questions or possible answers after several respondents have taken the survey invalidates the initial results. That reasoning should govern changes you allow to the columns of any list.

A *lookup column* is a variation of a choice column with the primary difference being where you define the possible values for the column. While you must enter the possible values into the definition of a choice column, a basic lookup column gets its values from another list. You must create this list before

adding the lookup column to the current list, but you do not need to populate all of its values before defining the lookup column. Then you define the relationship between the lookup column and this other table by defining in the lookup column properties the table and column you want to use as the current column's possible values. For example, you could create a new table named Operating Systems and change the default Title column name to Operating System. In the Server list, you can define the Server Operating System column to be a lookup column type that uses the Operating System column of the Operating Systems table to define its possible values.

However, suppose you want to use the list of operating system names in more than just this one list. You can create a special type of column called a **Site Column** (see the sidebar of the same name).

■ **Tip** It is always a good practice to give users a list of possible values for any column where a limited number of possible values exist, especially if you must ensure the spelling of the entered values.

Site Columns

A *site column* differs from a regular list column in that you can access the column from any list within the site or its sub-sites. If you create a site column in the top-level site of the site collection, any list within the entire site collection can use it. If you create it in a sub-site, only those sub-sites beneath that site can see and use it.

Suppose your organization uses multiple operating systems on its computers. Rather than create an operating system column in every list, which would mean updating multiple lists when a new OS came out, you can create a site column in your top-level site to define your operating systems one time in one place. The following steps show how to create and use a site column:

1. Navigate to your top-level site.
2. Click **Site Settings** from the **Site Actions** button.
3. On the **Site Settings** page, click **Site Columns** in the **Galleries** option group.
4. Scroll through the **Site Column Gallery** page to verify that no existing site column would serve your needs or uses the same name you want to use. Note that this page organizes site columns into groups. Make sure you select **All Groups** from the **Show Group** drop-down (should be the default) when verifying the need for a new column.
5. Click **Create** to start defining a new site column.
6. Enter a name for the new site column and then choose a type. Call your column **Operating System**.
7. Choose the column type **Choice**.

8. Next, associate the new site column with an existing group or define a new group. If you have not yet created a group for your site columns, you may want to consider a group name consisting of your initials or company name.
9. In the Additional Column Settings section, begin by supplying the optional Description. Remember that the Description appears by default beneath the field in the default edit form SharePoint creates for the list.
10. Next, select Yes after the prompt **Require that this column contains information** if you want to require the user to respond to this field.
11. Although SharePoint shows you a setting to **Enforce unique values**, this setting may not make as much sense for a choice type field, so select No for this example.
12. In the next text box, enter each of the choice values.
13. The **Display choices using** setting lets you select how to display the choices. You can choose from a Drop-Down Menu, Radio Buttons, and Checkboxes. Note that only the Checkbox option allows you to select multiple selections. For this example, select Drop-Down Menu.
14. Next, decide whether users can enter their own values by clicking Yes for the setting **Allow 'Fill-in' choices**. Selecting No restricts the user to the choices previously defined.
15. Finally, choose a default value from the available choices. Clear the text box to create the column without a default value.
16. Click **OK** to create the site column definition.
17. Create a new list (or modify an existing one) in your site. For this example, modify the Server list.
18. Select **List Settings** from the **List** ribbon.
19. In the **Columns** section of the List Settings page, click **Add from existing site columns**. (If you previously added the Operating System column to this list, you need to first open the column properties so you can click the delete button to remove this column before adding the new column from the existing site columns.)
20. Find the new site column in the scrollable list of the **Available site columns** section and click the **Add** button. If you have a large number of site columns, filter the list by selecting the site column group using the drop-down list at the top of this page. This is another good reason for storing your site columns in a group named with your initials or company name.
21. Click **OK** to add the site column to the list.
22. You can edit the properties of the site column such as the name, description, etc.

Now click back on the list name found in the header at the top of the **List Settings** page. Add a new item to the list to see your site column appear when you enter, and edit item information. If you need to use the same column definition in another list, simply add the site column to create a consistent definition.

The best feature of a site column is this: If you add a new operating system to your company, and you will, you need only go back to the site column definition and update the choice list in one place to include the new OS. Immediately in all the lists that use this site column definition, you will see the new operating system without having to touch any of the other list definitions.

Another type of custom list you can build in SharePoint begins from an Excel Spreadsheet. You can find the **Import Spreadsheet** in the **Blank and Custom** category of the **List** type on the **Create** dialog from the **All Site Content** page. I will explore the use of Excel with SharePoint in more depth in Chapter 7.

■ **Tip** Even if you do not create the SharePoint list by importing an entire Excel spreadsheet, you can copy and paste selected rows or columns from the spreadsheet into a SharePoint list if you first display your SharePoint list in Datasheet view.

Using Alerts to Notify You of List Changes

Do you want to know when someone makes changes or additions to a list, but you dread having to spend time reviewing each list every day? What if SharePoint could notify you of changes or additions made to the list? Well, it can. With the **Alert Me** feature of lists and libraries, you can have SharePoint send you an e-mail whenever someone modifies or adds an item to any list.

■ **Tip** If you set an alert when you create a new list, you can monitor all changes to it.

To set up an alert for a list, first open the list. With the list displayed, click on the tab **List** and then select **Alert Me** from the **Share & Track** group of the ribbon, as shown in Figure 2-34.

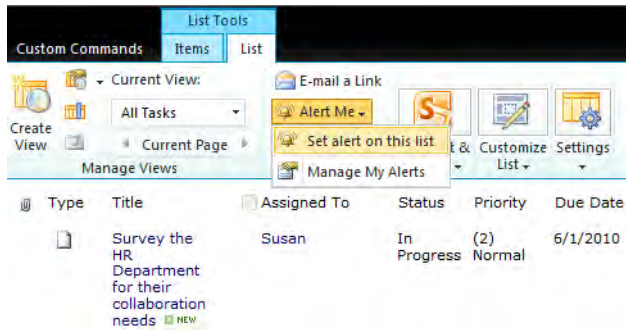


Figure 2-34. Selecting *Alert Me* to create an alert

You must name each alert you create. By default, the alert name includes just the name of the list, but since you can create more than one alert for any given list, you may want to expand this name. For example, to make it easier to identify your alerts, you might consider combining the name of the list with your initials and perhaps an indication of the type of alert such as Add or Modify. In fact, as you can see from Figure 2-35, there are many options available when you define a list and any of these options might be included in the title to help differentiate one alert from another.

■ **Tip** If you don't see the **Alert Me** option shown in Figure 2-34, make sure that the Farm Administrator has turned on alerts at the **Web Application** level. (Alerts can be found by selecting **Manage web applications** in the **Web Applications** group of the **Application Management** page. Select the **Web Application** and then choose **General Settings** from the **General Settings** command in the **Manage** group of the **Web Applications** ribbon.) Also, make sure that the account you have logged into SharePoint with has an e-mail address associated with it. Finally, have your SharePoint administrator confirm that outgoing mail has been configured. You can find these settings in **Central Administrator's System Settings** > **E-Mail and Text Messages** > **Configure outgoing e-mail** settings.



<p>Alert Title</p> <p>Enter the title for this alert. This is included in the subject of the notification sent for this alert.</p>	<input type="text" value="Tasks"/>
<p>Send Alerts To</p> <p>You can enter user names or e-mail addresses. Separate them with semicolons.</p>	<p>Users:</p> <input type="text" value="Michael ;"/>  
<p>Delivery Method</p> <p>Specify how you want the alerts delivered.</p>	<p>Send me alerts by:</p> <p><input checked="" type="radio"/> E-mail <input type="text" value=""/></p> <p><input type="radio"/> Text Message (SMS) <input type="text" value=""/></p> <p><input type="checkbox"/> Send URL in text message (SMS)</p>
<p>Change Type</p> <p>Specify the type of changes that you want to be alerted to.</p>	<p>Only send me alerts when:</p> <p><input checked="" type="radio"/> All changes</p> <p><input type="radio"/> New items are added</p> <p><input type="radio"/> Existing items are modified</p> <p><input type="radio"/> Items are deleted</p>
<p>Send Alerts for These Changes</p> <p>Specify whether to filter alerts based on specific criteria. You may also restrict your alerts to only include items that show in a particular view.</p>	<p>Send me an alert when:</p> <p><input type="radio"/> Anything changes</p> <p><input type="radio"/> A task is assigned to me</p> <p><input type="radio"/> A task becomes complete</p> <p><input type="radio"/> A high priority task changes</p> <p><input type="radio"/> Someone else changes a task assigned to me</p> <p><input checked="" type="radio"/> Someone else changes a task</p> <p><input type="radio"/> Someone else changes a task created by me</p> <p><input type="radio"/> Someone else changes a task last modified by me</p> <p><input type="radio"/> Someone changes an item that appears in the following view:</p> <p><input type="text" value="My Tasks"/></p>
<p>When to Send Alerts</p> <p>Specify how frequently you want to be alerted. (mobile alert is only available for immediately send)</p>	<p><input type="radio"/> Send notification immediately</p> <p><input checked="" type="radio"/> Send a daily summary</p> <p><input type="radio"/> Send a weekly summary</p> <p>Time:</p> <p><input type="text" value="Sunday"/> <input type="text" value="4:00 PM"/></p>
<p style="text-align: center;"> <input type="button" value="OK"/> <input type="button" value="Cancel"/> </p>	

Figure 2-35. Setting the properties of the alert

■ **Tip** If you are a site administrator or owner, you can review the alerts by user by going to **Site Actions > Site Settings**. Then select **User Alerts** from the **Site Administration** group. Finally, select the user from the **Display alerts for** drop-down list and click the **Update** button. When the page refreshes, you see all the selected user's alerts. You can select each alert by clicking the check box before the alert name and then click **Delete Selected Alerts** from the top of the page.

When defining an alert, you must specify the change type you want to monitor. Perhaps you only want to know when someone adds an item, deletes an item, or modifies items. Unfortunately, each of these change types is separate and you can only choose one. Therefore, your only options are to either create separate alerts for each notification type or select **All Changes** in the **Change Type** section.

You can further fine-tune an alert to e-mail you only when someone else changes an item in the list. After all, do you really need a notification when you make the change yourself? Similarly, you may only want a notification when someone changes an item that you created or an item that you were the last person to modify. If you have overall responsibility for the list, you may prefer notification of any changes made by anyone to any item in the list. In the section **Send Alerts for These Changes** you can see that there are nine different criteria you can apply as to when you should receive an alert. An interesting option is to receive an alert only when an item appears within a specific view rather than all of the items within the list.

Finally, you can decide when you want SharePoint to send your alerts. Do you really need to know about changes immediately? Perhaps you only need a daily summary of alerts. If so, you can even specify the time that you want SharePoint to send the alerts. If you only have an interest in monitoring the list, perhaps a once-a-week e-mail will satisfy you. In this case, you can define both the day and the time to receive your weekly alerts.

■ **Tip** Want to get rid of your alerts but don't know where you created them? Click on your name in the upper right of any page within your site and select the option **My Settings**. In the menu bar across the top of this page, select **My Alerts**. The subsequent page shows all your alerts for the current site. You can select any or all of the alerts by clicking the check box before each alert and then select the **Delete Selected Alerts** option.

That is all you need do, other than to click **OK**, to start receiving alerts when data changes in your lists.

■ **Tip** There are several third-party web parts available on the Internet that enhance the built-in capabilities of SharePoint's alert model. Your SharePoint Administrator may use one of these tools to manage alerts across all sites.

You can also manage your alerts from the **Manage My Alerts** option in the **Alert Me** drop-down in the **Share & Track** group of the **List** ribbon.

Creating RSS Feeds for Your List

RSS feeds provide another way to track additions to a list or library. RSS, which stands for *Really Simple Syndication*, has gone through several changes since the idea of content syndication across the Internet got its start. Web designers wanted a way to publish frequently updated information, such as news, that people could subscribe to and receive automatically without forcing them to return to their site. Originally, to read an RSS feed, you needed to download or purchase a program that could receive the RSS feeds and display their content as readable text. Today, you can use IE 8.0 or Microsoft Office 2010 or later versions to subscribe and read RSS feeds. In addition, you can find dozens of freeware programs that can read RSS feeds.

Setting up RSS feeds in SharePoint requires you to open your list. Then click **List Settings** in the **Settings** group of the **List** ribbon. Figure 2-36 shows the settings page for the **Upcoming Events** list. Click **RSS Settings** under the **Communications** area to define your RSS feed settings.

The screenshot shows the SharePoint 'List Settings' page for a list named 'Tasks'. The page is divided into several sections:

- List Information:**
 - Name: Tasks
 - Web Address: http://vanguard/Lists/Tasks/AllItems.aspx
 - Description: Use the Tasks list to keep track of work that you or your team needs to complete.
- General Settings:**
 - Title, description and navigation
 - Versioning settings
 - Advanced settings
 - Validation settings
 - Rating settings
 - Audience targeting settings
 - Metadata navigation settings
 - Per-location view settings
 - Form settings
- Permissions and Management:**
 - Delete this list
 - Save list as template
 - Permissions for this list
 - Workflow Settings
 - Generate file plan report
 - Information management policy settings
 - Record declaration settings
- Communications:**
 - RSS settings

The 'RSS settings' link is highlighted in blue in the Communications section.

Figure 2-36. Starting a list RSS feed

When defining options for the RSS feed, you begin with a simple prompt asking whether you want to allow RSS for the current list. Of course, to create a feed, you need to select **Yes**. Under **Channel Information**, you also need to define feed properties such as the title, the description, and an optional image URL. Notice you also have the option of limiting multiline text fields to 256 characters. This option trims long feeds that may consist of entire news stories to just enough text to entice the viewer to click the item's title to read the entire story. As you will see in a moment, the title of the list item serves as a hyperlink to open the details of the item.

In the **Columns** section, you decide which columns to include in the feed. The RSS feed in Figure 2-37 includes a text column named **Body** along with the expiration date for the item. However, RSS feeds can include any or all columns from a list, including not only other custom columns you may have added, but also columns that SharePoint provides like **Title**, **Modified By**, and **Modified**.

Next, you can decide how many items to include in the feed and the maximum number of days to include an item in a feed. Both of these settings help keep your feed fresh by constantly displaying only the newest changes to your list. Be careful when setting these options; you don't want to overwhelm the reader with too many items. Finally, click **OK** on the settings screen to enable your RSS feed.

Site Actions ▼ Michael

MicMin ▸ Tasks ▸ List Settings ▸ Modify RSS Settings

Use this page to modify the RSS settings for this list. [Learn how to enable and configure RSS.](#)

Home MyBlog MyMeetings ?

Documents
Site Pages
Shared Documents
Drop Off Library
Lists
Calendar
Tasks
Outstanding Issues
Discussions
Team Discussion

Recycle Bin
All Site Content

List RSS

Allow RSS for this list?
 Yes No

RSS Channel Information

Specify the channel elements that define the RSS feed.

Truncate multi-line text fields to 256 characters?
 Yes No

Title:
MicMin: Tasks

Description:
RSS feed for the Tasks list.

Image URL:
/_layouts/images/siteIcon.png
(Click here to test)

Columns

Select the columns to display in the RSS description. Items marked with an asterisk (*) are mapped to standard RSS tags. For example, "Modified" is mapped to the RSS "Author" tag.

Select all

Include	Column Name	Display Order
<input checked="" type="checkbox"/>	Predecessors	1
<input checked="" type="checkbox"/>	Priority	2
<input checked="" type="checkbox"/>	Status	3
<input checked="" type="checkbox"/>	% Complete	4
<input checked="" type="checkbox"/>	Assigned To	5
<input checked="" type="checkbox"/>	Task Group	6
<input checked="" type="checkbox"/>	Description	7
<input checked="" type="checkbox"/>	Start Date	8
<input checked="" type="checkbox"/>	Due Date	9
<input type="checkbox"/>	Created	10
<input type="checkbox"/>	Created By	11
<input type="checkbox"/>	Folder Child Count	12
<input type="checkbox"/>	Item Child Count	13
<input type="checkbox"/>	Modified (*)	14
<input type="checkbox"/>	Modified By (*)	15
<input type="checkbox"/>	Title (*)	16
<input type="checkbox"/>	Version	17

Item Limit

The RSS feed includes the most recent changes.

Maximum items to include:
25

Maximum days to include:
7

Defaults OK Cancel

Figure 2-37. Defining settings for the RSS feed

If you use IE 7.0 or better, you should see the RSS icon in your browser's menu bar turn from gray to orange the next time you display this list. This button remains inactive and gray when you view lists that do not support an RSS feed. However, when you navigate to a list or page that supports an RSS feed, this button turns orange.


Click the RSS feed button within IE to display a view of the RSS feed, as shown in Figure 2-38. With SharePoint lists, this view displays the site name along with the list name as the title. It then tells you that you can subscribe to the feed. Subscribing automatically downloads information from the feed to your computer, where you can display it in IE or add it to any other program that supports an RSS reader.

The sample feed view also shows the current contents of the feed. In a box in the upper right of the screen, the feed displays a count of the number of items currently in the feed. You can also sort the feed items by date, title, or author by clicking the links under the **Sort by** section. Note the small blue arrow to the left of the selected sort field. If you click the field multiple times, this arrow toggles from pointing up to pointing down and back again. This indicates the sort direction of the feed items based on the selected field.

■ **Note** If RSS feeds still do not enable, you may want to talk to your SharePoint system administrator to see if she has enabled RSS Settings for the Web Application you are using. You may also need to check your IE settings to see that the following options are set in **Tools > Internet options > Content > Feeds and Web Slices > Settings**.

MicMin: Tasks

You are viewing a feed that contains frequently updated content. When you subscribe to a feed, it is added to the Common Feed List. Updated information from the feed is automatically downloaded to your computer and can be viewed in Internet Explorer and other programs. [Learn more about feeds.](#)

 [Subscribe to this feed](#)

Displaying 5 / 5

All 5

Sort by:

- Date
- Title
- Author

End-User Training for HR

Today, November 29, 2009, 14 hours ago | administrator →

Predecessors: [Test site for HR and load initial data](#)

Priority: (2) Normal

Status: Not Started

% Complete: 0 %

Assigned To: MPATrainer

Description:

Start Date: 8/15/2010

Due Date: 8/31/2010

Test site for HR and load initial data

Today, November 29, 2009, 14 hours ago | administrator →

Predecessors: [Build Collaboration Site for HR](#)

Priority: (2) Normal

Status: Not Started

% Complete: 0 %

Assigned To: MPATrainer

Description:

Start Date: 7/20/2010

Due Date: 8/15/2010

Figure 2-38. *Subscribing to a feed*

When a user subscribes to a feed using IE, a dialog box prompts him for the name he wants to use on his computer to identify the feed. The default name includes the site name and the list name separated with a colon, as shown in Figure 2-39. However, the user can provide any name for the feed. Next, define a folder in which to store the feed. Just like favorites in IE, you can create a hierarchy of folders to organize your feeds.

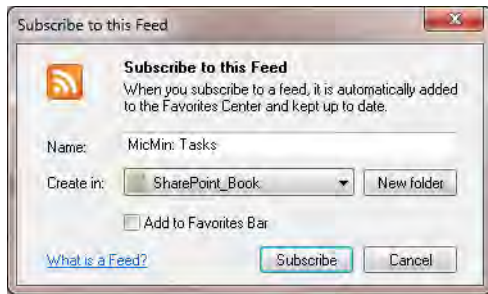


Figure 2-39. Naming the feed, and placing it in a new or existing folder.

After you subscribe to the feed, you can open it by clicking the **Favorites Center** option in IE. You see, in addition to your other bookmarked URLs stored under **Favorites**, a tab named **Feeds**. Click this tab to see the folders and feeds within them. Figure 2-40 shows two folders under **Feeds**: **Microsoft Feeds** and **SharePoint Book Feeds**. Opening the **SharePoint Book Feeds** folder displays an RSS feeds added from Tasks list of the MicMin site.

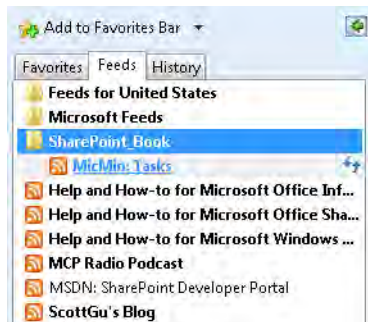


Figure 2-40. Selecting the feed from within IE's Favorites Center to view the feed contents

■ **Note** A **Refresh** button appears to the right of each feed. The **Refresh** button consists of two green arrows pointing up and down, as shown in Figure 2-39. Click this button to refresh your RSS with the latest feeds from the RSS site.

Defining Views for Your List

Perhaps you do not like your list's default view. On the other hand, maybe you just want to create different views of the same list to use on different pages within the site or for different users. For lists like

tasks lists, project tasks lists, and issue tracking lists, you might want multiple views of the list data to examine tasks or issues by person, project, status, or other criteria.

To work with views, open the **List** ribbon and look at the options in the **Custom Views** group, as shown in Figure 2-41, for the **Upcoming Events** list. The drop-down in this group displays all currently defined views for the list. You can switch from one view to another by clicking the one you want. While displaying any view, you can click **Modify this View** to make changes to the current view. If none of the existing views meets your needs, you can create a new view by clicking the **Create View** option on the left side of this option group.

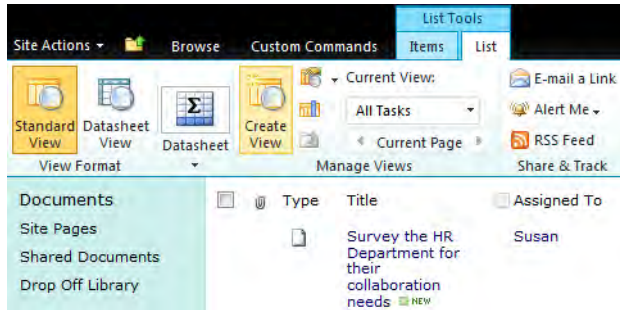


Figure 2-41. Using the View drop-down to manage your views

Alternatively, you can go through the **List Settings** option of the **Settings** group in the **List** ribbon to display the page shown in Figure 2-42. This option displays the **List Settings** page for the current list along with all the list options. Scroll to the bottom of this page to find the defined views. Notice that SharePoint defines one view as the default view. You can modify any view listed here by clicking its name, or you can create a new view by clicking the link **Create View**.

■ **Tip** You can delete any view, except the default view, by clicking it to display its **Edit View** page and then clicking the **Delete** button. However, what if you really want to delete the default view? You must first select one of the other views, and in the **Edit View** page promote it to be the default view. Then return to the original view, which SharePoint no longer identifies as the default, open its **Edit View** page, and **delete** it. Keep in mind that a list must have at least one view, and that one view must serve as the default view until you promote another view to be the new default view.



Figure 2-42. The List Settings page lets you define columns and views.

When creating a new view, SharePoint first displays a screen that lets you select the view format. SharePoint groups view formats into two starting styles, as seen in Figure 2-43. The first starting style lets you build a view from scratch by selecting your columns, sort order, and filter criteria using one of five predefined formats:

- **Standard View:** This view displays list items in a traditional style list.
- **Datasheet View:** This view displays list items in an editable spreadsheet format.
- **Calendar View:** This view displays list items in daily, weekly, or monthly calendar form and is useful if you organize your data by date.
- **Gantt View:** This view displays list items in a Gantt chart, and is useful if your data represents tasks or projects that have start dates, completion dates, and percent completions.

- **Access View:** This view works with Microsoft Office Access on the viewer's computer to show list items in forms or reports based on the columns from this list.

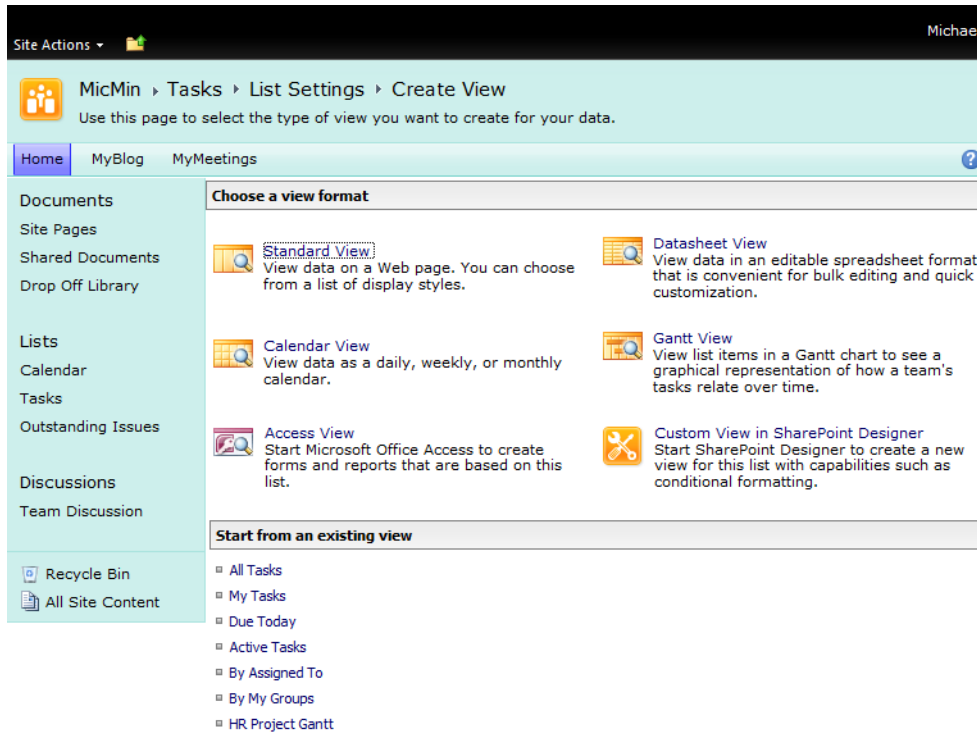


Figure 2-43. Creating the view name and columns

The second starting style lets you select one of the existing views from the current list to use as a starting point for a new view. This option saves you time if you need a series of similar views that may differ by only a few columns, sort order, or filter criteria. When starting from an existing view, you do not have to define everything from scratch; you just define or reset those properties of the new view that are different.

If you start from a new Standard view, SharePoint displays a screen like the one shown in Figure 2-44 when you create or edit a view. Actually, this figure only shows the top two sections of the view definition. In the top section, you can enter the view name. What if you decide later that you do not like the name you previously gave the view? Don't worry. Generally, you can change a view name at any time with no adverse effects. In fact, SharePoint automatically updates most references to the view name automatically when you change it. The same applies if you change the URL, as long as you store the URL in its own field such as in the Links list. However, if you embed the URL in other content, SharePoint may miss it. As a rule, try to minimize changes to URLs after you start including references to them from other parts of your site.

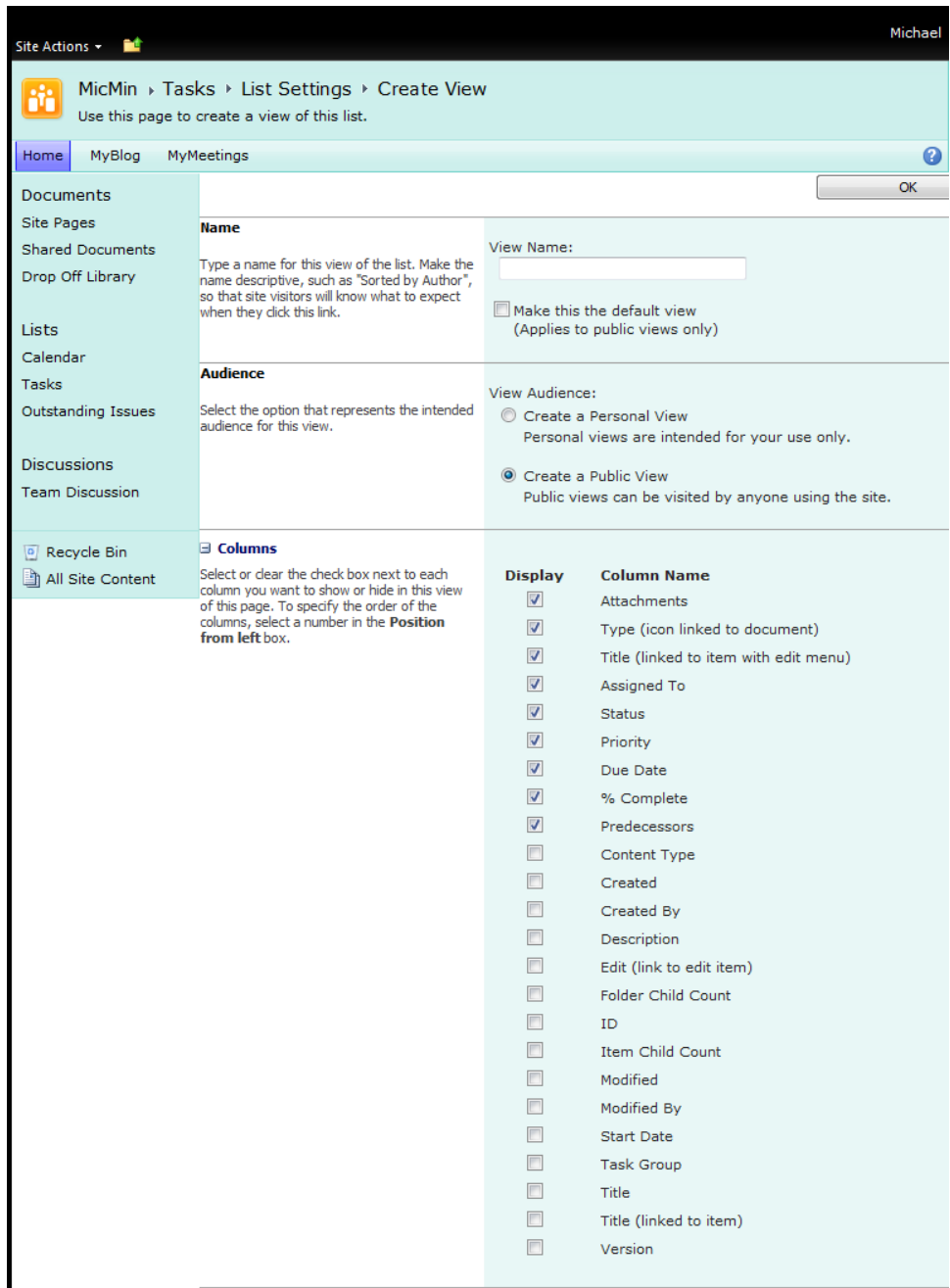


Figure 2-44. Creating the view name and columns

If, rather than adding a view, you decide to edit the default view, this top section reminds you that you cannot delete the current view due to the absence of a **Delete** button. If you had started from a non-default view, a **Delete** button would appear to the immediate left of the **OK** button. As mentioned in a previous tip, if you have more than one view, you can set any one of them as the default view and delete any of the rest.

The Columns section shows the available columns in the list. The check box to the left of the column name indicates whether to include the column in the current view. To add or remove a column from the view, toggle the check box. The drop-down box to the right with a number in it defines the order of the fields from left to right. To change the order of the columns, change the number in the drop-down of the column you want to move, selecting the numeric value of its new position. For example, to move the column **Attachments** to the fourth position, open its drop-down list and select the number 4. All other columns previously numbered from 2 through 4 automatically move to positions 1 through 3, making room for the repositioned **Attachments** as the 4th column.

Sorting and Filtering Lists

The third section of the **Edit View** page lets you define the sort order for the items in the view. You can sort by no more than two columns. However, you can independently sort each column in ascending or descending order. Figure 2-45 shows a view sorted first by the field **Expires** in ascending order. When more than one item has the same expiration date, it sorts by **Title** in ascending order.

Figure 2-45. *Sorting your list on up to two columns*

As your list grows, you may want to define a filter for a list to focus on different item groups. For example, you could create a custom view of upcoming events that automatically hides items with expiration dates prior to today by adding a filter that compares the column **Expires** to the current date as shown in Figure 2-46.

Filter

Show all of the items in this view, or display a subset of the items by using filters. To filter on a column based on the current date or the current user of the site, type **[Today]** or **[Me]** as the column value. Use indexed columns in the first clause in order to speed up your view. Filters are particularly important for lists containing 5,000 or more items because they allow you to work with large lists more efficiently. [Learn about filtering items.](#)

Show all items in this view
 Show items only when the following is true:

Show the items when column

Expires

is greater than or equal to

[Today]

And Or

When column

None

is equal to

[Show More Columns...](#)

Figure 2-46. Defining a filter for your list

There are other sections on this page that define a view further. For example, the **Group By** section allows you to group items in the list using up to two columns. The advantage of using groups over merely sorting your items is that you can expand and collapse groups to let users see just a portion of the list without needing a filtered view for each group.

■ **Note Group By** works best on columns that have only a limited number of values, such as choice fields.

The **Totals** section lets you add totals on your list. For example, if your **Upcoming Events** list includes a **Department** column to associate events with their hosting department, you could count the number of events by department. If the events had a column with the associated cost of the event, you could sum that column to calculate the cost of events by department.

In the **Style** section, you can select from a predefined set of styles for your list. For example, the **Shaded** style displays items with an alternating background shading to make the list more readable.

Because lists can include folders, the **Folders** group lets you decide whether to navigate through folders or to view all items as if there were no folders. If you must use folders, you may want to create views that ignore the folders.

As your list grows, you may discover that it suddenly stops displaying some of its items. You may find the solution to that problem in the list setting **Item Limit**. First, I would not recommend that you try to display a list with thousands of items as a single screen. Even if performance does not degrade significantly, your users will not want to scroll through a list that large. Rather, use **Item Limit** along with the option to display items in batches. For example, if your list has 345 items and you specify an item limit of 100, your list begins by displaying the first 100 items. You can then select the next page of the list to display the second set of 100 items. Controls to navigate between pages of your list appear at the

bottom of the list. In this way, your users can page through all items in the list, 100 items at a time, until they reach the item they want to see.

Finally, you can define views for mobile devices. These often include fewer columns and items than their PC screen cousins do. The interesting thing is that SharePoint reformats the content automatically to fit the smaller screen.

■ **Tip** Consider using filtered views to limit the number of items in a list's view. This improves user acceptance. You could also use the **Group By** (collapsed) option to limit the number of items displayed, yet easily allow users to expand the groups for which they want to see the details.

■ **Tip** When sorting or filtering a large list, index the column used by the filter. You can create indexed columns by clicking the **Indexed columns** hyperlink at the bottom of the **Columns** section of the list's **Customize** page.

Inline Editing

Inline editing of your list data is a new feature to SharePoint 2010. It allows you to edit the list data, even when it is displayed on a page, without first opening the list from **View All Site Content**. To turn this feature on, you must select the **Allow Inline Editing** check box in the **Inline Editing** section of the view properties, as shown in Figure 2-47.

Inline Editing

Choose whether an edit button on each row should be provided. This button allows users to edit the current row in the current view, without navigating to the form.

Allow inline editing

Figure 2-47. Turn on *Inline Editing* for a list

Now when you view the list, and position your mouse over any row, an edit icon (page with a pencil) appears at the beginning of the list. If you click this icon, all the columns in the list display as editable fields. In addition, the original icon changes to a pair of icons. The first icon shows a disk representing an option to save the changes to the item while the second icon shows a red square with a white X representing an option to cancel any changes made to the item. Figure 2-48 shows this functionality in a progression of screenshots.

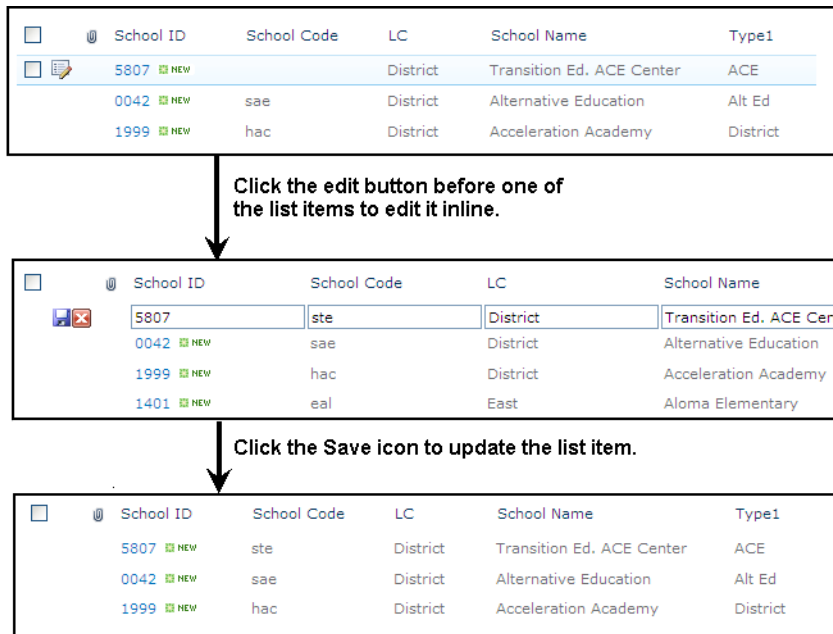


Figure 2-48. Example of Inline Editing

Validation Settings

SharePoint 2010 introduces validation settings to lists. There are two types of validation settings. One setting for the list item allows you to compare values from more than one column. A second setting for column validation applies a validation check against the current column only.

Item Validation

A validation expression at the list level is a formula that can include any of the columns in the list and resolves as either True or False. In order for an item to be successfully added or modified in the list, this expression must resolve to True.

For example, returning to your Task list, a very important validation might be that the Due Date for the task cannot occur before the Start Date. Since this validation involves more than one column in the list, you cannot validate either field individually at the column level. Rather, you can only validate both fields together as you attempt to save the new or modified item. To create an item level validation, follow these steps:

1. Navigate to the list where you want to add a validation (such as the Tasks list).
2. From the **List** ribbon, select **List Settings**.

3. In the **List Settings** page, select **Validation Settings** from the **General Settings** group.
4. Enter a formula that evaluates to True or False (see Figure 2-49 for an example).
5. Enter a message that SharePoint can display to the user when the validation fails (see Figure 2-50).
6. Finally, click **Save** to set your validation.

Site Actions administrator

MicMin > Tasks > List Settings > Validation Settings

Home MyBlog MyMeetings

Documents

- Site Pages
- Shared Documents
- Drop Off Library

Lists

- Calendar
- Tasks
- Outstanding Issues

Discussions

- Team Discussion

Recycle Bin
All Site Content

Formula

Specify the formula you want to use to validate the data in this column when new items are saved to this list. To pass validation, the formula must evaluate to TRUE. For more information, see Formulas in Help.

Example: `= [Discount] < [Cost]` will only pass validation if column Discount is less than column Cost.

[Learn more about proper syntax for formulas.](#)

Formula: `= [Start Date] < [Due Date]`

Insert Column:

- % Complete
- Created
- Due Date
- Modified
- Priority
- Start Date
- Status
- Title

Add to formula

User Message

User Message:

The task Due Date must fall after the task Start Date

Save Cancel

Figure 2-49. Creating an item level validation

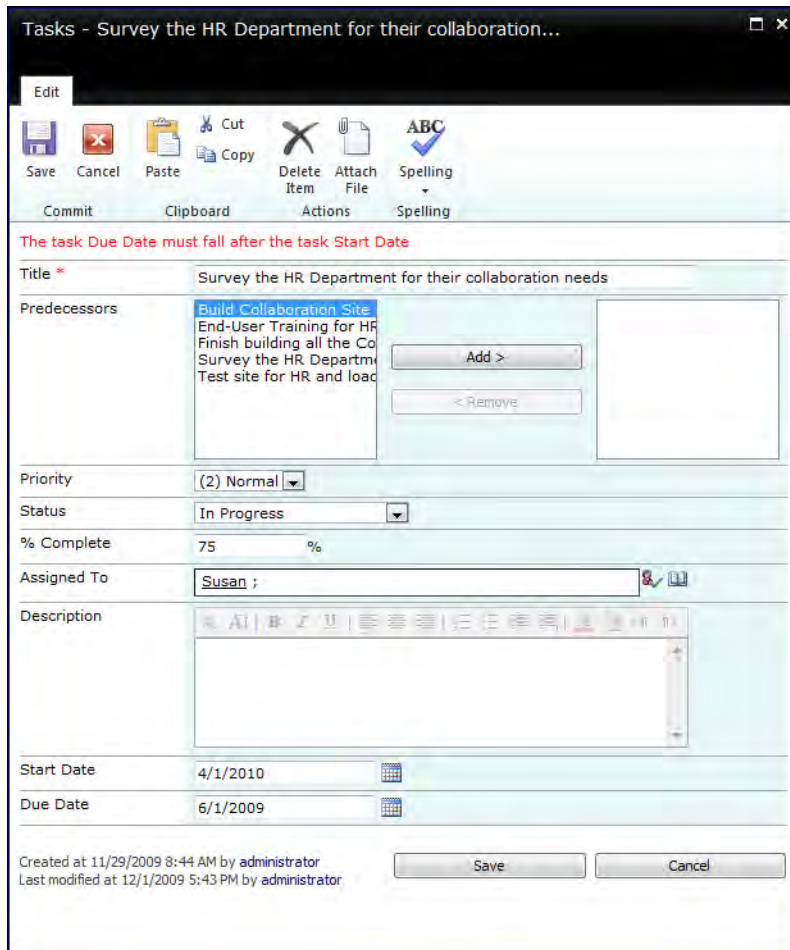


Figure 2-50. Error displayed from an item level validation

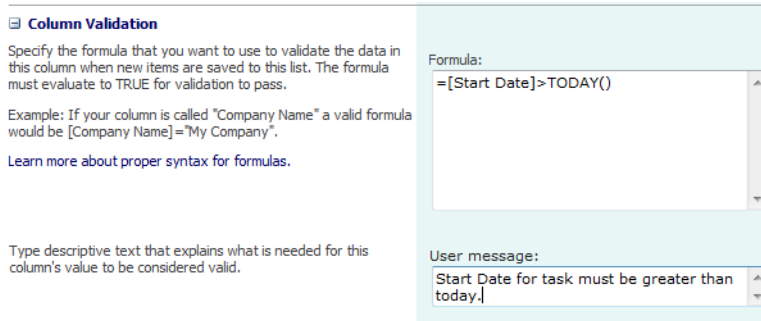
Column Validation

SharePoint 2007 had some simple column validations built into several of the column types. The most common validation was the **Required** validation. However, numeric values also supported a **Range** validation.

SharePoint 2010 expands on those validation options allowing you to define a formula to validate the column. Note that this formula cannot reference other columns.

As with the item level validation, the formula for the column validation defines a Boolean expression that returns a True or False value. In addition, you can specify a user message when the validation fails telling the user why SharePoint rejected their item update or addition.

Using the **Tasks** list one more time, let's add a column validation on the **Start Date** to check that start dates fall on or after the current date. (Open the **Task** list and go to the **List Settings** page. Then click on the **Start Date** column name in the **Columns** section of the page to edit the column properties.) Figure 2-51 shows the required column validation expression, and Figure 2-52 shows the result of attempting to enter an invalid date.



Column Validation

Specify the formula that you want to use to validate the data in this column when new items are saved to this list. The formula must evaluate to TRUE for validation to pass.

Example: If your column is called "Company Name" a valid formula would be [Company Name]="My Company".

[Learn more about proper syntax for formulas.](#)

Type descriptive text that explains what is needed for this column's value to be considered valid.

Formula:
=[Start Date]>=TODAY()

User message:
Start Date for task must be greater than today.]

Figure 2-51. Creating a column-level validation

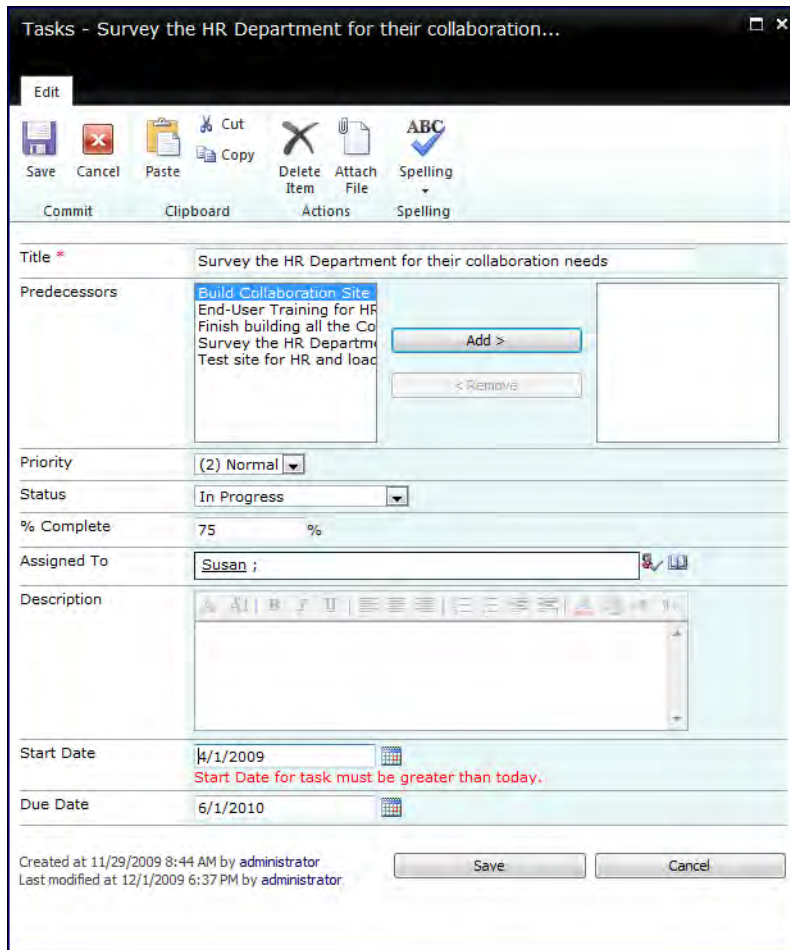


Figure 2-52. Error displayed from a column-level validation for field Start Date

■ **Note** At the time of this writing, documentation for how to define validation expressions has not been released, but my testing indicates that the validation is similar to validation in Excel cells.

Referential Integrity in List Lookups

In SharePoint 2007 collaboration, when you created a lookup relation between lists, there was no referential integrity support. In other words, as soon as you added a lookup value to an item in the

current list from the lookup table, someone could go into the lookup list and change or even remove the lookup value. Furthermore, the lookup field was limited to the identifier column.

In SharePoint 2010 collaboration, you can include additional columns from the lookup list in the current list. Perhaps more importantly, you can enforce referential integrity between the two lists either by restricting deletions from the lookup table or by cascading deletes from the lookup table to the current table.

To illustrate these new features, suppose you have two tables, an Orders table and an Order Details table. To define a relationship between these two tables, first create an **Orders** table. I am not going through the specifics of how to create the Orders table here, but you should at least be aware that the column in the Orders table used to link the tables together will be **Order ID**. The Orders table must also have at least a few additional fields that you can display with your order details, such as the customer's name and the order date. However, you can have many additional columns in your Orders table.

The **Order Details** table contains columns that define the individual items ordered, including the item's name, cost, and quantity ordered. However, most importantly, the order details must have a column with the order id of the parent order. Figure 2-53 shows how to define this column as a lookup type. Notice that it defines the link to the **Orders** table and specifically to the **OrderID** field. However, unlike SharePoint 2007, which ends there, in SharePoint 2010, you can also select other columns from the lookup table that you want to display when you display the Order Details. In this figure, I have selected the columns **Order_Date** and **Customer_Name**.

In the next section, you can determine whether you want to enforce referential integrity between the two lists. If you select this option, you have two different enforcement modes. The first mode allows you to cascade deletes from the lookup table down through all the records that use the lookup value. For this example, it would be the equivalent of saying that, when you delete the order record, you also want to delete all of the order detail records associated with that order.

The second mode restricts the deletion of records from the lookup table if you use the lookup value in any other related table. For this example, it would be the equivalent of saying that you cannot delete an order record if it has order detail records. Of course, you could delete all the associated detail records first. Then you could delete the order record in the lookup table since it no longer has any related order detail records.

<p>Name and Type</p> <p>Type a name for this column.</p>	<p>Column name: <input type="text" value="OrderID"/></p> <p>The type of information in this column is: Lookup</p>
<p>Additional Column Settings</p> <p>Specify detailed options for the type of information you selected.</p>	<p>Description: <input type="text" value="Order ID"/></p> <p>Require that this column contains information: <input type="radio"/> Yes <input checked="" type="radio"/> No</p> <p>Enforce unique values: <input type="radio"/> Yes <input checked="" type="radio"/> No</p> <p>Get information from: Orders</p> <p>In this column: <input type="text" value="OrderID"/></p> <p><input type="checkbox"/> Allow multiple values</p> <p>Add a column to show each of these additional fields:</p> <ul style="list-style-type: none"> <input type="checkbox"/> OrderID <input type="checkbox"/> OrderID (linked to item) <input checked="" type="checkbox"/> Order_Date <input checked="" type="checkbox"/> Customer_Name <input type="checkbox"/> Customer_Address <input type="checkbox"/> Customer City <input type="checkbox"/> ID <input type="checkbox"/> Modified <input type="checkbox"/> Created <input type="checkbox"/> Version
<p>Relationship</p> <p>A lookup column establishes a relationship between list items in this list and related items in the target list. Specify the relationship behavior enforced by this lookup column when a list item in the target list is deleted.</p> <p>When an item in the target list is deleted, <i>cascade delete</i> will delete all related items in this list. <i>Restrict delete</i> will prevent the deletion of an item in the target list if it has one or more related items in this list.</p>	<p><input checked="" type="checkbox"/> Enforce relationship behavior</p> <ul style="list-style-type: none"> <input type="radio"/> Restrict delete <input checked="" type="radio"/> Cascade delete
<p> <input type="button" value="Delete"/> <input type="button" value="OK"/> <input type="button" value="Cancel"/> </p>	

Figure 2-53. Defining the LookupUp Order ID field in the Order Details table

After defining the rest of the columns for the **Order Details** table, Figure 2-54 shows what you see when you add a detail record. Of course, you must add the **Order** record first. However, when you add an order detail record, you can select the corresponding **OrderID** from the drop-down list that consists of the **Order IDs** from the **Orders** table.

The screenshot shows a SharePoint form titled "Order_Details - New Item". The form has a ribbon with the "Edit" tab selected. The ribbon contains the following buttons: Save, Cancel, Paste, Copy, Attach File, and Spelling. Below the ribbon, there are four fields:

- Order_Item_Name**: A text box containing "Box of Widgets". Below the text box is the label "Name of Item Ordered".
- OrderID**: A dropdown menu with a list of values: "(None)", "(None)", "010001", "010002" (highlighted), "010003", "010004", and "010005". To the right of the dropdown is the label "Item Ordered".
- Order_Quantity**: A text box.
- Order_Unit_Price**: A text box. Below the text box is the label "Unit Price of Item".

At the bottom right of the form, there are two buttons: "Save" and "Cancel".

Figure 2-54. Using Lookup Field to identify the Order ID

Figure 2-54 only shows four fields in the item edit form that SharePoint generates. However, the **Order Detail** table also has a column named **Order_Extended_Price**. Since this column has been defined as a calculated column, it does not appear when adding or editing data. The formula that defines this column is:

`=Order_Quantity*Order_Unit_Price`

Figure 2-55. View of Order Details item with calculated `Order_Unit_Price` field

Figure 2-56 shows the **Order Details** table after adding several records. Notice that this view contains the **column** `OrderID:Order_Date` and `OrderID:Customer_Name` which it pulls from the **Orders** table from the same record as the matching **Order ID** value. Of course, you can optionally rename the columns to make them more user friendly by replacing underscores with blanks or removing the **OrderID:** references. Note that the **Extended_Price** column now appears and shows the product of the **Order_Quantity** and the **Order_Unit_Price**.

	Order_Item_Name	OrderID	OrderID:Order_Date	OrderID:Customer_Name	Order_Quantity	Order_Unit_Price	Extended_Price
	Box of Widgets	010002	12/1/2009	Sara Jason	6	\$9.95	\$59.70
	Hammer	010002	12/1/2009	Sara Jason	1	\$12.95	\$12.95
	Cordless Drill	010001	12/1/2009	Jay Azule	1	\$59.90	\$59.90
	Reciprocating Saw	010003	12/2/2009	Kevin Goss	1	\$39.95	\$39.95
	Power Sander	010004	12/3/2009	Jerry Weinstein	1	\$29.95	\$29.95
	Gadget Bag	010005	12/3/2009	Maria Natanya	2	\$10.95	\$21.90

Figure 2-56. Original Order Details table with Order ID 10005

If you now return to the **Orders** table and delete a record (Figure 2-57), SharePoint automatically deletes the corresponding Order Detail records related to the **Order** (Figure 2-59). However, first it prompts the user with the warning shown in Figure 2-58 that warns the user that it will delete related records and place them in the Recycle Bin.

The fact that the deleted records are placed in the Recycle Bin means that you have 30 days to change your mind, select the Order record from the Recycle Bin, and restore not only the Order record, but all the associated Order Detail records.

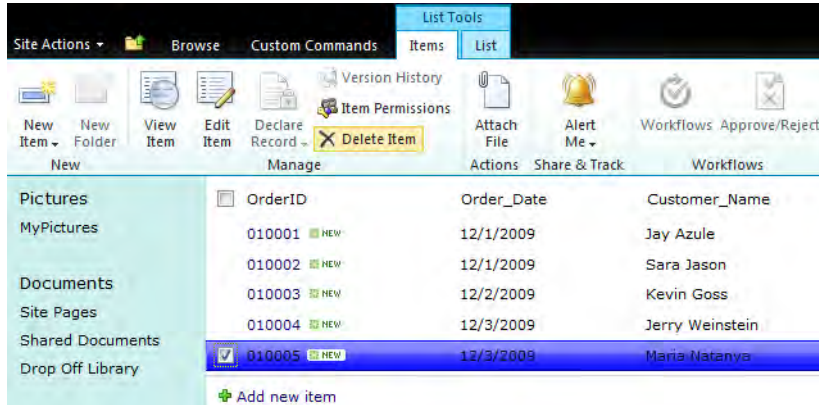


Figure 2-57. Selecting an Order item to delete



Figure 2-58. Warning that deleted orders are put in the Recycle Bin.

Order_Item_Name	OrderID	OrderID:Order_Date	OrderID:Customer_Name	Order_Quantity	Order_Unit_Price	Extended_Price
Box of Widgets	010002	12/1/2009	Sara Jason	6	\$9.95	\$59.70
Hammer	010002	12/1/2009	Sara Jason	1	\$12.95	\$12.95
Cordless Drill	010001	12/1/2009	Jay Azure	1	\$59.90	\$59.90
Reciprocating Saw	010003	12/2/2009	Kevin Goss	1	\$39.95	\$39.95
Power Sander	010004	12/3/2009	Jerry Weinstein	1	\$29.95	\$29.95

Figure 2-59. Updated Order Details showing Order ID 10005 has been deleted.

However, what if instead of selecting **Cascade Delete** as your referential integrity relationship, you choose **Restrict Delete**, as shown in Figure 2-60?

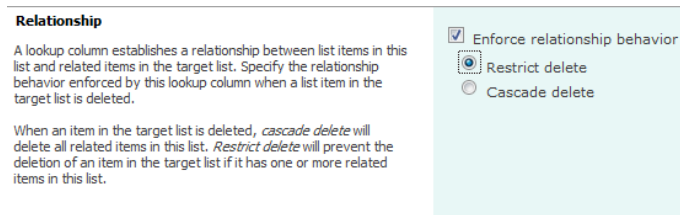


Figure 2-60. Select Restricted Delete as the referential integrity enforcement.

Again, if you return to the **Orders** list and attempt to delete an order that has one or more **Order Detail** items, SharePoint displays the message shown in Figure 2-61. At first, this might seem like SharePoint will allow you to delete the order item even through you defined the restrict delete relationship.



Figure 2-61. Error displayed when attempting to delete a order

However, if you click the **OK** button on this first dialog, a second dialog appears with the title **Error**. In the body of the dialog shown in Figure 2-62, the message tells you that it cannot delete the selected item from the Orders list because there are related items in the Order_Details list.

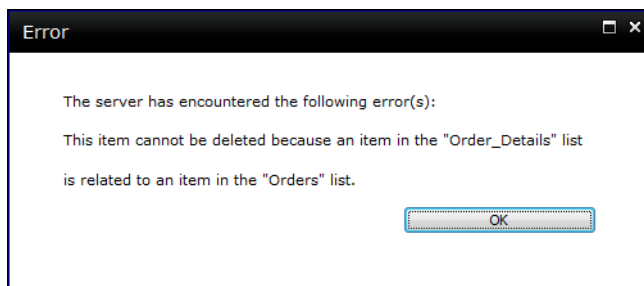


Figure 2-62. Restricting referential behavior stops the delete of the Order.

Thus, SharePoint now enforces referential integrity between two linked tables using one of two relationship modes. Of course, you can still link lists without defining a referential integrity relationship and take your chances.

Summary

This chapter began by reviewing the built-in lists that SharePoint supplies out of the box. SharePoint divides the available lists into three broad groupings. The first group, communications, includes lists that facilitate communications between users. The second group, tracking, includes lists that help users track information. The last group includes custom list templates.

I then showed you how to use existing list templates. By creating instances of these templates, you can add items to your list instances and publish the resulting list. SharePoint treats these lists as web parts that you can insert into web part zones of web and wiki-style pages.

You then saw how to customize a list by adding new columns and modifying existing columns. By creating site columns rather than just adding a new column to an individual list, you can create reusable column definitions that you can then add to any list in the current site and its sub-sites. This technique can be especially useful when defining choice columns; you only need to maintain the choice options in one place.

Next, you looked at using e-mail alerts to keep on top of changes or additions made to a list or library. You can customize how often you receive alerts and for what events you want to receive alerts.

Lists and libraries also support RSS feeds as a way to publish additions to a list or library. Both IE 7.0 and Microsoft Outlook 2007 and their subsequent versions support RSS feeds, making it easy for users to monitor updates to lists and libraries while they check their e-mail or browse the Internet.

You also learned how to define multiple views for a list. Each view can support a different combination of columns, sorts, and filters. It is also possible to group a list by a “slowing changing” column (a column that only supports a few unique values) and use an expand/collapse feature to make it easier to see subsets of your list items without creating separate views for each group.

Microsoft SharePoint 2010 collaboration adds new features for Lists and Library validation and referential integrity. Validation comes in two flavors, list and column validation. Using these validations, you can keep bad data from entering your list based on rules that you define. Finally, you saw how to use referential integrity behavior with lookup fields to protect the data by either cascading or blocking changes from the parent (lookup) table.

In later chapters, I will show how to access and work with lists directly from Microsoft Office products such as Excel, Access, and Outlook.



Creating Content Pages

Content Pages Display Your Data

Content pages in SharePoint 2007 were, in some ways, simpler. A content page was a web page. You could use one of several page layouts. Each one had its own configuration and number of web part zones in which you could add web parts. While you can still create content pages that way in SharePoint 2010, you have another alternative, wiki-style pages. These pages feature page layouts called rich text areas that offer two benefits over the more traditional web pages. First, you can type text directly into the text areas without first needing to insert a web part such as the content editor web part. Second, you can create links from one wiki page to another just like the wiki pages in SharePoint 2007 wiki libraries. Moreover, you can insert web parts, lists, tables, images, and anything else you could put in a web page into these rich text zones.

So which page style should you use?

Before I can answer that question, let's look at both page styles and see how they are the same and how they differ.

If you look at the collaboration site that you started using in Chapter 1, SharePoint names the default page for the site: `home.aspx`. What you may not have noticed is that this page is actually a wiki page. Furthermore, if you open the **Site Actions** menu, there is an option, **New Page**. If you select this option, SharePoint generates a new wiki page and places it in a library called **Site Pages**. I will return to that option in a little bit. Let's first look at the other way to create a page by selecting **View All Site Content** from the **Site Actions** menu.

Adding a Web Page to Your Collaboration Site

In the previous chapters, you saw how to create libraries and lists by going to the **Site Actions** button in the upper-left corner of your site and clicking the **View All Site Content**. To create a new web page, begin the same way¹. You will need a library in which to store your web pages. While you could store your web pages in the same library as your documents, a better design choice puts web pages in their own separate library. Therefore, let's take a side trip from creating your page to create a new library for your web pages.

¹ This chapter's examples add pages to non-publishing templates. However, most of the techniques apply to web pages added to publishing sites as well.

When you click **Create**, the **Create dialog** appears, which you first saw in Chapter 1. Remember that when creating a new library you should filter the objects you can create by choosing **Library** in the left navigation. Of the available library types, none says Web Page Library. That is because you can create a web page library from a document library. Simply select the **Document Library icon** and supply a unique name for the library. Then proceed to **More Options**.

■ **Tip** If you have the feature **SharePoint Server Publishing** activated, you will see a Pages library that you can use to create web pages.

As you can see in Figure 3-1, you must define a name for the library along with an optional description. I have chosen in this example not to display the document library in the Quick Launch area, but I do want to create a new version of the page every time I edit the file. You can customize the types and number of versions you would like to keep later. Finally, notice that the document template chosen for this library is not a Word document as you saw in your first document library in Chapter 1. Rather it is a Web Part page.

The screenshot shows the 'Create' dialog box with the following configuration:

- Name and Description:**
 - Name: WebPages
 - Description: This library will hold all my web style pages for this collaboration site.
- Navigation:**
 - Specify whether a link to this document library appears in the Quick Launch: Yes No
 - Display this document library on the Quick Launch? Yes No
- Document Version History:**
 - Specify whether a version is created each time you edit a file in this document library: Yes No
 - Create a version each time you edit a file in this document library? Yes No
- Document Template:**
 - Document Template: Web Part page

Buttons for 'Create' and 'Cancel' are visible at the bottom right.

Figure 3-1. Creating a New Web Page Library

After clicking **Create**, SharePoint generates your new library and opens it as shown in Figure 3-2. When you open a library, in addition to the **Browse** and **Custom Commands** tabs, you see two new tabs representing ribbons under the heading **Library Tools**. The first tab when clicked displays the **Documents** ribbon. This ribbon holds options that let you create new documents, upload documents, check out and edit documents, view properties, and much more. The second ribbon, **Library**, focuses on managing the library. It allows you to switch between the standard and datasheet view, create and modify views of the documents in the library defining which columns to show, and sort orders and filters. However, it also has the **Library Settings** button in the **Settings** group, which you will use frequently as you progress through this chapter.

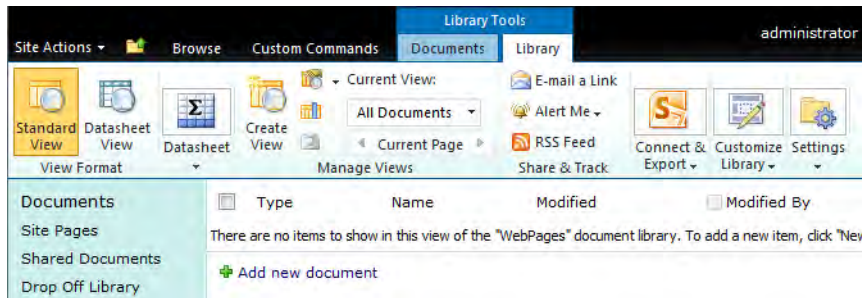


Figure 3-2. Starting with a New Web Page Library

To add a new page, simply click on **New Document** in the **New** group of the **Documents** ribbon. This option displays the **New Web Part Page**. For a new page, you must select two properties. The first property is the name of the page. Page names must be unique within the library. You can use the same name in different libraries even within the same site, but I would not recommend this unless it represents the same document formatted differently.

■ **Note** The **Add new document** link at the bottom of the library item list opens the Upload Document dialog.

The second property asks you to select a page layout template. Figure 3-3 shows that SharePoint supplies eight different page templates. As you click on each page template name in the list, a small figure appears on the left that shows how each template configures its web part zones. A *web part zone* is an area on the page in which you can add web parts for display. You can use other lists or even libraries as a web part on a page. There is also quite a selection of web parts provided by SharePoint to get you started. In addition, your SharePoint administrator may have downloaded additional web parts from other developers or may have developed some herself. Let's start with the relatively simple **Header, Left Column, Body** template for your first web page. By the way, I've named this page `Owls.aspx` for reasons that will be apparent shortly.

■ **Tip** If you see more than eight page templates in your page layout list, your SharePoint Administrator or someone in your SharePoint development team may have created new page templates using SharePoint Designer and added them to SharePoint.

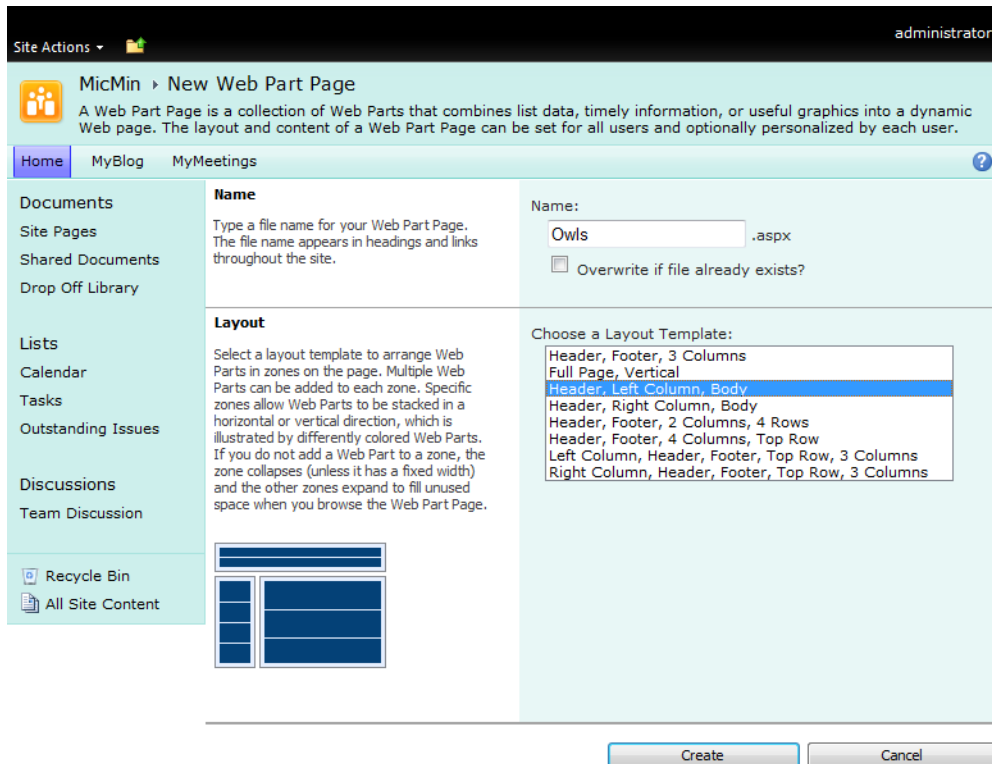


Figure 3-3. Creating a new web page using the Header, Left Column, Body Layout Template

■ **Tip** As a good practice, do not include spaces in page names. If you want to separate words within a name, use an underscore character (`_`) between the words. Web pages translate a space in a name to the string `%20`, making referencing them a little more complex. Also, it definitely looks odd.

Even with such a large selection of templates, you may not find one you like. There are two ways you can increase your template options.

- You can ask your SharePoint administrator to create a new page template for you using SharePoint Designer. This option may take some time, but after installing it, you can create web pages with it just like using any of the built-in templates. Use this method if you require a highly customized zone layout.
- You can manipulate the appearance of the various web part zones by leaving selected zones empty and/or physically changing the width or height of web parts in adjacent zones. However, this method does not let you add or redefine where zones appear.

After you click **Create**, SharePoint generates the page and opens it in Edit mode. Notice in Figure 3-4 that the **Edit** ribbon allows you to edit the properties of the page, change the page permissions, delete the page, manage page version (if you have more than one), approve the page, manage a workflow on the page, and even make the current page the default page for the site. Of course, only one page can be the default site page. The previous version of SharePoint created the default site page when you created the site and called it default.aspx; while you could change the default page for the site to another page, this option was buried in the page library settings. In SharePoint 2010, you have the ability to promote any page in your site to be the default page directly from the page edit toolbar.

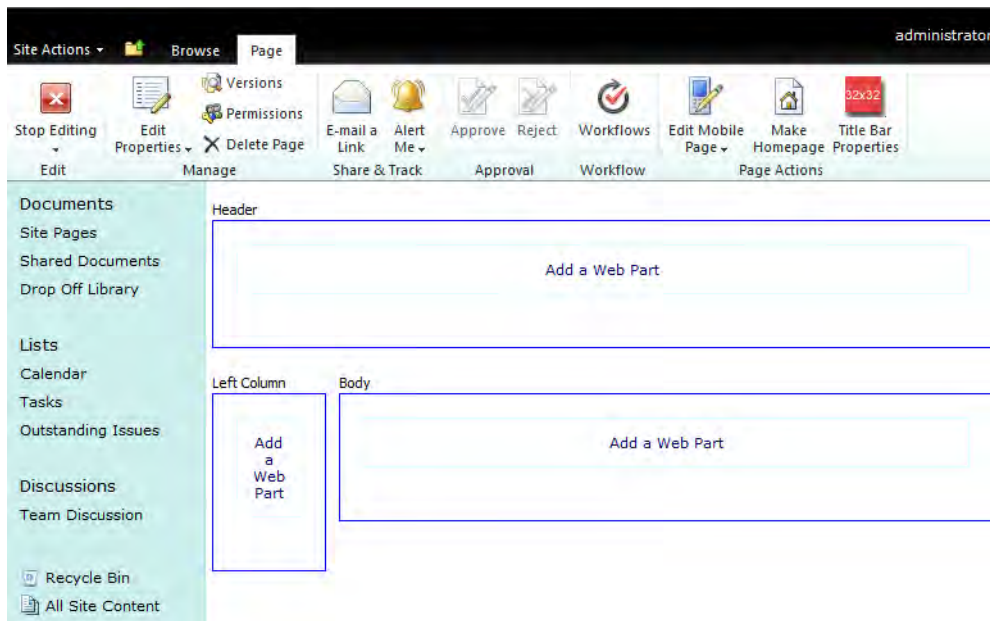


Figure 3-4. The Page Edit Ribbon for a New Web Page

Adding a Content to a Web Part Zone

Next, you will want to edit the content on the page. Notice that, while in Edit mode, the page has some text that identifies the Header, Left Column and Body areas. These are the areas defined by the selected Layout Template from Figure 3-3; the text only appears during Edit mode to help you identify the zones.

To add text or other information in the Header area, move your mouse into the rectangle named Header. Specifically, move your mouse into the smaller rectangle within the Header rectangle that displays the text **Add a Web Part**. You can see similar rectangles in the web part zones for the Left Column and Body zones.

If you click on the words **Add a Web Part** in the **Header** rectangle, you should see immediately below the ribbon an area that has three columns labeled: **Categories**, **Web Parts**, and **About the Web Part**. The first column, Categories, lists all of the different types of objects, called web parts, that you can place on the web page. When you click any of the categories, SharePoint updates the Web Parts column to filter the web parts displayed by that category.

For example, to add text to the Header web part, click the category **Media and Content**. This action displays four objects in the Web Parts column. The first object, Content Editor, allows you to add content to a web part zone using a rich text editor similar to WordPad. Click this web part object to select it. The About the Web Part column displays the name of the selected web part and a brief description. At the bottom of the column is a drop-down list that lets you select the web part zone where you want to place the web part. Even though you may have started by clicking the Add a Web Part text in the Header zone, you can change your mind and add the selected web part to any of the zones using this drop-down list. After selecting the web part zone, click the **Add** button to insert the web part physically onto the page at the top of the selected web part zone.

Notice that I said SharePoint adds the web part to the top of the zone. SharePoint always inserts a new web part into the top of the selected web part zone, pushing any other web parts in the zone down to make room for the new web part. You will see later in this chapter that you can easily move web parts around within the zone and between zones, so don't be too concerned if the order of the web parts as you add them to the page does not match your final desired order. You can easily fix the order.

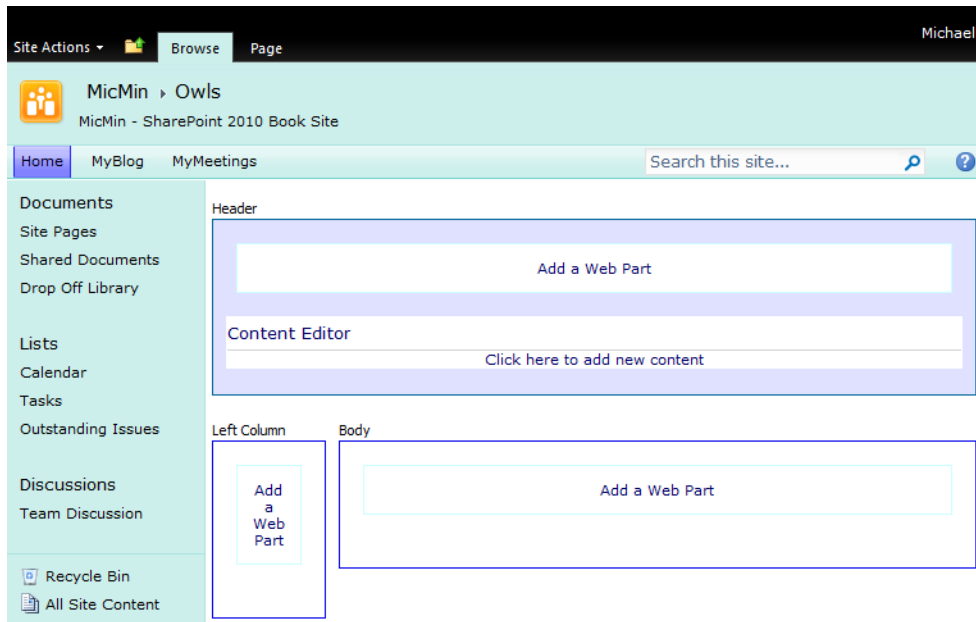


Figure 3-5. Adding content to a new web page

When you click Add, you will see a rectangular area beneath the **Add a Web Part** button with the name **Content Editor**. Beneath this title is a horizontal separating line and the words **Click here to add new content**.

When you click that phrase, the text disappears and a blinking insert cursor appears on the left side of this area. In addition, new tabs appear at the top of the page. The first tab group is named **Editing Tools** and it has two ribbons, **Format Text** and **Insert**. The second tab group is named **Web Part Tools** and has only a single ribbon **Options**, which provides several choices for defining the state and properties of the web part.

In the Content Editor, type the text **Florida Owls**. Then select the text by dragging your mouse through it. Click the **Format Text** ribbon if not already selected so you can format the text.

The text formatting features include the following:

- Fonts
- Font sizes
- Font styles (bold, italic, underlined)
- Font colors
- Text highlighting
- Alignment (left, center, and right)
- Lists (unnumbered and numbered)
- Indenting (and outdenting)

- Copy and paste of text
- Do and undo
- Tables and manipulation of tables and their cells
- Hyperlinks
- Images

One thing that you cannot easily accomplish from the new ribbon menu that you could do in SharePoint 2007 is to select a portion of the text in the content editor web part and remove all inline formatting. Many site designers found this option useful when copying text from a heavily formatted Microsoft Office Word document.

■ **Caution** While you can choose any font installed on your machine when you create your web pages, the actual font that displays depends on the fonts your viewers have on their machine. Therefore, best practices suggest that you use common fonts such as Arial, Times New Roman, Courier, or Helvetica.

Using the text formatting options, center and change the text to **18pt Arial bold**, as shown in Figure 3-6.

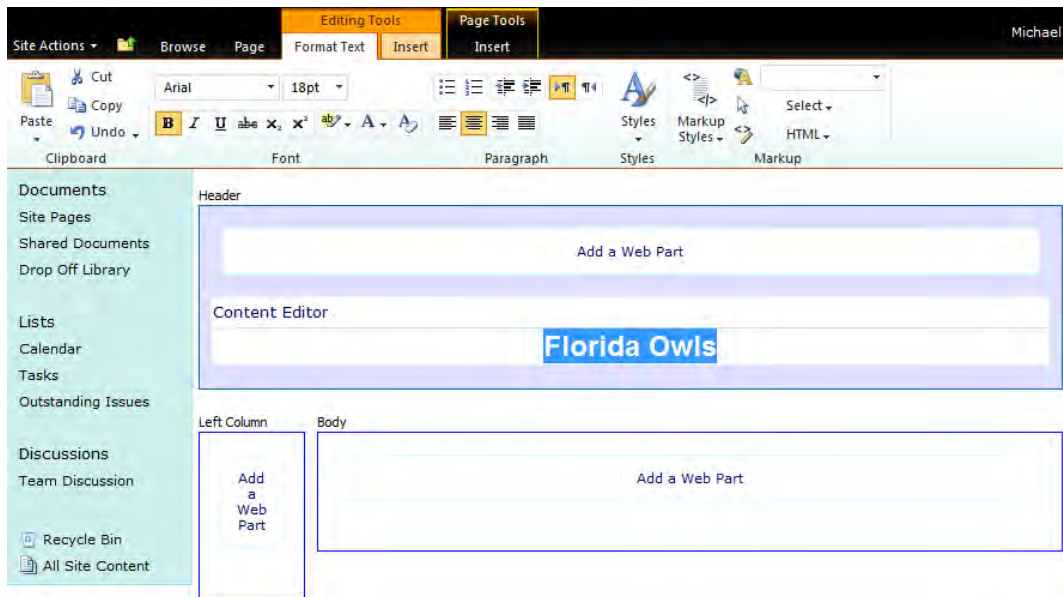


Figure 3-6. Using the Format Text Ribbon in the Content Editor Web Part

Next, open the edit drop-down menu in the Content Editor bar. This menu contains several options that I will cover later. For now, focus on the option **Edit Web Part**, as shown in Figure 3-7.

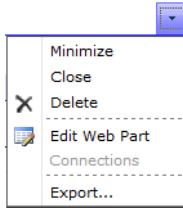


Figure 3-7. The Edit Web Part drop-down option

When you click on the **Edit Web Part** option, a panel appears on the right side of the page. If the page does not resize so you that can see this panel, look for a scroll bar on the bottom of the page and scroll to the right. This panel displays multiple groups of options. For the Content Editor Web part, these areas include the Content Editor itself, Appearance, Layout, and Advanced. Other web parts may have different option groups. Figure 3-8 shows an example of this tool panel for the Content Editor.

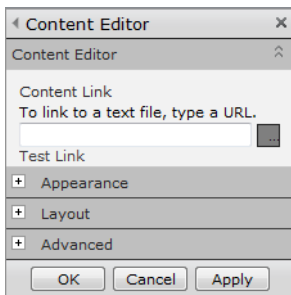


Figure 3-8. Panel properties for the Content Editor web part

Unlike the previous version of SharePoint, you no longer need to go to the tool panel for the Content Editor Web part to be able to create or edit the content source. You can now do this directly in the display area of the web part. However, the tool panel does begin with the option of loading your content from a text file as long as that text file has been loaded to a library within your SharePoint site. Why link to a text file for you content rather than just enter the content directly? If you have a process that automatically generates a text file as part of its output, you can display that text in a Content Editor Web part immediately if you link that text file to the Content Editor.

■ **Caution** The text is treated as HTML and ignores all white space.

The Appearance group includes options that let you change the title of the web part, its height, its width, and the state and type of Chrome used. What is chrome? *Chrome* is the header displayed at the top of the web part. SharePoint supports five chrome formats:

- Default
- None
- Title and Border
- Title Only
- Border Only

When using a Content Editor Web part to create a title for a page, a chrome type of **None** makes the most sense.

The **Layout** section identifies the zone and zone index when the web part exists. You can move a web part from one zone to another or from one position in a zone to another by simply changing the values of these two properties.

Finally, the **Advanced** section provides a variety of properties for displaying the web part. (I will skip over these for now.)

Now that you have a header for the page, you can add some content to the body section. Again, start by clicking on the text **Add a Web Part** in the **Body** zone of the page.

This time, select the **Image Viewer** web part from the **Media and Content** category and add it to the body zone. Beneath the web part header bar, the text tells you to open the tool pane to enter a URL for the image. You can click on the text **open the tool pane**, which does the same thing as clicking on **Edit Web Part** in the **Edit** drop-down menu. The link for the image can be from any web site on any web server, but the best place to store images that you want to use is in the Image library of the current site. So let's take a brief detour. (A *detour*, as described in this book, is a side task that you must complete before continuing with your main task.)

Adding an Image to an Image Library

In this case, you need to upload an image you want to use on your site to the site's Image library. Rather than back out of the work you have started, consider following these steps.

1. From the current page of your browser, copy the URL to your clipboard by clicking in the address bar and then pressing Ctrl+C.
 - Then open a new tab in your browser, or if you prefer, a new instance of your browser.
 - In the address bar of this new page, paste the contents of your clipboard. Notice that the full contents of the address bar is more than you need. Delete anything to the right of the site name where you are working and press **Enter**. For example, if the original URL was: `http://Vanguard/Project/TutorTracker/pages/default.aspx`, you only need to use: `http://Vanguard/Project/TutorTracker` in the new tab so you can navigate to your picture library.

- When the page refreshes, press **Site Actions ► View All Site Content** and then select your picture library. If you have not created a picture library in the current site yet, click **Create** and select **Picture Library** from the **Libraries** category. Complete the form to define the name and other properties of your picture library and click **Create**.
- With your picture library open, click the **Upload** button in the header of the library.
- In the **Add Picture** dialog that appears, use the **Browse** button to locate your image file and then click **OK** to upload your image to the library.

■ **Tip** Resize your pictures to the size you want to display before you upload them. If you don't own a graphics suite, you can use Microsoft Office Picture Manager found in the Office Tools folder to resize your images.

- When the picture uploads, SharePoint open the edit properties page for the image to let you specify other properties of the image such as when the picture was taken, a title, a description, and keywords that can be used to help find different images from a search.
- After defining the picture properties, click the **Save** option in the **Edit** ribbon to complete your upload.
- Now that you have at least one picture in your picture library, you can use that picture on your page. However, to use that picture, you need the URL of the picture. The easiest way to capture that URL is to click on the picture in the library to open the properties page. Then click on the preview picture shown to open just the picture in a separate page. Notice the URL in the address bar. Simply click on this URL and copy it to your clipboard.
- Now you can return from your detour back to the page you are editing. Click in the text box for the image link and paste the URL of the image.

■ **Caution** If you copied the image URL as described in these steps, make sure that you delete the default text (<http://>) before you paste the copied URL. Otherwise, you will have an incorrectly formatted URL.

When inserting an image on a page, you should always consider adding alternate text for those viewers who may have graphics turned off or may be using a program to read the page to them.

If you later delete the image from the picture library, the web pages will display a box with a red “x” in it, indicating that SharePoint cannot locate the image.

There are other options in the tool panel for this web part including alignment options and background color settings. In addition, you also have the Appearance, Layout, and Advanced property

groups. In fact, you may want to open the **Properties** group and change the **Chrome Type** to None for this image.

When you're done modifying properties of the image, click **OK** in the tool panel.

Now you have a picture in the body section. To add some additional information about the picture, begin again by clicking **Add a Web Part** from the **Body** zone. Select the **Content Editor Web part** from the **Media and Content** category. Next, click **Add** to insert this web part in the Body zone. As Figure 3-9 shows, this new web part appears above the Image Viewer web part previously added.

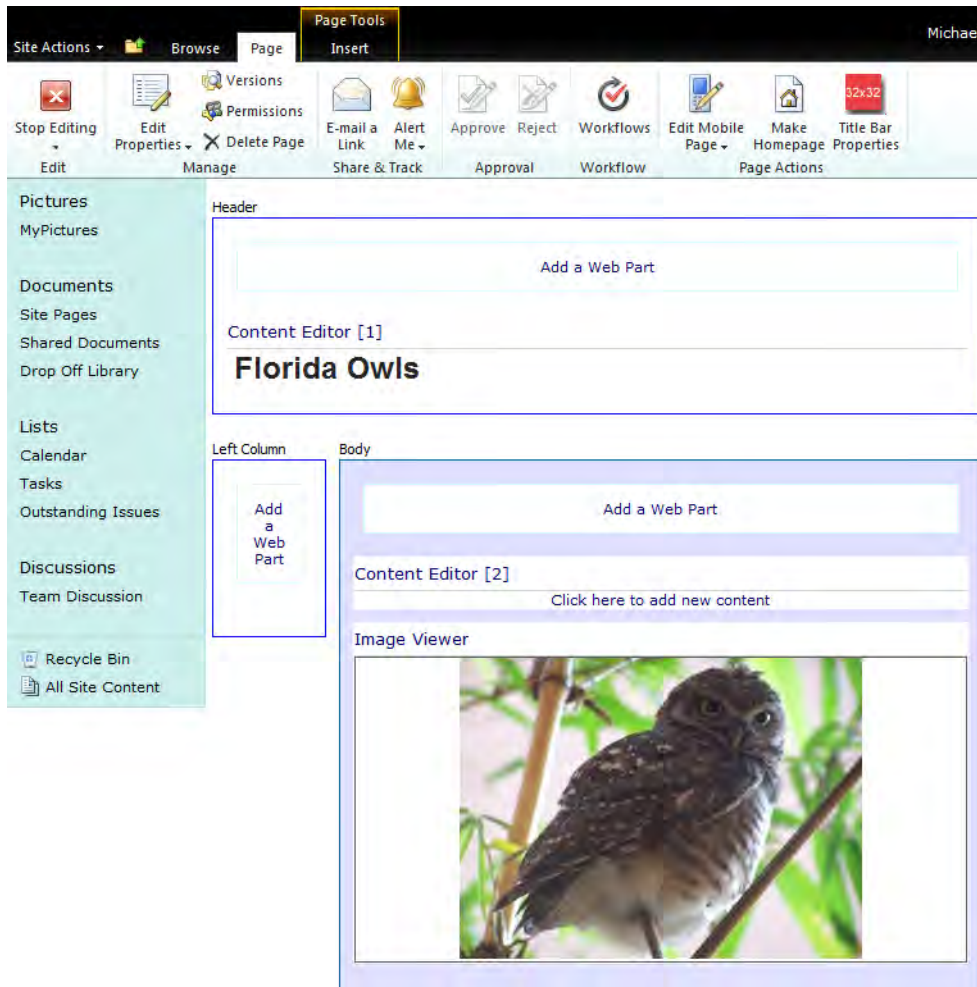


Figure 3-9. Added web parts always appear at the top of the zone.

Added web parts always appear at the top of the zone. To change the sequence of the web parts within the zone, just click on the web part header that you want to move and drag it up or down within the zone. You'll notice a thick horizontal line appears in the zone to indicate where the web part will be if you were to release the mouse button. Move the content area beneath the image and enter some text about this beautiful owl.

After you have moved the content area beneath the image, click below the web part header to begin creating text. Figure 3-10 shows the Body zone with a small amount of text added beneath the picture of the owl.

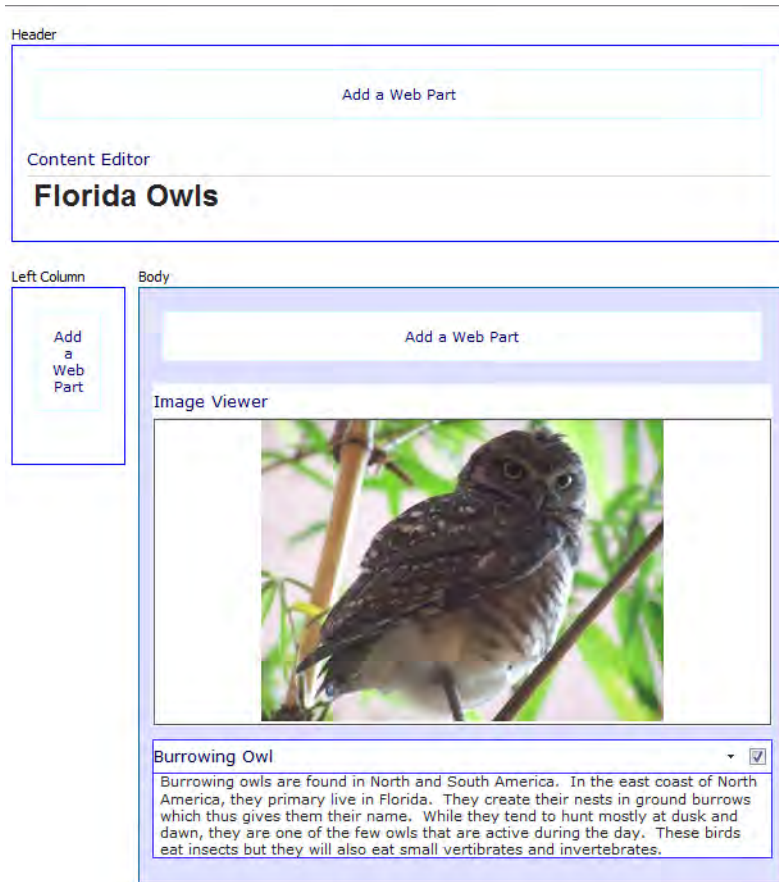


Figure 3-10. Reposition the Content Editor web part below the Image Viewer

Copying Text from a Word Document

For the above example, you entered your text directly into the Content Editor Web part. Perhaps you already have a Word document containing the text you want to add to your site. You could simply copy your text from the Word document and then paste it into the Content Editor Web Part.

Note, however, that this technique copies not just the text, but also all the text formatting and styles. If you have very loose formatting standards for your content pages as opposed to strict standards for outward facing web pages to the public, you may not have to do anything more. However, if your organization imposes text formatting standards, even something as simple as the type of font to use or the font size, you may need to reformat the copied text.

■ **Note** One way to remove all special formatting from copied text is to copy the text first to Notepad and then copy the text from Notepad to the Content Editor. While this option requires an additional step, it successfully removes the special formatting that Word adds and pastes a plain text version of the content in the Content Editor, ready for formatting to match your other pages.

Let's continue with the owl page. Suppose you want to provide a little scientific information about this bird for your viewers. To do this, you need to add data into a table. Add a blank line below the current text by pressing Enter and then open the **Insert** ribbon from the **Editing Tools** ribbon group.

Notice that the first option is Table. Clicking this option displays a small dialog that looks like a grid. As you drag your mouse through the grid, individual squares (cells) change color. This indicates the size of the table in terms of columns and rows that you will create. When you have highlighted a table of 2 rows and 6 columns, click the mouse to complete your initial table size selection.

The table appears beneath the text. You can add text by clicking in any of the cells and just typing the text you want to appear. In this case, I've included a few of the scientific classification names for this owl. If you were to just accept the table with its default formatting, the data would appear as if it were in two rows with six column, but the table grid itself would not appear in the final page. This default can actually be a good way to format text on your page so that you can define different content areas without displaying obvious grid lines that define those areas. In this case, you want the table to look more like a table and display not only the grid lines, but also provide some additional formatting.

So with the table still selected (if you clicked outside of the table, just click anywhere back in the table again), open the **Design** ribbon in the **Table Tools** ribbon group. First, make sure to select the **Header Row check box** because you do have a header row for your data. However, make sure that you do not select First Column. Then click on the option **Styles** and select the **Table Style 3 – Dark**.

After you have selected the style, enter the data as shown in Figure 3-11. Open the **Edit** ribbon of the **Page** tab and click **Stop Editing** to save your changes. When completed, your page should look like Figure 3-11.

Content Editor

Florida Owls



Burrowing Owl

Burrowing owls are found in North and South America. In the east coast of North America, they primarily live in Florida. They create their nests in ground burrows which thus gives them their name. While they tend to hunt mostly at dusk and dawn, they are one of the few owls that are active during the day. These birds eat insects, but they will also eat small vertebrates and invertebrates.

Class	Subclass	Order	Family	Genus	Species
Aves	Neornithes	Strigiformes	Strigidae	Athena	A.cunicularia

Figure 3-11. Adding a table to the content

Using Microsoft Word to Add a Table to Your Content

As you've seen, while you can create a table directly from within SharePoint, your formatting options are limited. When you create a table in Word, however, you can apply any of the many predefined table styles—or create your own. Figure 3-12 shows a Word table similar to the SharePoint one in Figure 3-11.

Class	Subclass	Order	Family	Genus	Species
Aves	Neornithes	Strigiformes	Strigidae	Athena	A.cunicularia

Figure 3-12. Specifying name and location for a new basic web page

In this case, if you want more control over the table's appearance, you may want to create and format your table in Word and then cut and paste it into the Content Editor Web part. This process preserves most if not all of the formatting defined in Word.

Adding a Hyperlink to Your Content

In addition to adding tables, the Content Editor Web part has the ability to add a hyperlink to another page on your site or to any site on the Internet. Suppose you find a link to additional information on burrowing owls on the Internet and want to let your visitors see that information as well. You can create a link to it from your document.

To create a hyperlink from within your content, begin by selecting the text on which you want readers to click. Then go to the **Insert** ribbon of the **Editing Tools** ribbon group and click the **Link** option in the **Links** group. As with the image dialog box, the hyperlink dialog box, shown in Figure 3-13, only has two property fields. The first field echoes the text highlighted before opening the **Insert Hyperlink** tool. You then need to enter the page URL to link to using the second field. Note that this field does not support a **Browse** button. If you don't remember the URL of the page you want to redirect users to, open a separate browser window or tab and navigate to the page. With the page open in your browser, you can click in the address bar to select the page URL and copy the link to your clipboard with Ctrl+C. Then return to your SharePoint browser tab and paste the link in the **Address** field with Ctrl+V, and click **OK**.

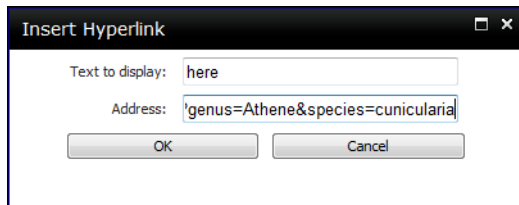


Figure 3-13. Inserting a hyperlink to an Internet site

Perhaps you noticed that the Left Column zone appears to be missing. Actually, it is not missing, it's just empty. When a zone is empty, SharePoint (and most browsers) compress that space so that other text on the page has more room. If you were to use the left column zone to create a menu of Florida owls, as shown in Figure 3-16, the body zone would reconfigure to use less horizontal space so that the left column zone can appear.

To create that menu for the left column zone, suppose you had previously created a Links list that represents the different pages on your site about Florida owls. I covered how to create lists in Chapter 2. Your Links list has three or four entries to other pages that you may have created so far. To add that list to this page, edit the page and move the mouse under the left column zone to display the zone rectangle. Click in the rectangle to display the **Page Tools' Insert** ribbon. Click on the **Existing List** option to select a list. Figure 3-14 shows the selection of the existing list named Florida Owls.

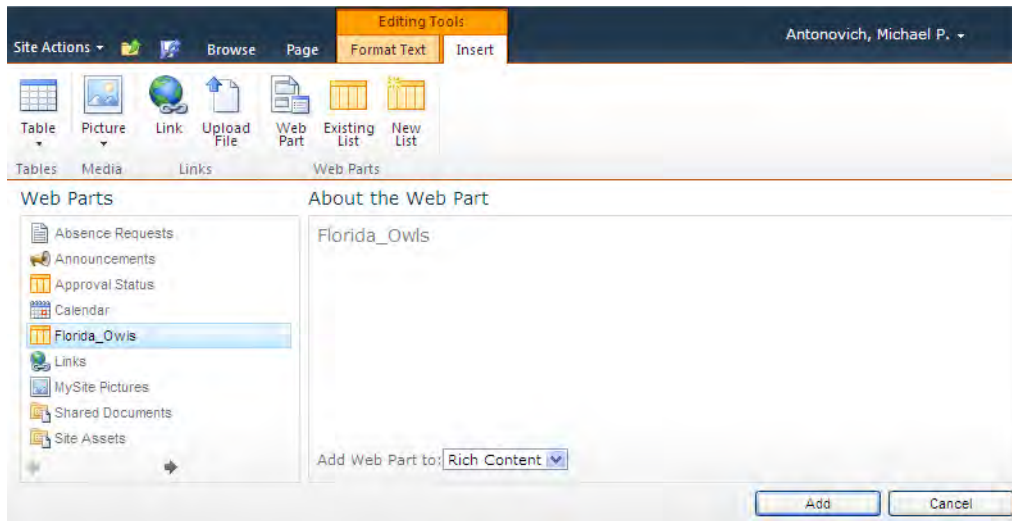


Figure 3-14. Adding an existing list to the web page

After adding this list to your page, you may see more columns than you may really want. All you really want to display is the URL column. Fortunately, because you learned in Chapter 2 how to create different views, you can create a new view that only displays the URL. Because the column name will appear on the page when you display the view, you may also want to change the name of the column to the name of the menu; so change the column name from URL to Florida Owl Pages. After doing this, you can edit the web part on the page changing the view used to display the list by setting the properties as shown in Figure 3-15. Notice that the page initially displays the list's default view. Only after you add the list to the page can you specify which view to use on the page by going to the web part's properties.

Some changes you should make while editing the web part's properties are:

- Set the view in the Selected View drop-down to the view you want to use
- Set the Chrome Type to None
- Set the Toolbar Type to No Toolbar

Florida Owls

List Views

You can edit the current view or select another view.

Selected View
 <Current view>

Toolbar Type
 No Toolbar

Appearance

Title
 Florida Owls

Height
 Should the Web Part have a fixed height?
 Yes Pixels
 No. Adjust height to fit zone.

Width
 Should the Web Part have a fixed width?
 Yes Pixels
 No. Adjust width to fit zone.

Chrome State
 Minimized
 Normal

Chrome Type
 None

Figure 3-15. Defining Properties of the list

After making your changes to the web part properties, click **OK** to save the changes. SharePoint now displays your updated page, which should look something like Figure 3-16. Notice that with information in the Left Column zone, the Body zone is not as wide as in Figure 3-11. Actually, by choosing a longer column header as shown in this figure, I insured that the current page links did not wrap around two or more lines. If you want to see how this works, go back to the list settings and change the column name from *Florida Owl Pages* back to *URL*.

■ **Tip** Another way you can control the widths of web part zones is to modify the Width property in the Appearance section of the web part properties by setting the width to a fixed number of pixels. You can set the pixels by trial and error or you can download a simple screen utility that displays a pixel ruler on the screen. These utilities (some free, some inexpensive) are a great help in determining the number of pixels an image, column, or web part zone should use.

Florida Owls

Florida Owl Information

- Barred Owl
- Burrowing Owl
- Great Horned Owl
- Screech Owl

Burrowing Owl

Burrowing owls are found in North and South America. In the east coast of North America, they primary live in Florida. They create their nests in ground burrows which thus gives them their name. While they tend to hunt mostly at dusk and dawn, they are one of the few owls that are active during the day. These birds eat insects but they will also eat small vertebrates and invertebrates.

Class	Subclass	Order	Family	Genus	Species
Aves	Neomithes	Strigiformes	Strigidae	Athene	A.cunicularia

Figure 3-16. Final web page with image, content, and menu

■ **Tip** If you created a Links list to follow along with this example, you may have seen check boxes before each of the items. By default, SharePoint adds check boxes before each item. You can remove these check boxes when you define your menu view by opening the **Tabular View** group and turning off the option **Allow individual item checkboxes**.

Of course, there are many other things you can add to this page, but this should be enough to get you started. Now let's look at creating a similar page using the wiki page template.

Adding a Wiki Page to Your Collaboration Site

The second way to add pages to your collaboration site is to use wiki pages. In fact, this is the default page style for a Team Collaboration site. One of the key advantages of using wiki pages for collaboration is that anyone can edit the page content even if you do not want to give them edit rights to the underlying lists or libraries. For collaboration pages, this feature allows you to limit management of lists and libraries to users who have received additional training on how to work with SharePoint.

■ **Tip** If you would rather not use a wiki as the default page for your Team Collaboration site, first create a new web page. Before you exit Edit mode, click the option **Make Homepage** from the **Edit** ribbon. SharePoint does not delete the original wiki page. It still exists in the Site Pages library and you can open it with a link. However, your new web page becomes the new default page for the site.

From the main page of the collaboration team site created for you when you began Chapter 1, you can easily add not only a link to a new collaboration page, but also the page itself. Start by clicking the **Edit** tab to display the **Edit** ribbon. In the **Edit** ribbon, click the **Edit** option in the **Edit & Check Out** group. When the page refreshes, you'll see rectangles around several portions of the page. Figure 3-17 shows that the default home page has three areas, almost like the zones in the web part page you created in the first part of this chapter.

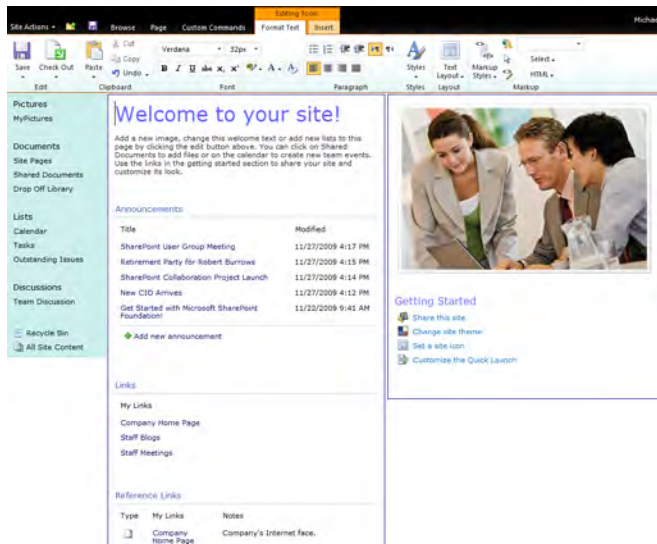


Figure 3-17. Wiki page version of a home page

If you move your mouse over a blank area in these rectangles, you may see a tool tip appear beneath your cursor that says **Rich Text Editor**. These are already text areas. You do not need to insert a web part to add content to these areas. Just click your mouse where you want to insert text and begin typing. If you do not have space to insert text between existing web parts, check out the sidebar *Moving Web Parts on a wiki page*.

Moving Web Parts on a Wiki Page

If you have already added web parts to the rich text area, you will find that you can only add text directly to areas outside of these web parts, not within them. If you added the web parts without adding a blank line between them, you may need to add blank lines if you want to insert text between them. Unfortunately, you cannot just click between web parts and press Enter to insert a line between them.

First, you must add a series of blank lines at the bottom of the rich text area. Then, beginning with the lowest web part, click on the web part's header and drag it to one of these new blank lines. This should effectively "bubble up" the blank lines to where you want them.

If you saved the web part with a Chrome type of **None**, you can click anywhere on the border of the web part which appears as you move your mouse over the web part. Then drag the web part as needed to arrange your blank space.

Adding blank lines while in Edit mode between web parts does not affect the display of the final page because wiki pages ignore these blank lines. So use blank lines liberally when designing your pages. I did this to the home page of the site used here so that I could add text to the top of the left column.

You can move a web part from one rich text area to another as easily as arranging the order of web parts within a rich text area. The only restriction is that you must have one or more blank lines in the destination rich text area where you want to drop the web part.

Figure 3-18 shows the web parts moved down to provide space at the top of the left column. Then I added one line of regular text. Note that I added a second line, but it is not a line of normal text. Rather, it shows how to begin a hyperlink definition within a wiki page. To start a link, type two open square brackets. As soon as you do this, a context-sensitive menu appears, listing available pages from the Site Pages library, which is the default library for your site's wiki pages. In this figure, I selected the page named *MySecondPage* for the link.

After you select the desired page to link, press the **Enter** Key. SharePoint automatically adds the closing square brackets to complete the statement.

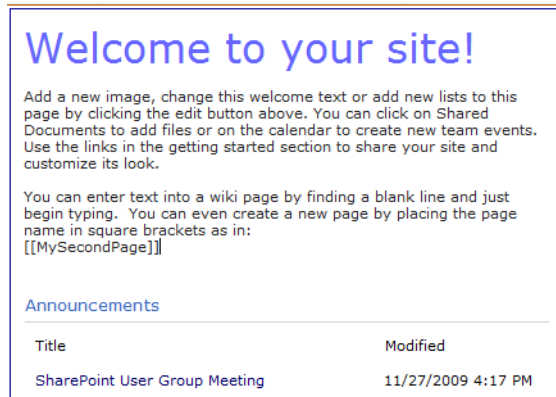


Figure 3-18. Inserting text into a wiki page content area

Does this method only link to other wiki pages in the Site Pages library? At first glance, you might think so. After all, when you type the two opening square brackets, the list that appears only includes the names of pages in the Site Pages library. In fact, the page names displayed in the drop-down correspond to the page's Name property. Therefore, if you know the name of the wiki page you want to link to, you can enter the name directly.

So can you only reference other wiki pages? The answer is no, but let's finish this example before I get into accessing non-wiki pages.

While you did not change the displayed text associated with the link in this case, you can easily provide a different text string for SharePoint to display to the user. Simply add the pipe character (|) after the page name and then enter the alternate text you want to display. For this example, you could have entered `[[MySecondPage|Page 2]]` so the SharePoint would display the text Page 2 as the link. This can be especially useful if you have abbreviated page names to keep the total URL size small but would rather have a more descriptive page name displayed to the users.

Welcome to your site!

Add a new image, change this welcome text or add new lists to this page by clicking the edit button above. You can click on Shared Documents to add files or on the calendar to create new team events. Use the links in the getting started section to share your site and customize its look.

You can enter text into a wiki page by finding a blank line and just begin typing. You can even create a new page by placing the page name in square brackets as in: [MySecondPage](#)

Announcements

Title	Modified
SharePoint User Group Meeting	11/27/2009 4:17 PM

Figure 3-19. Wiki reference to a page not yet created

Notice in Figure 3-19 that, when you save the page, the link displays with a dotted underline. This dotted underline indicates that the referenced page does not exist. If you entered the page name directly and you know the page exists, you may want to double check the Name property of the page. You may even want to make sure that the page exists in the Site Pages library of the current site and not some other site.

If the page name is correct and you know that the page does not exist yet, click on this page link. SharePoint recognizes that there is no page with this name. It therefore opens a dialog, shown in Figure 3-20, and prompts you with the question whether you want SharePoint to create a new wiki page in the Site Pages library with that name.

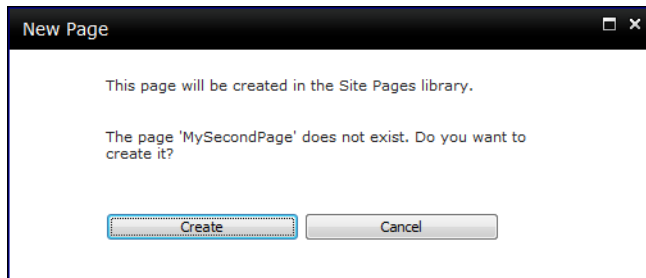


Figure 3-20. Wiki warning when about to create a new page

If you click the **Create** button, SharePoint creates a page with that name and opens the page in Edit mode, as shown in Figure 3-21. Note that a new wiki page has no default content, but it does have one rich text area that fills the entire page.

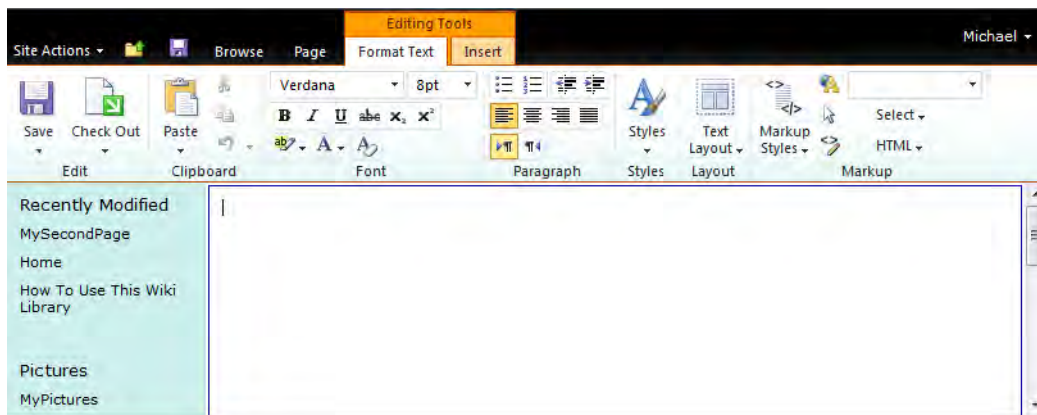


Figure 3-21. Blank new page in wiki created from link

Note that there are no web part zones. Wiki pages do not have web part zones, but don't worry. You can still use web parts in a wiki page by placing them directly in the rich text area.

Perhaps instead of just one rich text area, you want two, three, or more areas. In fact, you would like to have rich text areas laid out similarly to the web part zones you saw earlier when creating a web page. In the **Editing Tools** ribbon group, select the **Format Text** ribbon. In this ribbon, locate the **Layout** group and its sole option, **Text Layout**. If you click this option, you will see that there are several different text layouts available for wiki pages (see Figure 3-22). The thumbnail to the left of the layout name gives you a view of what those layouts look like before you select them. In most cases, you can guess what the layout will look like by reading the name. Of course, you could just select one to see what it looked like. If you have not added any content to the page yet, you can easily reopen the Text Layout drop-down menu and try a different layout until you find the one you want to use.

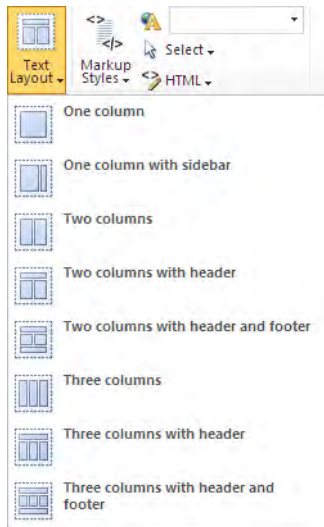


Figure 3-22. Available layouts for wiki pages

After selecting a Text Layout, SharePoint reconfigures the current wiki page and shows you the rich text areas. As a starting point to reproduce the earlier web page, create a wiki page by using the **Two columns with header** option as shown in Figure 3-23.

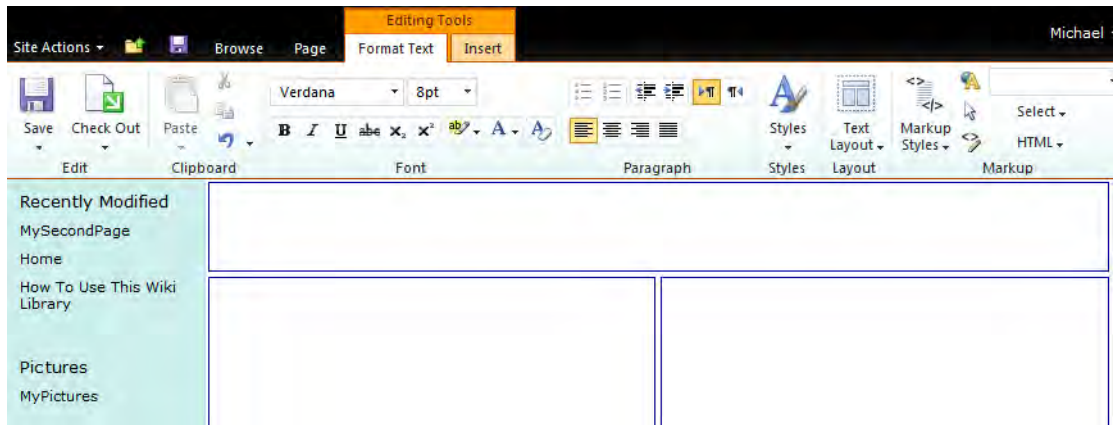


Figure 3-23. *The Two columns with header layout*

Rich text areas are not the same as web part zones. While they still automatically expand and contract to adjust to the sizes of content placed within them, merely adding text to the rich text area will not affect the current rich text area's width. You cannot manually change their widths by setting properties of the rich text area. On the other hand, if you add a list to one of the rich text areas that is wider than the area, the area will expand in an attempt to show the full list. The fact that rich text areas may not eliminate as much white space as their corresponding web page cousins can lead to pages with considerably more white space between horizontally placed rich text areas. I encountered this effect when attempting to recreate the same page content for my wiki page as we created in our earlier web part page. Although my wiki page in Figure 3-24 is close to my web part page in Figure 3-14, a close look reveals that the web page recovers extra space more effectively.

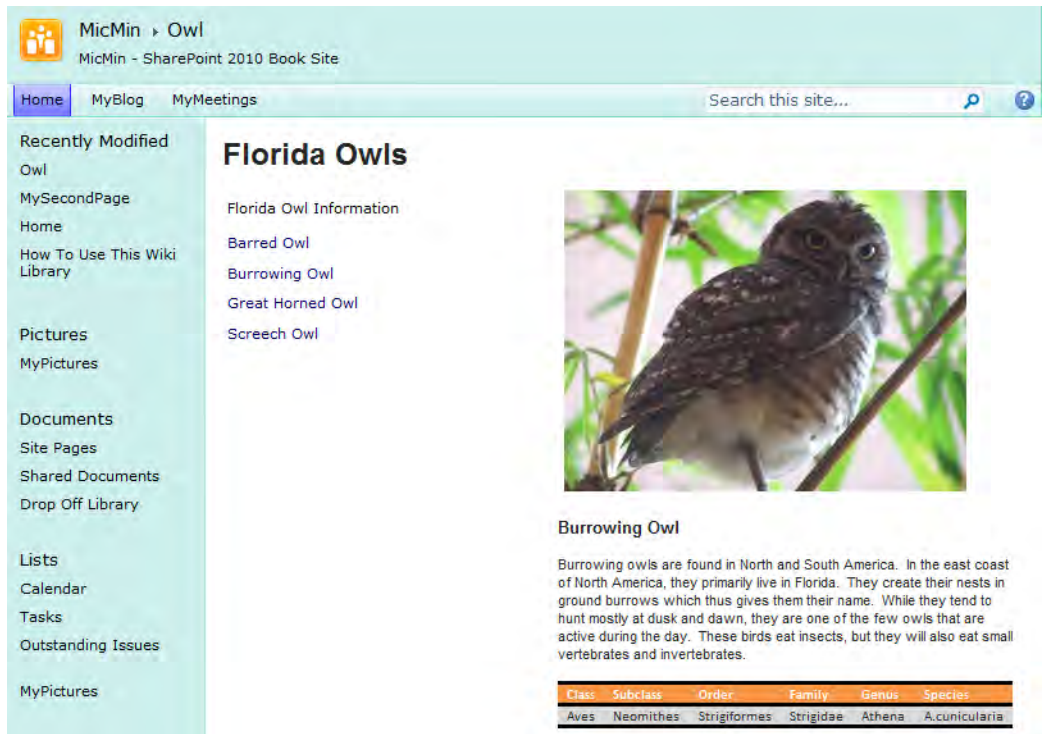


Figure 3-24. Final wiki page with image, content, and menu

Adding links to take you to other pages is not the only thing you can do with wiki pages. You can create links to files, lists, and views. As soon as you type the two square brackets to begin a link on a wiki page, a context-sensitive drop-down menu appears to let you choose not only other wiki pages in the site pages library but also two other options (see Figure 3-25).

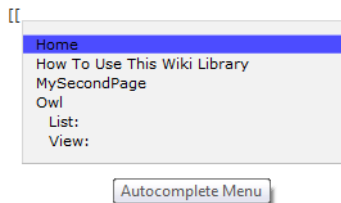


Figure 3-25. Context-sensitive drop-down of link options in a wiki page

To select an item from this list, use the up and down arrow keys on your keyboard and press the **Tab** key to select the item. SharePoint adds the page name or the word **List:** or **View:** after the square brackets. If you selected a page, you can close the link by pressing the Enter key to add the closing square

brackets to the expression. However, you can define an alias name for the page that displays on the current page rather than the actual page name. To do this, press the pipe character ‘|’ and enter the alternate name for your link. To close the link expression, you must also manually enter the two closing square brackets.

If you choose **List:** from the **Autocomplete Menu**, after you press the **Tab** key, a drop-down of all your lists will appear (if you have a relatively small number of lists). If you have a large number of lists, a message may appear telling you to “Enter more of the name to see suggestions”. Enter the first one or two letters of the specific list name you want. After selecting your list, you can press the **Tab** key to select an item from the list, or you can press **Enter** to complete the link, or as with pages, you can add a pipe character and then supply an alias that SharePoint displays on the page in place of the actual list name.

The **View:** option starts similarly to the **List:** item in that you must first select the list you want. However, in this case, you do not want to press **Enter** after selecting the list name. Rather you want to press **Tab**. Again, SharePoint asks you to enter more of the name to see suggestions. However, this time, the prompt is referring not to the list name, but to the name of the view within the selected list. SharePoint separates the list name and view name with the slash “/” character. As with the two previous examples, you can end your selections by pressing the **Enter** key or you can add the pipe character and supply an alias name for the link.

Finally, you can reference not only regular lists with the **List:** option, you can access libraries as well. For example, to open a document from your Shared Documents library, select **List:** as before, but enter the character “s” or “sh” to display the Shared Documents name in the Autocomplete Menu. As with views, you want to press just the **Tab** key to select the library so you can continue to select the file within the library. Also like all of the previous examples, you can supply an alias name for the link.

Once you know the syntax for links on a wiki page, you can enter the link definition directly if you know the list/library and view/document information. However, using the Autocomplete Menu eliminates the potential for spelling errors.

If you were to save the page at this point and click on any of the resulting links, SharePoint would open the corresponding list, view, library, or document as defined by the link.

Figure 3-26 shows a few examples of the link options while in Edit mode. You can see that the basic format of the link is similar to the basic page link in which you begin with the page name and then you can add a pipe character ‘|’ followed by an alias text string that appears on the page when the page displays.

```
[[List:Florida Owls]]
[[View:Florida Owls/FL Owls|My Florida Owls]]
[[List:Shared Documents/The Universe Episodes.docx|Universe Episodes]]
[[How To Use This Wiki Library|Using Wikis]]
[[Owl]] The wiki version of the owl page
[[List:Florida Owls]]
```

Figure 3-26. Display of different types of links on a wiki page

A few paragraphs ago, I promised to tell you how you could reference non-wiki pages from within a wiki page using the wiki page link format. Just as you were able to open a document from the Shared Documents library, you can access a file in any library including page libraries. Earlier in this chapter, you created a document library named WebPages. You can begin with the **List:** prefix and then build a reference to a file named Owls.aspx in the WebPages library by using a string like the following:

```
[[List:WebPages/Owls|Owls]]
```

■ **Caution** SharePoint cannot use security trimming to hide links you might create on your wiki page, as shown in this section. Therefore, users may get a security warning when they click on a link that points to a list or library item to which they do not have access.

Now you know why I started Chapter 2 by saying that everything is a list. You can create content pages with both web pages and wiki pages and you can reference both page styles just as if they were another list in your site. Let's look at some additional content issues when working with collaboration pages.

Creating Master-Detail Relationships between Your Lists

■ **Caution** Creating connections between web parts as described in this section is only a function of Web Part pages, not wiki-based pages.

One of the more interesting things you can do with lists is to define master-detail relationships between two or more lists on a page. A *master-detail relationship* between lists looks a lot like the parent-child relationship between tables in a database. Basically, it means that a list designated as the master has items that relate to one or more items in a second list called the detail list.

One example of a master-detail relationship might involve a list of the departments in your organization. Since departments consist of one or more staff members, you might build a detailed staff list, including names, titles, telephone extensions, and related information.

Another example might list your employees in a master list and the projects they work on in the detail list. In fact, the staff detail list of the first example might serve as the master list for the second example.

In SharePoint, when you create a master-detail relationship between lists on a page, the master list controls the items you can see in the detail list. The master list always displays all its items. However, the item you select from the master list determines which items, if any, appear in the detail list.

Figure 3-27 shows two lists on one page. The list on the left displays a list of projects in a hypothetical company. The list on the right displays a list of staff assigned to various projects along with their main project responsibility. You probably noticed that Project Name provides a common column between these two lists. You must have a common or linking column between your two lists to create a master-detail relationship. However, these lists do not need to have the same name as in our example.

Antonov Advanced Research Projects

Research Projects			Project Staff			
Project Name	Project Start	Project End	Project_Name	First_Name	Last_Name	Role
Anti-Grav Sled <small>NEW</small>	4/1/2010	3/31/2011	Anti-Grav Sled <small>NEW</small>	Sandra	Fuller	Gravitational Researcher
Heisenberg Compensator <small>NEW</small>	9/1/2003	8/30/2013	Anti-Grav Sled <small>NEW</small>	Phil	Jason	Project Manager
			Anti-Grav Sled <small>NEW</small>	Carol	Sterns	Engineering Chief
Invisibility Shield <small>NEW</small>	7/1/2009	12/31/2011	Heisenberg Compensator <small>NEW</small>	Susan	Antonov	Phenomenologist
Laser Handgun <small>NEW</small>	1/1/2008	9/30/2010	Heisenberg Compensator <small>NEW</small>	Gary	Lanahan	Physicist
Quantum Flux Capacitor <small>NEW</small>	1/1/2009	12/31/2010	Invisibility Shield <small>NEW</small>	Phil	Jason	Project Manager
			Invisibility Shield <small>NEW</small>	Anatohly	Nikol	Optical Specialist
Slip-Stream Drive <small>NEW</small>	7/1/2010	6/30/2015	Invisibility Shield <small>NEW</small>	Carol	Sterns	Engineering Chief
+ Add new item			Laser Handgun <small>NEW</small>	Jenny	Abrams	Project Manager
			Laser Handgun <small>NEW</small>	Natasha	Gryzlov	Micro Technician
			Laser Handgun <small>NEW</small>	Anatohly	Nikol	Optical Specialist
			Quantum Flux Capacitor <small>NEW</small>	Phil	Jason	Project Manager
			Quantum Flux Capacitor <small>NEW</small>	Gary	Lanahan	Physicist
			Quantum Flux Capacitor <small>NEW</small>	Jared	Rodriguez	Head Physics Researcher
			Quantum Flux Capacity <small>NEW</small>	Susan	Antonov	Phenomenologist
			Slip-Stream Drive <small>NEW</small>	Susan	Antonov	Phenomenologist
			Slip-Stream Drive <small>NEW</small>	Natasha	Gryzlov	Nano-bot Designer
			Slip-Stream Drive <small>NEW</small>	Phil	Jason	Project Manager
+ Add new item						

Figure 3-27. Create and display two related lists on a page

Once you place both lists on the page, you can define the relationship between them starting from either list. If you begin with the Research Projects list, drop down the menu from the **Edit** button (or down-pointing arrow) in the list header. You will see the option **Connections** toward the bottom of the menu. As you position your cursor over the word **Connections**, a secondary menu defines the possible connection types. From this menu, move your mouse over the **Send Row of Data To** option. You use the **Send Row of Data To** option when you begin from the master list side of the relation. You use the **Get Filtered Values From Option** when you begin with the detail list.

Next, another menu appears listing the available lists on the current page. In this case, select **Project Staff** from the menu. Figure 3-28 shows this sequence of selections.

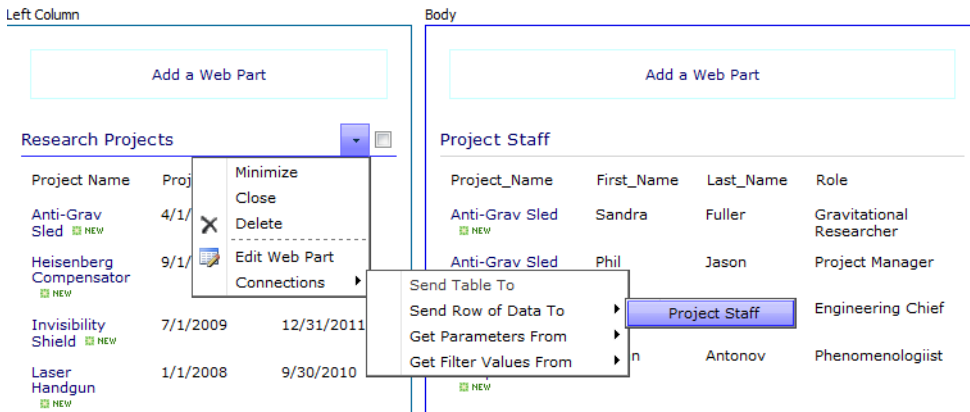


Figure 3-28. Defining the connection from the master list

Next, SharePoint displays a two-tab dialog box in which the first tab asks for the type of connection for Project Staff. Since you started by sending a row of data from the Research Projects list, you want to get filtered values from the Project Staff list. Figure 3-29 shows this dialog box.

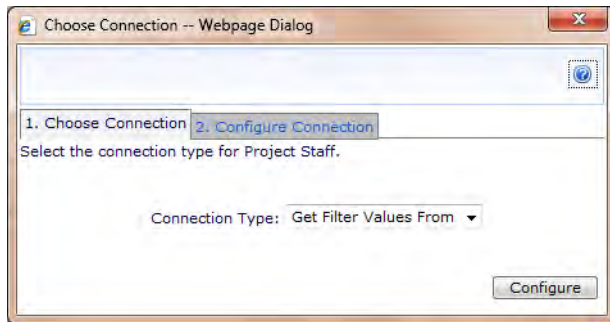


Figure 3-29. Selecting the linking field from the master list

Clicking on the **Configure Connection** tab, you must next select the column from the master or provider list to use to filter (link) the detail or consumer list. After you select the column from the master list, you must select the connecting column from the detail list. Figure 3-30 shows the selection of the Research Projects column Project Name from the provider list and the consumer list column, Project_Name from the Project Staff list.

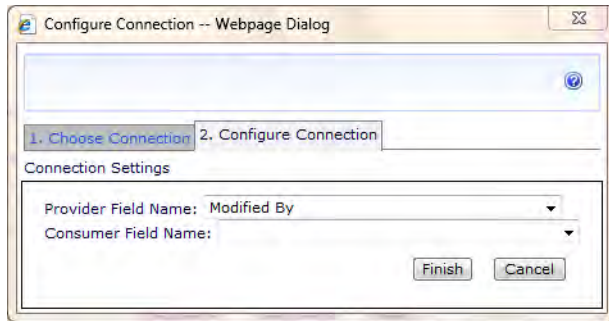


Figure 3-30. Selecting the linking field from the detail list

Click the **Finish** button to complete the relationship definition. When you exit Edit mode for the page, you see that the master list, Research Projects, displays an additional column at the beginning of the list. This column has the header **Select**. It places a double-headed arrow before each list item. To see the relationship between the master and detail list, click any of the double-headed arrows. The select provided item will have solid arrows while the unselected items have hollow arrows. Figure 3-27 shows the Research Projects list with the project Quantum Flux Capacitor selected. In Project Staff, note that only staff members working on the Quantum Flux Capacitor appear. Similarly, clicking the double-headed arrow before any other project filters the staff list to display only the staff for that project.

Antonov Advanced Research Projects

Research Projects				Project Staff			
Select	Project Name	Project Start	Project End	Project_Name	First_Name	Last_Name	Role
↔	Anti-Grav Sled <small>NEW</small>	4/1/2010	3/31/2011	Slip-Stream Drive <small>NEW</small>	Susan	Antonov	Phenomenologist
↔	Heisenberg Compensator <small>NEW</small>	9/1/2003	8/30/2013	Slip-Stream Drive <small>NEW</small>	Natasha	Gryzlov	Nano-bot Designer
↔	Invisibility Shield <small>NEW</small>	7/1/2009	12/31/2011	Slip-Stream Drive <small>NEW</small>	Phil	Jason	Project Manager
↔	Laser Handgun <small>NEW</small>	1/1/2008	9/30/2010	+ Add new item			
↔	Quantum Flux Capacitor <small>NEW</small>	1/1/2009	12/31/2010				
↔	Slip-Stream Drive <small>NEW</small>	7/1/2010	6/30/2015				
+ Add new item							

Figure 3-31. Filtering staff by Project

Editing Pages with Check Out and Check In

In the first portion of this chapter, I did not mention the need for Check Out or Check In with regards to web or wiki pages. However, just like documents in a document library, you need to be concerned about locking your web and wiki pages while you edit them. Let's say you open a web page to make changes. While you have it open for an extended time, another staff member opens the same web page to make changes. Whoever saves their changes first loses because the second person to save the page could overwrite the changes saved by the first.

Actually, the second person to save their changes receives the dialog shown in Figure 3-32.

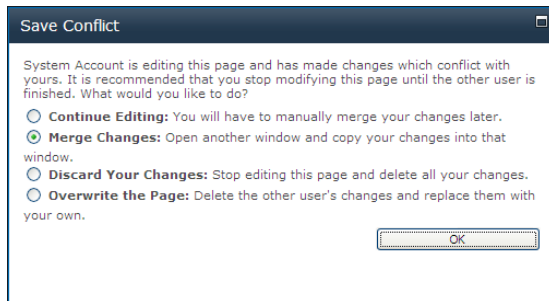


Figure 3-32. Save Conflict notice

Of course, just opening two copies of the page and attempting to merge changes manually can be problematic. After all, how easily can you spot all of the differences between the two page versions? Chances are good that you will miss some of the changes.

So what can you do to protect your web page while you have it open for editing? You check the page out just as you do with documents. Depending on whether your SharePoint administrator has configured your library to check out pages automatically, you may want to perform the check out as a separate step, as shown in Figure 3-33. Open the page library, use the drop-down menu for the page you want to edit, and manually select the **Check Out** option.

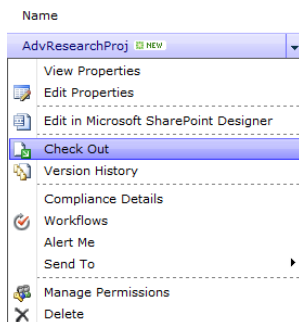


Figure 3-33. Manually checking out web pages before editing

Figure 3-33 shows the options available from the drop-down menu when you view your available pages in a page library in a publishing site. In this particular case, suppose the site does not force a check out before opening the page for editing. If you want to edit the page safely and do not know how long it will take you to edit it, you need to select the **Check Out** option first before manually editing the page. This gives you exclusive rights to edit the page as long as you keep the page checked out. If you have Microsoft Office SharePoint Designer installed on your system, you can use the option to edit your page via this tool. If you click the page name from the library to open the page and then click the **Documents** tab to open the **Documents** ribbon, you can still check the page out by clicking the **Check Out** button in the **Open & Check Out** group of the **Documents** ribbon.

Note that other options available in this group include the option to check in a page that you previously checked out. You must check in a page before others can edit the page.

You can also discard a check out. Perhaps you opened the page to check some of the content properties but did not make a change. Alternatively, maybe you made a big mistake editing the page and simply want to revert to the last saved version of the page. In these cases, discarding a check out cancels any changes you have made to the page since you checked it out.

When you check out a web page, the page icon before the name in the library displays a small box with a green arrow in it, as shown in Figure 3-33 next to the **Check Out** option. If you attempt to open and edit a checked-out page, you will get a yellow warning banner telling you that you are viewing the checked in read only version of the page (see Figure 3-34). It also tells you who has the page checked out exclusively.

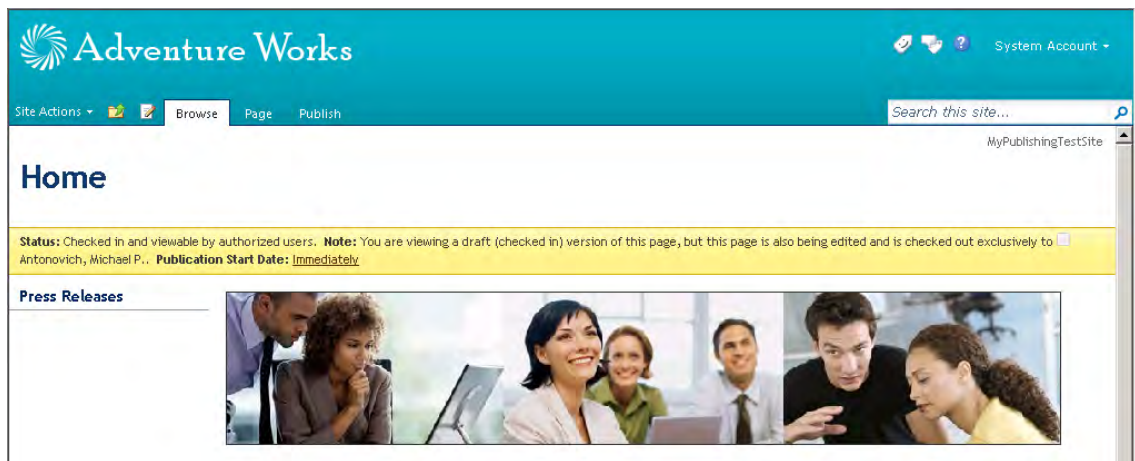


Figure 3-34. Warning that you cannot save content changes to a checked-out page

Earlier in this section, I mentioned the possibility that your SharePoint administrator may have configured the site to check out pages automatically when you edit them. To see how she does that, return to the **Page Library** and select **Library Settings** from the **Library** ribbon. Then on the **List Settings** page, click **Versioning Settings** under the **General Settings** group of options. The resulting page, shown in Figure 3-35, has four settings groups.

<p>Content Approval</p> <p>Specify whether new items or changes to existing items should remain in a draft state until they have been approved. Learn about requiring approval.</p>	<p>Require content approval for submitted items?</p> <p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>
<p>Document Version History</p> <p>Specify whether a version is created each time you edit a file in this document library. Learn about versions.</p>	<p>Create a version each time you edit a file in this document library?</p> <p><input type="radio"/> No versioning</p> <p><input type="radio"/> Create major versions Example: 1, 2, 3, 4</p> <p><input checked="" type="radio"/> Create major and minor (draft) versions Example: 1.0, 1.1, 1.2, 2.0</p> <p>Optionally limit the number of versions to retain:</p> <p><input checked="" type="checkbox"/> Keep the following number of major versions: 3</p> <p><input checked="" type="checkbox"/> Keep drafts for the following number of major versions: 1</p>
<p>Draft Item Security</p> <p>Drafts are minor versions or items which have not been approved. Specify which users should be able to view drafts in this document library. Learn about specifying who can view and edit drafts.</p>	<p>Who should see draft items in this document library?</p> <p><input type="radio"/> Any user who can read items</p> <p><input checked="" type="radio"/> Only users who can edit items</p> <p><input type="radio"/> Only users who can approve items (and the author of the item)</p>
<p>Require Check Out</p> <p>Specify whether users must check out documents before making changes in this document library. Learn about requiring check out.</p>	<p>Require documents to be checked out before they can be edited?</p> <p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>

Figure 3-35. Setting your Page Library to require check out of edited pages

The first group has a single setting that asks whether you want someone to approve all new and changed items. When you select **Yes** to this setting, you must select an option from the **Draft Item Security** group. When you require approval, SharePoint places all new and edited documents in draft mode. While in draft mode, you may not want visitors to your site who have read-only rights to see the page. Perhaps you want to allow anyone with edit rights to view the new or changed pages, even if that person did not create the changes or new pages. This security mode represents a collaboration mode to editing. In the most restrictive mode, SharePoint limits access to new and changed pages to users who have approval rights so that they can approve the pages. Of course, in any of these security modes, the person who makes the changes or creates the new page has rights to view and further edit the page.

Going back to the second settings group, **Document Version History**, the SharePoint administrator can define how many versions of a page SharePoint should retain. The next section discusses versions in more detail.

Finally, the last group on the settings page, **Require Check Out**, allows the SharePoint administrator to require check out of pages before you can edit them. When set, this option checks whether you first checked the page out before you open it for editing. If you attempt to edit a page without first checking the page out, SharePoint displays the dialog box shown in Figure 3-36.

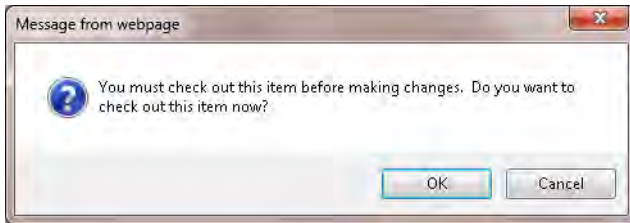


Figure 3-36. The dialog box requiring check out, as seen by a traditional Office client

If you are using a Microsoft Office Web App instead of the traditional Office client application, your screens and messages may differ from the ones shown in this book which focus on the Office client applications only. For example, this same message appears as shown in Figure 3-37 when using Office Web App.

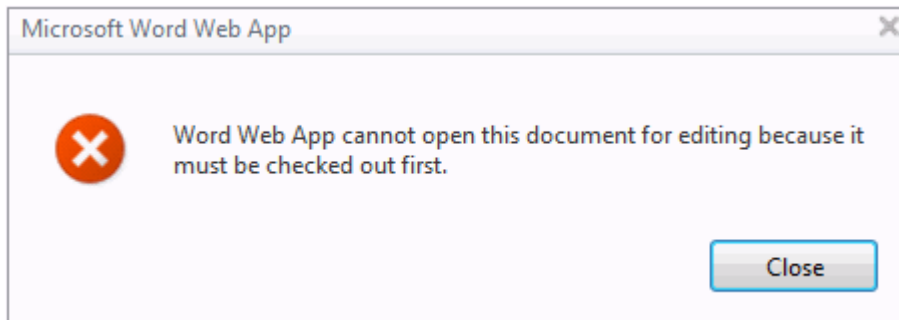


Figure 3-37. The dialog box requiring check out, as seen by Office Web App

If you click **OK** in this dialog box, SharePoint automatically checks out the page and opens it for editing. When you complete your changes, remember to check your changes back in. If you forget to check your pages in, other staff members cannot edit the page. In addition, content approvers cannot approve the page and make it available to site readers. Of course, if you have administrator rights to the site, you can override the check out of someone else. However, use this power only as a last resort, as it causes the person who had the page checked out to lose her changes.

Tracking Page Versions

By default, SharePoint does not activate versioning. In versionless mode, every change to a page updates the current version of the page. This mode uses the smallest amount of storage space for your site's pages. Whether your library maintains versioning for your pages or not, all visitors to your site can view the current major version and, depending on the Draft Item Security setting, they may see minor versions of your page unless you require content approval. Only by using content approval can you guarantee that pages under revision remain hidden from your site visitors until you submit the page for approval and a content approver publishes the page.

If your SharePoint administrator decides to allow SharePoint to save version histories, he must decide whether to retain only major versions or both major and minor versions. Major versions represent pages checked back in and approved (if content approval is required). Minor versions represent pages checked back in but not approved. You can think of minor versions as intermediate modifications or drafts to a page because either multiple people have made modifications or because you checked in your changes more than once as you worked on your changes. In any case, if you decide to keep versions, you can limit the number of versions SharePoint stores. Keeping in mind that each version uses storage space, you may want to limit the number of both major and minor versions. In Figure 3-35, the SharePoint administrator has configured SharePoint to store only the last three approved versions (major versions) and only the minor versions since the most recent major version. In other words, it only retains current works in progress as well as the last three published versions.

Publishing Pages to Your Site

When you edit a page with versioning turned on, your changes may not be visible to everyone depending on how your SharePoint administrator defined the Draft Item Security and Content Approval settings for your library. To be visible to everyone, you must publish your pages. If your site does not use versioning and approval, SharePoint publishes pages by default when you check them back in.

If your site uses versioning, SharePoint publishes only major versions of pages. However, if your site also requires approval, checking in a page to save your changes from your current session does not necessarily make it visible to anyone other than yourself and users with approver rights. Therefore, if you check in a page but still have more work to do on it, you should either assign it the next minor version number or reuse the current minor version number if the page already had a minor version when you opened it to edit. Keep in mind that, if you reuse the current version number, you cannot back out your changes by merely restoring the prior versions. If you expect to make further changes before publishing your page or if you expect other members of your team to make changes, you should check the page back in using a minor version number. If your check in completes the changes you want to make before publishing, save the changes with the next major version number. No matter whether you intend to check the page in as a major or minor version, SharePoint tracks the versions of the page and automatically assigns the next available major or minor number for you.

Perhaps you do not need to keep intermediate versions between major changes to the page. You could ask your SharePoint administrator to turn off minor versioning. This guarantees that every checked-in version is a major version.

You can also turn off all versioning if the **Page Library** is informal and you do not need to save each version. This selection saves storage space required by your site. However, if you ever need a prior version of the page, you may be out of luck unless your SharePoint administrator can restore one from a backup copy of the database. Retrieving pages from a backup copy of the database is a time-intensive task. If you do this too often, you may discover your SharePoint administrator hiding under her desk when she hears you coming toward her office.

To publish your most recent page update, you must assign the next major version number to it when you check it in. To check in your page, open the **Page Library**. Notice that the **Approval Status** value for the page you just checked in is **Draft**. This status indicates that someone modified the page since its last approved version but that they did not submit the new version for review and approval.

Next, right-click on the page. Select **Check In** from the drop-down list of options. Figure 3-38 shows the Check in dialog box. Notice that, in addition to assigning your updated page either a minor or major version number, you can determine whether you want to keep the modified page checked out, but only if you save the updated page as a minor version.

Check in

Version
Select the type of version you would like to check in.

What kind of version would you like to check in?

1.1 Minor version (draft)

2.0 Major version (publish)

Retain Check Out
Other users will not see your changes until you check in. If you wish to continue editing, you can retain your check out after checking in.

Retain your check out after checking in?

Yes No

Comments
Type comments describing what has changed in this version.

Comments:
A small changes was made in the description of the burrowing owl.

OK Cancel

Figure 3-38. Checking in a modified web page

Anytime you check a page back in, you have the option of adding comments to the version. You may want to use comments to document who made the change and when and provide a change summary.

If you choose to assign the updated page a minor version for now, you can publish a major version later without making changes by going to **Site Actions** ► **View All Site Content**. Open the library, open the drop-down menu for the page you want to publish, and click **Publish a Major Version**. When published this way, you still have the option of adding comments, as shown in Figure 3-39.

Publish Major Version

Comments
Type comments describing what has changed in this version.

Comments:
A small changes was made in the description of the burrowing owl.

OK Cancel

Figure 3-39. Adding a comment when publishing a major version

Note that, if your library requires approval of major changes before the public can view them, your page is still not visible to other users even though you just saved the page as a major version. Click **OK** to finish checking in your page. When you return to the library listing as shown in Figure 3-40, notice that SharePoint updates the **Approval Status** column from **Draft** to **Pending**, indicating that you have saved a major version of the page but that it still needs approval before others can see it.

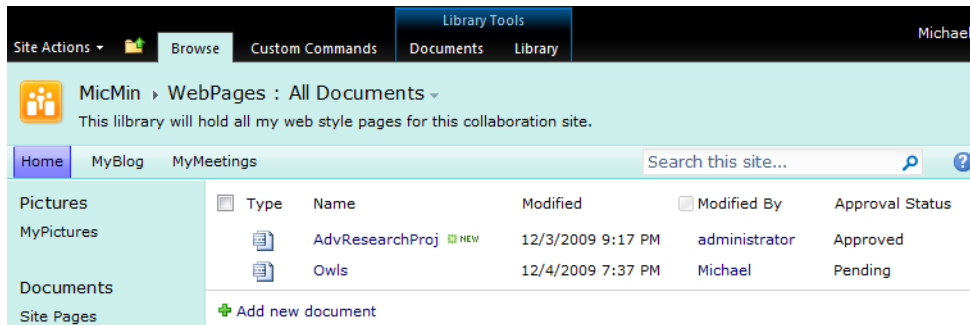


Figure 3-40. Pages checked in as major versions have a status of Pending.

To approve the page, you need to have the site administrator, site owner, or another user with approval rights open the **Page Library**. He can then click to the right of the page name to open the drop-down menu for the page and select **Approve/Reject**. Clicking this option displays the page shown in Figure 3-41.

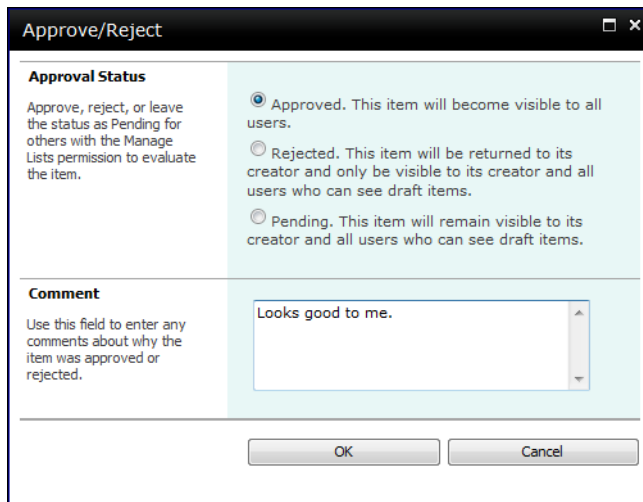


Figure 3-41. Approvers can approve or reject a major version.

As you can see in this figure, approvers have three possible actions they can select on this request:

- **Approved:** This option makes the newest page version visible to all users.
- **Rejected:** The newest page version does not become public. If the page has a previously approved version, that version remains the public version.
- **Pending:** The page remains in its current security state and is not published. The approver typically uses this option when asking for further clarification on the change.

No matter what option the approver selects, she can leave a comment. However, approvers should definitely use comments when rejecting a page or sending it back pending additional clarification or rework. When the approver clicks **OK** on this page, SharePoint executes the page action, changing the status of the page in the **Page Library** to **Approved**, **Rejected**, or **Pending** based on the selection made.

If you look at the version history for this page as shown in Figure 3-42, you'll see that SharePoint lists a new major release (2.0) after approving the page. It also removes all the minor releases from version 1.0 because the version setup defined in Figure 3-35 only requires SharePoint to save minor releases for the current major release.

No. ↓	Modified	Modified By	Size	Comments
This is the current published major version				
2.0	12/4/2009 7:45 PM	Michael	3.9 KB	A small changes was made in the description of the burrowing owl.
1.0	12/1/2009 8:50 PM	administrator	3.9 KB	

Approval Status: Approved

Figure 3-42. The version history for a page can tell you who made each change and when she made it.

■ **Tip** If you have Site Owner rights and can manage the site hierarchy, you can also use the Manage Content and Structure option from the Site Actions menu. This option displays the Site Content and Structure page which shows you the organization of your site. Perhaps even more important are the other items in the View drop-down from the header on the right side. This drop-down displays several additional reports you can run, including the generation of a list of documents and pages checked out to a certain person, documents and pages pending approval, all draft documents and pages, and more.

Recovering Accidental Deletions with the Recycle Bin

When you delete a page from your **Page Library**, SharePoint prompts to confirm your desire to delete it. If you only had to worry about your own accidental deletions, this dialog box may seem like more than enough protection for your pages. However, you probably have several people with edit rights on your site. In some large organizations, you may have dozens of people with edit rights, perhaps even hundreds. So what happens when they delete a page because they don't think they need it, and it's a page you worked on for hours and for which you have no other backup? I suppose you could read them the riot act, otherwise known as corporate policy. Of course, if they sit higher in the organization than you, that could limit your career potential.

Before I show you what happens when someone else accidentally deletes your page, let's see what happens when you accidentally delete one of your own pages. SharePoint provides a safety net. SharePoint 2010 supports a Recycle Bin, which, like the Recycle Bin on your desktop, temporarily stores deleted files. For example, if you were to delete your Owl page from the **WebPages Library**, rather than rant and rave about having to recreate the page, the good news is that you can recover the page with just a few mouse clicks. Begin by clicking the **Recycle Bin** option at the bottom of the **Quick Launch** menu on the left of the **Page Library** page. The Recycle Bin, shown in Figure 3-43, displays a listing of the documents you deleted within the last 30 days.

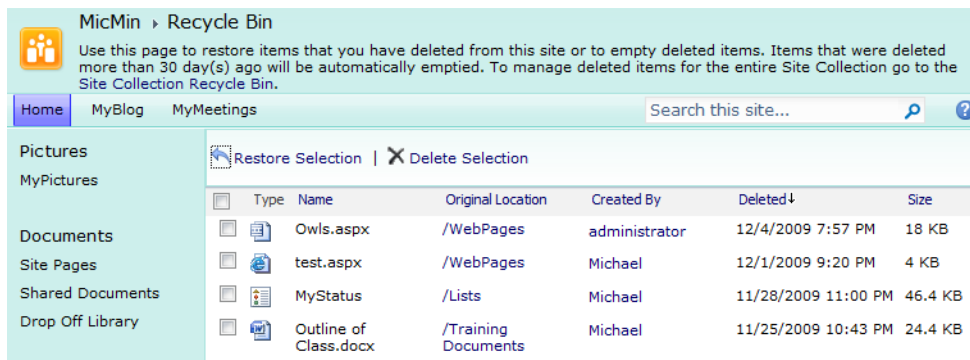


Figure 3-43. The Recycle Bin collects all deleted objects.

To recover a deleted object, click the check box to the left of the object to select it. Then click the **Restore Selection** option at the top of the page.

When you delete a page, you delete all of the versions of that page as well. SharePoint keeps all versions together as a single item in the Recycle Bin so that, when you recover an object from it, SharePoint recovers all versions of that document.

■ **Tip** You can ask your SharePoint administrator to change the length of time items stay in the Recycle Bin. She can go into Central Administration and select **Application Management**. Then by selecting **General Settings** from the **Web Applications** ribbon, she can scroll down to the **Recycle Bin** section and change the number of days SharePoint keeps items in the Recycle Bin.

The bad news is that only the person who deletes the page can recover it because the Recycle Bin is user based. Therefore, if someone else deletes your page, you will not see it in your recycle bin. However, SharePoint provides an escape clause for even this scenario. The site collection administrators can view all items deleted by anyone when they look at the Recycle Bin via the **Site Collection Recycle Bin** link found at the end of the last sentence in the header (see Figure 3-43). Therefore, all you need to do is go to the site collection administrator and ask them to restore the file for you. The site collection administrator then sees the Site Collection Recycle Bin shown in Figure 3-44.

Site Collection Administration > Recycle Bin

Use this page to restore items that users have deleted from this site or to empty deleted items. Items that were deleted more than 30 day(s) ago will be automatically emptied.

Home MyBlog MyMeetings Search this site...

Select a View

- End user Recycle Bin items
- Deleted from end user Recycle Bin

Restore Selection | Delete Selection | Empty Recycle Bin

<input type="checkbox"/>	Type	Name	Original Location	Deleted By	Created By	Deleted↓	Size
<input type="checkbox"/>	WebPage	Owls.aspx	/WebPages	Michael	administrator	12/4/2009 7:57 PM	18 KB
<input type="checkbox"/>	WebPage	test.aspx	/WebPages	Michael	Michael	12/1/2009 9:20 PM	4 KB
<input type="checkbox"/>	List	(ID:6)	/Lists/Project Discussions/Collaboration Site Branding	administrator	Susan	11/28/2009 11:26 PM	2.9 KB
<input type="checkbox"/>	List	MyStatus	/Lists	Michael	Michael	11/28/2009 11:00 PM	46.4 KB
<input type="checkbox"/>	Document	Outline of Class.docx	/Training Documents	Michael	Michael	11/25/2009 10:43 PM	24.4 KB

Figure 3-44. Site collection administrators can see all deleted objects in the Recycle Bin.

When you click on the Site Collection Recycle Bin link, SharePoint displays a screen that shows all of the files deleted within the last 30 days by all users of the site. Therefore, as a site collection administrator, you can recover files deleted by anyone by selecting the **check box** before the filename and then clicking the **Restore Selection** option in the header. You can also determine who deleted the file should that be important to the person requesting you to recover a lost file. Finally, notice also that you can click the **Empty Recycle Bin** option to delete any files in the Recycle Bin permanently. If you do this, you cannot recover the deleted files without resorting to a backup.

The Share and Track Features

SharePoint 2010 pages have a group of features in the Documents and the Library ribbons that allow you to share and track item from a library. Options on this ribbon include features like the Alerts and RSS

Feeds (see Figure 3-45). It also gives you the ability to e-mail a link for the current page or just copy the link so you can add it to a hyperlink on another page.

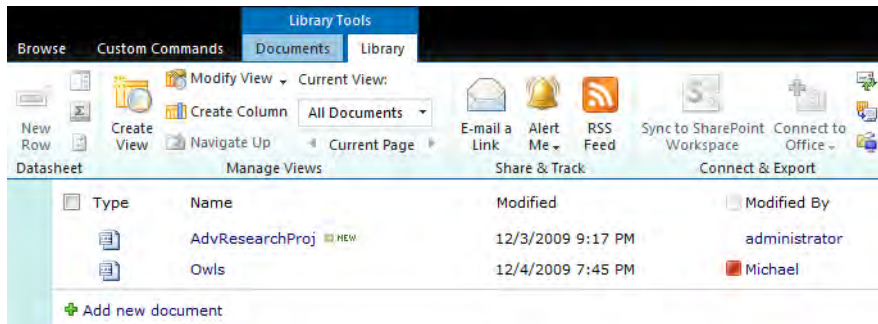


Figure 3-45. Sharing and tracking options for page libraries

E-mail a Link

Often you need to refer a page, a document, or a list to one of your colleagues. You could copy the entire text and paste it into an e-mail, but this increases the amount of data your mail server has to process, slows the mail service down, and takes up additional storage space as the same information gets stored multiple times. Perhaps the most important reason for sending a link to the page or document as opposed to copying the text is that, by sending a link, the content everyone sees is always the most current. What's to say that, as soon as you copied the contents of a page or document to send to a friend, the owner of that information does not go out and update it with new information?

Happily, SharePoint 2010 makes it easy to send a link from the content of your choice (page, list, or item) by using the **E-mail a Link** option that appears in the **Share & Track** group of many of the ribbons. Selecting this option opens a new e-mail message with the link of the corresponding page, library, list, or item already in the body of the message.

When the e-mail recipient opens the e-mail, he can click on the link to display the most up-to-date version of the content, even if he opens the link hours or days later. E-mailing links to content might also solve the problem that occurs within some companies in which attachments with specific extensions might be restricted or when there are limitations on the size of attachments added to e-mail messages.

■ **Note** SharePoint can generate a link reference for a library, list, page, or library document. However, it cannot generate a link reference for a list item.

Alerts

Alerts let you subscribe to changes on a page, delivered in a list or as an individual item. This alert subscription keeps you informed of changes by sending you an e-mail. You can even specify the frequency and the time that you want to receive those e-mails.

If you are the site owner, you might want to know when someone adds or changes content on the pages or lists for which you are responsible. If you are one of several content creators, you might only be interested in changes that others make to pages you create or maintain. If you are a visitor to a site, you might want to receive notices via e-mail every time someone posts something new to a page or list.

Figure 3-46 shows that the **Alert Me** drop-down menu in the **Share & Track** ribbon lets you create alerts for pages, lists, or items. Of course, the type of alert that you can create depends on what you last clicked on within the page. If you simply opened the page, the only option enabled in this menu is to create an alert for the current page. However, if you click in a list displayed on the page, you will see both the option to create a link to the page as well as to create a link to the list where you clicked. Finally, if you not only click in a list, but also if you click the selection check boxes that lists can display, you can subscribe only to alerts that affect that one item.

■ **Note** To enable check boxes for a list, you must modify the list's view definition and select the option **Allow individual item checkboxes** in the **Tabular View** group, resave the view definition, and apply that view definition to the page.

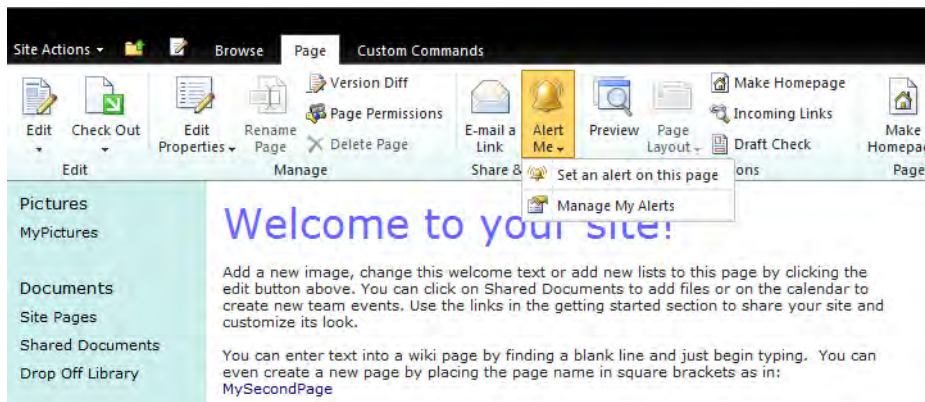


Figure 3-46. Defining a page alert

Setting an alert is much more than just defining whether you want an alert when something changes on a page, list, or item. There is a vast set of parameters you can set to determine which types of changes you see; you can even select change alerts based on who made the changes.

Figure 3-47 shows the dialog SharePoint provides to help you define your alert. It divides the dialog into several option groups. First, you must provide a name for the alert. To manage your alerts, you should consider a naming convention that tells you a little about the nature of the alert. For example, the alert name can begin with the name of the page or list that you want to monitor. However, as you will see in a moment, that may not be enough either because you can define more than one alert for any page, list, or item. Therefore, you should include the action (Add, Modify, or Delete) in the name. And even that may not be enough though, since you can create alerts for all changes; for only changes made by someone else to any page, list, or item; or for only changes made to objects you created or last modified. Using this system, possible names for an alert might include:

- Main Site Shared Document Changes Made by Someone Else
- Company Calendar Additions

When you create an alert, you can include anyone else whom you may want to notify of changes.

Although you can receive text message via SMS, many people prefer to receive an e-mail notification of the changes.

In the section where you can select the change type for which you want to be notified, note that the options in this section change depending on whether you can create an alert for a page, list, or item. Note also that the selections in the **Sent Alerts for These Changes** section are mutually exclusive since they use radio (option) buttons. You cannot choose two or more of the options at one time for a single alert. However, you could create multiple alerts, one for each change type if you need alerts on different change types.

Finally, you can select how frequently you want to receive alerts. For some alerts, you may need to know of changes immediately. However, other changes may not be as important and thus a daily or even a weekly alert may be adequate. Notice that, when you choose to receive a daily alert summary, you can specify the time of the day when you want SharePoint to send the alert. For a weekly alert, you must not only select the time of the day to receive the alert, but also the day of the week. For instance, you may want to receive an alert summary of changes at the end of the week, especially if you just want to know if changes have occurred without having to go out to the site and constantly check for changes.

Site Pages: Home.aspx - New Alert

OK Cancel

Alert Title
Enter the title for this alert. This is included in the subject of the notification sent for this alert.
Site Pages: Home.aspx

Send Alerts To
You can enter user names or e-mail addresses. Separate them with semicolons.
Users:
Michael Antonovich ;

Delivery Method
Specify how you want the alerts delivered.
Send me alerts by:
 E-mail mike@micmin.org
 Text Message (SMS)
 Send URL in text message (SMS)

Send Alerts for These Changes
Specify whether to filter alerts based on specific criteria. You may also restrict your alerts to only include items that show in a particular view.
Send me an alert when:
 Anything changes
 Someone else changes a wiki page
 Someone else changes a wiki page created by me
 Someone else changes a wiki page last modified by me
 Someone changes an item that appears in the following view:

When to Send Alerts
Specify how frequently you want to be alerted. (mobile alert is only available for immediately send)
 Send notification immediately
 Send a daily summary
 Send a weekly summary
 Time:

OK Cancel

Figure 3-47. Defining the type and frequency of an alert

RSS Feeds

RSS Feeds are related to alerts in that they also help you stay aware of new additions to lists. In Chapter 2, the “Creating RSS Feeds for Your List” section covered how to set up and use RSS feeds from within your browser. As you can see in the Share & Track ribbon, you can also subscribe to an RSS feed for the current list or page library directly from the ribbon options.

■ **Note** SharePoint generates RSS feeds only for libraries and lists. Therefore, you will not see the RSS icon in the Share & Track group of a Page ribbon or a Documents ribbon, but you will see it in the **List** and **Library** ribbon for lists and libraries respectively.

The Note Board

The Note Board lets you leave a message for the current page. Your messages are public, meaning that people who can view the page can also view your messages. You can use the Note Board to:

- Leave a personal opinion about the content of the page.
- Make suggestions for additional content.
- Reference other pages on this or another site with similar content.
- If you are still developing your site pages, you might want to leave yourself some notes about what you still must do to finish the page.

To create a note, click the **Tags & Notes** button found on the right side of your site's page header area. Figure 3-48 shows an example of this button in both a collaboration site (on top) and a publishing site (on the bottom).

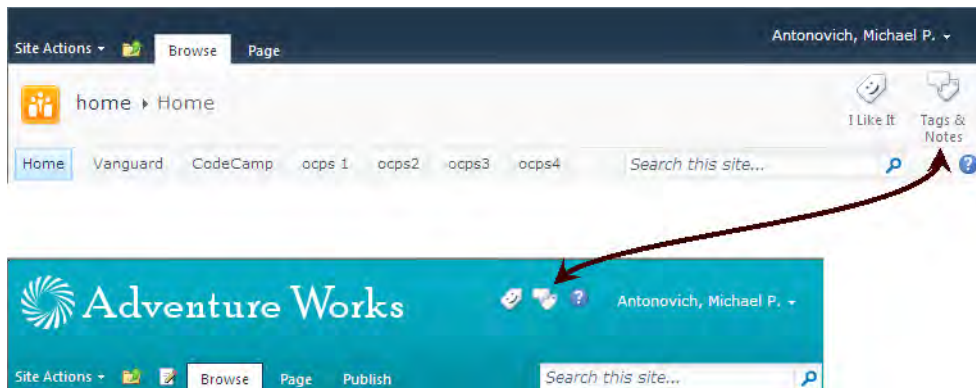


Figure 3-48. Adding a note to a page

This button opens the dialog shown in Figure 3-49 where you can enter your notes. In this dialog, there are two tabs, one for **Tags** and one for **Note Board**. Click the Note Board tab if necessary to select it. Note Board notes consist of plain text. They do not support special formatting options, hyperlinks, tables, or images. When you have completed your note entry, click the **Post** button.

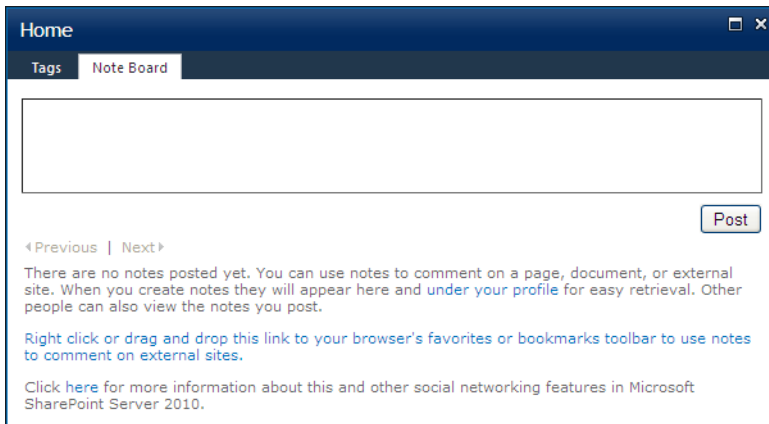


Figure 3-49. Adding a note to a page

When you post a note, anyone who can view the web page can also view the note. However, only the site owner or note creator can delete the note. The ability to delete notes is important if you use notes during site development to track tasks you must still complete on the page. The note creator can also edit the note. Figure 3-50 shows the dialog immediately after posting a note. SharePoint lists recent notes at the bottom of the dialog and provides options to edit and/or delete the note.

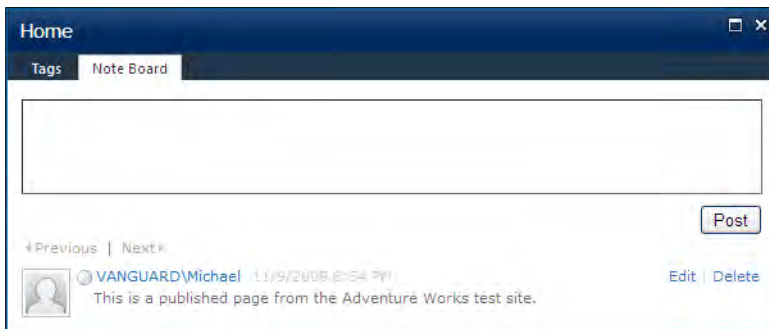


Figure 3-50. Displaying notes for a page with the options to edit or delete individual notes

Tags

You probably noticed that the dialog that lets you enter a note also lets you enter a tag by clicking the tag tab at the top of the dialog. A *note* is a free-form text entry that applies to the page, while a *tag* is more like a label attached to a page so that you can quickly group similar pages by placing the same tag on two or more pages. Tags can be private or public. Public tags effectively associate similar pages not only within a SharePoint site, but also across the entire Internet, but this does depend on how consistently other users tag pages. Private tags typically associate similar pages more accurately, but generally do not

associate as many different pages since they represent tags you create only. Notice in Figure 3-51 that not only can you enter and save a tag, but you can also use an option in this dialog to add a link to your browser so you can tag external sites as well. When tagging external sites, SharePoint tracks the tag text as well as the URL of the external site so you can group similar pages both within your SharePoint site and within external web pages.

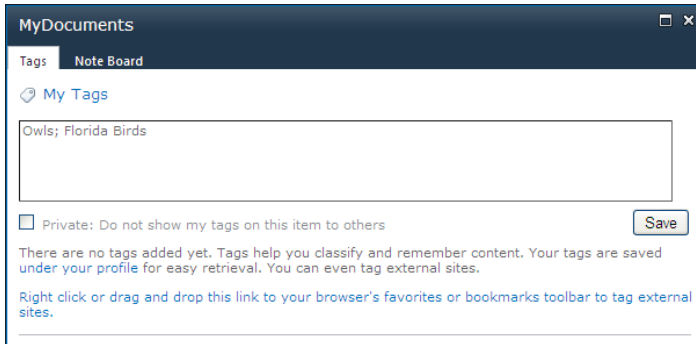


Figure 3-51. Adding a tag to a page

To view your Tags or Note Board entries, you can open **My Profile** found in the drop-down from your name in the upper right corner of the screen, as shown in Figure 3-52.

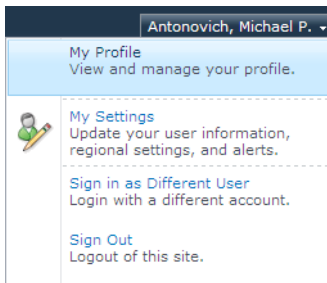


Figure 3-52. Personal drop-down menu options

Your profile consists of six tabbed pages including: Overview, Organization, Content, Tags and Notes, Colleagues, and Memberships. Click on the **Tags and Notes** tab. Figure 3-53 shows a view of the tags and notes in your **MySite**. Using the options in the upper left of this page, you can display all your tags, all your notes, or both. You can also choose between viewing just your private notes and tags and your public notes and tags.

Immediately beneath the selection of type on the left side of the page, you can select how you want to sort your tags and notes. Typically, you sort tags alphabetically so that you can quickly find all the entries for a specific tag.

The activity for the type of tag or note selected appears on the right side of the page. More specifically, the activity displayed corresponds to just the current month. Arrows on either side of the month/year let you view the activity for the previous or next month.

Each tag or note begins with a link to the page associated with that tag or note followed by its creation date. You also have a link to view related activities. If you created the tag or note, you also have the option to delete it.

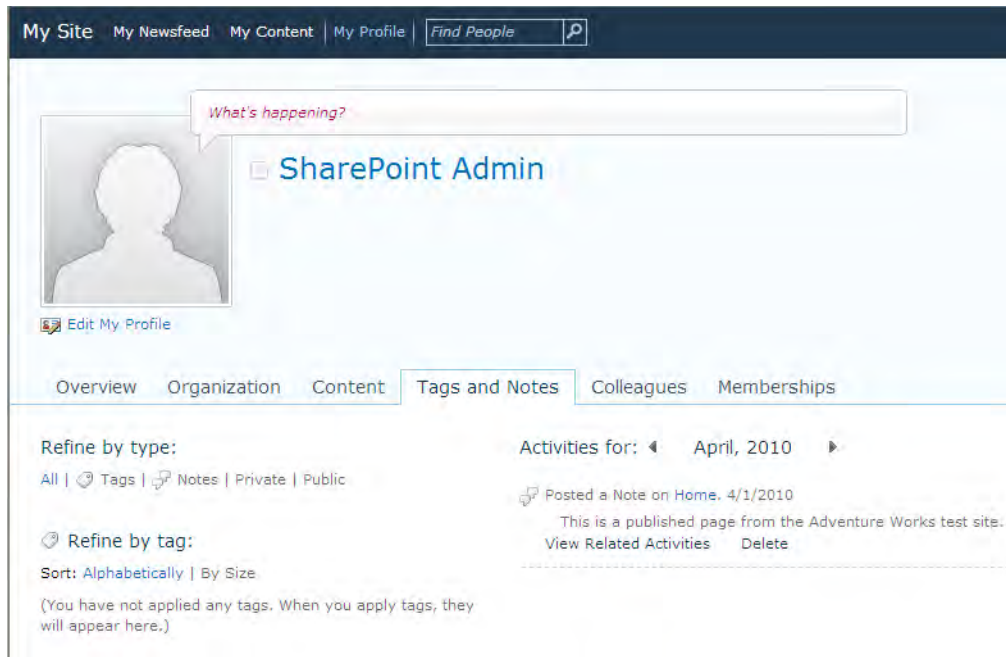


Figure 3-53. *Tags and Notes page from your MySite*

Summary

This chapter looked at creating wiki and web part pages within SharePoint. Both page types support similar functionality so you should have no trouble moving from one style to the other depending on the type of site you are building. If your site only supports collaboration, you may prefer the wiki-style page. On the other hand, if you publish pages of information, even within a collaboration site, that you do not want others to change, you may want to use web pages and put those pages in a separate library with different access rights.

You started by looking at the web part page. These pages contain one or more web part zones to which you can add web parts that SharePoint provides. Two web parts in particular that you examined were the content editor and image web parts. In both cases, you must be careful when entering the URL of the image or hyperlink site, because you must directly enter the value without the help of a browse feature. Furthermore, you must store your images in a picture library. You then saw that you could take a Word document and copy the text directly into the content area of a web page while preserving most of

the formatting of the page. In fact, copying a table created in Word may be the best way to create a formatted table. You also saw that you could take any of the libraries or lists you created using the skills covered in Chapters 1 and 2 and add them to the page as well. After adding two or more lists to a web part page, you learned how to define a master-detail relationship between the web parts on a connecting field. After you have defined such a relationship, users can select a record from the master list to filter the records displays in the detail list to those related to the master record.

Then you created similar page as a wiki page. You saw that with wiki pages, adding content does not require a separate web part and that you can add links to other wiki pages directly into the content also without using another web part. In fact, you can link to not only other wiki pages, but other lists, libraries, and even web pages.

When working with either wiki or web part pages, you should use the Check Out and Check In features as described when working with libraries to protect the integrity of your changes until you are done. You can also use page versioning to track changes to a page so that you can return to a prior version of the page by simply selecting it from the version history of the page. When working with versions, the total storage requirement of your page grows with the number of versions you have. You can limit this growth by specifying the number of major and minor versions of a page you want to retain. You can even determine who can view minor versions. However, most people limit the viewing of minor versions to only those people with content creation rights and approvers (if approvers are used).

You learned about the value of approving content changes. If your library has content approval turned on, even saving a major version of the page does not make it visible to the average site visitor. Rather, the page must first be reviewed by an approver who must approve the page before it can be published to your site. Content approval appears most frequently on published sites used as part of an intranet or even an Internet in which the department or company wants to ensure that the content is accurate and appropriate for distribution to others.

You then saw that the Recycle Bin encountered previously for libraries also works for web pages. It allows you or the site owner to recover accidentally deleted pages for up to 30 days after they have been deleted, depending on how your SharePoint administrator has configured your site.

Finally, you looked at some of the social enhancements to pages—the ability to add tags and notes to pages. Tagging of pages has become increasingly popular, and public tagging can help associate your pages with other similar content pages. SharePoint provides a web part called the Tag Cloud web part that can display this relationship.

This introduction to SharePoint, provided in the first three chapters, does not cover everything you can do with libraries, lists, and pages, but it lays a framework for the next group of chapters, which focus on how to work with these objects using several Microsoft Office tools.



Using Your Document Library with Microsoft Office

Chapter 1 showed you how to use Microsoft Word with your SharePoint document library. However, SharePoint does not limit you to Word documents. You can store other Microsoft Office document types in your document library including Excel, PowerPoint, and OneNote. Furthermore, SharePoint does not limit you to Microsoft Office tools. You can store almost anything in SharePoint, with the only limitation being that the applications they depend on may not integrate with SharePoint as well as Office does.

However, because of SharePoint's enhanced integration with Office 2010, most of the discussion from this point forward focus on Office 2010 unless otherwise stated. Note that most features discussed here work the same across all Office 2010 tools.

Some of the topics discussed in this chapter apply specifically to Word 2010 documents and may vary considerably if one uses prior versions of Office. If you still use Office 2007, you will be happy to know that much of what I cover here also applies to that version. Unfortunately, you should not expect the integration with earlier versions of Office to be as strong as with Office 2010 or even Office 2007. Even with earlier versions, though, you can still use SharePoint as a file store for documents.

Opening a SharePoint Document from Within Microsoft Office

Beginning from Microsoft Office Word, your first challenge might be how to access SharePoint document libraries from within Word. If the document you want to open exists on a SharePoint site that you previously visited and you are using Windows XP still, you may see a reference to that library in your **My Network Places** folder of Windows Explorer. Unfortunately, neither Windows Vista nor Windows 7 automatically adds references to places you visit in SharePoint in its equivalent of **My Network Places**. However, you can use mapped drives in Vista and Windows 7 to point to your SharePoint site/library. For more information on setting up your **My Network Places** in Windows XP or mapped drives in Vista and Windows 7, see the "Referencing your SharePoint Site from Microsoft Office" sidebar. For a moment, let's assume you still use Windows XP. Open the **My Network Places** folder to display the files stored there as shown in Figure 4-1. As you can see in the figure, I already have a reference to site pages on my Vanguard server.

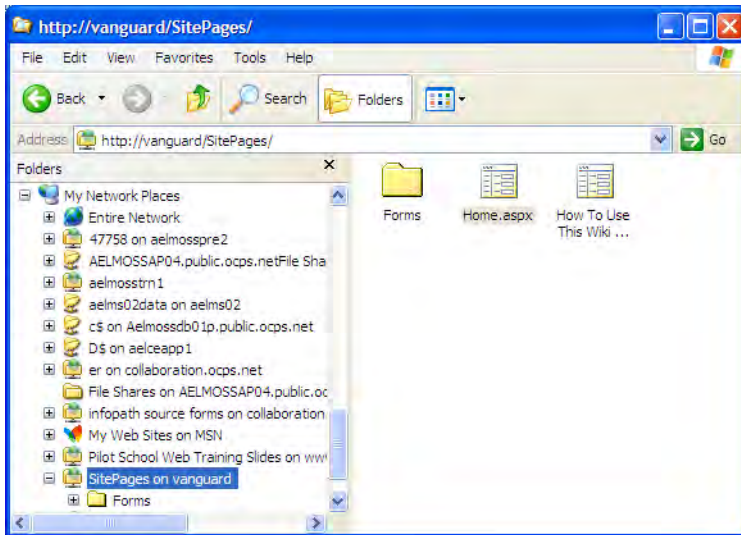


Figure 4-1. Opening a SharePoint document from Windows Explorer

Referencing Your SharePoint Site from Microsoft Office

If you are using Windows XP

In Windows XP, you can easily add to the references in My Network Places to include one that points to a SharePoint site or library by following these steps:

1. Click the **Start** button and then select **My Network Places** from the **Start** menu.
2. In the left navigation pane, click **Add a network place** in the **Network Tasks** group.
3. On the first page of the **Welcome to the Add Network Place Wizard**, just click **Next**.
4. On the page that asks **Where do you want to create this network place?** Select **Choose another network location** and click **Next**.
5. Enter the name of the URL for the site in general or the specific library you want to reference. Use a second window to open the site or library and copy the URL from the address bar. Then paste the URL in the dialog's field in the field labeled **Internet or network address**. Click **Next**.
6. On the next page of the wizard, enter a user-friendly name and click **Next**.
7. On the last page of the wizard, click **Finish**.

You can now use this entry in Network Places to navigate quickly to your site or library from within an application or even Windows Explorer.

If you are using Vista or Windows 7

To add a mapped drive to Vista or Windows 7, follow these steps:

1. Open the Start menu and choose Computer.
2. Click the **Map Network Drive** option in the **Tools** drop-down menu located at the top of the window.
3. In the dialog that appears, accept the suggested drive letter or select a different drive letter from the drop-down list.
4. In the folder text box, enter the URL of the SharePoint site or library. One way to do this is to open a browser window and navigate to the site or library. Copy the URL from the address bar and paste it in the folder text box. In my case, I would enter `http://vanguard`.
5. If you need to use a different user name to connect to the SharePoint server, click the link in the line **Connect using a different user name** and supply the user name and password to connect to your SharePoint site.
6. Click **Finish** to complete the mapping definition.

While you can use the mapped drive to reference your SharePoint site when you are in an application and need to open or save a document, you cannot use it as your browser to open the site.

How Can Vista Store References to Sites You Visit?

Since Vista has removed web folders, some of the steps listed here for XP will not work if you use Vista. However, with just a few changes, you can do virtually the same thing in Vista.

To create a new Internet shortcut, follow these steps:

1. Use your browser to navigate to the site you want to quickly access in the future.
2. Copy the URL to your clipboard.
3. Click the Windows **Start** icon and then click your profile name. This opens Windows Explorer to your personal profile folder.
4. On the right side of the folder contents, right-click a blank area and create a new folder named **Sites**.
5. Open the new folder by double-clicking it.
6. Right-click a blank area and create a new shortcut.
7. Paste the URL from the web site into the text box and click **Next**.

8. Provide a name for the shortcut and click **Finish**.

Next, to add this folder to Vista's taskbar so you can easily access its contents, follow these steps:

1. Display Vista's taskbar and right-click a blank area of the taskbar.
2. Navigate to **Toolbars** and select **New Toolbar**.
3. Click the Desktop folder in the left pane.
4. Open your profile folder.
5. Locate the folder **Sites** you created earlier.
6. Click **Select Folder**.

Now, you can do the same thing for other web sites in Vista and Windows 7. From any web site, click the icon found at the beginning of the address text box and drag it into the **Sites** toolbar in your taskbar. When you release your mouse button, Vista adds the shortcut to the **Sites** toolbar. The next time you open the **Sites** toolbar, the new shortcut appears.

Looking at your SharePoint document folders from within Windows Explorer has several advantages. First, you can rename documents in the library, move documents from one library to another, make copies of a document from one library to another, and even delete documents from the library. From a single Windows Explorer instance, you can copy and paste documents from your local hard drive or any network drive you can access to a SharePoint library. Of course, you can also copy files from that library back to your local hard disk. However, if you open a second Windows Explorer instance, you can easily drag and drop files from one folder to another, even two different SharePoint folders. Finally, to edit any Office document stored in a SharePoint library, just double-click it.

All the rules about editing documents discussed in Chapter 1 apply to documents opened directly from Windows Explorer. If the document requires you to check it out before you can modify it, you will see a bar at the top of the document asking you to check out the document, as shown in Figure 4-2.

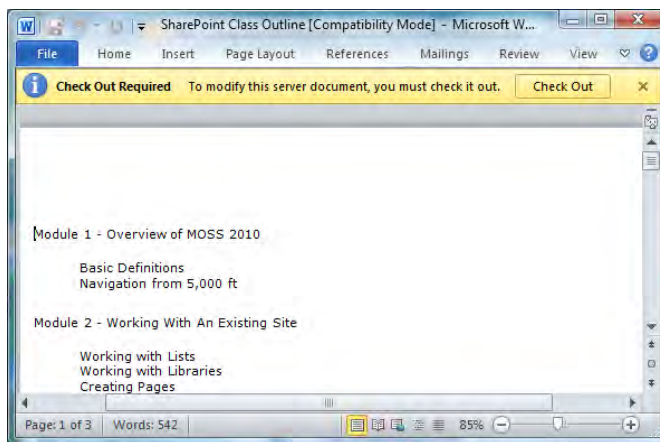


Figure 4-2. Opening a SharePoint document from Microsoft Word 2010

Of course, if you only want to read the document or print it, you do not need to check it out. Should you decide to check out the document to edit it, you have the option of editing the copy within SharePoint directly, or you can copy the document to your local computer and edit it offline, as shown in Figure 4-3. If you only have a quick change, it may not seem to make sense to download the document, make the change, and then upload the document again. However, by downloading the document, you can disconnect from the SharePoint site, edit the document, save it, and then reconnect to SharePoint to save your changes later.

Why would you need to edit a document after disconnecting from your SharePoint site? Perhaps you can only connect to your SharePoint site from your network at the office. To work on that document at home or to take it with you on that long cross-country plane flight, you need a local copy of the file on your hard disk.

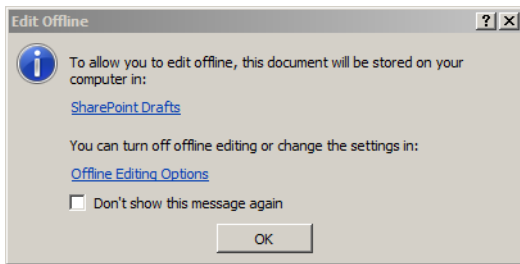


Figure 4-3. Defining the SharePoint Drafts folder

■ **Tip** If you do not see Figure 4-3 when you open a document even though it requires check out, it probably means that you have configured your copy of Word to store drafts on the server. Note that this will prevent you from working offline. You can change this by going to Word Options described below.

Notice the link named **SharePoint Drafts** in Figure 4-3. If you point to this link, you can see in the pop-up tooltip the current folder on your hard drive where your computer stores SharePoint drafts. By default, Windows XP creates a folder named

```
<<Drive-Letter>>:\Documents and Settings\YourUserId\MyDocuments\SharePoint Drafts\
```

In Windows Vista, Windows 7, and Windows 2008 SharePoint creates a local drafts folder at

```
<<Drive-Letter>>:\Users\Your_Profile_Name\Documents\SharePoint Drafts\
```

In some of these operating systems, you may see \MyDocuments\ instead of \Documents\ when you browse to them using Windows Explorer. However, the Server draft location in Microsoft's Office products will save the link as \Documents\.

If you want to define a different location for your drafts, click the second link on Figure 4-3, **Offline Editing Options**. This link opens the **Word Options** dialog box (because the document is a Word document), shown in Figure 4-4. In the **Save** page of this dialog, find the section **Offline editing options**

for document management server files. In this section, select whether to save checked-out files to a server draft location on your local computer or edit them on the SharePoint server by selecting the second radio button **The Office Document Cache**. If you choose to use a local server draft location and want to change the default location defined above, you must specify its location in the **Server Drafts location** text box or use the **Browse** button to navigate to a folder you want to use.

■ **Tip** You can also get to this dialog by selecting **Options** from the **File** tab and, in the resulting dialog, select **Save** in the left panel.

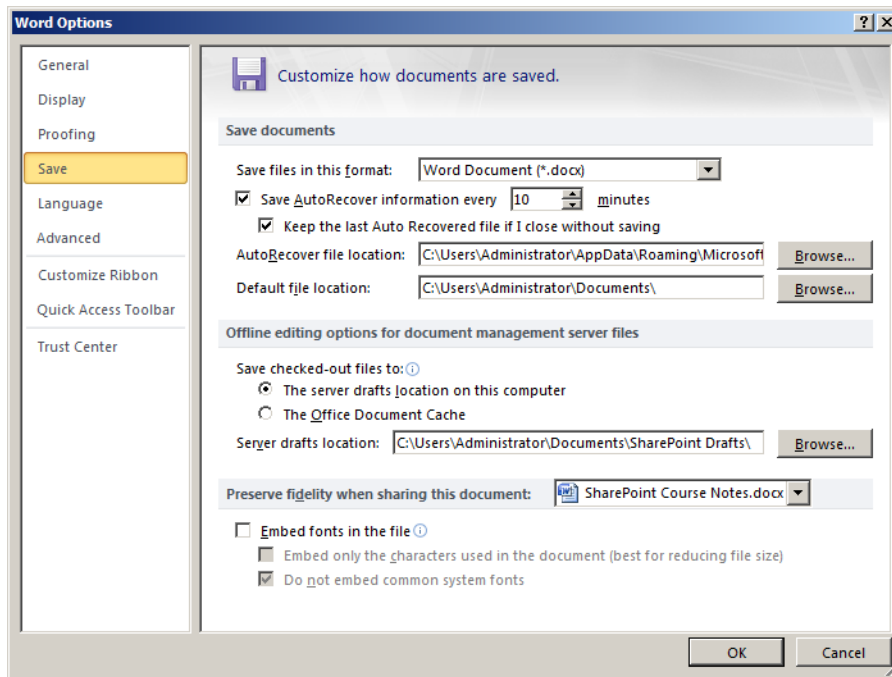


Figure 4-4. Defining offline editing options

■ **Tip** If you have not already done so, now would be a good time to define a frequency for saving an AutoRecovery copy of your document as you work on it.

If you want to define these settings ahead of time, you can open the options dialog box for any Microsoft Office 2010 product by selecting **Options** from the **File** drop-down menu.

■ **Note** If you are using Office 2007, you can find the options dialog by clicking the **Office** button. Then select **Options** from the left navigation menu just above **Exit**.

Suppose, however, that you do not see folders in Windows Explorer for your SharePoint libraries. You can still open SharePoint documents directly from within the relevant Microsoft Office 2007 tool if you know both the SharePoint site URL and the library names. Figure 4-5 shows the **Open** dialog box from within Word. Notice in the **File name** field, you can enter the name of the SharePoint site URL along with the **Shared Documents** library rather than the name of a file.

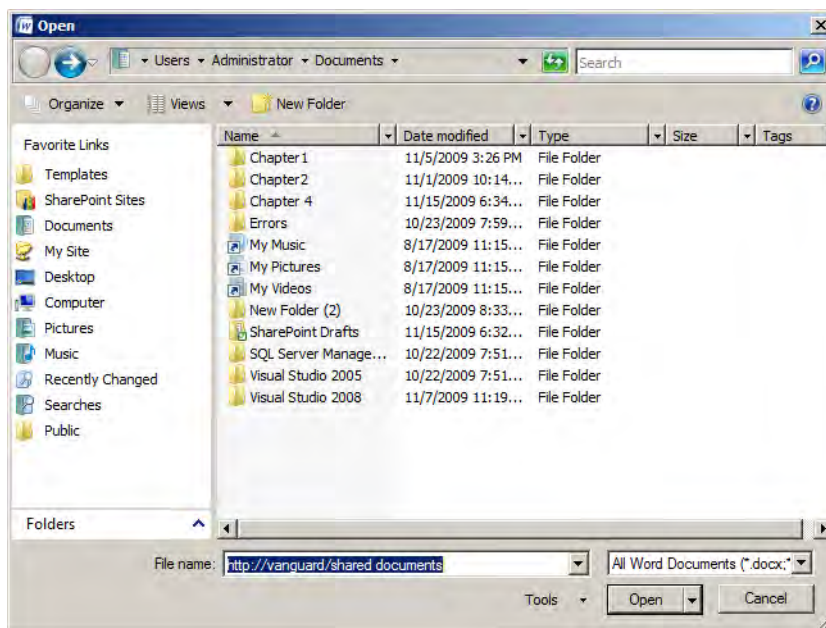


Figure 4-5. Referencing a SharePoint library in the Open dialog box

■ **Note** You must precede the site URL with either `http://` or `https://`, depending on whether your SharePoint site uses a secure connection or not. If you do not know which to use, you can try both, or you can ask your system administrator.

Do not change the contents of the **File of type** field. Word fills in this field, as will most applications, based on the types of files the application recognizes. If you change this field to display other file types, any attempt to open those files may fail. When you click **Open** with the URL of a library specified as shown in Figure 4-5, Word displays the Word documents stored in that library, as shown in Figure 4-6.

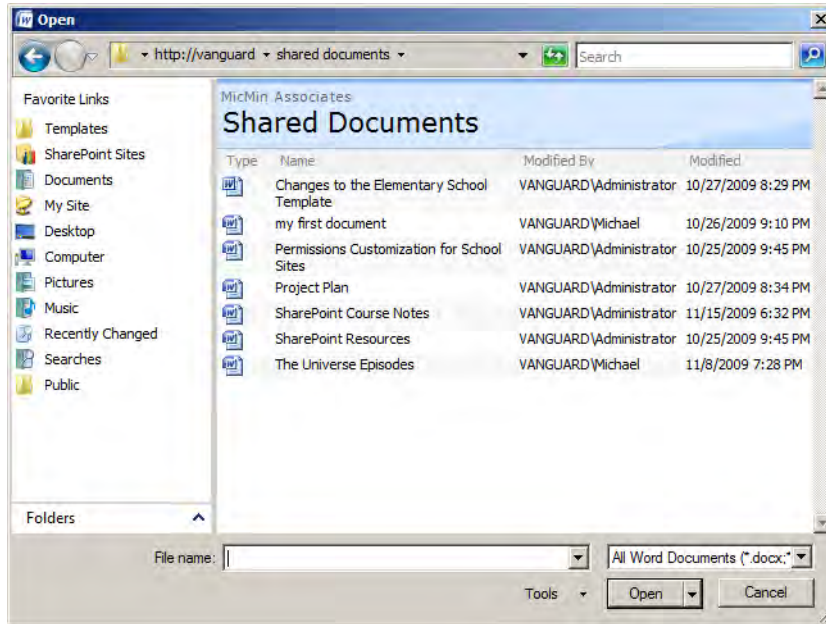


Figure 4-6. Viewing the SharePoint library contents from within Word

Now you can open any document by double-clicking its name. You can also click the document to select it and then click **Open**.

Editing and Saving a Document to a Document Library

In the previous section, you saw two ways to open a Word document stored in a SharePoint library without first opening a SharePoint site. You should note that security defined in SharePoint for checking out documents still applies even when you open the document from Windows Explorer or from within Word. This means you can only open the document to edit it if you have edit rights and if someone else does not have it checked out. Remember that, while these examples use Microsoft Word documents, these techniques apply to any file type recognized by SharePoint and registered in the operating system to an installed application.

Concurrency Problems

For those readers who skipped the first three chapters, the importance of using Check Out and Check In features when editing documents derives from the need to prevent concurrency problems. Concurrency problems occur when two or more people edit the same document at the same time.

The potential for concurrency problems increases as the number of users on the site increases. However, concurrency problems generally decrease as you save more content to the site because any two users are less likely to edit the same document. Unfortunately, no statistic matters much if you lose your changes because someone else worked on the same document you did and had the happy luck to save his changes *after* you saved yours, thus deleting your changes.

Word 2010 offers a new way to handle concurrency problems and allows two or more people to edit the same document at the same time. I will discuss this new feature in the “Managing Multiple Editors in a Document” section found later in this chapter.

When opening documents directly from Windows Explorer as described earlier, you receive no visual cues that someone else may have the file open for editing until you try to check it out. On the other hand, when you use a Microsoft Word, the file icon in the type column of the **Open** dialog box displays a green box with a white arrow in the lower-right corner, indicating that someone has the file checked out.

If you attempt to open a file that someone else has checked out, the **File in Use** dialog box shown in Figure 4-7 appears. Notice that this dialog box also tells you who has checked out the file.

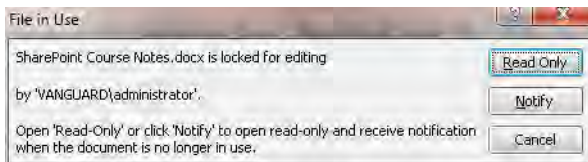


Figure 4-7. File in Use dialog box

You can choose to continue opening the file in Read Only mode. If you only need to view the document or print it, this mode does not restrict these actions. However, if you really must edit the document, click the **Notify** button. This option tells SharePoint to notify you when the document becomes available. While waiting, leave Word open, although it does not have to be the active window; you can minimize it but you cannot close it or you will not receive the notification. When the other user closes and checks in the document, a pop-up dialog box appears, as shown in Figure 4-8, notifying you that you can check out the current document version to edit it.

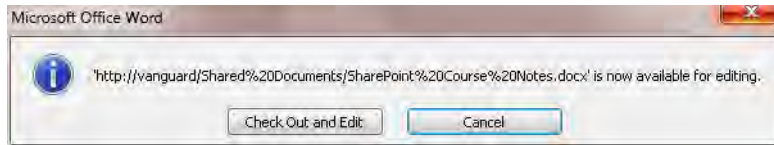


Figure 4-8. Notification that the file is now available for editing

When you finish editing the document, save it and close the application used to edit it. If you checked out the document, you must check it back in. Otherwise, it remains checked out to you, thereby preventing others from making changes to the document. The check out feature supports working exclusively on documents offline while letting you periodically save your changes back to SharePoint. However, you should not use it to keep the document permanently checked out.

Each of the previous examples involve opening, editing, and resaving documents that already exist in SharePoint. However, suppose you want to create a new document and save it. I will demonstrate using MS Word as the application tool, but remember that the techniques applied with one Office product typically work with others as well.

Saving a New Document

To begin, create a new document in Word 2010. For this example, call the document “Hello SharePoint.” Adding your own text to the body of the document is optional. When finished, save the document by clicking the **File** tab. You could save the document by clicking **Save** and referencing your SharePoint document library just as we did in the previous section to open a SharePoint document. However, let’s choose **Share** from the **File** menu and then select **Save to SharePoint**, as shown in Figure 4-9. This figure shows the **Browse for a location** button that appears if you have never saved a Word document from within Word. Clicking this button opens the same Save As dialog that you would have seen had you selected **Save As** from the **File** menu. If you have previously saved SharePoint documents, this option appears and allows you to select where you want to save your document with the options grouped in three categories:

- **Current Locations:** This category only appears when you begin by editing a document from a SharePoint library, and that library appears as a current location.
- **Recent Locations:** This category shows all the document libraries where you have recently saved files.
- **My SharePoint Locations:** This section references libraries in your MySite.

■ **Tip** If you previously used Word to at least open files from your SharePoint Documents folders, you may find a reference to those folders in the Recent Places of the Save As dialog.

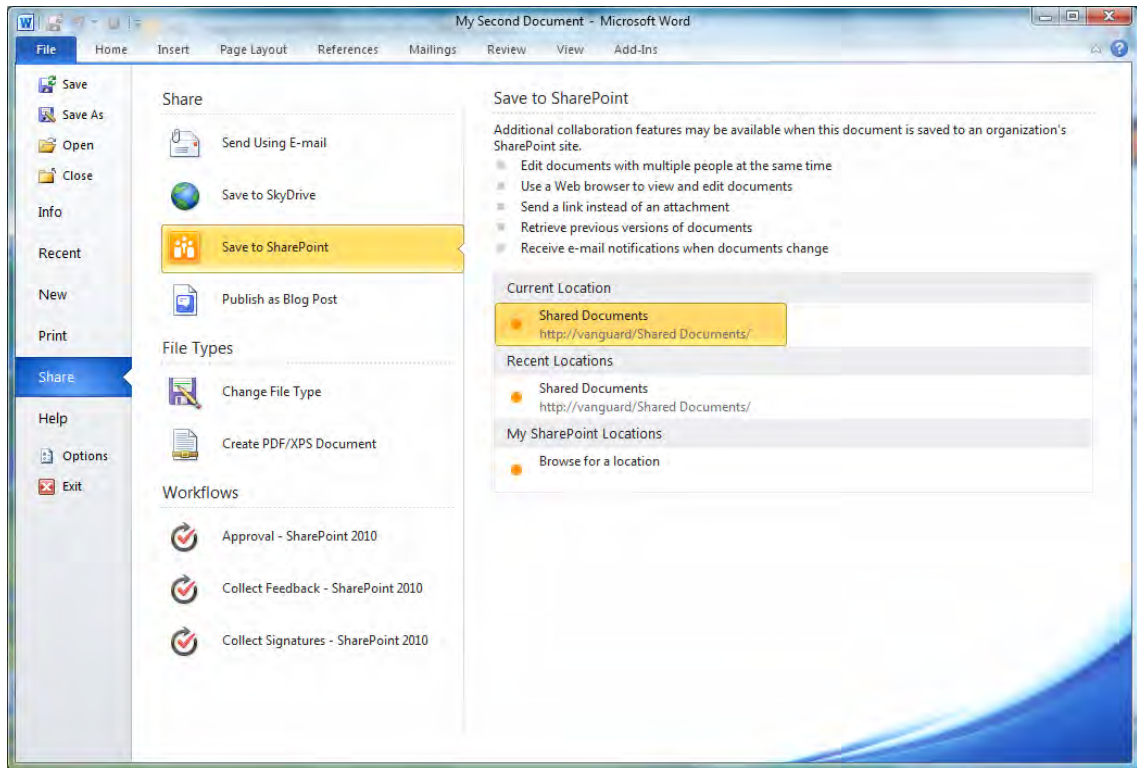


Figure 4-9. Share options in the Office menu

Saving a Document Type to an Existing Library

Let's continue by saving a second document, called My Second Document, by selecting **Save As** from the **File** tab. Because you previously saved a document to SharePoint, you should see a reference to **Shared Documents** on the right side of the dialog when you click on **Recent Places** on the left side of the dialog. Double-click on **Shared Documents** to open the Shared Documents library. Now specify a file name, such as My Second Document, and click **Save** as shown in Figure 4-10.

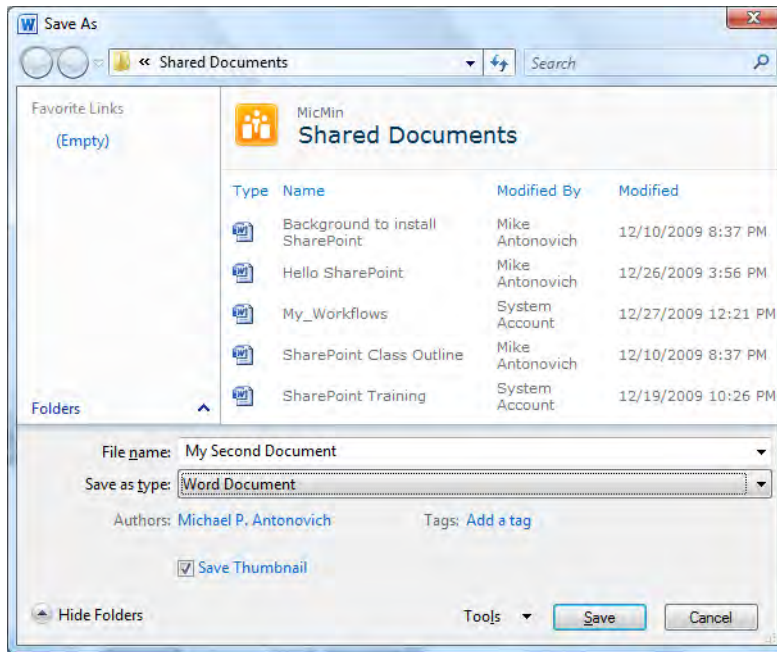


Figure 4-10. Previously visited SharePoint libraries on a Windows XP platform

Notice that this dialog opens the specified library, letting you save your document directly to SharePoint. If, as in this case, you have a new document, make sure that the name you want to use does not already exist in the selected library. If it does, Microsoft Word displays a dialog telling you that the file already exists. You can then replace the existing file, save your file with a different name, or merge your changes into the existing file.

If this is not the correct library, you can simply enter the URL for your site in the **File name** text box to display a list of all libraries in the site as well as a list of any sub sites. You could then navigate to the library where you want to save the document from a known site URL.

Similarly, if you have never saved anything to a document library previously and therefore have no recent locations, you can instead click on **Save** from the **File** button to again display the **Save As** dialog. As mentioned above, you can then enter the URL for your site in the **File name** text box. Again, Word shows you a list of all document libraries in the site where you can save your new document.

If you began by selecting a library or entering the URL for one, Word shows you a listing of the documents in that library. Unless you want to replace an existing document, specify a new name for the document, and click **Save** to add your document to the selected library.

What Is Metadata?

In simple terms, *metadata* is data about data. When you save a file in Windows Explorer and then view the directory, you do not see just the file name. In Windows XP and most prior versions of the Windows operating system, Windows Explorer shows the date modified, file type, and size of each file. By default, Vista's Windows Explorer also includes the date modified, type, size, and tags. These additional pieces of

information represent metadata for the file; that is, they provide you with more information about the file. In addition to these fields, you can right-click the header of the directory to see additional available columns or metadata that Windows Explorer supports.

In Vista and later operating systems from Microsoft, folders that focus on different types of files might use different sets of columns. For example, if you open a folder that contains music files such as My Music, you may see column headers such as Name, Artists, Albums, #, Genre, and Rating. A photo directory might use columns like Date Taken, 35mm focal length, Camera model, Exposure time, Focal length, F-stop, and ISO speed. Some metadata receives its data values automatically such as the Modified Date, Type, and Size. However, other metadata allows you to define your own values such as Tags, Title, and Categories. In fact, there are dozens of different metadata properties available to describe the files in your directories. You can then use the metadata to group or filter your directory lists. However, most people have never used them beyond the basic default properties.

Adding Metadata to Word Documents

Metadata also exists in documents created by most Office tools such as Word, Excel, PowerPoint, and others. These programs allow you to define additional properties for your documents.

To add values to these properties in a Word 2007 document, click the **Office** button, and then point to **Prepare**. Click **Properties** in the menu that appears, and Word displays the default properties it supports in a panel across the top of the document window. Click **Advanced Properties** in the **Document Properties** drop-down menu to display the **Document Properties** dialog box from Office. Here you can create custom properties for the current document and assign them values.

What if you don't see document management options in your office ribbon? In Microsoft Word 2010, you may not see any reference to document management in any of the ribbons initially. However, you can customize the ribbon to add this feature. Begin by right-clicking on a blank area of the ribbon and select **Customize the ribbon**. In the dialog shown in Figure 4-11, select **Customize Ribbon** in the left panel if necessary. Then on the right side of the panel you see two lists named **Choose commands from** and **Customize the ribbon**.

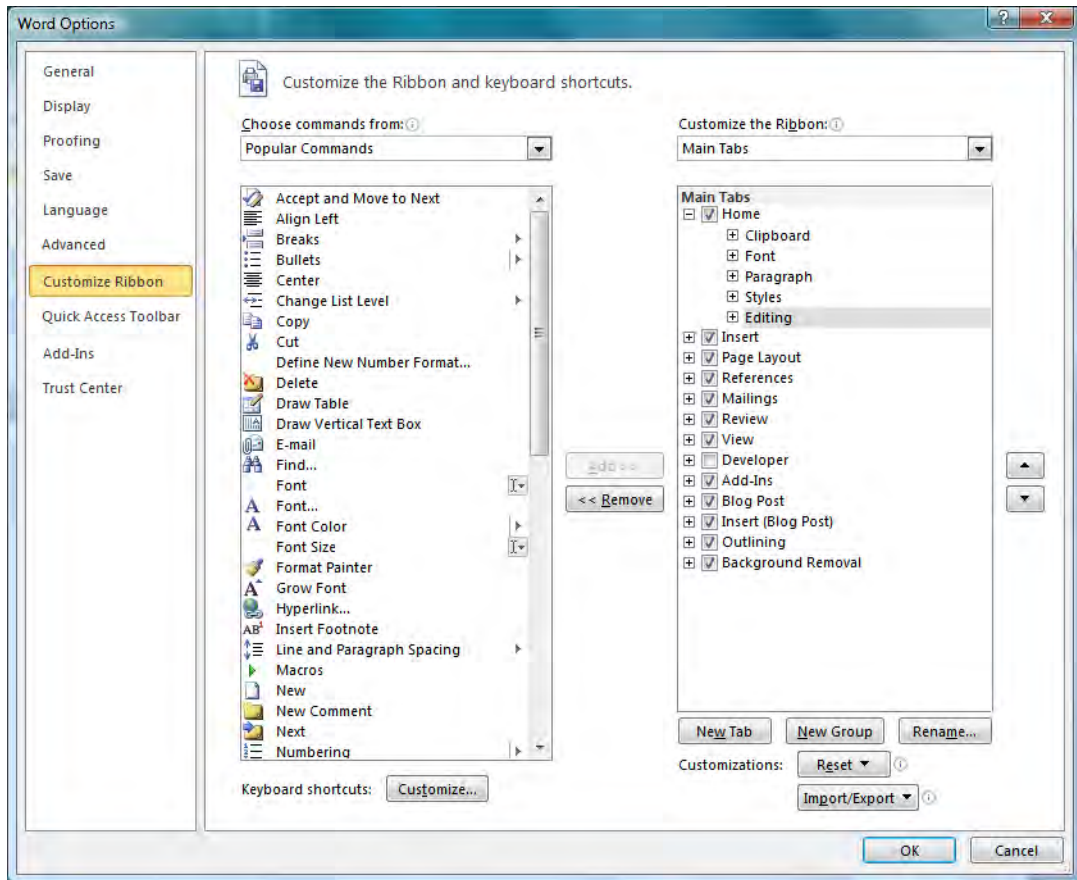


Figure 4-11. Customizing the Ribbon

From the **Customize the Ribbon** drop-down, select the option **Main Tabs**. As shown in Figure 4-11, this shows in the list below the drop-down all the available ribbon tabs. You can create a New Tab by clicking the button **New Tab** or you can open an existing ribbon tab by clicking the square box with the plus sign before the ribbon name.

When you open a ribbon tab, the first level of options show a list of the command groups or ribbon sections. With any ribbon open, you can add a new command group or open the command group to view the commands within it. You can even add new commands to a group.

In this case, the commands needed to open the Document Properties Panel already exist. They just have not been added to a ribbon yet. You can add the document property commands to the **Home** ribbon by following these steps:

1. Expand the **Home** ribbon by clicking on the plus sign in the square box before it and click on the ribbon name, **Home**, to select it.
2. Click the **New Group** button, which creates a new group named **New Group (Custom)**.
3. With the New Group Selected, click the **Rename** button and change the name to **Document Management**.
4. From the Choose commands from column, choose **All Commands**.
5. Select and drag the following commands from the list on the left to the new group **Document Management** on the right:
 - Document Management Server
 - Document Panel
 - Document Property
6. Click **OK** to finish customizing the ribbon.

Now when you open a document in Word 2010 and open the **Home** ribbon, you see the new **Document Management** group with its commands on the right side of the ribbon, as shown in Figure 4-12.



Figure 4-12. Updated ribbon with Document Management group

With a document open, you can click on the command **Document Panel** from the **Document Management** group. A dialog box, shown in Figure 4-13, asks whether you have a custom document Information Panel. While I will skip this option, you may want to select the check box on the bottom of the dialog that tells Word to **Always show Document Information Panel on document open and initial save**. Note that, if you do not select this option, you can always select the Document Panel from the ribbon.

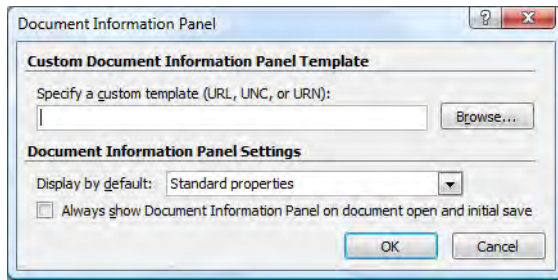


Figure 4-13. Options when adding the Document Information Panel

In a few moments, the **Document Properties** panel will appear across the top of the document just below the ribbon, as shown in Figure 4-14. By default, the document properties include the following:

- Author
- Title
- Subject
- Keywords
- Category
- Status
- Comments

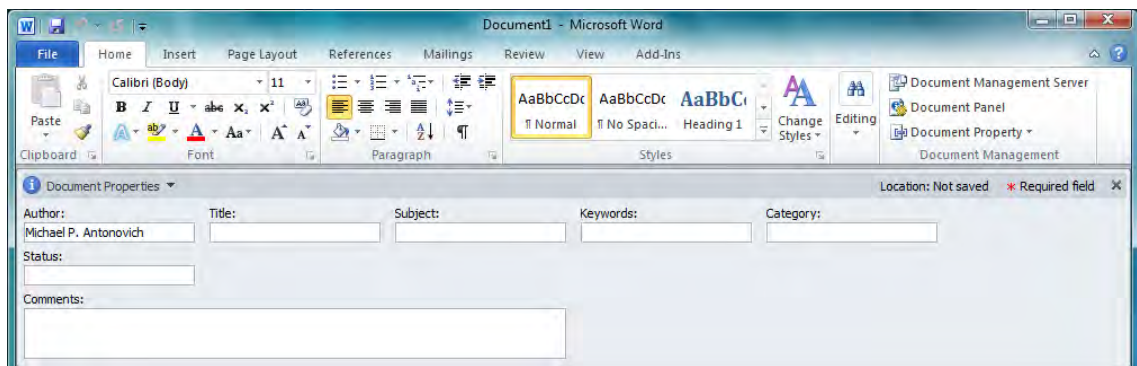


Figure 4-14. Document Properties panel within Word 2010

You can display most of these document properties as columns when you display a local directory of Word 2010 documents in Windows Explorer.

However, you are interested in how documents interact with SharePoint, not Windows Explorer. The interesting point is that you can surface a Word document's metadata within a SharePoint document library as columns in that library. Word passes the metadata values to SharePoint when you save a document or upload a new document to a properly defined document library.

■ **Caution** If you add the columns as described below to your document library after you upload your Word documents, SharePoint cannot populate values into the columns unless you re-upload the document or edit the document and reassign values to the metadata columns.

Open a new Shared Documents library on your team site and go to **Site Settings**. In the **Columns** section, you may think that you can simply create columns with the same names as the Word metadata fields. However, that does not work. Rather, you need to open the option **Add from existing site columns**, as shown in Figure 4-15.

Columns

A column stores information about each document in the document library. The following columns are currently available in this document library:

Column (click to edit)	Type	Required
Title	Single line of text	
Managed Keywords	Managed Metadata	
Created By	Person or Group	
Modified By	Person or Group	
Checked Out To	Person or Group	

[Create column](#)
[Add from existing site columns](#)
[Column ordering](#)
[Indexed columns](#)

Figure 4-15. To add Word 2010 metadata to your library, use **Add from existing site columns**.

Select **Code Document Columns** (or **All Groups** for the complete list of fields) from the **Select Site Columns from** drop-down. Then, from the **Available Site Columns** list, double-click or click the column name followed by clicking **Add** to transfer the columns to the **Columns to add** list box. You can add all the columns you need. Make sure you have selected the check box to add the columns to the default view before you click **OK**, as shown in Figure 4-16.

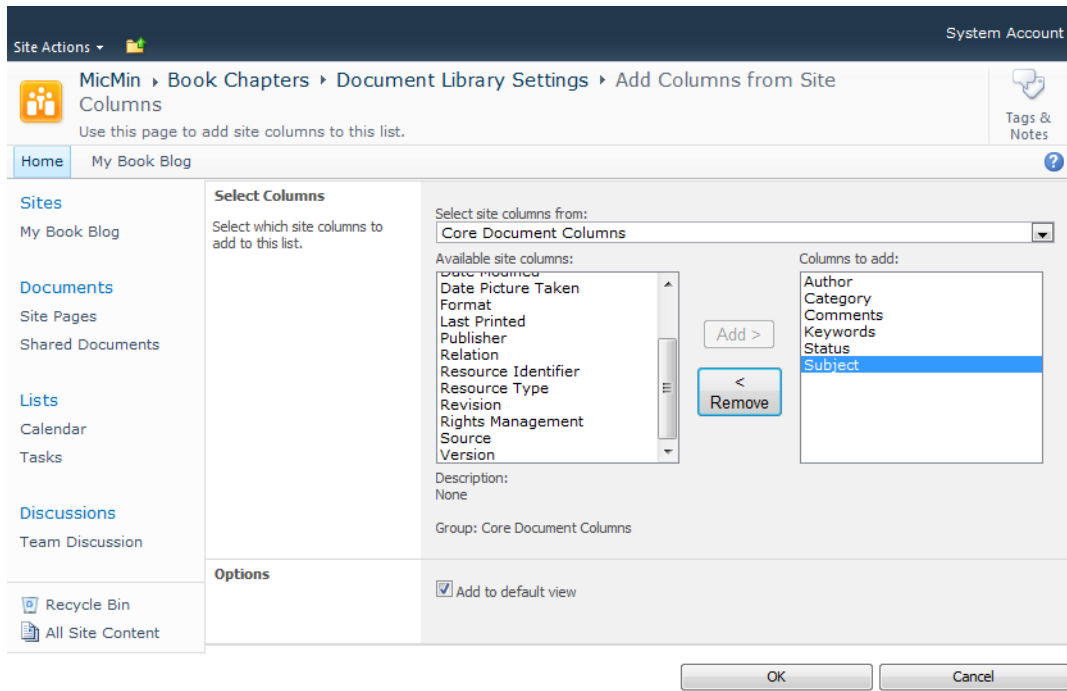


Figure 4-16. Selecting columns to match Word 2010 metadata

When you return to the view of your library list, you see the new columns. If you had previously uploaded documents to the library, these additional columns remain blank even if these documents had metadata values defined when originally created in Word. However, the next time you edit these documents and resave them to the SharePoint library, Word transfers the values to these site columns. Figure 4-17 shows an image of a SharePoint library in the background with a single document to illustrate the metadata saved in SharePoint; in the foreground of the image is the original Word document with the Document Properties panel displayed.

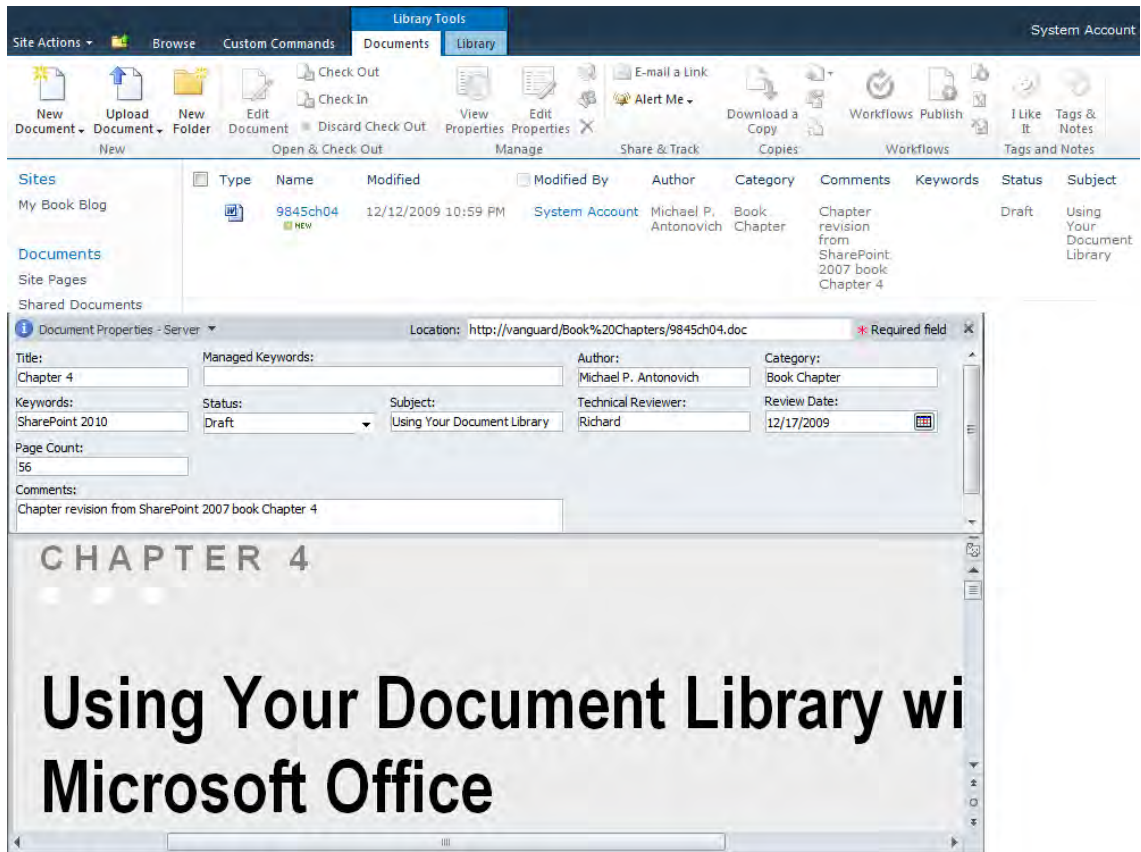


Figure 4-17. SharePoint document library shows Word 2010 metadata.

From within SharePoint, you can now use this metadata to sort or filter the items in your library. After SharePoint runs its next indexing job, you can also search for this document by values in the metadata, as long as you have selected the option to allow items from the library to appear in search results. You can find this option in the **Search** section of the **Advanced Settings** of the **Library Settings** command.

Adding Metadata to Documents from SharePoint

While SharePoint retains Word's metadata when you upload documents to a library, you can also add more metadata to the document from within SharePoint itself by adding columns to the document library. Every column in a document library then becomes metadata for each document in the library.

In the current example, suppose you add a Technical Reviewer, Review Date, and Page Count column to your SharePoint library. In addition, let's make the Page Count column a required column that must have a value greater than 0. Figure 4-18 shows your library after adding these three columns. The truncated view shows only a few of the columns. I have moved the new columns closer to the left to facilitate the format of this book.

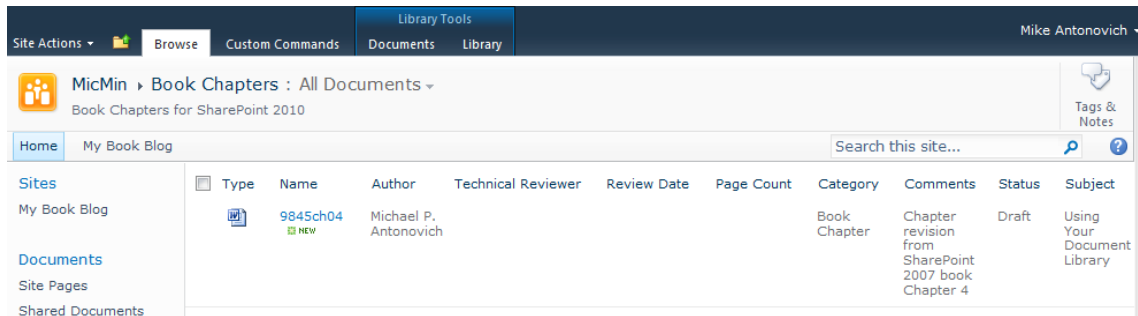


Figure 4-18. Adding three new columns to the SharePoint document library

If you edit this document in Word 2007 or 2010, you get a banner across the top of the document (shown in Figure 4-19) that tells you to supply some missing or invalid required properties before you can save the document back to the server. Of course, that missing property is the Page Count, which has no initial default value but is required.

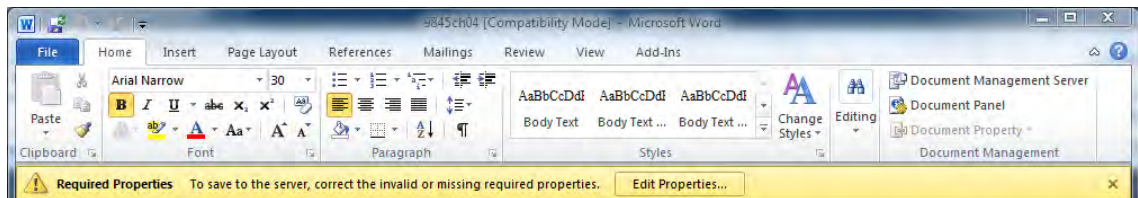


Figure 4-19. A warning that one or more properties are invalid or missing

When you click on the **Edit Properties** button, Word opens the **Document Properties** panel. Figure 4-20 shows that the **Page Count** column has a red asterisk on the right side. This indicates that the property is required. Notice that all of the other properties including the other two new properties for **Technical Reviewer** and **Review Date** also appear in the panel. You can update all these properties and resave the document.

Document Properties - Server

Location: http://vanguard/Book%20Chapters/9845ch04.doc * Required field

Title: Chapter 4

Managed Keywords:

Author: Michael P. Antonovich

Category: Book Chapter

Keywords:

Status: Draft

Subject: Using Your Document Library

Technical Reviewer:

Review Date:

Page Count:

Comments: Chapter revision from SharePoint 2007 book Chapter 4

Figure 4-20. Displaying the new columns in Word's Document Properties panel

You may have also noticed that the title of this panel has changed from **Document Properties** to **Document Properties – Server**. In fact, there are two property views for the document at this point. The original Document Properties defined through Word can be seen by opening the drop-down list in the title bar (click the down-pointing arrow) and selecting **Document Properties**. The **Document Properties – Server** view shows all the properties from the SharePoint Document Library. Notice that SharePoint and Word share some properties while others are unique to SharePoint.

Only properties added to the SharePoint Document Library through the existing site columns represent columns that SharePoint can share with similarly named metadata in Microsoft Office products such as Word. SharePoint does not directly share back to Word any new columns created manually, but you can access the column through the Document Properties – Server panel.

Even though SharePoint does not share the three new columns with Word's metadata, Word respects the validation and data requirements constraints defined in SharePoint before saving a version of the document back to the library. For example, suppose you enter a Technical Review's name and Review Date, but make a mistake by entering a past year rather than the current year. Again, a popup banner appears immediately below the document properties panel to tell you that the upload failed. Unfortunately, this message does not tell us the specific field that has an invalid entry. Figure 4-21 shows the error message that appears when attempting to save this version of the document back to SharePoint. From Word, you would have to know the validation rules for the server side metadata to correct the problem and save the data.

■ **Caution** These error messages may not appear if you have created custom error pages for your office applications.

The **Advanced Properties** option in this drop-down opens the standard properties dialog box used by Word. Using this dialog box, you can access other metadata that Word supports or add new metadata fields within the current document.

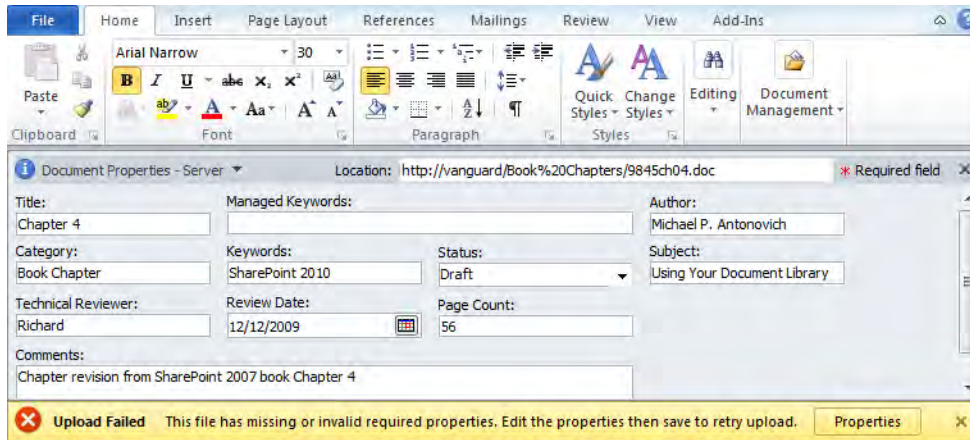


Figure 4-21. Warning of missing or invalid properties when attempting to upload a document

Now that you know that metadata can be included in everything you do in Microsoft Office, what can you do with it? Metadata can help search, filter, or sort the data it refers to, such as the items in your library. Previously, I mentioned that you could use Word's metadata in your Windows directories to sort the files in the directory. The same concept applies to the documents in a SharePoint library or the items in a list. Metadata can even help you associate documents in one library or information in a list to those in another. Finally, it can also help automate workflows by supplying values to variables used by the workflow.

Metadata can enhance your SharePoint experience, just as indexes can enhance your database experience. However, too much metadata can become a burden for users to enter, just as too many indexes can negatively affect database performance. You do not want metadata to become such a burden that users stop entering it. To illustrate the value of metadata, the next section explores the use of metadata within a custom library used to track Purchase Orders.

Using Metadata with the Document Information Panel

Your company probably uses purchase orders to buy the items it uses. On a functional level, you could use a custom shared document library to store the purchase orders after you create them. At a slightly more sophisticated level, you might take a blank purchase order form built with Word and save it as a Word template. Then you could upload that Word template into your SharePoint site and modify your purchase order library to use that template as its default document type when creating a new document. I discussed how to change your default document template in Chapter 1.

However, you can leverage SharePoint further. Suppose you create a new custom library named **Purchase Orders**. After creating the library, go into the document library settings page and rename the **Title** column to **Purchase Order Number**. While there, you can select other columns that SharePoint automatically tracks to display in your list, or you could add your own custom columns.

■ **Note Purchase Order Number** makes an ideal replacement for the **Title** column because it uniquely defines each purchase order. You should never have two purchase orders with the same number.

Because this library only holds purchase orders, you might consider adding a few special columns to track information to help sort, filter, or group your purchase orders. To illustrate this point, add the following three columns to this custom library:

- **Date Created:** The date someone entered the purchase order. (I am assuming that the purchase order date may be different from the item creation date.)
- **Department:** The department requesting the purchase order
- **Purchase Amount:** The total amount of the purchase order. (I will create this field as a currency field, but you may have reasons to leave it as a string or just a number.)

When defining the **Department** column, consider making it a Lookup type column using a custom list named Departments so that you can add new departments on the fly without modifying the Purchase Orders library settings. Of course, you could add more than these three columns, but these three are good enough for now.

Each of these new columns represents metadata for the purchase order. That means that they define additional information about the document. It also means that each time you create a new document in this library, you may need to define values for these columns when you save the new document. In fact, when you open a new document, Word 2010 displays these document properties in a banner-like panel across the top of the document, as shown in Figure 4-22.

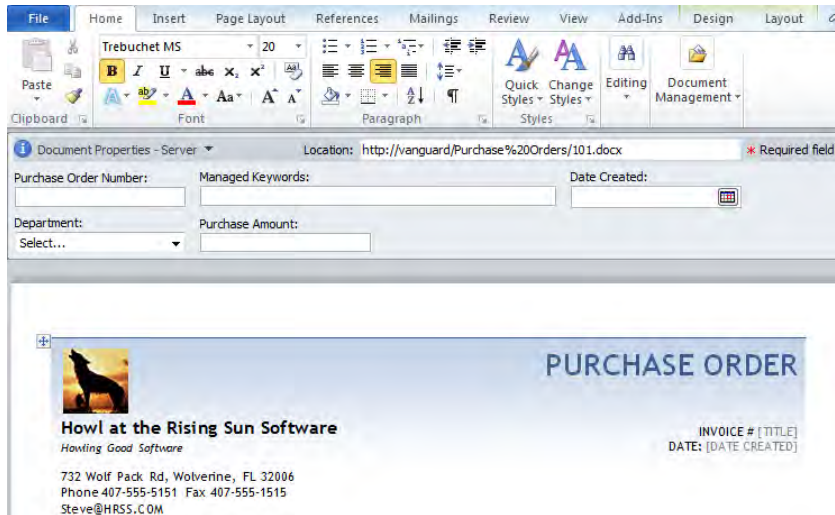


Figure 4-22. Word 2010 displays the server metadata fields in a panel at the top of the page.

Notice that the fields across the banner prompt for values for each of the custom purchase order columns. You can fill in these fields at any time from when you first open the purchase order to when you complete it. Figure 4-23 shows the purchase order library after you add the first purchase order showing the custom columns.

■ **Tip** If you plan to use metadata to sort, group, or filter your purchase orders later, return to your column definition and make each of these columns required. If you have already saved purchase orders without these columns, SharePoint does not raise an error unless you edit and resave those purchase orders after making the custom columns required.

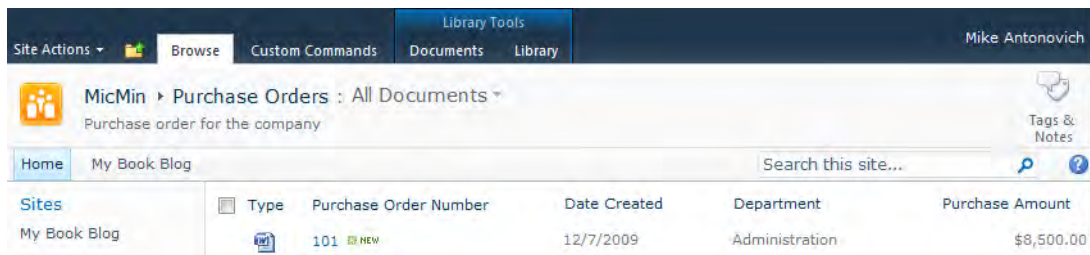


Figure 4-23. SharePoint's list displays the metadata fields added in Word's Document Properties.

Uploading Existing Documents into a Library Prompts for Required Metadata

Rather than creating a new document directly from the library, let's assume that you need to upload an existing purchase order into the library; you can accomplish this task by first opening the document in Word and then using the **Save As** dialog to point to the library as described earlier. However, if the document does not yet have values for the any required SharePoint metadata columns, SharePoint will upload but not check in the document.

To supply these values, click the command **Document Panel** in the **Document Management** group. Word displays the panel across the top of the document. You can now enter any metadata that has not already been supplied for the current document before saving it to SharePoint.

Always remember to save your document after any changes, even if you only make changes to the metadata.

Working with Document Metadata

By adding metadata to a document library, you can more easily sort, filter, and even perform simple aggregate functions across the documents it contains. The following steps are for a scenario in which you view only the purchase orders from a single department (Administration), count the number of purchase orders, and calculate a grand total amount.

1. Open the Library ribbon of the Purchase Orders library.
2. Select the **Create View** command from the **Manage Views** group.
3. From the first **Create View** page, select the **Standard View** format.
4. In the second **Create View** page, name the view Administration Purchase Orders. Do not make this the default view.
5. Create this view as a public view. You can also create a personal view that only you can see. However, for the purpose of this example, I will assume that the permissions to this library have already limited the potential audience to an appropriate subset of all users.
6. Next, select the columns you want to display. For this example, include at least the following:
 - Type Icon
 - Purchase Order Number
 - Date Created
 - Department
 - Purchase Amount
7. Define the primary sort to be **Date Created** in ascending order.
8. Define a secondary sort by ascending **Purchase Order Number** in case you have more than one purchase order a day per department.
9. Filter on column **Department** equal to **Administration**.

■ **Caution** Notice that, when defining a filter, you must enter the value of the filter directly, not select it from a list of possible values. Therefore, keep in mind that spelling counts. However, the value's case does not affect the result.

10. Expand the **Totals** section. Notice this action displays each column in the library with a drop-down of possible values.
11. Select **Count** for the **Purchase Order Number** column.
12. Select **Sum** for the **Purchase Amount** column.
13. Click **OK** to create the new view.

SharePoint returns you to the library view, as shown in Figure 4-24. Notice that the list now contains only the purchase orders for the Administration department, the **Purchase Order Number** column contains the text **Count=3**, and the **Purchase Total** column contains the text **Sum = \$9,510.00**.

The screenshot shows a SharePoint document library view for 'Purchase Orders'. The interface includes a top navigation bar with 'Library Tools' and 'Documents' tabs, and a user profile for 'Mike Antonovich'. Below the navigation is a breadcrumb trail: 'MicMin > Purchase Orders : Administration Purch...'. A search bar is present with the text 'Search this site...'. The main content area displays a table with columns: 'Type', 'Purchase Order Number', 'Date Created', 'Department', and 'Purchase Amount'. A summary row at the top of the table indicates 'Count = 3' and 'Sum = \$9,510.00'. The table lists three purchase orders, all from the 'Administration' department.

Type	Purchase Order Number	Date Created	Department	Purchase Amount
Count = 3		Sum = \$9,510.00		
	101	12/7/2009	Administration	\$8,500.00
	103	12/8/2009	Administration	\$250.00
	106	12/11/2009	Administration	\$760.00

Figure 4-24. Using Totals to count the number of purchase orders and the value for the Administration department

This example shows how you can use metadata in a view of the document library to sort the documents, filter on a department, and then count the number of purchase orders while totaling the amounts. Notice also that, with RSS feeds turned on, you can subscribe to this library and receive notifications when someone makes additions to it through your favorite news aggregator, IE 8.0, Outlook 2010, or better. Similarly, you can also subscribe to alerts for changes. This is something that a simple Windows Explorer view of a directory of purchase order documents cannot do!

Managing Multiple Editors to a Document

Concurrency problems as described in Chapter 1 were an inevitable consequence of the way Word 2007 handled multiple editors of a document. Basically, it was an all or nothing choice. Either you locked the entire file by checking it out of SharePoint so that no one else could open it in edit mode, or you allowed multiple people to edit the document. If you choose the latter, then you had to cope with having to compare two or more versions of the document, identify the differences between them, and accept which changes you wanted to keep. Because that was such a time-consuming processing, most SharePoint administrators decided to make it easier on everyone by requiring document check out before you could edit the document.

Now Word 2010 comes out with a potentially game-changing feature, at least in the word processing arena, that allows multiple simultaneous editors to edit a document when they are using documents stored in SharePoint. Rather than locking the entire file to protect the integrity of changes made to the document, Word 2010 now supports locking individual paragraphs of a document. However, while SharePoint and Word lock those individual paragraphs, other editors can make changes to other parts of the document. Of course, as soon as you begin editing a different paragraph, Word and SharePoint lock that paragraph to any other users.

While editing a document that someone else also has open, SharePoint passes information between all users to identify which paragraphs others have edited. It places a bracket around the left side of the paragraph and adds a tag off to the left margin to identify the person performing the edit. However, it does not show the edit changes made by others in real time. These edited paragraphs remain locked until their individual editor saves their changes back to SharePoint.

You can periodically check to see if any updates to the current document have become available (in other words, saved by other users). You can then display the updated text and make changes to it.

Let's see how this works in a simple example. Suppose two people have a document open for editing at the same time. Remember that this ability to allow multiple editors to a document only works if you open the document from a library that does not require check out before editing. Now, also suppose that the System Account user has the same document open as I do and she has made a change to the first paragraph with the title Introduction. What you will see on your screen will be a light-blue solid bracket around the left side of the paragraph where the System Account made a change. It also has a flyout tag displaying the user's name, System Account, as the editor of that paragraph as shown in Figure 4-25.



Figure 4-25. Tag indicates document paragraph has been edited by another user

You might also notice that the second paragraph has a dotted bracket around it indicating that I have made a change to that paragraph. There is no need for a tag to identify the user in this case because all paragraphs bracketed with a dotted bracket represent changes made by me.

Note also that, as soon as I initiate editing of the second paragraph, Microsoft Word places a lock on the paragraph that passes from my copy of Word 2010 through SharePoint to the System Account's copy of Word 2010 where it remains locked until I save my changes back to SharePoint and thus release the lock. If any other user tries to click inside that paragraph to make changes, Word 2010 blocks any keystrokes and displays the message *This modification is not allowed because the selection is locked.*

If the System Account really needs to edit my locked paragraph (the second paragraph), she could wait until either I save my changes or she could click on the tag identifying me as the editor of the paragraph to display a popup dialog shown in Figure 4-26. This popup displays the name, picture (if available), and presence indicator at the top of the dialog. The four icons in a row allow you to send an e-mail, an instant text message or a voice message through an instant message application such as Live Messenger, or display other options including scheduling a meeting with that person. The drop-down button on the right side of this row expands the dialog to show additional information about the editor such as his department, telephone numbers, e-mail address, and location. These options can be useful if the paragraph you need to edit remains locked for an extended period, thereby preventing you from completing your tasks.

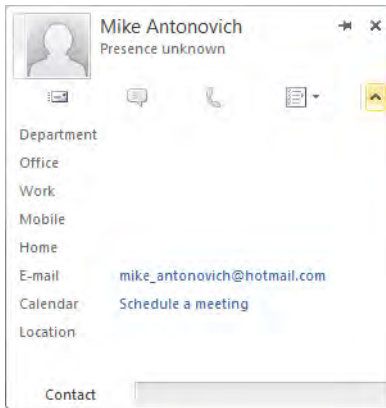


Figure 4-26. Popup identifying paragraph editor

You can also see a complete list of all users currently editing the document by clicking in the third panel from the left of the status bar at the bottom of the window. This panel displays a count of the number of simultaneous editors in the document. When clicked, it displays their names as shown in Figure 4-27. As with the tags for individually locked paragraphs, you can click on the name of any of these editors to display the same dialog box just described in Figure 4-26 to contact them.

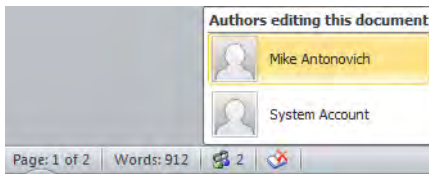


Figure 4-27. Status bar identifies all current editors of the document.

You can also see a complete list of people currently editing the document by opening the **File** menu and selecting **Info**. In the center section of this screen, shown in Figure 4-28, is a list of all the current editors. You can click on any of the names to select them and then click the large **Send a Message** button to open an e-mail message to that person.

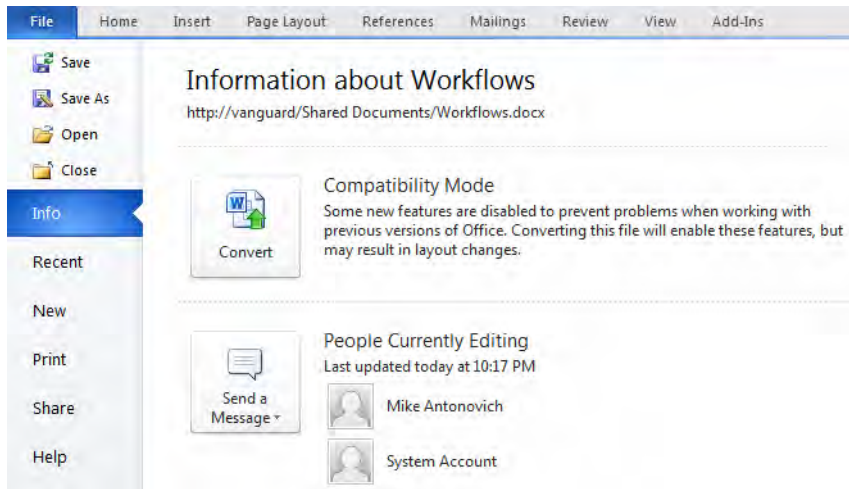


Figure 4-28. The Info page also identifies current users editing the document.

Also in the **Info** section of the **File** menu, Word notifies you that new updates to the document have become available, as shown in Figure 4-29. This notification occurs when any of the other editors saves their changes back to SharePoint. Only after they save their changes can you refresh your copy of the document to see those changes and make additional changes to the paragraphs previously locked.

■ **Note** You do not need to return to the **Info** page to see that updates have become available. A refresh icon (two arrows circling on each other) appears on the right side of the individual modification name tags when that editor saves their changes.

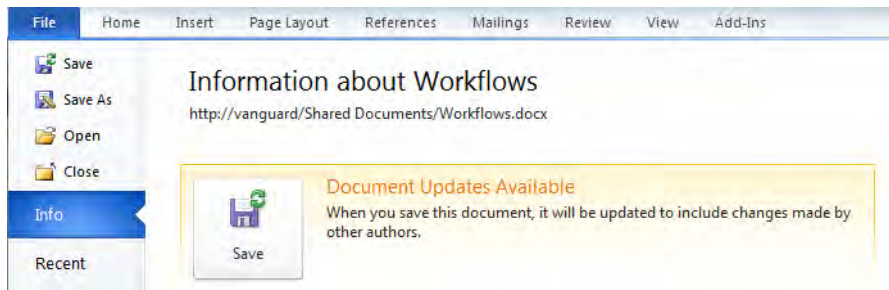


Figure 4-29. The Info page also identifies when new document updates become available.

Notice in this figure that you have to save your copy of the document in order to update it with changes from other authors. However, you do not have to check in your copy of the document. When you save your document copy, the dialog shown in Figure 4-30 appears. It tells you that you can compare the document with a previous version of the document by clicking in the **File** tab. Even if you do not do that, any insertions are immediately obvious, as Word will highlight them in green, as you can see in the icon in Figure 4-30.

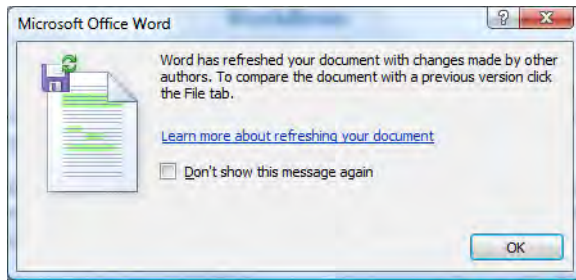


Figure 4-30. Word notifies you when document changes have been applied to your copy of the document.

To compare the current document with a prior version, open the **File** menu and select **Info**. Scroll to the bottom of the **Info** page to the section titled **Versions** and **Check Out**. The available document versions appear here as long as you have enabled versioning for the current library. Click on the version to which you want to compare the current document. A second Word window opens and displays the banner shown in Figure 4-31.

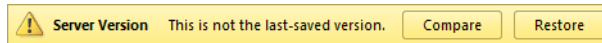


Figure 4-31. Word notifies you when document changes have been applied to your copy of the document.

Click the **Compare** button to continue with the comparison of the two versions. This opens a third window with both versions of the document in the right column and the combined version in the center column as shown in Figure 4-32.

The point of view of the comparison is what changes you must make to the current version of the document to make it look like the compared document, the one you selected from the **Info** page creating a new revised document. Therefore, items deleted by you or another editor appear as **Inserted** text because you would need to add that text back into the document to make it look like the older version of the document. Similarly, you would need to delete text that you added to the most recent version to match the older version. Therefore, if you want to keep your recent changes, you want to reject the suggested changes that would revert your modifications. Similarly, you could accept the changes to undo something you did that you do not want to keep. For example, if you deleted something by accident, you can simply accept the inserted text to recover the lost text. I know that sounds a little like reverse logic at first, but remember Word's viewpoint is trying to make your current document look like the comparison document, not vice versa.

To finish this example, examine each change along the left side of the window. All of the changes appear as inserts or deletes. In fact, modifications appear as a pair of changes, one insert and one delete. You can choose each individual change by clicking on it and then decide whether to accept or reject each one individually by clicking the **Accept** or **Reject** buttons in the **Review** ribbon. When you have finished reviewing all the differences and are ready to save your updated version, open the **File** menu and select **Save**. Word then displays the **Save As** dialog prefilled with the document's name and pointing to the library where the file came from. Simply click the **Save** button and Word 2010 saves your updated revised version.

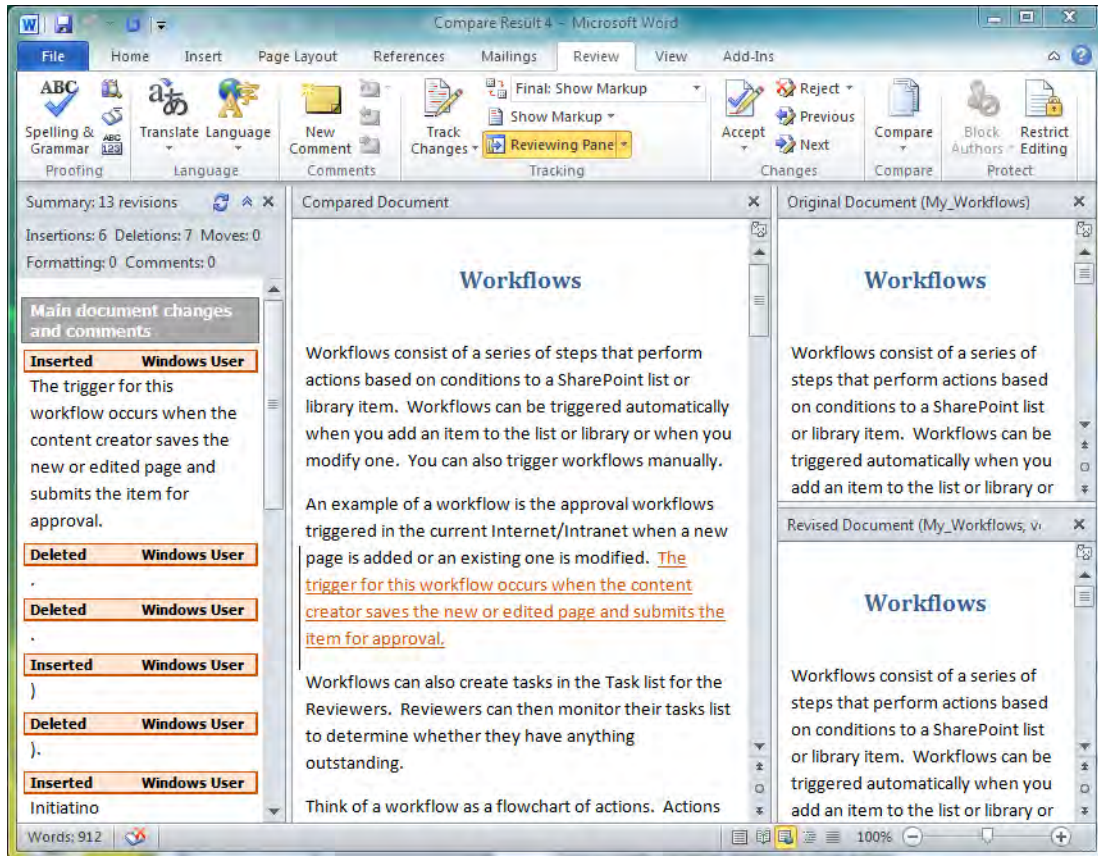


Figure 4-32. Word lets you compare document changes and choose which to accept or reject.

So why would you choose to not require check out of documents before editing them? If you have a large document for which several people have edit responsibilities, you may want to allow multiple people to edit the document simultaneously because they seldom if ever need to edit the same portion of the document anyway. This allows the work from multiple people to occur simultaneously, thereby improving efficiency. On the other hand, small documents or documents in which multiple people

typically will edit the same portions would be better managed in a library that requires check out before editing to protect the edits of each individual.

Creating and Using Document Sets

Before you can use a document set in any site, you must first activate the Document Set feature. You can find this by opening **Central Administration** and clicking on **Site collection features** in the **Site Collection Administration** section.

Next, return to the site where you want to use the Document Set to create a Document Set content type. Go to **Site Actions** ► **Site Settings** and select **Site Content Types** under the **Galleries** group. Click **Create** and supply a unique name for your document set and include an optional description. Select **Document Set Content Types** from the first drop-down in the **Parent Content Types** section and then select **Document Set** from the second drop-down. In the group section, I prefer to create a separate group for the content types based on either the scope of the documents it contains or on the department or group that uses the document set. For example, a content type used for an individual project receives a name related to that project while a content type used across the entire department receives a name based on that department. Figure 4-33 shows these steps.

Vanguard > Site Settings > Site Content Types > New Site Content Type

Use this page to create a new site content type. Settings on this content type are initially copied from the parent content type, and future updates to the parent may overwrite settings on this type.

I Like It Tags & Notes

Home

Libraries

- Site Pages
- Shared Documents
- Absence Requests
- SQL Saturday Presentations

Lists

- Calendar
- Tasks

Discussions

- Team Discussion

Recycle Bin All Site Content

Name and Description

Type a name and description for this content type. The description will be shown on the new button.

Name: Annual Review Documents

Description: Document packet used to perform annual review of employees

Parent Content Type:

Select parent content type from: Document Set Content Types

Parent Content Type: Document Set

Description: Create a document set when you want to manage multiple documents as a single work product.

Group

Specify a site content type group. Categorizing content types into groups will make it easier for users to find them.

Put this site content type into:

Existing group: Custom Content Types

New group: MicMin

OK Cancel

Figure 4-33. Create a Document Set content type

While you could use this content type as-is in a library, it would initially be empty. You could then add documents to the document set as needed. However, a more interesting use of the document set occurs when you want to create a common set of documents in each instance of the document library. Imagine that the document set created in the previous figure, Annual Review Documents, always begins with a common set of documents that the supervisor must fill in for each employee evaluation. If you add those documents to the content type, then SharePoint can create new instances of those documents in the document set each time you instantiate a new document set for a different employee.

To add documents to the document set, find your newly created content type in the list of content types in the **Site Content Types** page. Then click on the content type name. This displays a settings page for the content type as shown in Figure 4-34.

The screenshot shows the SharePoint interface for the 'Annual Review Documents' content type settings. The breadcrumb path is 'Vanguard > Site Settings > Site Content Types > Annual Review Documents'. The page is divided into a left sidebar with navigation options (Libraries, Lists, Discussions, Recycle Bin) and a main content area. The main content area is titled 'Site Content Type Information' and includes fields for Name, Description, Parent, and Group. Below this is a 'Settings' section with a list of options: Name, description, and group; Advanced settings; Workflow settings; Delete this site content type; Document Set settings; and Information management policy settings. At the bottom is a 'Columns' table with four columns: Name, Type, Status, and Source.

Name	Type	Status	Source
Title	Single line of text	Hidden	Item
Name	File	Required	Folder
Description	Multiple lines of text	Optional	Document Set
Date Completed	Date and Time	Optional	

Figure 4-34. Define settings for Document Set

Click the **Document Set Settings** option in the **Settings** group. Figure 4-35 shows the document set settings. The first area lets you define the **Allowed Content Types** for this content type. In this case, suppose you allow **Documents** and **Images**. Of course, you could use the pick list on the left to include any of the currently defined content types for your document set. The next section lets you define the default content for the document set. These are the default documents that SharePoint creates in your document set when you instantiate it in a library. In this case, you have the four Microsoft Word documents that form the basis of the annual review. You can add any number of default documents to your document set. Of course, you can always add more documents. However, if you have a situation

like this one where every instance of the document set must begin with a minimum number of documents, a document set may be just right for you.

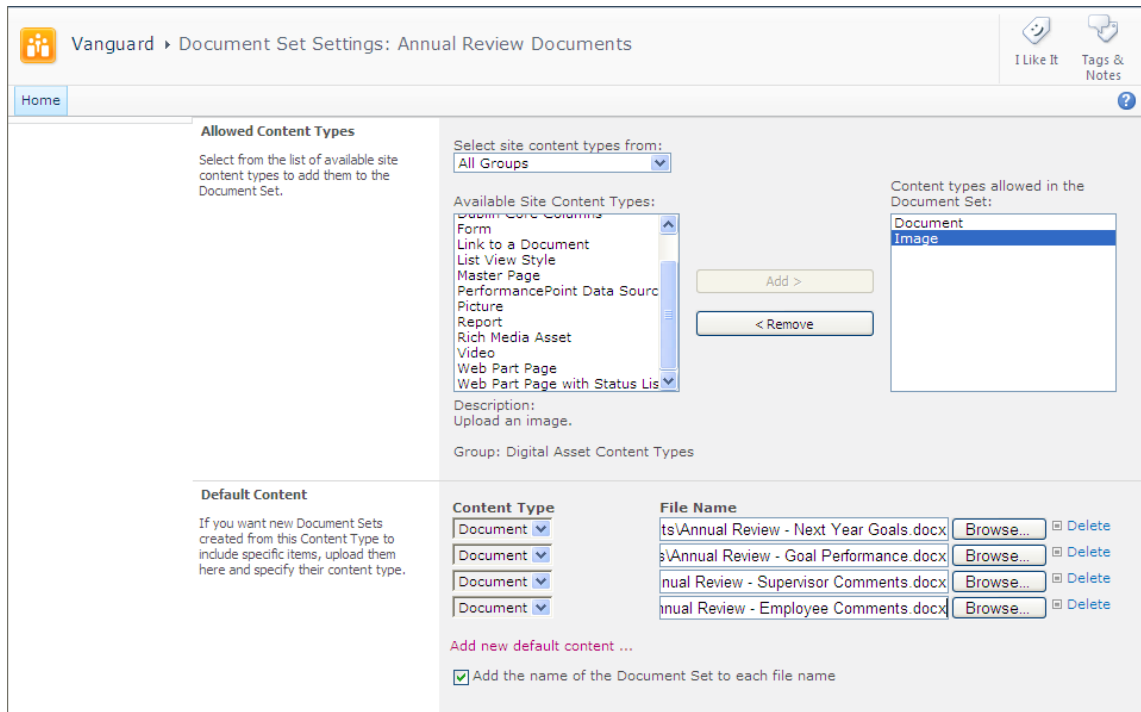


Figure 4-35. Define Allowed Content Types and Default Content

Next, navigate to the library where you will use the content type (or create a new library) and open the library settings. First, you need to enable the management of content types for this library under the **Advanced Settings** page. Then, on the **Document Library Settings** page you see a new section called **Content Types**. At the bottom of this section, click the option **Add from existing site content types**. A new screen displays the defined site content types. Initially, the list box displays all content types. However, if you added your content type to one of the existing groups or your own group, you can select the group from the first drop-down to narrow the choices in the **Available Site Content Types** list box. Either way you choose to find it, you should see the document set content type you created earlier in this section. Select it and click the **Add** button or simply double-click the content type name to move it to the **Select Content Types** list box on the right, as shown in Figure 4-36.

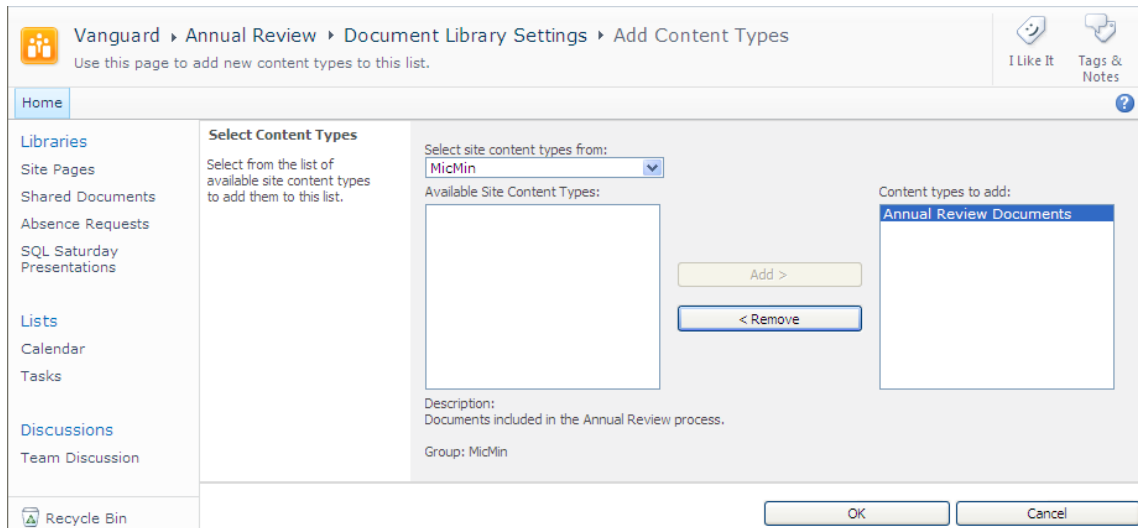


Figure 4-36. Add the document set content type to your library.

After you click **OK**, SharePoint returns you to the **Document Library Settings** page where you will see your content type listed in the **Content Types** section. Notice that SharePoint automatically includes any new content types on the **New** button. However, the original content type remains the default content type. If you would like to make your new content type (the document set) your default content type, click the option **Change New Button Order and Default Content Type** found at the bottom of this section. Figure 4-37 shows the new page where you can decide which content types you want to be visible by clicking the check box in the **Visible** column. You can also use the drop-down number list to define the position from the top for each content type. SharePoint uses the content type identified as “1” as the default content type for the current library.

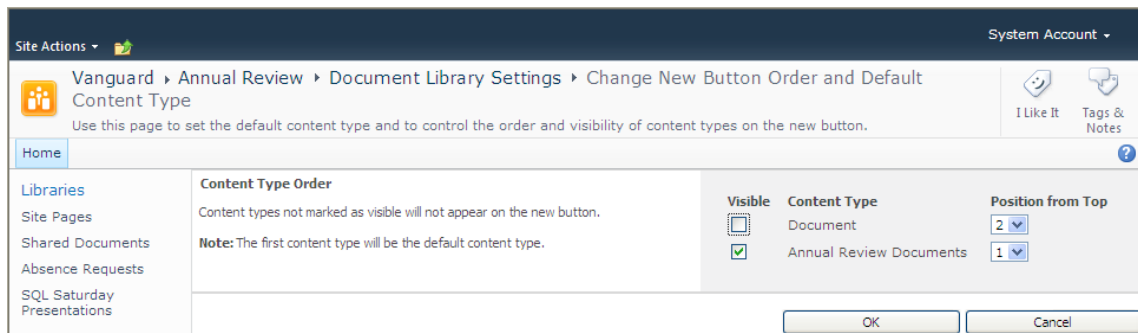


Figure 4-37. Change the option in the New drop-down.

In this figure, you can see that I have made the Annual Review Documents not only the default content type, but the only content type display by the **New Document** drop-down menu. If you open the document library (by clicking on the library name in the breadcrumbs at the top of this page), you will see that the new content type appears in the **New Document** drop-down (clicking the lower half of the **New Document** button in the **Documents** ribbon). When you select this option to create a document set, you must supply a specific name for the document set. This creates the document set allowing you to create multiple groups of this document set in the library, each with their own unique name. In this example, you could create a document set of all the documents needed to perform an annual review for each employee by naming each document set with the employee's last name, as in Figure 4-38.

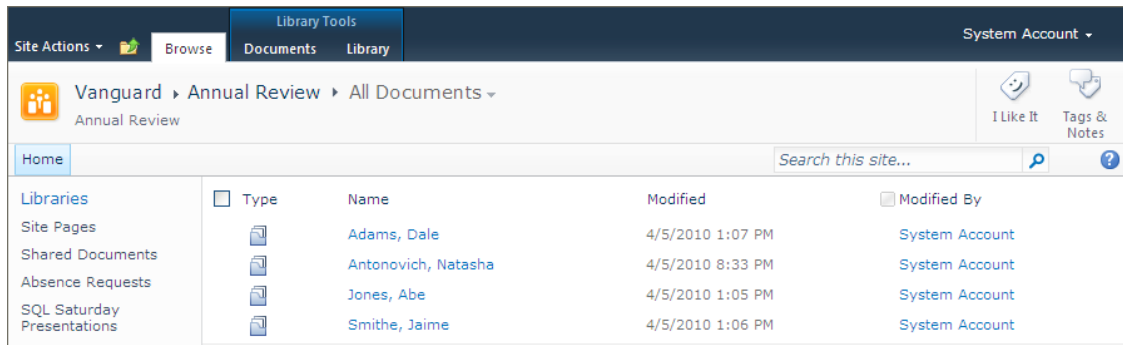


Figure 4-38. Create a separate document set for each employee.

Once you have created the document set, you can open any of the sets and work with the documents individually just as if they were in a more traditional file folder. However, the productivity enhancements come about due to the ability to treat the entire multi-document set as a single object when you want to move or delete the set, start a workflow for the set, or archive the entire set to a records center. You can even manage the permissions of the document set independent of the library that contains the document set. To work with a document set, click on the document set to open its **Welcome page** as shown in Figure 4-39. From this screen, you can modify its properties or work with any of the documents defined to be part of the document type.

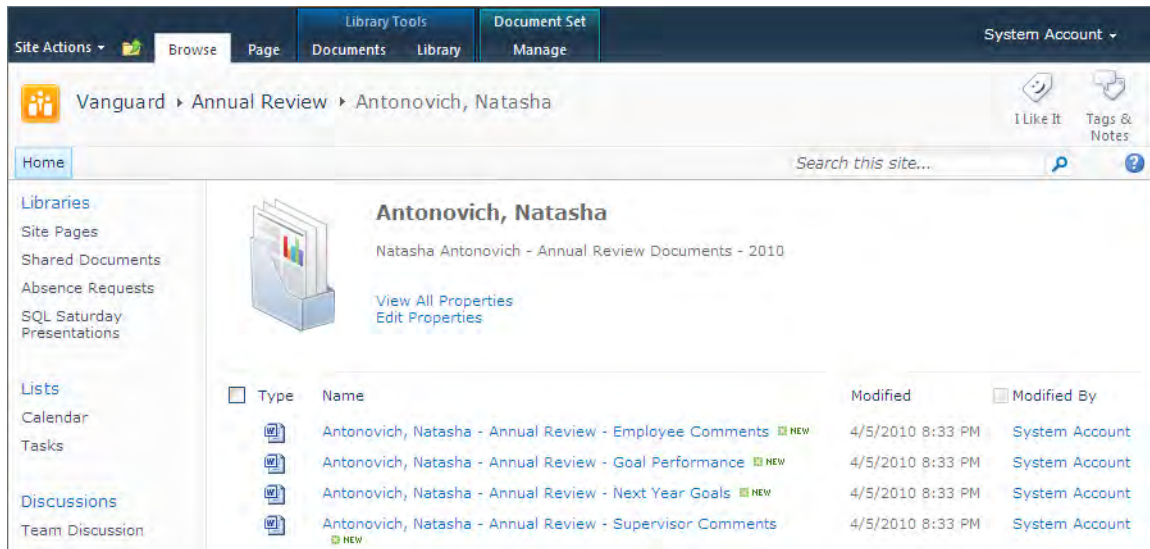


Figure 4-39. Default welcome page for the Annual Review Documents document set

This introduction to the document set will get you started. You can also add more columns to your document set, and you can customize the appearance of the Welcome page for the document set.

Searching For Your Documents

When you only have a few documents in your SharePoint site, finding the one you want is no big challenge. However, what happens after your site grows to hundreds of files in dozens of libraries, nested folders, and multiple sites? Trying to remember where you stored a document may make looking for a needle in a haystack seem easy. However, even finding a needle in a haystack can be easy with the right tool, such as a strong magnet. Similarly, you need a strong tool to find that one document out of hundreds in the libraries on your site. Fortunately, SharePoint provides that tool in the form of the Search feature.

■ **Note** Before using Search, ask your SharePoint administrator if they have configured your installation to be periodically indexed. Also find out how often the index services run. If you make an addition to your site, Search will not pick up the new document until the next time SharePoint performs a re-index of the site. Also, you can determine on a library basis whether items in the library can appear in the search results by setting the **Search** property in the **Advance Settings** section of the **Library Settings**.

The Search feature typically appears in the upper-right corner of every page in SharePoint. Of course, if someone branded your pages, they may have moved or even deleted this feature. Hopefully, they did not remove it, because the Search feature in SharePoint can help you find anything in your site quickly and easily.

What is Branding?

While you can quickly change the appearance of your SharePoint site by changing the theme you apply to it, SharePoint provides only a limited number of themes. Fortunately, it is possible with a little effort to create your own themes. If your organization has provided a limited set of themes to preserve some consistent look and feel across all sites, they may not permit you to add your own themes or customized pages made with the existing themes. You can also directly modify the appearance of individual pages using tools like SharePoint Designer among others. However, you would have to customize each new page that you add to the site manually, which would not be very efficient. While beyond the scope of this book, a better approach is to create new master pages for your site (not a simple edit of the existing master pages, but new master page files). You could also create your own CSS files to customize the appearance of the master pages, but these methods also lie beyond the scope of this book.

Creating a new set of master pages or CSS files to customize the appearance of your master pages allows you to put the changes into place one time for all pages within the site. Then all new pages created within the site automatically inherit the newly defined look and feel.

If you go to the home page of your top-level site or the default page of any sub-site, the Search feature (shown in Figure 4-40) searches the entire site and any sub-site. This is the search scope or the definition of the content that SharePoint searches. Place the words or phrases you want to search for in the text box to the right of the search scope box. Then press the button with the magnifying glass icon to start the search.

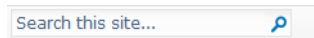


Figure 4-40. SharePoint's Search feature

The text box search string cannot exceed 255 characters. While you do have to consider simple variations of words such as whether to enter `class` or `classes`, you do not need to worry about case, as SharePoint performs all searches as case-insensitive. SharePoint ignores common words such as “the” or “it.” SharePoint also ignores the order of words, making a search on `United States` the same as `states united`. So don't waste time and characters entering `flags of the United States` when you can just as easily enter `United States flags`. Note that this is true if you don't surround your search string with quotes. If you do use quotes, the search string must match not only the words but also their order.

Search now understands Boolean connectors like `AND` or `OR` between words or phrases; it will treat these words as logical connections between parts of the search but only if they are capitalized. By default, SharePoint searches for objects (documents, list items, etc.) that have all the words entered whether you put `AND` connections between the words or not. If you put `OR` between the two words, SharePoint returns all objects that have one word or the other or both.

You can also put a plus sign in front of a word to qualify the search. For example, **Software +Microsoft** returns only documents that reference software and Microsoft just like the AND connector or a simple space. Likewise, you can place a hyphen (minus sign) in front of a word to eliminate documents that contain that word. For example, **Software -Microsoft** would include documents that contained the word software but not the word Microsoft.

■ **Note** You must have at least one include expression before you can add an exclude expression such as the minus sign.

In addition, SharePoint allows you to use the wildcard asterisk (*), but only to complete a partial word. For example, a search on **Sha*** returns any object that contains a word that starts with the characters **Sha*** such as **SharePoint** or **shampoo**. Obviously, the more characters you supply, the better results your search returns. That is not all that Search can do. Table 4-1 shows a list of custom searches you can now perform with SharePoint Search, including Boolean expressions and searches against object properties such as author, modified, filename, filetype or title. Of course, these expressions were designed for a specific document library. Your queries will differ in the specific search criteria, not the style.

Table 4-1. List of Custom Searches

Expression	Description
Modified<6/1/10	Returns all objects which were last modified before June 1, 2010
Modified<=6/1/10	Returns all objects which were last modified on or before June 1, 2010
Modified>1/31/10	Returns all objects which were modified after January 31, 2010
Modified>=1/31/10	Returns all objects which were modified on or after January 31, 2010
Modified: 11/1/09..12/31/09	Returns all objects modified between November 1 and December 31 of 2009
Status:Draft	Returns all objects in which the status is Draft
“Modified by”: “Mike Antonovich”	Returns all objects last modified by anyone with the name Mike Antonovich
Filename:Welcome	Returns all documents with a filename having the word Welcome in it
Filetype:docx	Returns only documents created with the .docx format (from Word 2007 or 2010)
Author:Antonovich	Returns all documents having the word Antonovich in one or more of the author’s names

Finally, if you combine two or more different properties in your search, SharePoint assumes an AND connector between the properties. For example `title:SharePoint filetype:docx` returns Word documents saved in the .docx format and having the word SharePoint in the title. If you have two of the same properties, SharePoint assumes an OR between them. For example `filetype:docx filetype:xlsx` returns any Word file formatted with the .docx format or any Excel file formatted with the .xlsx format. Obviously, an AND connecting two different file types would make no sense as a single document cannot be more than one file type. You can also combine word searches with property searches as in the case of searching for a Word document with the string “2010 Budget” somewhere in the document: `“2010 Budget” filetype:docx`. Figure 4-41 shows an example of a combination search on an author name for Word documents.

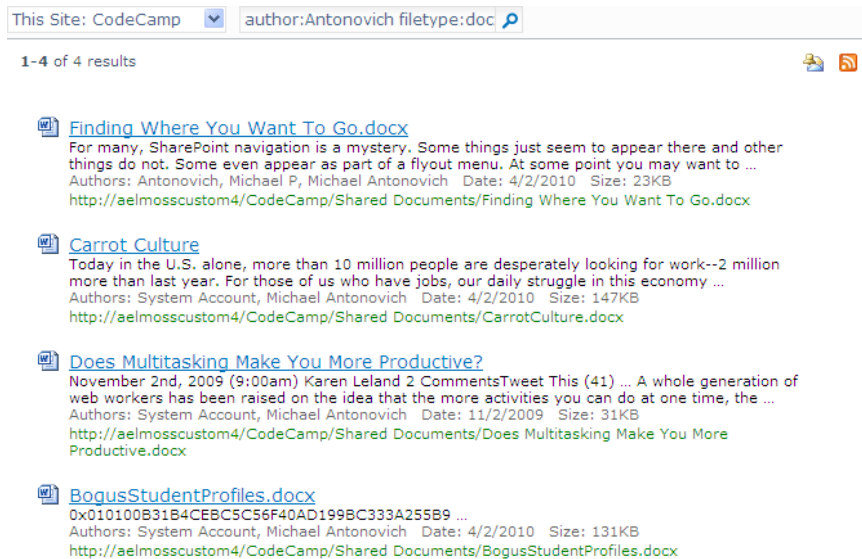


Figure 4-41. Results of a combination search for an author’s name

Using Word to Contribute to Your Blog Site

Blog sites have become increasingly popular in the last few years. Many companies support blogs to provide news about their company or their company’s products. They may even encourage specific individuals with a flair for writing to post blogs favorable to the company or its products. Many individuals use blogs as personal diaries. Developers and consultants use blogs to document their work and to provide a place to post downloadable information about their current projects. Speakers and authors often use blogs to post additional information for their attendees or readers such as sample code or their slide presentation.

Before you begin contributing to a blog, you must have a hosted blog site. Thousands of blog sites already exist on the Internet. Most allow visitors to the site to contribute to them after registering on

their site. However, you may want to have your own blog site not associated with another company or organization. If you have a SharePoint site, and if you have permission to create sites on it, you can follow the steps in the next section to create your own blog site. If you do not have permission to create sites, talk with your SharePoint administrator to see if he can set up a blog site for your use. Of course, if your administrator built the SharePoint installation as an intranet site only, your blog will only be visible to users within your company. If that satisfies your need for fame, go for it! Otherwise, you might consider a public site such as Microsoft's Live Spaces to host your blog.

Creating a Blog Site

You can create a blog site as a sub site to any site. Some people may create a personal blog site in their My Site area. However, you may want a department or project blog. The following instructions step you through creating a blog site beneath any site:

1. Navigate to the site where you want to create your blog.
2. Select **New Site** from the **Site Actions** menu.
3. Select **Blog** from the available site types under the category **Content**.
4. Before filling anything else, click **More Options**.
5. Enter a name for your blog site along with a description.
6. Enter a web site address for the blog. Notice that SharePoint provides the first part of the address, defining the root address for the site. However, you must supply the final portion to identify the blog site.

■ **Tip** In addition to trying to keep your blog address short and easy to remember, I recommend that you use the blog title just entered, removing any special characters or blanks.

7. Define permissions for your blog site. You can inherit the permissions from the parent site, or you can create unique permissions to your blog site. Remember that defining unique permissions means that you will have full responsibility for creating all permissions to your blog. If you want just a personal blog for yourself, your close friends, or the other members of your department or project, unique permissions may be exactly what you need.
8. Define the navigation into and out of your site.

In the Navigation section, you define navigation into your blog site. You can determine whether a link to the blog appears in the **Quick Launch** menu and whether to display the blog site in the top link bar of the parent site. While these two navigation options provide users with ways to get to your blog site, they are not the only methods you have at your disposal. You could also add links on your site's home page pointing to your blog. If every user in your company or every product team has their own blog site, a Links list on your site's home page may be a better way to help visitors navigate to one of dozens of blog sites in your SharePoint installation.

The navigation section also includes a method to help users navigate away from your blog site. SharePoint asks whether the blog site shares the top link bar with its parent or whether it starts the top link bar all over again with just the blog site listed. By sharing the top link bar with the parent site, the user can navigate back to the parent site. However, even if you do not share the top link bar, users can still return to the top-level site by clicking the link in the **Global Links Bar** at the top of the page.

After defining the properties for your site, click the **Create** button. SharePoint creates the site and displays its main page as shown in Figure 4-42. You see a default welcome message provided by SharePoint. If you have rights to add, edit, and delete list items, you will see a column to the right of the blog entry area with administration tools for the blog.

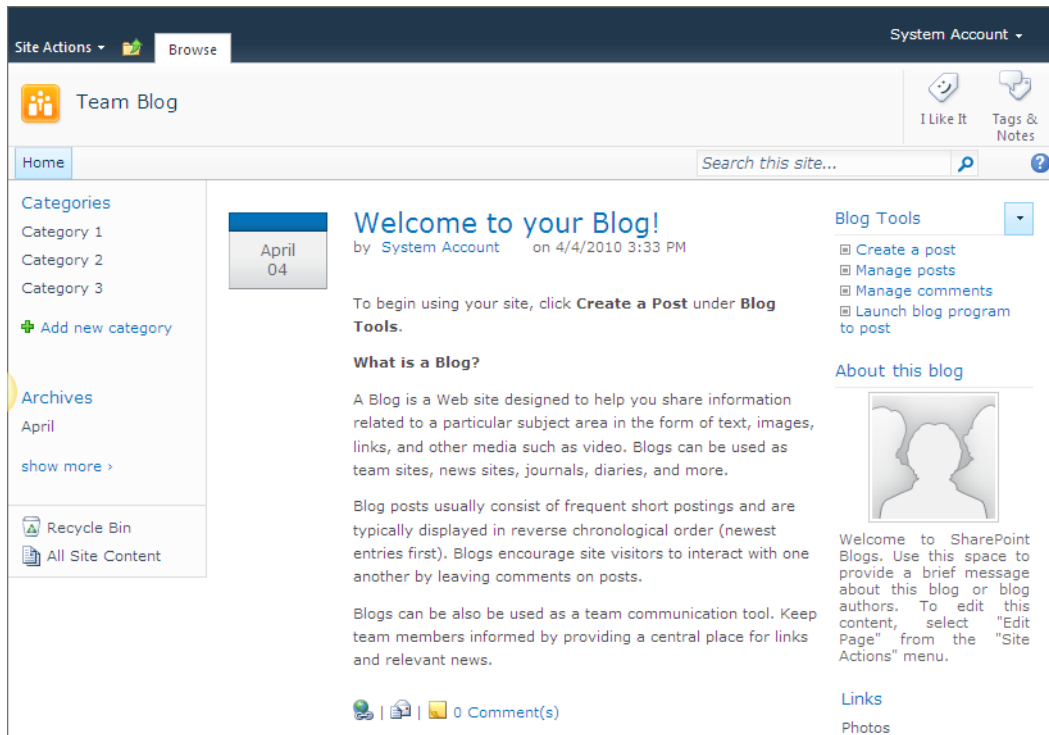


Figure 4-42. Main page of a blog

The following list itemizes the available administration options:

- **Create a Post:** Create a new blog entry
- **Manage Posts:** Edit/Delete blog entries
- **Manage Comments:** Edit/Delete comments associated with blog entries

- **Launch Blog Program to Post:** By default, this option loads Word and automatically starts defining the blog account needed for Word to publish a blog entry directly to the site.

Beneath this option is a web part called **About this blog**. This web part is actually a **Content Editor** web part and provides an image at the top followed by a welcome text message. The default image displayed is a placeholder image that is 102 pixels square and is stored at http://vanguard/_layouts/images/. However, you can upload an image to any image library and reference, it such as an image library created in your blog site. While you can use an image that is larger than 102 pixels, using an image that is larger than the content area you place it in could cause your page to display incorrectly. To edit the text beneath the image, click anywhere within the text and begin typing.

Beneath the **About this blog** web part, you see a **Links** web part. Use this web part to define links to other pages on your site or even in other sites. If you are building a personal blog page, these links might point to other sites of special interest.

Before you create your first blog post, you should also note that SharePoint 2010 automatically turns on RSS feeds for the posts on the blog page so your readers can subscribe to your latest entries.

Defining Categories for Your Blogs

Perhaps you noticed in the **Quick Launch** menu the three categories generically named **Category 1**, **Category 2**, and **Category 3**. Within a blog site, you may want to separate entries by category to organize them by topics or types. For example, you might use a different category to post code updates, discussions on configuration settings, or posts of instructions on how to use application features. You might even keep separate categories to post FAQs or to report bugs.

While you do not need to have all your categories predefined before people start to add posts to the blog site, you probably want to define at least a few major categories to keep all of your posts from being lumped together in one category.

■ **Tip** A person with administrator rights for the blog site can go into individual posts and reassign them to a different category. Administrators often do this when posts on a shared site with many blog contributors start to diverge from the intended purpose of the category. They may also do this to split categories into smaller groups.

To define your own initial set of categories, click **Categories** in the **Quick Launch** menu. SharePoint defines categories as a simple list of items in which the **Title** column defines the category. As with many lists, when you click a title, SharePoint opens the view that displays all columns for the selected item. Of course, the Categories list only needs one column. To change the value of any item, click **Edit Item** in the menu bar and enter your desired category text.

In a similar way, update each of the category items, adding or deleting items as necessary to build the complete list of categories you need. When finished, return to your blog site's home page by finding its reference in your breadcrumbs. Before leaving this page to create blog posts from within Word, take note of the **URL in the address bar of your browser**. Commit it to memory, copy it to the clipboard, or write it down because you will need to reference it to tell Word where to send your blog posts. You can ignore the portion of the URL at the end that says `default.aspx`.

Creating a New Blog Posting

To create your first blog post, return to Word and open the **File** menu. Click **New**. You should see **Blog post** in the **Available Templates** section. Select this template and click the **Create** button. If you never created a blog post before, you may get a dialog box asking you to register your blog account (see Figure 4-43). You can skip registration for now by clicking **Register Later**, as Word prompts you again when you attempt to post your first blog.

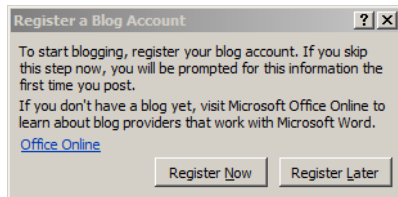


Figure 4-43. Register a Blog Account dialog box

Word then displays a blank document with a text field at the top of the page that prompts **[Enter Post Title Here]**. Click anywhere between the square brackets, and enter the title for your post. Then click beneath the horizontal line below the title and enter your blog text.

■ **Note** If you previously created accounts for your blogs, immediately below the horizontal line you will see the word **Account** followed by the name of your default blog account. If you have more than one blog account, simply click on the name of the default blog account to display a drop-down control. Click the drop-down arrow on the right side to display and select to which blog account you want to send the current document. If the blog account you have selected has categories, you can click the **Insert Category** option in the **Blog Post** ribbon. This action adds an entry below Account to let you select the category to assign your blog post to when you publish it to the currently selected account.

By creating your blog entry with Word, you can take advantage of all the formatting features Word offers. When you finish, click the **Publish** button in the **Blog** section of the **BlogPost** ribbon in Word. Figure 4-44 shows a blog post prior to publishing.

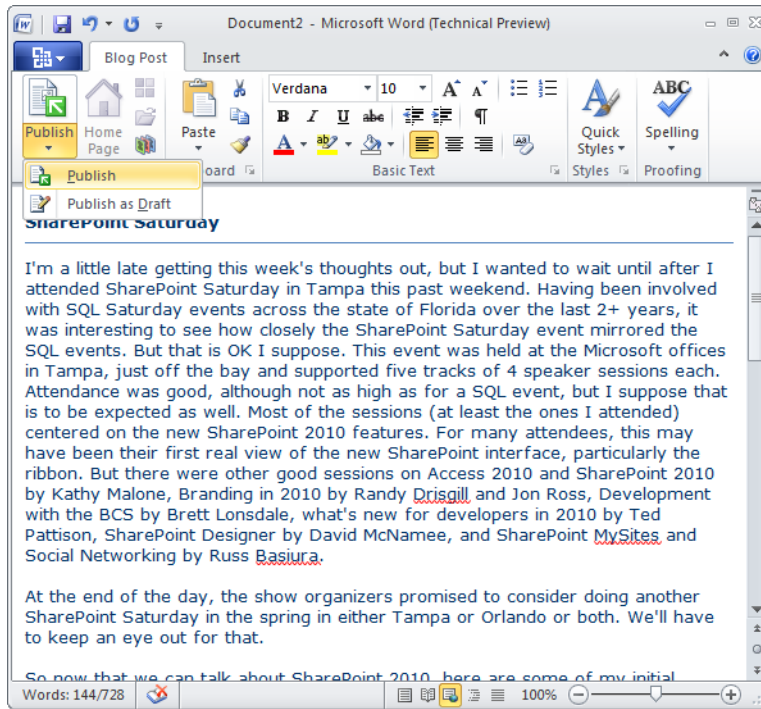


Figure 4-44. Publishing a blog entry from Word 2010

When you click **Publish** for the first time, you must register an account if you did not do so when you first selected a blog style document. Remember, you skipped registration earlier, so you must do it now. Click the **Register an Account** button in the first dialog that appears. A **New Blog Account** dialog box appears, as shown in Figure 4-45. This wizard provides a drop-down list of available blog sites to which you could publish. Maybe you already use one of these blog sites but did not know that you could publish directly to it from within Word.

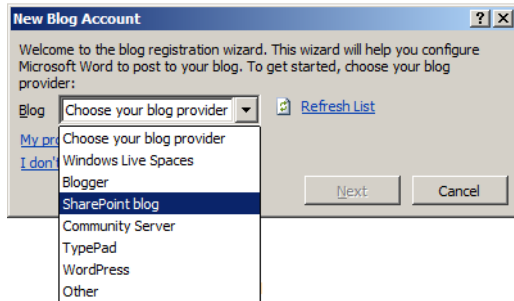


Figure 4-45. Creating a new blog account

To publish to your SharePoint blog, select **SharePoint blog** and click the **Next** button. The **New Blog Account** dialog box needs one more piece of information to post your text, the blog URL. This URL refers to the address I asked you to commit to memory or write down earlier. Enter it in the **Blog URL** text box, as shown in Figure 4-46, and click the **OK** button.

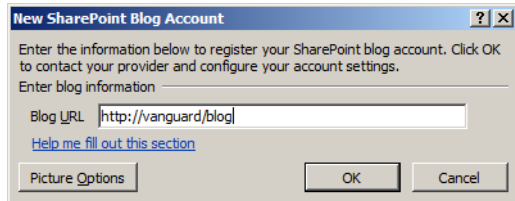


Figure 4-46. Entering your blog URL

■ **Tip** You can also get to this same point by clicking the previously mentioned Blog Tool on SharePoint's Blog page Launch blog program to post.

Word then alerts you that it is sending information to the blog service provider and that other people may see it. Setting up a SharePoint blog site on your company's SharePoint server exposes you to little risk, especially if your servers and you sit behind the company's firewall. So click **YES** to continue. When Word successfully registers with SharePoint, a dialog box displays, confirming its success and also informing you that you can go to the **Blog Post** ribbon within Word and click **Manage Accounts** to remove, modify, or add other accounts.

When Word returns to the document page, a banner across the top of the page tells you that it published the post to the blog site at the specified URL. Switching back to your browser, you can navigate to your blog site to see the post as shown in Figure 4-47.

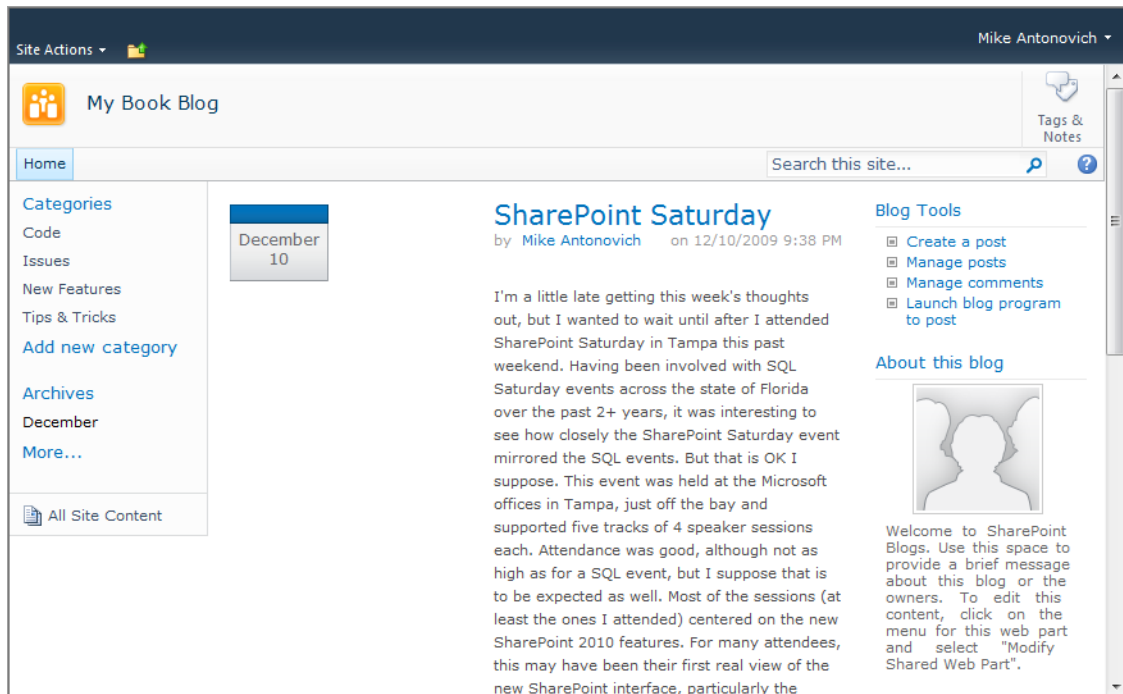


Figure 4-47. Viewing a published blog entry in SharePoint

■ **Note** If you had already pointed your browser to the blog page before starting this process, you may need to refresh the page in order to see the latest posting.

SharePoint automatically enables RSS feeds for blog sites. You can see the orange RSS feed icon in either the browser's menu bar at the top of the window or at the bottom of the page below the last blog entry. When your browser displays the orange RSS feed icon, you know that the feed has been enabled. That means that you and your users can subscribe to this RSS feed and receive notification when you or someone else posts new entries to this blog.

Commenting on a Blog Entry

To add a comment to an existing blog post, click the **Comments** link beneath the post. This adds a small form to the screen prompting for an optional title and the body of the comment, as shown in Figure 4-48. Comments automatically include the SharePoint user name of the person adding the comment as well as the date and time she added it. Comments do not display by default, but if you click

the **Comments** link when the number in parentheses is greater than zero, you can view these comments and add your own.

Comments

There are no comments for this post.

Add Comment

Title	SharePoint Saturday - Jay
Body *	I thought the presentations were excellent considering the newness of this release.

Submit Comment

Figure 4-48. Adding a Comment to a blog entry

Setting List Level Blog Permissions

SharePoint stores blogs as a list named **Posts**. As a list, you can control who has access to create and edit blogs. If you created your blog site by inheriting permissions from a parent site, then anyone with content creator rights in the parent site can contribute to your blog. However, if you need to limit the number of people who can create blog entries, you must break that inheritance.

To break inheritance of permissions, open the **Posts** list by going through **Site Actions** ► **View All Site Content**. With the Posts list open, select the **List** ribbon and click on **List Settings** in the **Settings** group. In the **Permissions and Management** column, select **Permissions** for this list. If this list still has permission inheritance turned on, a banner appears immediately below the ribbon telling you that the list inherits permissions from its parent. SharePoint provides a link to manage the parent's permissions. You can break inheritance for this list by clicking **Stop Inheriting Permissions** from the **Inheritance** group of the **Permission Tools** ribbon. This option allows you to define custom permissions for your blog.

After you stop inheriting permissions, the page refreshes and you can now change the permissions of the inherited groups and users, deleting existing groups and users, and adding new groups and users as necessary. Remember, only people with edit rights can manage posts and comments. On most public blog sites, people who can create blog posts can go back and edit their submitted entries. Typically, however, people who can only post blog comments cannot edit or delete their entries after they submit them. So be sure you want others to see what you have written before you submit your posts or comments. Finally, if you are the administrator of the blog site, you might need to delete blog or comment entries if they become inflammatory, abusive, discriminatory, or constitute a character attack.

The following steps define how you might create a new permission level that allows its members to view blogs without being able to create new blog entries or add comments.

1. Navigate to the blog site and then select **Site Permissions** under **Users and Permissions** section from the **Site Actions** button.
2. On the **Permissions** page, click **Stop Inheriting Permissions** from the **Inheritance** group of the **Permission Tools** ribbon. This option breaks the inheritance from the parent site after making a copy of the parent permissions on the current site.
3. Go to the top-level site of your current site collection and select **Site Permissions** from **Site Actions** button.
4. Click **Permission Levels** from the **Manage** group of the **Permission Tools**.
5. You can now edit the permissions in any of the existing levels or you can define unique permission levels for use anywhere within the site collection, not just your blog site. For example, you might want to place everyone except your department staff in a group that only has read rights to blogs.
6. On the **Permission Levels** page, click **Add a Permission Level**.
7. Name the permission **Blog Readers**.
8. Under **Permissions**, select only the following options:
 - View Items
 - Create Alerts
 - View Application Pages
9. In addition, under **Site Permissions**, select these options:
 - View Pages
 - Open
10. When you click **Create**, you will see that SharePoint created a new permission level named **Blog Readers**.
11. Return to the **Permissions** page of your blog site and check the check box before <<**Site Name**>> **Visitors** where <<Site Name>> represents the name of your blog site.
12. Click **Edit User Permission** to change the permission for this group from **Read** to **Blog Readers** and click **OK**.

Now when users assigned to the <<Site Name>> Visitors group visit the blog site, they can only view the existing blogs. They can also view the comments associated with them, but they cannot create new blog entries or add comments to existing entries. In a similar way, you can customize permissions for other groups who access your blog site.

In the future, if you may decide that you would rather inherit rights from the parent site, you can do so by returning to the **Permissions** page of the blog site and selecting **Inherit Permissions** from the **Inheritance** group of the **Permission Tools** ribbon.

Setting Item-Level Blog Permissions

In addition to setting the overall list permissions as described in the last section, blogs, like other lists and libraries, also allow you to fine-tune permissions that determine who can read, create, and edit items in the list. Let's look at the permissions that affect what a user can see and do. Begin by going to the **Blog Tools** section of the blog page and selecting **Manage Posts**. This action displays the **Posts** list, a list like many of the other lists you have examined. From the **Settings** group in the **List** ribbon select **List Settings**. Then select **Advanced Settings** under **General Settings**.

The top section of this page, shown in Figure 4-49, begins with an option to allow you to management content types. For this list, leave this option set to **No**. The next section displays item-level permissions. Notice that you can control whether users can read all posts or just their own. If users can only read their own blogs, your blog site becomes more like a private diary than a public blog.

<p>Content Types</p> <p>Specify whether to allow the management of content types on this list. Each content type will appear on the new button and can have a unique set of columns, workflows and other behaviors.</p>	<p>Allow management of content types?</p> <p><input type="radio"/> Yes <input checked="" type="radio"/> No</p>
<p>Item-level Permissions</p> <p>Specify which items users can read and edit.</p> <p>Note: Users with the Manage Lists permission can read and edit all items. Learn about managing permission settings.</p>	<p>Read access: Specify which items users are allowed to read</p> <p><input checked="" type="radio"/> Read all items <input type="radio"/> Read items that were created by the user</p> <p>Create and Edit access: Specify which items users are allowed to create and edit</p> <p><input checked="" type="radio"/> Create and edit all items <input type="radio"/> Create items and edit items that were created by the user <input type="radio"/> None</p>
<p>Search</p> <p>Specify whether this list should be visible in search results. Users who do not have permission to see these</p>	<p>Allow items from this list to appear in search results?</p> <p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>
<p>Offline Client Availability</p> <p>Specify whether this list should be available for offline clients.</p>	<p>Allow items from this list to be downloaded to offline clients?</p> <p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>
<p>Datasheet</p> <p>Specify whether the datasheet can be used to bulk edit data on this list.</p>	<p>Allow items in this list to be edited using the datasheet?</p> <p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>
<p style="text-align: center;"> <input type="button" value="OK"/> <input type="button" value="Cancel"/> </p>	

Figure 4-49. Advanced settings for the Posts list

More importantly, you can define whether users can create and edit all posts, only their own posts, or no posts. You may not want to allow anyone with edit permission to be able to change all blog entries no matter who created them. On the other hand, if you select none, you effectively block all attempts to edit or delete a post once you have submitted a post. Even the creator of the blog entry cannot go back to edit or delete their own entries. Only a site administrator or site owner with the Manage Lists permission can then edit or delete posts. You control how restrictive you want to make this setting.

Next, determine whether the search engine includes blog entries in its search. You can also set whether users can download blog entries into offline clients and whether the list can appear in bulk edit mode, otherwise known as Datasheet mode. Finally, SharePoint 2010 allows you to determine whether the new, edit, and display forms appear within a separate popup dialog or whether they appear as a full-page form.

Summary

In Chapter 1, you saw how to create documents using Word for your document libraries and how to define default templates for those libraries. In this chapter, you took a deeper dive into using Microsoft Word with your SharePoint site. You saw how to work with documents in Word and then save them directly to existing SharePoint libraries and even how to create new documents from Word.

You also looked at metadata. Office products such as Word have supported the additional file properties for some time. SharePoint makes use of those properties by allowing you to associate them with columns in a library view. Once exposed as columns in a view, you can customize the view to aggregate the information found in those columns to create counts, sums, filters, etc.

You also looked at how you can use the Document Information panel to show more about the status of the document and your library site. The SharePoint Search feature helps locate documents in your libraries because it searches for words not only in the document's title, but also in the document's content as well as its metadata. You also created entries to your blog sites directly from within Word and posted those entries without logging directly into SharePoint.

Microsoft Word strongly complements SharePoint and opens the door to web-based collaboration support to people with normal Office skills. Most users knowledgeable in Word can become productive in a collaborative environment, supporting document libraries and contributing to blog sites in a short time.

In the next chapter, you will explore a different tool in the Microsoft Office Suite, Outlook. You will see how Outlook integrates its calendar and tasks with similar features in SharePoint. You will also learn how to use Outlook to synchronize documents so you can take advantage of offline editing.



Using Outlook

This chapter focuses on using Outlook 2010. Although much of what I discuss here also works with Outlook 2007, previous versions of Outlook supported far fewer integration points with SharePoint. In fact, Office 2003 only allowed you to view copies of SharePoint lists such as the tasks list, the contacts list, and calendar list. You could not edit the data in these copied lists and send the changes back to SharePoint. While Outlook 2003 could receive alerts generated by SharePoint when someone made changes to these lists, it could not use RSS (Really Simple Syndication) feeds.

Of course, Outlook 2007 and Outlook 2010 expand on these limitations, turning Outlook into a virtual front-end client for SharePoint. Today not only can you copy lists to Outlook, but you can share changes made in Outlook with SharePoint. In addition, Outlook supports RSS feeds, workflow integration, records management, and more.

Let's begin by looking at basic sharing of lists such as SharePoint's contacts lists with Outlook.

Synchronizing Your Contacts Lists Between SharePoint and Outlook

Suppose you have one or more SharePoint sites that you regularly visit in your organization. They may be departmental or project sites, it doesn't matter. What does matter is that each of these sites has multiple contacts lists that you might need to reference on a regular basis. But going online and finding which site the contact is in each time you need a phone number, physical address, or an e-mail address just takes too long. Of course, you could just reenter the information you frequently use into Outlook yourself, but who has time for that? Besides, storing data in duplicate locations is a sure way to create data inconsistencies when one source gets updated while others do not. Fortunately, SharePoint can simplify your life.

Connecting Your SharePoint Contacts List to Outlook

To begin organizing your contacts in one place, open your favorite SharePoint site, one that has a contacts list that you frequently access. I'm going to open the list **CoWorkers** located in my team site. (Of course, you can begin with your own contacts list in one of your own team sites.)

1. Open the list in a separate window by selecting the list from the **View All Site Content** page.
2. Open the **List** ribbon from the **List Tools** group. Then in the **Connect & Export** group, located the command **Connect to Outlook**.

At this point, SharePoint attempts to connect to Outlook on your local computer. First, Internet Explorer raises a security warning to tell you that Microsoft Outlook is attempting to open content on your computer. Since you initiated this action, you should feel safe clicking the **Allow** button as shown in Figure 5-1.

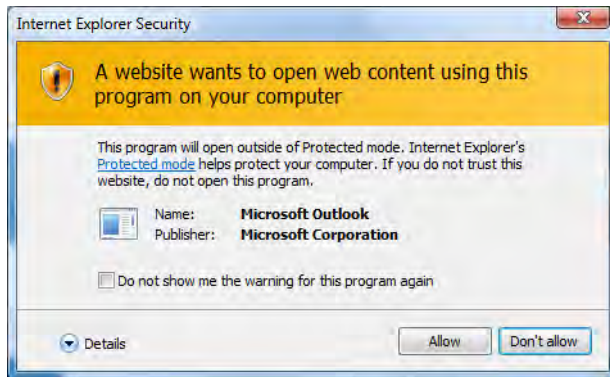


Figure 5-1. Vista and Windows 7 try to protect your computer from data connections.

■ **Note** The warning message in Figure 5-1 pops up frequently when you follow the examples in this chapter and many of the rest. However, I will not display this dialog each time. Just keep in mind that, if you are working with your own SharePoint servers, there is no reason not to allow the website to access content on your computer. Also, this dialog may appear slightly differently if you are using Windows XP.

Outlook recognizes this attempt and raises a warning message box asking you whether you know and trust this source. To help you decide this vital security question, the message box, shown in Figure 5-2, displays the name of the site and the list. It also includes the list's URL. The buttons at the bottom of the box let you accept the connection by clicking **Yes** or reject it by clicking **No**. Of course, in this case you trust the source, so click **Yes**.

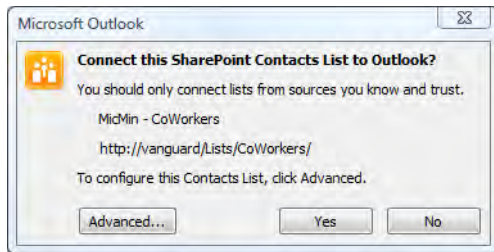


Figure 5-2. Connecting to a trusted SharePoint contacts list

In most cases, you will not need to open the **Advanced** dialog box. However, if you are curious and do click the **Advanced** button, it will display the dialog box shown in Figure 5-3. This dialog box allows you to change the folder name where Outlook stores the transferred contacts list. By default, SharePoint concatenates the site name with the contacts list name, using a hyphen between them. This usually defines a unique tasks list name in Outlook. However, you can supply your own name if you prefer. You can also provide a description for the folder. Outlook displays this description when you look at the properties of the created folder. This dialog box also displays other properties for informational purposes such as the list name, list type, and its URL.

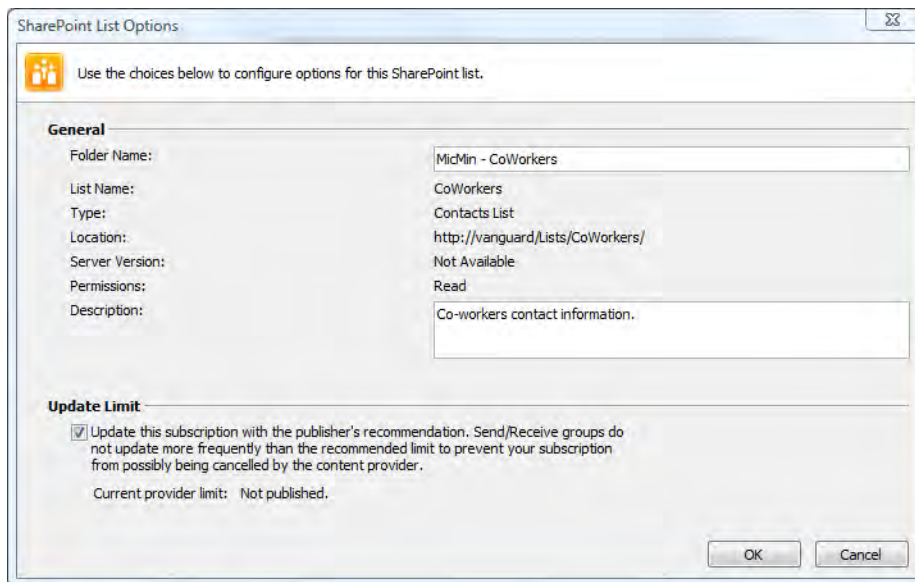


Figure 5-3. Defining the folder name and description for a shared contacts list

After you click **OK**, SharePoint transfers all items from the SharePoint list to the new folder in Outlook. If the SharePoint list has columns that do not have corresponding fields in Outlook, Outlook

ignores them. Table 5-1 shows a list of the default SharePoint contact columns and their corresponding Outlook contact fields.

Table 5-1. *Mapping SharePoint Contact Columns to Outlook Columns*

SharePoint Column	Outlook Column
Last Name	Last Name
First Name	First Name
Full Name	Full Name
E-mail Address	E-mail
Company C	ompany
Job Title	Job Title
Business Phone	Business
Home Phone	Home
Mobile Phone	Mobile
Fax Number	Business Fax
Address Business	Address
City Bus	iness City
State/Province Business	State/Province
Zip/Postal Code	Business Zip/Postal
Country/Region Business	Country
Web Page	Web Page
Notes Notes	
Created By	<Not mapped>
Modified By	<Not mapped>

Adding SharePoint Columns That Will Synchronize with Outlook

Perhaps you realized that Outlook supports many other fields than those shown in Table 5-1. Can you use those too? Yes, you can use them on the Outlook side without affecting the synchronization of the other data fields with SharePoint. SharePoint ignores these additional fields.

In Chapter 2, you saw that you could add columns to a list. Let's use that same technique to add some of the other fields that Outlook supports that were not in the initial SharePoint contacts list by adding the contact's home address information.

1. Begin by opening the linked contacts list in SharePoint.
2. Open the **List** ribbon and select **List Settings** from the **Settings** group.
3. In the **Columns** section, click **Add from existing site columns** at the bottom of this section.
4. Select **All Groups** from the first drop-down combo box if not already selected.
5. Scroll down through the list of fields until you find the home address fields. Select the following fields:
 - **Home Address City**
 - **Home Address Country**
 - **Home Address Postal Code**
 - **Home Address State or Province**
 - **Home Address Street**
6. Be sure to check the box **Add to default view** if you want to see these values in the list view.
7. Click **OK**.

Selecting Multiple Items

When selecting multiple items as in step 5, you can

- Select each one by clicking it and then clicking the **Add** button.
- Double-click each item.
- Click the first item. With the Shift key pressed, click the last item. (Use this technique when selecting a contiguous range of values.) Then click the **Add** button.
- Click the first item, and then while holding down the Ctrl key, click each additional item. (Use this technique when selecting items scattered throughout the list.) Then click the **Add** button.

Now when you return to your list, you can edit any or all of your contact items to add home address information. However, just because you clicked **OK** to save your changes in SharePoint doesn't mean those changes will immediately appear in Outlook. To force a refresh, open the **List** ribbon and again select the **Connect to Outlook** option from the **Connect & Export** group. This forces SharePoint and Outlook to resynchronize the changes made.

Similarly, you can make a change to contact information in Outlook. Again, the change to the fields visible or not visible in the default view of the list may not appear immediately in SharePoint. Why can't you see the changes? Actually, in this case, Outlook has passed the changes to SharePoint, but web pages do not automatically refresh. To see the updated values, click the **Refresh** button in the browser menu.

Managing Update Conflicts

What if someone updates a contact in Outlook at the same time that someone else updates the same item in SharePoint? What happens to both sets of changes? It depends on who saves his changes first. If the Outlook user saves his changes first, then you as the SharePoint user get an error message when you attempt to save your changes that says:

Save Conflict. Your changes conflict with those made concurrently by another user.

If you want your changes to be applied, click Back in your Web Browser, refresh the page, and resubmit your changes.

What this statement does not make clear is that you may need to reapply your changes to the refreshed page. Consider that refreshing a web page updates all fields on the page including those fields just changed by the Outlook user. This, of course, erases all your changes.

If the SharePoint user saves her changes first, the Outlook user's change does not go through, but again no error message appears to tell the user that their changes were not saved due to a conflict with another user's edits.

Figure 5-4 shows an example of what a list synchronized from SharePoint looks like. Notice that Outlook places synchronized lists in a folder group named **Other Contacts** in the **Navigation** panel of the **Contacts** page. However, you can click and drag contacts lists between folder groups. If you do not like these folder groups, you can create a new folder group by right-clicking any of the folder group headers and selecting **New Folder Group**.

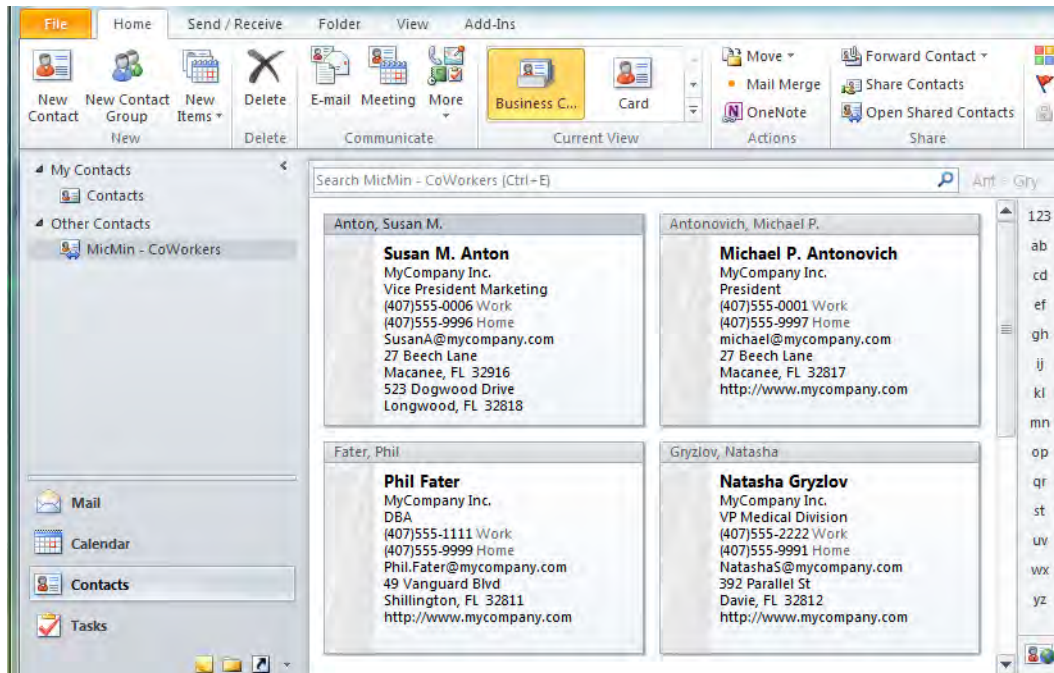


Figure 5-4. Synchronized contacts in Outlook

With each contacts list, you can right-click the list name to display its properties from the drop-down menu. The property dialog box consists of three tabbed pages. Click the **General** tab to see the description you entered back in the **SharePoint List Options** dialog box in Figure 5-3 when initially synchronizing the SharePoint list to Outlook.

You also have the ability to show or hide a contact folder from the e-mail Address Book drop-down shown in Figure 5-5. You can find the option in the third page of the properties dialog. When you click the check box before the option **Show the folder as an e-mail Address book**, you can also define another name to use for the contact list other than the one that appears in the left navigation panel.

Even if you hide the contacts list from the Address Book on the e-mail page, you can still open the Contacts page and click the desired list from the left navigation panel. Then locate the contact you want to send an e-mail. Finally, right-click the contact and select **Create ► E-mail** from the pop-up menu to begin an e-mail message to that person.

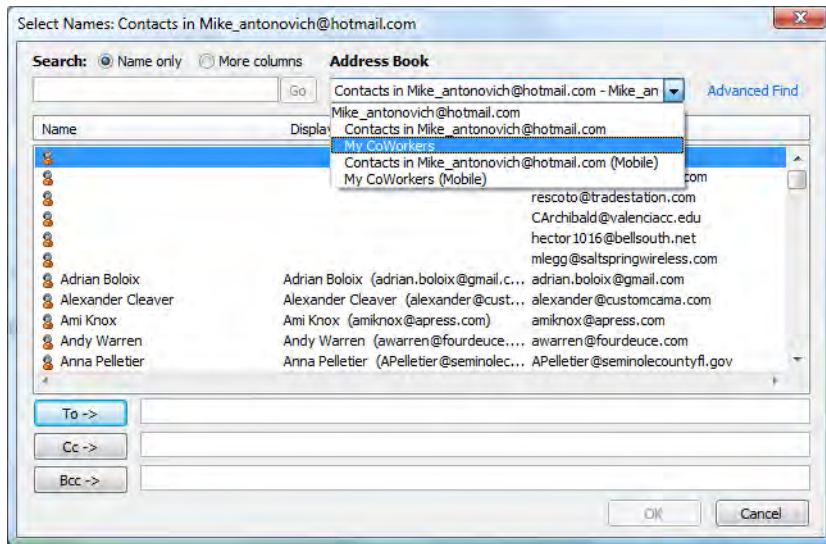


Figure 5-5. Synchronized lists appear in Outlook's Address Book.

Deleting Contacts

Just as you can edit contact information in either Outlook or SharePoint, you can delete contacts from either location as well. If you start from SharePoint, follow these steps:

1. Open the contacts list you want to edit.
2. Locate the contact you want to delete.
3. Hover your mouse over the contact to activate the drop-down menu button to the right of the contact.
4. Open the drop-down menu (see Figure 5-6).

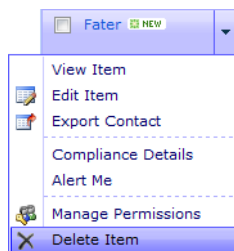


Figure 5-6. Deleting a contact from SharePoint

5. Click **Delete Item**.

As with documents and other lists, SharePoint prompts you with a dialog box to ensure that you really want to delete the item. Remember that even when you delete items from lists, SharePoint first places them in the site Recycle Bin for a limited time, from where you can restore them later.

■ **Note** Remember that you can ask your SharePoint administrator to change the length of time items stay in the Recycle Bin. By default, they stay there 30 days. However, your administrator can change this by going into **Central Administration** and selecting **Manage Web Applications** from the **Application Management** tab. Then select your web application, probably **SharePoint – 80** if you accepted the default name. Then, from the **General Settings** drop-down in the **Manage** group, select **General Settings**. Finally, scroll down the page to the **Recycle Bin** section to the **Recycle Bin** group and change the number of days items kept in the Recycle Bin.

If you open the **Outlook Contacts** page and view the shared SharePoint list, you will find that the contact has also been deleted from the Outlook list.

Recovering Deleted Contacts

If you accidentally delete the wrong contact, open the site Recycle Bin found at the bottom of the **Quick Launch** menu. You may need to scroll through the items previously deleted to find the contact record, or you can sort on the **Deleted** date field by clicking it. However, after you find it, click the box to the left of the name and click **Restore Selection** from the menu bar at the top of the Recycle Bin.

After 30 days (or whatever number of days your Recycle Bin has been set to), SharePoint removes the item from the site Recycle Bin so it doesn't continue to grow indefinitely. Even if you were to go into your Recycle Bin and delete an item from the bin before the 30 days have expired, you can contact your SharePoint administrator and ask him to retrieve the item from the site collection Recycle Bin. SharePoint holds deleted items here until the original 30 days (or other time period) has expired before permanently deleting the item.

Figure 5-7 shows that the deleted contact in the Recycle Bin is selected for restoration. Notice that the Recycle Bin also contains a deleted document. The Recycle Bin holds everything from lists to libraries to web pages. If you have trouble finding a deleted item, you might want to sort by item type as well as the deleted date and time to help locate the item you want.

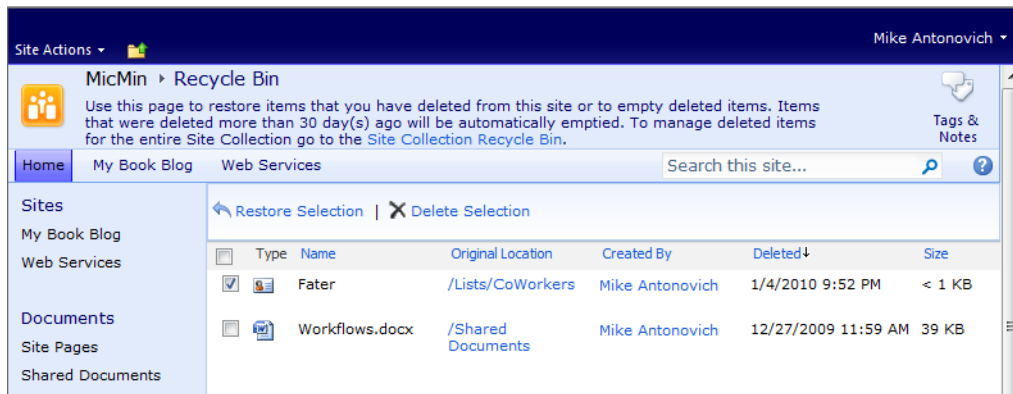


Figure 5-7. Restoring a deleted contact from the Recycle Bin

After you click the **Restore Selection** link, SharePoint prompts to confirm the item by name that you want to restore. When you click **OK**, SharePoint restores the item from the Recycle Bin, returning it to the list it originally came from. You may be surprised to learn that the process of restoring the contact from the SharePoint Recycle Bin also places the contact back in Outlook’s shared list. You can verify this by opening Outlook and looking at the shared contacts list.

So what happens when you start by deleting the contact from within Outlook? In this case, SharePoint recognizes that you deleted the contact through Outlook and moves the contact information from the list to the Recycle Bin. From that point, the story remains the same. You can go into the Recycle Bin in SharePoint and restore the contact to both the SharePoint list and the Outlook contacts list.

■ **Tip** A quick way to refresh your shared contact list is to switch to one of the other Outlook pages, such as the Mail page, and then switch back to the Contact page.

Moving Contacts between Lists

SharePoint does not really provide a way to move or copy a contact from one list to another. However, if you share both contacts lists through Outlook, Outlook can accomplish this task quickly and easily by following these steps:

1. With both contacts lists synchronized in Outlook, open the list that you are going to copy the contact from in order to show the individual items it contains.
2. Click and drag the contact to the destination contacts list title in the **Navigation** panel on the left side of the screen.

3. When you release the mouse button, Outlook moves the contact from the original list and places it in the new list. You can verify this by returning to your SharePoint window and viewing the items in each contacts list. Remember to refresh the list displays if you already had them open.

■ **Tip** This ability to copy between contacts lists extends to all contacts lists in Outlook, not just those linked to SharePoint. As a result, you can use this technique as an easy way to populate a new SharePoint list from your main contacts list in Outlook.

If you work at a company that uses Exchange Server, your main Outlook contacts list already contains all the people in your organization. You can transfer that information to a custom SharePoint list for a department or project by following these steps:

1. Open SharePoint and create a new empty contacts list in the desired site.
2. Open the list after creating it.
3. Select **Connect to Outlook** from the **Connect & Export** group of the **List** ribbon
4. Open the main **Contacts** list in Outlook using the **Contacts** page.
5. Locate the people you want to add to the SharePoint list.
6. Right-click and drag the contacts to the SharePoint list name in the navigation panel.
7. Release the mouse button and select **Copy** from the pop-up menu. In this case, you don't want to move the contacts from one list to another.
8. Repeat Step 5 to copy each additional contact to the SharePoint list.
9. When finished, return to SharePoint and open the new list, or if you still have it open from before, refresh the page.

You now know how to populate a SharePoint list from Outlook without retyping the entries.

Synchronizing Your Calendars between SharePoint and Outlook

Calendars seem to be springing up everywhere. If you have been a Microsoft Office user, you probably already use Outlook's calendar to track your appointments, meetings, task due dates, and more while in the office. You may also add your personal events such as doctor appointments, birthdays, anniversaries, and your children's school events.

With the introduction of SharePoint collaboration, it has become easy for project managers and group managers to create shareable online calendars with events that affect everyone in the project or group. Like contacts lists, the more projects you belong to, the more calendars you must check on a

regular basis to make sure that you do not miss an event, a deadline, or a meeting. With so many places to check for the information you need, you can easily miss something critical.

To solve this problem of having too many calendars, you can join calendars from SharePoint and Outlook into a common view. Functionally, this technique works similarly to viewing calendars from multiple people. Besides being able to view multiple calendars together on the screen, sharing calendars between SharePoint and Outlook lets you manage multiple SharePoint calendars from Outlook.

Adding a SharePoint Calendar to Outlook

To add a SharePoint calendar to Outlook, begin by opening the calendar within SharePoint, as shown in Figure 5-8.

The screenshot displays the SharePoint calendar interface for May 2010. The top navigation bar includes 'Calendar Tools' and 'Events' tabs. The left sidebar shows navigation options: Day, Week, Month, and a 'Calendars in View' section with 'Calendar' selected. The main calendar grid shows events for each day of the month, including 'Weekly Staff M', 'Project Meeting', and 'Mtg with CEO'.

Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
25	26 9:00 am - 10:00 Weekly Staff M	27	28	29	30	1
2	3 9:00 am - 10:00 Weekly Staff M	4	5	6 10:00 am - 11:00 Project Meeting	7 2:00 pm - 2:30 Mtg with CEO	8
9	10 9:00 am - 10:00 Weekly Staff M	11 8:00 am - 4:00 SP Training Cle	12	13 3:00 pm - 5:00 Project ABC Re	14 2:00 pm - 2:30 Mtg with CEO	15
16	17 9:00 am - 10:00 Weekly Staff M	18	19	20 10:00 am - 11:00 Project Meeting	21 2:00 pm - 2:30 Mtg with CEO	22
23	24 9:00 am - 10:00 Weekly Staff M	25	26 7:30 am - 8:30 Dentist	27	28 2:00 pm - 2:30 Mtg with CEO	29
30	31 9:00 am - 10:00 Weekly Staff M	1	2	3 10:00 am - 11:00 Project Meeting	4 2:00 pm - 2:30 Mtg with CEO	5

Figure 5-8. Typical calendar list shown in SharePoint's calendar view

It does not matter which calendar view you begin from, as SharePoint synchronizes all calendar items with Outlook. Information that SharePoint synchronizes includes these columns:

- **Item Title**
- **Location**
- **Start Time**
- **End Time**
- **Description**
- **All Day Event**
- **Recurrence**

■ **Note** While calendar events in Outlook supports scheduling options such as selecting attendees, setting reminders, and adding flags and categories, these features do not exist in SharePoint. This difference in supported elements limits what information SharePoint can synchronize.

Next, open the **Calendar** ribbon, as shown in Figure 5-9, and select the option **Connect to Outlook** from the **Actions** group.

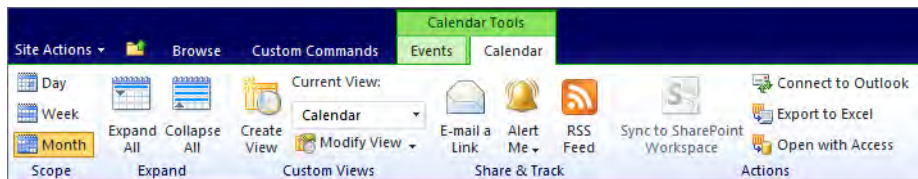


Figure 5-9. Choose *Connect to Outlook* to connect a calendar list to Outlook.

As with contacts, Internet Explorer begins by popping up a pair of dialogs similar to Figure 5-1 and Figure 5-2. The first asks if you really want open Microsoft Outlook to access web content. Click the **Allow** button on this dialog. Outlook needs you to verify that you trust the source before synchronizing with a calendar list from SharePoint or any other source. If you click **Don't Allow**, the process halts.

In the dialog box shown in Figure 5-10, Outlook displays the URL of the calendar list so you can verify whether you trust the list. If so, click **Yes** to continue. Also in this dialog box, Outlook shows the name it intends to assign to the calendar. By default, the calendar name concatenates the site name with the list name separated with a hyphen.

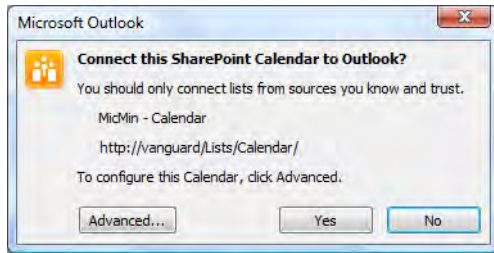


Figure 5-10. Confirm that you trust the calendar source.

If you click the **Advanced** button in this dialog box, you can specify your own calendar name as well as a description. You can view this description when you open the properties of the Calendar folder within Outlook. You might use this description to provide a more detailed explanation of the purpose of the calendar.

After Outlook creates the folder for the SharePoint calendar, you can display it within the **Calendar** page. Outlook has the ability to display two or more calendars at the same time. To display more than one calendar, open the **Navigation** panel shown in Figure 5-11 if not currently open. You can do this through Outlook's **View** menu.

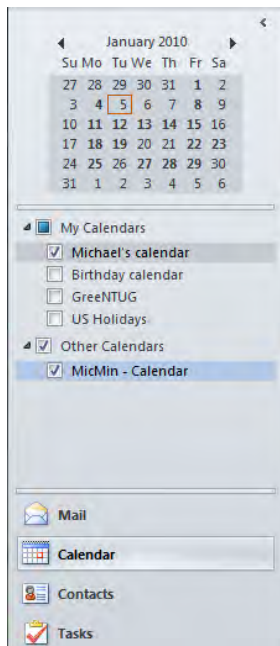


Figure 5-11. The Calendar Navigation panel in Outlook

In the top portion of the **Navigation** panel, a calendar appears. Use this calendar to select the month, week, or day you want to view. Beneath this calendar is a section that contains one or more subsections. By default, the subsection named **My Calendars** represents standard calendars created within Outlook. In this subsection, you should have at least one calendar named **XXXX Calendar** where **XXXX** represents your Outlook name. This is your primary Outlook calendar. If you have created additional calendars or attached additional files to Outlook such as archived Outlook files from the current or different machines, you may see additional calendars from these archives as well.

Creating a New Outlook Calendar

You can create a new Outlook calendar for a project or other special purpose by right-clicking anywhere on the line of one of the existing calendars in the left navigation. From the drop-down menu that appears, select **New Calendar**.

1. In the dialog box that appears, supply a name for your new calendar.
2. Make sure that the **Folder Contains** drop-down has the option **Calendar Items** selected.
3. Select where you want to create the calendar. You must create it from a user account, not under another folder or calendar.
4. Once created, the new calendar appears in the **My Calendar** subsection of the **Navigation** panel.

To display the calendar, click the check box to the left of the name.

A second subsection, named **Other Calendars**, holds calendars linked to Outlook from SharePoint. I use the term “linked” here rather than “copied” to emphasize that the SharePoint calendar can be updated in either SharePoint or Outlook and have those updates displayed in the other system.

You can display any combination of the calendars from these two subsections by selecting them using the check box to the left of their names. While you can display several calendars at once, the physical width of your monitor determines how many calendars you can reasonably view. Generally, viewing more than two or three at a time makes it difficult to read the events and appointments. However, by positioning your mouse over an item in the calendar, a ToolTip-style window appears beneath your cursor with the item’s time, subject and location.

Figure 5-12 shows two calendars side by side. The default Outlook calendar appears on the left, and a SharePoint calendar on the right.

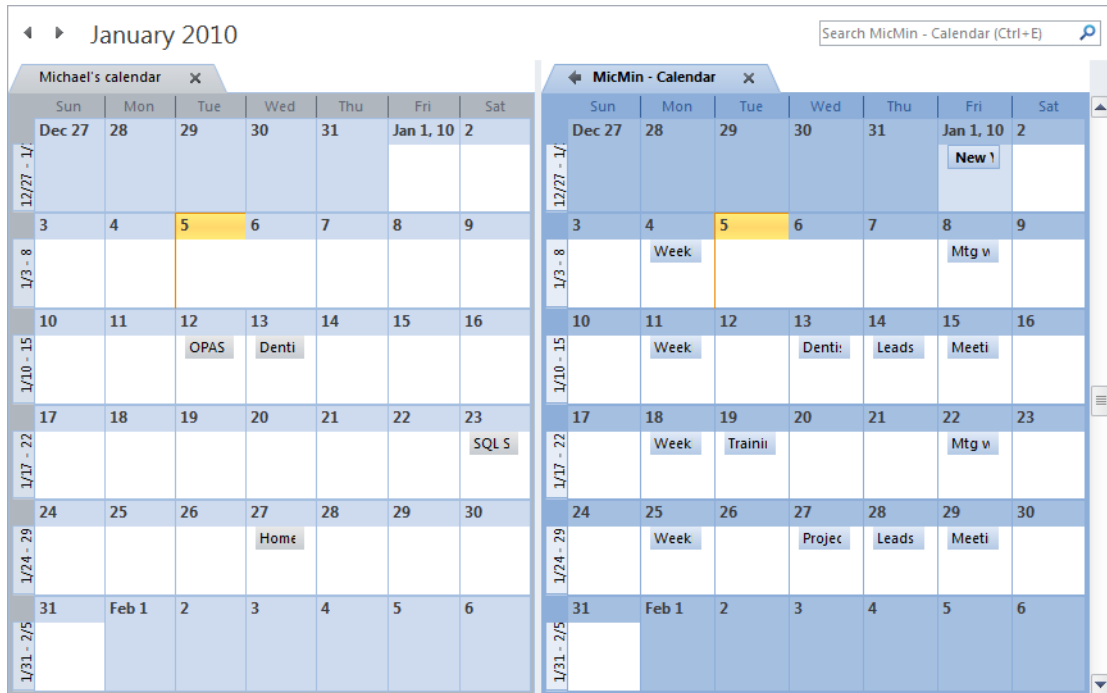


Figure 5-12. Displaying an Outlook calendar and a SharePoint calendar side by side

Outlook lets you display one day, one week, or a full month of each calendar by using the buttons across the top of the calendar area. You can quickly move between months by clicking the **Previous** and **Next** buttons, represented by left and right arrows respectively, at the top left of the calendar area. Each click moves your view one month at a time.

■ **Caution** You must be in month mode in order to move through your calendar one week at a time using the scroll wheel on your mouse.

Overlaying Calendars

While displaying two calendars side by side allows you to visually compare events and appointments on common days, you can make this process easier by overlaying the calendars on top of each other. To do this, click the arrow to the left of the calendar name tab of any calendar after the first one. When you do this, Outlook overlays the calendars to show a single view of your events and appointments.

Alternatively, you can select **Overlay** from the **Arrangement** group of the **View** ribbon, as shown in Figure 5-13.

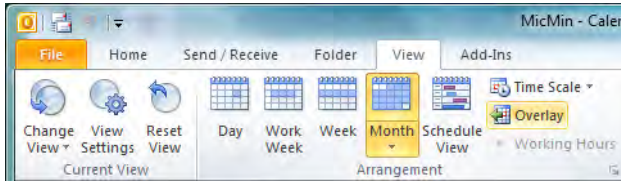


Figure 5-13. Switching view modes in the Arrangement group of the View ribbon

When Outlook overlays calendars, it displays a tab for each calendar at the top of the combined calendar. Click the tab of the calendar you want to appear on top of the others. The events and appointments of the top calendar appear in bold black text compared to the events and appointments beneath the top calendar. You should also notice that events for calendars beneath the top calendar use a font color that matches the tab color so you can easily identify to which calendar an event belongs when overlaying three or more calendars. Clicking between the tabs illustrates this point. Figure 5-14 shows two overlaid calendars. You can overlay calendars in any of the view modes: month, week, or day.

■ **Note** Grayscale images such as in this book don't really do justice to the full-color image of overlaid calendars. However, even in a grayscale image, you can identify the "on-top" calendar because it will have a darker font for the calendar text (in this case, Michael's Calendar).

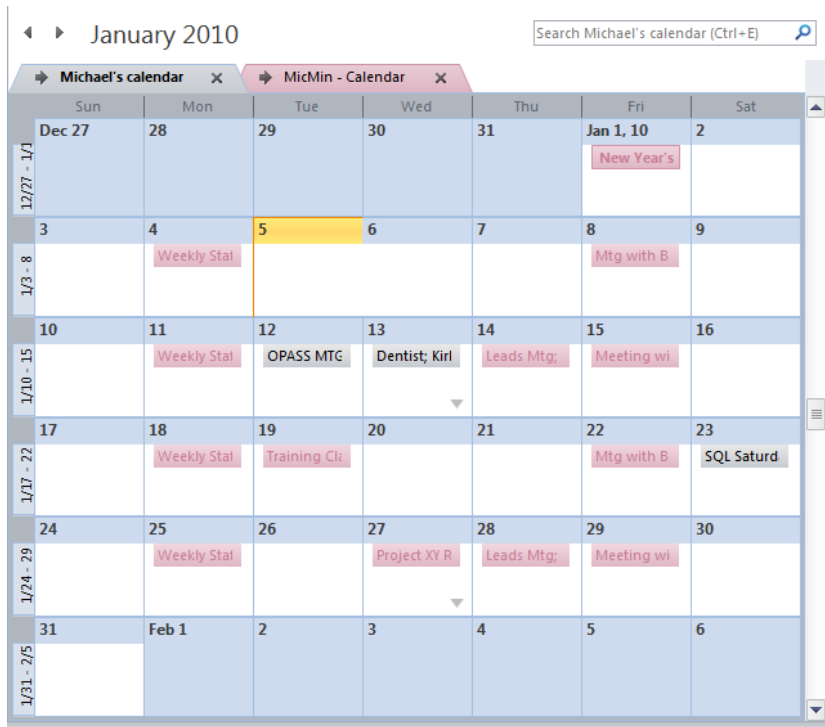


Figure 5-14. Overlaying two calendars using the month view

■ **Tip** If you can see the calendars of your coworkers, you can use this technique to overlay them to quickly spot times when you can have group meetings.

To display each calendar separately again, click the arrow to the left of any calendar name in the tab area. You can also click **Overlay** from the **Arrangement** group of the **View** ribbon to deselect this option.

Making Changes to Calendar Items

You can change the properties for an event or appointment in a synchronized SharePoint calendar by double-clicking it in Outlook to open the item's property form. Then click the **Save and Close** button to save those changes.

Outlook synchronizes changes to the original SharePoint calendar so that someone viewing the calendar item directly from SharePoint sees your changes. Similarly, changes made in the SharePoint calendar update the view in Outlook the next time you open the calendar page (or when you press F9).

■ **Caution** When editing an event or appointment from a SharePoint calendar within Outlook, you can set properties that will not synchronize back to SharePoint such as categories, flags, reminders, and several others. While Outlook saves these properties for use within Outlook, SharePoint ignores them. For example, **Categorize** in Outlook is used to visually tag appointments with different colors based on categories that you define while **Category** in SharePoint is a text property or attribute of the calendar event and has nothing to do with the physical display of the event.

Because users can update the calendar from either SharePoint or Outlook, conflict resolution for calendar data is handled the same way as when dealing with contact data described in the “Managing Update Conflicts” section of this chapter.

Copying and Moving Items between Calendars

If you have appointments in more than one calendar, you might display multiple calendars to help visually organize your day. You can also look for conflicting appointments or free time. You might even want to move appointments or events from one calendar to another.

To move an event or appointment when you have two or more calendars displayed, click and drag an item from one open calendar to the next. If you are copying an event that is part of a recurring sequence, a popup dialog asks whether you want to copy the entire series or just the selected occurrence. You can also cancel the copy from this dialog. Furthermore, if you copy an event from Outlook to SharePoint, Outlook displays a dialog (shown in Figure 5-15) that warns you that copying events from Outlook to the SharePoint list automatically removes incompatible content during synchronization. There is no corresponding warning when copying events from SharePoint to Outlook.

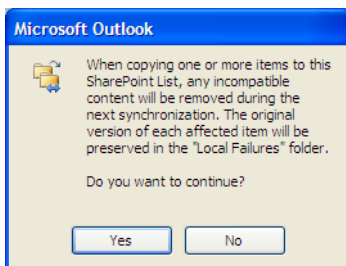


Figure 5-15. Outlook warning

While you can easily change the day of an appointment within a single calendar displayed in month mode, you cannot change the start or end times of the appointment by simply dragging the item; you must manually edit the times. This method, however, is much faster than reentering the appointment.

■ **Caution** Remember, anyone with access to that SharePoint calendar can see any calendar event you copy to a SharePoint calendar. It will also synchronize with their Outlook if they connect that calendar to their local Outlook. And, of course, you may not want to share your personal appointments.

You may want to create a separate calendar in Outlook to plan a project schedule. Then when you have worked out the details, you can link to a SharePoint calendar on a project collaboration site and transfer your milestone dates by dragging them from one calendar to another.

You can copy items in either direction to or from SharePoint. You could also use this technique to copy important events or appointments from a shared calendar to your personal calendar. However, once copied, the copy in your personal calendar will not show changes made to the SharePoint event or appointment or vice versa.

If, rather than copy, you want to move the item from one calendar to another, you could proceed exactly like the copy method I just outlined. After making the copy, delete the item from the original calendar. Alternatively, you can perform the operation in a single step by holding down the right mouse button while you drag the item. When you release the button, you can decide via a pop-up menu whether to copy or move the item to the new location.

■ **Tip** Need to create a project calendar but feel more comfortable working with Outlook's calendar interface? No problem. Build your project calendar in a separate Outlook calendar, link to the project calendar in SharePoint, and copy the events from your local calendar to SharePoint.

Deleting Items from the Calendar

When you delete an item from an Outlook calendar, you can restore it by selecting **Undo** from the **Edit** drop-down menu as long as you have not closed Outlook. However, after you close Outlook, you cannot recover it.

On the other hand, if you delete an item from a SharePoint calendar, even if you perform the delete on a synchronized calendar within Outlook, SharePoint places the deleted item in the site's Recycle Bin. You can recover the item by opening the Recycle Bin and selecting the item to restore, as shown in Figure 5-16. Then click the **Restore Selection** option.

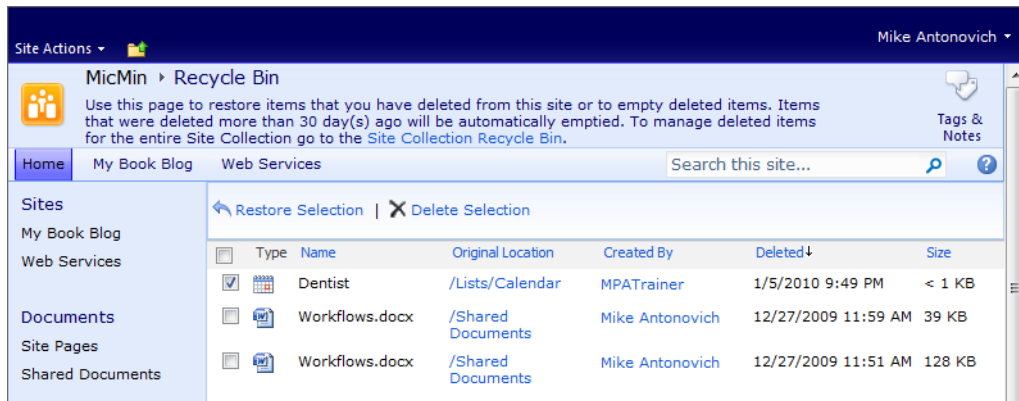


Figure 5-16. Recovering a deleted calendar item from SharePoint's Recycle Bin

After confirming that you want to restore the item, SharePoint puts the item back in the calendar. You will also see the restored item in the Outlook synchronized copy the next time you open Outlook. If you have Outlook open while restoring the item, you may need to click off the **Calendar** page, then perhaps go to the **Mail** page, and then return to the calendar page to see the restored item. You can also press F9 to perform a send-receive update.

Synchronizing Tasks between SharePoint and Outlook

Sharing tasks may be as important as sharing contacts for many people when they begin using SharePoint together with Outlook. If you already use Outlook to plan your day, you know how valuable it can be to keep all your tasks in one place where you can monitor start and due dates, group tasks by priority, categorize your tasks by percent completion, and set up reminders as deadlines approach. If you work as a consultant, you can use Outlook's **Tasks** tool to track hours for billing information. You can even use the large text area Outlook tasks provide as a task journal. For non-consultants, you might use these features to document the work effort required to complete tasks. You might even document external factors that affect your ability to meet deadlines.

No matter the specifics, using the **Tasks** feature in Outlook can help you organize and document your work. For many of these same reasons, your immediate manager or your project managers might also use the tasks list and project tasks list features of SharePoint as a convenient way to plan workloads and assign tasks to you. However, now you have a problem: you must view tasks lists scattered in several different places across one or more SharePoint installations. Your boss keeps his tasks list in the department work site, while each of the project managers you support have their own project sites with their individual tasks lists. In addition, you have your own personal tasks list stored in Outlook on your desktop. How can you keep up with changes to the individual tasks lists stored in different places to determine what you really need to focus on today? Of course, you could periodically open each list one at a time and check for new tasks or changes to your existing tasks. However, as you become busy and focus on any one task, you may forget to check the other tasks lists for the latest crisis. Fortunately, Outlook can serve as a collection point for multiple SharePoint tasks lists and can display them together with your own personal tasks list through a single page.

What About the Issue Tracking List?

Perhaps you remember from Chapter 2 that another list exists that tracks tasks: the issue tracking list. Your help desk staff might use the issue tracking list to log issues called in to them. They could use this list to assign issues that they could not directly resolve to the appropriate development staff. You might even use the issue tracking list on your personal, project, or department site to track problems.

You might think that it would be great to combine these tasks with other tasks gathered from other SharePoint tasks lists and project tasks lists. Unfortunately, SharePoint 2010 still does not support connecting to Outlook from an issue tracking list.

In the meantime, you could set up an alert in the list by clicking **Alerts** in the **Actions** menu of the list. Then in the section **Send Alerts for These Changes**, select the option **A task is assigned to me**. This will send you an e-mail when anyone adds or assigns a new task to you.

Adding Tasks Lists to Outlook

To begin organizing your tasks, open SharePoint and identify the names and locations of each tasks list you want to synchronize with Outlook. In this section, I'm going to load tasks from three tasks lists to show how Outlook gathers your tasks in one place. These tasks lists include the following:

- **Data Services Dept Tasks:** A basic tasks list created by a department manager, as shown in Figure 5-17

	Title	Assigned To	% Complete	Start Date	Due Date
	Finish Building out all the Collaboration Hardware <small>NEW</small>	Michael Antonovich	50 %	4/19/2010	5/7/2010
	Install and test the latest CTP on the Test Server <small>NEW</small>	Susan	75 %	5/3/2010	5/28/2010
	Profile the Indexes in the Inventory Database <small>NEW</small>	Mike Antonovich	0 %	5/5/2010	5/7/2010
	Create Database Schema for Warehouse <small>NEW</small>	Natasha	0 %	5/10/2010	5/21/2010
	New Reports to HR <small>NEW</small>	Natasha	0 %	5/24/2010	5/27/2010

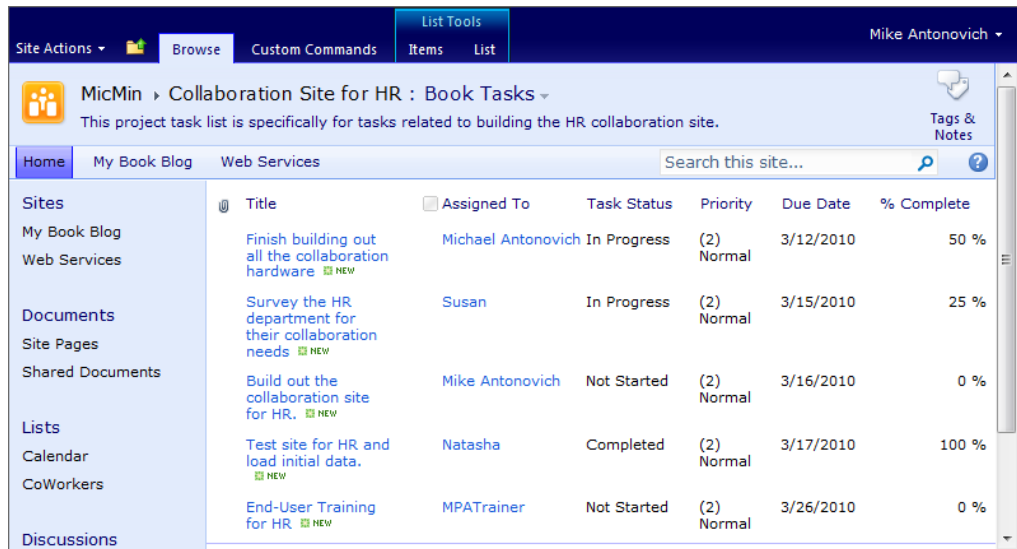
Figure 5-17. The Data Services Dept Tasks list from SharePoint

- **My Help Desk Calls:** A tasks list updated by the company's help desk, as shown in Figure 5-18.

Issue ID	Title	Assigned To	Issue Status	Priority	Due Date
1	Build a new HR Team Site	Mike Antonovich	Active	(2) Normal	5/14/2010 12:00 AM
2	Train HR Users on Collaboration Site Usage	MPATrainer	Active	(2) Normal	5/28/2010 12:00 AM
3	Install New Backup Hardware	Michael Antonovich	Resolved	(2) Normal	5/3/2010 12:00 AM
4	Fix Broken Links on Finance's main page	Susan	Closed	(1) High	4/30/2010 12:00 AM
5	Debug why Nancy's DTS is failing	Mike Antonovich	Active	(2) Normal	4/29/2010 12:00 AM
6	Evaluate time requirements to implement color scheme change.	Susan	Active	(3) Low	5/12/2010 12:00 AM

Figure 5-18. The Help Desk Calls list from SharePoint

- **Collaboration Site for HR:** A project tasks list created by the collaboration project manager, as shown in Figure 5-19.



Sites	Title	Assigned To	Task Status	Priority	Due Date	% Complete
My Book Blog	Finish building out all the collaboration hardware <small>NEW</small>	Michael Antonovich	In Progress	(2) Normal	3/12/2010	50 %
Web Services	Survey the HR department for their collaboration needs <small>NEW</small>	Susan	In Progress	(2) Normal	3/15/2010	25 %
Documents	Build out the collaboration site for HR. <small>NEW</small>	Mike Antonovich	Not Started	(2) Normal	3/16/2010	0 %
Site Pages	Test site for HR and load initial data. <small>NEW</small>	Natasha	Completed	(2) Normal	3/17/2010	100 %
Shared Documents	End-User Training for HR. <small>NEW</small>	MPATrainer	Not Started	(2) Normal	3/26/2010	0 %
Lists						
Calendar						
CoWorkers						
Discussions						

Figure 5-19. The Collaboration Site for HR list from SharePoint

1. Open the Data Services Dept Tasks list as shown previously. Be sure that the list menu appears across the top of the list.
2. Open the **List** ribbon and click **Connect to Outlook** from the **Connect & Export** group.

When you select this option, SharePoint attempts to connect to Outlook on your local computer. As you saw earlier with synchronizing contacts, Outlook tries to protect you from outside applications writing to Outlook and thus displays a warning message when it detects such an attempt (shown in Figure 5-1). In this message box, you can accept or reject the connection. In this case, trust the connection and accept the default name for the new tasks list SharePoint creates in Outlook for the transferred data.

In a similar fashion, you can open each of the other two lists and attempt to transfer them to Outlook, accepting their default names. You will find that the Help Desk Calls list based on the Issue Tracking list template will not connect to Outlook. Therefore, Figure 5-20 shows the **Navigation** panel on Outlook's **Tasks** page after attaching the other two lists.

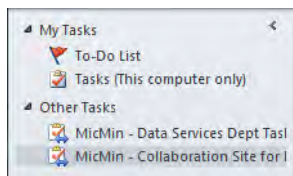


Figure 5-20. Outlook's Tasks page Navigation panel

Editing Tasks from Outlook

After you have connected to project or department tasks lists, you could edit these tasks within Outlook and have those edits appear in SharePoint, just like with contacts. However, unless you are the project manager or department manager and own the tasks list, I would recommend caution about making changes. On the one hand, your manager may want you to update selected fields such as the % **Complete**, **Finish Date**, **Completed Flag**, and **Notes** fields. On the other hand, that manager would not appreciate your changing the details of the task or the due date. At this point, SharePoint does not provide custom column-level security, so if users need edit permissions on some fields, they get edit permissions on all fields.

■ **Note** If you have SharePoint developers on your staff, they might be able to accomplish this task using SharePoint Event Receivers.

Of course, if you manage the list, not only can you edit existing tasks, but you can also create new tasks and delete tasks from within Outlook. You can even monitor the status of tasks, their progress, and their completion from within your Outlook **Tasks** page, even as your staff updates their task status through their Outlook **Tasks** pages, as long as you both link through the same SharePoint task list.

So what if you want to prevent unintended changes to your tasks by your staff? One way is to use custom permissions on the task list. Another method is to use an approval process like the one you saw earlier for documents. When turned on, the approval process hides the publishing of changes to the tasks list until a person with approval rights, such as you, approves the changes. The use of approvals provides two benefits. First, you can simply deny any unintended changes that might modify or delete the task. Second, you can review the legitimate updates to the tasks by your staff to monitor what they have accomplished.

Before you activate the approval process, make sure that you have assigned Approval permissions to managers of the lists. Then follow these steps to turn on the approval process for a tasks list:

1. Open the tasks list where you want to enable the approval process.
2. Open **List Settings** in the **Settings** group of the **List** ribbon.
3. Click **Versioning Settings** in the **General Settings** section.
4. In the **Content Approval** area, select **Yes** to require content approval.
5. You can also choose to keep both major and minor versions. I recommend keeping at least two major versions with draft versions made to the most recent approved version. These settings provide basic version protection without consuming a huge amount of additional storage space. In addition, they let you see from what the current data was changed. Change these settings in the **Item Version** history section to suit your needs.
6. In **Draft Item Security**, I recommend only allowing users with approval rights and the author to view the changes. That way everyone else sees only the most recently approved versions.
7. Click **OK** to accept these changes.

8. Click the name of your list in the breadcrumbs at the top of the page to return to the list view.

■ **Note** Draft versions of tasks may not be as common as draft versions of documents, but you may encounter them, especially when managers build tasks lists for large projects.

You can now connect the list to Outlook. Select **Connect to Outlook** from the **Actions** menu and tell Outlook that you trust the SharePoint list when the message box appears.

Sending E-mails from Tasks

You can send an e-mail when you assign a task to a person from within your SharePoint task list. By default, SharePoint turns e-mail notifications off. However, you can easily turn them on by going to your task list and choosing **List Settings** from the **Settings** group of the **List** ribbon. Then select **Advanced Settings** from the **General Settings** option group. On the **Advanced Settings** page, locate the **E-mail Notification** group and click the **Yes** radio button for the question asking whether to send an e-mail when someone assigns ownership. Click the **OK** button to exit this page and then navigate back to your task list.

Now when you add a new task to the task list, if you define the **Assigned To** property setting it to a valid user that SharePoint knows and who has an e-mail address, SharePoint sends an e-mail to that person as soon as you click **OK** to save that task.

■ **Tip** The SharePoint e-mail notification for your task list is turned on if you see a message at the top of the page when adding a new task that says **The content of this item will be sent as an e-mail message to the person or group assigned to the item.**

Using Outlook to Work Offline with Content

You can work on documents in a document library by connecting the SharePoint library to Outlook as described previously for contacts and tasks. With one additional step, you can check the document out from within SharePoint to protect your changes.

Open the library that contains the document you want to work on. If your document is in a folder within the library, open the folders until you see the document list containing the document you want.

From within the document library, right-click the documents you want to work with offline and check them out. You do not have to check out every document in the library, just the ones you plan on working with offline. This allows other users to work with the documents you have not checked out.

Select the **Connect to Outlook** option in the **Actions** menu. Outlook opens on your local computer, if not already open, and prompts you to respond whether you trust the source attempting to connect to it. Since you know the source is your SharePoint document library, check **Yes** to continue (shown in Figure 5-1 and Figure 5-2).

Outlook then creates a folder named **SharePoint Lists** if one does not already exist in your **Mail Folders** list. It then adds a folder for the site library using the naming convention <site name> - <library name>. Within this folder, it builds any additional folder structure needed to match the folder hierarchy within the library, down to the folder containing your document. In the last folder, the one you said to connect to Outlook from SharePoint, Outlook displays a list of all files. Figure 5-21 shows an example of the **Training** folder found within the **Shared Documents** library of a site named **MicMin**.

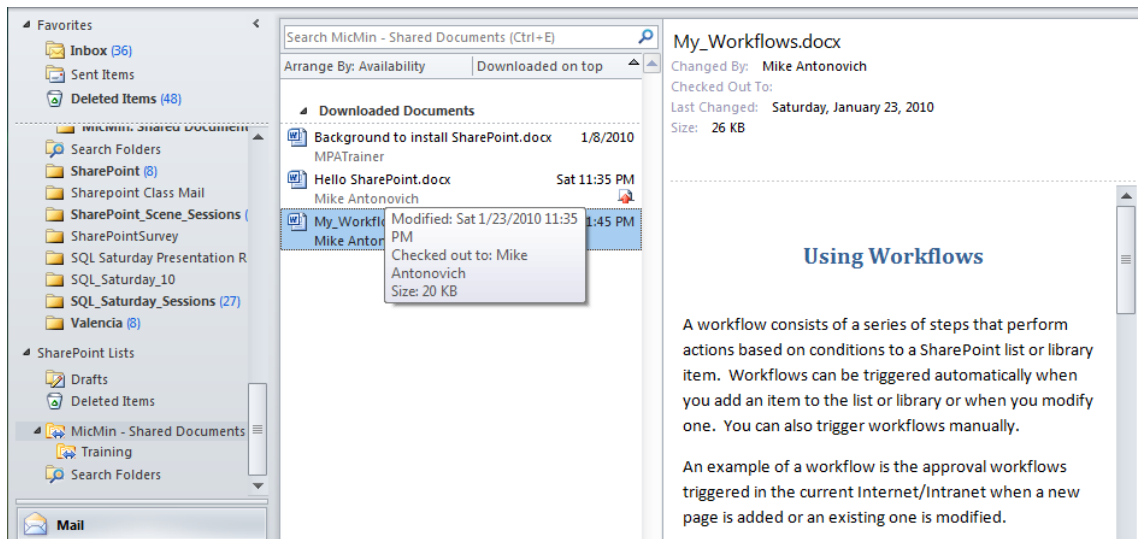


Figure 5-21. Shared Documents library referenced through Outlook

When you look at the files in this folder, how can you determine which you have checked out so you can edit them offline? If you position your mouse over the filename, the ToolTip text beneath the file tells you when the file was last modified, who currently has it checked out, and the document's size. Note that no one has the document checked out if the **Checked out to** line does not contain the name of a user immediately after it. Finally, if you double-click any file in the folder to open it, Word opens the document in **Read Only** mode first but displays the message shown in Figure 5-22 at the top of the opened document.

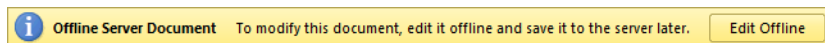


Figure 5-22. Shared Documents edited offline through Outlook

This message reminds you that the document is an offline document and that, if you edit the document, you must save it back to the server later. The connection between SharePoint and Outlook copies all the documents in the folder to your local drafts folder so you can view the files offline. You can even edit documents offline that you did not first check out. However, only documents that you do check out first before disconnecting from your network are safe to edit. By safe, I am referring to the

ability to edit the document without concern about someone else editing the same document. If you want to edit the document, you must click the **Edit Offline** button shown in Figure 5-22.

■ **Tip** Outlook provides a great preview feature for Office files such as Word, Excel, and PowerPoint. When you click an e-mail message with an attachment from one of these applications, you can preview the attachment by clicking it. Similarly, when you use Outlook to work offline on SharePoint libraries with these file types, you can preview their content when you select the individual items in the linked library, as shown in Figure 5-21.

Let's assume that you want to work on the document later. After you have disconnected from your network, you can edit the local copy of the document saved in the SharePoint **Drafts** folder. You can open the document by double-clicking it through Outlook or by opening your SharePoint **Drafts** folder and double-clicking the file directly. In fact, you can open, edit, and save the document repeatedly while disconnected from the network. Word stores all your changes in the local copy of the file.

After editing a document offline, you will see the following text at the top of the document preview within Outlook.

Changes to this document are only available on this computer. Open this document to check in your changes.

You will also see a small icon of a page with a red arrow on the right side beneath the date, as shown in Figure 5-21.

You can upload your changes to a document that you did not check out from SharePoint the next time you connect to the network. To begin the upload, double click the document name from within Outlook. Outlook displays the message shown in Figure 5-23. Click the **Update** button to send your current version of the document to SharePoint. If you are not quite ready to send your updates to SharePoint yet, you can continue editing without updating SharePoint by clicking the **Do not update server** button.

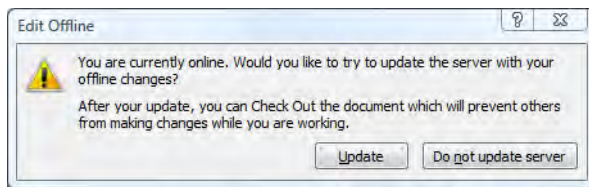


Figure 5-23. Prompt to update an unchecked out document after reconnecting to the network

If the document was checked out before editing it offline from Outlook, you can simply check it back in from within the SharePoint library the next time you connect to the network. From Outlook, you will see the following message at the top of preview window when you check out a file before disconnecting from the network.

Changes to this document are only available on this computer. To update the server with your changes, check in this document from your Web browser.

The advantage of checking out the document before disconnecting from the network is that you will have exclusive access to the document. No one else can make changes to the document while you have it checked out. Therefore, when you check the document back in, there is no chance of conflicts. If you do not check out the document first and someone else edits the document from SharePoint, you may have to reconcile your document changes with their changes.

Letting Alerts Notify You of SharePoint Changes

An alert is a feature of SharePoint that you can use for notification of changes made to libraries and lists via e-mail. This saves you the hassle of constantly returning to the library or list to see if anything was changed. With a manual check, you might spot new additions or deletions to the library or list. However, unless you were to track the modified dates of individual items in the library or list, it would be difficult to determine when someone modified them. Alerts can do this work for you. I first discussed alerts in Chapter 2 in the context of your initial exploration of lists. You can turn alerts on by opening the **Library** ribbon and clicking on the bottom half of the **Alert Me** button, as shown in Figure 5-24.

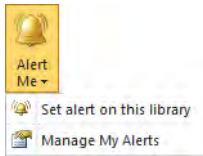


Figure 5-24. Selecting the *Alert Me* action

Your two options are to set an alert on the current library or to manage your alerts. Let's first look at how to create a new alert on the library.

Configuring Your Alerts

The **Set alert on this library** action opens the **New Alert** page shown in Figure 5-25. The first property you must define is the **Alert Title**. Over time, you may create hundreds of alerts within a SharePoint site. So naming the alert carefully and uniquely now helps you manage your alerts later. Note that SharePoint uses the alert title as the subject text when sending you the alert via e-mail. A unique name in the subject would certainly help you identify which alerts you need to look at first. SharePoint also uses the alert title when it lists your alerts, should you decide to delete some of them later.

<input type="button" value="OK"/> <input type="button" value="Cancel"/>	
Alert Title Enter the title for this alert. This is included in the subject of the notification sent for this alert.	<input type="text" value="Shared Documents"/>
Send Alerts To You can enter user names or e-mail addresses. Separate them with semicolons.	Users: <input type="text" value="Mike Antonovich"/>
Delivery Method Specify how you want the alerts delivered.	Send me alerts by: <input checked="" type="radio"/> E-mail mike_antonovich@hotmail.com <input type="radio"/> Text Message (SMS) <input type="text"/> <input type="checkbox"/> Send URL in text message (SMS)
Change Type Specify the type of changes that you want to be alerted to.	Only send me alerts when: <input checked="" type="radio"/> All changes <input type="radio"/> New items are added <input type="radio"/> Existing items are modified <input type="radio"/> Items are deleted
Send Alerts for These Changes Specify whether to filter alerts based on specific criteria. You may also restrict your alerts to only include items that show in a particular view.	Send me an alert when: <input checked="" type="radio"/> Anything changes <input type="radio"/> Someone else changes a document <input type="radio"/> Someone else changes a document created by me <input type="radio"/> Someone else changes a document last modified by me
When to Send Alerts Specify how frequently you want to be alerted. (mobile alert is only available for immediately send)	<input checked="" type="radio"/> Send notification immediately <input type="radio"/> Send a daily summary <input type="radio"/> Send a weekly summary Time: <input type="text" value="Wednesday"/> <input type="text" value="10:00 PM"/>
<input type="button" value="OK"/> <input type="button" value="Cancel"/>	

Figure 5-25. Dialog box when creating a new Alert

After the alert title, you can specify who should receive the alert. By default, SharePoint places your SharePoint user ID in this field, which links to the e-mail address defined in your user account. However, you can create alerts for other people if you have administrator rights by adding e-mail addresses for others separated with semicolons. If several people need to receive the same alert, you can save time with this feature by not having to create individual alerts for each person.

Next, you need to specify for which types of changes you want to send alerts. Of course, you could send alerts for all changes, but that might create too many e-mails. You can limit alerts to just additions, modifications, or deletions. Unfortunately, you cannot select both additions and deletions, but not modifications. Radio buttons used in this section only allow mutually exclusive selections.

You can also specify whether you want to see alerts when someone other than yourself changes any document. Department and project managers may want to choose this option to keep on top of documents under their responsibility. You can also limit alerts to when someone makes changes to documents you created or modified last. With tasks lists, you can set your alert to notify you of only those tasks assigned to you.

The final section lets you define the frequency with which you want to receive the alerts. You could receive the alert as soon as the event monitored occurs. This may be important when SharePoint immediately publishes changed documents or when you are monitoring tasks assigned to you.

On the other hand, maybe you only want to receive a daily notification of events. When using this option, you can specify the time of day to receive the alert. SharePoint then delivers alerts on a 24-hour cycle. Therefore, if you specify that you want to receive alerts at 4:00 p.m. and someone updates or deletes a document at 4:30 p.m., you will not receive that alert until 4:00 p.m. the next day.

You might also choose to see alerts only once a week on a specific day and time. For example, you might want to see alerts first thing Monday mornings for changes made the previous week. As previously stated, events that occur immediately after the alert notice goes out must then wait until the end of the new cycle, even if that means waiting for 6 days, 23 hours, and 59 minutes.

You can define multiple alerts for the same list. Perhaps each one notifies you of different actions performed on the list. For example, you may want SharePoint to notify you immediately of inserts, daily of deletes, and weekly of updates.

■ **Tip** You can create custom alerts by using multiple alerts. For example, to receive change notifications every Tuesday and Thursday at noon, create two weekly alerts, one for each day. In this case, each alert works independently of the other so that events typically appear in both lists. For example, an event on Monday will appear in both the Tuesday and Thursday alerts.

So how does an alert get to you? SharePoint sends it to the e-mail address associated with your SharePoint user ID. Figure 5-26 shows an example of what a typical alert message looks like.

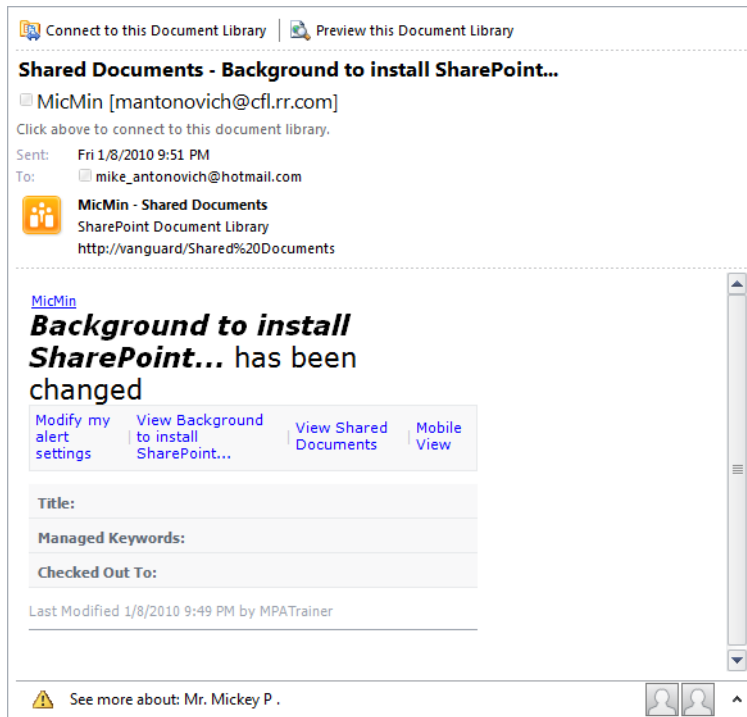


Figure 5-26. Sample alert sent to Outlook

■ **Note** While it is possible to modify the alert e-mails in SharePoint using the `IAAlertNotifyHandler` interface, it requires coding knowledge that is outside the scope of this book.

Correcting/Modifying Alerts

If you make a mistake entering your alert or you just want to modify it, how can you change it? One way is to edit the alert. You can edit any alert from any list or library. Simply open the **List** or **Library** ribbon and click the lower portion of the **Alert Me** button in the **Share & Track** group. Select the option **Manage My Alerts** to display a page with all your current alerts. Note that this list of alerts includes alerts from other libraries or lists. Therefore, as mentioned above, it is important to include the name of the list or library in the name of your alert.

To change one of the alerts, click on the alert name. This displays the alert dialog with its current property settings. You can change any of these settings and click the OK button at the top or bottom of this window to update your alert definition. You also see a Delete button to the immediate left of the OK button. Click this button to remove this alert. You may start by adding alerts to many different libraries and lists in different sites. Soon, however, you may receive so many alerts that it takes much too long to

review all the changes. That is a good time to review your current alerts and delete the ones you no longer need. Perhaps you could even change the frequency with which you receive alert notifications.

You can find a second way to delete your obsolete alerts back on the page that listed all your alerts. Notice that you can select any of your alerts using the check boxes in the left column. Select the alerts you no longer need and click the option **Delete Selected Alerts** from the header of the alerts list.

Finally, if you are a site administrator, you can eliminate an alert from any user by following these steps:

1. Select the **Site Settings** option after clicking the **Site Actions** button.
2. Select **User Alerts** from the **Site Administration** section. You must have administration rights to the site to see and select these options. If you do not, you must contact your administrator for his assistance.
3. In the **Display Alerts For** drop-down, select the **User ID/Name** of the person from whom you want to delete an alert and click the **Update** button to show her alerts.

■ **Note** Only users with alerts appear in this drop-down list. In addition, you can only delete these alerts, not modify them.

4. From the list of alerts, find the one you want to remove and click the check box to the left of the alert name. You can select multiple alerts for the person by selecting the respective check boxes.
5. Click the **Delete Selected Alerts** link at the top of the list to remove the chosen alerts.

Figure 5-27 shows the **User Alerts** page with a few alerts selected. Notice the value of using unique names here to identify which alerts to delete, especially when multiple alerts exist for the same list.

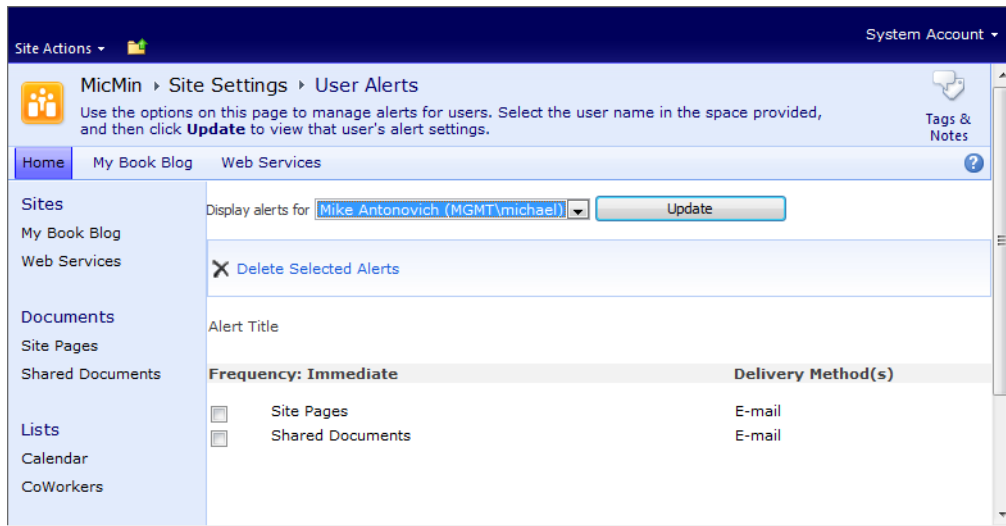


Figure 5-27. Dialog box for deleting alerts

■ **Tip** It's good practice to name alerts by the list they apply to, the events they track, and perhaps even their delivery schedule.

Using Outlook's RSS Reader to Subscribe to SharePoint RSS Feeds

Both Internet Explorer and Outlook 2007 have an RSS aggregator that displays links to your subscribed RSS feeds directly from their respective menus.

Adding an RSS Feed to Internet Explorer 7.0

To add a new RSS feed, navigate to a page in a SharePoint site that supports RSS. You can easily identify those sites by looking at the RSS feed icon in Internet Explorer 7.0's menu bar. Figure 5-28 shows the RSS feed icon.



Figure 5-28. The RSS feed icon used in Internet Explorer and web pages

Turning RSS On and Off Is a Three-Step Process

Step 1: Before you can turn RSS on for any list or library, you must first turn on RSS for the entire site. To do this, ask your site administrator to go into **Central Administration** and select **Manage Web Applications** from the **Application Management** group. Then click on the name of your web application (by default, this could be **SharePoint – 80**) to select the web application you want to set properties. Then from the **General Settings** drop-down menu in the **Manage** group of the **Web Applications** ribbon, select **General Settings**. Scroll through the displayed dialog to find the **RSS Settings** section and select **Yes** to enable the RSS feeds. In a similar fashion, you can turn off all RSS feeds for a site by selecting **No** as the RSS Setting.

Step 2: If you are the Site Administrator for your site, you can perform the next step. If you are not, you will need to solicit the help of your Site Administrator. Go to **Site Actions ► Site Settings**. Next, click **RSS** in the **Site Administration** group. Here you can turn RSS feeds on for the site collection, but only if RSS feeds have already been turned on for the web application that contains the site. You can also specify addition attributes of the RSS feed such as Copyright, Managing Editor and Web Master.

Step 3: Once you have turned on RSS at the Web Application level and at the site level, you can turn it on for individual lists or libraries. To do this, open the list from the list or library and click on **List Settings** or **Library Settings**. In the **Communications** section near the top of the settings page, click on **RSS settings**. On the resulting page, you can turn RSS on or off for the current list or library. You also can specify parameters that define options such as which columns to display to users trying to subscribe to your RSS feed as well as the number of items to include and the maximum number of days to include the item in the RSS feed.

When Internet Explorer displays this icon in orange, one or more elements on the page support an RSS feed. By clicking the down arrow to the right of the icon, the drop-down displays the page components that support the RSS feed. Figure 5-29 shows the **Calendar** page from a SharePoint site with an enabled RSS feed.

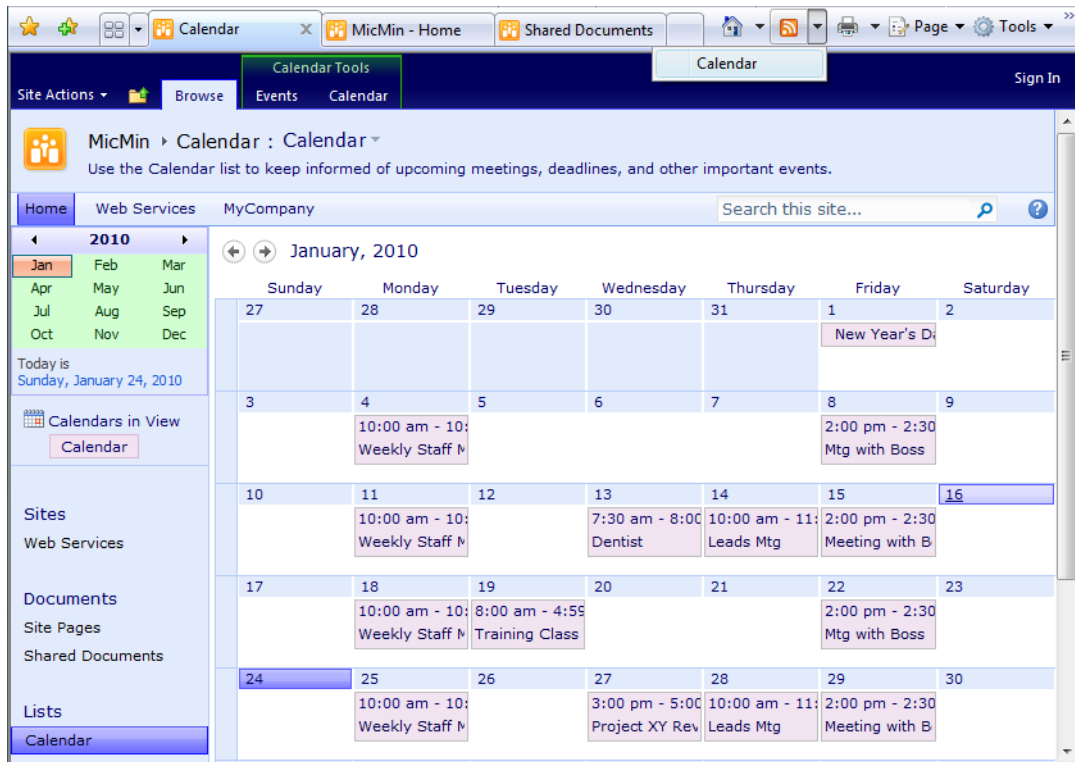


Figure 5-29. Calendar page with an active RSS feed

If the page only has a single RSS feed component, you can select it by either clicking it in this drop-down list or simply clicking the RSS icon itself. In either case, SharePoint displays a window containing information about the feed, as shown in Figure 5-30. The upper-left portion of this window identifies the source of the feed using the site name and the library name separated with a colon. The box on the right displays the number of items available in the list or library and lets you sort these items by date, title, or author. Beneath these two areas appear the current items in the list.

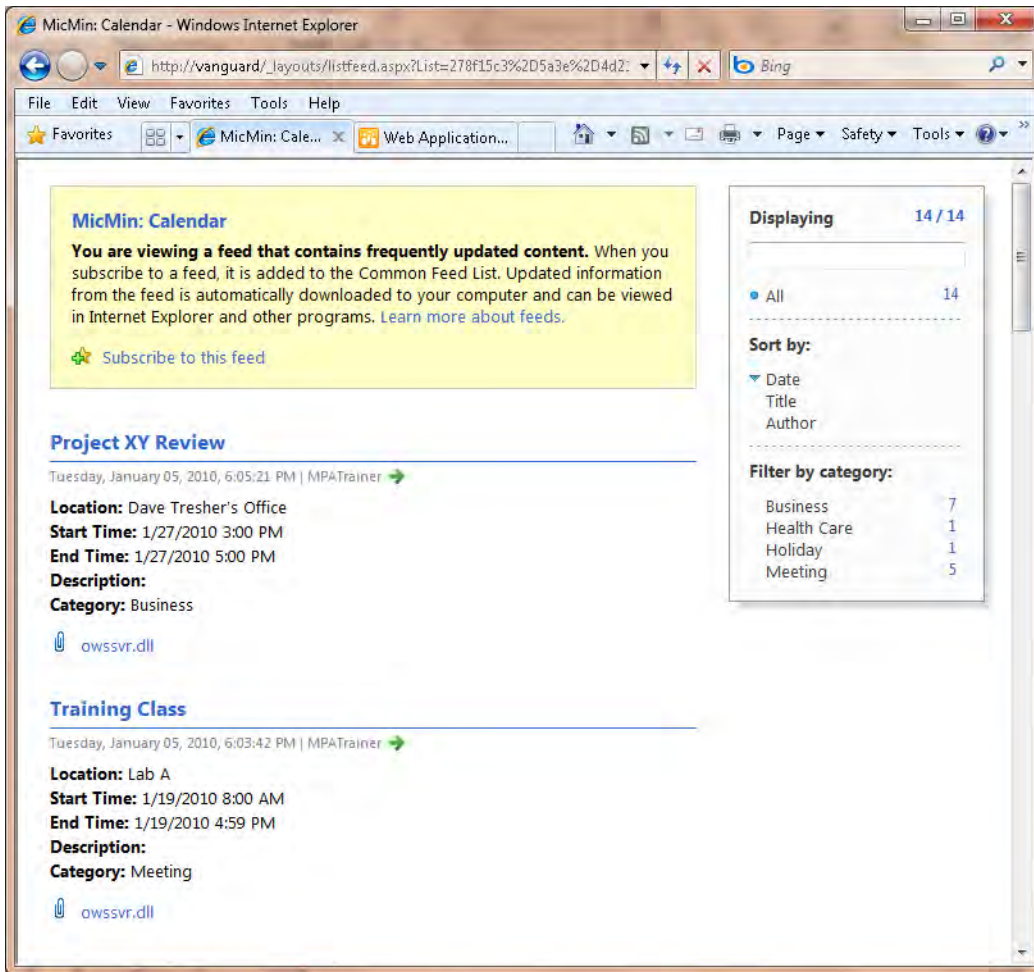


Figure 5-30. Subscription page for a typical RSS feed

To view RSS settings within Internet Explorer, go to **Tools ► Internet Options**. Then click the **Content** tab followed by clicking the **Settings** button in the **Feeds and Web Slices** area at the bottom of this dialog. This opens a dialog with several settings. You probably want to select a schedule of at least once a day to check your feeds. You also want to automatically mark feeds as read, turn on feed reading view, and turn on in-page Web Slice discovery. These settings are shown in Figure 5-31.

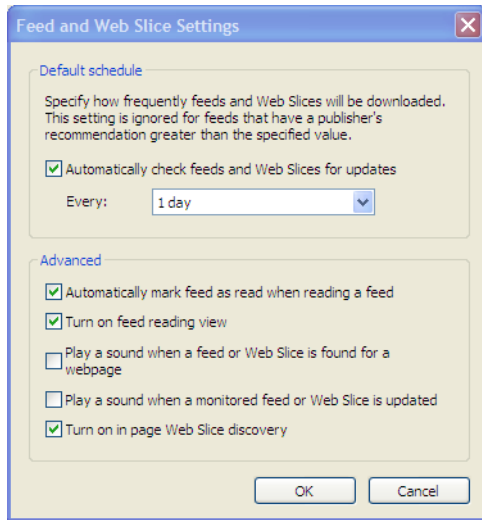


Figure 5-31. Feed and Web Slice settings

To subscribe, you could click the link **Subscribe to this feed**. While this option adds the feed to your **Favorites Center** in Internet Explorer, it may not add it to Outlook directly (see the upcoming section “Adding an RSS Feed to Outlook 2007 and 2010”). When you click the **Subscribe to this feed** link, Internet Explorer displays the subscription box, which requires the feed name and the location where you want to create the feed. By default, the feed name combines the site name and the library or list name separated by a colon. If you have never created an RSS subscription before, the **Create In** text box displays the **Feeds** folder. You can add your subscription directly to this top-level folder, or you can first create a new folder under **Feeds**. Of course, when you add a new folder, you can name it something appropriate to the type of feeds you intend to store in it. Figure 5-32 shows that three folders exist under **Feeds**, and you have selected the third folder, **SharePoint Book Feeds**, to hold the new subscription.



Figure 5-32. Setting properties when subscribing to an RSS feed

After you have specified a name and a folder in which to store your feed, click the **Subscribe** button. After a few moments, Internet Explorer creates the feed and displays a confirmation dialog box. This

dialog box looks similar to the one shown previously in Figure 5-30, but with the **Subscribe to this feed** link changed to **View my feeds**. You can either click this link to view your feeds or click the **Favorites** button in the Internet Explorer button bar to display the **Favorites Center**. Normally, the center displays your web site favorites. However, at the top of the list, you will find the **Feeds** button. When you click this button, the center displays your subscribed feeds as shown in Figure 5-33.

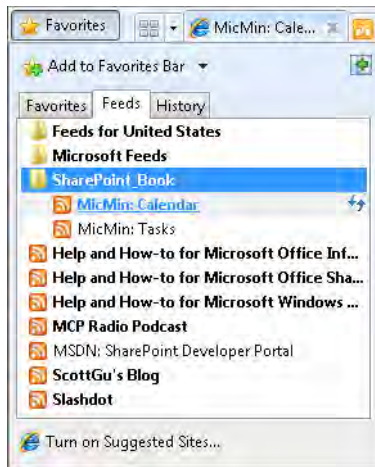


Figure 5-33. RSS feeds shown in the Feeds section of Outlook's Favorites Center

Adding an RSS Feed to Outlook

You can save yourself a lot of time by letting the feeds added in IE automatically populate the feeds list in Outlook. If you want IE and Outlook to share RSS feeds, and you add a feed to IE 7.0 or better and it does not update Outlook, follow these steps:

1. Go to the **File** menu of Outlook.
2. Click **Options** to display the **Options** dialog box.
3. Click the **Advanced** option in the **General** section.
4. On the **Advanced Options** page, find the option **SynchronizeShare RSS Feeds to the Common Feed List (CFL) in Windows** in the **RSS Feeds** section and make sure that you select the check box.
5. Close Outlook and reopen it.

If you don't want to populate the RSS feeds in Outlook automatically with the feeds from IE 7.0, you must manually add RSS feeds to Outlook. There are several ways to do this. However, the fastest method is after you create the RSS subscription in Internet Explorer, you can use that feed link directly as found in the **Favorites Center**. When you finish defining a new feed or when you click one of your existing feeds, Internet Explorer opens a page with the current RSS items.

You may not have noticed that the text in your browser's URL field at the top of this page displays the feed link. You can also copy this URL to the clipboard. Then as before, right-click **RSS Feeds in Outlook** as shown in Figure 5-34, select **Add a New RSS Feed**, and paste the copied URL into the dialog box that appears.

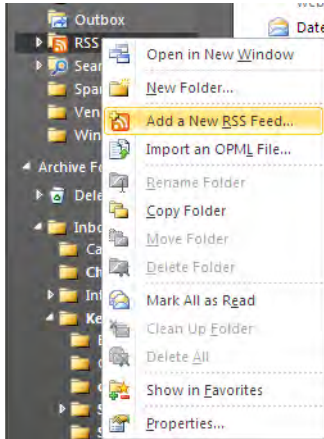


Figure 5-34. Add a New RSS Feed to Outlook's RSS Feeds

In the dialog box that Outlook displays next, you can paste the URL you copied from Internet Explorer. Then click **Add**, as shown in Figure 5-35.

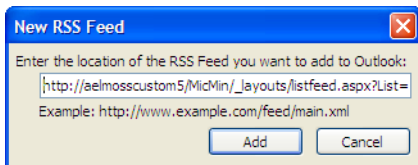


Figure 5-35. Items displays from an RSS feed in Outlook

Outlook recognizes that this subscription link could be a potential risk to your system and prompts you with another dialog box asking whether you know and trust the site from which the feed originates. If you do, as in this case, you would click **Yes**. Otherwise, click **No**. After a few moments, Outlook connects to the RSS source using the supplied URL and populates your new RSS feed folder, as shown in Figure 5-36.

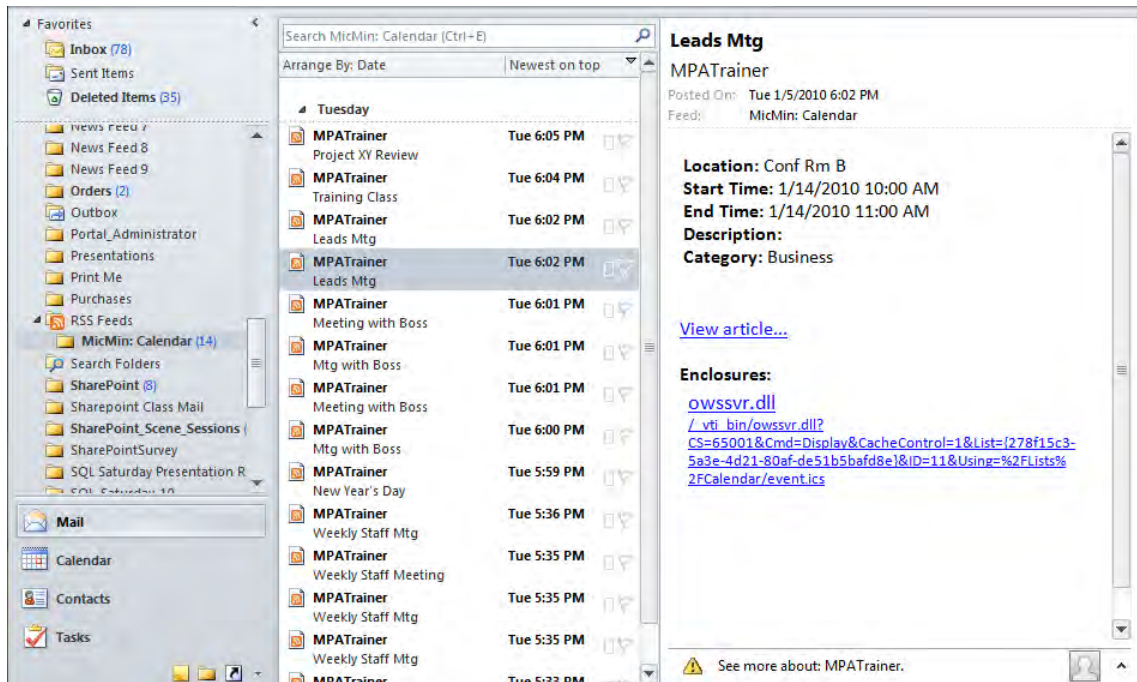


Figure 5-36. Items displays from an RSS feed in Outlook

Notice that each item in the calendar appears as a separate entry in this Outlook folder. If you click the **Arrange by** button at the top of the list, you can sort the items by any of the columns in the calendar list. You can also group the items based on the sort.

Since an RSS feed automatically updates the items shown in the subscription and bolds any item you have not yet opened, you can easily spot new items added to the list. After you open an item to view it, the text in the Outlook list reverts to normal for that item.

Deleting Items from an RSS Feed

You can delete items from the Outlook RSS list by right-clicking them and selecting **Delete**. Unlike other lists, this has no effect on the subscription's source. However, if you really want to delete the item, you can click it to display a preview of the item and then perform one of the following actions:

- Click the link **View article** from the preview pane.
- Click the option **View Article** from the **RSS** group of the **Home** ribbon.

In either case, these actions display the SharePoint item in your browser as shown in Figure 5-37. This form uses the default view form for columns in a SharePoint list.

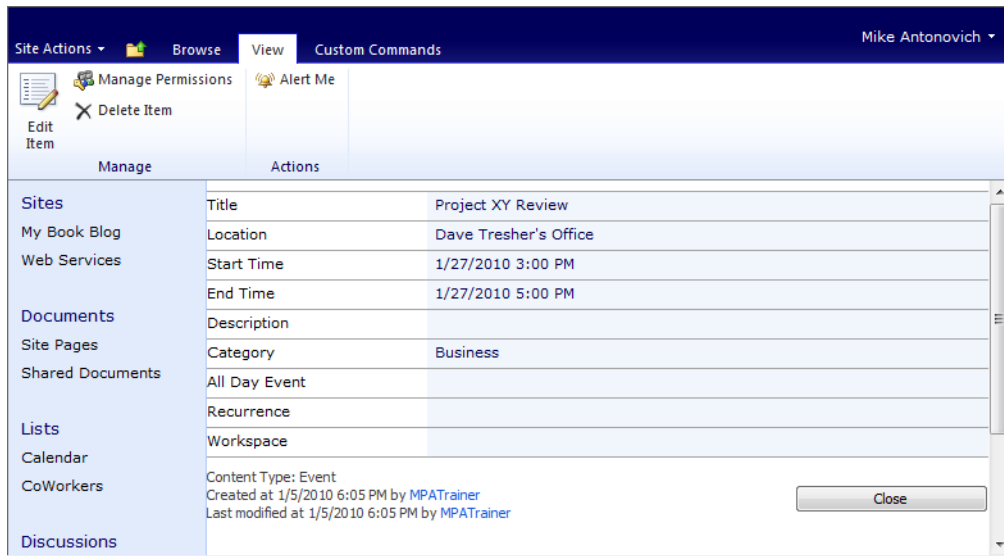


Figure 5-37. View form for an item's properties

At the top of this form, you have the standard options to edit or delete the current item using the **View** ribbon, assuming you have these permissions for list items in the current site. If you delete the item here, SharePoint asks you to confirm that you want to send the item to the Recycle Bin. If you click **OK**, SharePoint deletes the item from the list, but it may still appear in the RSS subscription in Outlook, at least until the next synchronization.

As with other deleted items, you can recover items deleted within SharePoint. Go to the **Recycle Bin**, select the item you want to recover, and click the **Restore Selection** button.

When viewing an RSS feed to a document library, this method still begins by showing the properties of the individual library item, as shown in Figure 5-38. To view the document associated with the item, click the document name. In this figure, clicking **Background to install SharePoint** retrieves the document from SharePoint and opens a local copy of it.

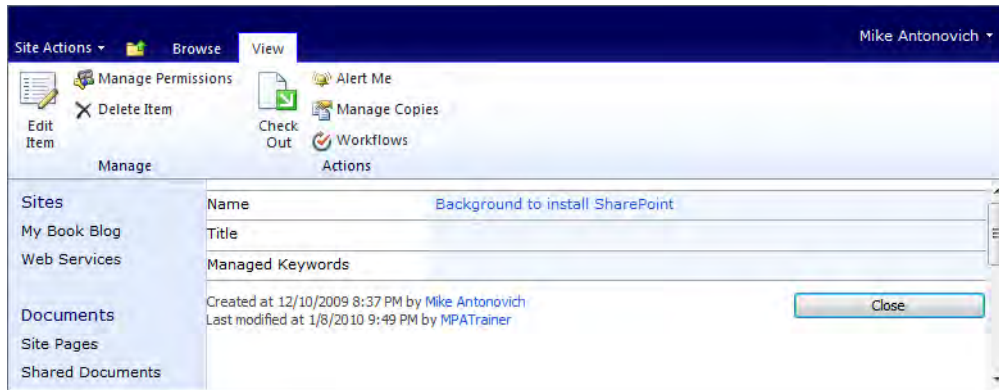


Figure 5-38. Viewing an item from a document library through an RSS feed

■ **Tip** Don't want the RSS feed anymore? Just right-click it and select **Delete**. If you delete the RSS feed from Outlook, it does not delete it from Internet Explorer. However, if you want to add the RSS feed back to Outlook, you may need to use the manual method discussed earlier in this section.

Viewing Other List Items Not in the RSS Feed

Remember that the RSS feed will only display relatively recent additions to the reference list or library. You will not necessarily see all the documents in the RSS feed.

■ **Note** You can specify how long documents or list items remain in the RSS feed by going to the library or list in SharePoint and selecting **Library Settings** or **List Settings** from the **Settings** group of the **Library** or **List** ribbon respectively. Then on the **Settings** page, select **RSS settings** from the **Communications** option group. On the **RSS Settings** page, find the section labeled **Item limit** at the bottom of the page.

By selecting any one item and displaying its edit page, you can navigate to the full list or library. With the item's edit page open, select the **Browse** tab at the top of the page. Then find the list or library name in the breadcrumbs. Typically, the entry immediately before the name of the current item represents the list or library from which the entry originates. Click this name to display the full list or library. From this page, you can then open and edit any item in the list or library, even those no longer referenced in the RSS feed. You can also use the **Navigate Up** icon to the immediate right of the **Site Actions** button to display the site hierarchy and return to the list or library.

■ **Tip** For libraries or lists that add new items only occasionally, you may want to limit the RSS feed based on the number of items displayed so that the list feed is never empty. If item additions occur frequently, consider using the maximum day option to determine how many items to display in the feed so that the feed stays fresh.

Sending E-mail to Lists

In this chapter, I've demonstrated several ways to use Outlook to connect to various lists and libraries in SharePoint. You also saw that SharePoint could send e-mail messages when someone adds items to a list, changes items in a list, or deletes items from a list. However, you can also send e-mail messages to groups of SharePoint users as well as several of SharePoint's lists.

Sending a Message to a List or Library

Not all SharePoint lists can receive e-mail, and even those that do handle it in different ways. Lists that can accept e-mail include

- Announcements
- Blogs
- Calendars
- Discussion boards
- Document libraries
- Form libraries
- Picture libraries

The ability to send e-mail to these lists depends on the settings your SharePoint administrator applied in the SharePoint Central Administration site. It also depends on settings added to your lists when your site administrator created the site and its lists. To enable and configure e-mail at the list or library level, you must have the **Manage Lists** permission. Site owners have this permission by default. Thus, even though these lists have the potential of receiving e-mail as defined at the site level, their current configuration may not allow receiving e-mails.

To determine whether your list can receive e-mail messages, first check the site settings for the list, assuming you have the appropriate rights. Alternatively, check with the site administrator to ask whether the list supports e-mail and what e-mail address you must use to send content to the list.

How to Enable E-mail

To add e-mail support to a SharePoint site, your SharePoint administrator must enable e-mail support at the web application level in the SharePoint's **Central Administration** site. In Central Administration, they need to navigate to the **System Settings** page and then select **Configure incoming e-mail settings** in the **E-Mail and Text Messages** section. Your SharePoint administrator is responsible for specifying these settings and they may need to work with your Exchange people to properly configure all the settings.

Next, you enable e-mail by defining an e-mail link for individual site lists and libraries that you want to receive e-mail by going to their **Settings** page and selecting **Incoming e-mail settings** from the **Communications** option group. If this option does not appear, you must see your SharePoint administrator to first turn on e-mail support as defined in the previous paragraph. Either you do not have the necessary permissions to configure this setting or you must have your administrator turn e-mail on through the **Central Administration** site.

■ **Tip** If you have the right to update lists, you should consider adding the e-mail address to the list description if you have e-mail enabled the list. Because the description text appears immediately beneath the list title when displayed in SharePoint, this practice might reduce the number of calls you will get asking for the e-mail addresses of your lists.

To enable a list or library to accept e-mail, you must open the Settings page for that list or library. Then click the option **Incoming e-mail settings** in the **Communications** group. Figure 5-39 shows these settings for a typical list/library. In the first section, **Incoming e-mail**, you must enable e-mail for the list or library. Without this setting, the list or library cannot receive e-mail. In addition, you must identify a specific e-mail address so that SharePoint can route the e-mail to the correct list or library.

Next, you must identify what to do with any attachments in the **E-mail attachment** section. For document, picture, and form libraries, the attachment is the file that you want to add to the library. For most lists, the content you want to add to the list is in the e-mail body, not the attachment, but you can optionally archive the e-mail attachments in the list as well. For most libraries, the **E-mail message** section lets you decide whether you want to save the e-mail itself as another item in the library. For many lists, you can save the e-mail as an attachment.

The **E-mail security** section let you determine whether the library or list can only accept e-mails set to it by users who have update rights to the library or list. This particular option can be useful to prevent spam.

The site at <http://office.microsoft.com/en-us/help/HA100823071033.aspx> provides details on setting up e-mail for several different types of libraries and lists. The content was written for SharePoint 2007, but it still applies to sending e-mail to SharePoint 2010 libraries and lists.

<p>Incoming E-Mail</p> <p>Specify whether to allow items to be added to this document library through e-mail. Users can send e-mail messages directly to the document library by using the e-mail address you specify.</p>	<p>Allow this document library to receive e-mail?</p> <p><input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>E-mail address:</p> <p><input type="text" value="shreddocuments"/>@SPSERVER.synergy.com</p>
<p>E-Mail Attachments</p> <p>Specify whether to group attachments in folders, and whether to overwrite existing files with the same name as incoming files.</p>	<p>Group attachments in folders?</p> <p><input checked="" type="radio"/> Save all attachments in root folder</p> <p><input type="radio"/> Save all attachments in folders grouped by e-mail subject</p> <p><input type="radio"/> Save all attachments in folders grouped by e-mail sender</p> <p>Overwrite files with the same name?</p> <p><input type="radio"/> Yes <input checked="" type="radio"/> No</p>
<p>E-Mail Message</p> <p>Specify whether to save the original .eml file for an incoming e-mail message.</p>	<p>Save original e-mail?</p> <p><input type="radio"/> Yes <input checked="" type="radio"/> No</p>
<p>E-Mail Meeting Invitations</p> <p>Specify whether to save e-mailed meeting invitations in this document library.</p>	<p>Save meeting invitations?</p> <p><input type="radio"/> Yes <input checked="" type="radio"/> No</p>
<p>E-Mail Security</p> <p>Use document library security for e-mail to ensure that only users who can write to the document library can send e-mail to the document library.</p> <p>Caution: If you allow e-mail from any sender, you are bypassing the security settings for the document library. This means that anyone could send an e-mail to the document library's address and their item would be added. With this option turned on, you are opening your document library to spam or other unwanted e-mail messages.</p>	<p>E-mail security policy:</p> <p><input checked="" type="radio"/> Accept e-mail messages based on document library permissions</p> <p><input type="radio"/> Accept e-mail messages from any sender</p>
<p><input type="button" value="OK"/> <input type="button" value="Cancel"/></p>	

Figure 5-39. Viewing an item from a document library through an RSS feed

After you determine whether a list supports e-mail, create a new message in Outlook. You can place the list e-mail address in either the **To** or the **Cc** field. You can send the message to one or more lists, people, or groups from a single message entry. Then refer to Table 5-2 to see how to add content to the lists via your message.

Table 5-2. Sending Content to a SharePoint List

List/Library	Where to Place Content
Announcements	Include your announcement text as an attachment. SharePoint takes your message title as the title of the announcement.
Blogs	Include your blog text in the main body of the message.
Calendars	Send a meeting request or appointment to the list.
Discussion boards	Include your text in the main body of the message.

List/Library	Where to Place Content
Document libraries	Include the document you want to add as an attachment to the e-mail.
Form libraries	Include the form you want to add as an attachment to the e-mail.
Picture libraries	Include the picture as an attachment to the e-mail.

If you want to send an e-mail with both a blog entry and a document file that you will reference within your blog, you can send both with a single e-mail. Include both the blog list and the document library list e-mail address in the **To** field of the message. SharePoint extracts the text from the main body of the message and sends it to the blog site while sending the attachment to the document library. It can do this because each list type can only accept information from specify parts of the e-mail message.

When you are ready to send your content, include the appropriate SharePoint e-mail address in the **To** or **Cc** box, and then click **Send**.

Sending Links via Send To

SharePoint can send a link for any document, image, or form to anyone via e-mail. You can find this option by opening the drop-down list for any item in a library or list. In the drop-down menu, point to **Send To** to open the secondary flyout menu. In this menu, select the option **E-mail a link**. This opens a normal e-mail message with the link to the item in the body of the message.

When the e-mail recipient receives the e-mail message, she can click the link to open and edit the document, resulting in a more efficient, smaller e-mail message than sending the entire file. The user may initially open a read-only version of the document pointed to by the link. However, she can choose to edit the document and of course save her changes back to SharePoint.

Summary

This chapter showed you several ways to use Outlook together with SharePoint, beginning with a look at organizing multiple contacts lists in different SharePoint sites with your Outlook contacts list. By adding links to two or more SharePoint contacts lists, you saw that you can copy and move contacts between any of the lists including the Outlook **Contacts** list itself.

In a similar way, you can use Outlook to consolidate multiple SharePoint calendars with your own Outlook calendar to plan your daily schedule as well as build SharePoint calendars by copying events from your Outlook calendar to them. Outlook lets you overlay two or more calendars so you can see when events conflict and when available time exists. It also shows the relative sequence of events from different calendars.

Next, you looked at combining tasks from multiple SharePoint lists within Outlook. As with contacts and calendars, the ability to consolidate information from multiple tasks lists helps ensure that you do not overlook events from one calendar.

Outlook also lets you work with documents as if they were e-mail messages. It supports the ability to check out documents so you can edit them offline and then resynchronize your changes with the original documents in SharePoint the next time you connect.

Alerts create a notification capability that lets you know when items are added, deleted, or modified in libraries and lists. You can also determine how frequently you want to see the alerts. By monitoring

changes within SharePoint libraries and lists, alerts save you a tremendous amount of time that you would otherwise need to spend monitoring each of the libraries and lists for pertinent or interesting changes.

SharePoint libraries and lists have the ability to support RSS feeds as a way to distribute news, blogs, library, list additions, and other information feeds. Recent versions of both IE and Outlook have built-in RSS readers and support independent RSS feed lists, or you can synchronize the feeds that appear in both programs using the **Common Feeds** list.

Finally, you can send e-mails to most blogs, lists, and libraries to update information stored in them. This may require some additional configuration from your SharePoint administrator in both the **Central Administration** site as well as the communication settings of the individual libraries and lists to which you want to send e-mail updates. You can also send an e-mail to others with the URL of an item in a library or list. The recipient of that e-mail can then click that link to open and edit that item without taxing your e-mail servers with large file transfers.

Thus, you can see that Outlook provides many ways to work with several SharePoint features organize your work and personal activities. Outlook can change the way you work with documents, lists, and tasks. It can help you share your thoughts through discussions and blogs. You can use the combination of alerts, RSS feeds, and Outlook to stay informed about changes to lists and libraries.



Managing Lists with Access

Many companies have hundreds of unmanaged Access applications running in various departments throughout the organization. While many Office power users find it very easy to create an Access application to quickly meet a need, often those applications suffer from problems like:

“I just looked away a minute and when I turned back my laptop, which I left on the seat beside me in the waiting area, was gone, along with all of our customer order data.”

“All I know is that the screen says that it cannot read my C-drive. You do have a backup of my C-drive, don’t you?”

“These reports don’t match, and I know that my data is correct, so your data must be wrong.”

These are just a few of the problems you may encounter when users build important databases on their local machines. Everything from security issues that may or may not involve theft of hardware, simple hardware failure, and inconsistent results caused by duplicate data residing in different databases can ruin your day quickly.

While Access has provided a high level of agility by allowing individuals to build applications quickly, the problems with managing those applications have grown. However, you can get a handle on managing the interface to those applications as well as the data by using Access along with SharePoint.

In this chapter, you will see how using Access stored in a central SharePoint library can provide for a single version of the application interface while making it easy to deploy new upgrades to the application. Also, by storing the data in a SharePoint list, you can leverage SharePoint’s ability to link with Access tables to support a single version of the data, provide for a single place to create backups, and protect the data with permissions while providing physical security by storing the data in a centrally located server back in your company headquarters.

In chapter 1, I mentioned that SharePoint includes five default Access web applications as templates: Assets Web Database, Charitable Contributions, Contacts Web Database, Issues Web Database, and Project Web Database. While any or all of these might serve as a starting point for a web application at your organization, you can also use them to develop a web based application via Access to provide an agile development platform. Since these applications require Access services to run, you will need the Enterprise version of SharePoint 2010 to create and use them.

I stated in the beginning of Chapter 2 that you could think of lists in terms used by database systems: items represent rows, and columns represent fields. This chapter will prove how well SharePoint lists translate into databases by demonstrating how you can manage your lists and databases applications using a combination of Microsoft Access and SharePoint.

■ **Note** This text focuses on Access 2010, and while much of what is discussed works with Access 2007, earlier versions of Access do not support the features related to publishing Access Services on the Enterprise edition of SharePoint Server 2010.

Exporting SharePoint Lists to Access

To export a SharePoint list into Access, you can start from SharePoint or Access. Let's first start from SharePoint. Navigate to your SharePoint site, and open the list you want to export. From the **List** ribbon, click **Open with Access** from the **Connect & Export** group as shown in Figure 6-1.

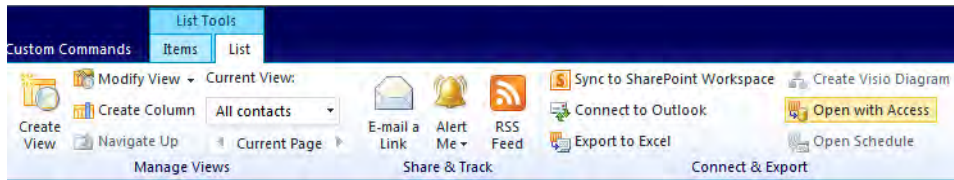


Figure 6-1. Exporting a SharePoint table to Access

A message box, shown in Figure 6-2, prompts you for two pieces of information. First, you must specify a location and name for a new or existing database. Access stores each database as a separate file. Further, it can store the file in any directory. By default, SharePoint and Windows 7 attempts to create a database in your user **Documents** folder. Also by default, SharePoint wants to use the list name as the database and the table name. You can change either of these defaults by entering a different file name and/or path. You can also use the **Browse** button to locate a different directory. However, you may find the real advantage of the **Browse** button occurs when you need to find an existing database into which you want to add the current SharePoint list.

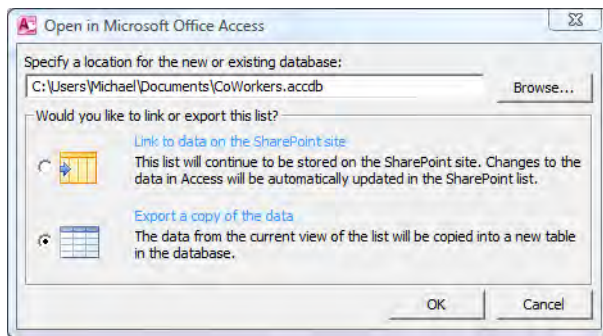


Figure 6-2. You can either export a copy of a SharePoint list to Access or create a link to the list in Access.

If you select an existing database with a different database name than your list, SharePoint still tries to name at least the table in that database with the list name. However, if the database name exists already in the selected directory, SharePoint appends a “1” to the end of the default database name. If a database already exists with that new name, it keeps trying the next sequential number until it finds a valid yet unique database name for the directory. If you attempt to overwrite the default database name that SharePoint selects and try to export the SharePoint list to an existing database name, SharePoint will try to add the selected table to the existing database. If that database already has a table with that name, it will append a “1” to the end of the database name to make it unique. If you attempt to save the same list to the same database again, it adds a new table with the next sequential number to make it unique. Of course, you could override this automatically generated name and save the database with your own unique name. However, you cannot overwrite the table name from this dialog. The important point is that the export option never lets you replace an existing table or database.

So how do you replace an existing Access table in a given Access database with the updated contents of the same SharePoint list? The simple way would be to delete the Access table first, and then export the SharePoint list. This may not always be feasible if you previously established links to other Access tables or use the table as a data source for view definitions, reports, or forms within Access. You have several programmatic alternatives at this point, the details of which are beyond the scope of this book. Most begin by opening the SharePoint list in Access using a table with a different name. Then you can update the original table from the second table using SQL statements.

■ **Note** In this section, I am talking about copying a SharePoint list to Access, not linking the list to an Access table, which is covered in the “Linking SharePoint Lists to Access” section of this chapter.

If you prefer not to manipulate the table with SQL, you can modify the connection properties of each object that uses the original table to point to the new table. The risk here of missing a reference to the original table may be high depending on the complexity of your database.

Synchronizing the Data in Two Versions of an Access Table

Suppose you have two tables called Table1 and Table2, in which Table2 is a more recent copy of Table1 and has changes in it that Table1 does not have. How can you programmatically synchronize the changes from Table2 back to Table1?

From within Access, you can quickly update Table1 to look exactly like Table2 if you make a few assumptions. First, assume that if Table1 and Table2 use any other related tables for lookup values, nothing in those tables has changed that would require those tables to be updated first. Second, assume that Table1 uses a unique ID field consisting of perhaps a sequential number and that its value has no additional meaning other than to define the rows of the table uniquely. Third, both tables have the same column definitions.

The first step updates all of the fields in Table1 with values from Table2 where the unique ID field in Table1 equals Table2. The complexity of this SQL UPDATE expression comes from the SET clause, which must include an expression for every field in the table.

```

UPDATE Table1
INNER JOIN Table2
ON Table1.ID = Table2.ID
SET Table1.[Field1] = [Table2].[Field1],
Table1.[Field2] = [Table2].[Field2],
Table1.[Field3] = [Table2].[Field3];

```

Next, you eliminate any records in Table1 that do not have a corresponding ID value in Table2.

```

DELETE *
FROM Table1
WHERE Table1.ID NOT IN (SELECT Table2.ID FROM Table2);

```

Finally, you add any records from Table2 that do not exist in Table1.

```

INSERT INTO Table1
SELECT *
FROM Table2
WHERE Table2.ID NOT IN (SELECT Table1.ID FROM Table1);

```

At this point, the data in Table1 should exactly match the data in Table2.

■ **Tip** To change the Access table used by a form, open the **Property Sheet** for the form. Click the **Data** tab and then locate the **Record Source** property. Open the drop-down list for this field and select the new table.

■ **Caution** If you update an object such as a report or form with a new record source, beware of fields deleted or renamed from the original table schema. This can cause the form to fail unless you remove such fields from the form or table or associate it with a different table field.

Getting back to the second decision you must make in Figure 6-2, you must decide whether you want to link the SharePoint list data with the Access table or export a copy of the list data to the table. The main advantage of linking data from Access to SharePoint involves editing. When you link the list and table, changes made to a record/item in Access automatically update the SharePoint list. Linking your SharePoint list to Access eliminates the complexity caused by list updates when you only export a copy of the list to Access.

There are other advantages of linking the SharePoint list to an Access table. However, first let's continue to look at what happens when you copy the list to an Access table.

After you click **OK** in Figure 6-2, SharePoint takes a few moments to transfer the selected columns to Access. After completing the transfer, Access opens and displays the new table, as shown in Figure 6-3.

■ **Note** In Access 2010, you may need to double-click the table name in the list of Access Table Objects to open the table.

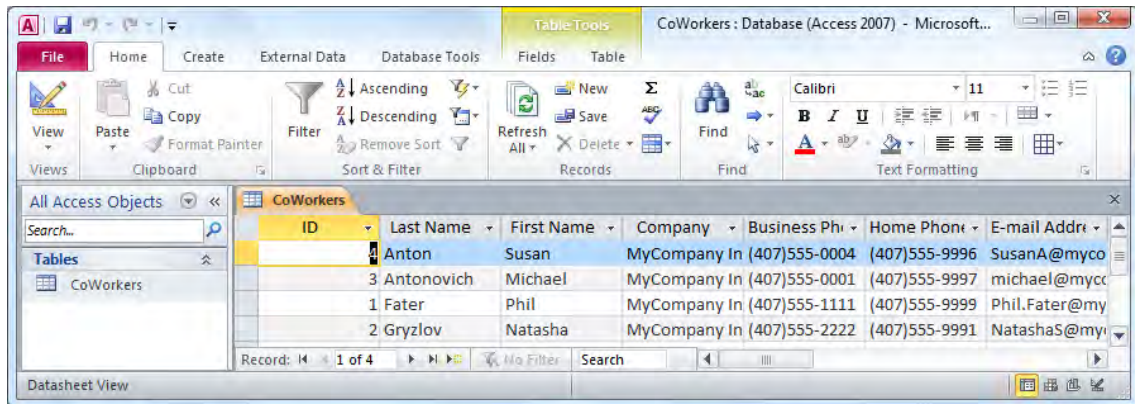


Figure 6-3. SharePoint list shown as an Access table

Notice that when copying a SharePoint list to Access, only the rows and fields included in the SharePoint view appear in the table. Thus, you can use a custom view to determine not only the items/rows transferred to Access, but also the columns/fields transferred.

■ **Tip** Use the **copy data** option when you want to archive selected items from the list. To perform the archive, first define a new view in SharePoint to filter on the records you want to archive. Then switch to this view when you display the list. This view does not have to be the default view, but it must be the current view. Then select **Open with Access** as before, selecting **Export a copy of the data**. Place this data in a database where you want to store archived data. You could use a different database each time you download the list, perhaps including the date to identify the archived date range, or you could add sequentially numbered tables or tables that include a date in the name for a single archived database.

After transferring the data, you can save the database in one of the more recent Access data formats:

- Access 2007
- Access 2002–2003
- Access 2000—(Only indirectly possible since you could create a blank database using the Access 2000 format if you went into **Access Options** (from the **File** menu) and changed the Default file format for **Blank Databases** in the **General** page of the options to Access 2000.)

■ **Note** While there does not seem to be a selection for defining whether to save your database in Access 2007 or Access 2010 format, there are some differences between databases created by each of these versions of Access. In fact, depending on the features of Access 2010 you use, Access 2007 may not open the saved database. This is especially true of any web related features you might use in Access 2010 in preparation to publishing the database to SharePoint, but other changes can also affect your ability to open your Access 2010 database in Access 2007. For complete details on the features that can cause you problems and steps on how to resolve those problems, refer to the following article on Microsoft's MSDN site: <http://msdn.microsoft.com/en-us/office/cc907897.aspx>.

Thus, you can share list data with those unfortunate associates who do not have access to your SharePoint site.

However, what if, after you copy data to an Access table, you decide to transfer it back to SharePoint? Can you do that? Yes, you can export data from Access not only to Excel, but also to a SharePoint list.

Figure 6-4 shows the Access's **External Data** Ribbon. Within the **Export** section, find the button **More** and select **SharePoint List** from the drop-down menu of additional options.

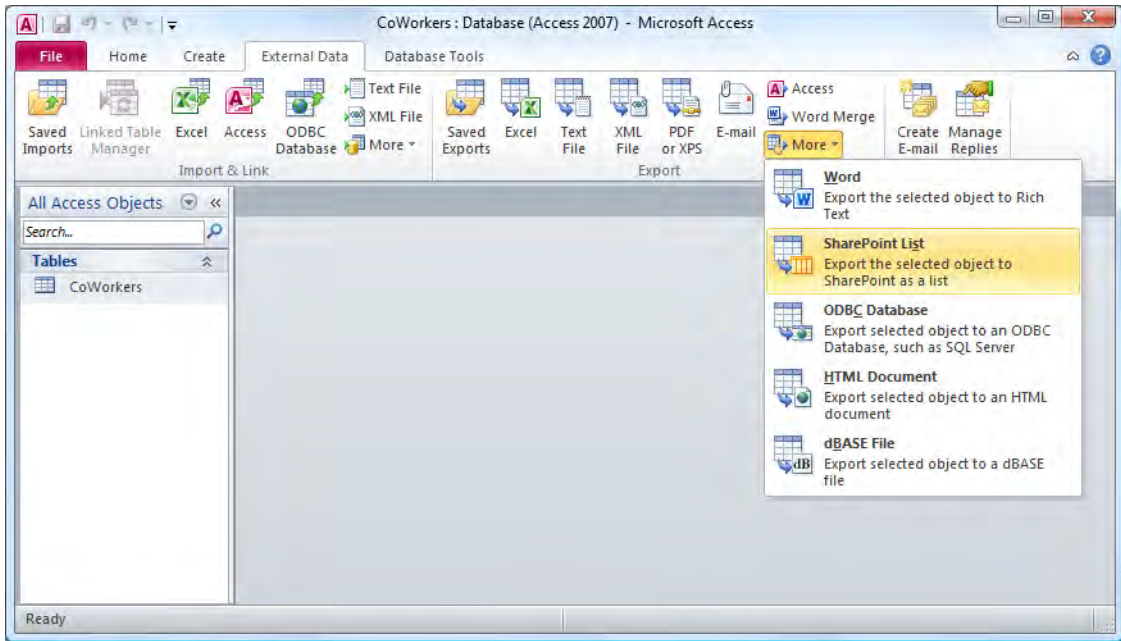


Figure 6-4. External Data tab in the Access Ribbon

When you click this button, a dialog box opens. You must first specify the name of the SharePoint site where you want to publish the data. In Figure 6-5, I have selected the site address <http://vanguard>, the URL of the top-level site of my SharePoint server.

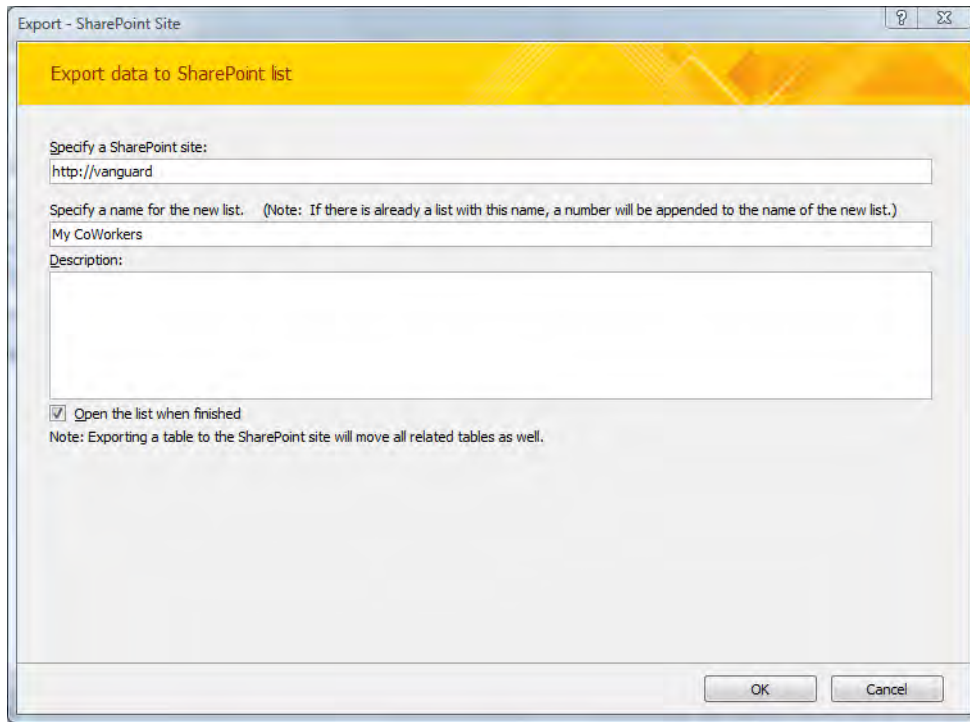


Figure 6-5. The dialog box prompts for SharePoint site and list names

Next, you must specify the name of the list into which you want to copy the Access data. Note that you can only export your Access table to a new SharePoint list. If you attempt to specify the name of an existing list, SharePoint adds “_1” to the end of the list name. If SharePoint already has a list with “_1” at the end of the name, it adds it again making it “_1_1”.

■ **Note** This naming convention is different from that used when copying data from SharePoint to Access.

In addition, the check box at the bottom of this figure lets you immediately open the new list after you create it. Personally, I like to see the list after creating it to verify that everything transferred correctly. It’s a “Trust but Verify” rule I encourage developers to adopt. If you feel lucky and trust Access to transfer your table to a SharePoint list, I suppose you could leave this option unchecked.

The note at the bottom of this screen informs you that Access exports any tables related to the exported table to their own SharePoint lists. In fact, not only does Access upload all related tables to individual SharePoint lists, but SharePoint also automatically converts the foreign key fields in the parent table to lookup type fields to ensure that the user can select values only from the child table. In addition, SharePoint 2010 now supports true referential integrity. If you defined referential integrity

between your tables in Access, the process of exporting the tables to SharePoint retains your referential integrity settings between the lists.

For example, suppose you have two tables in Access. The first table, **Departments**, lists each department in your organization with related information about that department, such as the department name, department head, and perhaps the department's primary phone number. In the second table, **CoWorkers**, you list employees in your organization. Besides the obvious fields such as the employee's name, phone numbers, start date, and others, you include the department from the **Departments** table. Let's also assume that you have formalized this relationship between these two tables using the **DeptID** column in both tables. First, you should define the relationship between the two tables defining which fields from each table should define the line.

Tip: The column name in the two linked tables does not have to be the same. However, I recommend using the same column name for a field found in any table if it represents the same data in the same format with the same values.

After you define the relationship between the two tables, you can then go back and modify the table definition of the child table, **CoWorkers**, to define the lookup properties of the linking column.

■ **Caution** Just defining the department field in **CoWorkers** to be a lookup field from the **Departments** table is not really defining referential integrity. You need to define the relation formally between the two tables in Access.

When you attempt to export just the **CoWorkers** table to SharePoint as a new list, SharePoint recognizes the relationship between the **CoWorkers** and **Departments** tables and uploads both tables as new lists on the selected site. Opening the **CoWorkers** list settings, you can see that the **DeptID** field definition uses a lookup field type that points to the **DeptID** field in the **Departments** list. Furthermore, since you defined referential integrity while in Access, you should find the same relationship defined in the **Relationship** section of the **DeptID** column. If you selected to cascade deleted records from the primary table to the child table in Access, SharePoint adopts this same property between the uploaded lists.

Saving Your Export Steps

When you click **OK**, another dialog box, shown in Figure 6-6, appears asking whether you want to save your export steps.

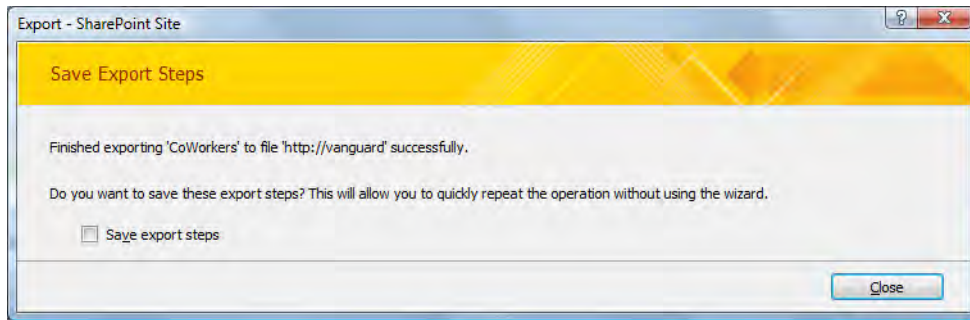


Figure 6-6. Prompting to save export steps

If you plan to perform this export only one time, you may not want to select this option. If, however, you think you might perform this task frequently, you may want to save these steps. If you select this option, Access displays the dialog box shown in Figure 6-7.

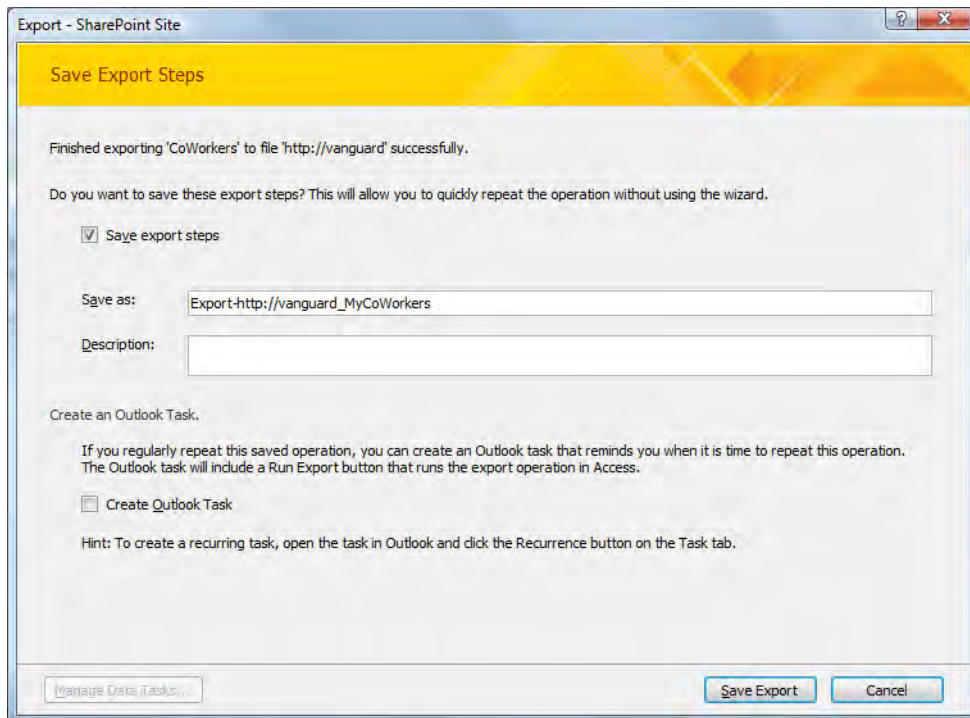


Figure 6-7. Defining the name and description of the export steps

This Access dialog box asks you to enter a name and a description to identify your export steps. You must enter a name, because Access uses this name to identify this set of export steps from others you may define, as you will see shortly. While Access considers the description optional, it appears in Access's list showing available exports and can help further identify different exports.

You also have the option of creating an Outlook task. While you cannot rerun the export directly from this task, you can use the task as a reminder to run the export on a future date. You can even set up a reoccurring reminder to run the task periodically.

When you click **Save Export**, SharePoint performs the export, creates the saved steps in Access, and creates the task in Outlook. This process shows another example of the power of SharePoint and Office integration, as it updates three separate MS Office products with one action.

Transfer Issues

When you return to Access, you may see another table in the **Navigation Bar** called **Move to SharePoint Site Issues**. Open this table to examine any problems with the export to SharePoint. Figure 6-8 shows the issues generated when moving the **My Work Contacts** table back to SharePoint.

Issue	Reason	Object Type	Object Name	Field Name
Field values will not be auto-generated.	SharePoint only supports AutoNumber for their ID field.	Table	CoWorkers	ID
Field will not be moved.	Certain fields (like 'binary' fields and SharePoint 'read-only')	Table	CoWorkers	Encoded Absolute Path
Field will not be moved.	Certain fields (like 'binary' fields and SharePoint 'read-only')	Table	CoWorkers	Item Type
Field will not be moved.	Certain fields (like 'binary' fields and SharePoint 'read-only')	Table	CoWorkers	Path
Field will not be moved.	Certain fields (like 'binary' fields and SharePoint 'read-only')	Table	CoWorkers	URL Path
Field will not be moved.	Certain fields (like 'binary' fields and SharePoint 'read-only')	Table	CoWorkers	Workflow Instance Name
Field will not be moved.	Certain fields (like 'binary' fields and SharePoint 'read-only')	Table	CoWorkers	File Type
*				

Figure 6-8. Issues generated when moving a table back to SharePoint

Issues with Auto Increment Fields

The first issue in this list refers to the field **ID**. In Access, this field is called an auto increment field because each time you add another record to the table, Access automatically increments by one the value used when it added the last record and uses this new value for the new record. While SharePoint will accept the values from this column when it converts the table to a SharePoint list, if your Access table has gaps in the auto increment field values (because you deleted items after creating the table entries), these gaps are closed in the generated SharePoint list. In other words, if you had a short list of 10 items and deleted item 5 from the Access table before uploading the table to SharePoint, SharePoint rennumbers the items to fill in the gap using values from 1 through 9 rather than 1 through 10. It then will use 10 for the next value added in SharePoint.

Auto Increment Fields

Every table in relational databases should have a primary key. Most relational systems do not allow you to update existing individual data records without a primary or unique key to identify which record to update. When possible, you should always use existing table fields to create a “natural” key. However, at the same time, you should avoid long “natural” keys or keys that require the concatenation of many individual fields. One solution to long keys uses a “created” key called an *autonumber field*. Access uses this field type to create a unique integer field for each record. You should add this field to the table schema before adding any records to the table. In addition, only one field per table can be an auto increment field, and you cannot set a field to be auto increment after you defined the table even if you have not added data to the table.

The start value for a new table typically begins with 1, and each record added to the table increments this value by 1. While you can no longer use your own increment value in Access, you can use a Random value for the ID. However, a random generated ID value does not translate to SharePoint the same way as an auto increment will. While the ID field does transfer, it will not generate a new random ID for new values added in SharePoint. If you delete a record, the database does not reuse that number. In addition, auto increment fields generally cannot be edited.

In addition to serving as indexes, auto increment fields often make ideal choices as relational fields between tables. Since you cannot edit this field, you cannot easily break the referential link.

When used, the auto increment field should not imply any significance other than to provide a unique identifier for a record that may or may not also serve as a linking field between two tables.

Due to all of the preceding characteristics of auto increment fields, you normally cannot include this field when you copy a table with one of these fields to another table, regardless of whether you create a new table or intend to append to an existing table.

Surprisingly, the import of a list from SharePoint to Access does appear to import the **ID** field. You can prove this by taking an issue tracking list created in SharePoint and deleting a few items from the middle of the list. Then import the list into Access. If you open the Access table in design mode, you will discover that Access defined the **ID** field as an autonumber field. However, when you open the corresponding Access table, you will see a gap in the ID sequence exactly representing the positions of the deleted items from SharePoint.

However, exporting the table back to SharePoint does not transfer the autonumber field. If you were to export the issue table with the deleted records from the middle of the table, the new SharePoint list displays a new **ID** field with no gaps in the sequence. In other words, the transfer back to SharePoint reassigns new ID values to all items, closing the previous gap.

■ **Caution** Based on the way the SharePoint and Access treats the **ID** field when they transfer information back and forth, I would not recommend using the autoincrement **ID** field in the issue tracking list as a lookup field or a linking field to another list, because the values could change if someone exports the list to Access and then imports it back to SharePoint.

Issues with Validation Rules

The second transfer issue refers to a validation concern with the **Employee Number** field in the table **CoWorkers**. In SharePoint, this field has a maximum of five characters. When you export the list to Access, the SharePoint size restriction on the field becomes an Access validation rule. If you then export the table from Access back to SharePoint, SharePoint does not always convert the Access validation rule to a column validation formula, much less a Maximum number of characters setting.

Another issue refers to read-only fields that originated in the SharePoint list. While the transfer of the list to Access includes these fields, Access does not normally display them when displaying the table, although you can see them in the table's design view. As read-only fields that SharePoint generates for each list, Access cannot export these fields back to SharePoint.

■ **Caution** Review the issue list when you transfer an Access table back to a SharePoint list. Some issues you cannot do anything about. However, if the transfer drops validations that you need on fields, you should open the list settings and see whether the SharePoint column properties support a similar style of validation.

Transferring Referential Tables

Another example of issues that you may have previously encountered when you transferred data from Access back to SharePoint 2007 occurred when you had two or more related tables in Access. If you established referential integrity definitions between these tables, and you attempt to export them back to SharePoint, you observed one or more of the following issues:

- SharePoint 2007 had no way to enforce referential integrity.
- SharePoint 2007 could not block or cascade deletes to related records.
- SharePoint 2007 could not cascade updates to related records.

In SharePoint 2010, the move of tables from Access back to SharePoint does retain the referential relationship in the resulting SharePoint lists if you move all the tables at one time using the **SharePoint** command in the **Move Data** group of the **Database Tools** ribbon. However, for this to work correctly, you must explicitly reference each of the fields to be used as shown in Figure 6-9 and you must define the relationship between the tables as shown in Figure 6-10. These settings are also necessary if you want to publish your Access database successfully to SharePoint's Access Services, which I examine later in this chapter in the section "Deploying Your Access Application to SharePoint – Option 2."

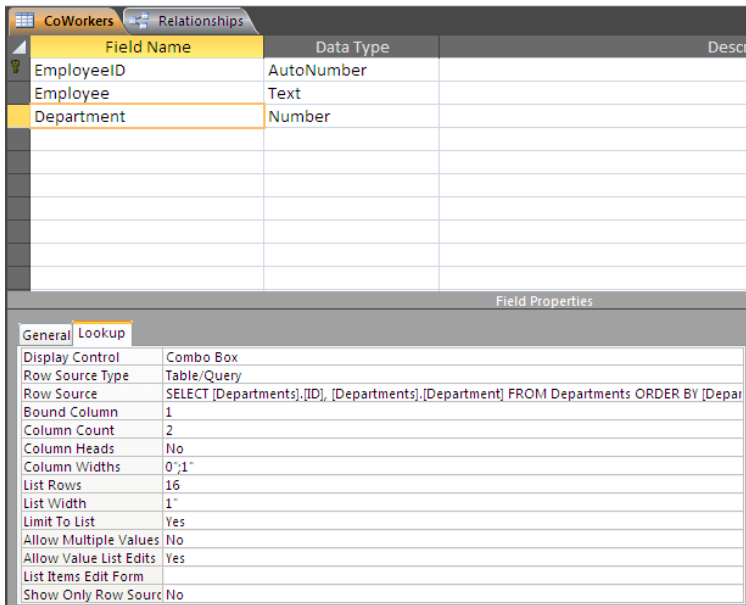


Figure 6-9. Defining the lookup query expression by explicitly naming fields

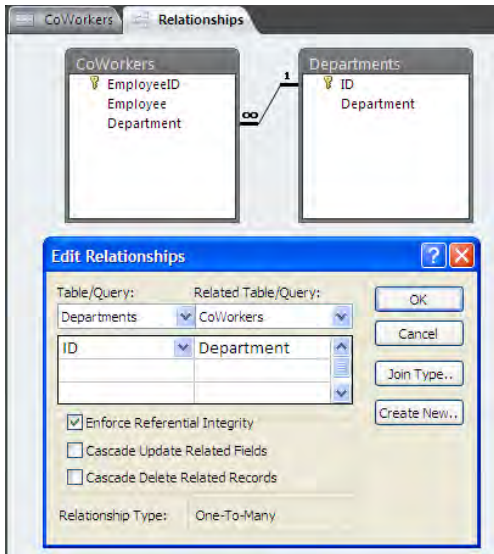


Figure 6-10. Defining the relationship between the tables before moving them to SharePoint

Dealing with Duplicate Lists

Figure 6-11 shows the lists in my SharePoint site. Notice that because I added the list **My Work Contacts** a second time, SharePoint adds a “_1” suffix to the list name to make it unique. I now have essentially two lists with the same name and content, less any minor changes made while in Access.

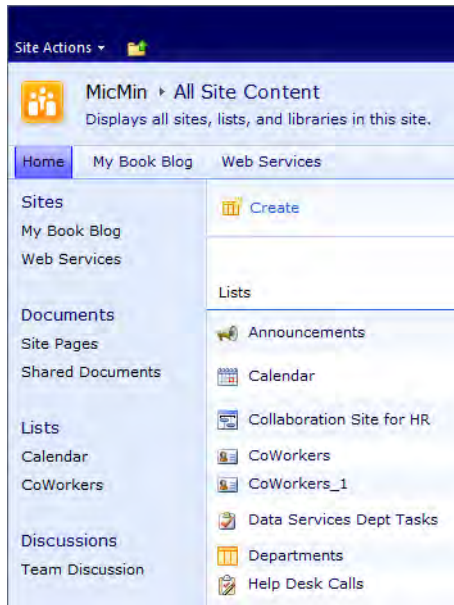


Figure 6-11. SharePoint lists after exporting tables back from Access

If this happens to you and you want to keep both lists, you should rename one of them to avoid confusion. However let's assume that you don't want to keep both. You could delete the original list and rename the new list back to the original name by deleting the “_1”. This technique represents a manual way to update a SharePoint list using Access, but it can lead to problems if the original SharePoint list appears on web pages or if other lists reference it as a lookup because these references will point only to the URL of the original list, not to the new list. Therefore, a better way to deal with updates is to link the Access table to the SharePoint list so you can perform continuous synchronization between them. The “Linking SharePoint Lists to Access” section in this chapter explores this method.

The Outlook Task for the Export Steps

If you created a task in Outlook for the export steps earlier in this chapter, you can open your **Tasks** panel to see the task with the name you defined. In Figure 6-12, you can see that this task does not currently have a due date and has a status of **Not Started**.

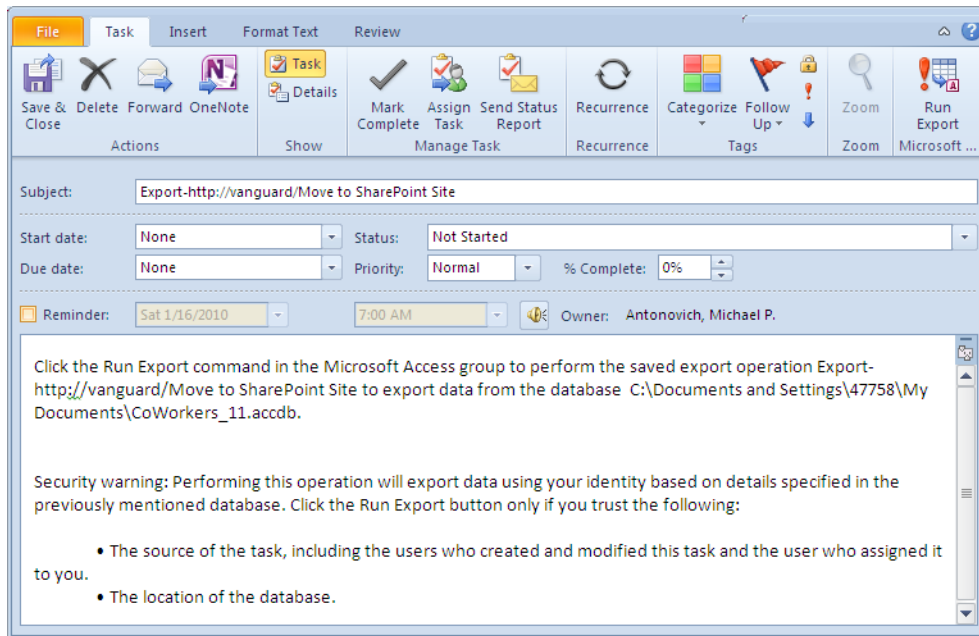


Figure 6-12. Details of the export task in Outlook

If Outlook did not automatically open the task when it created it, you can double-click it in your Outlook tasks list to view the details shown in Figure 6-12. You can now define a start date and a due date as well as set a reminder to perform the task. In the **Task** Ribbon, click the **Recurrence** option in the **Options** group to define a recurrence schedule if you must perform this export on a regular basis.

■ **Tip** You may want to set up tasks to remind you to archive old data from lists, such as issue tracking lists, to prevent such lists from growing too large with completed tasks, thereby degrading performance.

Unfortunately, you cannot run the export task directly from the Outlook task. However, Access automatically includes text in the task instructing you on how to execute the saved export operation from within Access.

Reusing Saved Export Steps

To execute a saved export, open Access and click the **External Data** tab of the **Access** Ribbon. In the **Export** group, click the **Saved Exports** option to display a window like the one shown in Figure 6-13.

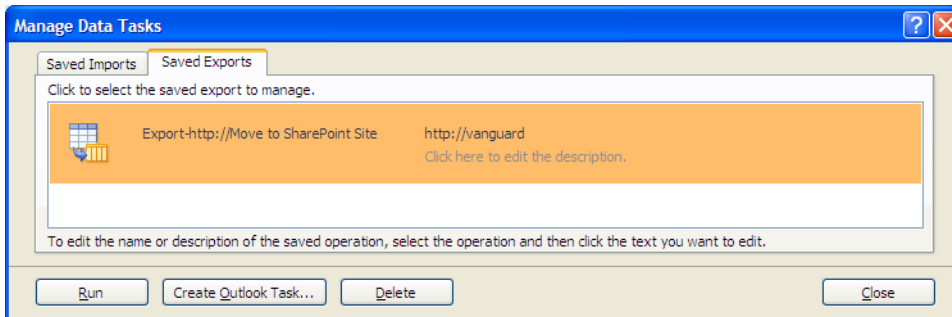


Figure 6-13. *Saved Exports tab in the Manage Data Tasks dialog box in Access*

In this tabbed window, you can see all your saved imports and exports. Click the **Saved Exports** tab and select the export you want to run. Notice that you can create an Outlook task from here if you did not do so when you created the original export. You can also delete any of the saved exports you no longer need as well as edit the name or the description of the saved export by clicking its respective text. If you did not include a description when you originally saved the export, click beneath the SharePoint server name on the text **Click here to edit the description**. A text box appears in which you can enter a description.

Importing a SharePoint List Directly from Access

You began this section by exporting the SharePoint list by opening the list in SharePoint. However, you can perform the same operation directly from Access without first going to SharePoint. Start by opening Access and then follow these steps:

1. If you get the **Getting Started** screen, select **Blank Database** from the Available Templates group.
2. On the right side of the page, define a filename for the database and click **Create**.
3. Build your database tables in Access
4. Select the **External Data** tab in the **Access** Ribbon.
5. Click the **More** button from the **Import & Link** group to open a drop-down of addition import options.
6. Select **SharePoint list** button.

This action opens the dialog box shown in Figure 6-14, which is similar to the dialog box shown earlier in Figure 6-2. You must specify the SharePoint Server site address. Then you can choose to either import the source data, thereby creating a new Access table, or create a linked table. Let's stick with the import option for now. I will talk about linking lists and tables in the "Linking SharePoint Lists to Access" section later in this chapter.

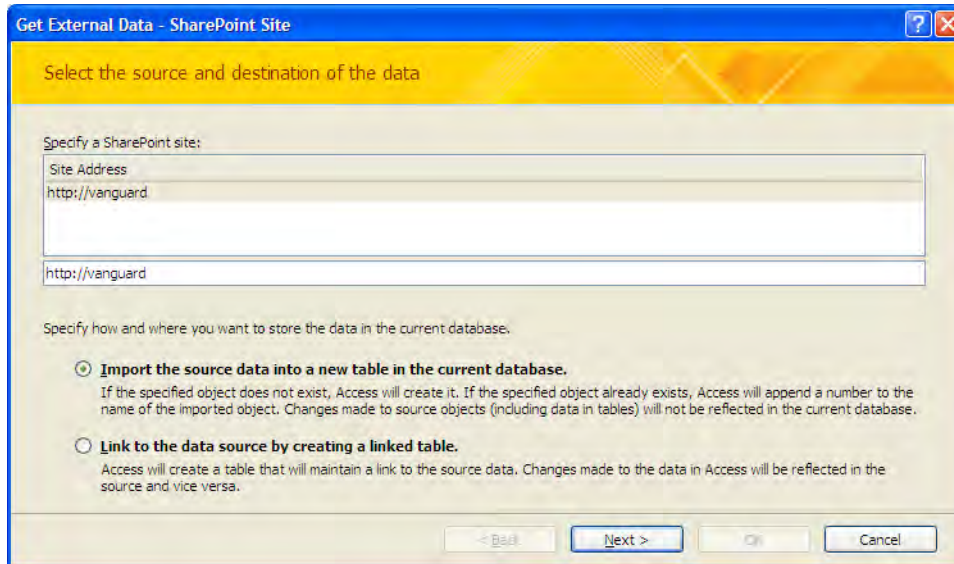


Figure 6-14. Selecting the source and destination of data

The next dialog box displays all lists in the selected SharePoint site. Each list has a separate check box, which allows you to select multiple lists to import at one time rather than exporting them one at a time as you did when starting from SharePoint. Notice that after selecting a list, the **Items to Import** column displays a drop-down list from which you can select a view to use. Remember that not only do views control which columns SharePoint exports to Access, but the view's filter also defines which items (rows) to transfer. Figure 6-15 shows an example of transferring three lists using selected views.

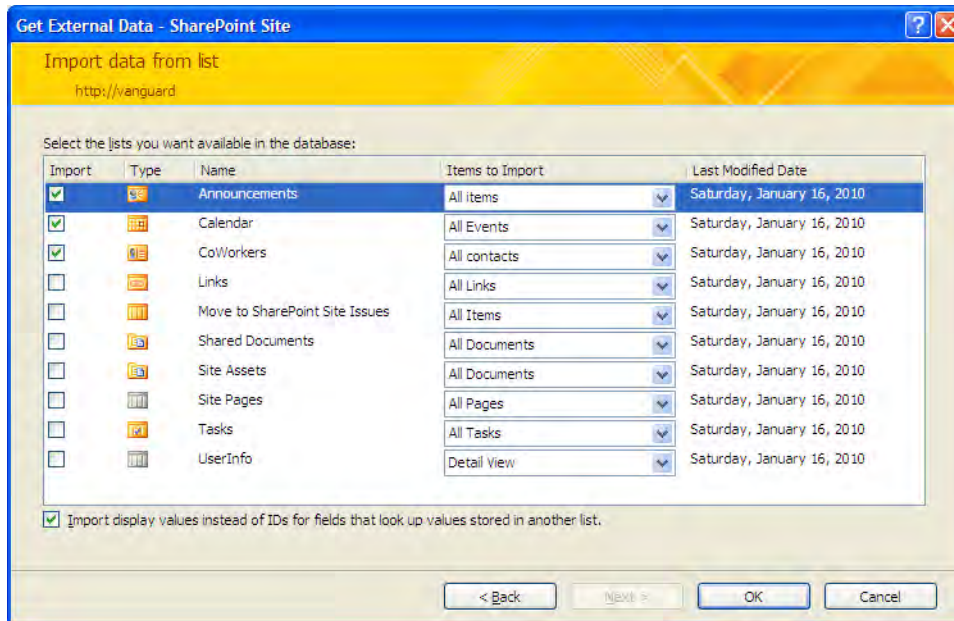


Figure 6-15. Importing multiple SharePoint lists using selected views

Access then allows you to save the import steps just as you did when you exported data from Access. If you choose to save your import steps, you must specify a name for the operation. By default, Access creates a name that begins with “Imports -” followed by the name of the first list. You can also create an Outlook task to remind you to perform this operation later. When you click **OK**, Access imports the lists.

Note that the list of objects that Access could import includes all the SharePoint libraries as well as the lists. When importing into Access from a library, Access only imports the metadata for each library item. The actual document itself does not transfer to Access. However, if you only want to manipulate the metadata from the library, this may be okay. For example, after importing the metadata from the **Purchase Orders** library into an Access table, you could easily create an Access report using the table as the data source. For example, this report might sum the purchase amounts by department for each month in the most recent fiscal period.

Linking SharePoint Lists to Access

In the examples discussed in the previous section, you imported a copy of the SharePoint list data into an Access table. Before continuing with some other ways to work with SharePoint data from Access, let’s see how linking to the SharePoint lists differs from simply copying the data into an Access table.

Because you have already seen how to begin a transfer of a list from SharePoint to Access in the previous section, let’s pick up the transfer at the point where you have to decide whether to link to SharePoint or simply copy the data. Figures 6-2 and 6-14 illustrate arriving at this point in the process beginning from SharePoint or Access, respectively. However, rather than copying the list data to the Access table, select the option **Link to data on the SharePoint Site**.

For this illustration, suppose I started from the **MyCoWorkers** list to transfer and link to Access. However, remember that the **MyCoWorkers** list could use a lookup reference to select the department to which the coworker belongs. Since SharePoint now supports relational integrity between lists, it does recognize when transferring a list with a lookup to Access that it should also transfer the lookup list. This process mirrors the way Access includes relational tables when transferring data back to SharePoint. Figure 6-16 shows that the link process has transferred both the **MyCoWorkers** and **Depts** tables to Access.

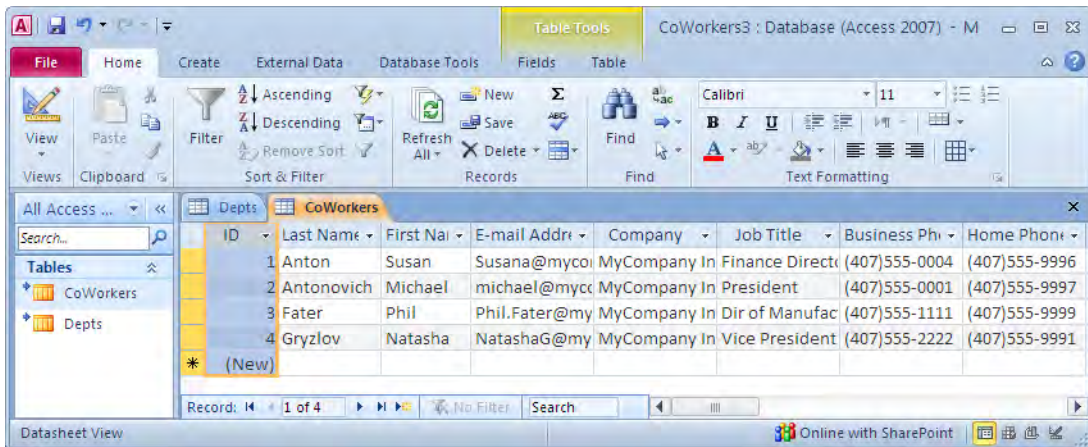


Figure 6-16. Employees and Depts lists loaded into Access

In addition, you should see a banner immediately below the ribbon that asked if you want to save your changes to the server, as shown in Figure 6-17.

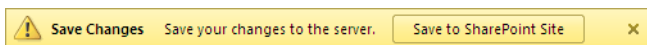


Figure 6-17. Save changes back to SharePoint

When you click on the button **Save to SharePoint Site**, Access displays a list of the document libraries in your current site. For now, save your database in the **Share Documents** folder of your library.

Editing Linked Data

When you link rather than copy a SharePoint list to an Access table, you can edit items in either SharePoint or Access, and the changes automatically appear in the other.

■ **Tip** As a standard practice, you probably don't want to use Access to edit individual elements of data in a SharePoint list. However, you might want to use Access and its linking ability to make mass updates to data, move data between lists, or even move data between lists on different servers. It also could provide a way to link data from a SharePoint list to other databases.

As long as everyone works on different items/rows, no one knows that others might be editing the same list. However, when two or more people edit the same item at the same time, a conflict situation arises. As expected, the first person to save her changes to the item succeeds. The second person to save his changes sees an error message such as the one shown in Figure 6-18.

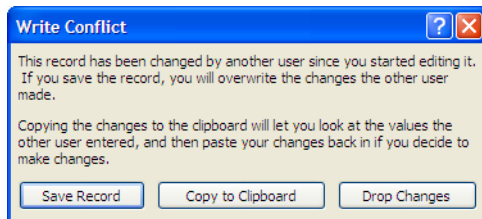


Figure 6-18. Edit conflict on a list linked to SharePoint

In this case, Access raises the message box because it recognizes that one or more columns in the row have changed since you began editing it. Access gives you three options to resolve this conflict. First, you could save your record anyway. This option blindly overrides the previous changes to the fields with your values. An objection to this option might be that you do not know which fields the other person updated, much less the changes she may have made.

The second option lets you copy your changes to the clipboard while updating the record in Access with the most recent values. You can use the **Clipboard Viewer** or paste the clipboard contents into an instance of WordPad to see and evaluate the changes. If you still want to use your values, you can reenter the fields with your values and save the record by navigating to another record. Figure 6-19 shows an example of conflict data from the **Depts** table. I added the conflicting data to the clipboard and then displayed it in a WordPad document.

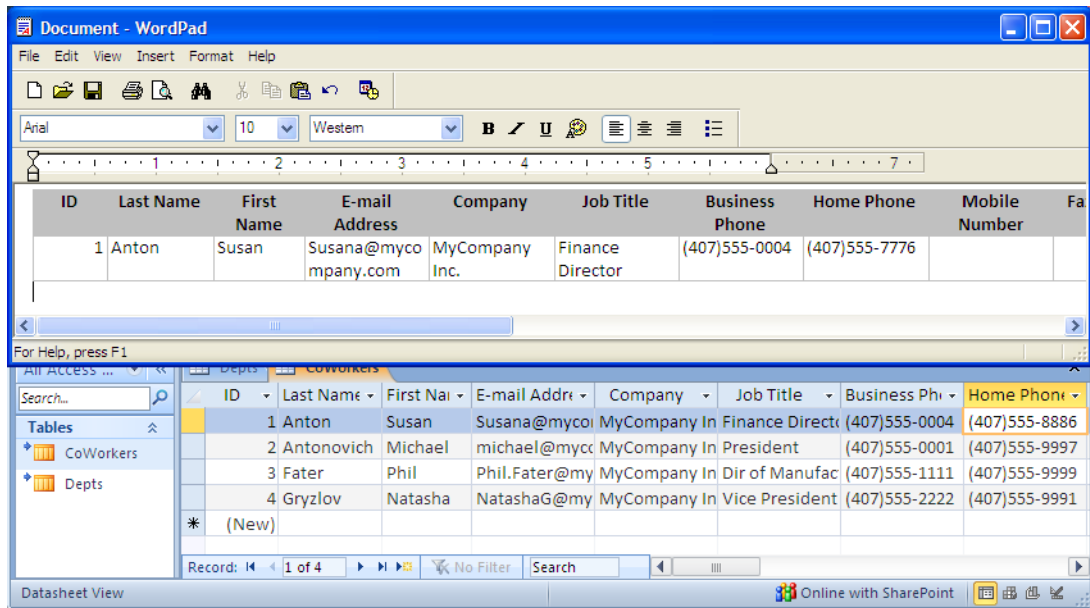


Figure 6-19. Contents of an update conflict added to the clipboard and viewed in WordPad

The third and final option drops your changes. When you select this option, Access updates the table with the values entered by the other person and ignores all your changes.

You might be thinking that you could avoid conflict problems if you check out the list before you begin making changes. Unfortunately, the Check Out feature does not exist for lists. However, if you link to the metadata associated with a document library, you can check out items in a document library. This prevents anyone else from making changes to the metadata.

■ **Note** You could simulate the behavior of Check In and Check Out by using SharePoint event handlers and a custom field, but that would require some coding that is outside the scope of this book.

Using Access to Make Mass Updates

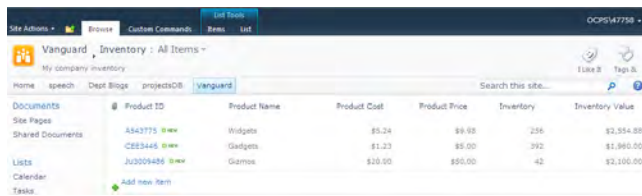
SharePoint has trouble making mass updates to lists. As an example, suppose you have an Inventory list of items you sell, and you need to increase all of the prices of all items by 10 percent. What are the new item prices? How much does your inventory value change? You could open your list and edit each item to update the price for the item. If modifying the price of each of your product records sounds like a lot of work, you are right. You might even need to pull out your calculator to determine the new price, and update the metadata using the **Datasheet View** of the list.

However, if you have more than a few records, a faster way to update the price for all items in your Inventory list begins by linking the list to an Access table. From within the Access table, a single update

statement can increment the product price by 10 percent for all items in both the table and the linked list. When finished, you can simply delete the Access table, and the data in the SharePoint list shows the new product prices. Notice that extended inventory value in the last column is a calculated value that multiplies the item's price by the number of items in the inventory.

■ **Note** The rest of the section requires some introductory knowledge of creating and using SQL Queries in Access.

Let's begin by looking at the Inventory list before making any changes. Figure 6-20 shows the first several products in the list.



Product ID	Product Name	Product Cost	Product Price	Inventory	Inventory Value
AA2775	Widget	\$5.24	\$9.08	256	\$2,554.88
CE2345	Gadget	\$1.23	\$5.00	392	\$1,980.00
JL200485	Gizmo	\$38.00	\$95.00	42	\$2,100.00

Figure 6-20. Original purchase amounts in the Purchase Orders library

Next, open Access and create a blank database named Inventory. From the **External Data** ribbon, select the **SharePoint List** option from the **More** drop-down in the **Import & Link** section. In the subsequent dialog boxes, define the SharePoint site and select **Inventory** from the list of objects that you can import into Access. Be sure to link the SharePoint list to the Access table. After you have loaded the list into an Access table, you can create a query to update the data.

To create a new query, select the **Create** ribbon. Then select **Query Design** from the **Macros & Code** section. The first step in creating a query displays a dialog box to select the tables you want to include in the query. In this case, select the newly added **Inventory** table by clicking it and then clicking **Add**. If you have other tables to include in your query, you could add them here. If you do not, close this dialog box by clicking the **Close** button.

Next, scroll through the list of fields until you find the field **Product Price**. Double-click the field to select it and add it to the grid in the lower half of the query builder screen. By default, Access assumes that you want a **SELECT** query. However, you need to use an **UPDATE** query to change the values of the **Product Price** field. Therefore, click the **Update** button in the **Query Type** group of the **Design** ribbon. This also changes the other information you must provide for the selected field so you can add an update formula. Next, you can specify a filter criterion so that your update only acts on a subset of the rows in the table. If you want to change all the rows, do not include a filter. However, you must supply a formula to increase the **Product Price** field values. Figure 6-21 shows the formula needed to add 10 percent to the product price.

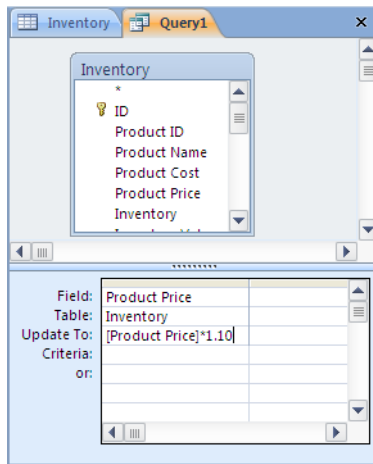


Figure 6-21. Adding 10 percent to the product price

To run the query, click the **Run** option in the **Results** group of the **Design** ribbon. When you run an **UPDATE** query, Access reminds you that you cannot undo the changes made by the query to the linked table. Therefore, the first dialog box that Access pops up lets you cancel the update by clicking **No** or proceed with your action query by clicking **Yes**.

The second dialog box that Access displays tells you how many rows it will update in the table. Again, you can cancel the update by clicking **No** now. If you click **Yes**, Access performs the update to the table. Because you linked the SharePoint list to Access, the changes also apply to the columns in the **Inventory** list on your SharePoint site. If you open the SharePoint site and view the **Inventory** list, you will see that it also updated the **Product Price** fields. Figure 6-22 shows the items in the list, so you can verify that the first item now has a product price of \$10.98 rather than \$9.98 representing the original price plus a 10 percent increase.

Product ID	Product Name	Product Cost	Product Price	Inventory	Inventory Value
A543173	Widget	\$5.24	\$10.98	256	\$2,810.37
C2E3A48	Gadgets	\$1.22	\$5.50	392	\$2,156.00
3U209468	Games	\$20.00	\$55.00	42	\$2,310.00

Figure 6-22. Updated purchase amounts in the SharePoint Purchase Orders library

Use Multivalued Fields in Lists

Multivalued fields allow a single field to have more than one value. Microsoft added this capability to the most recent version of Access as well as to SharePoint. Many people believe that this feature violates data normalization rules, which call for atomicity of field values. However, it also serves as an easily

solution to problems in which you want to associate a single record or item in a list with multiple values from another list.

■ **Note** Atomicity means that a field should have one and only one value.

If a record in a table has a field that needs more than one value for any field, data normalization requires that you remove that field and make a related but separate table for it. On that basis, people do not believe that a database field should have more than one value. However, simple lists do not have to follow such rules. Therefore, it may have been SharePoint's use of multivalued fields that drove the change in Access, not the other way around. Or maybe they are not related at all.

Rather than debate the pros and cons of multivalued fields, let's look at an example of a SharePoint list that uses them and see how you can enter and maintain that data. You will also look at how SharePoint and Access exchange data with these field types.

Creating a Multivalued Column in SharePoint

In SharePoint, you have two ways to create a multivalued field. The first way uses the choice column type. From the discussion on this column type, you might recall that you must specify the possible values for this field when you define it. You can then display the values as radio buttons, a drop-down list, or check boxes on the default edit form when adding or modifying items in the list. When displayed with check boxes, the user can select one or more of the values. If the user selects multiple values, SharePoint displays them in the **Standard View** concatenated together with a semicolon to separate them.

Alternatively, you could use a lookup column type to create a multivalued field by clicking the **Allow multiple values** check box when defining the field. The key advantage to using this method lies with the ease in which you can maintain the list used to supply values to the lookup. The disadvantage of this method derives from SharePoint's inability to allow the user to define the relationship type between the two lists. While the user can select from **Restricted delete** or **Cascade delete** when you allow the new list to select a single value from the lookup list, only cascade deletes (and updates) are allowed when your new list allows the user to select multiple values.

Figure 6-23 shows a new list column I added to the **CoWorkers** list using the lookup column type to define employee skills from the **Skills** table. Each employee can have one or more skills. Actually, unless you make this field required, you could have an employee with no skills, but then he probably would not remain an employee for long. Right?

The screenshot shows the 'Column Settings' dialog box in SharePoint. The 'Name and Type' section has 'Employee Skills' entered in the 'Column name' field. The 'Additional Column Settings' section is expanded, showing the 'Allow multiple values' checkbox checked. Other options like 'Enforce unique values' and 'Get information from' are also visible. The 'Relationship' section is partially visible at the bottom.

Figure 6-23. Defining a multivalued column

To create a multivalued column, you must select the **Allow multiple values** check box in the **Additional Column Settings** group. If you do not select this option, the user can only select one skill from the list. This might be okay if the field description asks for the employee's primary skill rather than her skills in general. However, as soon as you select this check box, SharePoint disables the ability to enforce relationship behavior, otherwise known as referential integrity.

Lookup fields always display in the add/modify form SharePoint automatically generates for a list, using a dual list box sometimes referred to as *mover boxes*. They got this name because they help you move one or more values from one list to the other. Mover boxes also generally take less space on a form than the corresponding radio buttons or check boxes for situations that have more than just a few options. The list box on the left shows the available values from which you can select. The list box on the right shows the values you have already selected. Buttons between the two list boxes help facilitate moving items from one list to the other. Figure 6-24 shows an example of how SharePoint implements a lookup field.

Last Name *	Anton												
First Name	Susan												
Full Name	Susan Anton												
E-mail Address	Susana@mycompany.com												
Company	MyCompany Inc.												
Job Title	Finance Director												
Business Phone	(407)555-0004												
Home Phone	(407)555-8886												
Department	(None)												
Employee Skills	<table border="1"><tr><td>Access</td><td rowspan="10"><input type="button" value="Add >"/> <input type="button" value="< Remove"/></td><td rowspan="10"><div style="border: 1px solid gray; width: 100px; height: 100px;"></div></td></tr><tr><td>Active Directory</td></tr><tr><td>Data Encryption</td></tr><tr><td>Microsoft Office</td></tr><tr><td>Microsoft Project</td></tr><tr><td>Reporting Services</td></tr><tr><td>Security</td></tr><tr><td>SharePoint</td></tr><tr><td>SQL Server</td></tr><tr><td>...</td></tr></table>	Access	<input type="button" value="Add >"/> <input type="button" value="< Remove"/>	<div style="border: 1px solid gray; width: 100px; height: 100px;"></div>	Active Directory	Data Encryption	Microsoft Office	Microsoft Project	Reporting Services	Security	SharePoint	SQL Server	...
Access	<input type="button" value="Add >"/> <input type="button" value="< Remove"/>	<div style="border: 1px solid gray; width: 100px; height: 100px;"></div>											
Active Directory													
Data Encryption													
Microsoft Office													
Microsoft Project													
Reporting Services													
Security													
SharePoint													
SQL Server													
...													

Version: 1.0
Created at 1/15/2010 10:03 PM
Last modified at 1/16/2010 3:00 PM

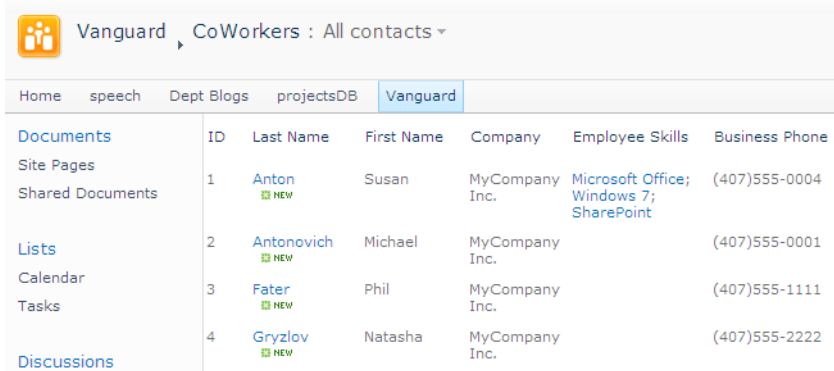
Figure 6-24. Mover boxes used to select values from a lookup list

To add a skill, you can double-click the skill name in the skill box on the left side. You can also click the value and then click the **Add** button found between the lists. Both methods add the skill to the list box on the right side containing your selected skills.

You can also select multiple skills from the available skill list by clicking the first skill, and then pressing the Shift key while you click the last skill you want to select. This technique selects not only the two skills you clicked, but also all the skills between them. If you hold the Ctrl key instead of the Shift key, you will add to the selection only the skills you clicked.

You can also remove selected items from the right side of selected list box by following the same techniques to remove individual or groups of values.

When you click **OK**, SharePoint adds or modifies the item and shows the updated list as shown in Figure 6-25.



Vanguard		CoWorkers : All contacts ▾				
Home speech Dept Blogs projectsDB Vanguard						
Documents	ID	Last Name	First Name	Company	Employee Skills	Business Phone
Site Pages Shared Documents	1	Anton <small>NEW</small>	Susan	MyCompany Inc.	Microsoft Office; Windows 7; SharePoint	(407)555-0004
Lists	2	Antonovich <small>NEW</small>	Michael	MyCompany Inc.		(407)555-0001
Calendar	3	Fater <small>NEW</small>	Phil	MyCompany Inc.		(407)555-1111
Tasks	4	Gryzlov <small>NEW</small>	Natasha	MyCompany Inc.		(407)555-2222
Discussions						

Figure 6-25. Employees list with multivalued Skills column

Notice that the selected skills for Susan Anton appear in the **Employee Skills** field separated with semicolons. Another thing to notice about this list focuses on the column header, **Skills**. In Chapter 2, you learned that the column headers have drop-down menus that usually allow you to temporarily sort or filter the list. In the case of the Employee Skills column, when you open this drop-down menu, you see text at the top of the menu that says **This column type cannot be sorted**. This occurs because you cannot sort multivalued list items. After all, which of the multiple items in the list should have priority for sorting? Figure 6-26 shows this drop-down menu.

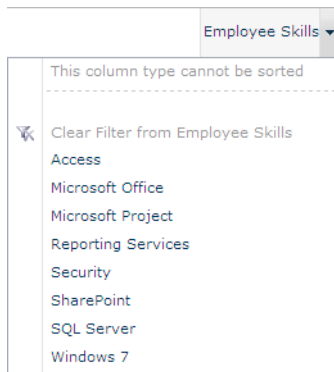


Figure 6-26. Drop-down menu for a multivalued column

■ **Note** This drop-down only lists skills to filter by that appear in at least one of the list's items.

Notice, however, that you can filter the list by individual values even in the multivalued field. For example, if you select the value **SharePoint**, SharePoint refreshes the list, applying the filter to display only those employees with SharePoint as a skill. Opening the drop-down menu for the **Employee Skills** column a second time displays an option to clear the filter from the column, and thus displaying all employees again. When a column has an active filter, a funnel-shaped icon appears in the header to the right of the name.

■ **Note** You cannot select more than one filter for a column at a time. However, you can select filters on two or more columns at once.

■ **Tip** If you switch to the **Datasheet View**, you can create custom filters that can include more than one filter for a single column.

In addition to the **Employee Skills** column, suppose you added a choice type column, named **Language**, so you can track the languages each employee knows. Since an employee might know multiple languages, you decide to make this column a multivalued column as well.

Figure 6-27 shows this field after you have added it to the list and specified values for each employee. On your screen, you might notice that the values display in a different color for the **Employee Skills** as opposed to the **Language** column even though they are both multivalued columns. When you create a multivalued column using the choice column type, the way you define the field fixes the possible values. However, the **Employee Skills** column links to the **Skills** list, building the list of possible values dynamically. This difference creates as a hyperlink value rather than just text. In either case, you cannot sort on a multivalued column no matter how you create it. You can verify this by clicking the column header to open the drop-down menu. However, you can again filter the lists by individual values used in the multivalued column.

The screenshot shows a SharePoint list interface for 'Vanguard' with the following data:

Documents	ID	Last Name	First Name	Company	Employee Skills	Language	Business Phone
Site Pages Shared Documents	1	Anton <small>NEW</small>	Susan	MyCompany Inc.	Microsoft Office; Windows 7; SharePoint	English, Spanish	(407)555-0004
Lists Calendar Tasks	2	Antonovich <small>NEW</small>	Michael	MyCompany Inc.	Access; Microsoft Office; Reporting Services; SharePoint; SQL Server	English, German	(407)555-0001
Discussions Team Discussion	3	Fater <small>NEW</small>	Phil	MyCompany Inc.	Microsoft Office; Microsoft Project	Creole, English, Spanish	(407)555-1111
	4	Gryzlov <small>NEW</small>	Natasha	MyCompany Inc.	Microsoft Office; Reporting Services; Security	English, Portuguese, Spanish	(407)555-2222

Figure 6-27. Employees list with Skills and Language multivalued columns

At first, you may think that either method of adding a multivalued column should result in the same end-user experience. The primary difference between the two methods is that users with the rights to add and modify items in a list can maintain the skills lookup list, but they cannot add or modify the items in the language choice list unless they also have the Manage Lists permission. However, that is not the only difference.

Opening a List with Multivalued Columns in Access

Let's open the **CoWorkers** list in Access to see how Access treats these two column types.

1. Open the **CoWorkers** list in SharePoint.
2. Select **Open with Access** from the **Connect & Export** group of the **List** ribbon.

At this point, Access opens a dialog box asking whether you want to link to the data in SharePoint or export a copy of the data (see Figure 6-2). Let's see what happens when using each method, beginning with exporting a copy.

3. Select **Export a copy of the data** and click **OK**.

After a few moments, Access opens with a copy of the employee data as shown in Figure 6-28. If the table does not immediately open, you may need to open the **CoWorkers** table from the **Navigation** panel by double-clicking it.

Last Name	First Name	Company	Employee SI	Language
Anton	Susan	MyCompany Inc.	3, 7, 11	English, Spanish
Antonovich	Michael	MyCompany Inc.	1, 3, 5, 7, 8	English, German
Fater	Phil	MyCompany Inc.	3, 4	Creole, English, Spanish
Gryzlov	Natasha	MyCompany Inc.	3, 5, 6	English, Portuguese, Spanish
*				

Figure 6-28. Employees table after copying the list

You should first notice that Access replaced the skills in the **Skills** column with their corresponding skill ID, making it rather difficult to interpret the **Skills** column in any useful manner. This does not happen to the **Language** column defined as a choice type column. Thus, when copying a list, Access treats lookup columns differently from choice columns. Furthermore, if you click in the **Skills** column of any row in the Access table, the drop-down only includes the ID values already used for that employee. Thus, the drop-down for each of the employees differs. Nor can you manually enter other ID values, even if you know what skills each ID value represents. Figure 6-29 shows a typical skills drop-down for an employee.

Last Name	First Name	Company	Employee SI	Language
Anton	Susan	MyCompany Inc.	3, 7, 11	English, Spanish
Antonovich	Michael	MyCompany Inc.		th, German
Fater	Phil	MyCompany Inc.		e, English, Spanish
Gryzlov	Natasha	MyCompany Inc.		th, Portuguese, Spanish
*				

Figure 6-29. Skills drop-down list that appears when you copy the Employees table

On the other hand, the **Language** column displays the selected languages just as it did within SharePoint, except commas separate the values rather than semicolons. In addition, if you edit this field by opening the drop-down list of values for any employee, you will see the complete list of possible values exactly as defined in SharePoint. Using this drop-down, you can modify the languages associated with any employee by clicking the check box before each language. However, changes to any of these columns do not resynchronize with the original SharePoint list because you chose the copy option to create this table.

Instead of choosing **Export a copy of the data** when you open the SharePoint list in Access, open Access using the **Link to data on the SharePoint site** option. When you select this option, SharePoint not only creates a link in Access from the **CoWorkers** table to the **CoWorkers** list in SharePoint, but also includes links to all the lookup tables. Figure 6-30 shows that in addition to the **CoWorkers** table, Access also creates tables linked to **Skills** and **Depts**. As a result, when you open the **CoWorkers** table, you now see the skill names, not the skill ID values. Furthermore, if you click in the **Skills** column for any employee and open the drop-down menu, you see all available skills from the **Skills** list.

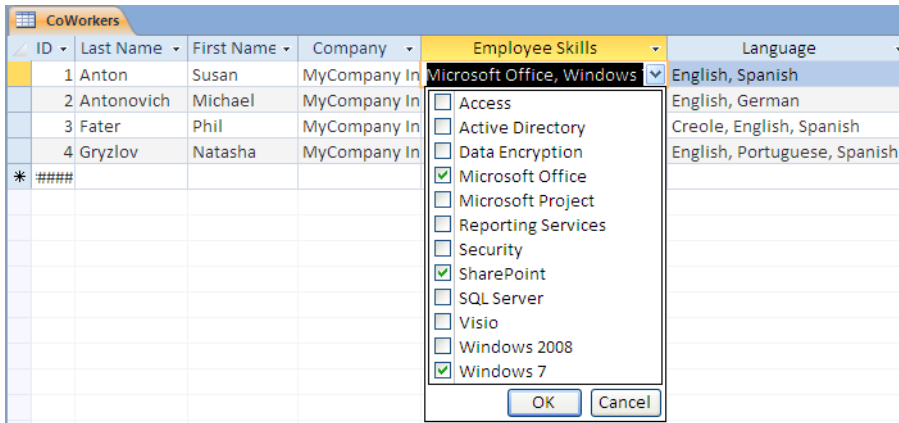


Figure 6-30. The skills drop-down is complete when linking to the Employees list.

For this reason alone, you may choose to use the links option rather than the copy option to view SharePoint lists in Access. But wait, there is more.

When you link to the SharePoint list rather than copy from it, you can make changes in either SharePoint or Access and have your changes appear in the other platform. When you copy the list from SharePoint to Access, changes you make in either platform remain only in the platform in which you make them. This means that by using links to your lists, you can use Access to manage your SharePoint lists, even those with multivalued columns.

Some Reasons Not to Use Multivalued Columns

The first argument against using multivalued columns comes from the inability to sort by them. You cannot easily resolve this problem because you would need to decide which value in a multivalued set controls the sort.

Filtering poses a different problem. While you may be able to filter the records in a table using a “contains” filter, the filtering string must uniquely identify the value you want and no other value. For example, if you used the two languages French and French Creole, you might encounter problems if you attempted to filter or search the records for employees who could speak French. A “contains” filter on the text “French” would return employees who spoke either French or French Creole.

Another potential problem occurs when you want to link the **CoWorkers** table to another table on a multivalued field. For example, suppose you have a table of projects that includes a field that defines the skills needed by the project. You might want to relate these two tables to see which employees you could assign to each project based on matching their skills to the skills needed for the project. However, if you define the **Skills** field in either or both tables as multivalued fields, you cannot use that field to link the tables.

Before leaving this discussion on multivalued fields, let’s take a quick look at the schema for these fields in Access. Figure 6-31 shows the field properties for the **Skills** field. In the **Lookup** tab, you can see that the row source uses a **SELECT** statement that pulls data from the **Skills** table. It defines the bound column as the **ID** column (remember that the copy option shows only the ID values), but defines the width of the first column as 0 so that the skill name (**Title**) appears, not the ID. Notice also the property **Allow Multiple Values** must show **Yes** to allow multiple values in the field.

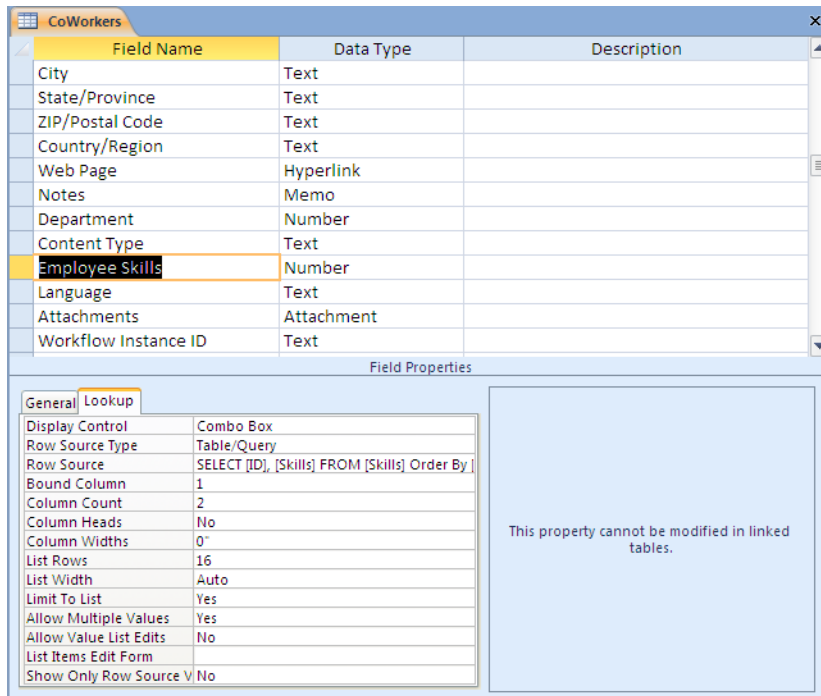


Figure 6-31. Skills field definition in the Access version of Employees

Although powerful in the right circumstances, I recommend that you exercise caution when using multivalued columns, with full knowledge of the limitations they impose.

Creating Access Forms and Reports from a SharePoint List

Once you bring your first list into Access, a natural question might be, “Can I create forms and reports from the list data?” The answer is yes.

Suppose you start with the **CoWorkers** list. If you remember from earlier discussion in this chapter, the **CoWorkers** list uses two fields that define their values using items found in two other lists, the **Depts** and the **Skills** lists. Thus, when you link the **CoWorkers** SharePoint list to Access, it also links these two lists, as you saw in the last section.

Creating a Simple Form

With the three employee-related tables linked into Access, you can generate a simple form for displaying and using just the data from the **CoWorkers** table. The fastest way to create a new form for a single table uses the **Form Wizard**, which you can find by opening the **Create** ribbon and looking for **Form** in the **Forms** group.

■ **Tip** By default, Access generates a form for whichever table you have open or have selected from the left-side **Navigation** panel. If you do not have a table selected or open, the **Form Wizard** appears grayed-out and unavailable.

Figure 6-32 shows an example of a default form generated by Access for the **CoWorkers** table. Like all Access forms, you can further customize the form after using the wizard to build the base form.

ID	1		
Last Name	Anton	Home Phone	(407)555-8886
First Name	Susan	Business Phone	(407)555-0004
E-mail Address	Susana@mycompany.com	Department	Finance
Company	MyCompany Inc.	Employee Skills	Microsoft Office, Windows 7, SharePoint
Job Title	Finance Director	Language	English, French

Figure 6-32. A simple form for the *Employees* table

■ **Tip** If you do not like the default form generated by Access using the **Form Wizard**, you can abandon this form by closing it without saving it. Create a new form using the **Form Design** option from the **Forms** group of the **Create** ribbon. You could also generate a form, save it, and then use **Form Design** to edit the appearance and/or functionality of the form.

Notice that all fields originally created as lookup or choice fields in SharePoint now appear as drop-down lists. Of course, only the **Employee Skills** and **Department** drop-downs link to other tables in the Access database, while the **Language** drop-down references a fixed selection of values. In addition, the fields for **Employee Skills** and **Languages** display the multivalued format discussed earlier in this chapter when you click open their drop-down lists.

■ **Note** The Department column does not display check boxes before the possible values because it is a single value lookup field.

If you like the way a form appears, you can save it for future use by right clicking the highlighted tab at the top of the form and selecting **Save** from the menu that appears. This action opens a simple dialog box that prompts for the form name. Access supports form names that have any combination of letters and numbers. However, you should never use special characters. I do not recommend using spaces in table or field names either, although it is possible if you then delimit those names with square brackets when you reference them.

As to how long table or field names should be, you should always use as many characters as necessary to fully describe your Access tables and forms, up to the limit of 64 characters. Don't, however, make long names just because you can. You can even save a form or report with the same name as the table on which you base it, although that can lead to some confusion. In fact, the icon before the object name may be your only clue if you display the table and form in the **Navigation** panel grouped by **Tables and Related Views** rather than by **Object Type**, as shown in Figure 6-33.

ID	Last Name	First Name	E-mail Address	Company	Job Title
1	Anton	Susan	Susana@myco	MyCompany In	Finance Directo
2	Antonovich	Michael	michael@mycc	MyCompany In	President
3	Fater	Phil	Phil.Fater@my	MyCompany In	Dir of Manufac
4	Gryzlov	Natasha	NatashaG@my	MyCompany In	Vice President
*	(New)				

Figure 6-33. A saved form appears in the Navigation panel with its own icon.

In addition to the basic form shown in Figure 6-32, Access provides wizards to help you create several other types of forms, including the following:

- Split Form
- Multiple Items
- PivotChart
- PivotTable
- Modal Dialog
- Datasheet
- Several variations of forms with tabs for sub reports.

It is beyond the scope of this book to examine each of these form types. However, let's look at two form variations beginning with the Split Form.

Creating a Split Form

The Split Form gives you two views of the same data on the same form. Figure 6-34 shows a Split Form for the **CoWorkers** table, in which the top portion of the form shows the fields laid out similarly to those of Figure 6-32. However, the bottom of the form displays the table records in a grid format, in which each record displays as a row in the grid.

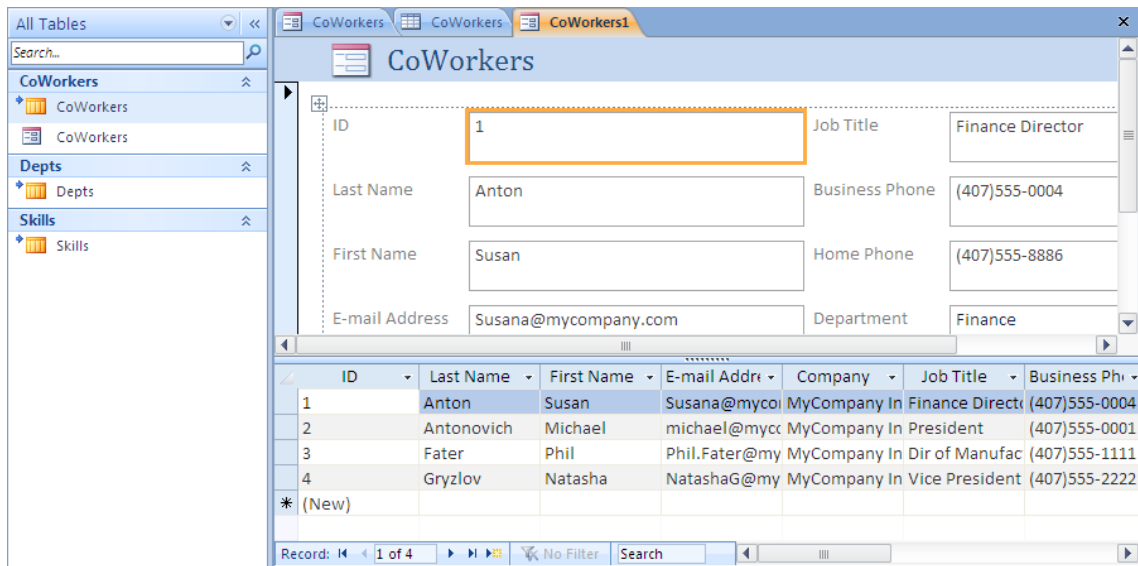


Figure 6-34. A Split Form provides two ways to edit records.

You can change the record shown in the top portion of this form by scrolling through the records using the grid in the lower portion and clicking anywhere in the row of the desired record. Once you select the record, you can then edit the fields in either portion of the form. When you move off the record, Access automatically saves the changes you made to that record.

If you do not like the way a form generated by the wizard looks, you can edit the form design by right-clicking the form's highlighted tab and selecting **Design View** from the drop-down menu. You can also select **Design View** from the **View** drop-down menu found in the **Views** group of the **Home** ribbon.

Figure 6-35 shows the top portion of your original **CoWorkers** form displayed in **Design View**. A form like a report in Access consists of a series of bands. In a form, the default bands include a **Form Header**, **Detail**, and **Form Footer** section. (Not shown by default are the **Page Header** and **Page Footer** bands. You probably will use these latter two bands infrequently when designing forms. However, you may find them quite useful when designing reports.) While the Form Header band only appears once at the beginning of a report no matter how many pages the report runs, the Page Header repeats at the top of each new page in the report. Developers often use this band to define column headings.

Similarly, the Page Footer occurs at the bottom of each page and may include information such as the page number, report name, or the report's generation date. Note that you do not need to use each of these bands. In fact, you can create a form that only uses the **Detail** band. You can turn on or off any of

these bands, as well as access other band features, by right-clicking the band's title bar and de-selecting the band from the drop-down menu.

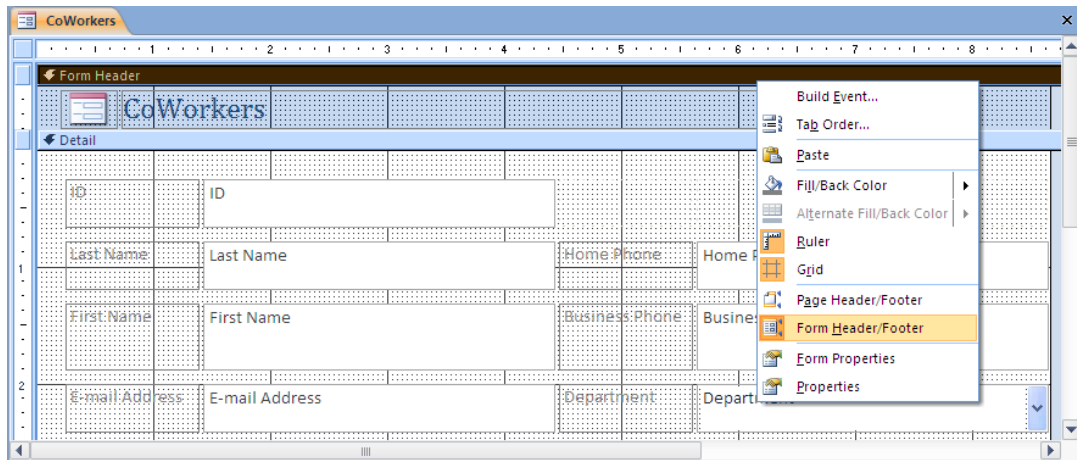


Figure 6-35. Design View lets you customize your form's appearance.

Creating a Custom Form Using a Subform

The last form type I will briefly explore here is the custom form, which uses a subform to display data from a related table. You would use this type of form to show a parent-child relationship between two tables. For example, suppose you want to display a list of employees by department. In this case, the **Depts** table acts as the parent, as each employee belongs to only one department but each department can have multiple employees.

To begin a form that displays this relationship, create a simple form for the **Depts** table. Then after the **Form Wizard** finishes, choose the **Design View** for the form. Next, find the **Subform** icon in the **Tools** group of the **Design** Ribbon, as shown in Figure 6-36.

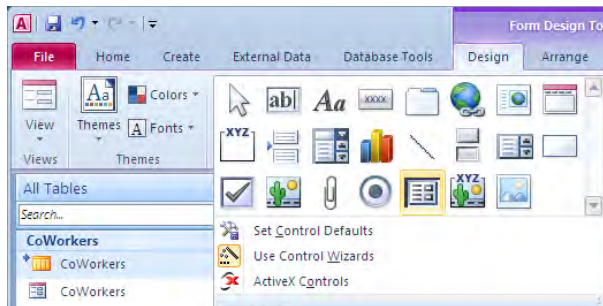


Figure 6-36. The Design Ribbon with the Subform tool selected

After selecting this design tool, move back into the form and draw a rectangle to represent the area where you want the subform to appear. When you release the mouse button, Access prompts for more information to tie the main portion of the form to the subform using a series of dialog boxes.

The first dialog box, shown in Figure 6-37, asks whether you want to use an existing table or query or if you want to use an existing form. I recommend that you create the subform first and then just reference it from the list of available forms. In this case, choose the previously created CoWorkers form.

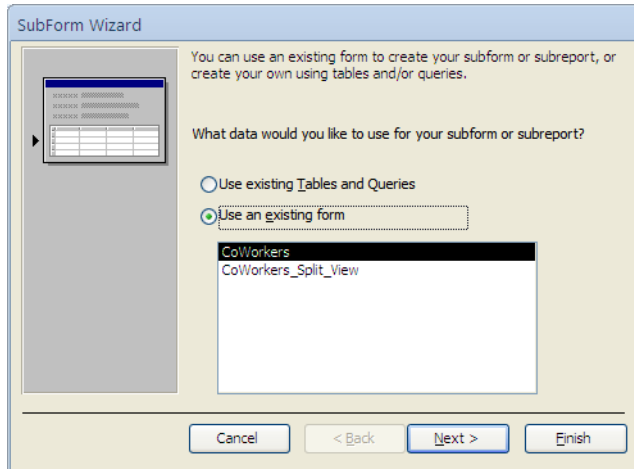


Figure 6-37. Creating your subform from tables, queries, or existing forms

■ **Tip** Use tools and wizards as much as possible to reduce the amount of work you must perform manually.

If you have not created a subform ahead of time, you can always go directly to a table or query. In that case, you must begin by selecting the table or query you want to use in the subform. Then select the fields you want to appear in the subform. Figure 6-38 shows an example of the dialog box that lets you select fields from the list of available fields in the selected table or query and move them into the **Selected Fields** list. The order in which you select fields for this list determines the order in which the fields appear in the subform. Therefore, select the order carefully. While Access lets you rearrange fields in **Design View** mode, you can save yourself time by giving the order of the fields some thought before you select them rather than spending time later moving them around.

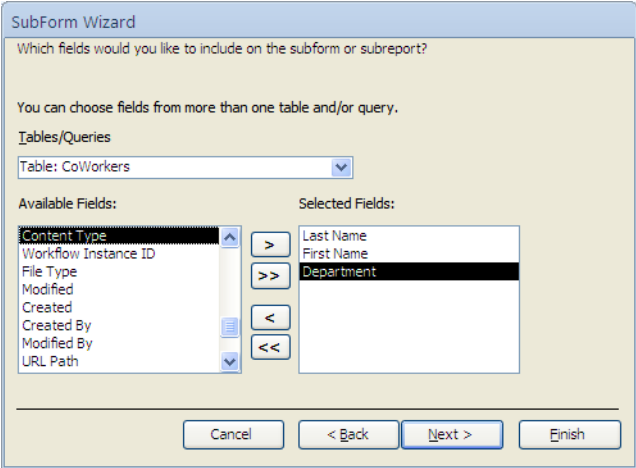


Figure 6-38. Selecting the fields to include in the subform

After you have defined the fields in your subform, you still need to define how you want to link the main form to the subform. Access attempts to help by providing some suggestions in the next dialog box of the wizard. However, if nothing in this list seems correct to you, you can define your own connection.

Figure 6-39 shows the dialog box used to define your own link between the main form and the subform. In this case, you want to use the **ID** field as the connecting field between the **Depts** table and the **Department** field in the **CoWorkers** table. Remember that, when you bring a list from SharePoint over to Access, the lookup columns in the list contain the ID of the record in the lookup table.

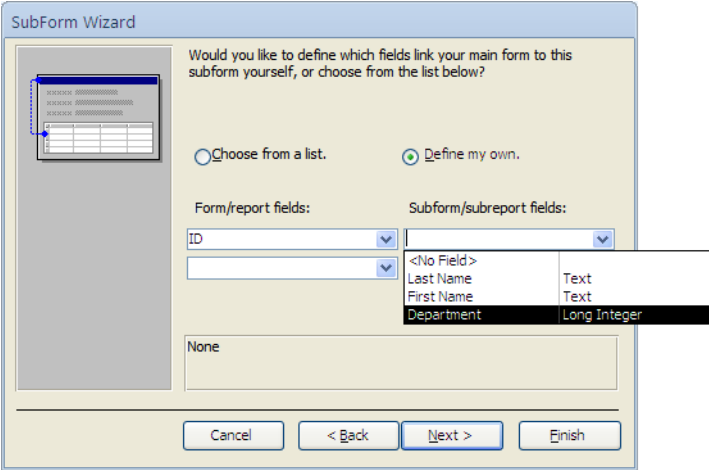


Figure 6-39. Defining the link between the main form and the subform

■ **Caution** When you define your own link, the field type on both sides of the link must be the same. In other words, if you select an integer field on the main form side, you must select an integer field on the subform side. On the other hand, the names of the fields do not matter.

While you can build links between the main form and subform using more than one field, I strongly recommend using single fields for primary and foreign keys between tables. If you do not have a natural unique single field to serve as the key, you may want to use an autonumber field on the primary side of the relationship.

After you finish defining the link between the form and subform, you are ready to save the subform. However, you must supply a name for it. As with table names, you can use any combination of letters and numbers as long as the total length of the name has less than 64 characters. Figure 6-40 shows an example of the completed form displaying the employees within a department.

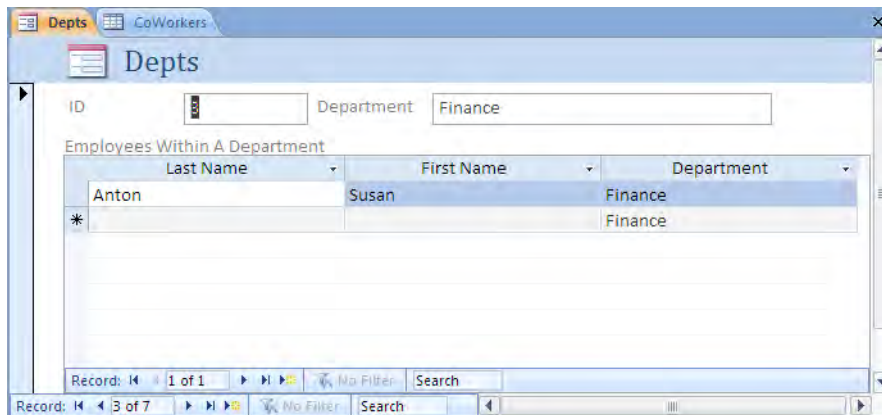


Figure 6-40. Example of finished Split Form

So why did you go through all of this trouble to create an Access form based on tables that represent links to lists in SharePoint? The answer rests with the fact that you linked the SharePoint lists to Access. Because the Access tables represent links, you can modify the data in the Access table or any forms created from those tables, and Access synchronizes your changes back to the SharePoint list. The next time someone opens the SharePoint list, she will see your changes. Thus, you have an alternative way to maintain your lists. Rather than go through the SharePoint interface to edit your lists, you can create a series of Access forms and organize them into an Access application that anyone can use to maintain your SharePoint lists.

Creating a Simple Report

In a similar fashion, you can create Access reports to display data from multiple SharePoint lists. In fact, the technique for designing reports uses many of the same concepts and similar wizards that you used

when creating forms. For illustration purposes, the report shown in Figure 6-41 displays the employees in each department.

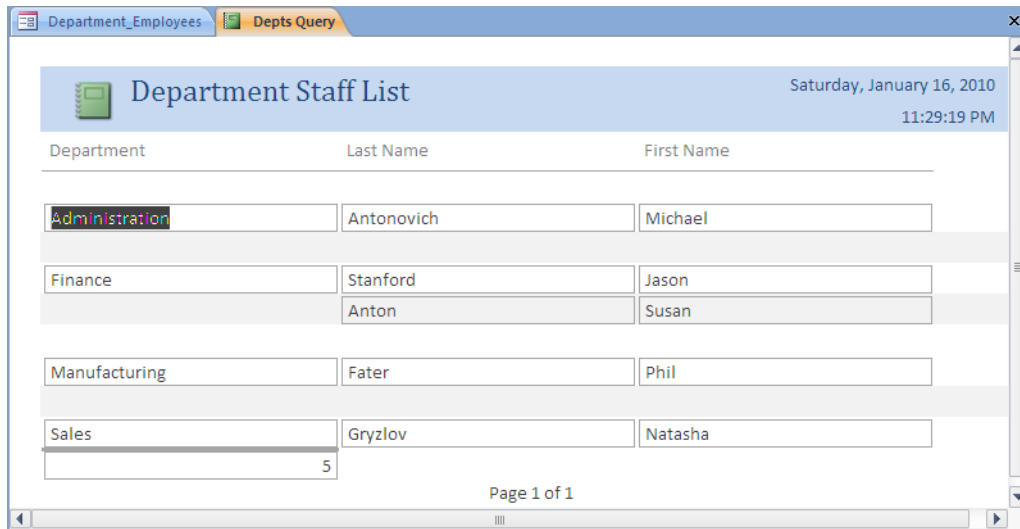


Figure 6-41. Sample of an Access report created from linked SharePoint lists

Again, I want to emphasize that learning how to use Access to create forms and reports goes beyond what we have time for here. There are many books available for Access that can provide you with further assistance in learning how to create forms and reports.

Can Recycle Bin Recover Deleted List Records?

By now, it should not come as a surprise that, when you delete a record in an Access table that links to a SharePoint list, SharePoint also deletes the record from that list. Access warns you that, when you delete a record, it is deleted permanently. However, that does not take into account the fact that you linked Access to SharePoint. Remember, unlike deleting a record from a stand-alone table in Access, when you delete just about anything in SharePoint, SharePoint sends it to the Recycle Bin. Therefore, if you happen to delete the wrong record while in Access, you can recover it through SharePoint.

To recover a deleted record, open SharePoint and navigate to the site. You do not need to go first to the list that links to the Access table. Just follow these steps:

1. Scroll down through the **Quick Launch** area on the left to **Recycle Bin** found at the bottom.
2. Click **Recycle Bin**.
3. When the Recycle Bin opens, it shows all the items deleted in the last 30 days (by default). Locate the deleted record (see Figure 6-42).

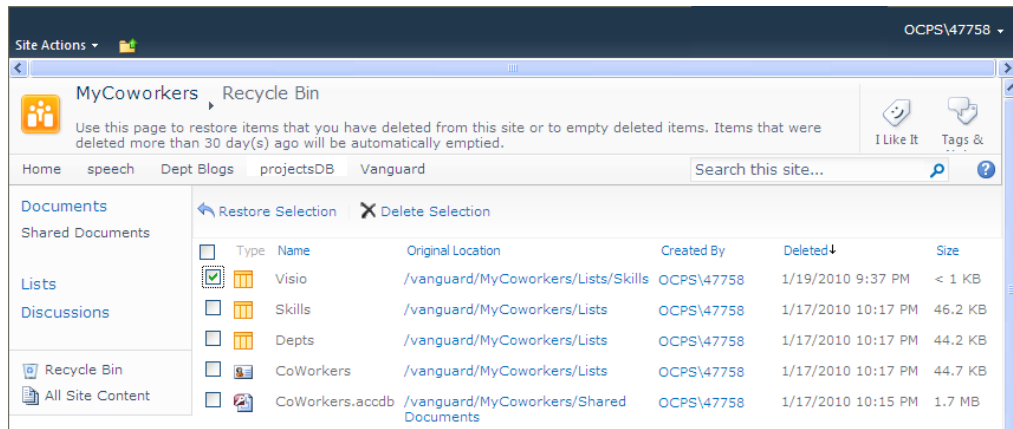


Figure 6-42. Recovering a deleted Access record using the SharePoint Recycle Bin

4. Click the check box to the left of the record you want to restore.
5. Click the **Restore Selection** button at the top of the recycle list.

If you now return to the list, the deleted record again appears in the list. Furthermore, if you go to Access and open the table corresponding to the linked list, you see that the deleted record appears there as well.

Deploying Your Access Application to SharePoint – Option 1

Now that you have seen how Access and SharePoint can share individual lists and tables, you are now ready to address the larger issue of what you can do with Access applications themselves. One of the reasons most IT departments shutter at the thought of the number of Access applications running wild within their companies is that these applications are totally unmanageable—and multiple copies of the data exist throughout the organization on laptops that can be easily stolen or compromised.

The first part of this chapter addressed one way in which SharePoint can help manage the data from these applications. You saw how easily you can upload Access tables to SharePoint and then link to those lists. SharePoint then becomes the owner of the data. You can then allocate permissions to access the data through SharePoint totally independent of Access. Thus, if a laptop is stolen or compromised, unless the thieves also know the original owner's user name and password, they cannot access the SharePoint site to get to the data. Thus, moving the tables from Access to SharePoint accomplishes the following data management goals:

- Establishes one version of the truth, one copy of the data
- Provides for an easy way to backup the data on a regular basis
- Protects access to the data with user based permissions
- Tracks versions of the data
- Provides for a Recycle Bin to recover accidentally deleted data

However, the application itself still resides on a user's desktop (or laptop), making it difficult to push out new versions of the application because it is almost impossible to tell where all the copies of the application exist. Sometimes, the developer may even lock the application so that while others can run the application, they cannot get to the source of the forms, reports, queries, or macros to make changes. At first, this may sound like a good idea to protect the integrity of the application's logic. However, when the developer leaves the company, no one can get into the application to make needed changes. What you still need is a way to manage the application's interface including the following goals:

- Maintain a single version of the application
- Provide a way to easily deploy and upgrade the application
- Centrally deploy the application so users can easily get to it

In this section, I will show you a way to achieve all of these goals using the tools available in all versions of SharePoint that support Access services (which, at the time of SharePoint 2010 release, appears to be limited to the Enterprise version) and Microsoft Office 2010.

Moving All Access Tables to SharePoint

The first part of this chapter showed how you could move individual tables or tables grouped together through referential integrity from Access to SharePoint. However, depending on the complexity of your application, you may still need to move multiple tables or groups of tables manually to transfer everything from a single Access application to SharePoint. However, there is a faster way to move all tables from a single Access database to a SharePoint site by following a few simple steps.

First, open your Access application and display the **Database Tools** ribbon, as shown in Figure 6-43. In the **Move Data** group, select **SharePoint** to move all tables in the current database to SharePoint lists. Notice that you could also move your Access data to a centrally managed SQL Server or even a centrally managed Access Database. However, these other options do not provide some of the functionality that SharePoint lists provide, such as versioning and the ability to easily recover data from a recycle bin.

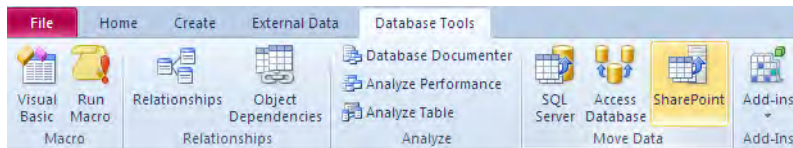


Figure 6-43. Access 2010 provides a command to move all tables to SharePoint at once.

■ **Note** You must use at least the Access 2007/2010 format for the **SharePoint** option to appear enabled in the **Move Data** group.

When you click on this command, Access opens a dialog box to ask where you want to move your data (see Figure 6-44). In the text box, you can enter any existing SharePoint site. In the list box, you see a list of the previously referenced SharePoint sites that you can select and add the tables from the current database.

I generally recommend that you move your Access tables to a new site created just for that one application. This eliminates the potential problems that would occur if you tried to upload tables having names that already exist as lists in the desired site. As you saw earlier, Access would then attempt to add a prefix to the name to insure that it was unique. If you plan to consolidate tables that exist in multiple applications so you only have to maintain one copy of the list in SharePoint, you may want to store the lists for groups of applications in one site.

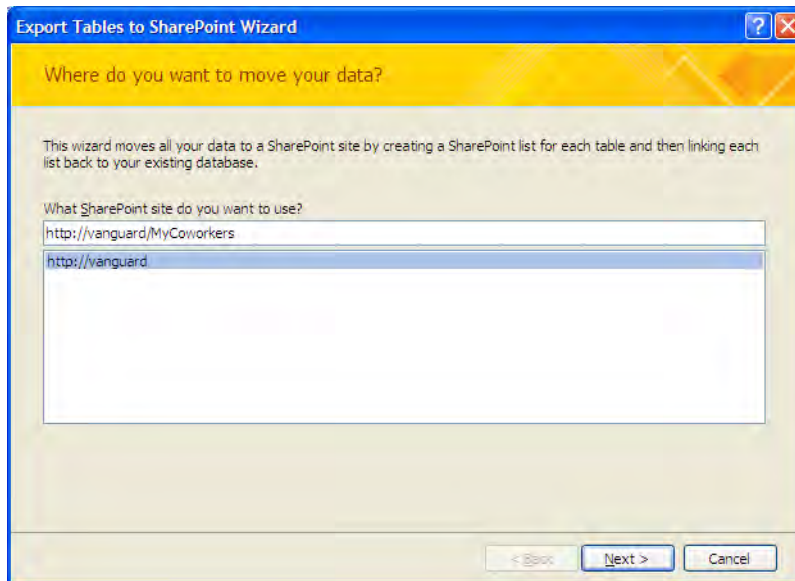


Figure 6-44. Access lets you choose the site to load your Access data.

Access first builds the list definitions in SharePoint based on the table schema in Access. This process includes not only the definition of the columns in the list, but also the validations and any referential integrity between lists. It then uploads the data from the Access table to the newly created SharePoint lists. Depending on the amount of data in your Access tables, this process can take some time. Once Access finishes exported the tables to SharePoint, the dialog shown in Figure 6-45 informs you that the transfer completed successfully.

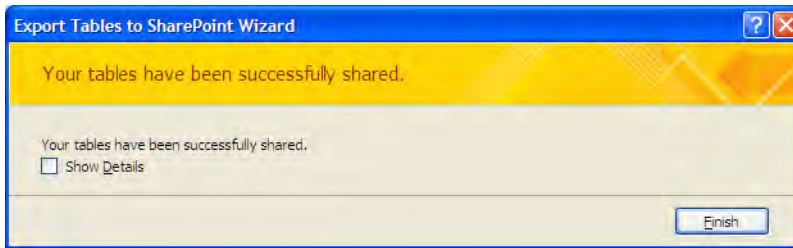


Figure 6-45. Access notifies you of a successful upload of the data.

If you click the **Show Details** check box at the bottom of this dialog, the export wizard tells you the names of the lists created on the site as shown in Figure 6-46. It also tells you that it created a backup copy of the Access database

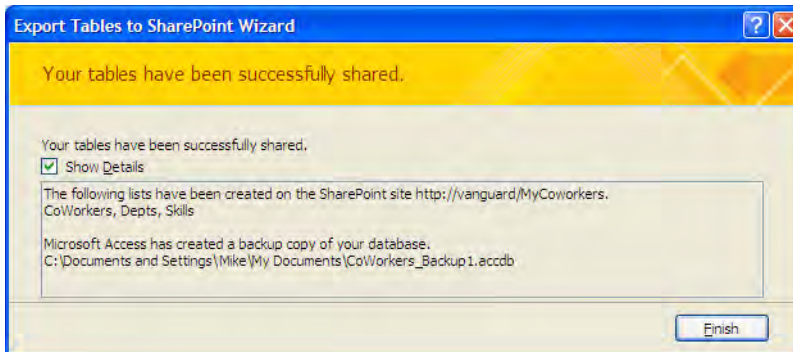


Figure 6-46. The dialog details tell you what lists it created in SharePoint.

Moving the Access Database to SharePoint

You may have also noticed a banner immediately beneath the Access ribbon that asks you to save your changes to the server. This notification, shown in Figure 6-47, is not referring to changes in the table data just transferred. Rather, it asks you to save your Access database to SharePoint.

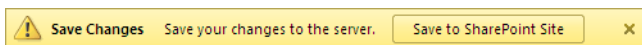


Figure 6-47. Access prompts you to save the database to SharePoint.

While you could choose any site in which to store your Access database, most people will store the database in a library on the same site as the lists created from the database's tables. This practice makes it easy to associate the application with the lists used by the application because they all reside in a single site.

However, there are good reasons to store the applications in a separate site, including:

- Providing a single site from which users can access all applications rather than having to navigate from one site to another.
- Providing unique permissions to the application site that allow select users or groups the ability to edit the applications while limiting them to read and update access to the data in the site containing the lists.

You must create the library first. In Figure 6-48, you see that after clicking the **Save to SharePoint Site** button in Figure 6-47, the **Save Dialog** lets you select the site and library where you want to store the Access database. In this case, you are using a Shared Documents library.

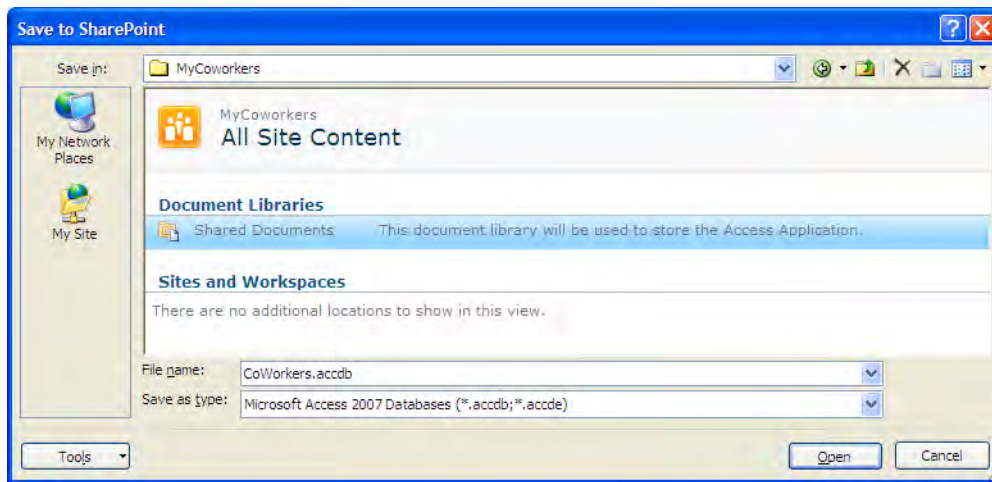


Figure 6-48. Use the Save Dialog to select a library in which to save the Access database.

After saving the Access database in the library, you can delete your local copy of the application used to upload the production version to SharePoint. You no longer need it to run the application or to access the data. Furthermore, you can get all other users of the application to remove their local (and now redundant) copies of the application from their local drives. All users can open the database by clicking on the database name or by using the drop-down menu associated with the application.

You now have a single application that all users can access, as shown in Figure 6-49, rather than multiple copies scattered on computers throughout your organization. If you need to update the database to add a new feature or correct a problem, you only need to deploy the new version to one library. Similarly, all users of the application use the same application code since it resides now in only one location, but they all also access and update a central data source.

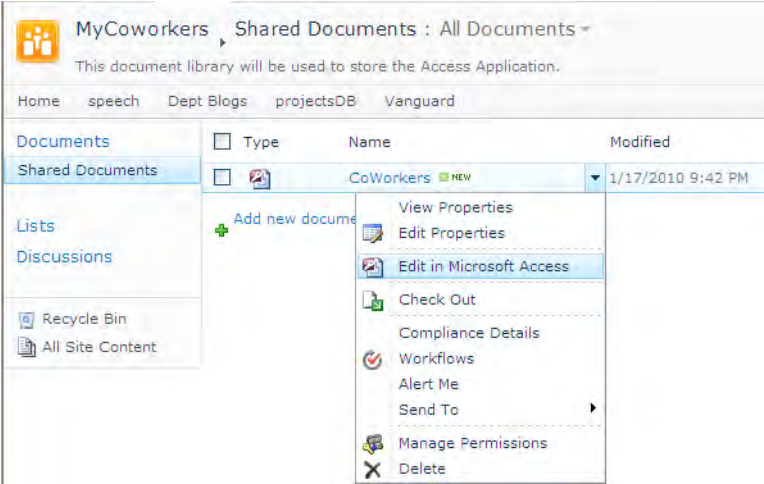


Figure 6-49. All users can now open the Access database from a single location.

Clicking on the Access database name in the library opens the dialog shown in Figure 6-50. Users that do not have edit rights must open the document in Read Only mode. If you have edit rights to the library, you can open the database in Edit mode. However, when you do that, you must supply a location where a local copy of the database can be stored while you edit it.

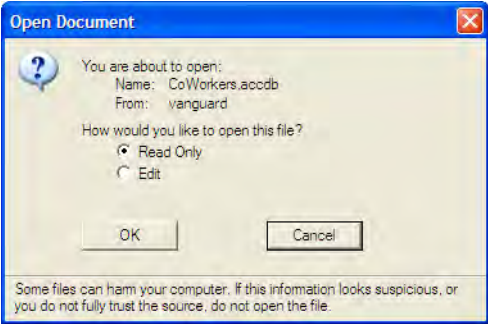


Figure 6-50. Users can open the Access database in Read Only mode or Edit mode depending on permissions.

When opened in Read Only mode, the users sees a banner at the top of the opened database (Figure 6-51) that tells them that they can only change data in linked tables. Since you started by linking all the tables to SharePoint lists, this warning does not present a problem. The banner further goes on to say that to make design changes, they must save a copy of the database. Of course, if they do not have edit rights, they cannot resave the database with their changes back to the SharePoint library. Only users who

have edit rights in the first place can choose Edit from the dialog in Figure 6-50 make changes to the forms, reports, etc. and save their changes back to the library.

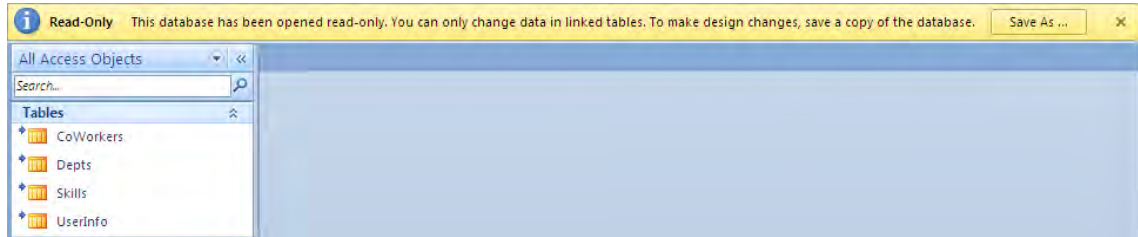


Figure 6-51. Notice that user can only edit linked tables when opening the Access application from the library.

In either case, users can make changes to the data in the linked tables. Access sends changes made to any record in the table to the linked list as soon as you move off the record. Anyone else viewing the record from the SharePoint list will see the change the next time they refresh their page. In addition, users can make changes directly to the data in the SharePoint lists. These changes also appear the next time someone opens a form, report, or view of the table from the Access application.

Overall, this is not a bad solution to managing Access applications for your organization. The one major flaw of this option is that when two or more people download a copy of the application at the same time to make changes to forms, reports, or macros, the last person to save their changes will overwrite the changes of the other simultaneous editors. However, the second option can even address that problem.

Deploying Your Access Application to SharePoint – Option 2

While the method of deploying an Access application to SharePoint in Option 1 solves many of the problems that concern IT departments, such as having an unknown number of copies of the application as well as copies of the data floating through the organization, it still requires each user to have Access on their desktop. If you deploy a version of Microsoft Office that includes Access, this may not be a concern. However, there is still a concern about simultaneously editing the database objects by two or more people. Therefore, if you want to deploy Access applications for others to use who may not have Access on their desktop or if you have many people with edit rights to the database objects, you may want to consider deploying your application to a SharePoint 2010 server supporting Access Services.

Unlike option 1, you do not need to first move all of your Access tables to SharePoint lists as a separate step. While the tables still become SharePoint lists, Access moves them for you when you select the option to publish your Access application to Access Services. To deploy your application, following these steps:

1. Open your Access application.
2. Open the **File** drop-down menu and select **Info** (as shown in Figure 6-52).
3. From the options in the center column, select Publish to Access Services.

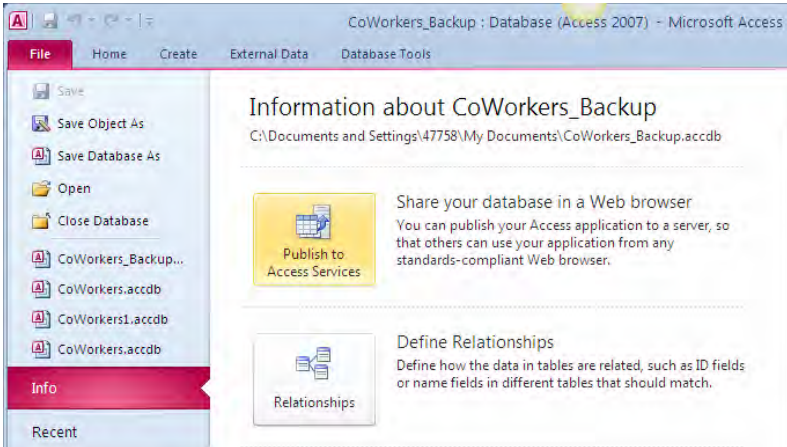


Figure 6-52. Access applications must be published to the Access Services.

When you publish an access application, you need to name the site where you want it published. This site cannot exist prior to publishing. In other words, you cannot add your Access application to an existing site. Figure 6-53 shows that you must enter the server URL as well as the site name. Note that the server URL is the path of the site less the site's name itself.

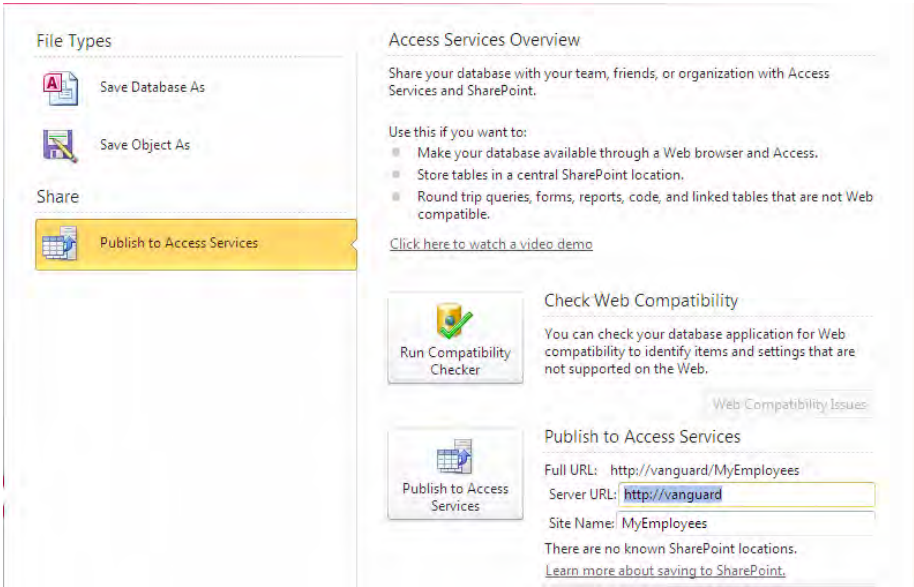


Figure 6-53. Specify the server and the site name for publishing the Access application.

■ **Caution** You can only publish an Access application to be a subsite of an existing site. You cannot publish an Access application to be the root site of a site collection or the root site in a wildcard. In other words, while you can publish to something like <http://vanguard/> or <http://vanguard/sites/MyProjects>, you cannot publish to <http://vanguard/sites/>.

When you click the **Publish to Access Services** button, Access performs a compatibility check to identify items that may not be compatible with the web. If it finds anything, the wizard stops the publishing process and displays a dialog that says **Publish Failed**. Within this dialog, you will find a link called **Web Compatibility Issues**. Click this link to display a table of all the issues that are preventing the current application from publishing to Access services. The columns in this table identify the type of element that caused the problem, the control type and name within that element, the property where you can find the problem, and a description of the issue. With this information, you can go back to your original Access application and fix the problem.

After addressing each of the issues in the Web Compatibility Issues table, you can retry the wizard to publish your application to Access Services. If you successfully fixed all the issues, you should see the dialog shown in Figure 6-54 that says **Publish Succeeded**.

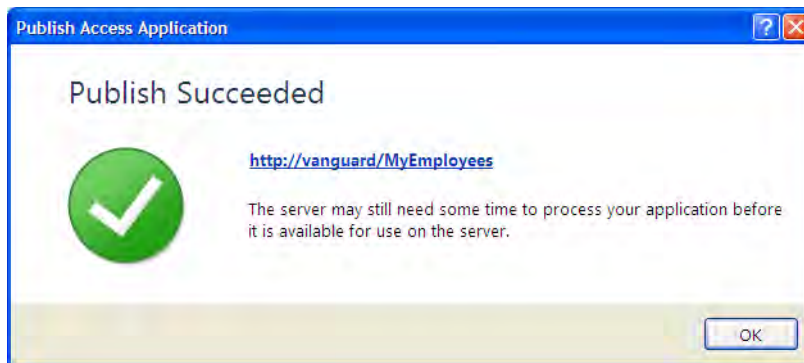


Figure 6-54. Publish succeeded dialog provides a link to the new site.

If you click the link on this dialog, you can open your new application site within your browser, as shown in Figure 6-55. Note that all of the database objects appear in this screen. The wizard has already built the SharePoint lists along with all the corresponding validation and referential integrity. It also converts all of the other database objects into XML representations of those objects. At this point, you could delete your original Access database because you will no longer need it. All the information that defines the application now resides in SharePoint.

Now you can make changes to the schema for the application directly from this screen. SharePoint applies these changes immediately to the list definitions in real time. However, you will also need to build web forms, web reports, web queries, and web macros that you can use on the web. You cannot simply display the forms or reports based on the XML definitions uploaded when you published the application.

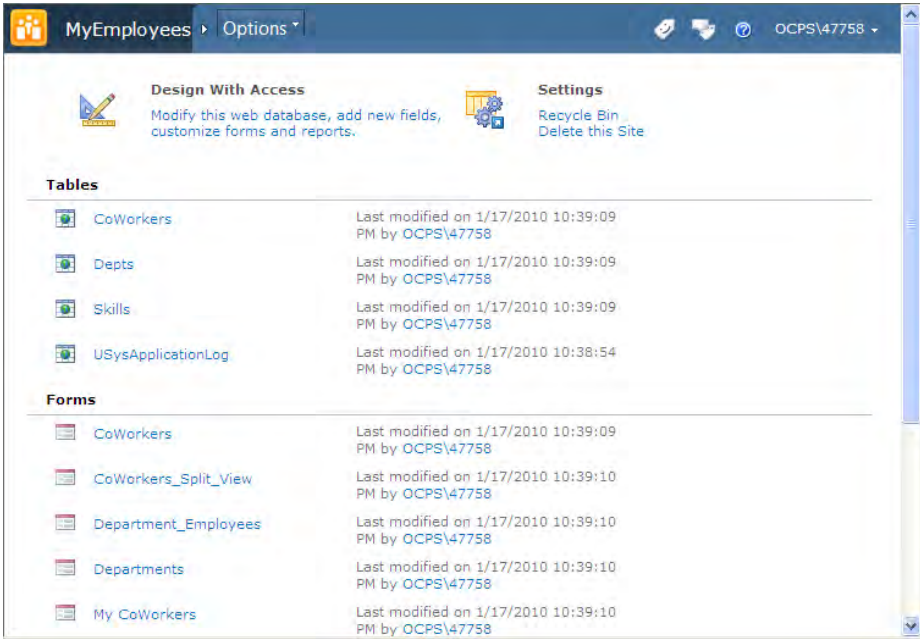


Figure 6-55. List of objects in the published site of the Access application

To make changes to any of these objects, click on the **Options** button at the top of the page to open the drop-down menu and select **Open in Access**. This option uses your local Access client to open the database. You can now use the **Create** ribbon to define new web based forms, reports, macros, and queries such as the one shown in Figure 6-56.

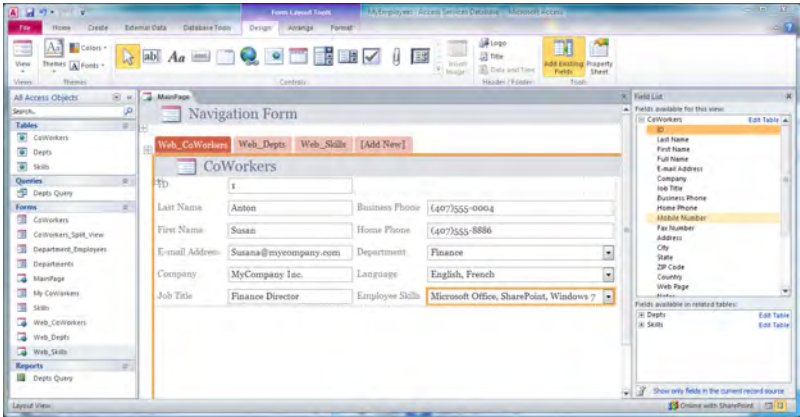


Figure 6-56. Build a Navigation form using web forms created from the Access Services application.

After creating web versions of the forms and reports you want to use on the web, you are almost ready to save your changes. However, first you may want to change the default form that appears when someone goes to the application site. In this example, I created a navigation form using the web forms of the other tables in the database as the individual tab elements. To get the navigation form to appear when the application starts, open the **File** drop-down menu and select **Options**. This selection displays the **Access Options** dialog shown in Figure 6-57. Select the **Current Database** group of options. Find the property **Web Display Form** and using the drop-down, select the form that you want to use as the default form when the application starts.

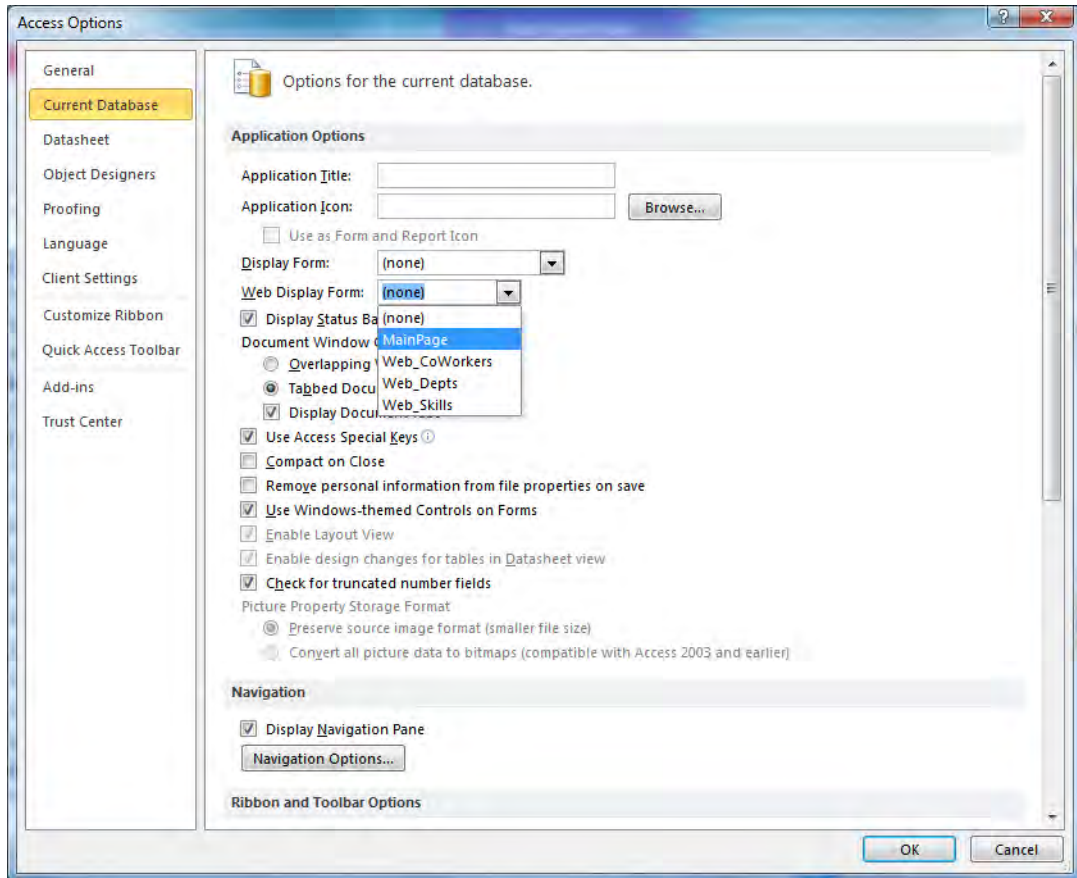


Figure 6-57. Set the default web page for Access Services.

These changes are not written back to the SharePoint site immediately. You must open the **File** drop-down menu, as shown in Figure 6-58, and from the **Info** group, click the **Sync All** button. As an application developer, this behavior benefits you as it allows you to make changes in your local client version of the objects. You can then test and debug them before publishing them back with the **Sync All** option.

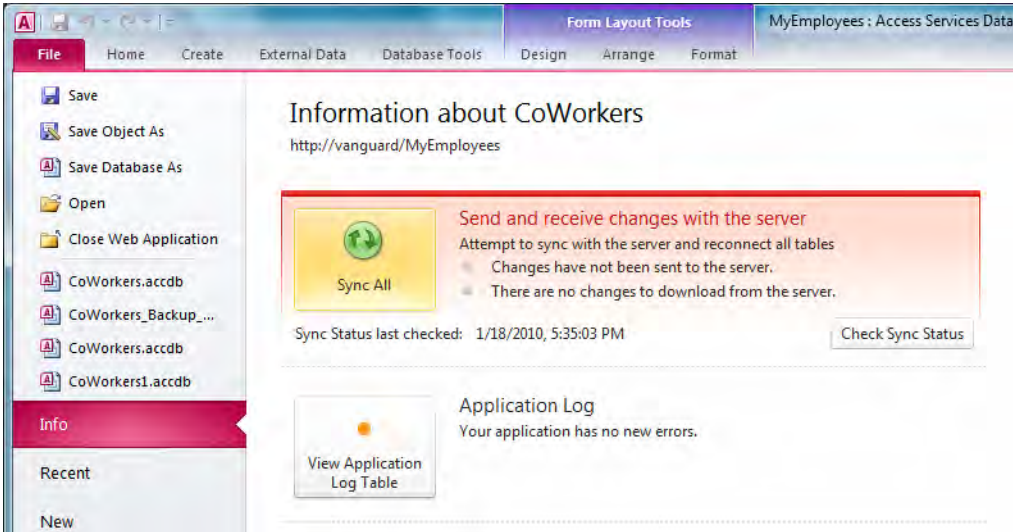


Figure 6-58. Sync changes to Access objects back to Access Services

You can now close your Access client and return to the SharePoint site where you published your application and refresh the page. The page should now show the web page you selected to serve as the default page for the application, as shown in Figure 6-59.

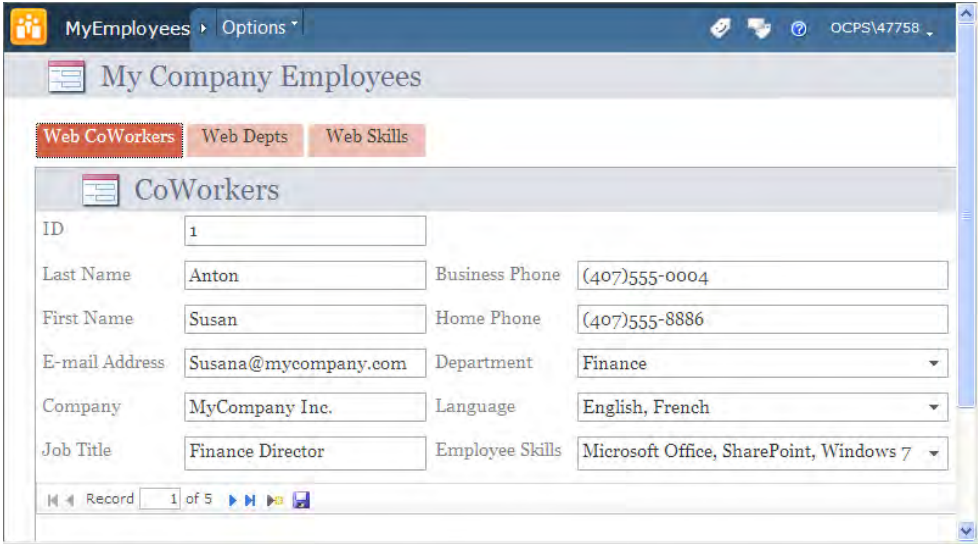


Figure 6-59. Default page of Access Application displayed in a browser

In the **Options** drop-down from the top of the page, you can also manage your site permissions. For example, you can break inheritance for this site and define unique permissions for who can make changes to the application, who can edit the data in the lists, and even who can only view information.

You can also choose **Settings** from the **Options** drop-down. From the context menu, you can tell SharePoint to open your Access client to edit any of the objects (assuming you have the necessary permissions). In addition, you can open any web object and view that object directly within the browser. For example, you can click on the names of any of the web forms created for the application and select **View <form name>** to open that form in the browser. Similarly, the context menu for tables have two options, one to open the table as a list allowing you to modify the data, and one to export the table's data to Excel.

Summary

In this chapter, you saw how to use Access to work with SharePoint lists. You began by performing simple tasks to export SharePoint lists to Access and to publish Access tables to SharePoint. You learned that by linking lists from SharePoint to Access, you could edit data from either platform. Furthermore, within Access, you could build forms to edit the linked tables. You also looked at using multivalued fields, a new and somewhat controversial feature to Access, as it violates the first rule of data normalization—to keep all data fields atomic by supporting multivalued fields.

Until this point, you had performed all editing while remaining online with the SharePoint server. However, the advantage of using Access to manage your lists comes from its ability to work with lists offline. I showed you how to take Access tables offline and then resynchronize your changes with SharePoint's list values. Of course, any time more than one person can modify data from two or more platforms, conflicts can and will occur if multiple people attempt to update the same record at the same time. Therefore, I also demonstrated how to resolve conflicts.

Finally, you looked at two options on how to publish your Access applications to SharePoint. By publishing Access applications to SharePoint, you can alleviate many of the concerns IT departments have with using Access within the organization.

In summary, Access is a powerful tool for quickly building applications. Of course, you may still need to build some applications using a more robust programming language. However, if you can use Access to build a percentage of the simpler applications quickly, your department (and SharePoint) can look like heroes.



Managing SharePoint Lists from Excel

Along with MS Word, MS Excel is one of the oldest products in the Microsoft Office Suite. Microsoft developed Excel in the early days of PCs as competition for the wildly successful Lotus 1-2-3 program, which was one of the great early productivity tools that helped justify using PCs in many business offices. However, even before the introduction of Lotus, VisiCalc and MultiPlan (an early predecessor to Microsoft Excel) tested the spreadsheet waters. Their ability to work with rows and columns of numbers took advantage of a paradigm well known to accountants and finance departments.

These early competitors hoped to make PCs respectable in corporate environments where large mainframe computers ruled the day. Of course, Microsoft Excel is now as synonymous with Microsoft Office as Microsoft Word. In conjunction with Microsoft Outlook, these three products form the central core around which most office users spend the majority of their day. Therefore, when Microsoft introduced SharePoint, integrating collaboration features with these three Office products seemed to be a no-brainer. Why force users already familiar with several of your other products to learn a new product paradigm?

For Microsoft Word, Outlook, and even the relatively new kid on the block, Access, integration with collaboration has been a priority with SharePoint. However, is the same true for Excel? In this chapter and the next, you will explore how SharePoint works with Excel.

Exporting a List from SharePoint to Excel

The last several chapters have covered exporting lists from SharePoint to Outlook and Access. Therefore, it should not surprise you that you can export a SharePoint list to Excel. In fact, if you have been checking out the options in SharePoint's list and document ribbons, you probably already have a good idea of how to start.

To show that document libraries act very much like lists, let's start with the **Purchase Orders** library. You used this library when you were learning how to use library metadata in other Microsoft Office applications. You created a custom view to sum the **Purchase Amount** column by department to produce a report within SharePoint showing how much each department spent during a specified time defined by a filter.

Begin, as always, by navigating to the library or list you want to use from your SharePoint site. Next, open the **Library** ribbon for the **Purchase Orders** library. Figure 7-1 shows this ribbon. Notice that while

it has the options **Connect to Outlook** and **Export to Excel**, it does not have an option you might expect, **Open with Access**.

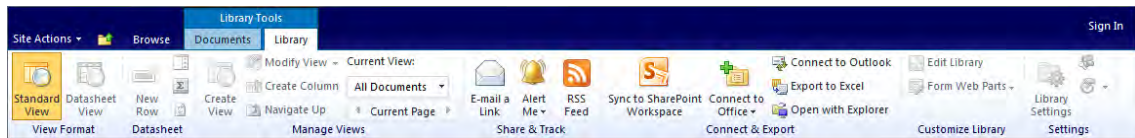


Figure 7-1. Opening the Export to Excel menu option

■ **Note** Access can only open lists, not libraries.

This difference between lists and libraries is important in terms of how you work with them. I will mention other differences as you proceed through this chapter.

Take a closer look at Figure 7-1. When you hover over the commands with your mouse, the **Connect to Outlook** option includes descriptive text that talks about synchronizing items and working with them offline; however, the **Export to Excel** option uses no such language in its description. Rather, it simply refers to the ability to analyze items within Microsoft Excel. You will see a little later in this chapter what this difference in terminology means with respect to your ability to collaborate.

■ **Caution** The button to Export to Excel is enabled even if your local machine does not have Excel installed. If you don't have Excel installed and you try to export a list by clicking on this button, you will get an error message stating that you are missing a Microsoft SharePoint Foundation-compatible application.

The Role of the IQY File

After selecting the **Export to Excel** option, a dialog box pops up with the title **File Download**. Figure 7-2 shows this dialog box. It asks whether you want to open or save a file with the rather odd extension of **.iqy**. This file type represents a Microsoft Office Excel Web Query File. If you click **Save**, the **Save As** dialog box appears, letting you select where to save this file. However, by itself, the **Save** option does not open the file in Excel or even open Excel. It merely saves a file to your local hard drive. Interestingly, if you double-click this file after saving it, it opens Excel and begins the process of retrieving data from the SharePoint library. If you open the IQY file using Notepad, you will discover that this small file contains some very cryptic text; you should be able to read enough of it to learn that this file contains information pointing back to your SharePoint site and specifically to the library you want to export to Excel.

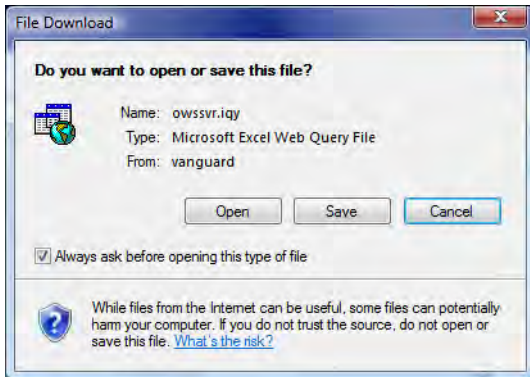


Figure 7-2. The File Download dialog box saves the Excel Web Query File that retrieves the SharePoint List.

Regardless of whether you try to open the query file immediately or decide to later open the copy of the query file saved to your local hard drive, you will first see a security notice generated by Excel. This security warning occurs because the query file attempts to command Excel to make a connection with another server. With ever-increasing concerns about viruses, Trojan horses, and other nasty things getting into your computer, all software vendors by default lock down connections between machines but allow you to decide which connections to allow and when to allow them. Figure 7-3 shows the **Microsoft Excel Security Notice** dialog box that appears when the IQY file tries to connect Excel to SharePoint.

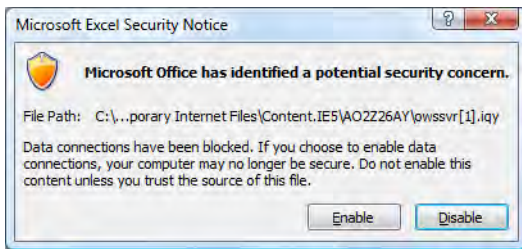


Figure 7-3. Microsoft Excel Security Notice dialog box before making a data connection

In any situation when you attempt to connect to another server, always verify that you trust the connected source. If you have any doubts about a content source, click the **Disable** button. However, if the server resides inside your corporate firewall, you can probably safely click the **Enable** button to continue.

Choosing How to Display Your Imported List

If you already had a workbook open with Excel, you will see an additional set of dialogs that do not appear if you begin with Excel closed. So let's assume you have a workbook open in your local Excel. Since Excel is not sure what you want to do with the new imported data, it displays another dialog box, the **Import Data** dialog box, shown in Figure 7-4. Here you must make two decisions on how to display your imported list data. In the top portion of this dialog box, you must choose from four options on how to view your data:

- Table
- PivotTable Report
- PivotChart and PivotTable Report
- Only Create Connection

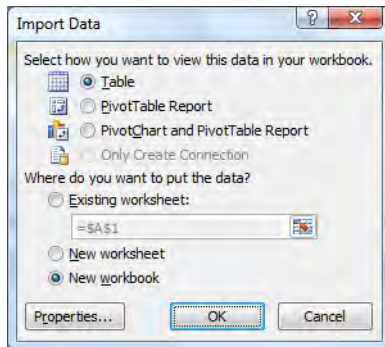


Figure 7-4. The *Import Data* dialog box lets you decide how and where to place your data.

By default, most lists export to tables. The second half of the dialog box lets you choose whether to place the list in an existing worksheet, a new worksheet, or a new workbook. If you start the export process with Excel open, you can select any of these options.

Before clicking **OK** to begin the actual export of data to Excel, you can click the **Properties** button in this dialog box. This button opens a dialog box named **Connection Properties**. At the top of the dialog box, you can find the connection name along with an optional description. The rest of the dialog box consists of two tabbed pages.

In the first tab, you cannot edit most of the data fields. However, you should find two enabled fields in the **Refresh** control area. The first field lets you to enable background refresh, which allows you to continue to use Excel while the query executes. Unless you have a very large list from which to refresh your Excel data, the query execution time may not matter much to you.

The second option that you can set is to **Refresh the data when opening the file**. If you do not select this option, Excel stores a local copy of the current data when you save the spreadsheet and displays that same data the next time you open the spreadsheet, regardless of what changes have occurred in the original SharePoint list. Of course, you could always manually refresh the data by clicking the **Refresh** button in the **External Table Data** group of the **Table Tools Design** Ribbon.

However, by selecting this option, you could save time and reduce uncertainty of the current data values by telling Excel to refresh the data automatically each time you open the spreadsheet.

■ **Note** Excel does not automatically refresh data from a SharePoint list. That accounts in part for the use of the term “export” in the SharePoint menu selection **Export to Excel**. Thus your first clue: SharePoint does not maintain a continuous link to the data in Excel.

The second tab, titled **Definition**, contains information about the connection between Excel and the SharePoint list so that manual refreshes of the data know how to access the list data. You can also save a copy of the connection definition by clicking the **Export Connection File** button and selecting a location to save the file. The Authentication settings button lets you select the type of authentication you want to use with Excel Services. Unless you plan to use something other than Windows Authentication, you do not need to worry about this setting.

■ **Caution** Do not change the connection definition unless you have a deep understanding of how to define connection strings. Even then, think twice.

When you click **OK** on the Import Data dialog to begin the import of data into Excel, Excel uses the information in the IQY file to import the list data into a spreadsheet. For the **Purchase Orders** library, Figure 7-5 shows the resulting worksheet after exporting and opening the list data within Excel.

	A	B	C	D	E	F	G	H
1	Name	Purchase Order Number	Date Created	Department	Purchase Amount	Checked Out To	Item Type	Path
2	101.docx	101	12/7/2009	Administration	\$ 8,500.00		Item	Purchase Orders
3	102.docx	102	12/8/2009	Finance	\$ 500.00		Item	Purchase Orders
4	103.docx	103	12/8/2009	Administration	\$ 250.00		Item	Purchase Orders
5	104.docx	104	12/9/2009	Marketing	\$ 1,000.00		Item	Purchase Orders
6	105.docx	105	12/9/2009	Marketing	\$ 1,750.00		Item	Purchase Orders
7	106.docx	106	12/11/2009	Administration	\$ 760.00		Item	Purchase Orders
8	Blank.docx					Mike Antonovich	Item	Purchase Orders

Figure 7-5. The Excel worksheet displays the exported SharePoint list.

■ **Tip** Once you have exported the data to an Excel spreadsheet, you can remove unwanted columns that the process brings along from the list or library, such as Checked Out To, Item Type, and Path.

How Views Affect the Data Exported to Your List

When you export a list to a spreadsheet, the items you export as well as the specific columns you export depend very much on the view open at the time you choose to export. For example, looking at the data in Figure 7-5, suppose you had a view that included only purchases by the Administration department, which included three columns: **Purchase Order Number**, **Date Created**, and **Purchase Amount**. Then the export to Excel would include only the Administration department items with the three selected columns.

You may have noticed that the data in this worksheet is not just simple spreadsheet data. Rather, it appears structured within a table, with each column representing a separate column and each row representing a separate list item. Your other clue that this is not just a collection of cells with data in them should have been the title of the Ribbon, **Table Tools**.

Using Hyperlinks in Your List

If you include in your export one of the instances of the **Name** column, it remains linked to the document in the shared documents library. Therefore, Excel displays that column as a hyperlink. It also means that you can click the document name, and through the URL associated with the hyperlink, the document opens using the appropriate Microsoft Office product, which would be MS Word in this case.

■ **Note** Clicking a link to the document can only open the original document if a) you have an appropriate application that can open the document installed on your desktop, and b) if you have an active network connection. Opening a link will not work if you are offline.

Figure 7-6 shows a dialog box that may pop up when you click the hyperlinked **Name** field in this example. When accessing an internal SharePoint site at your company, you probably can trust the files to be virus free. However, you should have a virus-scanning program on your local desktop computer or on your SharePoint network to ensure that harmful programs cannot hide in your files when you open them from a shared location.

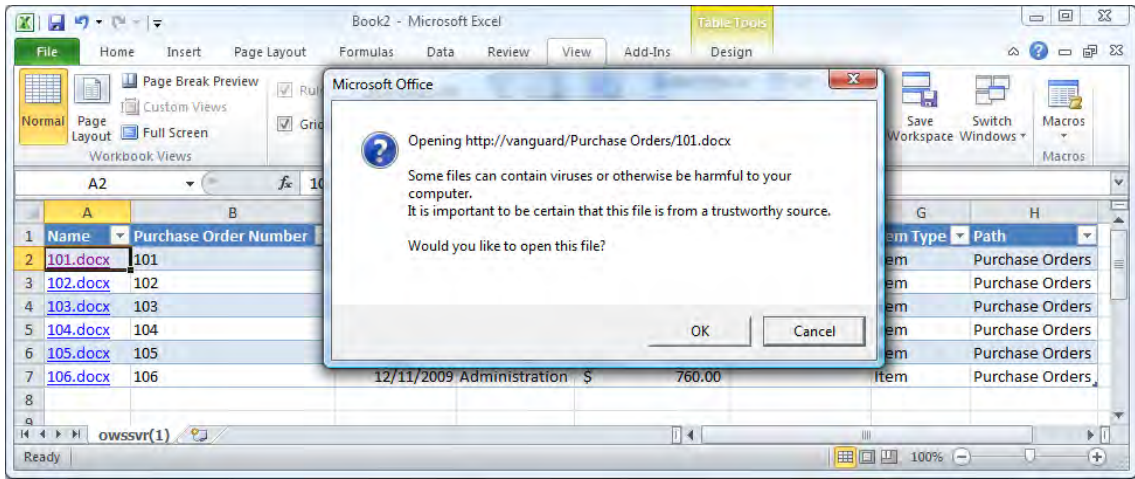


Figure 7-6. The warning dialog box that pops up when opening a document from a SharePoint library

When you open a document, it appears no different than if you opened it directly from the SharePoint library. In the case of a MS Word document, the Document Management panel will also open (as discussed in Chapter 3). With the document open, you can make changes and then close the document. You can then save those changes, and Excel sends them back to the SharePoint library because you effectively performed a remote edit directly to that file. Remember, the file itself does not become a part of your Excel worksheet.

However, although you have the document open for editing, you have not checked it out. You can verify this by looking back at the document library from within SharePoint; notice that the document icon does not contain the green box with the arrow in the lower-right corner, indicating a checked-out document. Therefore, someone else could check out and edit the same document while you edit it. For that reason, I do not recommend editing documents linked to an Excel list as a regular practice.

■ **Tip** The above concern about editing documents from your Excel spreadsheet is true unless you go into **Document Library Settings** for the SharePoint library first, select **Version Settings**, and change the **Require Check Out** option to **Yes**. If you do this first, then when you attempt to open the document from Excel and someone else did not check it out first, you can open the document to read it. While opening it, SharePoint prompts you to check the document out before you can edit it. On the other hand, if someone else had already checked out the document and you attempt to open it, you will get the **File in Use** notification dialog box that allows you to open the document in **Read-Only** mode or be notified when the document becomes available for editing.

If you make changes to the document, MS Word asks you to save your changes if you attempt to close the document with unsaved changes. You can open, edit, and save the document. MS Word will even save changes to any of the metadata back to the SharePoint library. However, the changed metadata will not appear in any of the exported columns to Excel. The key point to remember is that you can either export a SharePoint list or library to Excel or export an Excel spreadsheet to a SharePoint list. You can even refresh the Excel data from SharePoint by using the **Refresh All** option in the **Connections** group of the **Data** ribbon in Excel.

Other Table Tools in Your Excel Workbook

You can export your changed spreadsheet to a new SharePoint list. You can do this by opening the **Table Tools** ribbon, as shown in Figure 7-7. The **External Table Data** group only contains two options under the **Export** button. One supports exporting the current table from Excel to a SharePoint list and the other exports the table to a Visio Pivot Diagrams.

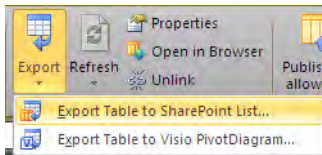


Figure 7-7. External table data ribbon options

■ **Note** If you do not have Visio installed, the option to export to Visio Pivot Diagrams will be grayed out and unselectable.

The **Refresh** button in this group lets you refresh the Excel data using the original connection created to transfer the data to Excel. However, neither of these options let you synchronize data changes in Excel back to SharePoint.

Furthermore, you can only export Excel tables to lists, not to libraries. That means Excel's export option cannot re-create a new library in SharePoint from the purchase orders, even though the items originally came from a library. However, it can create a standard list in which the item's **Name** field displays as a hyperlink, letting you open the Word document almost as you would in a library. I say "almost" because since it is a list, you do not have the ability to check out documents while you edit them. Thus, if you start with a SharePoint library and export it to an Excel table, you can only import it back into SharePoint as a new list, not as a replacement for the existing library or even as a new library.

The **Refresh** button, mentioned previously, allows you to refresh the data in the Excel spreadsheet with data from the source SharePoint library or list, updating changes to the items and columns displayed. This includes not only items that have changes, but also new items and removed items. This refresh, however, overwrites any changes you made in the Excel worksheet with the current information from the SharePoint library.

■ **Note** When you click the **Refresh** button, SharePoint only updates the rows and columns in the Excel table that match a column from SharePoint. If you added rows inside the Excel table, the Refresh button will remove them, but if you add rows outside of the Excel Table (below it), Refresh will not affect those rows even if it needs to push them down to add more rows from the SharePoint list. On the other hand, columns insert into the table are ignored by a refresh. If you deleted columns from your Excel spreadsheet, the refresh will not restore those columns. This functionality may be good or bad depending on what you wanted the refresh to really do.

The **Properties** button allows you to select some of the properties that affect how the table responds to new and deleted rows.

The **Open in Browser** button opens the library or list page from the SharePoint site.

The **Unlink** button permanently removes the connection from the worksheet. While the worksheet remains intact with all its data after you select this option, you can no longer update the data from the SharePoint library or list by clicking the **Refresh** button.

■ **Caution** When you unlink a table from its corresponding SharePoint library or list, you cannot restore the link or the connection.

The crucial concern about exporting your lists to Excel comes down to the lack of synchronization of changes. While you can refresh your Excel table as often as you like by using the **Refresh** button in Excel to get the latest and greatest values from the SharePoint list, this process is one-way only—and a manual process at that, unless you use the **Refresh the data when opening the file** option mentioned earlier. In addition, this refresh process overwrites any changes to the Excel data you made from within Excel, as it completely replaces the Excel data with data from the SharePoint list. The consequences of the refresh option also limit your ability to reorganize the information in the spreadsheet.

■ **Note** Excel 2003 had the ability to update SharePoint lists. However, with both Office 2007 and Office 2010, this feature was been deprecated in favor of using Access 2007. I will return to this issue in the section “What Happened to Synchronization?” later in this chapter to show a way to resolve this limitation.

Exporting Data from an Excel 2007/2010 Spreadsheet into a Custom List

In the last section, you saw that when you export a SharePoint list to Excel, you can manually update the Excel spreadsheet with changes made in SharePoint, but you cannot update SharePoint with changes

made directly in the Excel spreadsheet. Let's now look at what you can do when you start from Excel 2007/2010.

For the example shown here, I have created an Excel table that lists the 30 brightest stars in the evening skies. The table includes the name of the star, the name of the constellation in which you can find the star, and the star's apparent magnitude.

Absolute vs. Relative Brightness for the Layman

Apparent magnitude defines the relative brightness of the stars when you view them. However, similar stars appear to vary in brightness when you look at them not only because some are bigger or hotter, but also because they exist at different distances from the Earth. If you could place all stars at the same distance from the Earth, about the same distance as the sun, you could then refer to their absolute brightness.

Figure 7-8 shows the beginning of this worksheet.

	A	B	C	D
1	Constellation	Name	Apparent Magnitude	
2	CMa	Sirius	-1.42	
3	Car	Canopus	-0.72	
4	Cen	Rigel Kent	-0.27	
5	Boo	Arcturus	-0.06	
6	Lyr	Vega	0.04	
7	Aur	Capella	0.05	
8	Ori	Rigel	0.14	
9	Cmi	Procyon	0.38	
10	Eri	Achernar	0.51	
11	Cen	Hadar	0.63	
12	Aql	Altair	0.77	

Figure 7-8. Portion of the 30 Brightest Stars spreadsheet

Defining a Table Within Your Excel Worksheet

Before you can export this Excel worksheet to SharePoint, you need to define the data that you want to transfer as a table. A table can include all the data in a worksheet or just a subset of the data. To define a table within a worksheet, follow these steps:

1. Go to the **Insert** Ribbon and select **Table** from the **Tables** section.
2. Select the cells you want to include in the table. Do this by clicking in any corner of the data block you want to use and, while holding the left mouse button down, drag through the data to the diagonal corner.
3. When you reach the diagonal corner, release the mouse button. Excel circumscribes the selected data with a dotted border and lightly shades the cells of the selected range.
4. After releasing the mouse button, a pop-up dialog box appears showing you the range of the selected cells, as displayed in Figure 7-9. You can edit this range manually. However, if you carefully chose your starting and ending point when dragging through the data, this range should accurately represent the data you want to use.

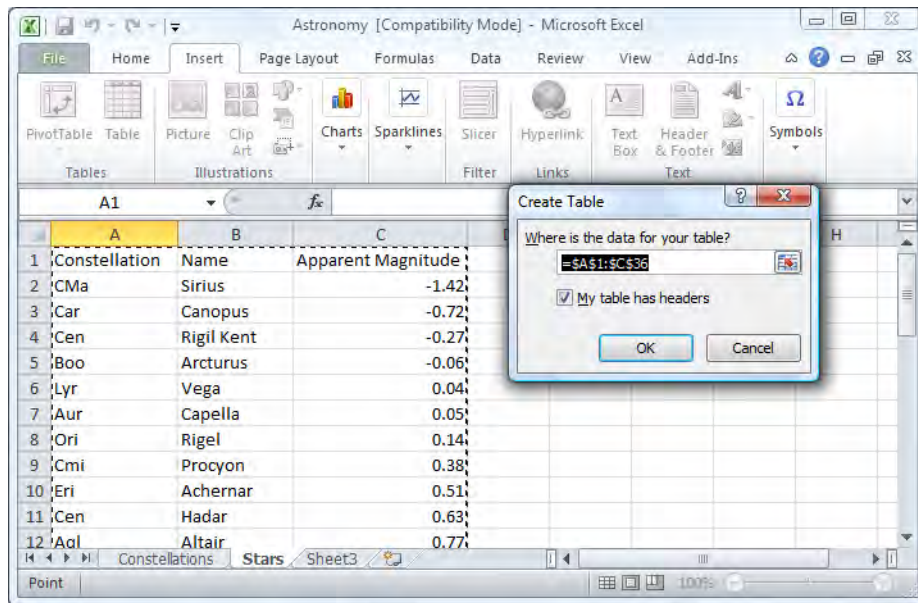


Figure 7-9. Defining the cell range you want to export to create a table

■ **Caution** While it is possible to define multiple data ranges for some commands, the **Create Table** command does not support multiple data ranges.

In addition to defining the cell range for the table, you can determine whether your data range includes headers. When copying data to SharePoint, the headers from the Excel data range become the column names. Therefore, including them lets you determine the column names. If you do not include column names in your cell range, then SharePoint generates a set of default names for its columns such as Column1, Column2, etc.

Exporting the Excel Table

Once you have defined a table, a new tab appears above the **Excel** Ribbon named **Table Tools**. This tab contains only a single sub-tab named **Design**. This Ribbon displays only those commands that act on tables not worksheets. In this Ribbon, locate the **External Table Data** section and click the lower portion of the **Export** button. This button's action displays a drop-down menu of the types of exports that Excel supports for tables. In Figure 7-10, you can see that this workbook supports two exports, one for SharePoint and one for Visio. In this case, you want to export the table to a SharePoint list, so select the first option.

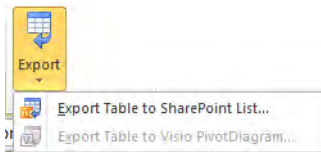


Figure 7-10. Exporting the table to a SharePoint list

Before Excel can export the table, it needs additional information. First, it needs the address of the SharePoint site. For this example, I will again use the top-level site on my SharePoint server named Vanguard. Figure 7-11 shows this dialog box.

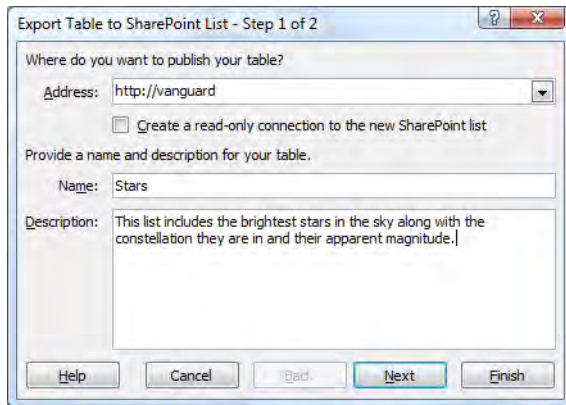


Figure 7-11. Defining the SharePoint server to publish to and providing a table name

Immediately beneath the **Address** field, you see a check box that asks whether you want to create a read-only connection to the SharePoint list. This option may be confusing; you may think that if you do not select it, you will get a read-write connection. Actually, if you do not select this option, no connection between the SharePoint list and the Excel worksheet will exist after Excel publishes the data to SharePoint so that Excel can read changes to the list data. The thing to remember is that this statement is from Excel's point of view. Therefore, you need to check this box to create a one-way data synchronization that allows Excel to read changes made in the SharePoint list and update the Excel worksheet. Unfortunately, it does not allow Excel to write changes made in Excel back to SharePoint.

Next, you must supply a name for the new SharePoint list (even though the dialog refers to your “table”). This name cannot be the name of any existing list in your SharePoint site. If a list already exists with the name you supply, Excel displays a message that says, “The specified list name is already in use on this server. You must rename the list before publishing it to the server.”

■ **Note** You must have permission in SharePoint to create lists to export data from Excel to SharePoint.

You can also supply a list description. This description appears when you display the lists on the site. Therefore, supply a meaningful description that will help site users determine what type of data to expect in the list.

The second page of this dialog box, shown in Figure 7-12, displays how it associates each table field with a data type recognized by SharePoint. Excel tries to assign appropriate data types to each field. However, if it does not, you may need to cancel the current operation, return to the data in the worksheet, and change the data formatting of individual cells to a type that converts to the SharePoint data type you want.

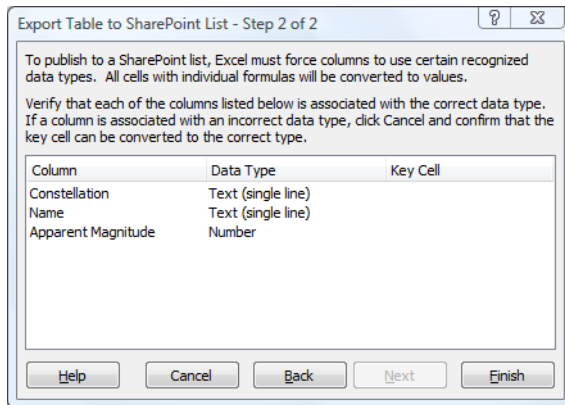


Figure 7-12. Verifying the data types selected for the SharePoint columns

■ **Note** You cannot directly change the data types shown in the **Export Table to SharePoint List** dialog box. You can only change the underlying Excel cell formatting to affect the selected data types.

To begin the actual data export, click the **Finish** button. Depending on the size of your table, this operation can take from a few seconds to a few minutes. When it finishes exporting the data, the dialog box shown in Figure 7-13 tells you whether it was able to publish the table successfully or not. If the publishing task succeeds, this dialog box also contains a clickable hyperlink to display the new SharePoint list.

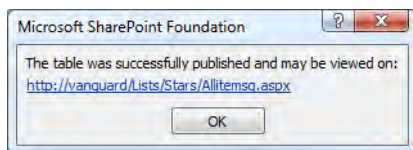


Figure 7-13. Dialog box announcing the successful publishing of the table

■ **Tip** You may want to click this link before you click **OK**. This way you don't not have to manually open SharePoint and navigate to the new list to verify the data transfer. Just remember to come back and click the **OK** button to finish the publishing process.

Viewing the Exported Excel Data in the New SharePoint List

Figure 7-14 shows the lists in my SharePoint site. Notice that the list **Stars** appears along with the description supplied in the **Export Table** dialog box from Figure 7-11.

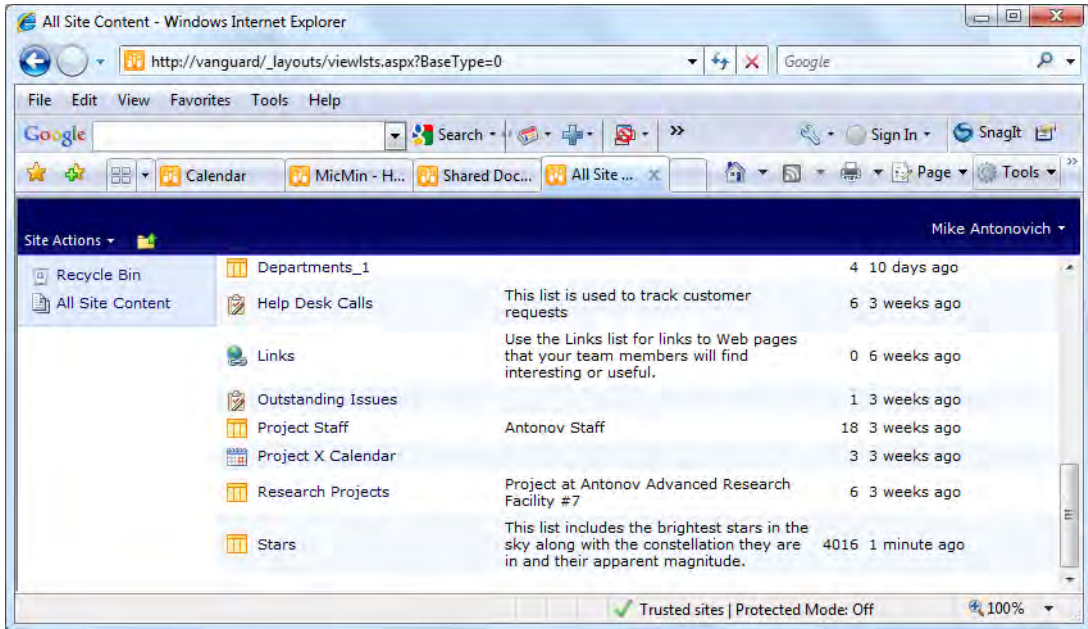


Figure 7-14. The All Site Content page displaying all lists in the current site

If you click the **Stars** list, SharePoint opens the list using the default view as shown in Figure 7-15. Notice that the transfer adds two columns at the beginning of the list that define the item type and allow attachments.

Type	Constellation	Name1	Apparent Magnitude
CMa	NEW	Sirius	-1.42
Car	NEW	Canopus	-0.72
Cen	NEW	Rigel Kent	-0.27
Boo	NEW	Arcturus	-0.06
Lyr	NEW	Vega	0.04
Aur	NEW	Capella	0.05
Ori	NEW	Rigel	0.14
Cmi	NEW	Procyon	0.38

Figure 7-15. The Stars data after being imported to a SharePoint list

■ **Tip** If all the values in a column typically remain empty or unimportant (such as Type or Attachment in the above list), you should consider modifying the view to eliminate that column from displaying in the default view and most, if not all, other views you might subsequently create. Even the mandatory list column, Title (which you could rename to something more useful), can be skipped in a view that is used to export data to Excel.

Note that SharePoint changes the name of the column defining the star names. In Excel, you identified this column in the header as **Name**. However, SharePoint reserves this name and therefore renames the column by adding a “1” to the end of the column name. If you do not like this, you can go to the list properties and change the column name to something more meaningful, such as **Star Names**.

If you did not check the box to create a read-only connection to the SharePoint list, you cannot synchronize any changes you make in this SharePoint list back to the Excel spreadsheet. If you did select this option, you can make changes to the SharePoint list, and then with the Excel spreadsheet open, navigate to the **Table Tools Design** Ribbon in Excel. In the **External Table Data** group, click the **Refresh** button and select the option **Refresh** or **Refresh All** as shown in Figure 7-16. These options use the stored connection information between the SharePoint list and Excel created when you exported the original SharePoint list to Excel. You can now reuse this connection to update Excel with the current values in the SharePoint list.

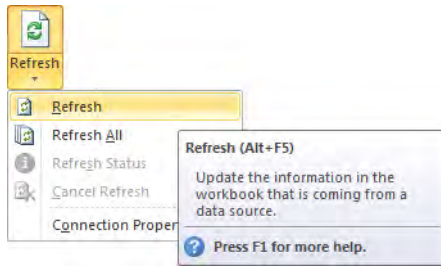


Figure 7-16. The Refresh options available when using a read-only connection to SharePoint

While you can update the Excel table with changes made to the SharePoint list that you exported from Excel, you cannot make changes to the Excel table and automatically synchronize those changes to the SharePoint list. As mentioned before, Microsoft deprecated this feature in Excel 2007. One solution would be to downgrade your Office installation and use Microsoft Excel 2003, which can synchronize data changes in both directions. However, if you think of downgrading your copy of Microsoft Office as something on par with giving up your fully loaded BMW for a Yugo Koral 45, read on to the next sections.

A Quick Look at Excel 2003 and Synchronization

Because I have mentioned several times that Excel 2003 provides different functionality with SharePoint 2003/2007 than Excel 2007/2010, you may be discouraged about Excel's role in SharePoint 2010's collaborative future. Before presenting a solution for the Excel 2007/2010 and 2010 user, let's take a quick look back at Excel 2003 and SharePoint 2003/2007.

Exporting a SharePoint 2007 List to Excel 2003

In SharePoint 2003 and 2007, you could export a list to Excel 2003 by selecting the SharePoint list you wanted to use and choosing **Export to Spreadsheet** from the **Actions** menu. As before, your computer first displays a dialog box asking whether you trust the source when SharePoint tries to send the IQY file. Click **Open** to allow your computer to download the file.

Excel may also prompt you with a similar question about whether you trust the query used to import external data. Since you trust the source in this case, click **Open** to continue.

You might see one more dialog box asking you for your user name and password to access the data on SharePoint, depending on the integration of your network security. After you click **OK** on this dialog box, you should see the list appear in an Excel worksheet, as shown in Figure 7-17. Notice that during this process, you only have the option of selecting where to load the list, such as into a new workbook or a new worksheet, or where on an existing worksheet to place the list if you have Excel open before you start the export from SharePoint. Excel 2003 also does not support the **PivotChart** option found in Excel 2007 and Excel 2010.

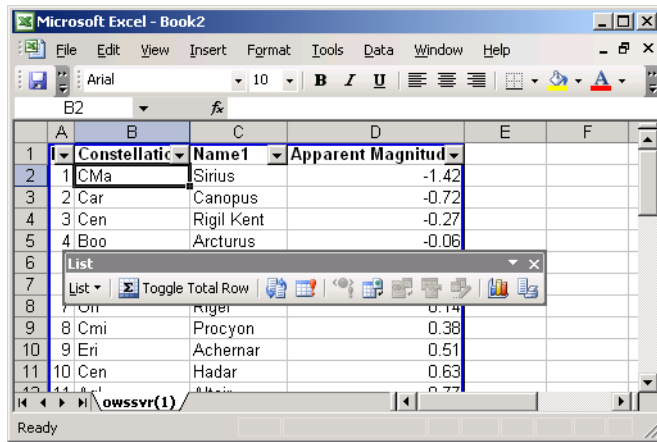


Figure 7-17. Excel 2003 uses the List toolbar to work with synchronized lists.

The **List** toolbar in Excel 2003 allows you to work with the downloaded list. Let's look first at the third and fourth buttons from the left.

The third button synchronizes the Excel list with the SharePoint list. When you click this button, it sends changes made to data rows in Excel back to SharePoint and changes to SharePoint items overwrite the existing data in Excel. If someone makes changes to both the SharePoint item and the Excel row of the same item, the synchronize action displays a Resolve Conflicts and Errors dialog box showing both sets of changes and allows you to determine which set of changes you want to keep.

The fourth button lets you discard your changes and refresh your Excel list with current data from the SharePoint list. Use this option if you made accidental changes to the Excel list or changes that you do not want to keep.

The first button in the toolbar opens a drop-down list of options that allow you to:

- Insert rows and columns into the list.
- Delete rows and columns from the list.
- Sort the list.
- View and edit the list data with an Excel-generated form.
- Publish the list to SharePoint.
- Resize the list.
- View the list on the server.
- Convert the list back to a normal range of data.
- Unlink the list (from SharePoint).
- Define other data range properties and connection properties.

Exporting Excel 2003 Worksheets to SharePoint

One of the first differences you will notice when starting an export from Excel 2003 is how to begin the process. In Excel 2007 and 2010, you have to define the range of cells you want to use as a table before you can export the data to SharePoint. In Excel 2003, the proper terminology defines a **list** instead. You still must select the range of data you want to define in your Excel list the same as you do in Excel 2007 and 2010. However, to create the list, open the **Data** drop-down menu. From this menu, select **List** and then **Create List** as shown in Figure 7-18.

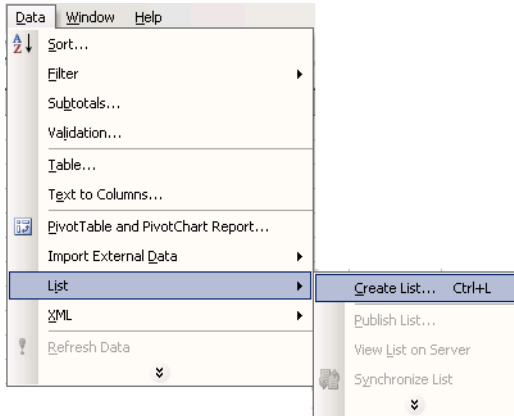


Figure 7-18. Creating a List in Excel 2003 before you can export data to SharePoint

The **Create List** option opens a dialog box that confirms the data range you want to use for the list. You can manually adjust this list by either entering a new range directly or clicking the button to the right of range and dragging through the range of cells you want to use. You should always include headers as the first row of the list. As mentioned, SharePoint uses these headers as your column names. Otherwise, SharePoint creates default names for the columns: Column1, Column2 . . . ColumnN. Figure 7-19 shows that this dialog box looks similar to the one used in Excel 2007 and 2010 except that it replaces the word “Table” with “List.”

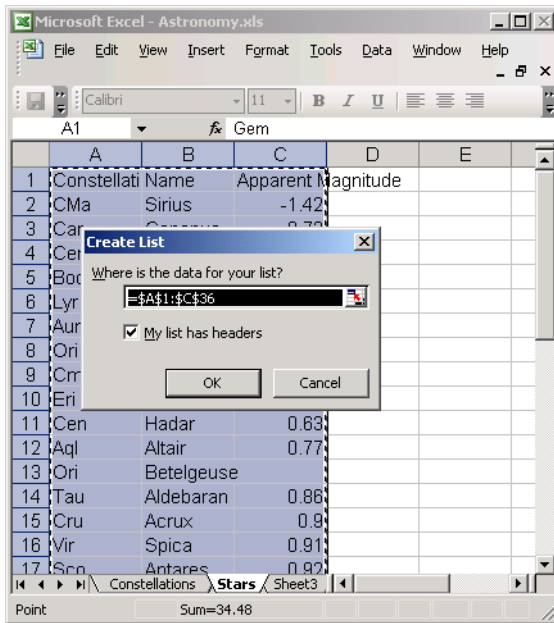


Figure 7-19. Confirming the list data range and whether it has headers

Having defined a list, you can now use the **List** toolbar. Open the **List** drop-down menu to find and select the **Publish List** option as shown in Figure 7-20.

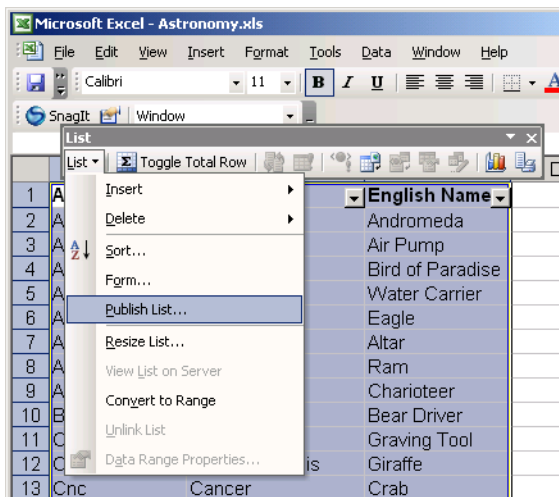


Figure 7-20. Using the **Publish List** option from the **List** toolbar to publish to SharePoint

The rest of the process for publishing the list parallels what you saw earlier using Excel 2010. The next dialog box that appears asks you for the site address where you want to publish your list. Instead of a check box asking you to create a read-only connection to the SharePoint list, Excel 2003 displays a check box asking whether you want to link to the new SharePoint list. If you do not select this check box, you cannot synchronize changes between the two lists after the publication process completes. If you do select it, you can synchronize data in both directions.

If the publication of your Excel 2003 worksheet succeeds, you should see a dialog box similar to the one in Figure 7-21.

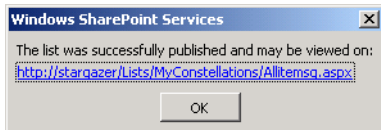


Figure 7-21. Successfully published Excel worksheets display a link to the new list.

What Happened to Synchronization?

As mentioned at the end of the last section, Microsoft chose to deprecate the ability for Excel to synchronize data with a SharePoint list. Excel proponents are quick to point out that a large number of Office users feel very comfortable working with Excel spreadsheets and manipulating its data. Access supporters counter that they have a superior development platform that allows for the easy creation of forms and reports. After carefully considering where to place its efforts, apparently Microsoft made the decision to deprecate synchronization from Excel 2007 as well as Excel 2010. Of course, this is just an opinion.

The fact is that, out of the box, Excel (since 2007) no longer supports synchronization. However, not all is lost. Another alternative is available.

Microsoft published an add-on for Excel 2007 that allows it to synchronize data with the corresponding SharePoint list. Fortunately, this add-on still works for Excel 2010, although it appears to work slightly different for Excel 2010. The major caveat is that you may first need to save the Excel spreadsheet using the older 2003 format, load the add-on from Microsoft, and then open the spreadsheet again to use the add-on.

You can currently find this add-on at the following address (it's a long URL; be sure to enter it as a single line):

www.microsoft.com/downloads/details.aspx?FamilyId=25836E52-1892-4E17-AC08-5DF13CFC5295&displaylang=en

or just enter

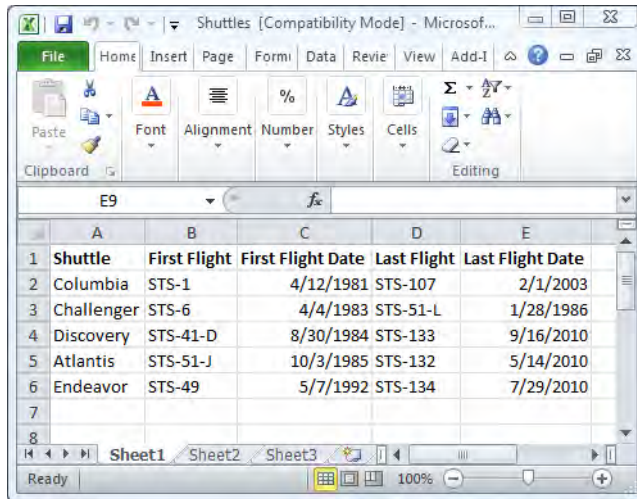
<http://tinyurl.com/yvw8g5>

This site includes full instructions on how to download and install this add-on, so I will skip that process. Instead, I will show how you can use the add-on to upload a new table to a new SharePoint list and then maintain the list data from either SharePoint or Excel.

One more note: you should read the “Publishing and Synchronizing Excel 2007 Tables to SharePoint Lists” article at [msdn.microsoft.com/en-us/library/bb462636\(offic.11\).aspx](http://msdn.microsoft.com/en-us/library/bb462636(offic.11).aspx).

Linking a List in Excel to SharePoint

I will assume that you have successfully installed the Excel add-on mentioned in the previous section. In fact, I will start with a basic spreadsheet shown in Figure 7-22 that contains some data on NASA's fleet of space shuttles from the past 30 years.



	A	B	C	D	E
1	Shuttle	First Flight	First Flight Date	Last Flight	Last Flight Date
2	Columbia	STS-1	4/12/1981	STS-107	2/1/2003
3	Challenger	STS-6	4/4/1983	STS-51-L	1/28/1986
4	Discovery	STS-41-D	8/30/1984	STS-133	9/16/2010
5	Atlantis	STS-51-J	10/3/1985	STS-132	5/14/2010
6	Endeavor	STS-49	5/7/1992	STS-134	7/29/2010
7					
8					

Figure 7-22. Shuttle list created in Excel 2010 but saved in 2003 format

The worksheet contains a simple set of data consisting of four columns and five rows. (If you are a space enthusiast who is wondering what happened to the *Enterprise* and the *Buran*, note that I am only including manned shuttles that have actually flown into space.) However, you cannot simply point at a spreadsheet and upload the data from it into a SharePoint list. I suppose this apparent limitation derives from the fact that a worksheet by itself does not have any boundaries. How many rows does it really have? How many columns does it really have? You can resolve these questions by selecting the columns and rows you want to define as a list and then formatting them as a table within Excel 2010. To do this, follow these steps:

1. Click in one of the corners of the spreadsheet and, while pressing the left mouse button, drag through the cells to the diagonal corner.
2. Click the **Insert** ribbon.
3. Select the **Table** option in the **Tables** group of the **Insert** Ribbon.
4. A small dialog box appears allowing you to verify the data range you selected in Step 1 for the table. You can also select whether this data range includes headers as its first row. These headers, when present, define the names of the columns in the SharePoint list.

When you click **OK**, you have defined a limited area of a worksheet by selecting a table. You can have other data on the spreadsheet that is not part of this table. In fact, you can have several different

tables defined on the same worksheet. If you click anywhere within the table you want to publish, a new ribbon tab named **Table Tools Design** appears. Click this tab to open this ribbon. The add-on mentioned at the beginning of this section creates a new group named **SharePoint**. This group has a single button labeled **Publish and allow Sync**.

In SharePoint 2007, you could simply click this button to publish your Excel table to SharePoint. However, the pre-release version of SharePoint 2010 and Excel 2010 will fail during the publish process with a message indicating that the list does not exist. This provides a possible clue to a workaround (assuming this problem will eventually be addressed). Before clicking the Publish and allow Sync button, export the Excel table to your SharePoint 2010 site as described in the section “Exporting the Excel Table” of this chapter. This process publishes the table to a SharePoint list but does not provide for synchronization. Once it has been published to SharePoint, click the **Publish and allow Sync** button to create the synchronization between the Excel table and SharePoint.

Excel then opens a dialog box that asks where you want to publish your table. Even though you already published the table using the Export option, you must still enter the URL of the site where you published your table into the **Address** field. (In Figure 7-23, this site is <http://vanguard>.) Then supply the list name previously used in the Export of the table in the **Name** field along with a description. Remember that at this point you are identifying the site and list name of the table you just exported to SharePoint, not a new site or list name.

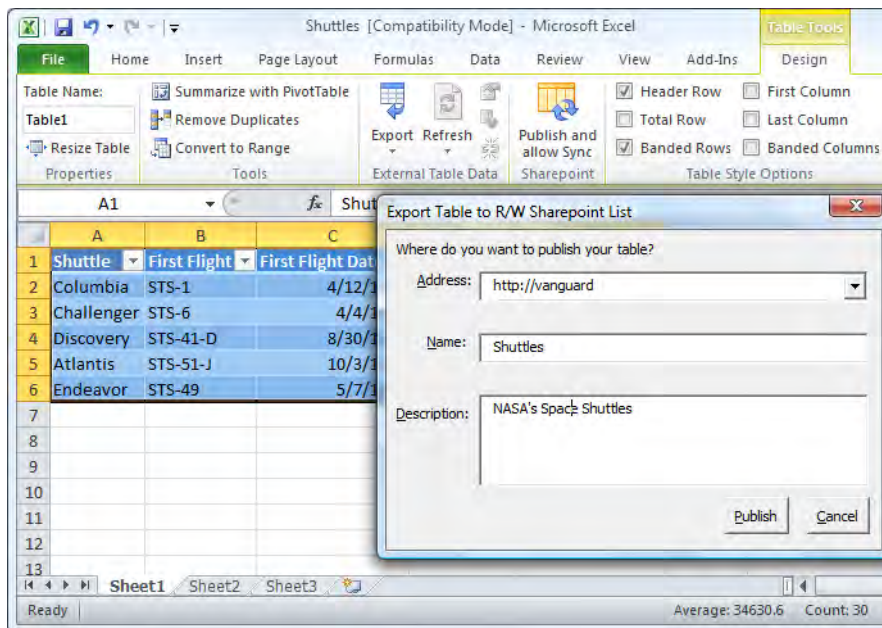


Figure 7-23. Using Publish and allow Sync to publish Excel 2007/2010 spreadsheets to SharePoint 2010

When you click **Publish**, Excel identifies the existing list in SharePoint and adds the synchronization capability between Excel and SharePoint. Perhaps by the time you read this, the problem with this add-on will get resolved so that you can publish and synchronize with this one button rather than having to first export the table and then synchronize it as two separate processes. In any case, you should now be able to go to SharePoint and open the list as shown in Figure 7-24.

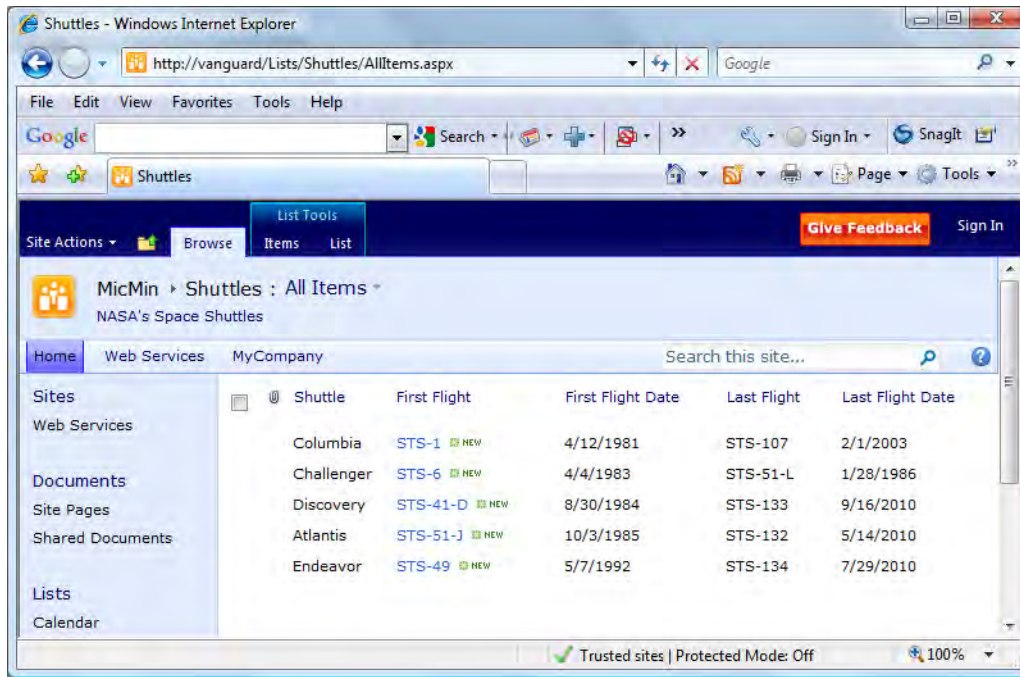


Figure 7-24. Published Excel spreadsheet table displayed in a SharePoint list

Suppose you discover that you have to make a change to the data for one of the shuttles, such as changing the last flight date. You can open the Excel spreadsheet of your shuttle information to find and edit the specific cell. In fact, you can make several changes. However, when you are done making changes, you can now synchronize your changes back to the SharePoint list by right clicking anywhere within the table. This opens the drop-down menu shown in Figure 7-25. Find the **Table** option in this menu. As you hover over this menu option, a submenu flies out to display options specific to tables. Look for and select the option **Synchronize with SharePoint**.

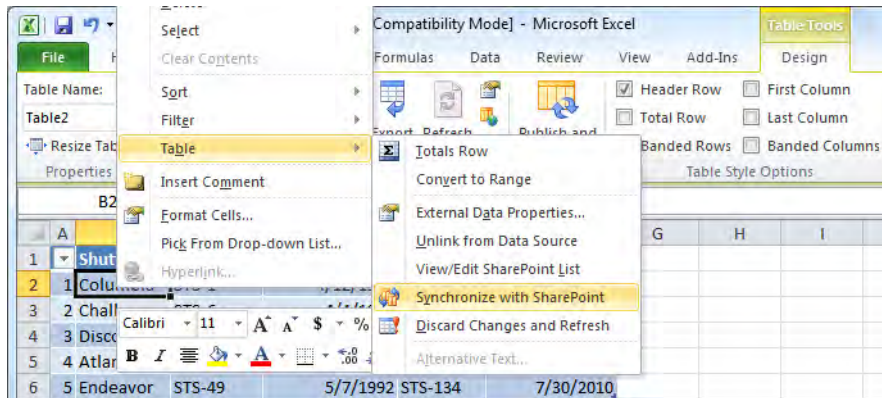


Figure 7-25. Synchronizing Excel changes with SharePoint

■ **Note** Once published to SharePoint, a new column appears at the start of the spreadsheet in Excel called ID, which is read-only. This ID remains read-only so SharePoint and Excel can identify which rows to link together.

When you select this option, Excel synchronizes its changes with SharePoint and vice versa. As long as no one tries to edit the same item/row, this process completes after a few seconds. If a conflict occurs, a dialog box appears with both sets of changes, and you can select how you want to resolve the conflict.

■ **Note** With this add-on to allow synchronization, you can no longer click the **Refresh** button in the **External Table Data** section of the **Table Tools Design** Ribbon. All synchronization, both ways, occurs through the Synchronize with SharePoint option just described.

If you have been making changes in Excel and decide before you synchronize those changes that you really want to discard them and refresh your spreadsheet with the data from the SharePoint list, you can right-click anywhere within the table and select the **Table** option, as shown in Figure 7-26. Then click the **Discard Changes and Refresh** button.

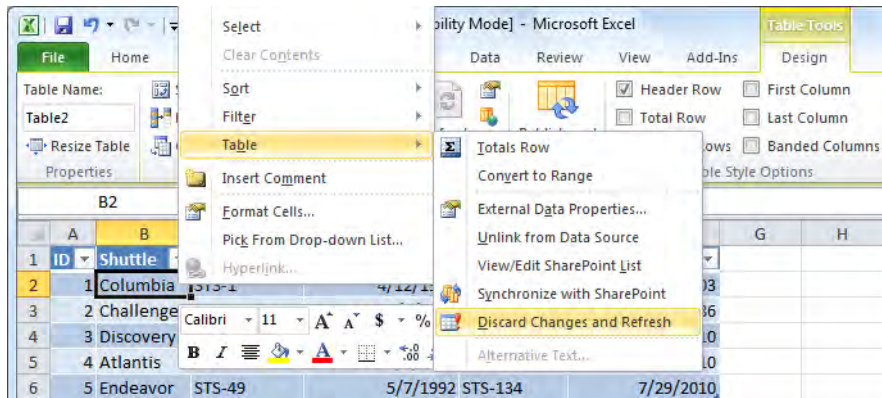


Figure 7-26. Discarding your Excel changes and refreshing from SharePoint

This action updates the Excel table with values from the SharePoint list. You cannot select which of your changed Excel values SharePoint will update. Therefore, the dialog box shown in Figure 7-27 reminds you that refreshing your data from the SharePoint list erases any changes you made in the Excel table, preventing you from updating SharePoint with any of them. In other words, unlike synchronizing, this option performs a one-way overwrite of everything in your Excel table using data from the SharePoint list, just as the old **Refresh** button would.

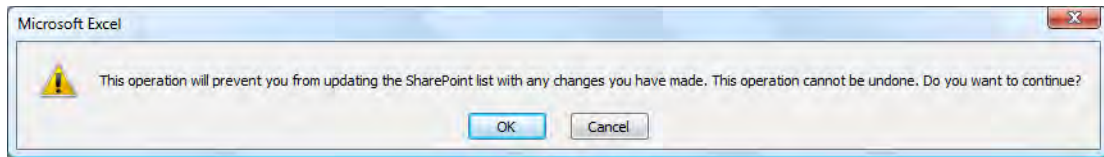


Figure 7-27. Refresh replaces all Excel data with SharePoint data.

Summary

In this chapter, you examined the basic collaboration features between SharePoint and Excel 2010. You started by exporting the metadata from a document library to an Excel worksheet. If you include a SharePoint column that also includes a link to the document itself, you can open the document from Excel by clicking the link.

At first, it may seem that the collaboration between these two products works like SharePoint's collaboration with other Office products such as MS Word, but you quickly discovered that it actually has at least one serious limitation. While you can export data from SharePoint to Excel and you can refresh Excel with changes made in SharePoint, you cannot send changes made to the Excel worksheet back to the SharePoint list. The synchronization between these two products only works in one direction.

Looking back at Excel 2003, you see that SharePoint did support bidirectional synchronization of changes made on either platform. Fortunately, although Microsoft chose to deprecate bidirectional synchronization between SharePoint and Excel, Microsoft does provide an add-on to Excel that restores this capability. In the last section of this chapter, you saw how to use this add-on with Excel to synchronize changes between Excel and SharePoint.

Perhaps Microsoft hopes that users will switch from Excel to Access for manipulating SharePoint lists while also creating additional functionality through forms and reports. However, SharePoint still has a special role for Excel, as you will see in the next chapter. SharePoint combines Excel spreadsheets with a new service called Excel Services that allows the publication of spreadsheets across the Web. It also provides limited functionality to users of these spreadsheets, even if those users do not have Excel on their desktops.



Publishing Excel with Excel Services

You saw in Chapter 7 that Microsoft Office Excel does not, by itself, bring as much capability to the table of collaboration as Word, Outlook, or Access. Because Microsoft has decided to deprecate synchronization between Excel and SharePoint lists, your initial impression may be that the only value Excel can offer might lie in its ability to help you create lists from other data sources. Perhaps if you can export other data into an Excel format or maybe read it into Excel, you might subsequently export it to a new SharePoint list. Similarly, you might transfer the data from a SharePoint list to an Excel worksheet so that you can save it perhaps as a CSV file that other applications might then import. Not to say that these capabilities do not add value, but for a tool as popular as Excel has become, you may expect more.

The good news is that there is more. The bad news is that to use the features discussed in this chapter, you need to be running the Enterprise version of SharePoint Server 2010 with Excel Services turned on. You cannot run Excel Services on SharePoint Foundation 2010 alone. Therefore, if you are fortunate enough to have the Enterprise version, you will want to read this chapter, which examines how to publish Excel spreadsheets to SharePoint. Then, from within SharePoint, you'll be able not only to view the data already in the worksheet, but also to update the data in the worksheet while protecting your format and calculation formulas with parameters. Some of the other benefits of publishing an Excel spreadsheet using SharePoint's Excel Services include the following:

- You can now make your spreadsheet available to anyone who has access to your SharePoint site through a browser. Users with access do not need to have Excel on their desktops.
- You can publish just the parts of your spreadsheet that you want others to see. You can hide your staging data and formulas.
- You can limit viewers' interaction with your spreadsheet to selected cells with parameters.

I will also demonstrate how you can create dashboards with Excel and work with data cubes. Finally, the chapter will close with a brief look at using the Report Center together with Excel Services, KPIs, and more.

Configuring Excel Services

Typically, the task of configuring Excel Services falls to your SharePoint administrator. However, you may be curious about how to turn Excel Services on in case you need to go to your SharePoint administrator with additional requests to expand your use of Excel Services to new sites and libraries. Therefore, this section briefly lists the steps required to accomplish this task. First, your SharePoint administrator must open your SharePoint **Central Administration** site.

1. Select **Central Administration** from the left navigation panel.
2. Select **Manage service applications** from the Application Management group in the main panel.
3. On the Service Applications page, click **Excel Services**.
4. On the next page, click **Trusted File Locations**. You need to tell SharePoint the location of the library that holds the Excel files so that IIS trusts opening and displaying those files.
5. On the **Excel Services Trusted File Location** page, check for your site location. Note that if your SharePoint administrator has already added a parent site and selected **Yes** to **Trust Children**, you may not have to do a thing. Otherwise, click **Add Trusted File Location**.
6. On this page, the **Address** section expects the URL of the document library or network folder where you will store the Excel files you plan to access. With whatever address you enter, you must select a location type. If you plan to store your Excel files in a SharePoint document library, select **Microsoft SharePoint Foundation**. If you are using a network folder or a web folder, use the UNC or HTTP option, respectively.
7. You can leave most of the other options on this page on their default settings. However, you should change the setting **Allow External Data** to the option **Trusted data connection libraries only and embedded**.
8. Click the **OK** button to complete your definition of the Trusted File Location.

■ **Note** If you have different sites that need their own document library for storing Excel files for use with Excel Services, you must repeat the preceding steps, creating a Trusted File Location for each one.

At this point, your administrator has enabled Excel Services for your document library. If you plan to use simple Excel workbooks with self-contained data, you are set to continue. However, if you want to use an Excel workbook that connects to an external data source, first you must create a data connection library. In addition, data connection libraries are only available for sites built with the Enterprise edition of SharePoint Server 2010. I will talk more about working with data connections later in this chapter.

Publishing an Excel Form to Excel Services

Before you publish your spreadsheets to Excel Services, you should know that Excel Services supports all the layout and formatting features found in Excel, but only when you save your spreadsheets in .xlsx or .xlsm format. What the user sees after you publish your spreadsheet visually matches what you designed within Excel. Therefore, do not be afraid to create visually appealing layouts with formatting to emphasize different aspects of your spreadsheet. All of your formatting work translates to Excel Services.

To publish a form to Excel Services, you only need to add it to the document library defined when you activated Excel Services and specified as a Trusted File Location. You can do this from SharePoint by adding a new document to the document library, or you can publish the workbook from within Excel to your SharePoint library. Let's look first at simply adding a new workbook to the document library.

Adding an Excel Workbook to Your Document Library from SharePoint

For this method, suppose you previously created and saved a workbook that calculates the month-by-month interest and principal portion of a loan payment. Figure 8-1 shows a portion of this spreadsheet.

Year	Month	Beginning Balance	Interest	Principal	Ending Balance	Total Interest Paid
1	1	\$ 120,000.00	\$ 800.00	\$ 700.00	\$ 119,300.00	\$ 800.00
1	2	\$ 119,300.00	\$ 795.33	\$ 704.67	\$ 118,595.33	\$ 1,595.33
1	3	\$ 118,595.33	\$ 790.64	\$ 709.36	\$ 117,885.97	\$ 2,385.97
1	4	\$ 117,885.97	\$ 785.91	\$ 714.09	\$ 117,171.88	\$ 3,171.88
1	5	\$ 117,171.88	\$ 781.15	\$ 718.85	\$ 116,453.02	\$ 3,953.02
1	6	\$ 116,453.02	\$ 776.35	\$ 723.65	\$ 115,729.37	\$ 4,729.37
1	7	\$ 115,729.37	\$ 771.53	\$ 728.47	\$ 115,000.90	\$ 5,500.90

Figure 8-1. An interest paid calculator built in Excel

You can begin by opening the document library where you want to store your Excel workbook. For the purpose of this example, suppose you plan to store your Excel workbook in the **Shared Documents**

library of a site named **Vanguard**. Simply open the library and click the **Upload Document** option in the **New** group of the **Documents** ribbon.

This option opens the **Upload Document** dialog box you saw earlier in this book in Figure 1-24, that allows you either to locate the file you want to upload by using the **Browse** button or to upload multiple files by clicking the **Upload Multiple Files** link. For a single workbook, you could also just enter the file name by typing it in the **Name** text box, but to ensure that you do not misspell the name, I recommend using the **Browse** button to select the file using the standard Windows **Open File** dialog box.

With the file to upload selected, click the **OK** button to continue. SharePoint now loads the file, and it appears in the **Shared Documents** library looking like any other file. You can now view the file either by directly clicking its name in the library list or, if you display the library using the **Standard View**, by positioning your mouse over the file name to display the drop-down menu arrow to the right of the file name and selecting **View in Web Browser**.

■ **Caution** Clicking directly on the file name in the library may open the Excel workbook in your web browser or in your local copy of Excel, depending on the setting of the library. To find out how your library has been set up, open **Settings** for your library and choose **Advanced Settings**. Then in the section titled **Opening Documents in the Browser**, select the option **Open in the browser** or **Use the server default (Open in the browser)** to open your Excel document within the web browser by default.

When you open the workbook within your browser using Excel Services, it should look similar to Figure 8-2. Note that it resembles the workbook opened in Excel.

Year	Month	Beginning Balance	Interest	Principal	Ending Balance	Total Interest Paid
1	1	\$ 120,000.00	\$ 800.00	\$ 700.00	\$ 119,300.00	\$ 800.00
9	1	\$ 119,300.00	\$ 795.33	\$ 704.67	\$ 118,595.33	\$ 1,595.33
10	1	\$ 118,595.33	\$ 790.64	\$ 709.36	\$ 117,885.97	\$ 2,385.97
11	1	\$ 117,885.97	\$ 785.91	\$ 714.09	\$ 117,171.88	\$ 3,171.88
12	1	\$ 117,171.88	\$ 781.15	\$ 718.85	\$ 116,453.02	\$ 3,953.02
13	1	\$ 116,453.02	\$ 776.35	\$ 723.65	\$ 115,729.37	\$ 4,729.37

Figure 8-2. A simple total interest paid calculator displayed with Excel Services

Navigating Around Your Worksheet

SharePoint 2010 opens your entire workbook and lets you scroll around without the windowing effect that SharePoint 2007 used. In 2007, your workbook view defaulted to 75 rows by 20 columns at a time. You then could use arrows located in the upper right of the browser window to navigate through the rest of your spreadsheet. In SharePoint 2010, you can simply use the horizontal and vertical scroll bars as you would within Excel to navigate through the entire workbook.

On the top left of the Excel grid, you see three options. The first of these options lets you open the workbook in your local Excel client if you have Excel installed on your local computer.

The second option provides a drop-down menu where you can refresh selected or all connections in the workbook or recalculate the entire workbook. Refreshing a connection instructs the spreadsheet to read the data from its external data connection, check for new values, and update the spreadsheet appropriately. Recalculating the workbook recalculates cells based on formulas, but it does not check whether any data in its data source has changed.

The third option set provides the ability to find text strings anywhere within the spreadsheet. For example, you can look for a specific text string representing characters or even numbers in the values of the spreadsheet cells. Unfortunately, you cannot search using Boolean expressions on cell values. Nor can you search within the formulas used to calculate the cells.

You can even navigate between worksheets of your workbook if you have more than one sheet by using the controls in the lower-left corner of the grid. Notice that just like within Excel, you can move to the first, previous, next, or last worksheet in your workbook using the first four controls. You can also click the worksheet tabs in this section to jump directly to any of the worksheets in the workbook.

What you cannot do is directly edit any of the cell values in the grid. When you simply load your spreadsheet into a library that has Excel Services enabled, you can only view the spreadsheet.

Why You Need Parameters to Make Your Excel Form Interactive

Providing a static spreadsheet to view in the browser may have its place, but for most spreadsheets you want users to be able to change data, sort it, or even filter the data to better serve their needs. After all, spreadsheets are all about what-if analysis and making business decisions after evaluating data.

While you cannot provide total access to all the features spreadsheet users might normally use directly within Excel, you can at least provide the option to change values associated with specific cells while viewing the spreadsheet. Besides, anyone who really needs to have total control over the design of the spreadsheet and change the formatting, structure, or even the formulas used by the spreadsheet can always click the **Open in Excel** option mentioned earlier and work with the spreadsheet using their desktop copy of Excel. Just be sure to limit these permissions to people you trust so that only they can save changes to the workbook back to the library.

When you define parameters for your Excel worksheet, users can enter values for each of the parameters and then recalculate the worksheet the same as if they entered the values directly in the spreadsheet. Basically, a parameter defines an input value that updates a named cell, which in turn updates all dependent cells. In the next section, you will see how to define parameters that allow users to “update” the browser view of the spreadsheet.

Defining Parameters for Your Excel Form

When you decide to publish a spreadsheet with Excel Services, you must decide which field(s) users would most likely need to manipulate. As an example, let's return to our example of the simple interest calculation program mentioned earlier. Suppose we determine that the user only needs to vary three values:

- The initial loan amount
- The loan interest rate
- The monthly payment

With these three pieces of information, you can calculate each month's payment, determining the portion that pays the interest due and the amount used to reduce the loan's principal amount. You can then create a running total of these two numbers to display by month the amount in interest you paid to the bank for the privilege of borrowing the money and the remaining amount due on the loan. It then makes sense to define one row in the table for each month, with the columns representing the various calculated sums. In fact, once you have designed the formulas that you need to calculate for the first month, you can copy them for any number of months.

In the sample spreadsheet created for the examples in this chapter, I stopped the calculations after 30 years for the loan. But that does not mean that it will take 30 years to pay off the loan or that you will necessarily pay off the loan on the last month of the last year. It just provides a workspace for the calculations. In working with loans, you really need four pieces of information: the three specified previously and the length of the loan. You can specify any three, but you cannot force the fourth to a specific value without calculating it. A variation on this theme would be to create a spreadsheet in which you start with an initial loan amount, an interest rate, and a fixed number of months to pay off the loan, and then calculate the amount of the monthly payment you need to make given the other three constraints. This latter example illustrates how a bank determines your monthly mortgage payment amount when you buy a house for \$200,000 with a 30-year 6% annual interest rate loan. By running the interest calculator as defined here, you could see how much sooner you could pay off your loan by making an extra \$200 per month payment and how that reduces the total amount of money you ultimately pay to the bank.

To create a parameter, you first need to create a named range, or in this case a named cell. To do that, click the cell you want, such as the **Beginning Loan Amount** from Figure 8-1. Then simply go to the **Name box** to the left and immediately above the column headers of the grid. By default, the **Name Box** currently displays the cell reference. Once you click in the **Name** box, to select the cell reference, you can simply type the name you want to give to the cell, replacing the cell reference. For example, after clicking in the loan amount cell (E3), you might enter the name **Beginning_Amt**.

You can repeat this process for each cell you want to define with a name. In fact, you can name any cell or cell range and then use those names in your formulas rather than the cell reference. This technique makes returning to your spreadsheet months later and attempting to figure out what your formulas mean a lot easier. Naming a cell or a cell range does not mean that it will become a parameter for your spreadsheet, but to create a parameter, you must begin with a named cell.

■ **Note** As you will see later, you can create named cell ranges that you can then use in the Excel web part SharePoint provides to display a portion of a spreadsheet, but a cell range cannot be a parameter.

Another way to define the name for the cell begins again by selecting the cell or cell range you want to use. Then open the **Formulas** ribbon. In the **Defined Names** group, select the button **Define Name**. A dialog box appears, shown in Figure 8-3, that lets you define a name. Names can consist of up to 255 characters. However, as with any object name, you should use only as many characters as necessary to clearly and uniquely identify the object. A name must begin with a letter, underscore, or backslash. Excel treats the name **Interest** the same as **interest**, so do not try to differentiate cell names merely based on case. You cannot name a cell the same as another cell reference. You cannot include spaces in a name. However, using an underscore in place of a space makes the name just as readable.

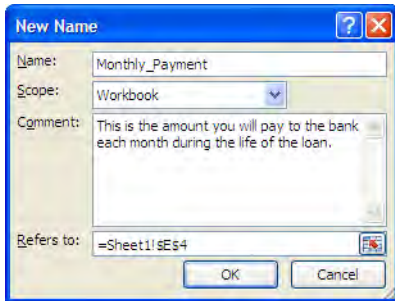


Figure 8-3. Naming a cell or cell range

Next in the dialog box, select a scope. By default, Excel assumes the entire workbook as the scope of the name. However, you can limit the name's scope to just the current worksheet.

The third item in the dialog box lets you document the cell by adding a comment. While adding a comment to a name might define why the cell or range was important enough to name, this information does not appear anywhere on the spreadsheet itself. However, you can see your comments when you open the **Name Manager** dialog box, also found in the **Defined Names** group of the **Formulas** ribbon.

The last option identifies the cell or cell range that the name references. You can change this value either by entering the cell or range reference manually or by clicking the button to the right of this field, which lets you select the cell or range by clicking and dragging (if you want to define a range) through the cells you want to reference. When you finish, click **OK** to create the name.

If you forget what names you have already used or which cell or cell range they apply to, you can view a dialog box that shows all the defined names within the current workbook by clicking the **Name Manager** button. Figure 8-4 shows an example of the **Name Manager**.

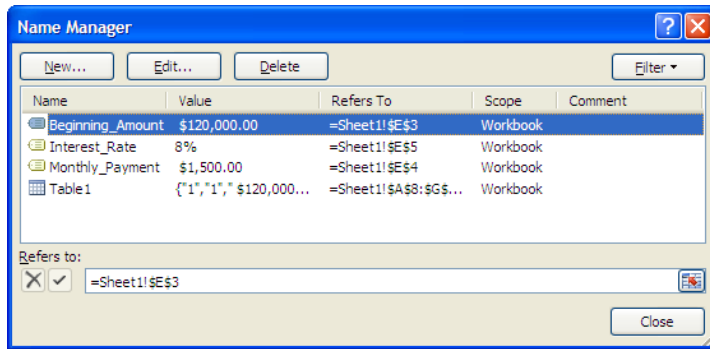


Figure 8-4. The Name Manager shows all named cells and ranges.

You can also use the **Name Manager** to edit properties of a name or delete a name. You can even create a new name definition by clicking the **New** button.

Ideally, you should define named cells that you want to use as parameters before you begin creating your spreadsheet. A good practice groups these parameter cells in a single place, perhaps at the top of the spreadsheet as shown in this example, or on a different worksheet dedicated to prompting for parameters. Then as you lay out the rest of your spreadsheet, you can reference the named cells and named cell ranges in your formulas rather than using cryptic cell references.

Publishing Your Excel Workbook

Once you have finished building your spreadsheet, first save it before you begin the steps to publish it to SharePoint. You can choose from two different ways to publish your spreadsheet. You have already seen one way earlier in this chapter: you can simply open the library where you want to publish your Excel files and upload the file to the library.

However, you can also publish the workbook from within Excel itself. Open the **Files** menu in Excel and select **Save & Send**. From the first column of share options, select **Save to SharePoint**. This action displays some features of publishing your workbook to Excel Services on the right side of the page as shown in Figure 8-5.

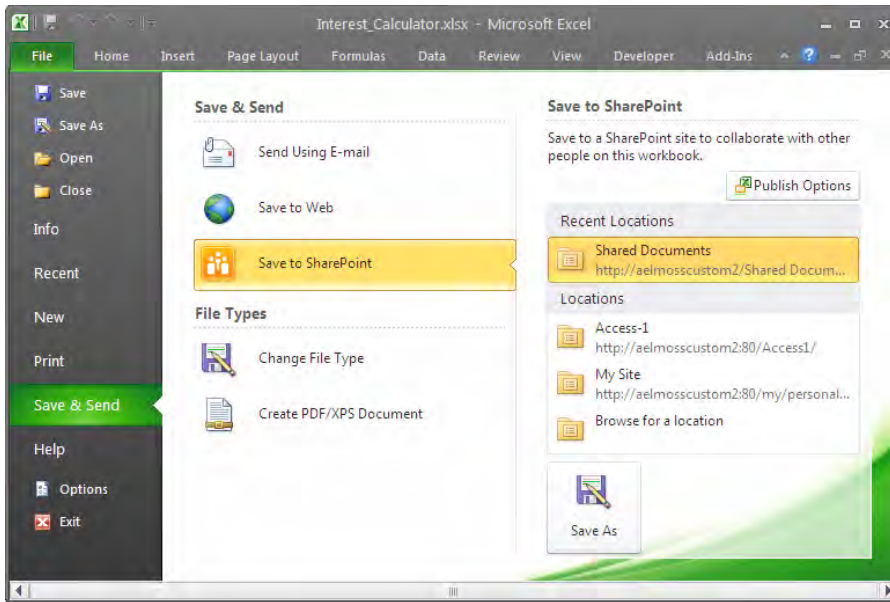


Figure 8-5. Publishing the Excel worksheet to Excel Services

You could save the spreadsheet by clicking the **Save As** button and supplying the name of the site where you want to publish the spreadsheet and its name. However, you would end up with an uneditable spreadsheet, just as if you had used the upload option from within SharePoint. Instead, click the **Publish Options** button at the bottom of the **Save As** window before uploading the file. This button opens the **Publish Options** dialog box shown in Figure 8-6.

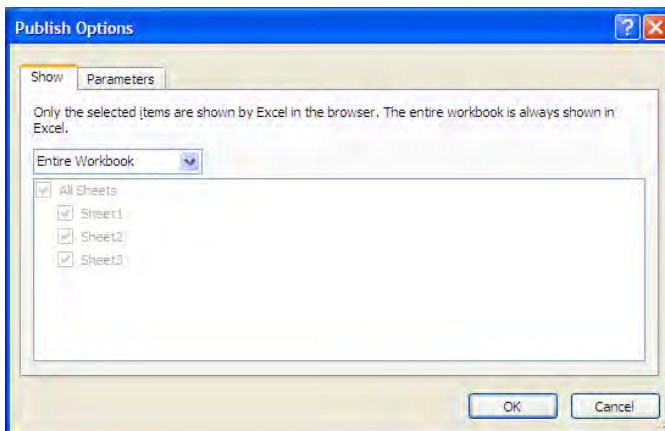


Figure 8-6. The Show page of the Excel Services Publish Options dialog box determines what users see.

This dialog box consists of two tabbed pages. The first page lets you define what parts of the workbook you want to display. By default, the Entire Workbook option displays all worksheets and items. Therefore, there are no additional options to select in the drop-down list displayed beneath the text **Entire Workbook**.

If you only want to display selected worksheets from the workbook, open the drop-down menu and select **Sheets**. This option displays each worksheet in the workbook with a check box before it. Uncheck the box for sheets you do not want to publish from the document. You can select individual worksheets or return to the **All Sheets** option to select them all automatically.

A third option in the drop-down, **Items in the Workbook**, lists tables and named ranges in the workbook. Thus, you can limit publication to a section of a worksheet defined by a specific table or a named cell range and ignore anything else that might appear in the workbook.

For this example, leave the option **Entire Workbook** selected and click the second tab, named **Parameters**. Excel does not assume that any of the named cells should be parameters. Thus, the parameter list begins empty as shown in Figure 8-7, and you must click the **Add** button to begin adding named cells that you want to use as parameters to the list.

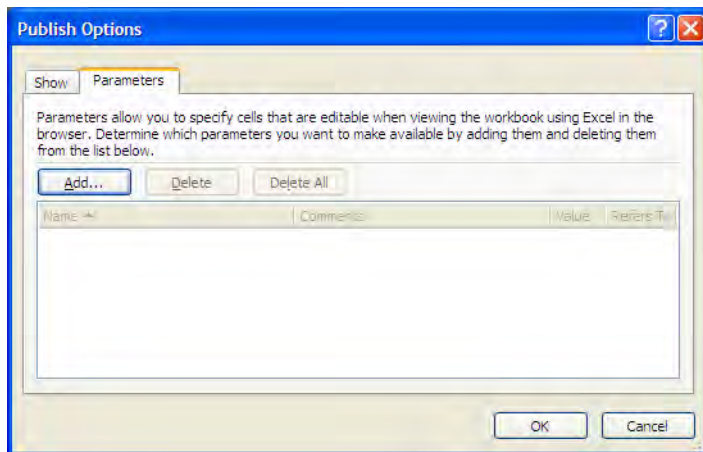


Figure 8-7. The Parameters page of Excel Services Publish Options shows which named ranges to treat as parameters.

When you click the **Add** button, you see a list of all the named cells. If you have named ranges or named tables, these do not appear. Only individual cells can serve as parameters. Thus, if you have 20 cells that you want to let users update when they interact with your spreadsheet online, you need to have 20 separate named cells. You cannot simply create a single named range and use it as your parameter. I know that this would make your development life easier. In fact, in some cases, it may even make sense when the values form a series. However, the parameter feature does not support that capability at this time.

On the other hand, as shown in Figure 8-8, you can select all the parameters you want to add at one time. You do not have to select them individually. When you are finished, click **OK**.

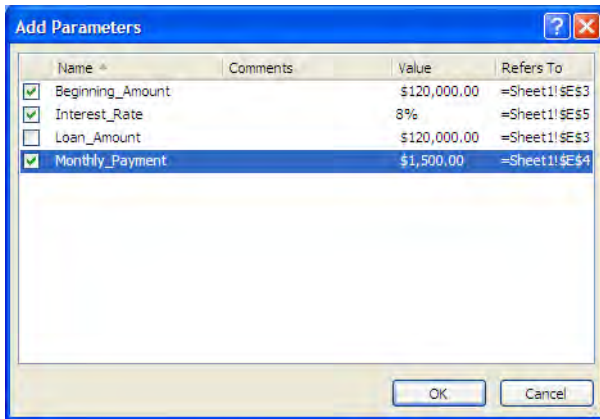


Figure 8-8. Selecting the named ranges you want to use as parameters

Click **OK** twice to return to the **Save & Send** page. It is now time to click **Save As** on this page. In the main **Save As** dialog box, click **My Network Places** along the left side. If you previously published a document to the library where you want to save the Excel spreadsheet, you probably will find a reference to the library here. If so, double-click it to select and open the library. If you have folders already set up for different types of files, open the folder by double-clicking it also. When you reach the folder where you want to save your file, enter a file name that you want to use. By default, Excel assumes that the SharePoint file name will match the name of the file on your local file system if you previously saved the file locally. Also make sure that you save the file as an Excel workbook (*.xlsx) file.

If you have not previously saved anything to the document library where you want to save the workbook, you must enter the URL of the library directly into the **File Name** box. Figure 8-9 shows an example of entering the URL. Notice that when you enter the URL, you must include the server name as well as all folders up to and including the name of the library where you want to save the file.

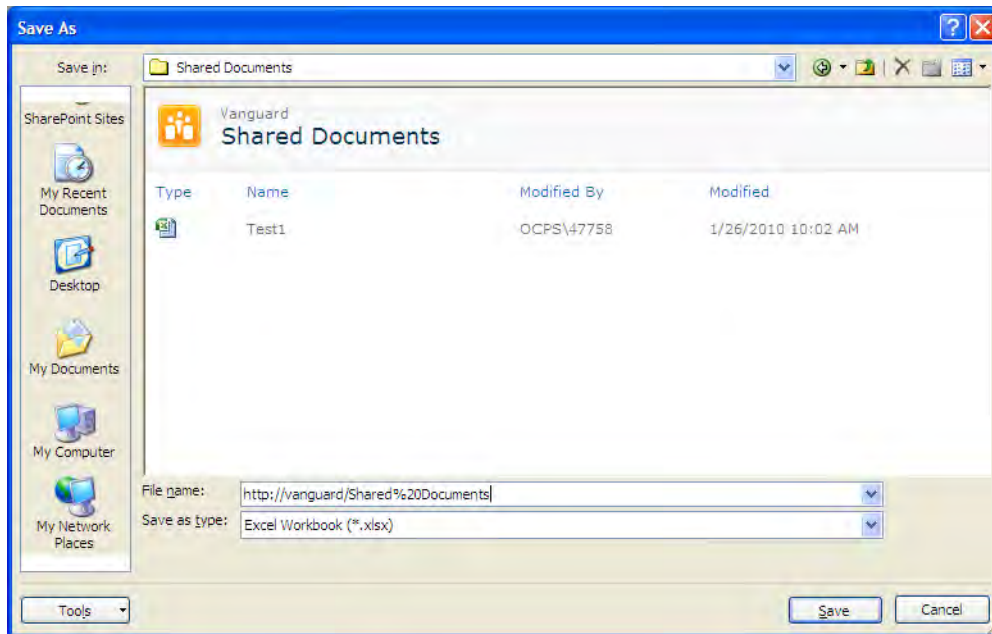


Figure 8-9. Entering the URL of the document library in SharePoint where you want to publish the workbook

■ **Tip** How do you know the URL you need to enter? Simple. Open SharePoint and navigate to the document library where you want to save your workbook. With the library open, capture the URL from the **Address** bar at the top of your browser. This URL contains some additional information at the end to display the contents of the library. Therefore, you can remove anything after the name of the library itself, but leave the last slash at the end of the URL so that Excel knows that you have only defined a directory, not a file.

After you select the library name from your **Network Places** or have manually entered the URL for the library, press the Enter key. This displays the contents of the library. Again, navigate through any subfolders if necessary to open the folder where you want to save the workbook.

Once you have saved your workbook to SharePoint, you can open it in your browser by going to the SharePoint library, locating the workbook file, right-clicking the file to open the drop-down menu, and selecting **View in Web Browser**. After the few moments it takes Excel Services to open the workbook and format the web page, you should see a page that looks like Figure 8-10.

The screenshot shows an Excel spreadsheet titled "Interest_Calculator.xlsx" with a "Parameters" panel on the right. The spreadsheet data is as follows:

Year	Month	Beginning Balance	Interest	Principal	Ending Balance	Total Interest Paid
1	1	\$ 120,000.00	\$ 800.00	\$ 700.00	\$ 119,300.00	\$ 800.00
1	2	\$ 119,300.00	\$ 795.33	\$ 704.67	\$ 118,595.33	\$ 1,595.33
1	3	\$ 118,595.33	\$ 790.64	\$ 709.36	\$ 117,885.97	\$ 2,385.97
1	4	\$ 117,885.97	\$ 785.91	\$ 714.09	\$ 117,171.88	\$ 3,171.88
1	5	\$ 117,171.88	\$ 781.15	\$ 718.85	\$ 116,453.02	\$ 3,953.02
1	6	\$ 116,453.02	\$ 776.35	\$ 723.65	\$ 115,729.37	\$ 4,729.37
1	7	\$ 115,729.37	\$ 771.53	\$ 728.47	\$ 115,000.90	\$ 5,500.90
1	8	\$ 115,000.90	\$ 766.67	\$ 733.33	\$ 114,267.58	\$ 6,267.58
1	9	\$ 114,267.58	\$ 761.78	\$ 738.22	\$ 113,529.36	\$ 7,029.36
1	10	\$ 113,529.36	\$ 756.86	\$ 743.14	\$ 112,786.22	\$ 7,786.22
1	11	\$ 112,786.22	\$ 751.91	\$ 748.09	\$ 112,038.13	\$ 8,538.13
1	12	\$ 112,038.13	\$ 746.92	\$ 753.08	\$ 111,285.05	\$ 9,285.05

The Parameters panel on the right shows the following values:

- Beginning_Amount: \$120,000.00
- Interest_Rate: 8%
- Monthly_Payment: \$1,500.00

Figure 8-10. Initial values for the interest paid calculator

Notice that, unlike the first time when you uploaded an uneditable version of the spreadsheet, this time you get a panel on the right side that displays the parameters you defined. If you want to change any of the parameters, simply enter the new values you want to use in the text boxes to the right of the parameter names. You do not have to enter all the parameters, only those you want to change from their current values.

■ **Tip** If you do not include the cells referenced by your parameters in a visible part of the spreadsheet, you will not easily know which parameters changed. Therefore, you may want to include them in your displayed range as shown here.

Then click the **Apply** button at the bottom of the **Parameters** panel to recalculate the spreadsheet using your new parameter values. Figure 8-11 shows the screen updated after changing the monthly payment amount from \$1,500 to \$1,300.

The screenshot shows an Excel spreadsheet titled "Interest_Calculator.xlsx" with a parameters pane on the right. The spreadsheet data is as follows:

Year	Month	Beginning Balance	Interest	Principal	Ending Balance	Total Interest Paid
1	1	\$ 120,000.00	\$ 800.00	\$ 500.00	\$ 119,500.00	\$ 800.00
1	2	\$ 119,500.00	\$ 796.67	\$ 503.33	\$ 118,996.67	\$ 1,596.67
1	3	\$ 118,996.67	\$ 793.31	\$ 506.69	\$ 118,489.98	\$ 2,389.98
1	4	\$ 118,489.98	\$ 789.93	\$ 510.07	\$ 117,979.91	\$ 3,179.91
1	5	\$ 117,979.91	\$ 786.53	\$ 513.47	\$ 117,466.44	\$ 3,966.44
1	6	\$ 117,466.44	\$ 783.11	\$ 516.89	\$ 116,949.55	\$ 4,749.55
1	7	\$ 116,949.55	\$ 779.66	\$ 520.34	\$ 116,429.22	\$ 5,529.22
1	8	\$ 116,429.22	\$ 776.19	\$ 523.81	\$ 115,905.41	\$ 6,305.41
1	9	\$ 115,905.41	\$ 772.70	\$ 527.30	\$ 115,378.11	\$ 7,078.11
1	10	\$ 115,378.11	\$ 769.19	\$ 530.81	\$ 114,847.30	\$ 7,847.30
1	11	\$ 114,847.30	\$ 765.65	\$ 534.35	\$ 114,312.95	\$ 8,612.95
1	12	\$ 114,312.95	\$ 762.09	\$ 537.91	\$ 113,775.04	\$ 9,375.04

The parameters pane on the right shows the following values:

- Beginning_Amount: (empty)
- Interest_Rate: (empty)
- Monthly_Payment: 1300

Figure 8-11. Updated values for the interest paid calculator using parameter values

The rest of the page works the same as described earlier. The one remaining item to note is that by publishing your Excel workbook using this method, you use an entire page to display it. You cannot include any other web parts on the page. You cannot add a header or other text that might help explain to users how to use the parameters for the Excel spreadsheet. Fortunately, Microsoft has added a web part that allows you to include an Excel spreadsheet on any web page that has web zones where you can add web parts.

■ **Caution** If recalculating the workbook does not appear to update the cells you expect, contact your SharePoint administrator to find out whether the field **Type of Toolbar** is set to **None** or **Navigate only**. Another possible setting to check is the **Calculate Workbook** setting.

Viewing Uploaded Excel Documents

Once you have published an Excel workbook to a SharePoint library, you can open it either in the web browser itself or in Excel. To select how you want to open the workbook, open the workbook's drop-down menu as shown in Figure 8-12.

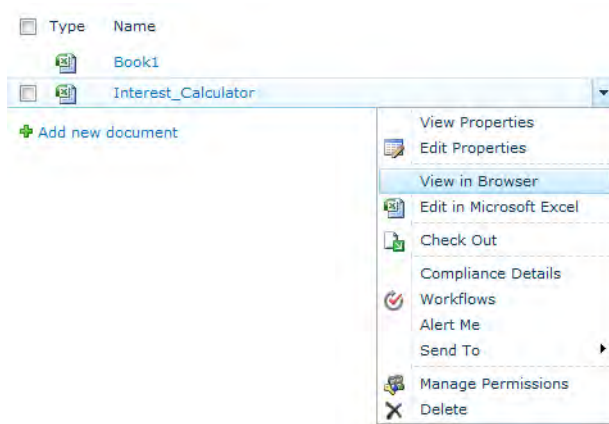


Figure 8-12. To view an Excel document, open the document's drop-down menu.

■ **Note** If you have Microsoft Web Applications installed on your system, you will also see in this drop-down list an Edit in Browser option, which opens the spreadsheet in a browser and uses Microsoft Excel Web App to edit the spreadsheet based on your permissions for the library where you stored the Excel document.

Users who have Excel installed on their local machines can gain access to the full functionality of the spreadsheet by opening the Excel document in Edit mode. When a spreadsheet is opened this way, users can edit any cells within it, not just the cells identified as parameters. They can also make changes to the spreadsheet. If those users also have the necessary permission to write files back to the library, they can then save those changes back to the document in the document library. You can control this ability through the option **Permissions for this document library** under the **Permissions and Management** section of **Library Settings**, found in the **Settings** group of the **Library** ribbon. On the other hand, you manage the permissions of an individual file by selecting **Manage Permissions** as shown in the item's dropdown menu in Figure 8-12.

Also, under **Settings**, you can control access by selecting **Advanced Settings** and changing the option for **Opening Documents in the Browser** setting to either **Open in the browser** or **Use the server default**. Then, if the user simply clicks the document from the library, it will open by default in their browser rather than in their local copy of Excel.

Using the Excel Page Web Part

Viewing an Excel workbook from a SharePoint library either in the browser using Excel Services or by downloading and opening it in a local copy of Microsoft Excel provides a quick way to view the spreadsheet. However, it does not let you include the workbook with other SharePoint features. Fortunately, SharePoint provides a web part that allows you to include an Excel workbook or portion of a worksheet inside any web page.

Suppose you start with a simple web page such as the one shown in Figure 8-13. In this page, you want to add a spreadsheet web part to the Left text area to display the interest-paid calculator beneath the Shared Documents list. Start by going to Site Actions and editing the page.

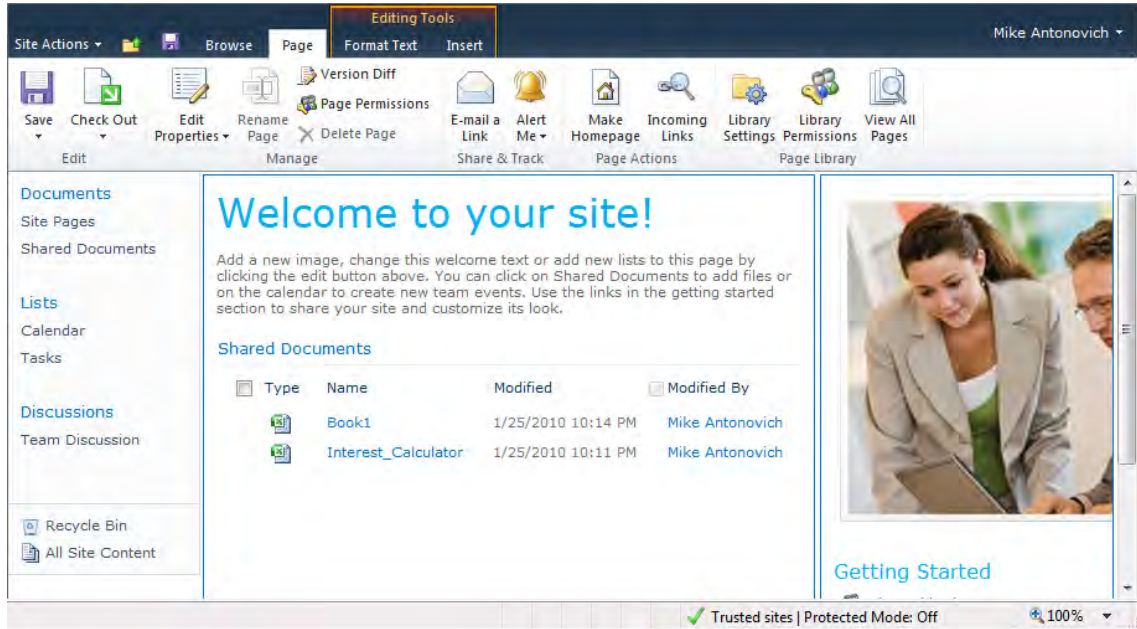


Figure 8-13. Beginning with a basic web page with two web part zones

Place your cursor beneath the Shared Documents library and click the left mouse button to set the insertion point. Next, open the **Insert** ribbon under the **Editing Tools** and click **Web Part**. The page refreshes and displays three areas immediately beneath the ribbon, named Categories, Web Parts and About the Web Part. In the first area, Categories, click **Office Client Applications**. Next, click the web part **Excel Web Access**. Finally, click the Add button beneath the third section to add this web part as shown in Figure 8-14.

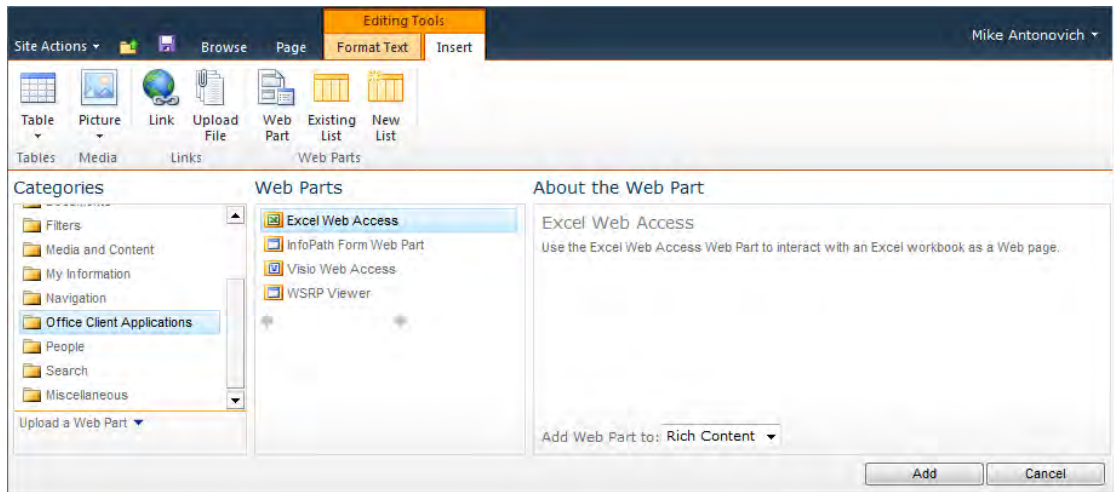


Figure 8-14. Adding a web part from the available parts list

You will now see a new web part at the top of the Left zone, titled **Excel Web Access**. The initial contents of this web part tells you that you must select a workbook for the web part to display by opening the tool pane for the web part and editing the **Workbook** property. Do this by opening the **Edit** drop-down menu and selecting **Edit Web Part**. You can also simply click the link in the web part: **Click here to open the tool pane**.

When the tool pane opens, as shown in Figure 8-15, in the first text box after the label **Workbook**, enter the URL of the workbook from the library where you published it. If you do not remember the name, or if you want to make sure that you get the path correct, click the button with the ellipses to the right of the text box.

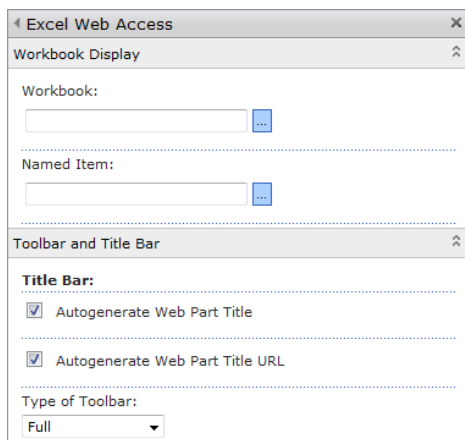


Figure 8-15. Defining the properties of the Excel Web Access web part

Clicking the ellipses button for the URL displays the **Select a Link** dialog box shown in Figure 8-16. Use this dialog box to navigate through your SharePoint site to locate the folder containing the spreadsheet you want to display. When you find it, double-click it, or click it once and then click **OK** to place the URL in the **Workbook** text field.

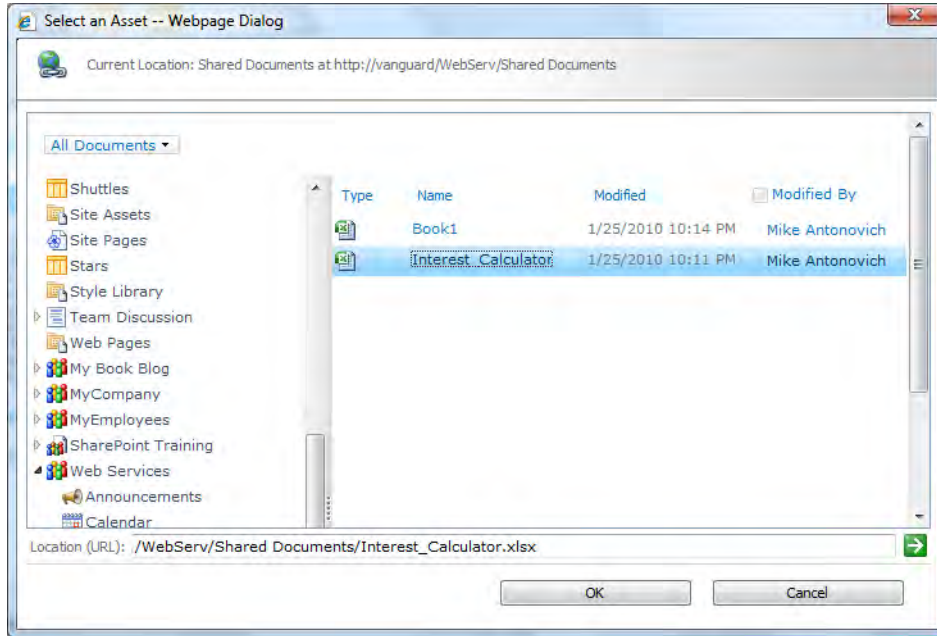


Figure 8-16. Navigating to your workbook

Under **Named Item** in the tool pane, you can also choose a specific named item from the workbook to display. When you do this, only that named area appears within the web part when you display it. This feature eliminates the user's ability to move around the workbook to other areas on the worksheet or to different worksheets in the workbook. You create a named item in the same way that you created named cells for parameters earlier in this chapter. While in Excel, select the range of cells you want to treat as a single object for display purposes and give it a name. Then, when you add the workbook to the web part, use the **Named Item** field to select the named range. Unlike the **Workbook** field, which lets you search for the workbook, the **Named Item** field does not provide you with an easy list to select from available named ranges in the current workbook.

By default, the Excel web part automatically generates a title for itself. To replace this title with your own, you might think that you could simply change the **Title** property in the **Appearance** section of the tool pane. After all, this technique works for many other web parts. However, it will not work here unless you also uncheck the option **Autogenerate Web Part Title** in the **Toolbar and Title Bar** section as well. If you do not uncheck this option, the web part continues to auto-generate its title, overwriting the changes you make to the **Title** field in the Appearance group of properties when you attempt to apply your changes.

■ **Caution** Always turn off the **Close** option in the **Appearance** section of a web part if you do not want users to accidentally remove web parts from the page. If you close a web part, it is still part of the page definition and you can recover a closed web part. If you delete a web part on the other hand, it is gone and you will have to start over with a new instance of the template if you need it. To recover a closed web part, click the **Add a Web Part** button at the top of any web part zone. In the dialog that appears, instead of selecting one of the web part templates, click the **<<add text here>>** link at the bottom of the dialog. This displays a panel to the right of the page. The first link in the panel is **Closed Web Parts** with a number in parentheses after it. If the number here is greater than zero, you have at least one closed web part in the current page. Click the **Closed Web Parts** link to display the closed web parts. You can then select any of the closed web parts and click **OK** to reopen the web part at the top of the current web part zone. You can also specify a web part zone, but even if you open the web part in the current web part zone, you can always drag it to a different position in the current or different web part zone.

Figure 8-17 shows an example of how you might include a web part in the middle of a web page while including other web parts around it. In this case, a Content Editor web part appears above the Excel web part to describe the Excel web part and explain its use.

Your Loan Calculator

The Interest Calculator with Chart is an Excel spreadsheet with three tabs found at the bottom of the sheet. The first sheet displays the detailed month by month calculations of the interest and principal amounts of the loan. The second tab displays annual summary amounts for principal interest payments. The third tab displays the annual total interest and principal payments.

To see the results for a different loan, use the three parameters found in the panel on the right side of the spreadsheet. If this panel is hidden, find an colick on the arrow along the right edge of the spreadsheet to open the panel. When you enter the interest rate, enter 8% as 0.08. Then enter the initial loan amount and the monthly loan payment. When you are done, click the Apply button at the bottom of the panel.

You can hide the parameter panel by clicking on the right pointing arrow between the spreadsheet and the panel when the panel is open.

Interest Calculator

The screenshot shows an Excel spreadsheet with a bar chart titled "Summary of" and a "Parameters" panel on the right. The chart has a vertical axis from \$4,000.00 to \$18,000.00 and a horizontal axis labeled "Annual Interest & Principal". The parameters panel includes input fields for Interest_Rate, Loan_Amount, and Monthly_Payment, along with "Apply" and "Clear" buttons.

Getting Started

- Share this site
- Change site theme
- Set a site icon
- Customize the Quick Launch

Shared Documents

Type	Name	Modified	Modified By
	Interest_Calculator <small>NEW</small>	1/29/2010 12:35 PM	OCPS\47758
	Interest_Calculator_w_Parameters <small>NEW</small>	1/29/2010 1:29 PM	OCPS\47758

Figure 8-17. An Excel workbook shown inside a web part

Viewing Data from External Sources in Excel Using a Data Connection

In all the Excel examples so far, we have entered data directly into the cells of the worksheets. However, you can create Excel worksheets that display and manipulate data from external data sources. Primarily these external sources will be databases such as Access and SQL Server. However, you can connect to many other data sources as well.

For this section, let's use the PUBS sample database provided for SQL Server 2008.

■ **Tip** If you have Visual Studio, you can create the PUBS database for SQL Server 2008 from `C:\Program Files\Microsoft Visual Studio 10\SDK\v3.5\Samples\Setup\InstPubs.sql`. If you do not have Visual Studio, you can also download PUBS for SQL Server 2000 from Microsoft's Download Center at the following site (be sure to enter the URL as one line even though I show it on two lines here):

www.microsoft.com/downloads/details.aspx?

[FamilyID=06616212-0356-46A0-8DA2-EEBC53A68034&displaylang=en](http://www.microsoft.com/downloads/details.aspx?FamilyID=06616212-0356-46A0-8DA2-EEBC53A68034&displaylang=en)

or simply enter

tinyurl.com/yzx61z

If you begin with the original SQL 2000 PUBS database, you may need to set the compatibility level, using the command `EXEC sp_dbcmtlevel 'Pubs', '100'` for SQL Server 2008 or `EXEC SharePoint_dbcmtlevel 'Pubs', '90'` for SQL Server 2007.

The AuthorRoyalty View

Let's take a closer look at the **AuthorRoyalty** view in case you want to try re-creating it on your machine. I created a view in the PUBS database so that I could retrieve data for each book and then calculate the sales for the book along with the royalty due to each author. The information I need spans five tables within PUBS, beginning with the **Sales** table. This table identifies the book by only a **title_id** value. Therefore, I link this ID to the **title_id** value in the **Titles** table. Then the **Titles** table forms a many-to-many relationship with the **Authors** table. Therefore, you need a connecting table named **TitleAuthor** between these two tables to create two one-to-many relationships. Then if you also want to know in which states books were sold, you need to link the **Sales** table to the **Stores** table using the **stor_id** field found in both tables.

Next, you need to look at the fields you want in the spreadsheet and see whether those fields exist as individual fields in the tables selected or you need to calculate some of them. While the **Sales** table provides the quantity of books sold by title, you need to get the price of the book from the **Title** table to calculate the value of the books sold. Similarly, to calculate the author's royalty, you need to multiply the value of the books sold by the author's royalty percentage, which you can find in the **Authors** table.

After thoroughly researching which fields you need to generate the report you want, you can write the view definition as follows:

```
USE [PUBS]
GO
/***** Object: View [dbo].[AuthorRoyalty]
*****/Script Date: 01/20/2008 13:39:41 *****/
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE VIEW [dbo].[AuthorRoyalty]
AS
SELECT stores.stor_name
      , stores.state
      , sales.ord_date
      , sales.qty
      , titles.title
      , titles.type
      , titles.price
      , titles.royalty
      , authors.au_lname
      , authors.au_fname
      , sales.qty * titles.price AS Amount
      , sales.qty * titles.price * titles.royalty / 100 AS AuthorRoyalty
FROM   dbo.sales INNER JOIN
       dbo.stores ON sales.stor_id = stores.stor_id INNER JOIN
       dbo.titles ON sales.title_id = titles.title_id INNER JOIN
       dbo.titleauthor ON titles.title_id = titleauthor.title_id INNER JOIN
       dbo.authors ON authors.au_id = titleauthor.au_id

GO
```

Once a view is created, you can access it from a database using the same methods you would to access a table. If you need a special view for your Excel table and do not feel comfortable defining the view yourself, contact your database administrator for further assistance.

Creating an External Connection

Start a new Excel workbook and open the **Data** ribbon as shown in Figure 8-18. In the **Connections** group, click the **Connections** button.

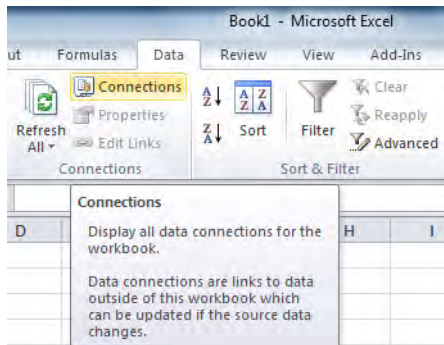


Figure 8-18. Beginning a connection definition

This button opens the **Workbook Connections** dialog box, which shows any connections currently defined for the workbook. As you can see in Figure 8-19, this dialog box initially contains no defined connections for a new workbook.

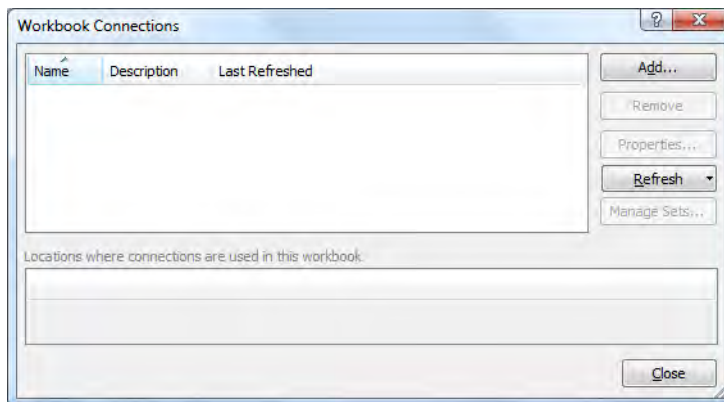


Figure 8-19. Initially, the workbook displays no connections.

To create a connection, click the **Add** button. This action displays a list of all existing connections within your workbook, your computer, and your network. Figure 8-20 shows the existing **Data Connections** dialog box. If a connection already exists on your network or on your computer that you can use, you can save time by reusing it. As you can see in this figure, none of the existing connection definitions point to the databases and tables that you want.

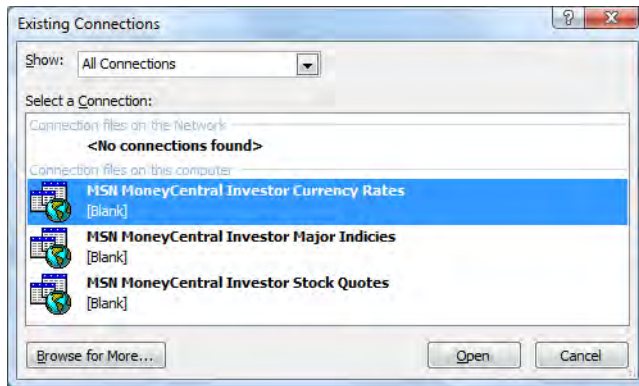


Figure 8-20. Select from existing connections or browse for more.

When you click the **Browse for More** button, the **Select Data Source** dialog box appears. In addition to displaying the same connections seen in the **Existing Connections** dialog box, it adds two additional options:

- **Connect to New Data Source.odc**
- **New SQL Server Connection.odc**

If you double-click either of these, it opens an additional dialog box where you can define a new connection. While it is possible to create a data connection from the **Connect to New Data Source.odc** option, I recommend using the **New SQL Server Connection.odc** option directly if your data resides in a SQL Server database.

You can use the **Connect to New Data Source.odc** option when creating a connection to non-SQL Server data sources. For example, you can create ODBC data connections to many applications including Crystal Reports, dBase, and Access. However, you should use OLE DB connections whenever available for your data source. Therefore, check the **Other/Advanced** option in the **Data Connection Wizard** first to see whether you have access to an OLE DB driver. For example, here you may find the latest data link driver for Microsoft Access 2010, called **Microsoft Office 12.0 Access Database Engine OLE DB Provider**. There are also OLE DB providers for SQL, Analysis Services, OLAP Services, Oracle, and more. If you do not see the provider you need in this list, contact your system administrator to see if he or she can locate and install a driver that you can use.

Choosing the **New SQL Server Connection.odc** option, shown in Figure 8-21, takes you directly to the **Data Connection Wizard**, where you can enter the information needed to create a connection to SQL Server.

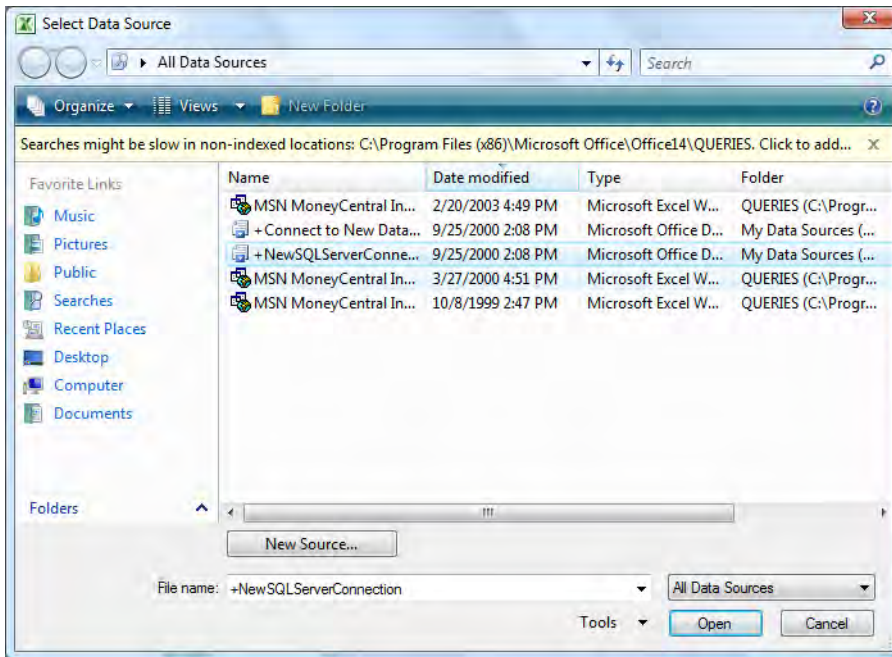


Figure 8-21. Creating a new SQL Server connection

The first page of the **Data Connection Wizard** prompts for the name of the server you want to access. This is the SQL Server name, not necessarily the name of the machine on which SQL Server runs, although they are often the same. You can enter the server name as **localhost** when creating the connection from the machine on which SQL Server runs. However, you cannot use these connections from other machines, because localhost will not resolve to the correct server. Therefore, always enter the name of the server.

You can supply credentials to SQL Server either by using your Windows Authentication information or by supplying a specific user name and password. Using Windows Authentication generally provides a more secure method of defining your connection. In this authentication mode, you do not include your user name and password in the connection information, and the operating system does not send unencrypted user names and passwords across the network. Figure 8-22 shows the dialog box that prompts for your server information.

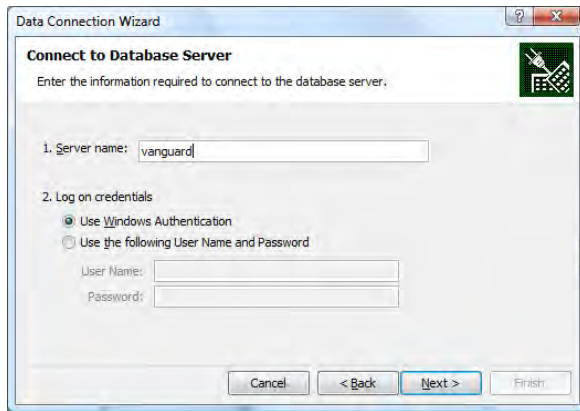


Figure 8-22. Selecting the database server

When you click the **Next** button, the **Data Connection Wizard** contacts the server you specified and uses the logon credentials you indicated. If it succeeds in connecting to the server, it returns in the next page with information asking you to which database, table, or cube you want to connect.

The first prompt uses a drop-down list to display all the databases on the referenced server. It initially selects the default database for the server. However, opening the drop-down list, you can select any of the databases on the server.

Once you have selected a database, you can select the specific table, view, or cube you want to use. Figure 8-23 shows that after selecting the PUBS database, I select a view named **AuthorRoyalty**. Because you can only select a single table for a connection to an Excel worksheet, you may find that views provide the only way to access fields from multiple tables. This is important especially in a normalized database where you want to display descriptive text for users to read, rather than ID values that serve as pointers back to their parent tables.

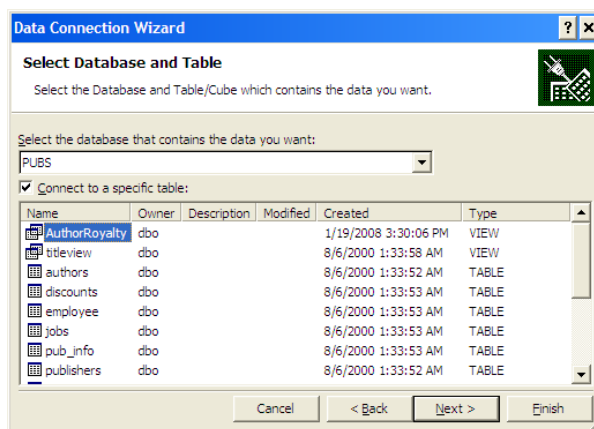


Figure 8-23. Selecting the table or view

After you have selected the table or view you want to use in the connection, the next page of the wizard prompts you for a file name for the data connection. As with most files, you should choose a file name long enough to fully describe the content or purpose of the file, while trying to keep the name as short as possible. One advantage data connection files have over most other files is a *friendly name*. The friendly name appears in dialog boxes such as the **Workbook Connections** and the **Existing Connections** dialog boxes, making it easier to identify which connection file you want to use. Figure 8-24 shows the final page of the **Data Connection Wizard**.

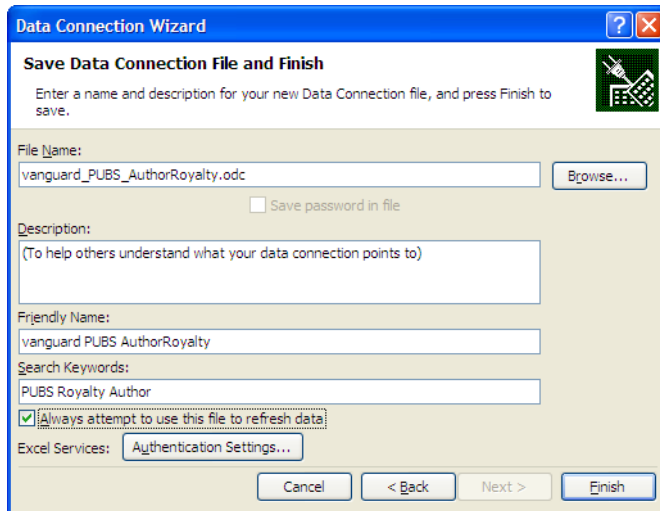


Figure 8-24. Saving the data connection file

The option **Always attempt to use this file to refresh data** ensures that this connection file is always used by every workbook when it refreshes its data source, thus using any recent updates to the connection file.

Click the **Finish** button after completing this last page of the **Data Connection Wizard**. You then return to the **Workbook Connections** dialog box, where you see the name of the new connection listed. Click the **Close** button on this dialog box.

Importing the SharePoint List to a Workbook

You should now see the **Existing Connections** dialog box. If you do not, open the **Existing Connections** dialog box from the **Data** ribbon. You can find it in the **Get External Data** group. Click the connection you just created followed by the **Open** button. You now can import the data from your external connection into Excel. First, you must choose how you want to view the data, selecting from the options **Table**, **PivotTable Report**, and **PivotChart and PivotTable Report**. Figure 8-25 shows the **Import Data** dialog box.

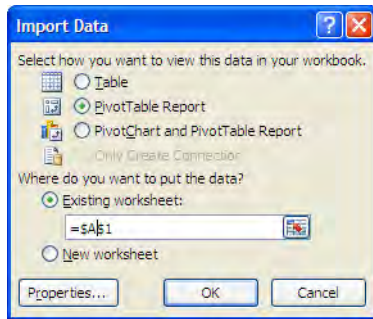


Figure 8-25. *Placing data in a PivotTable Report*

Your first inclination might be to select **Table** because you want to view the columns and rows of the data. However, Excel Services in SharePoint does not support external data ranges. Fortunately, it does support pivot tables.

■ **Note** Why doesn't Excel Services support external data when it does support pivot tables? The technical details are beyond the scope of this book, but this behavior is well documented on the Internet. In essence, the difference lies in the way pivot tables organize and sort data as a hierarchy rather than as a two-directional collection of rows and columns.

Fortunately, with a little work, you can make most pivot tables look similar to the original tables or views from which they started. The following discussion describes one way to reformat the pivot table.

After exporting the view data to a PivotTable Report, your Excel screen displays the pivot table on the left and the **PivotTable Field List** panel on the right, as shown in Figure 8-26. The **PivotTable Field List** panel consists of five areas. The largest area lists all the fields from the table or view used to create the pivot table. Each field has a check box before it. You must select each field that you want to use from the view or table.

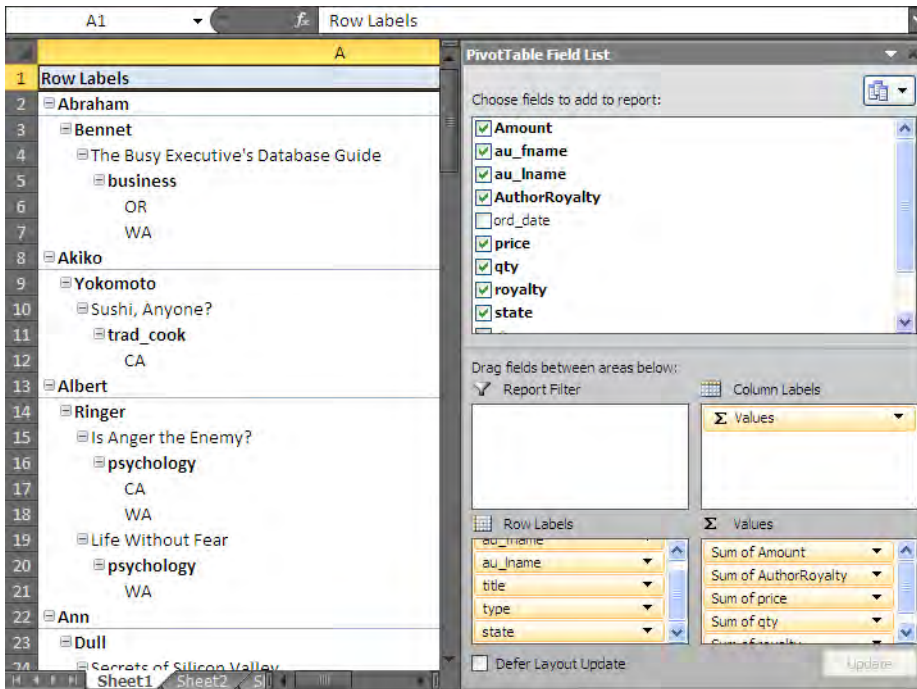


Figure 8-26. The default layout of data in a pivot table

If you simply go down the list of fields, selecting them in the order displayed, the pivot table assumes that you want to create a hierarchy with the fields in that order. If you select the fields in a different order, the hierarchy that Excel builds changes accordingly.

For example, if you select **Title** before **State** and then book **Type**, Excel assumes that you want to display different states within each book title and different book types within each state. Depending on the author, this could mean that while the pivot table lists each book separately, two books classified as **Business** may be separated by a book classified as **Fiction** just because you defined the book's **Title** higher on the hierarchy.

On the other hand, if you select the **Type** field before selecting the book's **Title**, all books of the same type for an author appear together. Similar arguments would determine whether you wanted to see all the books written by each author or if you preferred to group all books of a specific type regardless of the author. This hierarchical approach to the data distinguishes pivot tables from regular tables.

If you decide that you want to create a different hierarchy after you have selected the fields, you do not have to start over again. Simply find the field in either the **Row Labels** or **Values** box and click it to display the drop-down field menu. Options in the menu allow you to move the field up or down in the list, or even directly to the top or bottom. You can also click and drag fields up and down the list with your mouse to move fields and you can drag fields between the other three areas or remove fields from display entirely.

As to the different areas where pivot tables place fields by default, Excel assigns label and date type fields to **the Row Labels** bin. It then assigns numeric type data automatically to the **Values** bin and assumes that you want to sum the values here. This may not be what you want. You can move all the

fields from the **Values** bin to the **Row Labels** bin. In all cases, be aware of any implied hierarchy in the order of the fields in the **Row Labels** area.

Formatting a Pivot Table to Look Like a Worksheet

When you have the fields you want to display selected and in the order you want, you can begin formatting the pivot table so it looks more like a spreadsheet. Begin by selecting the **PivotTable Tools Options** ribbon. Then from the **PivotTable** section, click **Options**. The **PivotTable Options** dialog box, shown in Figure 8-27, consists of five tabs. Select the tab **Layout and Format** if it does not appear by default. On this page, locate the following two options and check them if necessary:

- **Autofit column widths on update**
- **Preserve cell formatting on update**

Then click the **Data** tab and set the drop-down value to **None** for the property **Number of Items to retain per field**. You generally should not retain items deleted from the data source without a good reason.

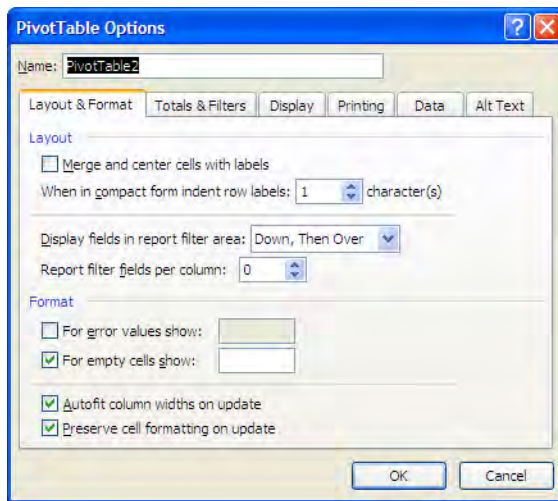


Figure 8-27. Setting the pivot table options

Also on the **Options** ribbon, the **Show** group on the right allows you to turn the field list on or off, hide or show the expand/collapse buttons associated with each unique group value, and hide or show the field headers. Typically, I prefer to hide the field headers because they display the original field names from the table or view. Unless you created meaningful alias names for all the fields, these names may be somewhat cryptic. Therefore, rather than display these names to the user, I hide the headers, and then insert another row at the top of the pivot table and enter my own column headers there.

Next, open the **PivotTable Tools Design** ribbon and locate the **Layout** group. Using the buttons in this group, make the following changes:

In **Subtotals**, select the option **Do Not Show Subtotals**, unless you want to create subtotals for groups.

In **Grand Totals**, select **Off for Rows and Columns**, unless you want grand totals for columns, in which case select **On for Columns Only**.

In **Report Layout**, select **Show in Tabular Form** to create the appearance of a normal column and row table.

On this ribbon, you can also select a pivot table style if you prefer. When you choose a pivot table style, you can use the **PivotTable Style Options** group to determine whether special formatting should apply to headers and whether to apply row or column banding to make the table more readable.

Once you've made all of these changes, your pivot table might look similar to Figure 8-28.

	First Name	Last Name	Book Name	Book Type	state	Quantity	Book Price	Revenue	Royalty	Royalty % Amount
1	Abraham	Bennet	The Busy Executive's Databa	business	OR	10	19.99	199.9	10	19.99
2					WA	5	19.99	99.95	10	9.995
3	Akiko	Yokomoto	Sushi, Anyone?	trad_cook	CA	20	14.99	299.8	10	29.98
4	Albert	Ringer	Is Anger the Enemy?	psychology	CA	85	21.9	930.75	24	111.69
5					WA	23	21.9	251.85	24	30.222
6			Life Without Fear	psychology	WA	25	7	175	10	17.5
7	Ann	Dull	Secrets of Silicon Valley	popular_comp	CA	50	20	1000	10	100
8	Anne	Ringer	Is Anger the Enemy?	psychology	CA	85	21.9	930.75	24	111.69
9					WA	23	21.9	251.85	24	30.222
10			The Gourmet Microwave	mod_cook	OR	15	2.99	44.85	24	10.764
11					WA	25	2.99	74.75	24	17.94
12	Burt	Gringlesby	Sushi, Anyone?	trad_cook	CA	20	14.99	299.8	10	29.98
13	Charlene	Locksley	Emotional Security: A New A	psychology	WA	25	7.99	199.75	10	19.975
14	Cheryl	Carson	But Is It User Friendly?	popular_comp	OR	30	22.95	688.5	16	110.16
15	Dean	Straight	Straight Talk About Compute	business	CA	15	19.99	299.85	10	29.985
16	Innes	del Castillo	Silicon Valley Gastronomic T	mod_cook	CA	10	19.99	199.9	12	23.988
17	Johnson	White	Prolonged Data Deprivation:	psychology	WA	15	19.99	299.85	10	29.985
18	Livia	Karsen	Computer Phobic AND Non-	psychology	WA	20	21.59	431.8	10	43.18

Figure 8-28. The formatted pivot table shown in Excel

Publishing Your Formatted Workbook

To publish your workbook, click the **File** tab and click the **Save & Send** option to display the page shown in Figure 8-29. Click **Save to SharePoint** to display the SharePoint options in the right panel.

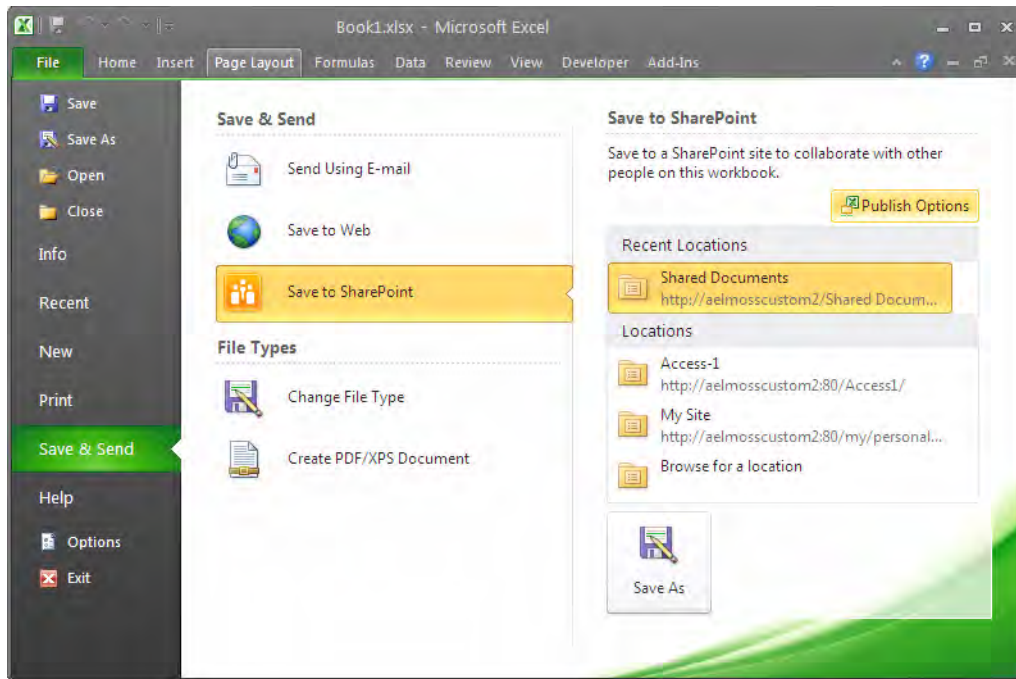


Figure 8-29. Publishing an Excel workbook to SharePoint

Before saving the workbook to SharePoint, click the button **Publish Options** located in the upper right section of Figure 8-29. Clicking this option displays the **Publish Options** dialog, which consists of two tabs. The **Show** tab lets you select the worksheets you want to publish. By default, Excel publishes the entire workbook. However, you can choose from the drop-down menu to publish individual sheets or even named items from the workbook. The second tab, **Parameters**, lets you select parameters to publish. When you finish setting parameters, click **OK** to exit this dialog.

To finish publishing your Excel spreadsheet, click the large **Save As** button at the bottom of Figure 8-29. In the **Save As** dialog that appears next, you must specify the library where you want to save the document as shown in Figure 8-30. This library must be one that your SharePoint administrator previously defined as a trusted library using Excel Services.

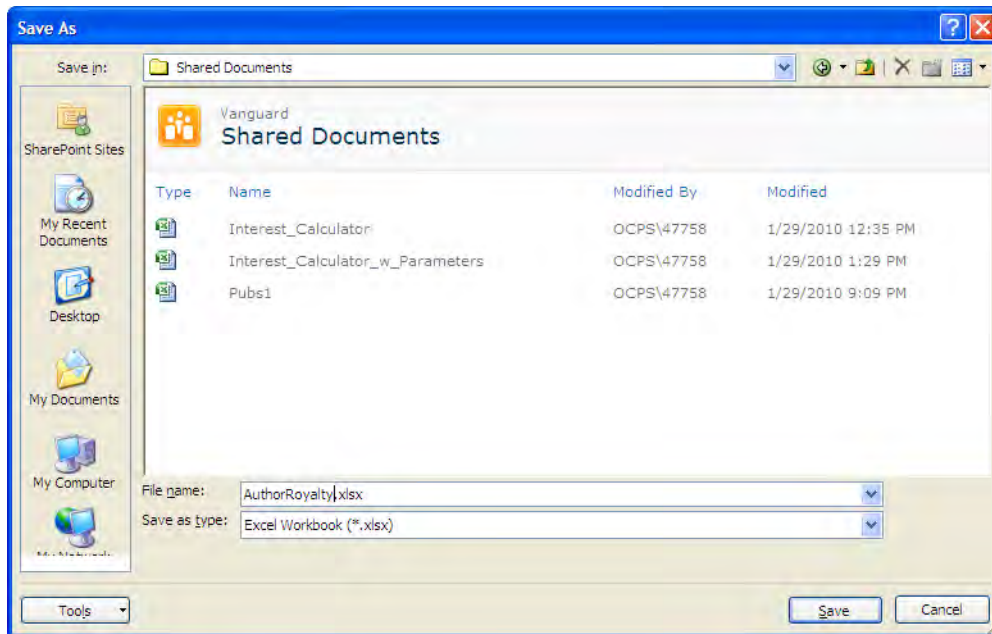


Figure 8-30. Selecting a location to save the workbook

When you click **Save**, Excel sends the workbook to SharePoint and opens the workbook in your browser as shown in Figure 8-31. If you already have a workbook in the selected library with the same name as the current workbook, Excel prompts you to replace the existing workbook. Select **Yes** to replace the current workbook when publishing an update.

	A	B	C	D	E	F	G	H	I	J
	First Name	Last Name	Book Name	Book Type	state	Quantity	Book Price	Revenue	Royalty %	Royalty Amount
2	Abraham	Bennet	The Busy Executive's Databa	business	OR	10	19.99	199.9	10	19.99
3					WA	5	19.99	99.95	10	9.995
4	Akiko	Yokomoto	Sushi, Anyone?	trad_cook	CA	20	14.99	299.8	10	29.98
5	Albert	Ringer	Is Anger the Enemy?	psychology	CA	85	21.9	930.75	24	111.69
6					WA	23	21.9	251.85	24	30.222
7			Life Without Fear	psychology	WA	25	7	175	10	17.5
8	Ann	Dull	Secrets of Silicon Valley	popular_comp	CA	50	20	1000	10	100
9	Anne	Ringer	Is Anger the Enemy?	psychology	CA	85	21.9	930.75	24	111.69
10					WA	23	21.9	251.85	24	30.222
11			The Gourmet Microwave	mod_cook	OR	15	2.99	44.85	24	10.764
12					WA	25	2.99	74.75	24	17.94
13	Burt	Gringlesby	Sushi, Anyone?	trad_cook	CA	20	14.99	299.8	10	29.98
14	Charlene	Locksley	Emotional Security: A New A	psychology	WA	25	7.99	199.75	10	19.975
15	Cheryl	Carson	But Is It User Friendly?	popular_comp	OR	30	22.95	688.5	16	110.16
16	Dean	Straight	Straight Talk About Compute	business	CA	15	19.99	299.85	10	29.985
17	Innes	del Castillo	Silicon Valley Gastronomic T	mod_cook	CA	10	19.99	199.9	12	23.988
18	Johnson	White	Prolonged Data Deprivation:	psychology	WA	15	19.99	299.85	10	29.985
19	Livia	Karsen	Computer Phobic AND Non-	psychology	WA	20	21.59	431.8	10	43.18

Figure 8-31. The Excel workbook displayed using Excel Services in SharePoint

Introduction to Status Indicators (KPIs)

Key performance indicators (KPIs) provide a visual communication tool that shows progress toward a goal. Between SharePoint Server 2007 and SharePoint Server 2010, Microsoft decided to rename KPIs, now calling them *status indicators*. Each item in a Status list measures one item, and each item has a desired goal value. The list can then show the current value of that item and compare it to the goal. Based on ranges of values defined by the person building the status indicator, you can then display a color-coded status icon illustrating how well the current value compares to the desired value.

Project teams, managers, and businesses use status indicators to gain a quick visual check on the progress of their projects, to determine whether employees are meeting production goals or whether sales are meeting expectations. Status indicators can quickly illustrate whether you are ahead, behind, or on schedule with whatever business factors the status indicator measures.

Status Types Defined

There are four basic types of status indicators available within SharePoint, based on the source of the data used to create them. While the data source may differ, the basic look and method of using status indicators does not.

- **SharePoint lists:** You can use existing SharePoint lists to develop status indicators. For example, suppose you track issues at your company using an issue-tracking list. By using simple counts, you can compare the number of outstanding issues to a desired goal for your help desk to see how well they handle incoming calls. For more complex issues, you could track the time needed to resolve issues by your programming staff and compare the average elapse time to a desired goal.
- **Excel workbooks:** You can link a status indicator to an Excel workbook stored in a SharePoint library. Updated workbook data can then drive the current value in the status indicator. Using the Excel web part on the same page, you can display a detailed list of the data backing up the status indicator or you can use the **Details** link when defining the status indicator to point to another page where you display the spreadsheet.
- **SQL Server Analysis Services:** Analysis Services can also provide information to create status indicators. This method can supply tracking data from systems maintained in SQL Server. With a little work, you can build performance information into a table and then use that information through Analysis Services to create SQL performance status indicators.
- **Manual data:** If you do not have a formal way to collect data using one of the preceding methods, you can always manually enter the goal and its current value in this status indicator type.

Creating a Status List

Creating a status list follows many of the same steps used when creating other list types. You begin by going to the site where you want to create the status list, which in this case is the same team site in which we have been working our other examples. Once you have it opened, click **Site Actions** and then select **View All Site Content**. If your current screen displays the **Quick Launch** menu, you might be able to click the **View All Site Content** link directly from the top of this menu.

Next, click **Create** on the **All Site Content** page. On the **Create** page, locate the **Status List** template. The options page for this template asks for the same basic information as most other lists, including the list name, description, and navigation options as shown in Figure 8-32.

Figure 8-32. Creating a KPI list

Supply a name for the list and enter an optional description. For the example here, I want to create a status list to track problem calls. Therefore, I suggest the name **Problem Calls**. After providing a description for the list, choose the **No** radio button under the question **Display this list on the Quick Launch?** Finally, click the **Create** button to build the list.

Opening the status list settings, you can see that the default columns for each item include a column named **Indicator**, which describes the status indicator. The **Goal** column represents the minimum acceptable value for the item that represents success for the status indicator. The **Value** column represents the current measured value for the item. Finally, the **Status** column displays an icon that visually indicates whether the item has achieved the desired goal.

Creating a Status List with Manually Entered Information

To see how to define a status indicator, click the down arrow to the right of the **New** option in the list's menu bar. Figure 8-33 shows that this menu lets you select from the four different data sources for the status indicator. If you click the **New** button, not the drop-down arrow, SharePoint assumes you want to create the default status indicator type, one using a SharePoint list. Let's begin instead with the simpler (but manually entered) type, by selecting **Fixed Value based Status Indicator**.

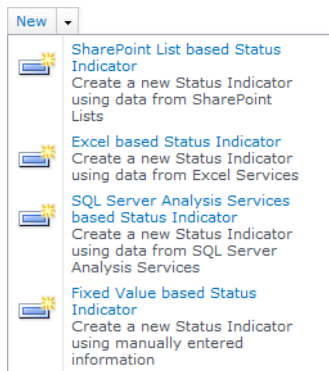
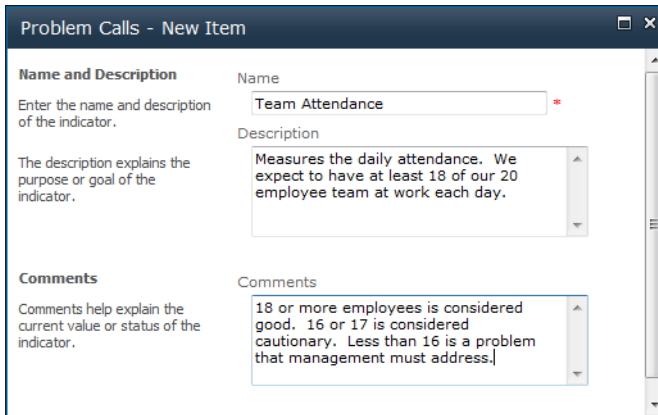


Figure 8-33. Selecting the type of indicator

While SharePoint calls the first property of a status item **Name**, it appears in the **Indicator** column when you display the status list. You must supply this property. You can optionally enter the **Description** property to explain the purpose of the indicator; I recommend using this property. In addition, you might want to indicate whether high values or low values represent success. Then, using the optional **Comments** section, enter an explanation of how you measure the current value for this item and perhaps even how you selected the status range values. Figure 8-34 shows the first part of the page defining the properties of a status item. These first three properties are common to all four status indicator types.



Problem Calls - New Item

Name and Description
Enter the name and description of the indicator.

Name: *

Description:

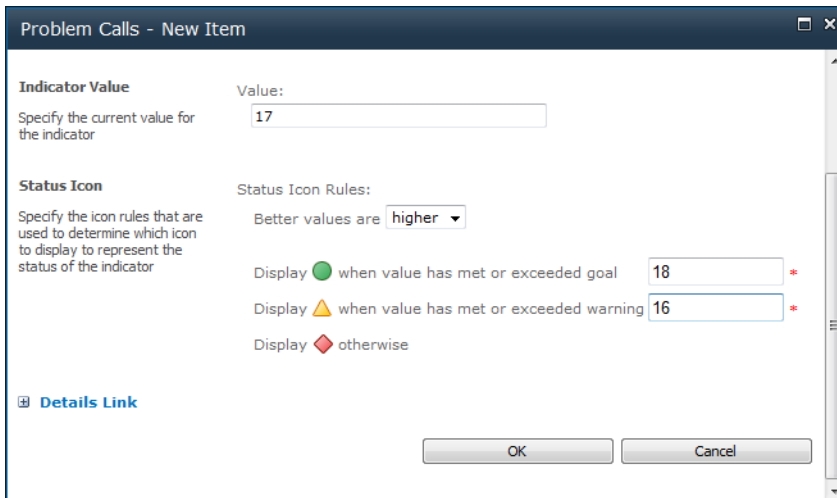
Comments
Comments help explain the current value or status of the indicator.

Comments:

Figure 8-34. Defining the Name and Description properties of the indicator and entering Comments

Next, you must enter the current value for the indicator. Because you have selected a manual indicator, you must open and edit this item each time the value changes. Since this example tracks team attendance, you may find yourself doing this daily.

Figure 8-35 also shows that you have to define the rules for the status icon. You can choose to represent better values by higher or lower values. In the case of attendance, higher values represent better values. Therefore, let's assume that you have met your attendance goal when 18 or more employees out of 20 come into work each day. If only 16 or 17 employees arrive, you want to raise a warning to management. If fewer than 16 employees arrive, you want to display the danger icon.



Problem Calls - New Item

Indicator Value
Specify the current value for the indicator

Value:

Status Icon
Specify the icon rules that are used to determine which icon to display to represent the status of the indicator

Status Icon Rules:
Better values are **higher**

Display when value has met or exceeded goal: *

Display when value has met or exceeded warning: *

Display otherwise

[Details Link](#)

OK Cancel

Figure 8-35. Defining the indicator value and status rules

After defining the status, click **OK** to see how it appears when you display the list. Figure 8-36 displays the status list with this single indicator, showing that you might have the start of an absentee problem.

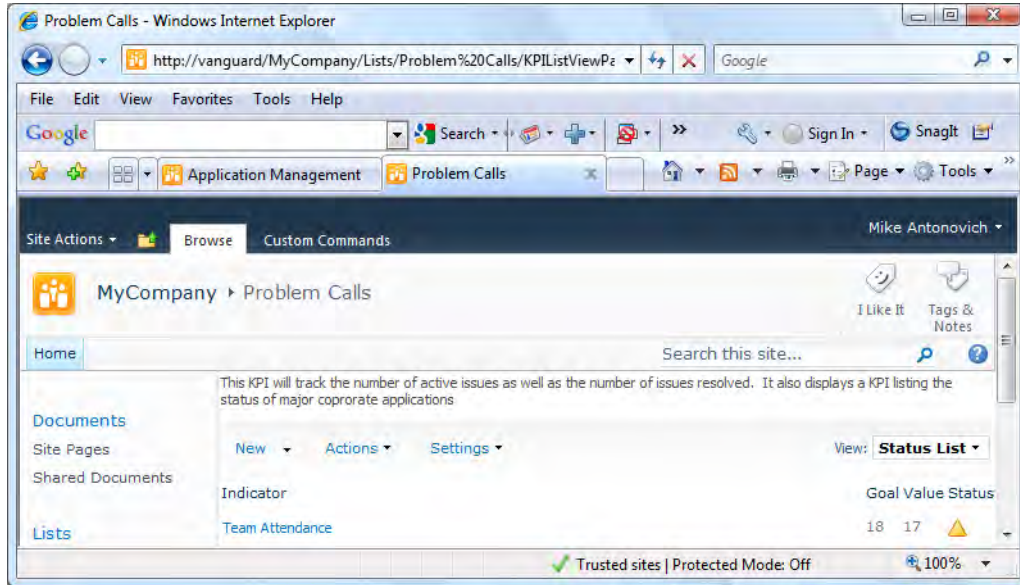


Figure 8-36. Viewing the resulting indicator in the list

If you want to see what happens when you change the current value of the indicator, click the status item and select **Edit Indicator** not from the ribbon, but from the line of commands immediately above the indicator as shown in Figure 8-37. Note that there are only two other options, one to delete the indicator and another to manage its permissions.

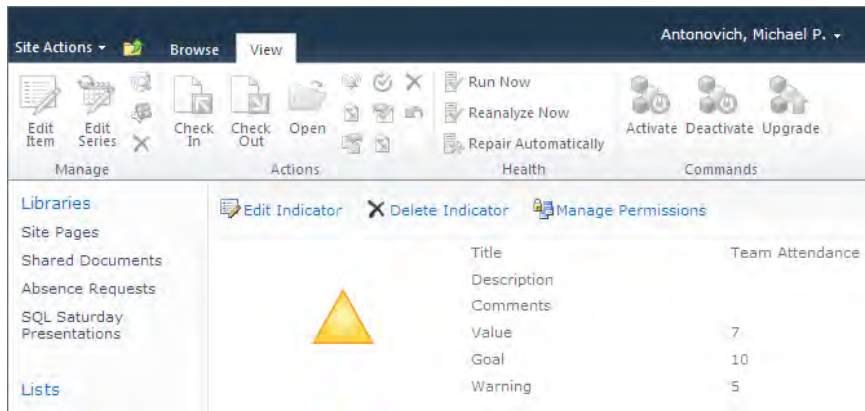


Figure 8-37. Edit, delete, or manage permissions of the indicator

Creating a Status List Using a SharePoint List

Let's now look at a status indicator that uses a SharePoint list. I've created a SharePoint list that tracks the number of active application systems. Suppose I define success as having at least 90% of our systems running, and failure as having less than 80% of our systems running. (OK, I know that may be low for your organization. Of course, you can enter your own numbers.)

Rather than track this information manually, suppose that you have a SharePoint list named **Systems Supported** that includes an item for each application. Furthermore, suppose that this list has a field named **Status** defined as a choice field type with four possible values: **OK**, **Being Repaired**, **Down**, and **Retired**. You can use this list to supply the data for the status indicator. That way, by maintaining the status in the list **Systems Supported**, SharePoint can update the status indicator automatically.

Figure 8-38 shows the full properties list for this status item. The new options begin with the **Indicator Value** section. In this area, you must enter the name of the SharePoint list and view that you want to use to calculate the status value. Notice that you can then calculate the current KPI value in one of three ways:

- Simply total the number of list items in the selected view.
- Calculate the percentage of list items with a specific value in the view based on a Boolean expression.
- Calculate using all list items in the view.

Name and Description

Enter the name and description of the indicator.

The description explains the purpose or goal of the indicator.

Comments

Comments help explain the current value or status of the indicator.

Indicator Value

The indicator value is the number that tracks the progress toward the goal of this indicator.

For example, the indicator value may be:

The number of issues that are currently active

Or

The percentage of tasks complete

To specify the indicator value:

- 1) Select the SharePoint list that contains the information for calculating the value of this indicator.
- 2) Select the view of the list that contains the items for calculating the value of this indicator. Views can be used for selecting a subset of items.
- 3) Specify the calculation to perform for the value of this indicator. Choose summary calculation to set the goal to be the total, average, minimum or maximum of a numerical column.

Status Icon

The status icon rules determine which icon to display to represent the status of the indicator.

For some indicators, such as 'The percentage of tasks completed', better values are usually higher.

For other indicators, such as 'The number of active tasks', better values are usually lower.

To specify the status icon rules:

- 1) Select whether better values are higher or lower
- 2) Specify the 'Goal' value
- 3) Specify the 'Warning' value

- 🔗 [Details Link](#)
- 🔄 [Update Rules](#)

Name
System Status *

Description
Identifies number of systems currently running.

Comments
We must keep at least 90% of our applications up and running at all times to be considered successful. If less than 80% of our applications are not running, we have failed.

SharePoint List and View:
List URL: *
http://vanguard/MyCompany/Lists/Systems 📄

Examples:
http://portal/site/list/AllItems.aspx
or /site/list/AllItems.aspx

View: *
All Items

Value Calculation: *
 Number of list items in the view
 Percentage of list items in the view where

Status
is equal to
OK

And Or

Select column...
is equal to

[Show More Columns...](#)

Calculation using all list items in the view

Sum
of
Select column...

Status Icon Rules:
Better values are higher ▾

Display 🟢 when value has met or exceeded goal 90 *

Display 🟡 when value has met or exceeded warning 80 *

Display 🟠 otherwise

OK Cancel

Figure 8-38. Defining an indicator based on a SharePoint list

The Details link allows you to turn the status indicator name into a hyperlink for the current KPI item that displays details about the current KPI value. The Update Rules link lets you decide whether to recalculate the indicator value for every viewer. This can be especially useful when using a SharePoint list in which the selected view displays only the current user's data. You can also choose to update the status value manually by clicking the Update option in the Status indicator's drop-down menu. This option can be useful if the background data that supports the indicator value is dynamically changing.

In this case, you want to calculate the percentage of systems that have a **Status** field value of **OK**. However, if you had a list that included the amount of time a system was down, you could sum the down time across all systems for the time period represented by the view.

Creating a Status List from an Excel Workbook

Next, if you use an Excel workbook to supply your indicator values, you must supply the URL of the workbook published on your SharePoint site using Excel Services. Then you must enter the address of the cell to use for the value or reference the cell by a cell name. If you click the icon to the right of the value, the pop-up window displays the workbook and lets you select the cell to use not just for the **Indicator Value**, but also for the **Indicator Goal** and the **Indicator Warning** values. In fact, you can click the workbook icon next to any of these three values on the main property page for the status indicator to return to the workbook to verify or select new cells to use for these values. This does not mean that you must use cell values for the **Indicator Goal** or **Indicator Warning**. You can enter manual numbers for these values as well. Figure 8-39 shows just this portion of the status indicator's properties, as we have already discussed the other properties of the status indicator for the previous status types.

The screenshot shows a configuration window titled "Problem Calls - New Item". It is divided into two main sections: "Indicator Value" and "Status Icon".

Indicator Value Section:

- Workbook URL:** A text box contains "Documents/Monthly%20Sales%20Data.xlsx" with a workbook icon to its right.
- Examples:** "http://portal/reports/workbook.xlsx" or "/reports/workbook.xlsx".
- Cell Address for Indicator Value:** A text box contains "'1'H4" with a grid icon to its right. Below it, an example reads "Example: Sheet1!A1 or Total".

Status Icon Section:

- Status Icon Rules:** A dropdown menu is set to "higher".
- Display [Green Circle] when value has met or exceeded goal:** A text box contains "'1'H5" with a grid icon to its right.
- Display [Yellow Triangle] when value has met or exceeded warning:** A text box contains "'1'H7" with a grid icon to its right.
- Display [Red Diamond] otherwise:** No text box is present for this rule.

Help text for the "Indicator Value" section explains that the cell address can be a valid Excel cell address (e.g., Sheet1!\$A\$1) or a name (e.g., Total). Help text for the "Status Icon" section explains that values can be numbers or valid Excel workbook cell addresses (e.g., Sheet1!\$A\$1 or Sheet1!A1).

Figure 8-39. Defining an indicator based on an Excel workbook

Creating Dashboards with Excel and Status Indicators

What is a dashboard? Within SharePoint, you can define a dashboard as any web page that displays business information. Often dashboards use graphics to display data, but they do not have to include graphics. What they must do is show trends that can help identify problems, opportunities, or decision points. Some people might refer to this ability as an at-a-glance health check for a business of its key indicators. However, the fact is you can use dashboards for tracking project progress, employee satisfaction, customer purchasing trends, and many more things. The value of a good dashboard lies in its ability to help management make decisions that benefit the organization.

Building a Dashboard from the Dashboard Template in the Report Center

So how can you create a dashboard in SharePoint? First, open your team site and click the option **View All Site Content** in the **Site Actions** menu. Next click **Create** at the top of the **All Site Content**. Then select the **Library** filter and click on the **Report Library** option. You must supply a name for the library along with an option description. As with most other objects, you can also determine whether the object appears in the page's Quick Launch area. Because it's a library, however, you can also determine whether SharePoint creates a new version every time that you edit the file. Once you have the **Reports** library open, display the **Documents** ribbon. In the **New** group, click on the lower half of the **New Document** option. Do not just click the top half of the **New** option, because SharePoint may assume that you want to add a report to the library. From the drop-down menu, click the option **Web Part Page with Status List**. SharePoint Server 2007 called this option the Dashboard page.

As shown in Figure 8-40, you begin defining your dashboard by supplying a page name and a page title. You can also optionally enter a description. Notice that you cannot edit the next two fields in the **Location** section. SharePoint defines the document library as a reports library, and you cannot change it unless you have multiple reports-type libraries. Unless you have defined a folder structure for this library (remember earlier discussions about creating folders to better organize your files), the folder also defaults to the top-level folder. Of course, if you have defined a folder structure, you can select any of your existing folders from this drop-down. This is another reason why you should plan your folder structure before beginning to add documents to your libraries.

Page Name
Enter a name and description for your new page. The name appears in headings and links throughout the site.

Name: .aspx

Page Title:

Description:

Location
Select the location of the new page.

Document Library:

Folder:

Create Link in Current Navigation Bar
Choose whether you would like to add a link to the new page in the current navigation bar.

Add a link to current navigation bar?
 No Yes, use navigation heading:

Web part page with status list Layout
Choose a layout for your web part page with status list. The different layouts allow you to choose the orientation of the filters on the page, the number of columns and navigation. You can rearrange the web parts later.

Layout

Status Indicators
By default a new status indicator list will be created for you. You can optionally select to use an existing status indicator list by editing the status indicator web part during web part page customization. If you do not have permissions to create a list, the option to create a status indicator list will be unavailable.

Create a status indicator list for me automatically.
 Allow me to select an existing status indicator list later.
 Do not add a status indicator list to this dashboard.

Figure 8-40. *Creating a two-column dashboard document*

■ **Tip** Of course, if you do procrastinate building out your folder structure until after you have already created documents, not all is lost. You can simply switch to the Windows Explorer view of your library by using the option **Open with Windows Explorer** in the **Actions** drop-down menu. There you can drag and drop documents between folders and even create new folders.

In the next section, **Create Link in Current Navigation Bar**, you can determine whether to create an entry in the **Quick Launch** menu. Here you have three options for which section to add the dashboard: **Documents**, **Lists**, and **Discussions**. Just think of these three options as categories where you can store these special web pages for now.

In the **Dashboard Layout** section, you can choose from three layouts, which differ by the number of columns in the layout. Each layout represents a page template specially designed for dashboards and combines by default status lists, Excel web parts, text areas, contact information of the person creating the page, and more.

The last option lets you create a new status list automatically. If you let SharePoint generate a new status list for you, it names the list using a combination of the current page name followed by the text “Status Indicator Definitions.” That is not a bad default. You can also create a dashboard using an existing Status list, or you could decide not to include a status list at all on the dashboard. What? A dashboard without KPIs?

Actually, despite calling this web page a dashboard and leading you to think that it is something special, it is not. The dashboard template provides nothing that you cannot re-create starting from a blank web part page with the same web part zones.

So why create the dashboard this way? It can save you a little time by pre-positioning common web parts used by dashboards on a web page and then automatically placing that page in a separate navigation group in the **Quick Launch** menu.

Organizing Web Parts in the Dashboard Web Part Zones

So let’s continue looking at what you get when you create a two-column dashboard. Figure 8-41 shows the initial two-column web page. This page actually places each of the web parts in its own web part zone. These zones include

- Top Left zone
- Top Right zone
- Filter zone
- Middle Left zone
- Middle Right zone
- Bottom Left zone
- Bottom Right zone

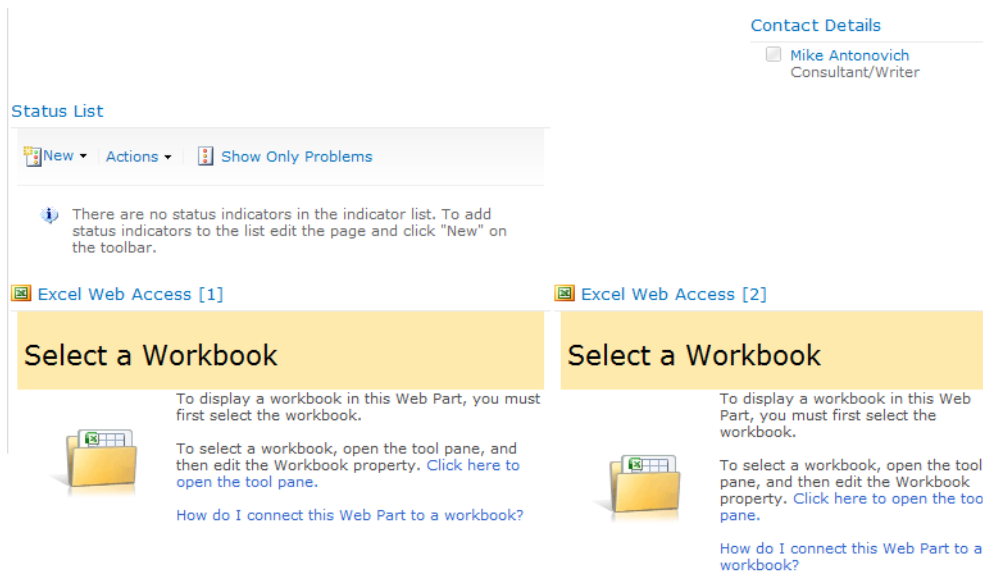


Figure 8-41. The default dashboard page created by SharePoint

You can just imagine what you would get with a three-column dashboard. Actually, don't imagine, go ahead and try it. You can always delete the page if you do not want to keep it.

If you do not want to use all of these web parts, no problem; just edit the page and close them. If you do not like the way SharePoint lays out the page, just edit the page and drag and drop the web parts to locations you do like. Do you want different web parts? Just click **Add a Web Part**, found at the top of each web part zone, and select from the list of available web parts. Remember that you can create “new” web parts by defining new lists using any of the list templates available. While Microsoft provides a collection of commonly used web parts with SharePoint, you can go online and find free or relatively inexpensive web parts to do all sorts of things. One site you definitely want to check out is www.codeplex.com, a Microsoft Open Source community site with wide selection of tools and utilities, and in this case, SharePoint web parts. In addition, if you still cannot find the web part that will do what you want, you can always go down the hall to the den of programmers the company keeps around for emergencies and ask them to build a web part for you using Visual Studio. If your company does not employ a den of programmers, you can find many consultants through the Internet who can gladly build that web part for you.

Adding KPIs to Your Dashboard

Let's continue by modifying the Key Performance Indicators web part found in the Middle Left web part zone. If you do not already have the page in **Edit** mode, select **Edit Page** from the **Site Actions** drop-down menu. With the page in **Edit** mode, open the drop-down menu associated with the **Edit** button and select the option **Modify Shared Web Part** (if you are using Web Pages) or **Edit Web Part** if you are using Wiki Pages for your content. When you do this, an option panel opens to the right of the page.

■ **Note** If you click **Modify Shared Web Part** (or Edit Web Part from a Wiki Page) and do not see the option panel, it may be that your screen is not wide enough. You could go out and buy a new 24" wide-screen panel. As much fun as that might be, however, the less expensive solution is to look for the horizontal scrollbar at the bottom of window. You should see that you can drag the button in the bar to the right to bring the option panel into view.

Figure 8-42 shows the top portion of the option panel. This section usually includes most of the unique properties for the current web control. Most option panels also have sections named

- **Appearance**
- **Layout**
- **Advance**

SharePoint leaves these other sections closed until you choose to see one by clicking the box with the plus sign to the left of the section name.

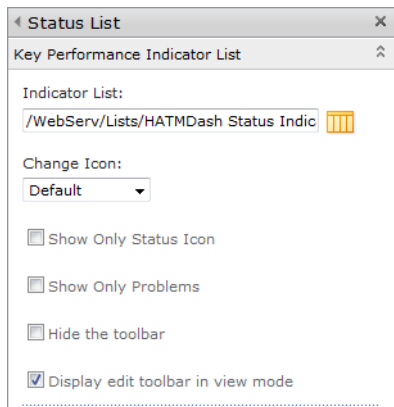


Figure 8-42. Selecting a KPI list to display

First, you must define the KPI list you want to display in the web part's first option. You can enter the relative URL for this list beginning with the root of your site. Alternatively, you could click the icon to the right of the field for a simpler way to create this reference. This icon lets you search your site for the KPI list as shown in Figure 8-43. When you find the list you want to use, double-click it, or click it once and click **OK** to select the list.

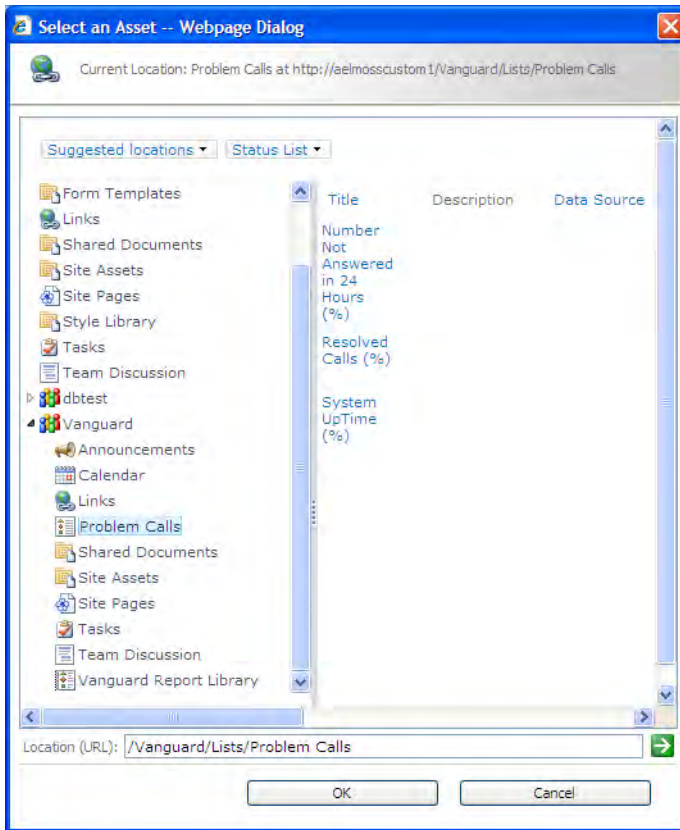


Figure 8-43. Navigating to the KPI list rather than entering its URL manually

The second option, **Change Icon**, lets you do exactly that. You can choose from four different icon styles for your visual status indicators, as shown in Figure 8-44. You have already seen the default indicators in several illustrations. The **Checkmarks** consist of colored circles with either a checkmark, exclamation point, or X in their centers. The **Flat** icons consist of plain colored circles with no symbols. Finally, the **Traffic Lights** consist of black boxes with a green, yellow, or red “bulb” in them. If you want to see these for yourself, select any of the icon types and then click the **Apply** button at the bottom of the option panel. The **Apply** button updates the contents of the edited web part but leaves the option panel open.

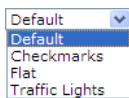
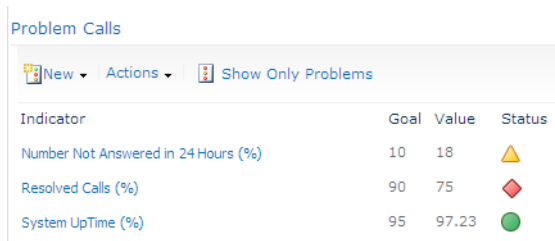


Figure 8-44. Changing the KPI status icon

Figure 8-45 shows the configured KPI list: **Problem Calls**, which you built earlier. Notice that the list, even in **Edit** mode, displays the list's menu selections. Right from this screen, you can open the **New** drop-down menu and add a new indicator to the list. You can also open the **Actions** menu and change the icons, reset the order of indicators, and update their values. The reset order of indicators option places the indicators in alphabetical order. The last feature, to update values, can be especially useful when working with data that changes frequently. If you have manually entered KPI values, this option does not allow you to change the values.



Indicator	Goal	Value	Status
Number Not Answered in 24 Hours (%)	10	18	⚠
Resolved Calls (%)	90	75	⬢
System UpTime (%)	95	97.23	●

Figure 8-45. Displaying the KPI list

The last option in the list's menu lets you limit the display to only problem indicators. If you have a long list of indicators, for which most are OK, you can help management focus on problem issues by displaying only the indicators that need attention.

■ **Note** The status list menu remains visible after you publish the page, so that users viewing the page also have access to it. Using permissions, you can control which users can change the status list, making the list read-only for the vast majority of users.

As you move your mouse over the indicators, a drop-down box appears to the right of the indicator text. You can open this menu to edit the properties of the item, assuming you have the appropriate permissions. You can also move individual indicators up and down in the list, creating a custom order.

Finally, I have made several other changes to the dashboard, resulting in the page shown in Figure 8-46. These additions include

- Adding some basic text as a title in a Content Text web part in the Upper Left zone
- Adding the graphical results of a survey on employee morale to the Middle Right zone
- Adding references to published Excel workbooks to the two Excel web parts in the Lower Left and Lower Right zones

Sample Dashboard

[Contact Details](#)
[System Account](#)

Problem Calls

SharePoint Opinion

New Actions Show Only Problems

Indicator	Goal Value	Status
Number Not Answered in 24 Hours (%)	10 18	▲
Resolved Calls (%)	90 75	◆
System UpTime (%)	95 97.23	●

Respond to this Survey Actions Settings

1. When will you implement SharePoint 2010

As soon as possible

3 (60%)

3-6 months

1 (20%)

Within a year

1 (20%)

Never

0 (0%)

Total: 5

Excel Web Access - AuthorRoyalty

Interest Calculator

Microsoft Excel Web App (Beta)

File	Open in Excel	Data	Find
1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18	19	20
21	22	23	24
25	26	27	28
29	30	31	32
33	34	35	36
37	38	39	40
41	42	43	44
45	46	47	48
49	50	51	52
53	54	55	56
57	58	59	60
61	62	63	64
65	66	67	68
69	70	71	72
73	74	75	76
77	78	79	80
81	82	83	84
85	86	87	88
89	90	91	92
93	94	95	96
97	98	99	100

Parameters

The following parameters are used in this workbook:

Beginning_Amount

Interest_Rate

Monthly_Payment

Apply Clear

Figure 8-46. The final sample dashboard page

Summary

This chapter started by asking whether Excel was the weakest link in the Microsoft Office lineup of products in terms of collaboration with SharePoint. In the previous chapter, you saw that SharePoint has deprecated a key feature of sharing data between two systems, synchronization. While I did show a way to recover from this weakness, you may still feel that Excel does not contribute to collaboration as thoroughly as some other products.

To demonstrate that there is still a lot you can do, I launched this chapter by showing how you can publish a static Excel workbook to a SharePoint site. Once a workbook is published, a service called Excel Services can open and display it in your browser with virtually no loss of visual fidelity compared to Excel itself. This feature allows users of your site who do not have Excel installed on their local computers to share in the data from the workbook, at least by viewing it. However, a static workbook does not allow interaction.

To allow a published workbook to become a little more dynamic, I next introduced the concept of *parameters*. Visitors to your site can supply their own values to the parameters and then recalculate the spreadsheet using those values.

Then you looked at Report Center sites. A new feature examined here called KPIs provides a way to quickly and visually show important measurable factors in an organization. When management sets a goal level for each factor, they can then measure the actual value of the factor and compare it to the goal. Depending on how well the actual value compares to the goal, the KPI list can display a status icon that at a glance shows which key factors have been met and which need further attention by management.

The chapter closed by showing how to display Excel workbooks on a web page along with other web parts, such as the KPI list, to give management a *dashboard*, a single-screen view of the status of factors important to the success of their organization. While SharePoint provides a dashboard template that can give you a head start in building such a web page, I ended by showing that you could create the same basic web page from a blank web page that has access to the same web parts.

Therefore, with the help of Excel Services, Excel may not be the weakest link after all. It certainly displays some interesting abilities that you might be able to take advantage of in your organization to help management view protected versions of your workbooks. The decision is yours.



An Introduction to Creating Forms with InfoPath

I know many people who have installed Microsoft Office 2010 or even 2007 on their desktop machines. On practically a daily basis, they open and use Microsoft Outlook and Microsoft Word. They may even use Excel, PowerPoint, and occasionally Access. Nevertheless, many of them have never noticed a largely undiscovered tool named InfoPath, which first became part of the Office Suite in 2003 and which Microsoft has significantly enhanced since then.

InfoPath is important to your SharePoint implementation because it brings an easy-to-use form design tool based on XML (Extensible Markup Language) to the desktop and your browser. With it, you can gather data from users without having to write applications, and you can then save that data in XML files, databases, or SharePoint lists.

The reason InfoPath works well with SharePoint is that it is based on XML technology just like the rest of Office 2010. When InfoPath saves a form, it creates an XSN file. This file acts like a cabinet (CAB) file to hold a collection of files needed by the form. These files include XML Schema Definition (XSD) files and Extensible Stylesheet Language (XSL) files that provide a formal definition of the XML data, such as element names, data types, and attributes for each field used in a form. InfoPath also uses XSL Transformation (XSLT) files to define different views of the same data or subsets of the data. Because the form data is stored in XML, you can start building a form from an existing XML data schema, or you can begin with a blank form and let InfoPath build the data schema for you.

Perhaps all these strange-sounding technologies scare some people away from using InfoPath. However, you really do not need an in-depth knowledge of these technologies to create and use InfoPath forms, as I will show in this chapter.

You will explore InfoPath's design environment, which includes a rich set of controls for building forms that can be displayed through your browser and thus within SharePoint. It includes all the popular controls needed for forms, ranging from standard text boxes, lists, and date pickers to repeating and optional sections, attachments, hyperlinks, and more. Rather than building ASP.NET pages to collect data over your internet, you can skip most of the programming tasks for simple data-gathering applications by creating an InfoPath form and then publishing it in a library on your site. Users can access your form template and fill in their data online. You can then save the data collected by an InfoPath form locally in an Access table, a SQL Server database, or even a SharePoint list.

InfoPath also lets you add workflows to forms using Windows Workflow Foundation and then publish the forms through SharePoint. Workflows allow you to define a work process for the form. For example, after you fill in an absence request form, you probably need to submit that form to your supervisor. He or she must then sign the document before forwarding it to your department secretary. The secretary then enters the information into your payroll system. You can automate this entire process

to pass the form from one person to next, sending e-mails to each recipient that notify that person of a task to complete. Moreover, because SharePoint tracks workflows, you can always tell the status of a document in the workflow. Together with SharePoint, InfoPath improves the efficiency of your work processes.

In this chapter, you will see how easy it is to create an InfoPath form from scratch, as well as how to take existing Word and Excel documents and convert them to InfoPath forms. You will also look at how to work with different data sources. This gives you the foundation you need to publish these forms within SharePoint (the subject of Chapter 10), so that all users of your site can access these forms and fill them in. The advantage of publishing your forms on SharePoint so users can fill them in using their browser is that they do not need to have InfoPath installed on their desktop. Of course, the person creating the form must have InfoPath and a license to create content on the Enterprise edition of SharePoint. For additional questions about licensing at your organization, contact your Microsoft representative.

Why You Should Use InfoPath

I do not know many organizations that do not collect data for their business from customers, potential customers, suppliers, partners, or even their own employees. Forms have always provided a standardized way to collect information, ensuring that all employees collect all necessary information in a consistent manner. Sometimes companies simply store this information on the paper form used to collect it. Often, however, someone must enter this data into a computer system.

Using paper forms to collect information exposes the process to several types of errors. First, if the user handwrites the data into the original form, there could be a problem interpreting the handwriting. Second, even if the data entry clerk can clearly read the data on the form, she still could create errors when she enters the data into a computer system through simple typing mistakes. For example, suppose someone fills in an application form for a car or home loan. Whether because of the applicant's poor writing or a typing error made by a data entry clerk, bad data sent to the credit bureau can result in the denial of the loan request.

In addition, many business processes use a collection of forms to complete a transaction such as buying that car or home. Typically, several fields appear on all of these forms, such as the names of the people involved in the transaction, their addresses, phone numbers, work locations, and perhaps other fields as well. Each time the person collecting this information has to reenter the information, there is one more chance to enter the data incorrectly. With fully integrated electronic forms, once the person collecting the data enters the information, subsequent forms can retrieve the data and pre-fill repeated fields, making the entire process run faster and with less chance of errors.

As mentioned in the first section, you can publish InfoPath forms through the Internet, allowing people not just inside your company, but also outside your company to view, print, and fill in the form. With the increasing use of mobile devices such as BlackBerry handhelds, you might want to create forms that users can fill in via one of these mobile devices. Users can even fill in InfoPath forms offline. Once they download a form, they can disconnect from the Internet and fill in the form at their leisure. Once they complete the form, they can reconnect to the Internet and submit it.

In a similar way, InfoPath forms also support Tablet PC users by allowing them to write with their tablet pens to fill in the form fields directly. InfoPath can then automatically convert this "ink" into text. You can even allow Tablet PC users to add hand-drawn sketches to illustrate information; these can be included in a traffic accident report used by the police.

Another benefit of using a tool like InfoPath forms comes from the ability to share the resulting data with other Office applications. You can even send forms via e-mail and Outlook, export the data to MS Excel, and then pump the data into an Access or SQL Server database.

By having users fill in forms electronically, you can help ensure that they enter correct data by validating the data as they enter it. By using validation rules on individual form fields, you can prevent bad data from getting into your database. The cost of correcting data-entry errors increases dramatically the further through the process the bad data travels. Therefore, flagging bad data as users enter it can save time and money by prompting users to correct their mistakes immediately.

Completing forms online rather than on paper also appeals to those interested in going “green.” For others, a more compelling benefit might be that the use of less paper for forms saves money. Your company can buy less paper, cut printing costs, and not have to build and maintain storage facilities to keep the completed forms.

Because InfoPath forms allow you to display and hide different sections of a report, you might be able to combine several similar forms into a single form and then provide a way for users to hide the portions they don’t need to work with. Different views on the same data allow you to collect all the data needed with a single form, and then, through different views, show subsets of the data to different users within your organization based on what they need to see rather than sending them the entire form.

Exploring the InfoPath Interface

One huge change from Office 2007 to Office 2010 is that Microsoft has split InfoPath into two programs. You use the first one, InfoPath Designer, to build your forms. Then you and others can use InfoPath Filler to fill in those forms. In fact, you can create an InfoPath form that can only be filled out using InfoPath Filler. The primary function of InfoPath Filler is to let the user fill in an existing form that someone has created using InfoPath Designer; it would be used either because the form is not being publishing in SharePoint or because it requires features that a web browser cannot display. This chapter will focus on InfoPath Designer.

InfoPath Features That a Web Browser Cannot Display

If you must use any of the following features in your InfoPath form, you cannot display the resulting form in a web browser. In these cases, to use the form you must open it using InfoPath Filler.

Objects:

- Vertical Label
- Ink Picture
- Signature Line

Containers:

- Repeating Recursive Section
- Scrolling Region
- Horizontal Repeating Table
- Repeating Choice Group

- Horizontal Region
- Master/Detail

Let's first examine the InfoPath Designer interface. When you open InfoPath Designer, the backstage for InfoPath displays the **New** group as shown in Figure 9-1. In the center portion of the screen, the **New** group displays four categories of form templates:

- Popular Form Templates
- Advanced Form Templates
- InfoPath 2007 Form Templates
- Template Parts

We will explore portions of each of these template groups as we progress through this chapter and the next. You will also see additional groups added to this page as we develop and save forms we develop.

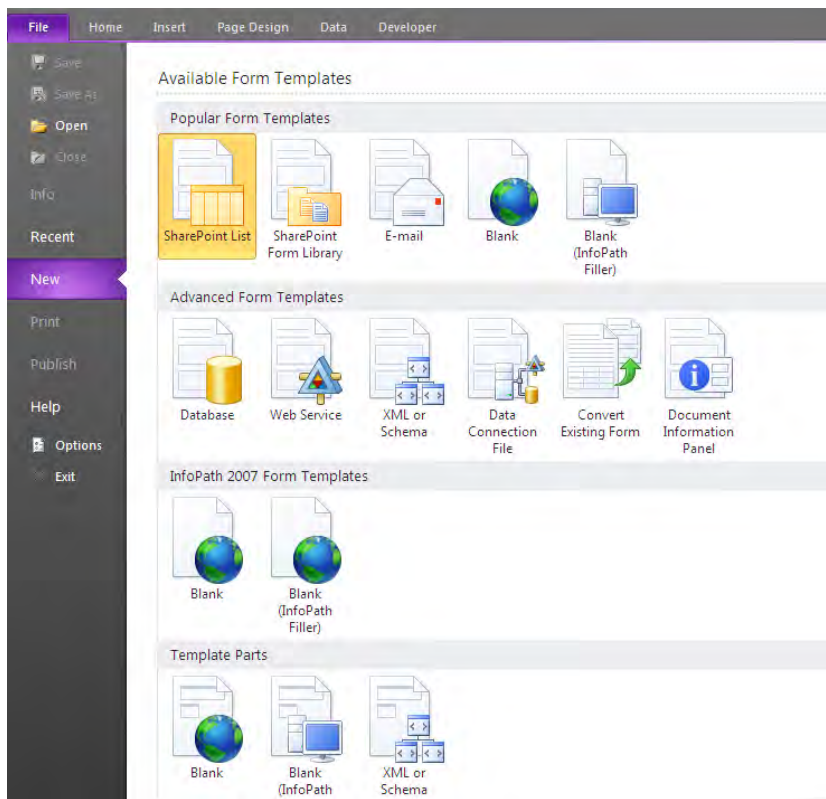


Figure 9-1. The initial form templates provided by InfoPath

Modifying a Form Used with a SharePoint List

To begin our exploration of InfoPath, one of the easiest things you can do is to modify the form used by a SharePoint list. As you have seen many times in prior chapters, SharePoint builds a default form for editing the items in a SharePoint list. The default form is functional, but have you ever wanted to edit the form, add fields, change the layout, or change the theme? With InfoPath, you can accomplish all those things.

From the **New** page in the backstage area, click **SharePoint List** in the **Popular Form Templates** group. This template lets you start from an existing list form, add rules, modify the form layout, and change the formatting. InfoPath first needs to get the location of the SharePoint site that has the list you want to customize. Figure 9-2 shows the first page of the wizard that prompts for the site location.

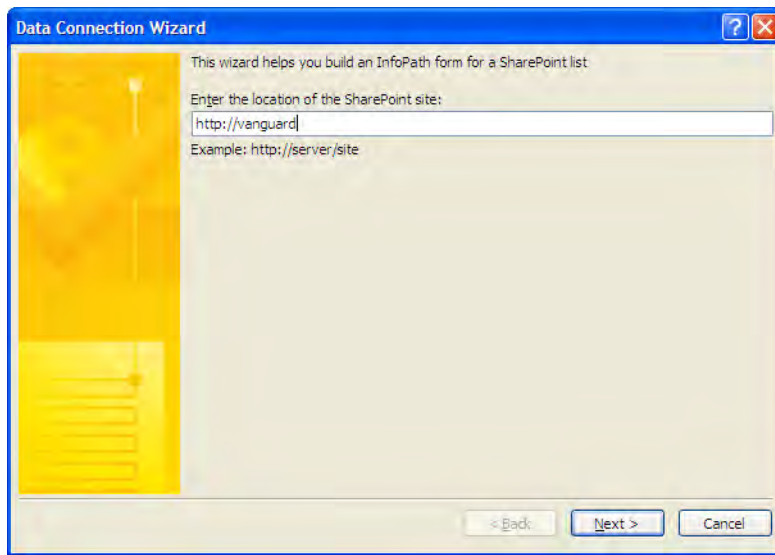


Figure 9-2. Identify the SharePoint site location.

On the second page of the **Data Connection Wizard** (Figure 9-3), you can choose between creating a new list for the site and working with one of the existing lists. Notice that you cannot customize all lists. For example, you cannot customize calendar or status lists. However, you can customize many of the other list types.

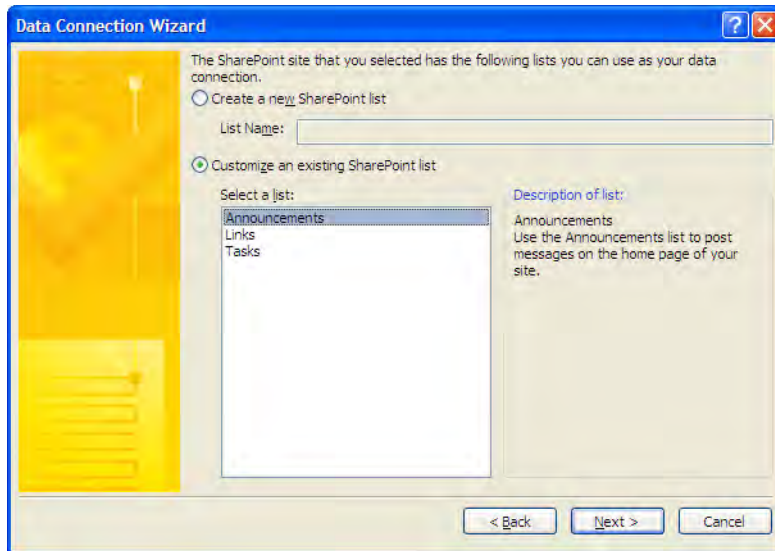


Figure 9-3. Select an existing SharePoint list for which you want to create a custom form.

When you click **Next**, InfoPath attempts to connect with the SharePoint site and list that you specified. This could take a few seconds. Depending on the permissions of your site, you may also see a dialog prompting for your user name and password to connect to the SharePoint site.

The initial form that InfoPath generates for you to customize is not exactly the same as the default edit form used by the list (see Figure 9-4). InfoPath generates the form you begin with based on the columns in the list, creating a single-column form. Think of this form as a starting point that already has the columns that currently exist in the list. This form actually consists of a two-column table in which the first column contains the column label and the second column contains the column value. Each row of the table represents a column from the list. However, since this form is a table, you can easily rearrange the rows to put the fields in a different order.

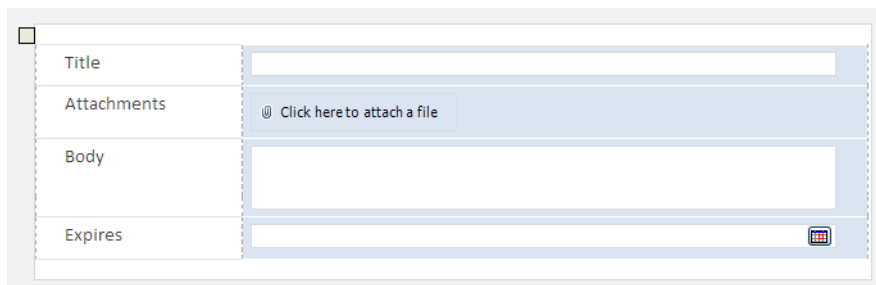


Figure 9-4. InfoPath creates a starting form for your customization.

To the immediate right of the form, you should see a panel with the title **Fields**. This panel begins with a list of all the fields defined for the selected list. While the line at the top of this form says that you can drag a field from the list to the form to add it, you may want to wait a bit before doing that. Because all of the columns appear in a table on the form, you must first create an empty location where you drag the field. You will see how to do that in a moment, but first look at the options below the list.

A link with the text **Show advanced view** appears immediately below the field list. When you click this link, the field list changes to a tree view of the fields. Using the check box below the list, you can display the field types as well. However, let's return to the basic view as shown in Figure 9-5.

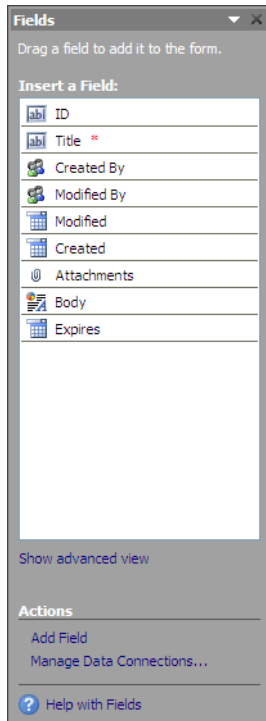


Figure 9-5. The Fields panel shows the available columns in the selected list.

Because I selected the **Announcements** list, the list includes a column that defines a date when the announcement should expire. When using the Announcements list, you can create a view that displays only those events that have an expiration date in the future. However, because there is no start date, the announcement would begin appearing in the view as soon as you created it. If you want to enter an announcement that will not begin appearing until a later date, you need another date column, which I will call **Publish Date**, that defines the first date on which you want the announcement to appear.

Although you could go back to the list, select **List Settings**, and add this new column, you can use InfoPath to redesign the edit form and add the new column all at one time. To begin, click the **Add Field** option under the **Actions** section of the **Fields** panel.

■ **Note** InfoPath enables the **Add Field** option only when displaying the basic view as shown in Figure 9-5. If your Fields panel looks different and the link below the field list says **Show basic view**, click this link to return to the basic view.

This option opens the **Add Field or Group** dialog shown in Figure 9-6. Here you can define both a display name and a column name for the new field. In fact, as you type in the **Display Name** field, InfoPath automatically generates the column name. It automatically eliminates blanks and other characters that SharePoint does not allow in a column name.

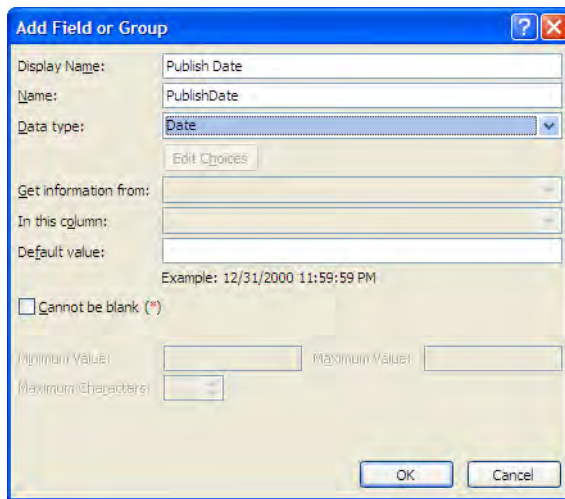


Figure 9-6. The dialog used to define a new column for the current list

Next, you can select the data type from the drop-down list of types. Depending on which data type you select, the rest of the field properties are enabled or disabled as appropriate for that column type. In this case, because we selected a **Date** data type, the only other options we can specify are the **Default value** and the check box that determines whether the user can leave the date blank.

After entering all the parameters to define the field, click **OK** to create it. You will see the new field in the **Fields** panel added immediately. However, you really do not have a place in the current form where you can add this field.

In this case, suppose you want to add the Publish Date field directly above the Expires field. You need to insert a new row above this row. Because the form consists of a table, you can select the **Expires** row by clicking just outside and to the left of the row. After selecting it, switch to the **Layout** ribbon that appears as a sub-tab under **Table Tools**. In the **Rows & Columns** group, click the **Insert Above** button to add a new blank row immediately above the **Expires** row as shown in Figure 9-7.

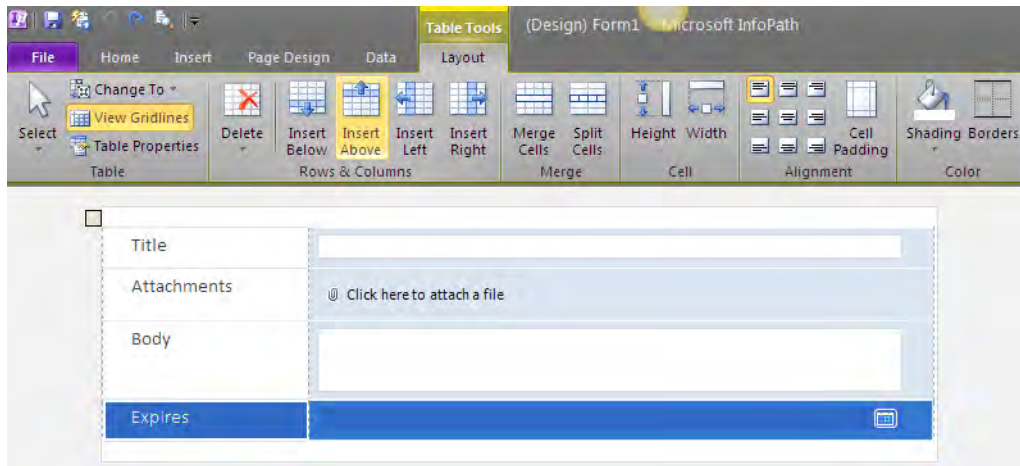


Figure 9-7. To insert a new row in the form above the Expires field, first select the Expires row.

To add the new **Publish Date** column, click and drag the column from the **Fields** panel to the first column of the new row. When you release the mouse button, you should see the **Display Name** property for the column displayed in the first column of the table and a date type field in the second column, as shown in Figure 9-8. Note that the date type field includes a button on the right side of the field that when clicked displays a popup calendar to help you select the date.

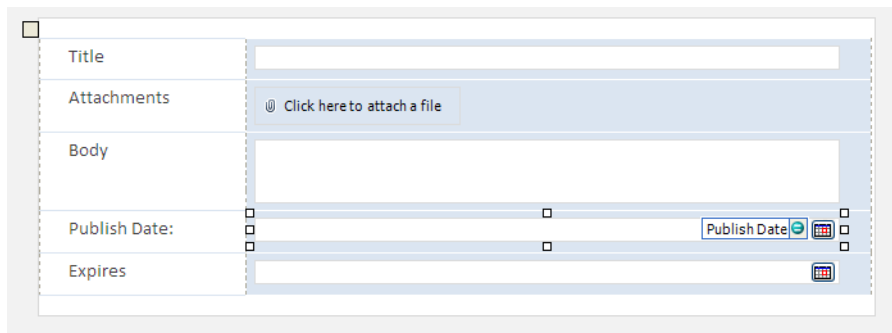


Figure 9-8. The new Announcements form with the addition of a Publish Date column

Now suppose you want to make sure that for every announcement added to the list, the publish date occurs before the expiration date. Because these are simple date fields, you would have no way to enforce this rule. However, InfoPath lets you define validation rules for your form fields. First, click in the field for which you want to add a rule. Then you can click the **Add Rule** button in the **Rules** group of the **Home** ribbon as shown in Figure 9-9.

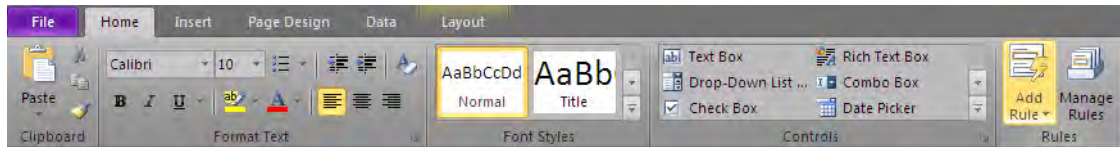


Figure 9-9. Add a rule to the form.

This command displays a drop-down list of possible rule expressions as shown in Figure 9-10. For example, if you start from the **Publish Date**, you could choose the **Is After** option because you want to raise an error when the **Publish Date** is after the **Expires** date. As you position your mouse over your desired **IF** expression, a second menu appears next to the first that shows you the actions and formatting you can use. In this case, let's begin by selecting the **Show Validation Error** action.

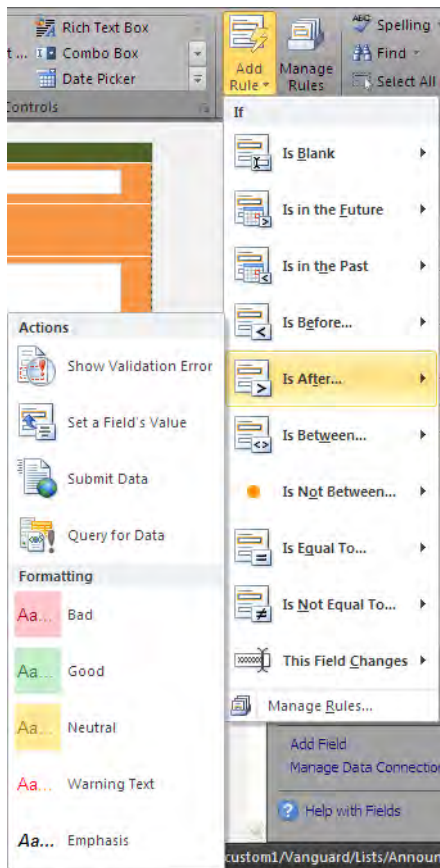


Figure 9-10. Select an If condition to fire the rule.

In the **Rule Details** dialog, you can enter an absolute value to which you can compare the **Publish Date** field, or you can click the function button to select a field as shown in Figure 9-11.

■ **Caution** You must select the field from the **Insert Formula** dialog by clicking the **Insert Field** or **Group** button and then selecting the field. You cannot simply enter the name of the field in the text box shown in Figure 9-11.

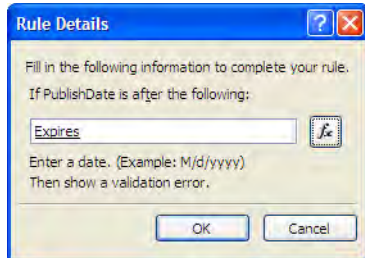


Figure 9-11. Complete the rule details.

Now complete the definition of the rule by clicking the **OK** button. Next, you can go through the **Add Rule** command a second time selecting the same **IF** expression, but this time select **Bad** under formatting. This option will format the field value with red text on a light red background, making it obvious to the user that the value is incorrect. When the user corrects the problem, the field style reverts to the default black text on a white background so you do not have to create a special rule for corrected values.

Rather than select the **Add Rule** command, you can also select the **Manage Rules** button in the **Rules** group to open a panel along the right side of the screen that shows all of the currently defined rules for the selected field as shown in Figure 9-12.

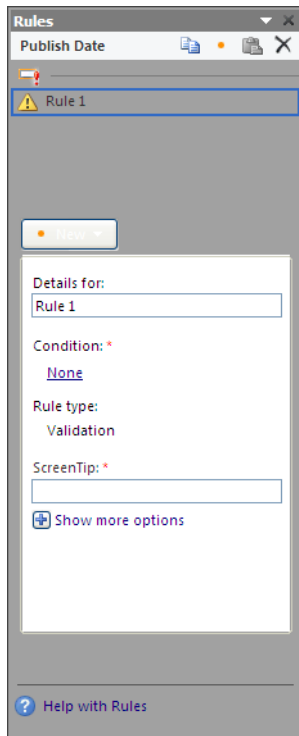


Figure 9-12. The Rules panel for the selected field, *Publish Date*

Using this panel, you can click in the text box after the label **Details for:** to define a user-friendly name for your new rule. Of course, you could leave the default rule names provided by InfoPath. Next, you must define a condition to trigger the rule. Remember that validation triggers consist of Boolean expressions that must evaluate to **True** for invalid conditions. When a field returns **True** from the validation expression, InfoPath surrounds the field with a dashed red box to show you that the field has an invalid value. However, you should also define a screen tip that displays when the Boolean expression returns a value of **True**. In the screen tip, you can tell the user why the value is not valid.

Although InfoPath Forms Services cannot display validation messages, defining them in your form definition does not create a fatal error condition when you display the form, because web-based forms simply ignore this extra information. On the other hand, if the Design Checker identifies an error, you should fix the indicated error before publishing the form template.

After defining your form rules, you can test them by using the **Preview** option, found in the **Form** group of the **Home** ribbon, as shown in Figure 9-13.

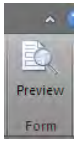


Figure 9-13. Use the Preview command to check how the form would appear in a browser.

This command opens a new window and displays your form as it would appear in a browser. You can test different field values in the form to see if the validations, actions, and formatting options you selected work as expected. Figure 9-14 shows an example of a preview of the **Announcements** form in which the Publish Date is after the Expires date. InfoPath identifies this error condition, surrounds the field with a dashed red box, and displays the screen tip box telling you that the **Publish Date must be less than Expires Date**.

Title	<input type="text"/>
Attachments	Click here to attach a file
Body	<div style="border: 1px solid #ccc; height: 40px;"></div>
Publish Date:	2/1/2010
Expires	1/25/2010

Figure 9-14. Previewing the form shows a validation error on Publish Date.

At any point, you can publish your form to SharePoint. While you could go directly to the **Publish** option in the **Backstage**, you can also access the publish options by opening the Info page as shown in Figure 9-15. In fact, since we are publishing an updated form for an existing list, the **Quick Publish** option may be your fastest and easiest choice. However, before actually publishing the form, you may want to first run the **Design Checker** to ensure that no incompatibilities exist between your form and your SharePoint web site.

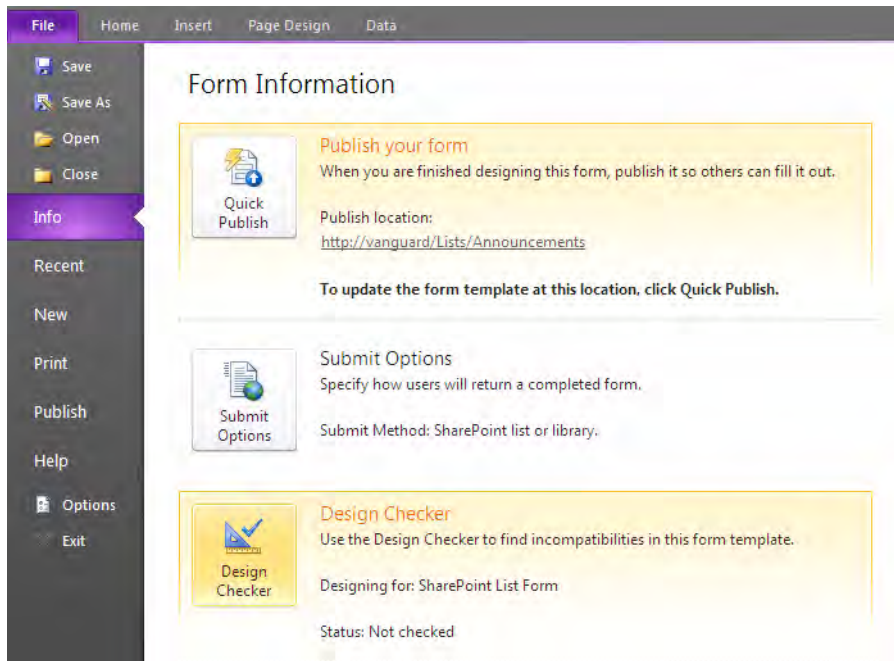


Figure 9-15. Use the Design Checker to find incompatibilities with your SharePoint web site.

When you click the **Design Checker** button, InfoPath checks for incompatibilities with the web server where the list is located. Upon completing the check, it opens a panel along the right side of the screen, named Design Checker. Here it will list any error that you would need to correct before publishing the form back to the SharePoint list. If it finds no errors, it displays the text shown in Figure 9-16.

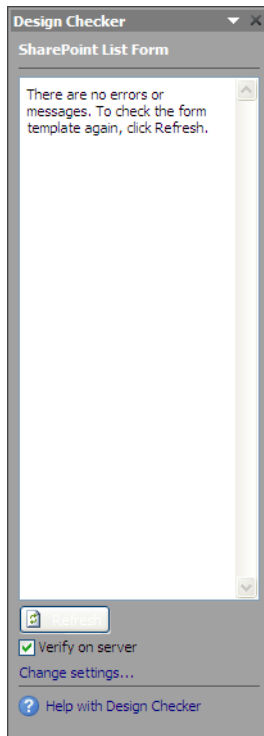


Figure 9-16. Design Checker reports any incompatibilities.

You are now ready to publish the form. Since you built this form as a SharePoint list form, you can use the **Quick Publish** feature in **Backstage's** Info page shown in Figure 9-17. In the **Publish your form** section, you can see that InfoPath already knows the **Publish location**. All you need to do is click the **Quick Publish** button to publish the form in one step.

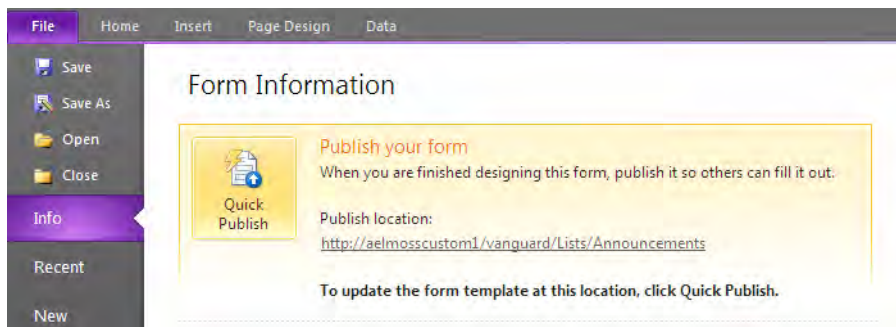


Figure 9-17. Use the Quick Publish option to publish a list form back to the site.

InfoPath then connects to the SharePoint server and locates the site and list. It then uploads the form, publishing it as the default form that users will see when they add a new item to the list or edit an existing item. If, as in this case, you added fields to the list, InfoPath also takes care of adding those fields to the list. However, if you have other list views, you will need to edit each view manually to identify where you want to add the new field. After the upload completes, InfoPath displays one last dialog, telling you that it succeeded in publishing the form. It also provides a link in the dialog that lets you open the list in your browser if you do not already have the list open.

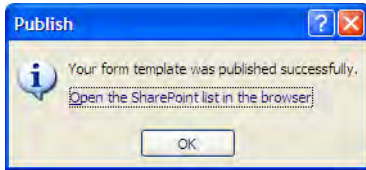


Figure 9-18. The dialog that appears after publishing completes lets you open the list in the browser.

To test the new form, click the link in Figure 9-18. Within a few moments, the list appears. Then either add a new item to the list or click an existing item to edit it; either way, you'll see the new uploaded form as shown in Figure 9-19.

Figure 9-19. View your published list form.

Now that you have seen how easily you can create a new form to edit your SharePoint lists, you might also want to look at the SharePoint Form Library template to build forms that users can fill out and save to the library. Perhaps you want to create a form that colleagues can use within Outlook to fill in data and submit information back to you. Rather than spending time here looking at these similar templates, let's see how to create a new form from a blank template.

Creating a Form from a Blank Template

To create a form from a blank template, you again begin by clicking the File tab to open InfoPath's **Backstage** area as shown in Figure 9-20. Within the **Popular Form Templates** group, select the **Blank** template. In the right side panel, InfoPath tells you that when you create a blank form, you can publish that form to either SharePoint or a network location. Click the **Design this Form** button to open a new blank form.

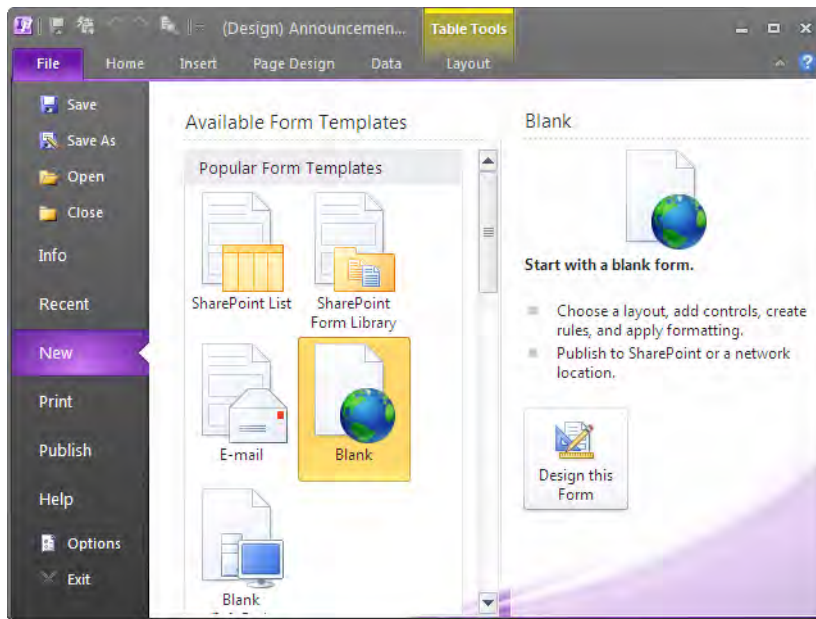


Figure 9-20. InfoPath's New page in the Backstage area

■ **Note** After you have created a form and saved it, you can reopen the form by using the **Recent** area of the **Backstage**. This option displays a list of the recent templates you have worked with, in the main part of the page. You can click any of these templates to reopen them and continue working on them. If it has been some time since you last worked on the template, you may need to click **Open** in the **File** menu to navigate to the network or SharePoint location where you saved the template.

The redesign of SharePoint to use Ajax has eliminated in InfoPath 2010 and SharePoint 2010 many of the control limitations of SharePoint Server 2007 when creating forms. Therefore, you no longer have to remember to check a box like the **Enable browser-compatible features only** check box. The controls you see in InfoPath when creating your new form are all available within SharePoint 2010.

As you can see in Figure 9-21, the blank template consists of a title area at the top of the page and a body section. If you click anywhere within the body section, a new ribbon, named **Table Tools – Layout** appears at the top of the window. This body section is just a single-cell table. While you can use the **Split Cells** command in the **Merge** group of the **Layout** ribbon to divide the body area into smaller cells to help lay out your page, there is another option that you may want to try first.

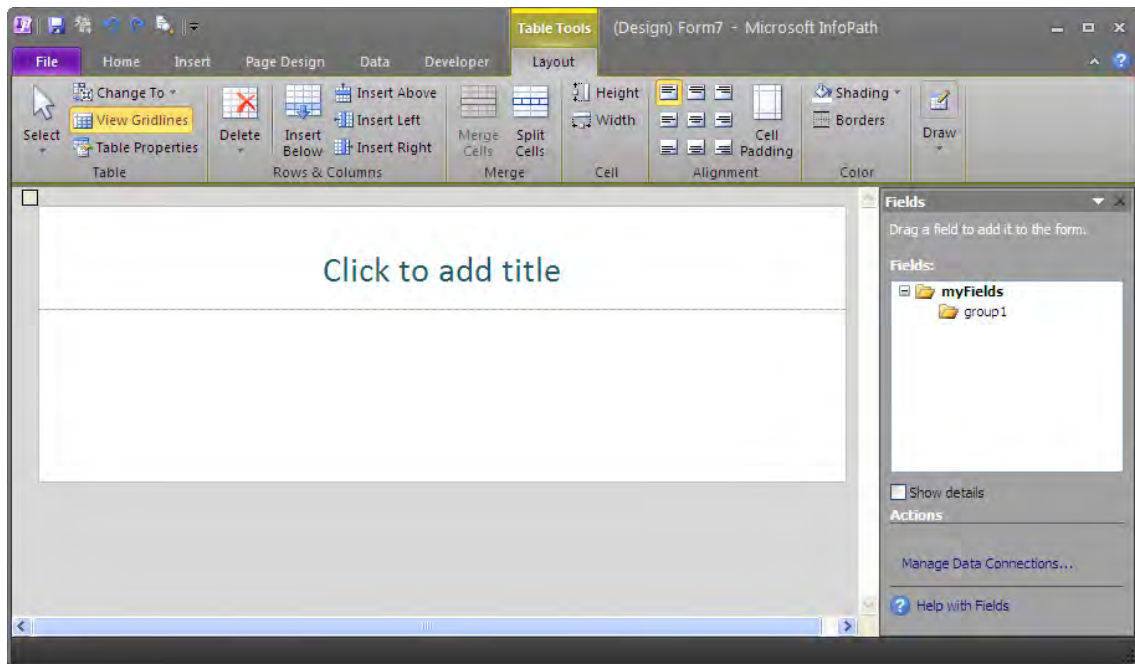


Figure 9-21. InfoPath's blank SharePoint form template

Click the **Page Design** ribbon. Then, from the **Page Layouts** group, click the **Page Layout Templates** button. This option opens a dialog offering the following starting page layouts:

- **Title Only:** This option corresponds to the default layout.
- **Title and Heading:** This option adds a header row beneath the title area and above the body table area.
- **Title and Body:** This option includes a text area between the title and the body areas where you can provide additional information to the user filling in the form.
- **Color bar:** This page layout is similar to the **Title Only** layout but with the addition of a narrow column along the left side of the form that you can display in any color to add a little style to your form.
- **Offset Body:** In this layout, the body section of the form is offset a small amount from the left edge of the form but otherwise appears similar to the **Title Only** form.

Figure 9-22 shows the **Page Layout Templates** dialog.

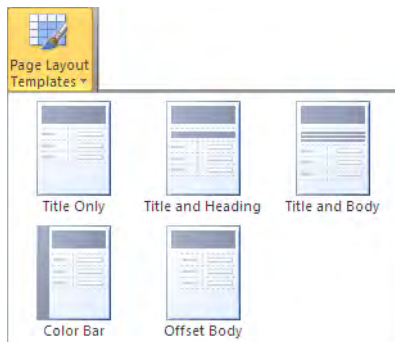


Figure 9-22. InfoPath's *Page Layout Templates* dialog

If you want to change your form layout before you begin, you should first select and delete the default form. Otherwise, selecting a form from the **Page Layout Templates** inserts the template into the existing form template. (You could use this method to build a form quickly that consists of a series of form templates that each have their own heading and body section.)

To delete the current template so you can begin with one of the **Page Layout Templates** in Figure 9-22, click anywhere within the default template. A small square appears in its upper left. Click in this square to select the entire template. If you right-click this square, the drop-down menu shows options that you can perform on the entire template. The **Delete** option opens a fly-out menu of three sub-options. Select **Table** from this fly-out to delete the entire form, as shown in Figure 9-23.

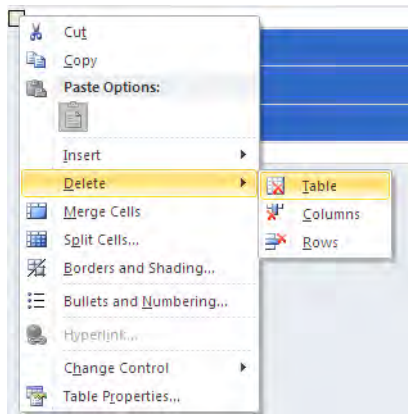


Figure 9-23. Delete the default template to begin your form with a different template.

Now you can go back to the **Page Layout Templates** dialog to select the layout that you want to use. For this example, we will build a form used by employees to request time off from work. Therefore, let's use the **Title and Body** page layout to start our form design.

To begin adding content to your form, you may want to provide a title at the top of the form. Click the text **Click to add title** and enter the title **Request for Absence Form**. The page template preformats the title area with a larger version of the Calibri font. However, you can select your text and change any of the font characteristics including the font type, size, color, and any of the other font styling options.

■ **Note** While it is often tempting to underline titles, remember that underlined text on a web page often indicates to users that the text acts as a hyperlink. For this reason, you probably do not want to underline your form titles. Rather than underline, use other font characteristics to make your title stand out, such as a bold font using one of your site branding colors. In addition, I recommend using a generic font like Arial, which appears similar to Calibri so that all viewers of your site see the form exactly as you designed it even if they do not have the font Calibri on their local system.

The body text area provides an ideal place to display instructions for the user to fill in the form. In the case of this Request for Absence Form, you can provide an instruction paragraph such as the following:

You must fill in a Request for Absence and submit the completed form to your supervisor in advance of any planned absence. Do not use this form for sick-time or other emergency leave situations. You can only make requests for absence in units of full or half days.

At this point, your form should look similar to Figure 9-24. Note that the area beneath the body text says **Add tables**. In the next section, you will begin building the interactive portion of the form using tables in this area.

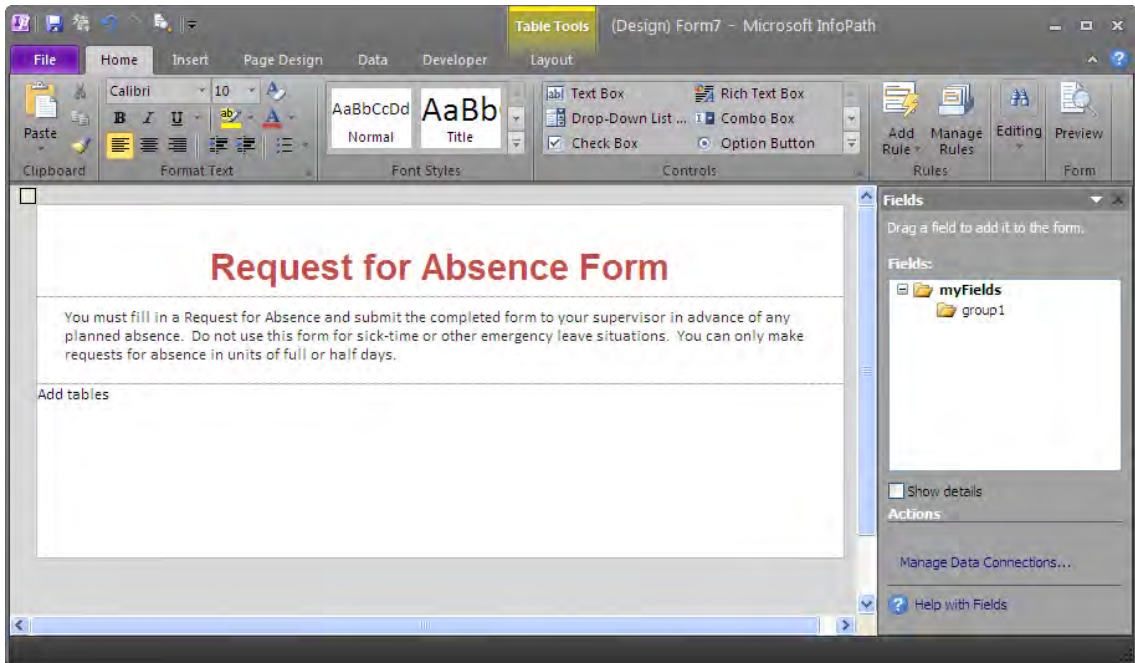


Figure 9-24. The start of a new form using the Title and Heading page template

Next, you need to start building the rest of the form. While you could simply start adding text along with the various input controls for the users to enter data, it would be difficult to arrange the input fields and controls on the form neatly. Moreover, even after you managed to add spaces or tabs to try to position each item where we wanted it, a simple change of the font type or size could instantly rearrange the form.

Tables can provide the underlying structure for a form that can retain the relative positions of text and fields even as you change fonts. Tables also provide an ordered row and column structure that most forms require. Once placed on a form, a table's cells can be merged and split to create different areas to display information and to prompt for different types of text. You can also add more rows and columns to a table as you need to expand or shrink the number of fields on the form. However, you may want to consider how you want to lay out the controls on the form first and then begin with a table that best matches your overall control layout.

Figure 9-25 shows the **Table** dialog available from the **Insert** ribbon. Note that InfoPath offers three basic table layouts:

- Two Column
- Single Column
- Four Column

InfoPath also provides a selection of different styles that run horizontally within each basic layout. The individual columns also provide a unique combination of headings as you examine the style from left to right. The first column provides both a main heading and a subheading before the start of the table. The second column provides just a main heading at the top of the table. The third column provides just a subheading and the last column provides only the table with no headings.

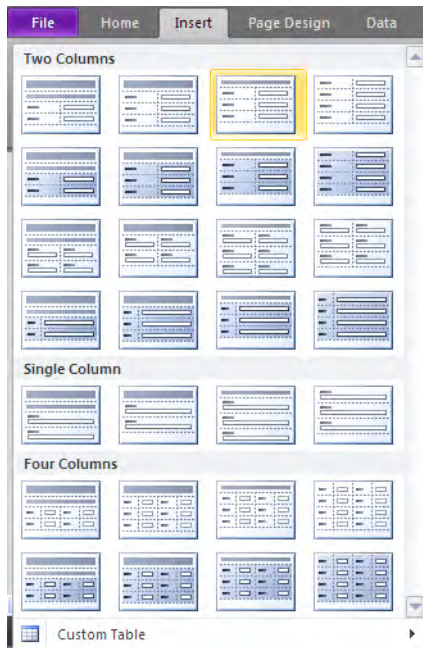


Figure 9-25. InfoPath offers a wide selection of table templates or the ability to custom-define a table.

Of course, you can always use multiple tables for different sections of your form if the structure from one section changes greatly from the previous section. In fact using multiple tables can save time over trying to split or merge columns of a single table to achieve the same visual layout of controls. In addition, you can place one table inside the cell of another table.

As you build your form from top to bottom, you might start with a table template that includes both a main heading and a subheading for the first set of controls. Then, in the next section of controls, you may only want a subheading before the start of the table. In the third section, you may also want to begin your table with a subheading but you might want a different number of columns. In this way, you can easily build your form from the top down, for each data section adding individual tables that already have the exact number of columns you need.

However, if the predefined table templates still do not meet your needs, you can click the option **Custom Table** at the bottom of the **Table** dialog to build your own unique table. Figure 9-26 shows the custom table dialog.

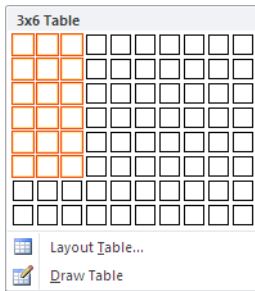


Figure 9-26. Custom-define a table by dragging through the grid of boxes.

In this dialog, you can use your mouse to drag through the grid of squares to indicate the number of columns and rows you want in the table. For example, if you want a three-column table, a table template not shown in Figure 9-25, you can drag through three of the columns and several of the rows as shown in Figure 9-26. Does it matter how many rows you add to the initial table? No. With any table, you can add another row by placing your cursor in the rightmost cell of the last row and pressing the **Tab** key to add another row moving the cursor to the first column in that new row.

If your table has a large number of rows, rather than inserting rows individually, you may want to build your initial table with all the rows you expect to need. From the dialog in Figure 9-26, click the **Layout Table** option to display a dialog that lets you enter the number of columns and rows you want in the created table. Figure 9-27 shows the **Insert Table** dialog about to create a three-column table with 50 rows.

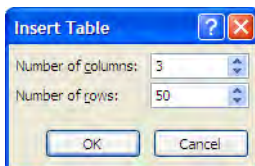


Figure 9-27. For larger tables, define the number of columns and rows directly.

■ **Tip** Do you want to increase the height of the cell? Place the cursor after the last character in the cell and press **Shift+Enter**.

■ **Tip** To change the color of a table cell, place the cursor in the cell and right-click. Select the option **Borders and Shading**. Click the **Shading** tab and select a new color (or even no color if your form uses a background color or image).

■ **Tip** To change the color or style of a border on the table, click anywhere within the table. You should see a small gray square in the upper-left corner of the form. Right-click this square and select **Borders and Shading**. Click the **Borders** tab. Select the line style, color, and width of the line. Then set the table's border lines, by either using the buttons in the **Presets** section or clicking the buttons or individual lines in the border diagram.

How Do You Decide How Many Columns You Need?

When laying out your form using tables, you need to determine how many columns your table needs. To determine how many columns you need, you need to know what goes into a column. Let's suppose you plan to add a few text boxes with labels before them to aid users in knowing what information to place in each text box. Typically, you should place the label before the text box in a separate column from the text box itself. This technique gives you more control over the spacing between the label and the text box. Thus, you already need two columns for one field.

Then, if you want two text boxes on the same line, such as for first and last name, you might need three or four columns depending on whether each text box has its own label. In such cases, some form designers recommend that you place a spacer column between the two sets of columns. By adding a spacer column, you can easily control the amount of space between the text box of the first column set and the label of the second column set, even when you use right-justified label text.

Thus, you can see that the number of columns you need for a typical form can grow quite rapidly. You may need as many as five table columns in one row of two data columns and eight table columns for three data columns in the next row. How can you create a table to handle the situation in which every row requires a different number of columns? By splitting and merging cells or by inserting individual tables for each row.

No matter which table template you select for your form, it seems that you always have a portion of the form that requires an exception to the number of columns. Whether you need more or fewer columns for a line, it may be more effort to create multiple tables just for one exceptional row. This situation is where the **Merge Cells** and **Split Cells** options from the **Merge** group of **Table Tools Layout** can quickly let you change the number of columns in a single row or even the number of rows within a single column of one row.

To merge cells, you select two or more cells by clicking the first cell and dragging through the cells you want to include. You can select cells vertically, horizontally, or both at the same time when you merge cells. When you merge the cells, the interior cell walls disappear, and you end up with a single large cell. You might do this to insert a sub form, image or other large object inside the structure of your table.

Similarly, you can split cells horizontally or vertically. Simply select the cell you want to split, and select the number of rows and columns into which you want to split the cell. You can even select several cells at once and redefine the number of rows and columns the selected cells should have. For example, you could select three columns and two rows of cells by dragging through them and then select the **Split Cells** option. In the **Split Cells** dialog, you could then specify two columns and three rows to alter the layout of selected cells completely as long as you select the check box **Merge cells before split**. This option takes the cells in the original three columns and two rows and creates a single large cell. It then splits this cell into the two columns and three rows that you specified.

■ **Caution** If you plan to restructure your cells by splitting and merging cells, you might want to do that before adding text to the cells.

Finally, the **Layout** ribbon also allows you to add rows and columns to the table in case you misjudged your requirements when creating the table. Of course, if you merely want to add another row to the end of your table, just place the cursor in the rightmost cell of the last row in the table and press that **Tab** key. Similarly, you can delete rows by dragging through them to select them and pressing the **Delete** key or by right-clicking in any cell and selecting **Delete** and then **Columns** or **Rows** to remove the current column or row.

To begin our simple Request for Absence form, let's add a four-column table. In this table, we will use columns 1 and 3 to hold field labels and columns 2 and 4 to hold field values. Figure 9-28 shows the start of the table. It includes the field labels, but where do we get the field values?

The screenshot shows a web form titled "Request for Absence Form". Below the title is a paragraph of instructions: "You must fill in a Request for Absence and submit the completed form to your supervisor in advance of any planned absence. Do not use this form for sick-time or other emergency leave situations. You can only make requests for absence in units of full or half days." Below this is a table with four columns. The first column contains field labels, and the other three columns contain "Add control" buttons. The table is as follows:

<input type="checkbox"/>	Employee Name:	Add control	Employee #:	Add control
	Date Requested - From	Add control	Date Requested - To	Add control
	Total Hours Requested	Add control		Add control

Figure 9-28. The initial table with labels added

The Task Group: Controls

The **Controls** group of the **Home** ribbon displays all the controls that you can place on your form. Figure 9-29 shows the available controls you can use out-of-the-box. InfoPath divides these controls into three groups: **Input**, **Objects**, and **Containers**. Input controls allow the user to enter data or select data. Object controls either perform an action, as the button control does, or hold specific files such as pictures. You use containers to hold other controls.

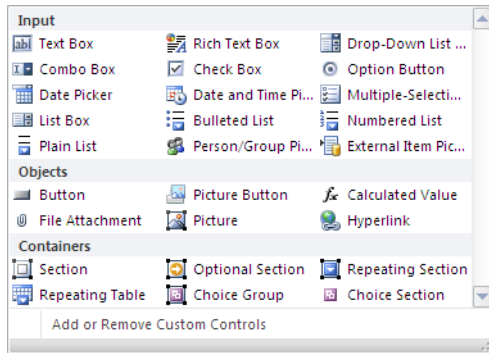


Figure 9-29. InfoPath's control dialog

I will not spend a lot of time talking about each of these controls here. The purpose of most of these controls should be obvious to most of you, especially among the Input controls. The use of even the object controls should be easy to determine based on each one's name. The **Container** controls allow you to group other input and object controls into sections. You might use sections to do any of the following:

- Determine which controls to display to a user based on entries in previous controls.
- Identify optional sections that the user can include or ignore.
- Provide for a repeating set of input objects or even an entire table where the number of repeated items is unknown, such as the number of detail records in a single order.
- Allow the user to choose which section to include in a form.

Let's continue building the Request for Absence form by adding the text box control in the second column of the first row to allow the user to enter their employee name.

To add a control to the table, you can begin by clicking in the cell where you want to add the control. Then open the **Controls** dialog from Figure 9-29 and double click the **Text Box** control. To view the properties of any control, right-click the control after adding it to the form (you can double-click or click and drag the control to position it on the form within a cell of a table). From the drop-down menu, select the **Properties** option at the bottom of the list. (All controls have a Properties option.) A Properties dialog appears, as shown in Figure 9-30.

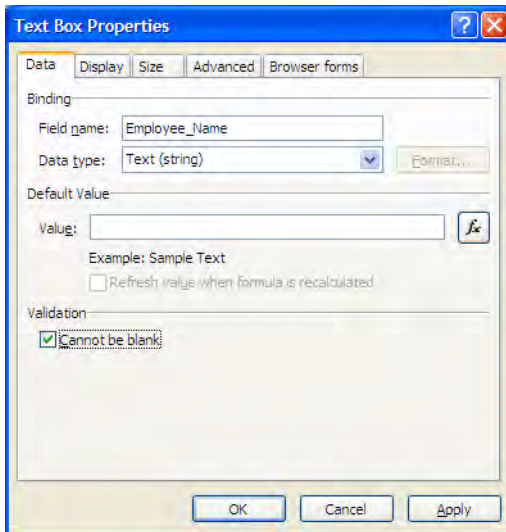


Figure 9-30. The Data page of the Text Box Properties dialog

The **Properties** dialog box has many userselectable properties. Therefore, it separates the properties by type and places them on separate tabbed pages. Most controls have similar properties. The **Data** page has the most differences from one control to another.

On the **Data** page of this dialog, you begin by defining the field name to which you want to bind this control. If you did not start with an existing data source, InfoPath will create a XML schema to manage the data for the form. As you will see later in this chapter, you can then map the XML schema to list columns to make it easy to examine and work with the collected data.

The second item you must specify is the **Data Type** for the current field. The drop-down list for this property shows all the available data types that InfoPath supports. Keep in mind that selecting the proper data type can be part of your data validation. For example, if you want users to enter a quantity such as a number of items ordered consider using the integer data type rather than just a simple number or even a string. By defining the data type as an integer, you make sure the user cannot enter characters, nor can they enter a decimal value. Similarly, when dealing with dates, do not use the Date/Time type unless time is important for the information tracked. If you only use the date, choose the Date type.

While the Text Box control does not let you define a format for the data, many of the other data types do. For example, Date and Date/Time data types allow you to select from a list of available date and time formats for your data. For numeric data, you can define the number of decimal places and the thousands separator (also known as a digit-grouping symbol). If the field represents a monetary value, you can also select the currency symbol you want to use.

Next, you can provide a default value. You can either supply an absolute value as the default by entering it in the text box, or create a function by using the function button to calculate the default value. While you can define the default value to be a function of one or more other fields in the current form instance, you should be aware that the user might enter data in a different sequential order, leaving the dependent fields undefined. Furthermore, for a new form instance, the referenced fields will not have values yet unless they, too, have default values. For example, suppose you have two dates on a form representing a date range. You could default the start date to today. Then you could default the end date of the range as the start date plus 14 days or two weeks. Because the referenced field for the end date

calculation has a default value that you can calculate, both dates can successfully use a calculated default value.

Finally, the **Text Box** dialog also lets you determine whether a user will be able to leave the current field blank. If you select this check box, a red asterisk appears to the right of the field on the form as a reminder that the field must have a value. Other controls may have these as well as additional properties on the Data page of the properties dialog.

For example, the Check Box and Option Button controls have an interesting property that may surprise you. When you add a Check Box control to a form, you would expect that each check box would support a Boolean value of **True** or **False**, or perhaps the integer variation on this, 1 or 0. However, if you open the **Properties** dialog box and select the Data tab, you have these values, but you can also change the data type associated with the check box. In fact, the control supports several types of values, ranging from text to integers, dates, and even hyperlinks. You still can only save two values, and both values must have the same data type. However, if you would rather save one of two possible dates, depending on whether the user selects the option, or one of two possible decimal values, you can. Figure 9-31 shows an example where a check box returns the discount to apply to a sale depending on whether the buyer has a frequent buyer card. In this case, the frequent buyer cardholder gets an extra 20% on top of the 10% off sale price.

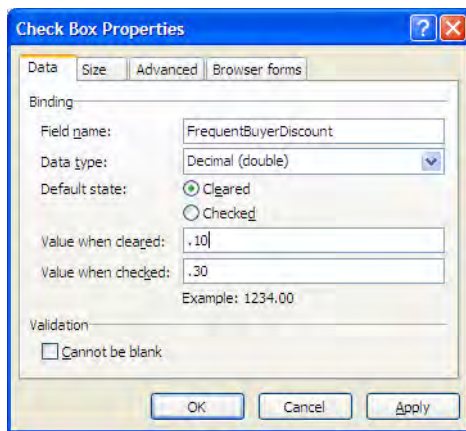


Figure 9-31. An example of the data properties for a check box data control

Similarly, the Option Button control returns a single value no matter how many buttons you associate with the instance of this control. By default, these buttons return an integer ranging from 1 to n , where n represents the number of option buttons in the group. However, you can return letters, text strings, whole numbers, decimals, or dates instead.

Another interesting feature of controls, *conditional formatting*, lets you change the appearance of the control's contents based on a condition that you define as a Boolean expression. You can access this feature by adding a new rule using the **Add Rule** option in the **Rules** group of the **Control Tools Properties** ribbon. Figure 9-32 shows that rules can consist of validations, formatting, or actions. In this case, choose **Formatting**.

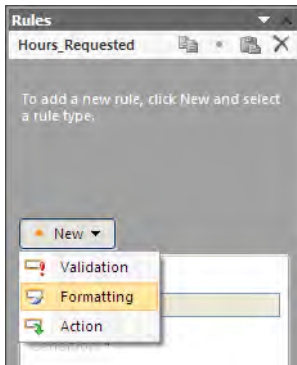


Figure 9-32. Add a formatting rule to the input control `Hours_Requested`.

The first step in building a formatting rule is to define the condition that must exist before applying the new formatting. In our Request for Absence form, one of the fields that we will need is a text box formatted to hold an integer number representing the number of hours requested. Suppose your company has a rule that generally grants any requests for less than 8 hours. We could create a rule that compares the value of the field `Hours_Requested`. When that value is less than or equal to 8 hours, we want to change the font color of the field value to green. Therefore, we define the condition expression as shown in Figure 9-33.

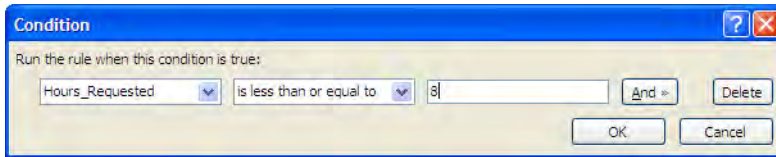


Figure 9-33. Define a condition for the formatting rule.

■ **Tip** You can use conditional formatting to make fields read-only or even invisible based on a predefined condition, an option found at the bottom of the **Formatting** area.

Figure 9-34 shows that after defining the rule condition, you can then use the buttons in the **Formatting** area to define a special style for the field.

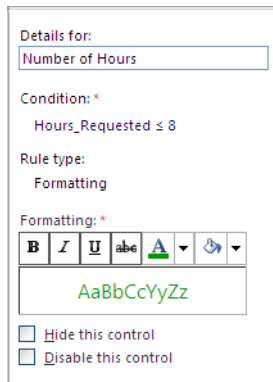


Figure 9-34. Define a formatting definition for the Number of Hours field.

You can define more than one conditional formatting rule. For example, you might use another color to indicate requests of more than one day but not more than a week. Finally, you might format anything longer than a week with a third color.

At first you might not give much thought to the order in which you define these rules. However, InfoPath executes these rules sequentially from the top of the Rules list. Therefore, if you defined the first two rules in a different order, you will not get the desired result. In fact, if the rule comparing the number of hours to 40 occurs before the rules comparing the number of hours to 8, the second rule never fires because all number less than 8 are also less than 40 and therefore only the first rule fires. Therefore, you have to make sure that InfoPath executes the 8-hour rule first by placing it physically before the 40-hour rule, as shown in Figure 9-35. If you enter the rules in a different order, you can use the drop-down menu that appears when you position your mouse over any of the rules to move a rule up or down in the list.

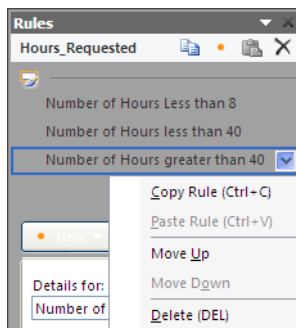


Figure 9-35. Define the order in which the rules fire.

As you can see in this figure, you can also delete existing rules if you no longer need them. You can also copy and paste rules that are similar and may be easier to modify than to create from scratch.

Using a similar technique, you can also apply data validation rules to any field. Using data validation to identify bad data values at the form level before submitting data to the data source allows the user entering data into the form to correct problems immediately. Updating bad data after submitting it to a data source or even at a later time generally requires more time and expense than immediately addressing it.

A validation rule also requires a Boolean expression. In this case, you must create a Boolean expression that identifies values that you do not want to accept rather than the correct values. You might think of this as testing for failure, and I suppose it is. You can then define a tooltip to explain the problem. When the user enters a value for which the Boolean validation expression returns **True**, InfoPath surrounds the offending field with a red dashed box. As the user places the mouse over the offending field, the tooltip then indicates why InfoPath has flagged the value as shown in Figure 9-36.

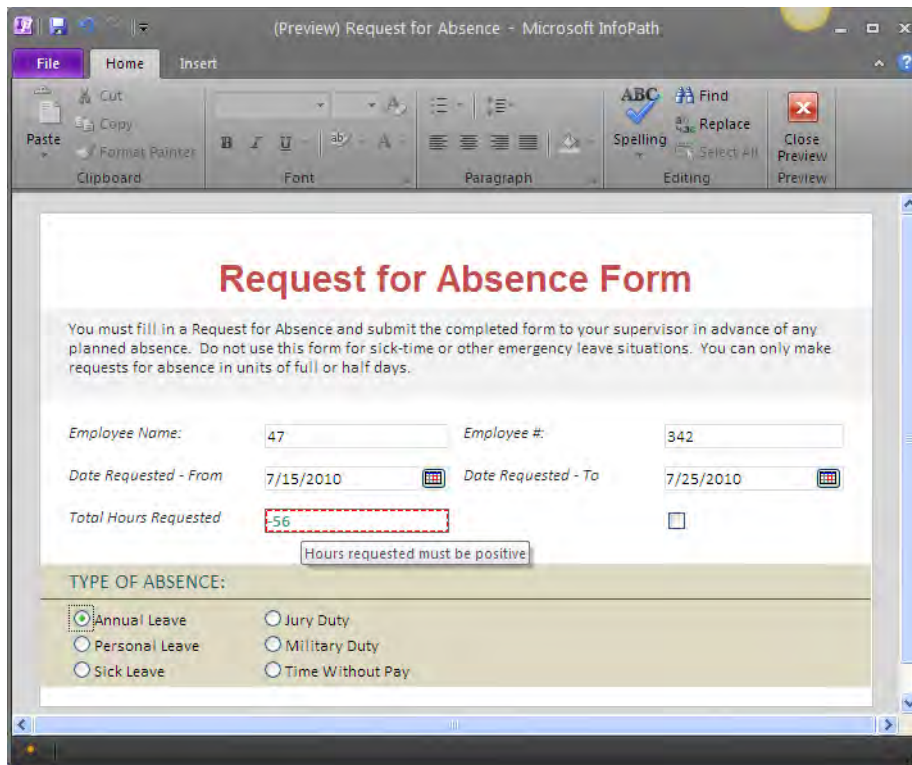


Figure 9-36. Data validation traps bad data as it's entered.

The last feature of controls I'll examine here is the ability to add rules to your form that can display messages, set values of other controls, and even execute other actions based on the values entered into the control. You begin defining an action rule much as you did for the last two features, by defining a Boolean condition in the rules manager to specify when you want the rule to fire. Then you can define an action. Possible actions include the following:

- Set a field's value.
- Perform a query for data.
- Submit data.
- Send data to another web part.

Each action requires additional configuration data. For example, to set a field's value, you must identify the field on the current form you want to set and the value you want use. You can use an absolute value or create a calculated value from other fields on the form.

As with conditional formatting, you can specify multiple action, but must carefully specify the order of the actions. However, unlike conditional formatting, you can disable and enable actions without having to delete and read action rules.

The Task Group: Data Sources

The **Data Sources** task group lets you examine your data sources. In the case where you build the data source while you build the form, the **Data Source** panel displays the name of each field you added along with selected properties of the field, as shown in Figure 9-37.

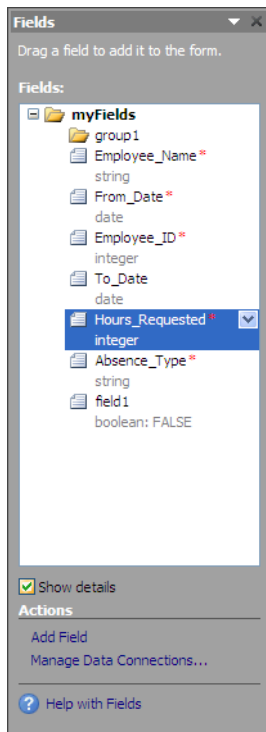


Figure 9-37. View the data source structure.

If you use a different data source, such as an Access or SQL database, you will see the fields used in those respective databases.

The Task Group: Design Checker

The **Design Checker** panel is especially useful when you design a web-based form used with InfoPath Forms Services. It identifies and lists any errors on your form that prevent your form from working properly. It also lists warnings such as the definition of validation messages for some of your form's fields. To run the **Design Checker**, go to the Info page of the **BackStage** area (**File** menu) and click the **Design Checker** button as shown in Figure 9-38.

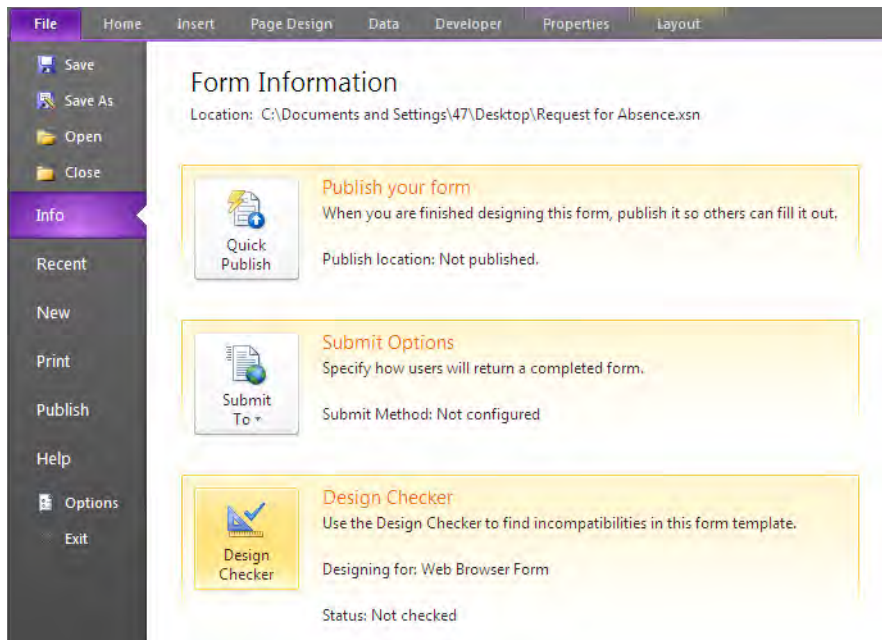


Figure 9-38. Selecting the Design Checker from the Backstage

As an example, InfoPath Forms Services cannot display validation messages.

■ **Note** For those of you who may be wondering what InfoPath Forms Services is, SharePoint Server includes several services to allow users to interact with objects that range from InfoPath Forms to Excel worksheets and even Access applications. These services are bundled with the Enterprise version of SharePoint Server 2010 and can be configured through Central Administration.

Therefore, defining such messages in your form's field definitions creates a warning message. The reason InfoPath does not flag validation messages as a fatal error condition is that when InfoPath displays the form as a web-based form, it simply ignores this extra information. On the other hand, if the Design Checker identifies a fatal error such as an unsupported control type, you must fix the indicated error before publishing the form template. Figure 9-39 shows sample results of the Design Checker in which it found no incompatibilities.

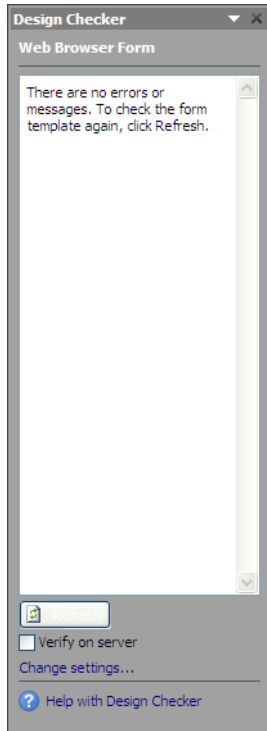


Figure 9-39. Design Checker identifies errors and warnings before publishing a form.

By default, the Design Checker validates the form as if it were running within a generic web browser. However, if you click the link **Change Settings**, you can change the compatibility settings to validate the form against earlier InfoPath editions or against the new InfoPath Filler application included with Office.

Steps to Build the Request for Absence Form

Here are the steps to re-create the Request for Absence form shown earlier in Figure 9-8:

1. Open InfoPath and select the **Blank** template from the **Popular Form Templates** in the **New** page of the **BackStage** area.

2. With a blank form open, make sure to display the **Page Layout Templates** in the **Page Layouts** group of the **Page Design** ribbon.
3. Use the default page layout or select the layout by right-clicking the small box in the upper left corner of the page layout and selecting **Delete ► Table**. Then choose a page layout such as the **Title and Heading** layout.
4. Click in the row that says **Click to add title** and enter **Request for Absence Form**.
5. Using the options in the **Format Text** group of the **Home** ribbon, make the text **Arial Bold 22 pt** and centered.
6. Click in the second row where it says **Click to add heading** and enter the following text:

You must fill in a Request for Absence and submit the completed form to your supervisor in advance of any planned absence. Do not use this form for sick-time or other emergency leave situations. You can only make requests for absence in units of full or half days.
7. With your mouse pointer still in this second row, click **Shading** in the **Color** group of the **Table Tools Layout** ribbon and select one of the lighter shades of gray to fill in this row's background.
8. Click where the form says **Add tables**. Then open the **Insert** ribbon and select a four-column table grid with no heading.
9. In the first column, first row, enter the text **Employee Name:**
10. In the first column, second row, enter **Date Requested - From:**
11. In the first column, third row, enter **Total Hours Requested**
12. In the third column, first row, enter **Employee #:**
13. In the third column, second row, enter **Date Requested - To:**
14. In the second column of the first row, add a **Text Box** from the **Controls** panel found in the **Controls** group of the **Home** ribbon.
15. Right-click the new control and select **Text Box Properties** from the drop-down menu.
16. In the **Data** page of the **Text Box Properties**, enter the field name **Employee_Name** and indicate that the field cannot be blank. Click **OK** when done.
17. In the fourth column of the first row, add a **Text Box** from the **Controls** panel found in the **Controls** group of the **Home** ribbon.
18. Right-click the new control and select **Text Box Properties** from the drop-down menu.
19. In the **Data** page of the **Text Box Properties**, enter the field name **Employee_ID** and indicate that the field cannot be blank. Click **OK** when done.

20. In the second column of the second row, add a **Date Picker** from the **Controls** panel found in the **Controls** group of the **Home** ribbon.
21. Right-click the new control and select **Date Picker Properties** from the drop-down menu.
22. In the **Data** page of the **Date Picker Properties**, enter the field name `From_Date` and indicate that the field cannot be blank. Also, change the data type to: **Date (date)**. Click **OK** when done.
23. In the fourth column of the second row, add a Date Picker from the Controls panel found in the Controls group of the Home ribbon.
24. Right-click the new control and select Date Picker Properties from the drop-down menu.
25. In the **Data** page of the **Date Picker Properties**, enter the field name `To_Date`. Also, change the data type to **Date (date)**. Click **OK** when done.
26. In the second column of the third row, add a Text Box from the Controls panel found in the Controls group of the Home ribbon.
27. Right-click the new control and select Text Box Properties from the drop-down menu.
28. In the **Data** page of the **Text Box Properties**, enter the field name: `Hours_Requested` and indicate that the field cannot be blank. Also, change the data type to **Whole Number (integer)**. Click **OK** when done.
29. Next, open the Control Tools Properties ribbon and select Manage Rules from the Rules group.
30. Click in the field **To-Date**. Then click **New** in the **Rules** panel to start a new **Validation** rule. Provide a name for the rule, such as **Date Sequence Validation**. Then click the word **None** under **Condition** to open the **Condition** dialog. Create the condition: `To_Date is less than From_Date`. Then click the **And** button and enter the rule: `To_Date is not blank`, because you want to allow this field to be blank if the absence is only for one day. Click **OK** to complete the condition.
31. For the screen tip, enter the text `Enter a date on or after From_Date`.
32. Next, click the **Hours_Requested** field.
33. Click **New** in the **Rules** panel to start a new **Validation** rule. Let's call this one **Number of Hours Less than 0**. Then enter the condition: `Hours_Requested is less than 0`. Provide the screen tip: `Hours requested must be positive`.
34. Click **New** in the **Rules** panel to start a new **Formatting** rule. Let's call this one **Number of Hours Less than or equal to 8**. Then in the formatting section select bold and change the font color to green.
35. Click **New** in the **Rules** panel to start a new **Formatting** rule. Let's call this one **Number of Hours Less than or equal to 40**. Then in the formatting section select bold and change the font color to yellow.

36. Click **New** in the **Rules** panel to start a new **Formatting** rule. Let's call this one **Number of Hours Greater than 40**. Then in the formatting section select bold and change the font color to red.
37. Now, to allow the user to enter the type of absence, click below the last row of the current table and then select a **Two-column table with SubHeading** from the **Tables** panel drop-down in the **Tables** group of the **Insert** ribbon.
38. Change the heading to **Type of Absence:** and, with the text selected, click the left-aligned button in the **Home** ribbon's **Format Text** group.
39. Click in the first column of the first row of this table and click the **Option Button** control from the **Control** drop-down in the **Home** ribbon.
40. In the dialog that pops up for the number of option buttons to insert, select 6 and click **OK**. Notice that all the buttons appear in the first cell with no text after them. However, if you hover over any of them, they all have the same field name. Therefore, you can right-click any of them and select **Option Button Properties** from the drop-down menu.
41. Click and drag the button on the bottom to column 2, row 3 of the table. Click to the right of the option button and directly enter the text **Time Without Pay**.
42. Click and drag the button on the bottom to column 2, row 2 of the table. Click to the right of the option button and directly enter the text **Military Duty**.
43. Click and drag the button on the bottom to column 2, row 1 of the table. Click to the right of the option button and directly enter the text **Jury Duty**.
44. Click and drag the button on the bottom to column 1, row 3 of the table. Click to the right of the option button and directly enter the text **Sick Leave**.
45. Click and drag the button on the bottom to column 1, row 2 of the table. Click to the right of the option button and directly enter the text **Personal Leave**.
46. Click to the right of the option button in row 1, column 1 and directly enter the text **Annual Leave**.
47. Eliminate any extra blank lines in row 1, column 1 so all the cells are only as high as the option button itself.
48. Right-click the option button in row 1, column 1 and select **Option Button Properties** from the drop-down menu. In the **Data** page, change the name to **Absence_Type**. Change the **Value when selected** to 1. Click **OK** to finish changing this option button.
49. Right-click the option button in row 2, column 1 and select **Option Button Properties** from the drop-down menu. In the **Data** page, change the **Value when selected** to 2. Click **OK** to finish changing this option button. Notice that the name property has already been set to be the same as the previous option button. All option buttons defined together as a group must have the same name.

50. Right-click the option button in row 3, column 1 and select **Option Button Properties** from the drop-down menu. In the **Data** page, change the **Value when selected** to 3. Click **OK** to finish changing this option button.
51. Right-click the option button in row 1, column 2 and select **Option Button Properties** from the drop-down menu. In the **Data** page, change the **Value when selected** to 4. Click **OK** to finish changing this option button.
52. Right-click the option button in row 2, column 2 and select **Option Button Properties** from the drop-down menu. In the **Data** page, change the **Value when selected** to 5. Click **OK** to finish changing this option button.
53. Right-click the option button in row 3, column 2 and select **Option Button Properties** from the drop-down menu. In the **Data** page, change the **Value when selected** to 6. Click **OK** to finish changing this option button.
54. When you are done changing the properties of the option buttons, you may want to adjust the row height or column widths. You may also want to add shading to some of the rows or columns. However, you have completed the essentials of your Request for Absence form.

Wow! That was a lot of work, but you have completed the Request for Absence form, and you did it without writing a single line of code. Chapter 10 covers how to publish forms such as this one in detail.

Other Available InfoPath Templates

While we focused in this section on created an InfoPath form from the blank template, InfoPath provides several other interesting form templates from which to choose.

- **Web Service:** This template assumes that you want to design a form that queries and submits data to a *web service*. You can think of a web service as an application that uses XML to transfer information between a client and a server.
- **Database:** This template lets you build a form template that queries and submits data to an Access or SQL database.
- **XML or Schema:** This template starts a form by using an existing XML document or XML schema as the data source.
- **Data Connection File:** This template enables you to use a SharePoint data source that you previously defined in a data connection file when creating your form.
- **SharePoint List:** By starting with this template, you can create a custom form that users will see when viewing or editing items in a SharePoint list. This form provides a great way to customize the plain form that SharePoint auto-generates when users add new items to a list or edit the properties of an existing item.
- **Document Information Panel:** Similar to SharePoint List, the template lets you customize the form used to edit the properties of a Microsoft Office document stored in a SharePoint document library.
- **E-mail:** This template lets you create a form that you want to send to users through e-mail and allow them to complete the form and send it back.

InfoPath 2010 also provides templates to create forms compatible with InfoPath 2007.

Finally, InfoPath 2010 allows you to convert Word forms and even Excel forms into InfoPath forms using the **Convert Existing Form** template that is the focus of the next section.

Migrating Your Existing Word Forms into InfoPath

Suppose you already have a form created using Word. You may have spent a great deal of time creating the formatting of that form to make it look exactly the way you want. Alternatively, maybe you found the perfect form template on Microsoft's template site, but the site only had a Word version of it. In either case, you definitely do not want to re-create that form from scratch. So how can you import that Word form into InfoPath without a lot of extra work?

I am going to start with a form template downloaded from Microsoft's site named **Petty Cash Receipt** (office.microsoft.com/en-us/templates/TC010197861033.aspx?pid=CT101423521033) and shown in Figure 9-40. While this form is basic, it demonstrates the concepts you need to convert a Word template to an InfoPath form. The original version of this form template includes three receipts on a page. I have removed the two extra receipts so you can focus on a single copy of the form.

The screenshot shows a Microsoft Word document titled "PettyCashReceipt [Compatibility Mode] - Microsoft Word". The ribbon includes File, Home, Insert, Page Layout, References, Mailings, Review, and View. The font is Tahoma, size 10. The form content is enclosed in a dashed border and includes the following elements:

Petty Cash Receipt

Date _____ No. _____

Amount \$	
Description	
Charged to	
Received by	
Approved by	

The status bar at the bottom indicates "Page: 1 of 1" and "Words: 0".

Figure 9-40. The Petty Cash Receipt form in MS Word

■ **Note** I have replaced the fields that were in this template for **Date**, **No.**, and **Amount** with simple underlines because InfoPath will not convert these fields as= is. You must identify the fields with underlines as hints. The need for this step will become apparent when I describe how InfoPath determines the location of fields in a Word document.

When you have a Word template exactly as you would like it, save it as a template file (with the extension `.dot` or `.dotx`) in a directory where you can find it later, and then close Word.

Next, open InfoPath's **Backstage** area (click the **File** button) and click the **New** section to display InfoPath's templates. Click the **Convert Existing Form** option in the **Advanced Form Templates** section. This option lets you import Microsoft Word document or Microsoft Excel spreadsheets. Finally, click the **Design this Form** button. This action opens the **Import Wizard**. From this wizard, you can import either an Excel workbook or a Word document. In this case, select **InfoPath importer for Word documents** as the source and click **Next**.

The second page of the **Import Wizard** prompts for the name of the file to import. You can either enter the file name directly or use the **Browse** button to locate the file through Windows' standard **Open** dialog box. First, let's click the **Options** button to look at the **Options** dialog box.

The **Options** dialog box lets you import just the form layout. You might do this if you want to custom-define the form's fields. The second option imports both the form layout and the form fields, converting the fields as best it can based on the field properties in Word. The last option imports the basic form layout, but lets you customize the conversion of the form fields when it brings them into InfoPath. Choose this option when one or more of the following conditions exist in your Word document:

- You must convert existing Word form fields to InfoPath controls.
- You must detect repeating tables.
- You must detect rich text areas.
- You must convert empty underlined areas to text boxes.
- You must convert empty spaces after colons to text boxes.
- You must convert empty table cells to text boxes.
- You must convert table cells containing label text to text boxes.
- You must convert brackets around multiple spaces to text boxes.
- You must convert brackets around single spaces to check boxes.

For the purpose of this demonstration, select the custom conversion option to convert empty underline areas, areas after colons, and empty table cells to text boxes as defined in the **Petty Cash Receipt** template. Click **OK** to close the **Import Options** dialog.

Next, enter the Word template you want to use or click the **Browse** button to find the file on your available drives. After specifying the file to import and selecting your options, click the **Finish** button to begin the conversion. When the conversion finishes, the wizard displays one last page, informing you whether the conversion completed successfully or not.

■ **Note** You cannot have the template open in Word while you convert it to an InfoPath form.

A conversion can also complete successfully but with issues. When this happens, you can review these issues using the **Design Checker** and correct them in InfoPath. Figure 9-41 shows the results of converting the **Petty Cash Receipt** form.

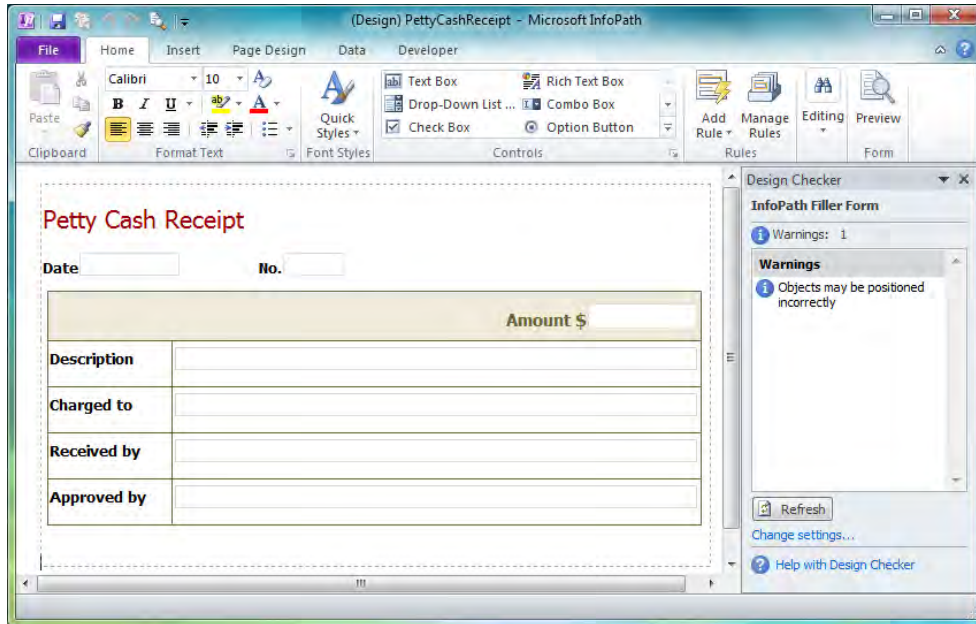


Figure 9-41. Convert the Petty Cash Receipt form into an InfoPath form.

■ **Tip** When InfoPath converts underline characters to fields, it names the fields generically: **Field1**, **Field2**, and so on. However, when InfoPath converts a blank area after a colon to a field, it uses the text to the left of the colon as the field name.

Once you have converted your Word template to InfoPath, use the **Design Checker** to see whether you need to resolve any problems. In this case, the only message in the **Design Checker** states that objects may be positioned incorrectly. In addition to possibly repositioning some of the form field, you might also want to go into some of the fields to add data validation, conditional formatting, or other rules. Other than that, you are ready to publish your form.

Migrating Your Existing Excel Workbook into InfoPath

As with MS Word forms, you may have existing forms in Excel that you want to use with InfoPath. Or maybe you found the perfect form template on Microsoft's template website, but the site only had an Excel version of it. In either case, you definitely do not want to re-create that form from scratch. So how can you import that Excel workbook into InfoPath without starting from a blank form?

I am going to start with an Excel form template downloaded from Microsoft's site, named **Donation Receipt** (office.microsoft.com/en-us/templates/TC060891481033.aspx?pid=CT101423521033), shown in Figure 9-42. While this form is basic, it demonstrates the concepts needed to convert an Excel template to an InfoPath form. The original version of this form template includes three receipts on a page. I have removed the two extra receipts in order to work with just a single copy of the form. Do not be afraid to modify the forms you download before you convert them to InfoPath. A page may contain duplicates of the form because they were designed to print as many copies of the form as possible on a standard 8.5" × 11" sheet of paper.

The screenshot shows an Excel spreadsheet titled "Donation receipt2 - Microsoft Excel". The form is centered on the page and contains the following elements:

- Title:** Donation Receipt from [Organization Name]
- Text:** Questions? Contact the [name of organization] at [phone number].
- Form Fields:**

Donor name	
Address	
City	
State/Province	
Postal code	
Phone	
Total pledge amount	
- Form Fields (continued):**

Type of donation	[cash, merchandise, service]
Description	[details of merchandise or service]
Value	[value of merchandise or service]
- Text:** Thank you for your generous support!

Figure 9-42. The Donation Receipt form as an Excel document

■ **Note** The Excel form contains several cells that have prompting text enclosed in brackets ([]). The InfoPath **Import Wizard** will not convert these areas to fields, but simply leave them as text. To convert them to fields, you must remove the text, at least in the three cells at the bottom of the form. You can leave the placeholders in the header and subheader text for users to replace when they fill in the form.

When you have an Excel workbook exactly as you would like it, save it as an Excel template (with extension `.xltx`) in a directory where you can later find it, and then close Excel.

Next, open InfoPath's **Backstage** area (click the **File** button) and click the **New** section to display InfoPath's templates. Click the **Convert Existing Form** option in the **Advanced Form Templates** section. This option lets you import Word documents or Excel spreadsheets. Finally, click the **Design this Form** button. This action opens the **Import Wizard**. From this wizard, you can import either an Excel workbook or a Word document. In this case, select **InfoPath importer for Excel documents** as the source and click **Next**.

The second page of the **Import Wizard** prompts for the name of the file to import. You can either directly enter the file name or use the **Browse** button to locate the file through Window's standard **Open** dialog box. First, let's click the **Options** button to look at the **Options** dialog box.

The **Options** dialog box gives you three options. The first is to import just the form layout. You might do this if you want to custom define the form fields. The second option imports both the form layout and the form fields, converting the fields as best it can based on the field properties in Excel. The last option imports the basic form layout, but lets you customize the conversion of the form fields when it brings them into InfoPath. Choose this option when one or more of the following conditions exist in your Excel document:

- You have repeating tables.
- You have cells containing formulas that you want to convert to text boxes.
- You have cells containing numeric data rather than just string data.
- You have cells referenced by formulas in other cells.
- You have empty cells within a grid that displays cell borders.

■ **Tip** If you have a complex form, InfoPath may not be able to determine which empty cells to convert to text boxes. In Excel, you can provide InfoPath with hints by turning on the borders for cells that you want to convert to text boxes. This provides the same guidance to InfoPath that underlines, brackets, and colons do in a Word document.

After specifying the file to import and selecting your options, click the **Finish** button to begin the conversion. When the conversion finishes, the wizard displays one last page, informing you whether the conversion has completed successfully or not.

■ **Note** You cannot have the template open in Excel while you convert it to an InfoPath form.

A conversion can complete successfully but with issues. When this happens, review these issues using the **Design Checker** and correct them in InfoPath. Figure 9-43 shows the results of converting the **Donation Receipt** form.

Donation Receipt from [Organization Name]	
Questions? Contact the [name of organization] at [phone number].	
Donor name	
Address	
City	
State/Province	
Postal code	
Phone	
Total pledge amount	
Type of donation	
Description	
Value	
Thank you for your generous support!	

Figure 9-43. Raw converted Excel form

You can see in Figure 9-43 that during the conversion process, several unexpected things occurred that you might want to modify. First, the conversion process changed the background colors of the form's cells. Second, the form appears to include a few additional columns and rows. With a little work, you can select the excess table rows and columns and delete them. Then, to change the background

color of cells to match the original, begin by selecting cell ranges that you want to change. Then right-click the selected cells and click **Borders and Shading** in the drop-down menu. In the dialog box that appears, you may have to click the **Shading** tab to pick the color used to shade the cells. From this page, you can either select one of the existing colors or click the **More Colors** option at the bottom of the color list. This selection opens the **Color Picker** dialog box. Here you can select a color from a larger list of defined colors, or you can custom blend a color using the area on the right to mix the color you want. When you find a color you like, be sure to click the button **Add to Custom Colors** so you can reuse the same color for other cell areas that you may still need to select. With these changes, the InfoPath form now looks like the one shown in Figure 9-44, which closely resembles the original Excel workbook form.

The screenshot shows the Microsoft InfoPath Designer interface. The title bar reads "(Design) Donation receipt - Microsoft In...". The ribbon includes tabs for File, Home, Insert, Page Design, Data, Developer, and Layout. The Home tab is active, showing options for Clipboard, Format Text, Font Styles, Controls, Rules, Editing, and Form. The main form area is titled "Donation Receipt from [Organization Name]". Below the title is a line of text: "Questions? Contact the [name of organization] at [phone number].". The form consists of a table with the following fields:

Donor name	
Address	
City	
State/Province	
Postal code	
Phone	
Total pledge amount	
Type of donation	
Description	
Value	

At the bottom of the form, there is a thank you message: "Thank you for your generous support!".

Figure 9-44. After cleaning up the InfoPath form

■ **Note** InfoPath converts all blank cells to text boxes. However, you can change the control type by right-clicking the control and selecting a different control type from the secondary slide-out menu that appears when you position your mouse over **Change to**.

Defining InfoPath Views

InfoPath allows you to define multiple views in the same form against different subsets of the data. Views can serve multiple purposes, including the following:

- You have a very large form and decide to divide it into smaller pages to make it more manageable to those entering data.
- You have a workflow attached to the form and the approver needs read-only access to most of fields, with perhaps the ability to update a comment field and to accept or reject the form.
- You have different people who work on different sections of the form, and they only need to see the part of the form for which they are responsible.
- You have different people who have access to the form, but who do not need to see all the data in the form. Perhaps they do not have the rights to see all the data.
- You want to define a separate print view for a form perhaps to change the controls used to represent the data, thus making the output easier to read and use. You can hide this view from the users entering data, but who may want to use it automatically when they attempt to print the form.

You may have additional reasons for wanting multiple views. However, no matter what the reason, the technique for building those views begins the same way. I suggest you first build the master form that collects all the possible data that you might want to collect. Once you have a master form, which is a view in itself, you can create additional views that display subsets of that master form or even allow users to enter or edit subsets of data.

Before creating another view of an existing form, let's look at the view properties of a form. You can find the view properties of your primary data collection form in all additional views you create.

Viewing Properties

To view the properties of a form, open the Request for Absence form created at the beginning of this chapter. With this form open, click the **Page Design** ribbon option and select **Properties** from the Views group. You should see a dialog box similar to the one in Figure 9-45. This dialog box consists of a set of four tabbed pages that allow you to configure several visual and print features.

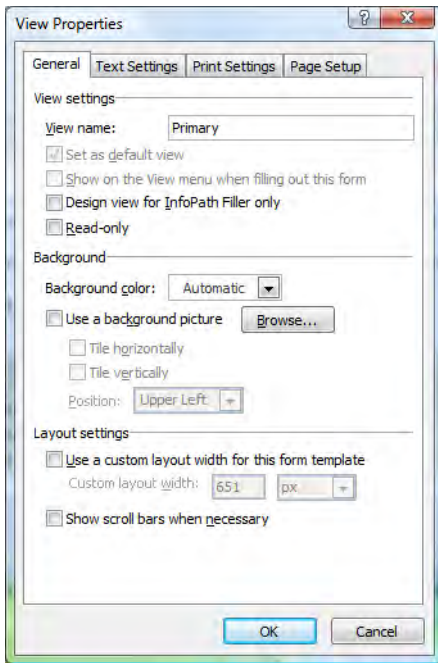


Figure 9-45. The General tab of the View Properties dialog box

The **General** tab includes basic settings for the view beginning with the **View name**. By default, InfoPath names the views **View_1**, **View_2**, and so on. However, these default names do not really describe the purpose of the page. Even if you plan to have only a single view or maybe a view for editing data and a view for printing it, providing a more descriptive name can help you later remember why you created multiple views for the same data source.

Note that you can create a view that allows all InfoPath features, including features not generally available when displaying a form in a web browser, by selecting the option **Design view for InfoPath Filler only**. Using this capability on one of your views means that you can create one view for web browsers and a separate view for users who work with the form directly from the InfoPath Filler installed on their desktops.

As you add more views, you can select which view to use as the default view, as well as whether you want to display a menu of available views to the user during data entry. Finally, the **View settings** section allows you to define a view that provides read-only access to the data.

In the **Background** section, you can define a background color for the form or even paint the background with an image. When using an image for the background, you may need to tile the background. A common tiling technique defines a horizontal ribbon image that, when tiled, vertically gives the illusion of a larger background image that repeats to create a page of any length.

In the **Layout settings** section, you can define the page width based on pixels, inches, centimeters, or point. You probably want to use this option when creating a view for printing data and therefore choose inches or centimeters. You can also choose to use scrollbars when necessary within the form.

The **Text Settings** page in the **View Properties** dialog box lets you change the font and font characteristics for any controls listed in the list box on the left. When you change the font settings through this dialog box, you update the font in every instance of the selected control throughout your

form for the current view. For controls that appear frequently throughout your form, this method of changing the font characteristics saves time over changing them for each control instance.

The **Print Settings** page allows you to set the print characteristics of the view. The first option on this page lets you select another view to use instead of the current default view when the user attempts to print. You can also change the print orientation, include headers and footers, define the number of copies, and select to print all or a range of pages. When you're defining headers and footers, InfoPath includes autotext to display the date and/or time you print the form. You can also include page numbering for longer views.

The **Page Setup** page lets you preset the printer that the current view uses as well as the paper and margins. Thanks to this page, users do not have to worry about how to select a network printer or which paper tray to use, or how large to make the margins. You can preset all these options for them so they only need to print the view and then go to the printer to retrieve it.

Generating Your Second View

Now that you know the basic properties of views, let's create a second view for the Request for Absence form that shows only the names of the people who will be absent, the dates they have requested, and the total number of hours.

To create a new view, open the **Page Design** ribbon and click **New** from the **Views** group. Figure 9-46 shows the dialog that InfoPath begins with to ask for the name of the new view. I will call this second view **Management Absence Summary**. After supplying a name, click the **OK** button to begin defining the view.

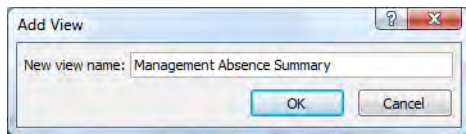


Figure 9-46. The Views task panel lets you add a new view with this dialog.

The following list steps through the creation of this second view:

1. Change the title text to **Management Absence Summary**.
2. From the **Insert** ribbon, select the **Custom table** option from the **Tables** drop-down and create a table with six columns and two rows.
3. Switch to the **Data** ribbon and click the Show Fields option in the Form Data group to display the fields associated with this form.
4. Drag the **Employee_ID** field to the first cell in the second row.
5. Drag the **EmployeeName** field to the second cell in the second row.
6. Drag the **AbsentFrom** field to the third cell in the second row.
7. Drag the **AbsentTo** field to the fourth cell in the second row.
8. Drag the **HoursRequested** field to the fifth cell in the second row.

9. Drag the **AbsenceType** field to the sixth cell in the second row. With all fields now added to the second row, you might want to resize some of the cells. Also, notice that by dragging the fields from the **Data Source** panel into the cell, you automatically get the name of the field, not just the field's control. You can edit these labels if necessary. At the very least, you will need to select them and drag them into the first row.
10. Right-click each of the date cells and select **Change Control** from the drop-down menu. In the submenu, select **Text Box**. This changes the display type of these two fields.
11. Right-click each of the cells in the second row and select **Text Box Properties** from the drop-down menu. In the pop-up dialog box, click the **Display** tab and check the option **Read-only**.
12. Open the **Controls** panel and add a text box control to the **Absence Type** cell after the other controls. By default, InfoPath names this control **Field1**. Change the name of this field to **AbsenceDescription** by using the text box properties.
13. Select the **AbsenceType** text box and then open the **Manage Rules** drop-down menu from the **Rules** group of the **Table Tools Layout** ribbon.
14. Click the **New** button to begin a new rule.
15. Define the condition: **AbsenceType is greater than 0**. Also, click the check box for **Hide this control**. You want to use this conditional format to hide the **AbsenceType** control when the form displays. You do not want to see the integer value that this field holds. Rather, you want to see text that describes the absence type. However, you cannot do this directly in this field. However, you can use the **AbsenceType** field to create a set of rules that place appropriate user-friendly text in the text box named **AbsenceDescription**.
16. Select **New** from the **Rules** panel again and select an **Action** type rule.
17. Next, define the condition: **Absence Type is equal to 1**.
18. Click the **Add Action** button. In the **Action** dialog box, select the action **Set a field's value**. For the **Field**, click the button to the right of the text box, select **AbsenceDescription**. In the **Value** text box, enter the text **Annual Leave**, since this text represents the type of leave associated with the type value of **1**.
19. Click **OK** twice to save your first rule.
20. Repeat the last four steps to add rules for the other five option buttons defined as follows:
 - 2: Personal Leave
 - 3: Sick Leave
 - 4: Jury Duty
 - 5: Military Duty
 - 6: Time Without Pay

21. Close the **Rules** dialog box when you have completed defining all six rules.

Now let's test the new view. Switch to the **Home** ribbon and click **Preview** from the **Form** group. In preview mode, InfoPath shows a simulation of the form as it would appear in a browser. Make sure the current view has been set to the initial view (View 1 in this example unless you renamed it). Enter data for the form as if you were filling out the complete form. Rather than saving the data, switch to the **Management Absence Summary** view of the data using the drop-down in the **Page Views** group. You should see a form that looks something like Figure 9-47.

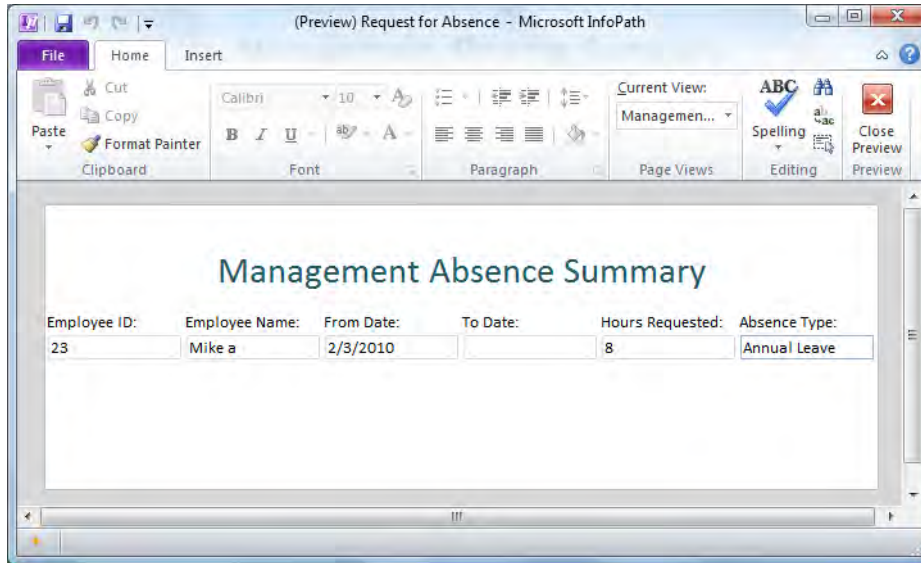


Figure 9-47. The management summary view of absences

Notice that only one text box appears in the **Absence Type** column. The text box **AbsenceDescription** appears with the text assigned to it by the rule created in the **AbsenceType** text box control, which we hid.

I hope that this simple example gives you some ideas of how you can create different views from the same form.

Building Data Connections for Forms

In the first part of this chapter, you saw how to create a basic form that generates XML data files when you submit the form's data. However, you can also create an InfoPath form that uses SQL or Access tables as both the source and the destination for data from a form. To do that, you need to create a data connection from the form to the database. Actually, if you plan to use the form with InfoPath Filler, you need two connections, one to select data from the database to build the form, and a second to update the database. This section explores the steps needed to create a data connection to a SQL Server database.

To begin, select the option **Design a Form Template** from the **Getting Started** menu when you open InfoPath. This opens the dialog box shown in Figure 9-48.

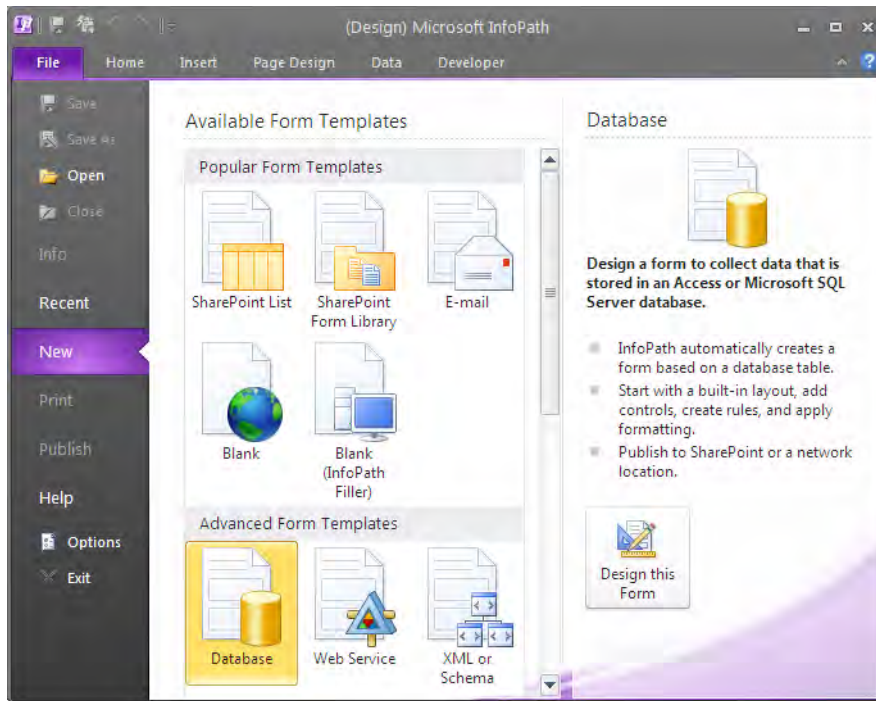


Figure 9-48. Begin a form template with a SQL Server data connection.

In this dialog box, select the **Database** form template. By default, InfoPath creates a web-compatible form, which means that it can read data from the database, but it cannot submit data back to it. You must change the form view properties to design the view for InfoPath Filler if you want to both display data and save changes to the data.

When you click **Design this form**, the **Data Connection Wizard** opens. At this point, your only option appears at the top of the form, allowing you to select the SQL Server or Access database you want to use as your form's data source. Click the **Select Database** button to continue.

InfoPath then opens the **Select Data Source** dialog box, shown in Figure 9-49. This dialog box shows existing connections, if any, that have an extension of **.odc**. If you do not know the details behind these existing connections, you probably need to create a new connection by double-clicking either **+NewSQLServerConnection.odc** or **+Connect to New Data Source.odc**.

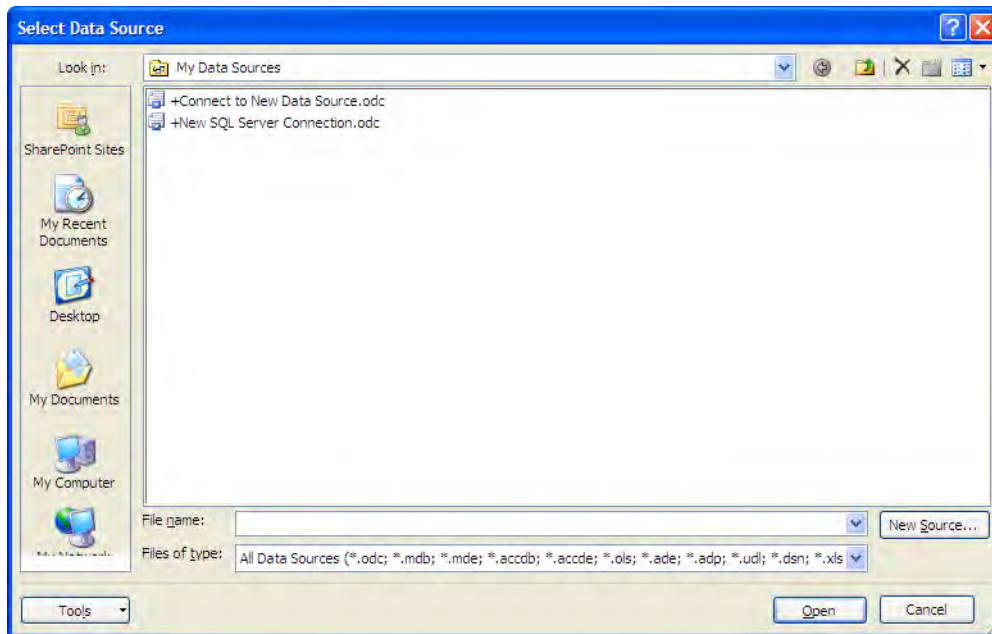


Figure 9-49. The list of available data sources

■ **Note** If you want to connect to an Access database, you should double-click the option **+Connect to New Data Source.odc**. This action opens a dialog box that lets you select from a variety of data sources you have already defined on your machine. While it may be tempting to select a data source other than SQL Server or Access just because you may see it on this list, these other sources will not work with InfoPath at this time.

For this example, you will use the PUBS database running on SQL Server 2005 and will therefore select the option **+New SQL Server Connection.odc**. This action opens another dialog box, titled **Welcome to the Data Connection Wizard**, as shown in Figure 9-50.

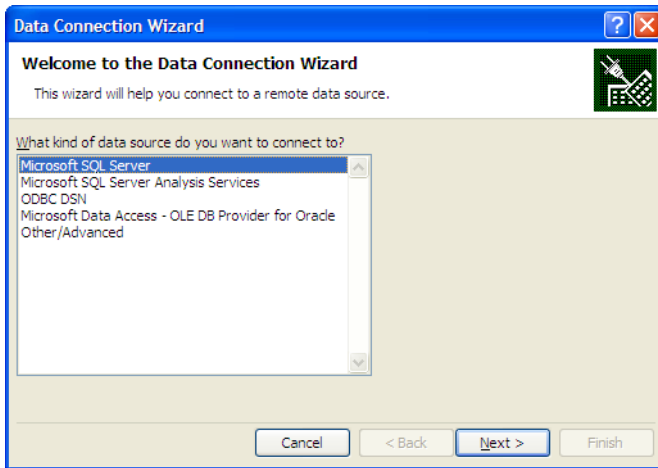


Figure 9-50. Choose the type of data source you want to create.

You need to know the name of the SQL Server you want to connect to before you continue. If you are not sure, check with your database administrator. If you are running SQL Server on your development machine, you could reference the server with the generic name of localhost. However, if you then publish your form on a network share rather than your local machine, the form will not be able to resolve the reference to localhost. It is always better to name the specific server you want to use, as shown in Figure 9-51.

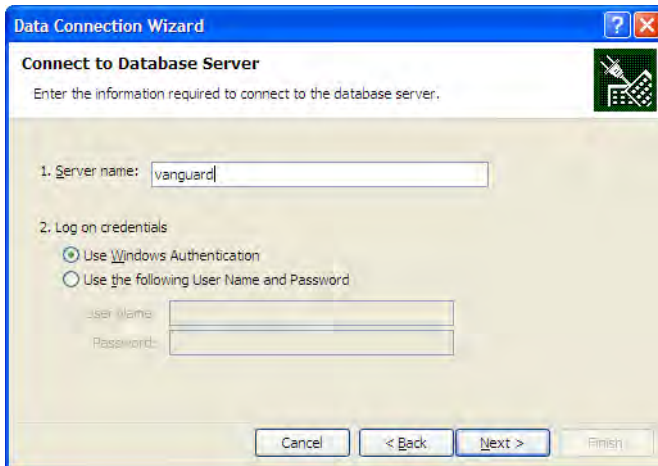


Figure 9-51. Define a database server connection.

If you use a central Domain Controller to log in to your machine and validate users on your corporate network, or even if you are running everything on a high-powered desktop workstation, you can continue to use Windows Authentication as your logon credentials. You can also use a specific SQL Server user name and password if your SQL Server security has been set to mixed mode. However, when you use SQL credentials, the operating system passes your logon information over the network using clear text, making it much less secure than Windows Authentication, which does not. If you do use a SQL Server user name and password, at least use a strong password. *Strong passwords* incorporate at least three of the following types of characters: uppercase letters, lowercase letters, numbers, and symbols. Passwords should have at least 8 characters; Microsoft recommends 14 characters or more. Most importantly, do not simply use words, no matter how long, that could be “discovered” using a dictionary attack.

After you’ve specified a database server, the **Data Connection Wizard** goes to the server and retrieves the names of all the databases defined on that server. It then populates a drop-down list on the next screen of the wizard with these database names. You must select which database you want to use in this connection. When you select the database you want, the wizard populates the list in the bottom half of this screen with the names of the tables in the database. Figure 9-52 shows the wizard defining a connection to the table **Authors** in the database **PUBS**.

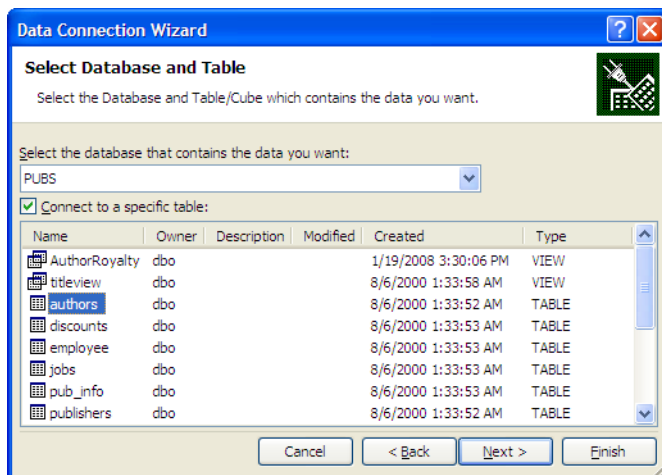


Figure 9-52. The dialog box for selecting the database and table you want to use.

■ **Note** When working with InfoPath, you must eventually select at least a single table to work with on your form. However, you can create a generic connection to just the database by not checking the box **Connect to a specific table**. Then, each time you select the connection, before you can continue creating your form, InfoPath will pop up a dialog box asking you to select a table.

When you click **Next**, the wizard displays the dialog shown in Figure 9-53, asking you to provide a name for the data connection. By default, the wizard combines the name of the server, the database, and the selected table to define the connection name. While I do not recommend changing this default since it is very logical, you may want to provide a description and a user friendly name, which then appear in your **Data Sources** list shown back in Figure 9-49.

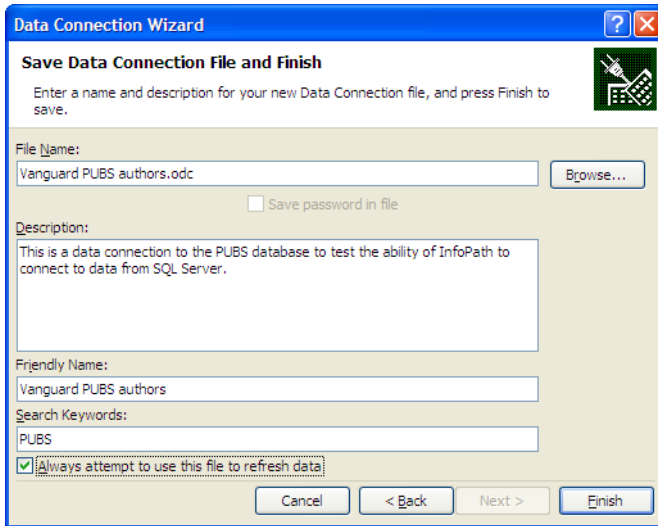


Figure 9-53. The dialog box for saving the data connection file

Next, the wizard can display the available fields in the selected table if you click the check box as shown in Figure 9-54. By default, InfoPath selects all the fields in the table. However, you should deselect any fields that you do not need to use, to keep your queries to the database as small as possible. In this same dialog, you can add another table, remove a table, or modify a table.

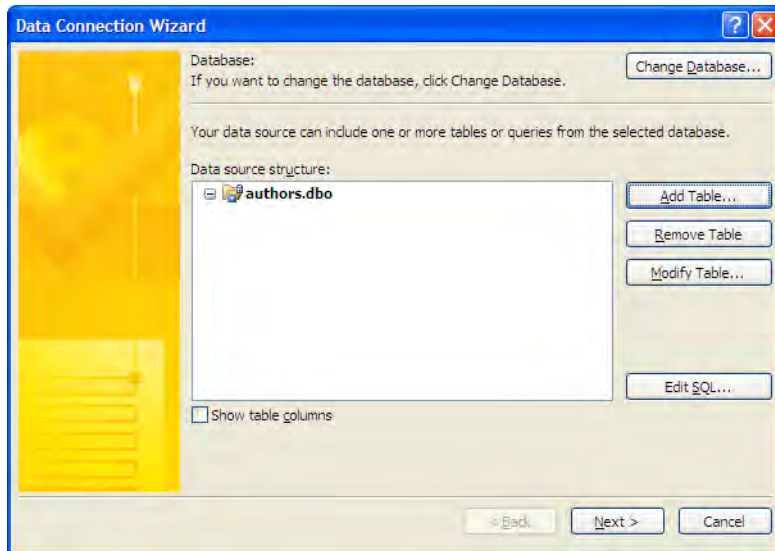


Figure 9-54. The Data Connection Wizard showing one table selected

If you want to include other tables in the form, click the **Add Table** button in Figure 9-54. In this case, to connect the **Authors** table with the **Titles** table, we need to use the joining table, **TitleAuthor**, as shown in Figure 9-55.

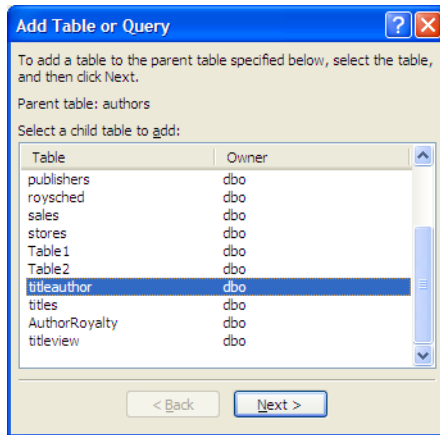


Figure 9-55. Don't forget to include the linking tables between many-to-many relationships.

After you select the table and click **Next**, InfoPath will check whether the data has referential integrity definitions. If so, it will make a recommendation for which field to use to link the two tables, as

shown in Figure 9-56. If this is not the correct relationship, you can click the **Remove Relationship** button and click the **Add Relationship** to build your own link between the two tables.



Figure 9-56. Select the existing relationship between the tables or define your own.

You can continue to add more tables to your form view. Figure 9-57 shows the three tables needed to link authors with their titles.

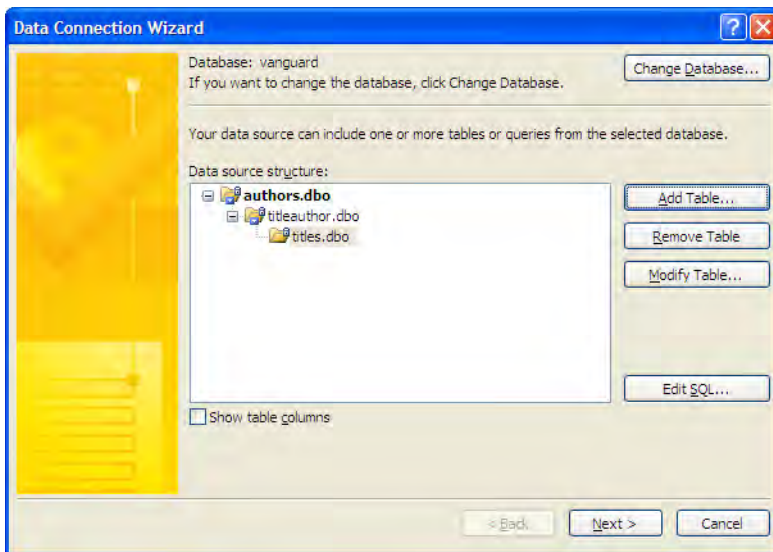


Figure 9-57. An example with three linked tables

After you finish building the view needed for the form and click the **Next** button, the wizard prompts you to save the data connection file. You can accept the default file name or provide your own. In either case, you should include your own description as well as a friendly name for the connection. You can also supply keywords that can help you search for the connection you want. However, most people do not have enough connections to make this a required step. More importantly, choose a name for the file that clearly defines what data it accesses. Figure 9-58 shows the file name selected for this example's connection.

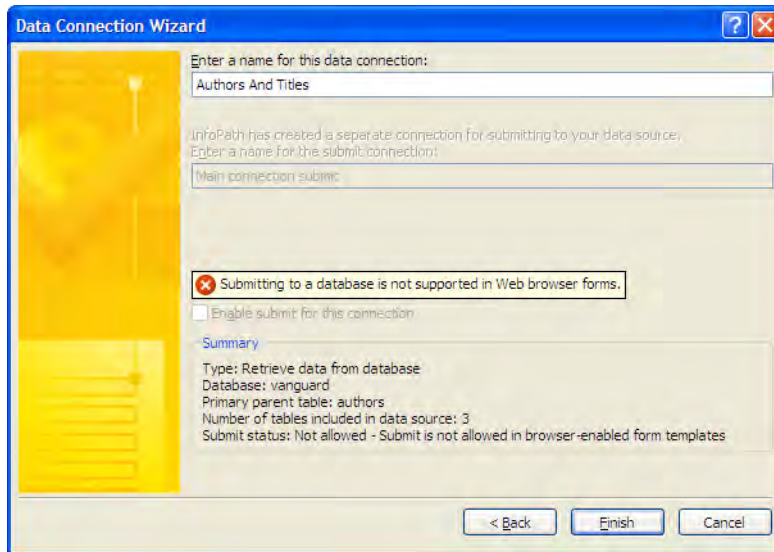


Figure 9-58. Set the data connection name.

When you click **Finish**, InfoPath returns you to the first screen of the **Data Connection Wizard**. However, now the lower portion of the screen displays the data source structure. If you see only the table name, make sure to select the check box **Show table columns**. You should see the fields in the table, each with a check box before it. Check the box of each field you want to use in your form. If you do not need the field, do not check it. Including only the fields you need in your form helps the query execute faster when retrieving data. Figure 9-59 shows an example of selecting only a few of the available fields from the **Authors** table.

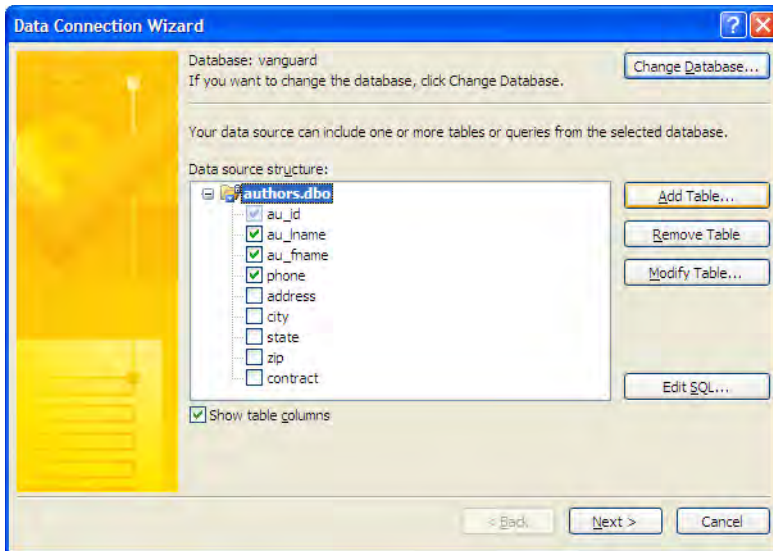


Figure 9-59. Select fields to retrieve from the table.

Notice that the field **au_id** has a selected check box before it, but that InfoPath dims the check box so that you cannot select or deselect it. This occurs because you must include primary key fields when you want to either select specific records to display or update data. Without the primary key, you cannot submit any changes you make to the fields of a displayed record, because SQL Server would not know which record to update.

When you click **Next**, the wizard displays one final screen. This screen lets you enter a name for the primary data connection used to select data from the database for the form. If you defined a non-web-based form, you can also supply a name for the submit connection. Figure 9-60 shows this dialog box.

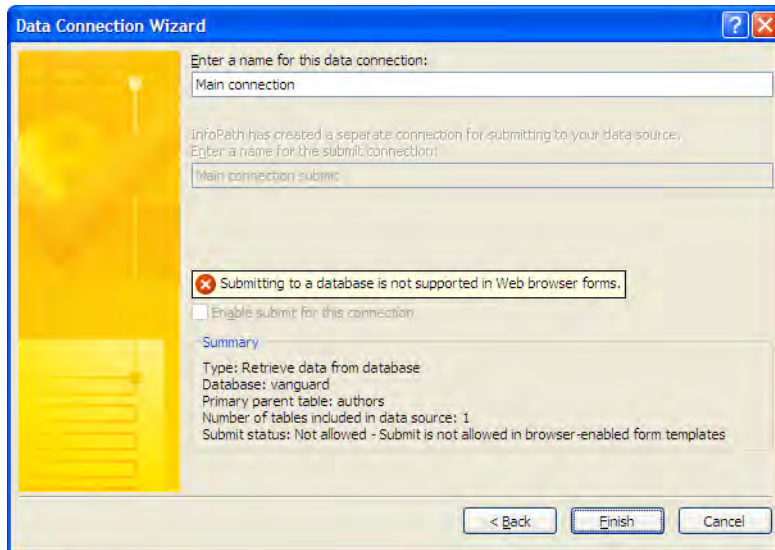


Figure 9-60. Name the retrieve and submit data connections.

At this point, you have finished defining your connection for the current form. However, you can reuse the connection for additional forms. In that case, simply select the connection from the list shown earlier in Figure 9-49. If the connection points to the database in general (no table selected), you first need to select a table. Then the rest of the process continues from the point at which you select the fields you want to use and enter the name of one or more data connections. The next section continues the story of creating your SQL-based form at the point just after you have finished using the **Data Connection Wizard**.

Connecting InfoPath Forms to Data

Once you've made it through the definition of the data connection, InfoPath generates a default form for working with the data. This default form, shown in Figure 9-61, has three sections.

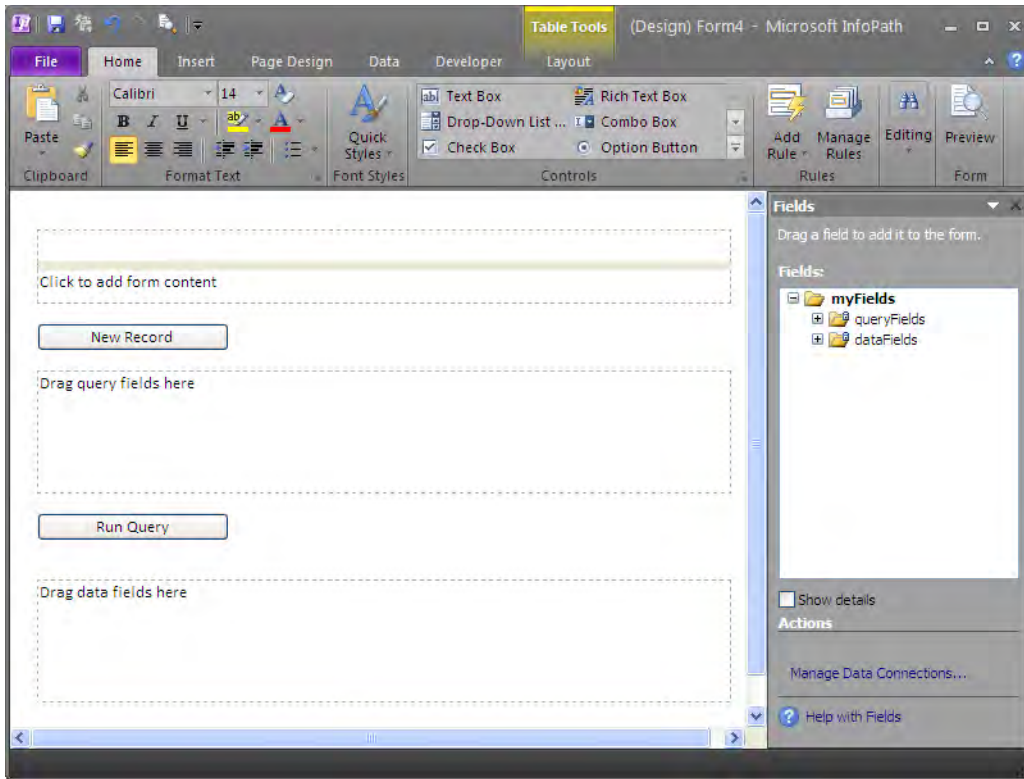


Figure 9-61. Start by picking a query field(s) for the form's data retrieval.

The top section uses the **Title and Table** layout control you saw earlier. Here you can enter a title for the form. You can also include content for the form here. However, before doing that, let's look at what you can do with the other two sections.

The second section is called the *query section* because here you can drag fields that you want to use to query the database. Your first thought might be to use the primary key for the main table as the query field. In this case, you probably want to drag the primary key for the **Authors** table, **au_id**, from the list of query fields in the **Fields** panel to the query section of the form. While using the primary keys to query the data is not a bad choice, you can actually use any field to query the database. Using fields that correspond to indexes in the database helps the performance of the query.

In the third section, you place data fields. Again, InfoPath provides an easy way to do this. Simply expand the **Fields** in the **Fields** panel on the right. If you want to include all the fields, simply drag the table **Authors** to the third section, as shown in Figure 9-62. However, if you only want a subset of the available fields, open **d:Authors** to access the individual fields, dragging each one individually over to the third section of the form.

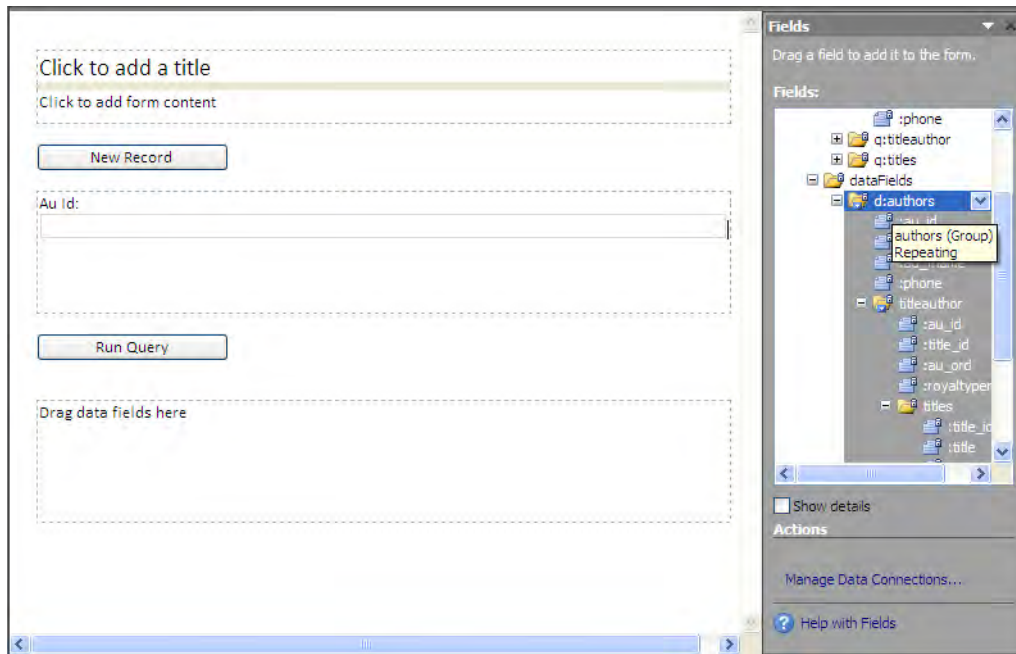


Figure 9-62. Pick data fields to display in the form.

Notice that after you drag the entire table to the third section, InfoPath automatically places the data in a repeating section because there could be more than one row displayed.

On the other hand, there are times when you might want to use the repeating section with controls: if you want to work on a single record at a time, for example, if you have a large number of fields, or if any of the fields consist of large text areas. Initially, InfoPath adds all the controls vertically down the form. If you want to provide additional structure to this section, perhaps by adding a table within the section to position the individual controls, you must do that manually.

No matter how you lay out the fields, you can control many of the properties of the controls as you saw earlier; specifically, you can convert the control types of some fields or add conditional formatting, rules, and data validation. Figure 9-63 shows the resulting form template designed to display a list of employees with their vacation and sick leave balances.

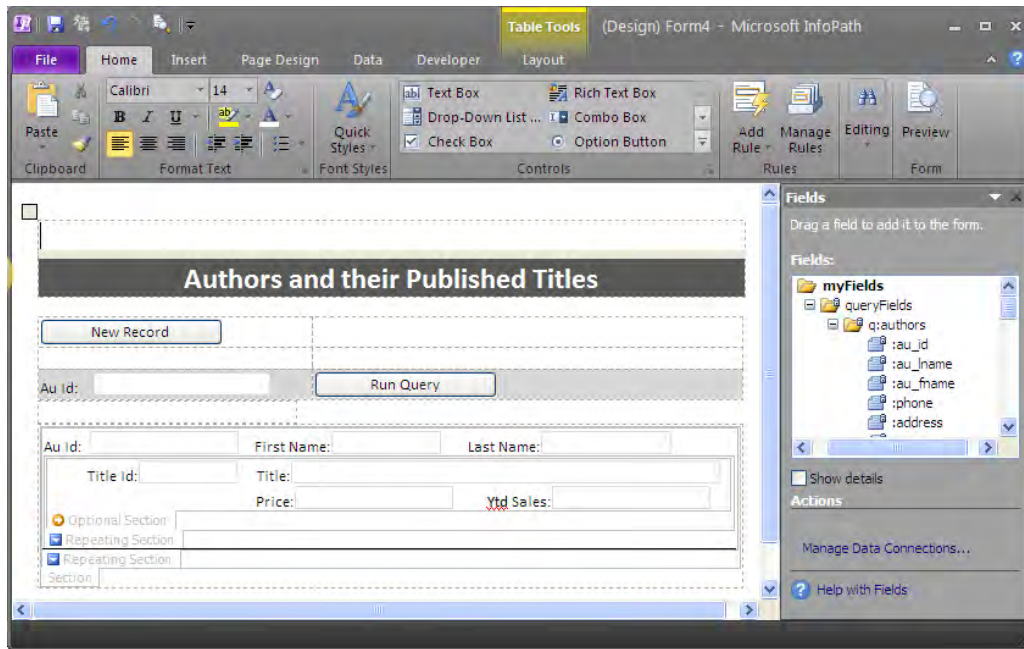


Figure 9-63. Use a table with invisible borders to rearrange the form controls into a final form.

To see how this template works, click the **Preview** button in the toolbar. This opens a new window that displays the form as it would appear when someone opens it. In Figure 9-64, you can see the result of entering a single **Author ID** value. When you click the **Run Query** button, the select query built into the **Data Connection Wizard** uses the fields defined in the query section of the report to return a filtered set of data. Since the **Author ID** serves as the primary key to the table, supplying a valid key value returns a single record.

Authors and their Published Titles			
New Record			
Au Id:	213-46-8915		
Run Query			
Au Id:	First Name:	Last Name:	
Title Id:	Title:		
	Price:	Ytd Sales:	
Optional Section			
Repeating Section			
Repeating Section			
Section			
Au Id:	First Name:	Last Name:	
Title Id:	Title:		
	Price:	Ytd Sales:	
Title Id:	Title:		
	Price:	Ytd Sales:	

Figure 9-64. Query the form data using a single field, the table's primary key, Au Id.

■ **Caution** You may see a popup dialog after clicking **Run Query** in Figure 9-62 if you are testing your form before publishing, as your local copy of the form tries to access data on a network SQL Server installation. Assuming you trust both your form and the SQL Server, you can merely click **Yes** to close this dialog and execute the query. You should not see this dialog if you click the **Run Query** button after publishing the form as long as the connection is trusted through SharePoint.

Perhaps a more interesting result appears when you click the **Run Query** button without entering any value for the **Author ID**. In this case, the query performs no filtering on the data retrieved, thus returning the entire table as shown in Figure 9-65. I would not recommend doing this on a large table with millions of records. In fact, InfoPath warns that returning all the records for a table can take some time. On the other hand, it can be quite useful for a small set of data.

Authors and their Published Titles

Au Id: <input style="width: 80%;" type="text"/>	<input type="button" value="Run Query"/>
---	--

Au Id: <input style="width: 80%;" type="text" value="172-32-1176"/>	First Name: <input style="width: 80%;" type="text" value="Johnson"/>	Last Name: <input style="width: 80%;" type="text" value="White"/>
Title Id: <input style="width: 80%;" type="text" value="PS3333"/>	Title: <input style="width: 100%;" type="text" value="Prolonged Data Deprivation: Four Case Studies"/>	
Price: <input style="width: 80%;" type="text" value="\$19.99"/>	Ytd Sales: <input style="width: 80%;" type="text" value="\$4,072"/>	
Au Id: <input style="width: 80%;" type="text" value="213-46-8915"/>	First Name: <input style="width: 80%;" type="text" value="Marjorie"/>	Last Name: <input style="width: 80%;" type="text" value="Green"/>
Title Id: <input style="width: 80%;" type="text" value="BU1032"/>	Title: <input style="width: 100%;" type="text" value="The Busy Executive's Database Guide"/>	
Price: <input style="width: 80%;" type="text" value="\$19.99"/>	Ytd Sales: <input style="width: 80%;" type="text" value="\$4,095"/>	
Title Id: <input style="width: 80%;" type="text" value="BU2075"/>	Title: <input style="width: 100%;" type="text" value="You Can Combat Computer Stress!"/>	
Price: <input style="width: 80%;" type="text" value="\$2.99"/>	Ytd Sales: <input style="width: 80%;" type="text" value="\$18,722"/>	
Au Id: <input style="width: 80%;" type="text" value="238-95-7766"/>	First Name: <input style="width: 80%;" type="text" value="Cheryl"/>	Last Name: <input style="width: 80%;" type="text" value="Carson"/>
Title Id: <input style="width: 80%;" type="text" value="PC1035"/>	Title: <input style="width: 100%;" type="text" value="But Is It User Friendly?"/>	
Price: <input style="width: 80%;" type="text" value="\$22.95"/>	Ytd Sales: <input style="width: 80%;" type="text" value="\$8,780"/>	
Au Id: <input style="width: 80%;" type="text" value="267-41-2394"/>	First Name: <input style="width: 80%;" type="text" value="Michael"/>	Last Name: <input style="width: 80%;" type="text" value="O'Leary"/>
Title Id: <input style="width: 80%;" type="text" value="BU1111"/>	Title: <input style="width: 100%;" type="text" value="Cooking with Computers: Surreptitious Balance Sheets"/>	
Price: <input style="width: 80%;" type="text" value="\$11.95"/>	Ytd Sales: <input style="width: 80%;" type="text" value="\$3,876"/>	
Title Id: <input style="width: 80%;" type="text" value="TC7777"/>	Title: <input style="width: 100%;" type="text" value="Sushi, Anyone?"/>	
Price: <input style="width: 80%;" type="text" value="\$14.99"/>	Ytd Sales: <input style="width: 80%;" type="text" value="\$4,095"/>	

Figure 9-65. Retrieve the entire table when no query field value is specified.

However, even if you have millions of records, you could add query fields to limit records to a reasonable number. In the case of your employee file, you might want to see employees only from a specific department.

■ **Tip** As you can see by the examples provided, the query values must exactly match values in the table. You can get around this limitation by creating a view in the database that combines the data you want, including the addition of calculated fields. For example, if you want to list employees with more than 100 hours of combined vacation and sick time, you could create a Boolean field in the view that resolves to **True** if the sum of vacation and sick hours exceeds 100. Then, in your InfoPath form, you can include this field in the query section and check for a value of **True**.

Creating and Reusing Form Sections with Template Parts

Most programmers practice code reusability. Form designers can also benefit from reusing common groups of controls, especially when those controls require extensive formatting. InfoPath provides a way to build groups of controls that you can later reuse in other templates. In this example, you will build a template for a mailing address so you can use it in a variety of forms, including the order shipment page of an order manifest. In fact, this page uses the template part twice, once for the mail-to address and once for the bill-to address.

You start the process of building a template part similar to that of building a template form. Open the **New** page of the **Backstage** when you start InfoPath. From the **Template Parts** section, select the **Blank** template. Then click the **Design this Form** button as shown in Figure 9-66.

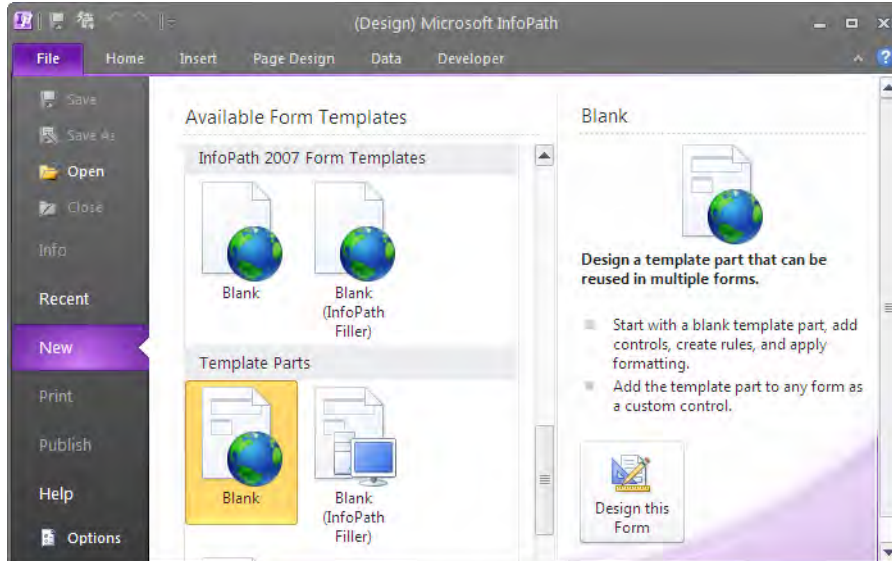


Figure 9-66. Design a template part.

■ **Note** When designing a template part, you must begin with a blank template or an existing XML schema. However, you can change the binding for the template part controls after you add it to another form to bind the controls to other data sources.

When InfoPath opens the blank template design area, you should notice that you have all the design tools to create a form layout, add controls to that layout, define data sources, and run your design through the **Design Checker**. You do not have the ability to create multiple views for the template part. However, in any form that you add the template part, you can create alternative views. You also do not have the options associated with publishing the form, because you cannot publish a template part, since it is not meant to represent an entire form by itself.

Figure 9-67 shows the completely designed template part. (You can also find this web part template in the free book code download at www.apress.com with the name `TemplateGroup_MailToAddress.xtp`.) It contains several required fields and one optional field. While most of these fields consist of simple text boxes with a little added formatting, the **State** field uses a drop-down listbox that includes the names of all the states. You can add information for a drop-down manually (as was done for this example), read it from the form's data source, or use an external data source. You can even change the data source after you drop the template part onto a form that you later design. Therefore, you might create a minimal list box, one with only a few entries for testing purposes, if you know that the data source for the form you plan to build later can retrieve values for the list either from the data source itself or from another external data source.

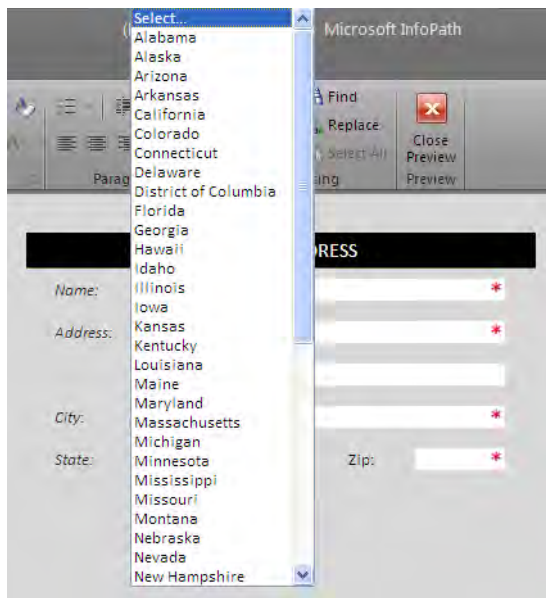


Figure 9-67. The completed template part showing a drop-down state list

When you have finished the template part, test it using the preview mode. Then save the completed part to a directory of your choice.

■ **Tip** If you plan to design a large number of forms, keeping your reusable template parts in a separate directory on your design machine (or a network share if you are only one of several form designers), helps organize your template parts.

After you have saved it, open the **Controls** panel from the **Controls** group of the **Home** ribbon and click the hyperlink beneath the list: **Add or Remove Custom Controls**. This action opens the dialog box shown in Figure 9-68.

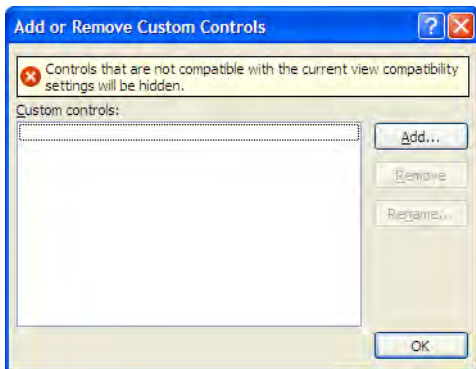


Figure 9-68. The Custom Controls list page

Click the **Add** button to add the control you just created.

■ **Note** You must save the template part first. This dialog box does not assume that you want to add the currently open template part.

From the resulting menu, you can add either a template part or an ActiveX control. In this case, you want to select the **Template Part** option and click **Next**.

The dialog box next asks for the file location of the template part. Enter the full directory path where you saved the completed part manually, or use the **Browse** button to locate and select the file. When you click the **Finish** button, the final page of the dialog box shows the name assigned to the custom control and the version. Clicking the **Close** button on this page closes the dialog box and returns you to the **Add or Remove Custom Controls** page shown in Figure 9-69, where you can see that you have added your custom template part successfully.

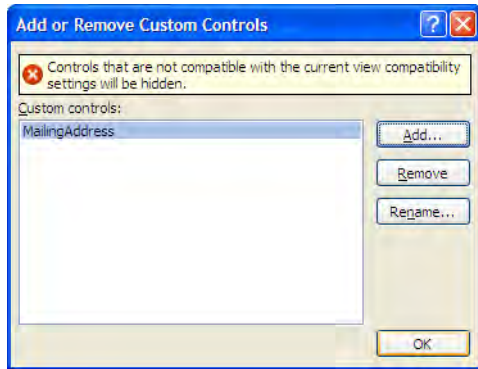


Figure 9-69. The Add or Remove Custom Controls dialog box showing the new template part

The next time you open InfoPath to design a new form, or even to modify the design of an existing one, you will see in the **Custom** section of the **Controls** panel the new template part you created and saved. Figure 9-70 shows the **Addresses** page of the **Order Shipping Information** form. On this page, you need to have two possible addresses. The first is the customer's mailing address, and the second is the customer's billing address. Many businesses provide centralized ordering services for their remote locations. Therefore, while you might ship an order to one address, you may need to send the bill for the order to an entirely different address.

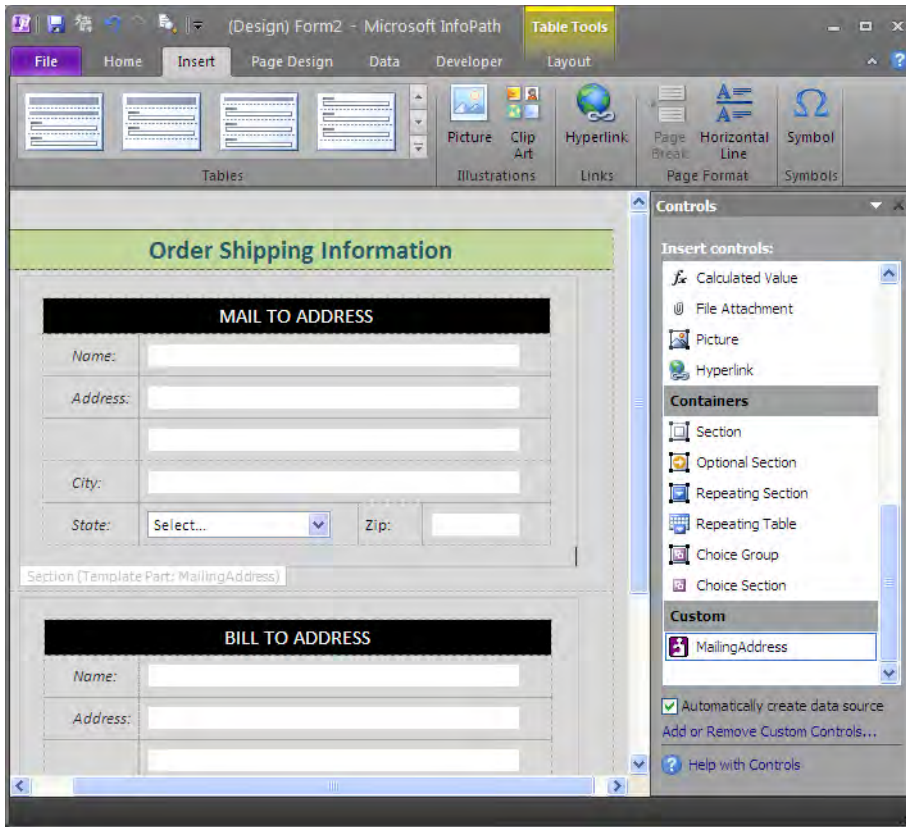


Figure 9-70. Completed Addresses page for the Order Shipping Information form

■ **Note** You can also view all of the controls available from the Controls group of the Home ribbon by clicking the More button in the bottom-right corner of the Controls list box.

In this case, you added the same custom template part twice to the same form. However, you can also add this same control to other forms. In each case, you can customize the formatting of the fields, the label data, the binding information for the controls, and even the data source for the drop-down list box. Template parts can be as simple as this one or significantly more complex. The point is that they provide reusability within form design, which also results in uniformity in the way similar information appears and works.

Summary

In this chapter, you explored some of the basic features of InfoPath. You started by seeing how you can create new forms for any of the SharePoint lists giving them their own special “flavor”—or perhaps a better word is branding.

You then saw how to use the same basic techniques to build an InfoPath form from a blank template. You can also now build forms that use external data sources to display data from SQL Server or Access. You even learned how to create reusable form template parts that can save you time in the future for those groups of fields that seem to appear in every form you create. While we did not publish the forms to SharePoint yet, you will learn how to do that in the next chapter. However, by changing the view properties of any of the forms you created here, you can create forms that can include additional features, as long as you save them on a network drive and access them using the InfoPath Filler application.

InfoPath provides more features than I could cover in such a short amount of space. Fortunately, books like *Pro InfoPath 2007*, by Philo Janus (Apress, 2007) can help you further explore the details of InfoPath.

The next chapter dives deeper into using InfoPath with SharePoint, allowing you to use lists to both populate your drop-down form lists and submit data. You will also look more closely at form libraries within SharePoint to store your forms and then use Forms Services to display the forms within a browser.



Publishing InfoPath Forms in SharePoint Libraries

In the last chapter, you saw how easily you can build InfoPath forms. When building those forms, the chapter focused primarily on using forms created and saved in a single location, even if that location was on your local computer or in a regular SharePoint document library. However, up until this point, unless you had a copy of InfoPath 2010 installed on your machine, you could not open and use that form. Furthermore, you really don't want to send a copy of the form to everyone who needs it because, for example, making updates to the form would become difficult if everyone at your company had their own copy of the form. Rather, you should publish the form to a common location such as a network file share so that other people in your organization can access it.

However, even if these users have access to the network file share, perhaps not everyone that needs to enter data into that form has a copy of InfoPath installed on their computers. To be truly available to everyone, you need to create forms that do not require the users to have InfoPath on their machines. SharePoint together with Forms Services provides such a solution. You can store InfoPath forms in SharePoint libraries and then open them via InfoPath Forms Services. However, there is a cost to provide this ability to display forms using your web browser: you must limit your design options slightly by avoiding the use of some of InfoPath's features that Forms Services and browsers in general do not support.

In this chapter, we will look further at publishing forms, both to network file shares and form libraries, using SharePoint to allow more users to access them.

Publishing InfoPath Forms to a Network File Share

The easiest way to publish your InfoPath forms, especially if you are a small company and everyone has InfoPath on their desktop, is to publish them to a simple network file share. A *network file share* is any directory on your network that people in your organization can access from their local computers.

Anyone with InfoPath on their local computer can open the published forms and enter data using them. They can save a copy of their data back to the same directory or to any other directory. Let's see how this works by using one of the forms created in the last chapter, the **Request for Absence Report**.

If you previously saved your InfoPath form to a network file share that others could access while you were designing it, you may not need to do much of anything. In fact, all anyone else would need to do is to navigate to the network share where you saved the InfoPath form (the one with the .xsn extension)

and double-click on its name to open it. Figure 10-1 shows the **Request for Absence** form stored on a mapped drive.

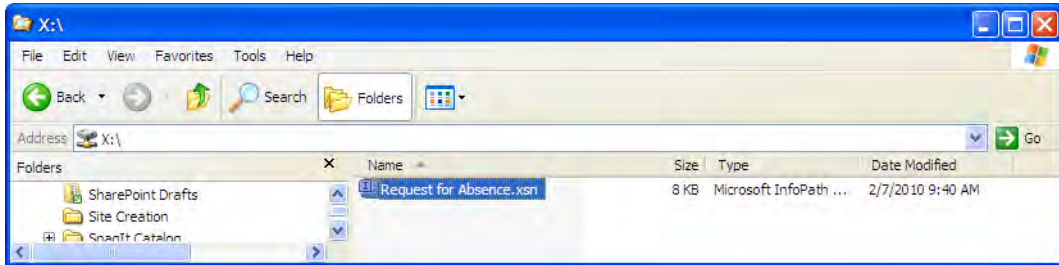


Figure 10-1. Save your InfoPath form to a mapped network drive.

As long as the users have InfoPath Filler 2010, the second of the two InfoPath programs in Microsoft Office 2010, installed on their local machine, it will open the .xsn file ready for them to start filling in the form. The first time they open an InfoPath form, they may see a dialog asking if they want to set Microsoft Office as the default program for opening and editing .xml files. Unless they are using another program to edit .xml files, they should click the **OK** button in this dialog.

You could even start directly from InfoPath Filler 2010 by going to the **Open** page in the **File** menu (Backstage area), as shown in Figure 10-2. This page shows previously opened forms. However, it also has a button, **Find a Form**, that you can use to display the **Open** dialog. From this dialog, you can navigate to the directory or file share that has the file you want, select it, and open it.

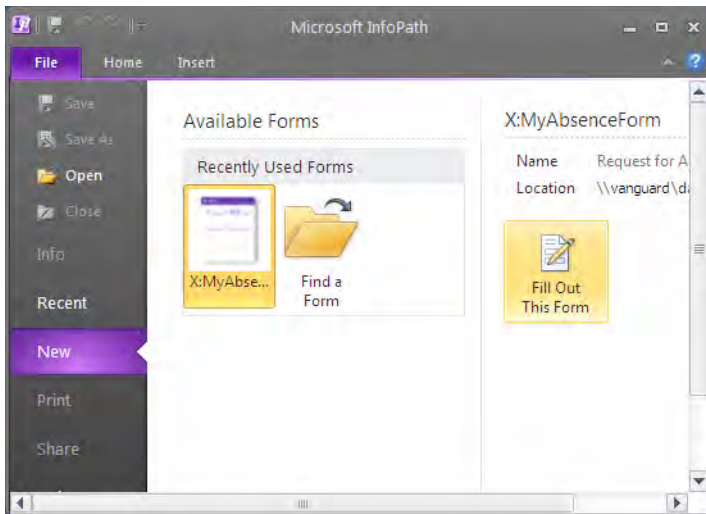


Figure 10-2. InfoPath can open a form stored on a shared network drive.

However, what if you did not store the form on a network drive while designing it? One way to get it to a network drive would be to copy the file from your local drive to the network drive the next time you connect to the network. At that point, other users could access the form as I just described as long as they had InfoPath Filler 2010 installed on their local computer.

There is one more way you can publish your form to the network drive. You could open the form using InfoPath Designer 2010. Then from the backstage area, select the **Publish** page. On this page, find the area titled **Publish a form to a network location or file share**, shown in Figure 10-3, and click the button **Network Location**.

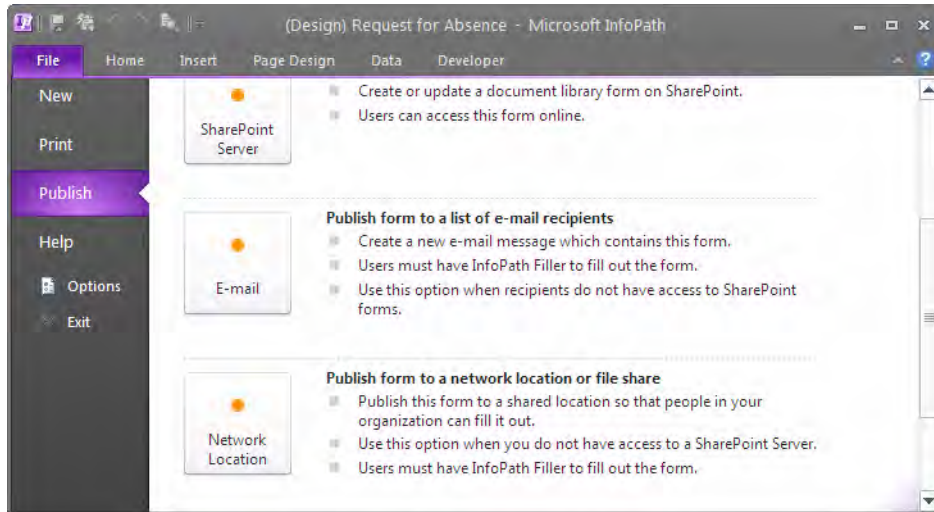


Figure 10-3. Use InfoPath to publish a form to a network location.

The publishing wizard opens a dialog that begins by prompting for the path and file name where you want to store the form. Note that in Figure 10-4, I have entered the path using a mapped drive letter.

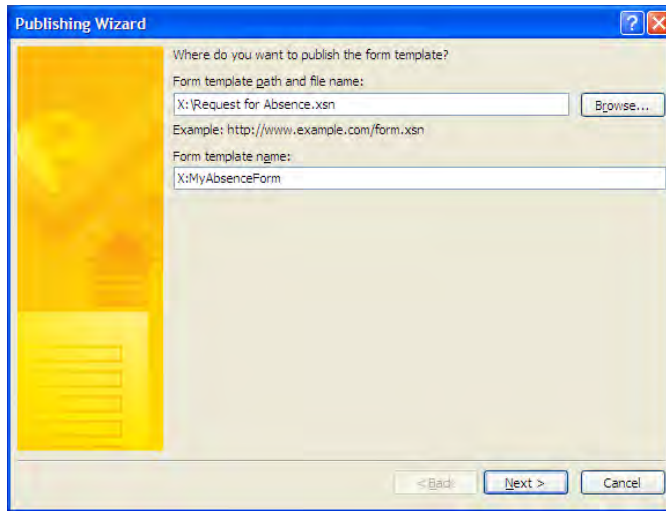


Figure 10-4. Publishing Wizard prompts for the form path and file name.

Some companies define standard mapped drives for employees to use when accessing special network shares such as a location where they can find the company’s on-line forms. However, unless everyone who needs to access this form directory maps the URL to the directory with the same drive letter, they could have problems accessing the file. Therefore, when you click **Next** in the **Publishing Wizard**, you can add an alternate path, as shown in Figure 10-5.

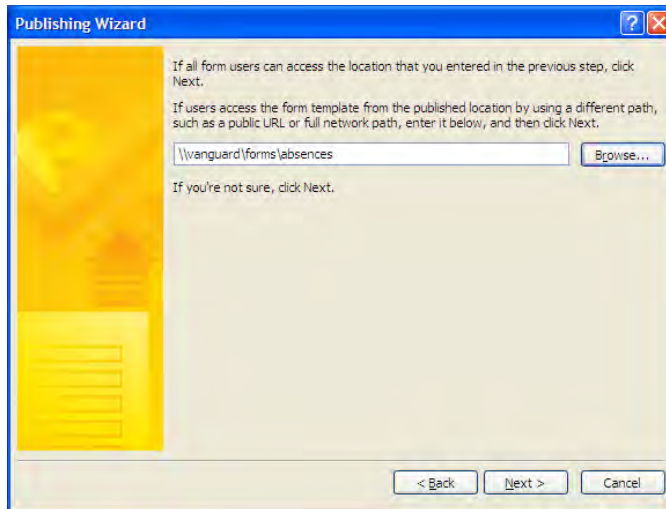


Figure 10-5. Provide an alternate path to let others easily access the form.

When you click **Next** on this page, the Publishing Wizard displays a summary page with the information used to define where you want to publish the form. From this page, you can still return to the previous screens to correct any of the paths or file names entered. On the other hand, if everything is correct, you can click the **Publish** button at the bottom of the form to complete the publishing of the form to the network share.

Notice the reference to **Security Level** on this page. By default, InfoPath sets the security level for a form to **Domain** if you are connected to a network when you create the form. Domain security allows forms to access content stored in the form itself, as well as the following:

- Data in the same domain as the form
- Data in domains included in the trusted sites zone in Internet Explorer
- Content in the local computer and local intranet zone of Internet Explorer

InfoPath defaults to a **Restricted** security level when you create a form while not connected to a network. Restricted security limits the form to accessing content only from within the form itself. This means the form cannot use any of the following features:

- Custom dialog boxes
- Custom task panes
- Data connections
- Human workflow services
- Linked pictures
- Microsoft ActiveX controls
- Managed code and script
- Print view for Microsoft Office Word 2003
- Roles based on Active Directory services
- Rules associated with opening forms

Finally, the **Full Trust** security level allows a form to access data in itself, in the same domain as the form, and in other domains where it has access. It also provides access to files and settings on the computer. You can grant Full Trust to a form if you digitally sign a form with a trusted root certificate. Your system administrator can help generate certificates that allow you to install and use Full Trust forms.

To open the form after publishing it, navigate to the network share and double-click on the .xsn file as mentioned earlier or open the form template directly from InfoPath Filler. After filling in the form, you might ask, “How do I save my data?”

Good question. To save your form data, open the **File** menu and select **Save As** to display the **Save** dialog shown in Figure 10-6. In this dialog, you can see that I am still pointing to the network share using my mapped drive X:. You do not have to store the data from the form in the same directory as the form definition itself. In fact, in many cases you will want to use a different directory so you can define more limited rights to the form’s source directory than to the data directory where users need read-write capabilities. However, for the purposes of this example, I will use the same directory. Notice also in Figure 10-6 that the form’s source file does not appear. That is because the **Save** dialog filters the

directory contents on the extension .xml, and the form source has an extension of .xsn. However, you can view the full directory listing by showing all files to see that both files are still there.

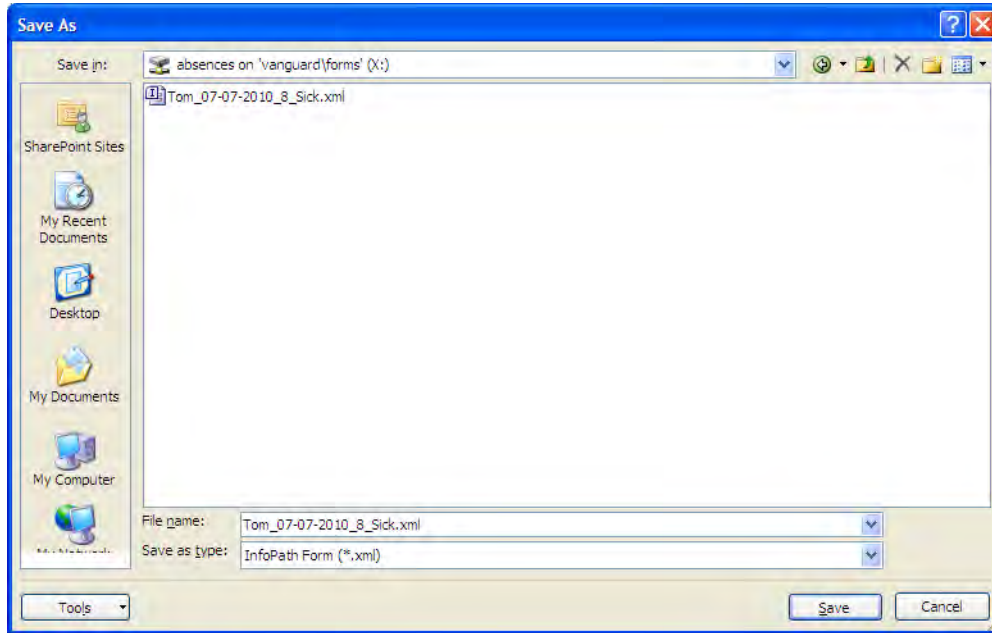


Figure 10-6. Save a data file from a form to the shared network drive.

One other concern about saving your form data this way is that the user is responsible for defining the file name. In this example, I created a file name that combined the user's name, the start date of the absence request, and the number of hours requested. It would be great if everyone used this format every time they saved their data so that you can easily sort the file names to see when people were out of the office and for how long. However, that expectation is not realistic. We will return to this question in a moment, but first, let's look a little more at the file just saved from InfoPath Filler.

If you use Windows explorer to view the files in the mapped drive, as shown in Figure 10-7, you will see that you do indeed have two files stored there. The .xsn file is the form definition file that you published to this location. The second file with the .xml extension is the data file you just saved. Did you notice the difference in the file sizes?

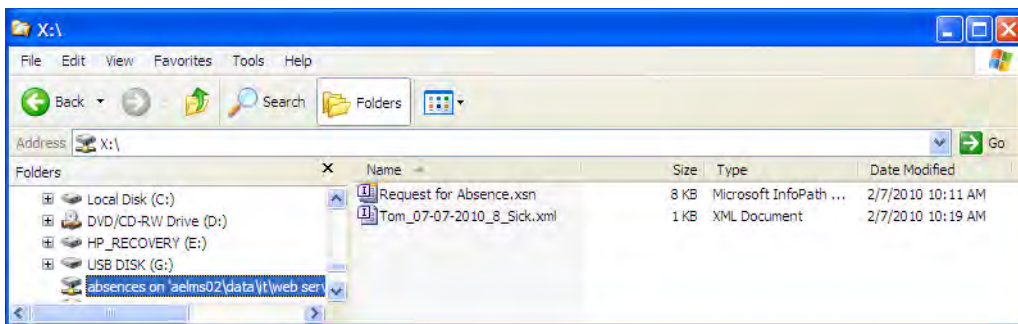


Figure 10-7. Windows Explorer shows both the form source and form data file.

The data file created by InfoPath Filler is substantially smaller than the form definition file. The reason for this difference is that when InfoPath Filler saves the data from the form, it saves only the data, not the form itself. However, it does retain a reference to the path and file name of the form used to create the data in the beginning of the file. If we were to open the .xml file with Notepad (or your favorite XML editor), you would see the data stored by InfoPath Filler. Figure 10-8 shows the opened .xml file.

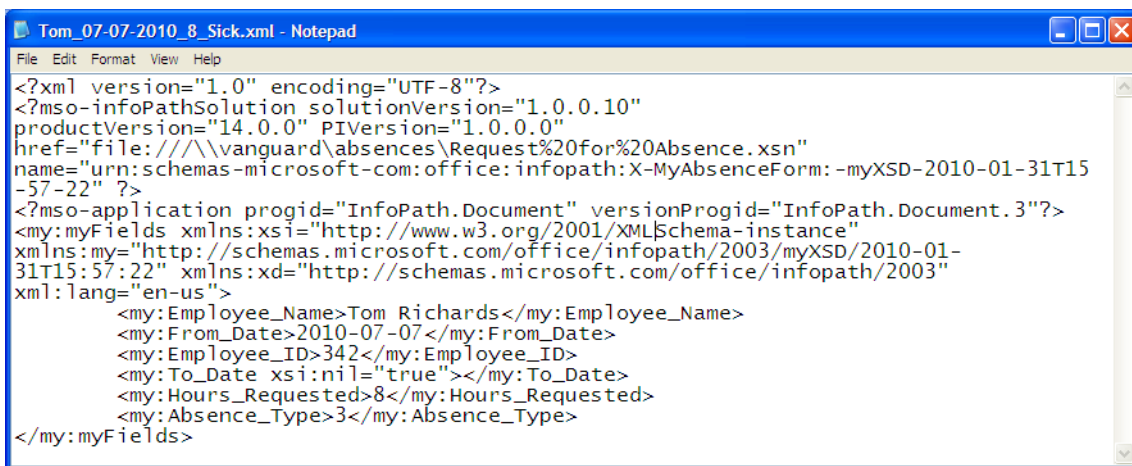


Figure 10-8. Examine the xml behind a form data file.

Notice that the first several elements of this XML file provide the operating system with information to identify the type of file. It also identifies the specific form file in the fourth line that I used to generate the data file. That information explains why you can double-click on a data file and the operating system knows which form to use to display the data and where to find that form.

In the lower half of this figure, the element **my:myFields** defines the data section of this file. Each of the sub-elements defines one of the data fields from the form and includes the value of that field. Therefore, it would be possible for you to write other applications to read this XML file and extract the form data. While you could also use XSLT against this data to create other display formats, a far easier approach would be to create different views of the data within InfoPath. For example, you might use the default view of the form to collect data that needs to appear on several related documents. Then create these other documents as alternate views using that data so the user only needs to enter the data once.

Publish Your Form Data to SharePoint

While being able to use your form from a network share provides a great starting point, you saw that one of the potential problems is that the user can save the data after filling in the form in any directory he wants using any naming convention he pleases. You can and probably will lose data this way. It would be much better if you could at least save your form data to a SharePoint library. Let's open the **Request for Absence** form stored in the network share and see how to automatically save the form data to a SharePoint library. Figure 10-9 shows that when you right-click on the form name in the network share, the drop-down dialog contains a command, **Design**, which opens the form using InfoPath Designer 2010.

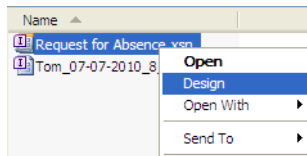


Figure 10-9. Open the form definition file from the shared network drive using the *Design* command.

Once you have the form open, click on **File** and go to the **Info** page, as shown in Figure 10-10. Notice the description under the section titled **Submit Options**. It implies that the submit options could allow you to define how users will return completed forms.

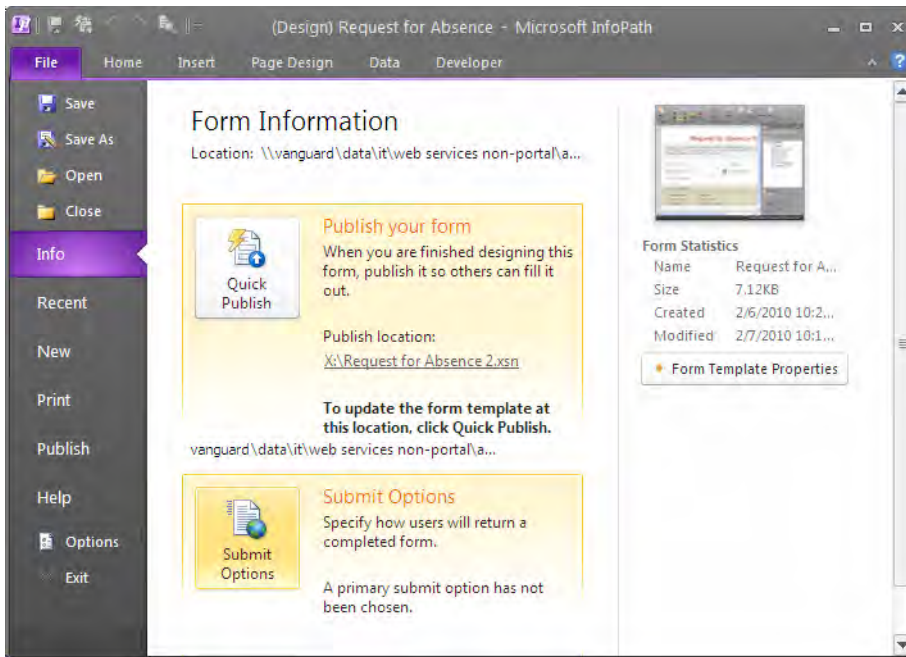


Figure 10-10. Go to the Backstage Info page to change the form's submit options.

When you click the **Submit Options** button in Figure 10-10 for the first time, InfoPath opens the dialog shown in Figure 10-11 to ask where you want to submit the form.

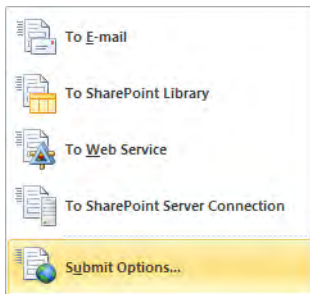


Figure 10-11. The Submit Options drop-down menu.

For this example, choose **Submit Options**. Initially the **Submit Options** dialog shown in Figure 10-12 has no values selected or entered. That explains why the user had to use the **Save** option from the file menu to save the data.

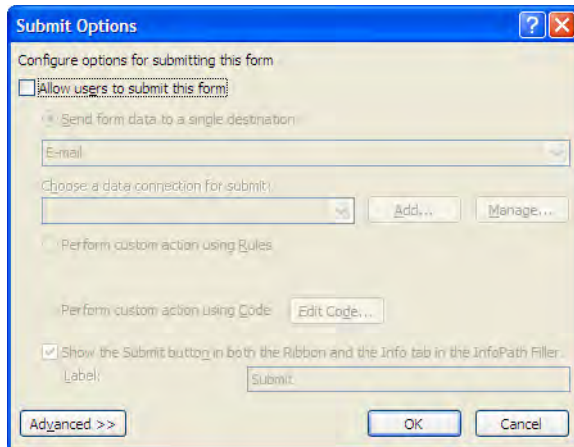


Figure 10-12. *The Submit Options dialog.*

The first thing you want to do is to click the check box **Allow users to submit this form**. This option adds a **Submit** button to the **Home** ribbon of InfoPath Filler when the form is opened. It also enables some of the other options on this dialog page, as shown in Figure 10-13. Immediately, you can choose from three radio buttons to define the action when the user clicks the **Submit** button. Of these radio buttons, let's choose the first one: **Send form data to a single destination**.

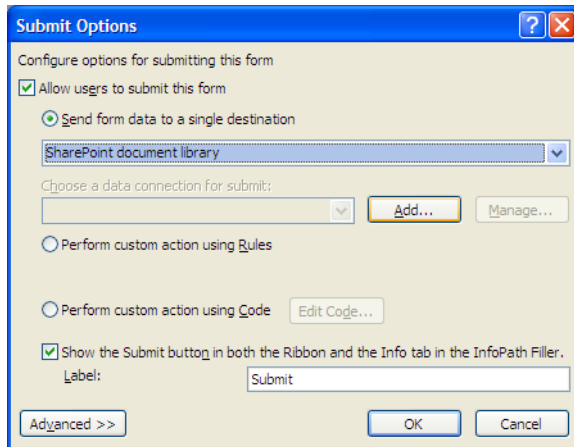


Figure 10-13. *Turn Submit on and designate a SharePoint document library as the single destination.*

Even with this option, you have several options to choose from when defining that single destination:

- E-mail
- SharePoint document library
- Web Service
- Web Server (HTTP)
- Hosting environment
- Connection from a data connection library

This short introduction to using InfoPath will not go into each of these options. For now just know that each destination prompts for its own specific information needed to send the data to the destination of your choice. For example, the E-mail option needs you to define the standard To:, Cc:, Bcc:, and Subject: fields for the message. You can also provide a brief introduction text that appears in the body of the e-mail. The form data itself becomes an attachment to the e-mail. While I will not go into the details here, you can define the contents of these e-mail fields with data from the form.

In our case, however, you want to define the destination of the data as a SharePoint document library. After making this selection, you must define where it can find that library by clicking the **Add** button in the section **Choose a data connection for submit**.

In the **Data Connection Wizard**, you begin by defining the URL to the document library where you want to save InfoPath's xml data file. The URL must include the full URL of the site and library. This should make sense considering that InfoPath does not know anything at all about your SharePoint site.

Figure 10-14 shows the first page of the **Data Connection Wizard** with the Shared Documents library of our default site as the target location for saving the form data. Next, we need to examine the file name that InfoPath will use when saving the data.

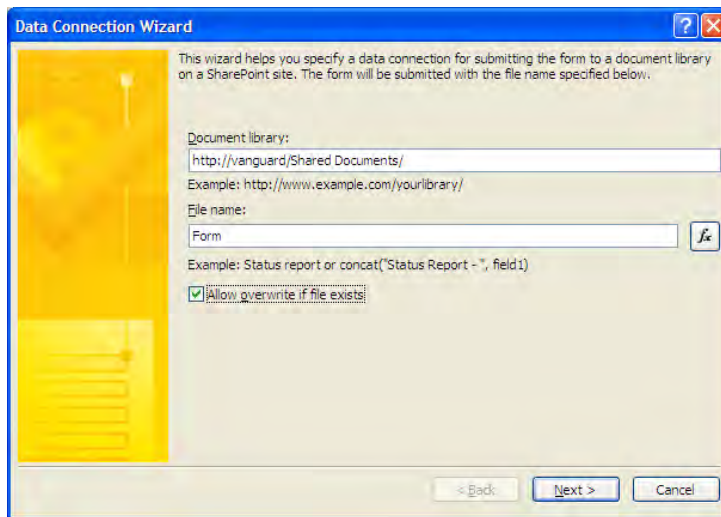


Figure 10-14. Identify the SharePoint document library.

In Figure 10-14 you can see that the default file name is simply **Form**. This file name is very generic and does not tell you much about the contents of the data file. However, more importantly, you could never have more than one file in the SharePoint library with this name. In fact, with the option **Allow overwrite if file exists** turned on, you would overwrite any previous form data with the new form data each time you open the form and submit data. Of course, turning off this check box does not improve the situation much because it still limits you to one file with the name **Form** in your SharePoint library. However, in this case, SharePoint only saves the first submitted data file, rejecting any subsequent submissions because they have the same name and it does not allow overwriting the data file.

To solve this problem, you need to build the file name dynamically using information that returns a unique value. You can do this by clicking the function button (**fx**) to the right of the file name text box to open the **Insert Formula** dialog. In this dialog, you can enter a formula in the large text box or you can use the leftmost of the three buttons below the text box to insert field values from the form to create the file name.

The middle button below the text box lets you use a predefined set of formulas to act on any data from the form. In addition, some formulas allow you to access dynamic information such as the current date—**Today()** and **Now()**—as well as the user name of the person filling in the form—**Username()**.

For this example, let's build a file name that consists of a combination of the employee's name, the starting date for the absence, and the total number of hours requested. All three items can be gathered from the form's fields. To combine them into a single file name, you use the **concat()** function. This function lets you combine two or more individual items by listing them as arguments to the function separated with commas. Even though the fields I selected consist of three different data types (string, date, and number), the **concat()** function performs all the hard work of combining each of these fields into a single string that you can use as a file name. In addition to the three fields, I am also adding a single underline character between each of the field values to help make them readable. You can see the resulting formula in Figure 10-15.

After entering the formula to create a file name, click the **Verify Formula** button to check that you did not make any formatting errors when defining the formula. If you get a dialog box that tells you that the formula does not contain any errors, you can click the **OK** button to the **Insert Formula** dialog to 'lock-in' your formula.

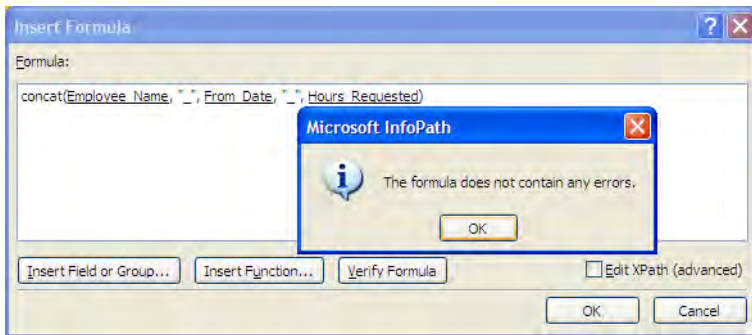


Figure 10-15. Build a custom and dynamic file name for the data file.

Figure 10-16 shows the **Data Connection Wizard** page again with both the document library location and the file name defined. You should give some consideration as to whether you want to allow the user to overwrite a file if it exists. In the Request for Absence example, a user can go back into an existing data file for the form and change the type of absence and resave the data without needed to

create a new file. However, if the user tries to change the start date of the absence or the number of requested hours, InfoPath creates a new file based on your file naming convention that uses these two pieces of information. Note also that if you create a second file with a different name, InfoPath does not delete the original data. In fact, it has no way to know whether the two data files are related. Therefore, you must define a naming convention that allows or blocks addition data files from being created when you edit the original file.

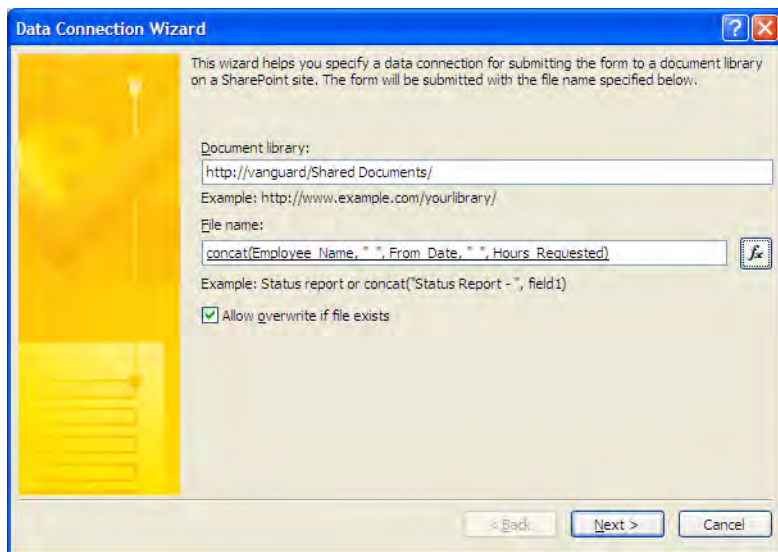


Figure 10-16. Specify whether InfoPath can overwrite a file with the same name.

When you click the **Next** button of the **Data Connection Wizard**, InfoPath shows you one additional screen, Figure 10-17, that lets you verify the information you entered in the first screen and lets you define a name for this data connection. If you only have a single data connection for the form, you can leave the default name. However, if you need to have multiple data connections for the form, you might want to create a more meaningful name so you can identify the purpose of each one. For example, you could change the name **Main Submit** to **Submit Data to SharePoint Library**.

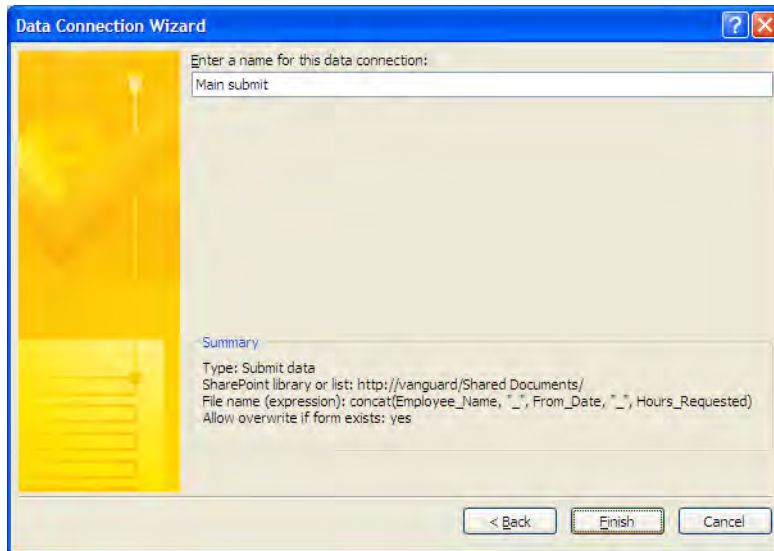


Figure 10-17. Summary/verification of data connection information.

If you notice any problems with the data in the **Summary** section such as perhaps forgetting to check (or uncheck) the **All overwrite if form exists** check box, you can click the **Back** button to correct your mistake. When you finish, click the **Finish** button on this last page of the **Data Connection Wizard**. This action returns you to the **Submit Options** dialog in Figure 10-18 where you can set some additional properties.

You should click the check box to show the **Submit** option in both the **Home** ribbon and the **Info** tab of the backstage page of InfoPath Filler. You can even change the name of the **Submit** option to something else such as **‘Save Me Now’** or **‘Please Keep Me’** or whatever you may prefer.

Next, click the **Advanced** button at the bottom of the dialog if you do not see additional options. With the **Advanced** properties opened, you can choose to display a message when the submission fails. In the text box associated with this option, you can define exactly what you want the message to say. Unfortunately, there is no way to create a “smart” message that tells the user why his submission failed. Therefore, you might leave the message as is or perhaps add a few helpful hints on common mistakes such as:

- Check your network connection.
- Check that your file name is unique.
- Check that your network cable is securely attached.
- Check that your wireless connection is turned on.

You can also display a message when the submission succeeds. Finally, you can select one of three actions for InfoPath to take when the submission ends. You can automatically close the form. Use this option if the user typically only enters a single instance of the form at any one time. The second option opens a new form after saving the current data. Use this option if the user must enter a series of data sets using the same form. The final action is to leave the form open. Use this option if you have a lengthy

form that users might want to save periodically while they enter their data to make sure they do not lose all of their data. After you have completed the **Submit Options** dialog, click the **OK** button to save all your choices. This is also a good time to save a copy of your form back to its source location by clicking **Save** from the **File** menu.

The screenshot shows the 'Submit Options' dialog box with the following settings:

- Allow users to submit this form
- Send form data to a single destination
 - SharePoint document library
- Choose a data connection for submit:
 - Main submit
 - Add...
 - Manage...
- Perform custom action using Rules
- Perform custom action using Code
 - Edit Code...
- Show the Submit button in both the Ribbon and the Info tab in the InfoPath Filler.
 - Label: Submit
- Show this message if the form submission fails:
 - The form cannot be submitted because of an error.
- Show this message if the form is submitted successfully:
 - The form was submitted successfully.
- After submit:
 - Close the form

Buttons at the bottom include 'Advanced <<', 'OK', and 'Cancel'.

Figure 10-18. Define additional Submit Options.

Now you can test your new version of the Request for Absence form. In Figure 10-19 I have entered 32 hours of personal leave for employee Natasha. Notice that now I have a **Submit** button in the **Home** ribbon that I can click after completing the form.

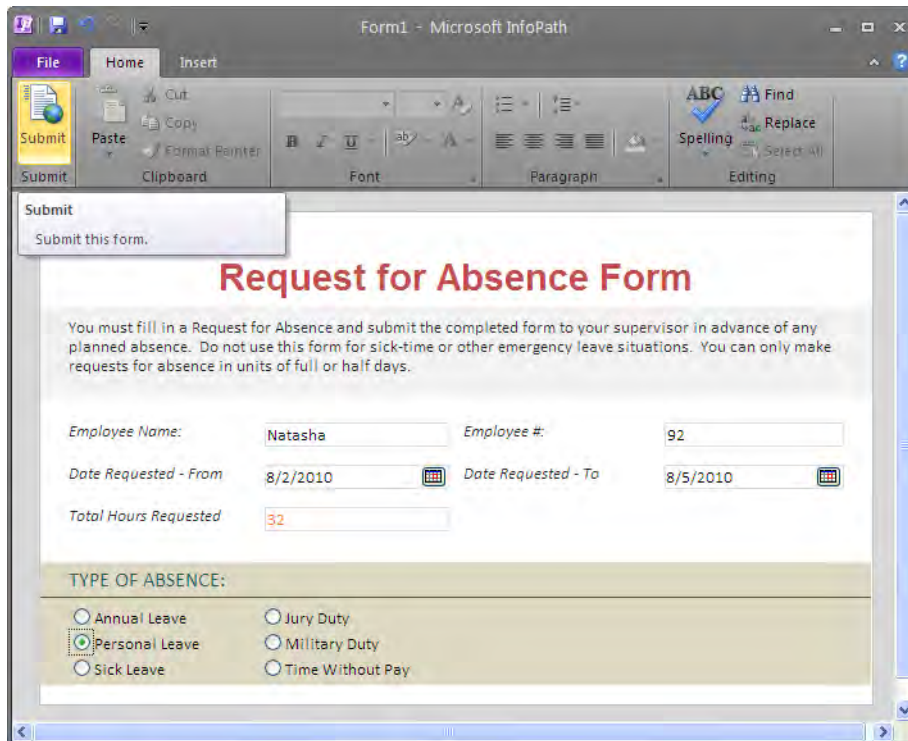


Figure 10-19. Use the **Submit** button from the **Home** ribbon to save new form data.

A few moments after you click the **Submit** button for the form, the message box shown in Figure 10-20 appears telling you that the form was submitted successfully. When you click the **OK** button of this message box, InfoPath closes both the message box and the form as requested.

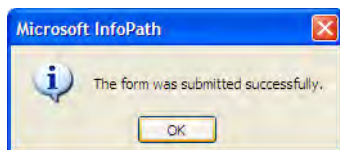


Figure 10-20. Use a message to indicate success or failure of the submit.

■ **Caution** If you are testing your form locally before submitting it to SharePoint, you may see a warning dialog when InfoPath attempts to access the server to save the data. After publishing the form, you will no longer see this warning.

Going out to the Shared Documents library that I specified as the destination for my data in the Data Connection Wizard, I see in Figure 10-21 that I now have one document in the library. Notice that the name of the document includes the employee name, the beginning date of the absence, and the number of hours that the employee has requested. You can see how useful having this information in the data file name might be when you need to identify individual data files. However, let's see what happens when you make a change to the data.

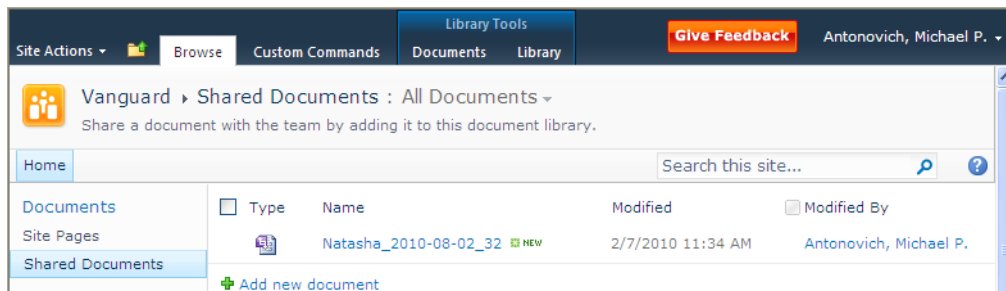


Figure 10-21. Example of a generated data file name

To edit the data file, position your mouse over the data file name until you see the drop-down arrow to the right of the file name. Click on this arrow to open the file's menu shown in Figure 10-22. You can edit the data file by clicking the option **Edit in Microsoft InfoPath**.

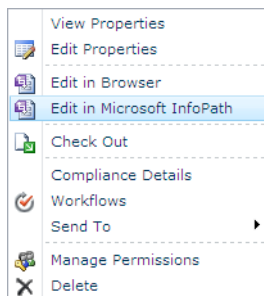


Figure 10-22. Edit the data directly from the SharePoint library from the item's drop-down menu.

If you remember that I previously stated that the data file only contains the data for the form instance, not the form itself, then how does it know how to find the form? Figure 10-8 showed the contents of a typical data file. In it, you saw that one of the xml elements included a reference back to the form. Therefore, when you click on the data file document in your SharePoint library, SharePoint can open InfoPath and read the xml of the data file to determine where to find the form definition. Thus, you see the data file opened in Figure 10-23 using the same form definition that you used to create the data file originally.

The screenshot shows the Microsoft InfoPath application window titled 'Natasha_2010-08-02.xml - Microsoft InfoPath'. The ribbon includes 'File', 'Home', and 'Insert' tabs. The 'Home' tab is active, showing 'Clipboard' (Submit, Paste, Format Painter), 'Font' (B, I, U, Aa, Color), 'Paragraph' (List, Indent, Decrease Indent, Increase Indent, Bulleted List, Numbered List, Paragraph Styles), and 'Editing' (ABC, Spelling, Find, Replace, Select All) groups. The main content area displays a form titled 'Request for Absence Form' in red. Below the title is a paragraph of instructions: 'You must fill in a Request for Absence and submit the completed form to your supervisor in advance of any planned absence. Do not use this form for sick-time or other emergency leave situations. You can only make requests for absence in units of full or half days.' The form contains several input fields: 'Employee Name' with the value 'Natasha', 'Employee #' with '92', 'Date Requested - From' with '8/2/2010', 'Date Requested - To' with '8/5/2010', and 'Total Hours Requested' with '32'. Below these fields is a section titled 'TYPE OF ABSENCE:' with six radio button options: 'Annual Leave', 'Personal Leave' (which is selected), 'Sick Leave', 'Jury Duty', 'Military Duty', and 'Time Without Pay'.

Figure 10-23. SharePoint opens InfoPath Filler from a data file in a document library.

Suppose you make a small change to this data file by changing the **Requested To** date to 8/4/2010 instead of 8/5/2010 and, therefore, change the **Total Hours Requested** field from 32 hours to 24 hours. When you click the **Submit** button on this changed form or click on the **Submit** button in the **Info** page of the **Backstage** area, InfoPath saves a second copy of the dataset with a new file name, as shown in Figure 10-24. Although the employee name and the first date of the request had not changed for this new version of the form's data, the total number of hours requested did change, thus resulting in a new file in the Shared Documents folder.

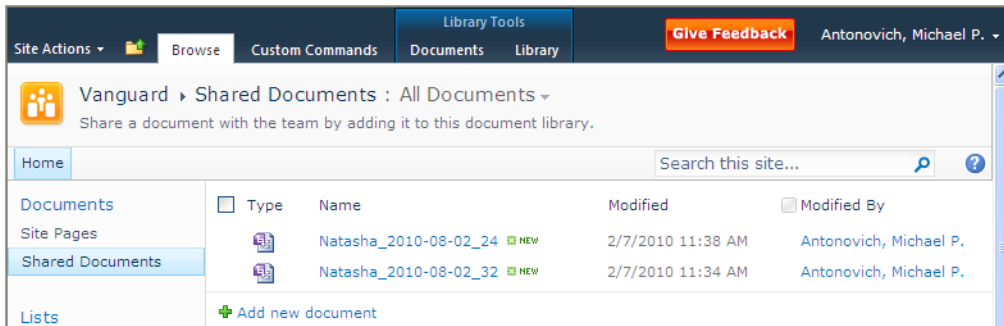


Figure 10-24. Resubmitted data creates a second file when the Hours Requested change.

Using InfoPath Forms Services for Customers Without InfoPath

Suppose you do not want to publish your forms to a network file share because it requires that the form users have InfoPath on their desktop, and not everyone in your organization has InfoPath installed. If you have InfoPath Forms Services installed on your SharePoint server, you can publish your templates to document libraries. Users can then access the forms from the library just like they would access other document types.

You can specify in the library whether to attempt to open the file using the appropriate client application or to open it in the user's web browser. Of course, if you do not have Forms Services, you can still publish your form to the library, and users can open the form using their local copy of InfoPath. But with Forms Services, you can give users the choice of whether they want to open the document in InfoPath or directly within their browser.

■ **Note** Users working with the SharePoint 2010 Enterprise edition do not have to worry about Forms Services because the Enterprise edition includes the necessary services. However, if you use the standard edition or use Microsoft SharePoint Foundation 2010, you may want to contact your Microsoft representative to see if you can add Forms Server to support InfoPath forms.

Publishing to a SharePoint Server

Using the **Request for Absence Report** again from the previous section, let's republish the form, but instead of choosing the network share option, choose the SharePoint option from the **Publish** page of the **Backstage** area, as shown in Figure 10-25.

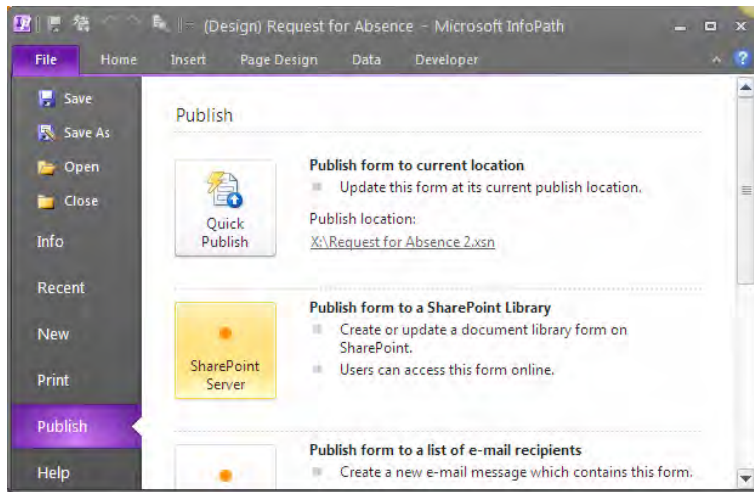


Figure 10-25. Publishing a form to SharePoint

Next, enter the SharePoint site where you want to publish the form. You need to enter the URL of the library for the site you want to use. If you navigate to it in a separate browser window, you can copy the URL from the address bar at the top of your browser as long as you drop the name of the library itself and anything to the right of the library name. Figure 10-26 shows the first page of the **Publishing Wizard**, where you can specify the name of your SharePoint site or InfoPath Forms Services site.

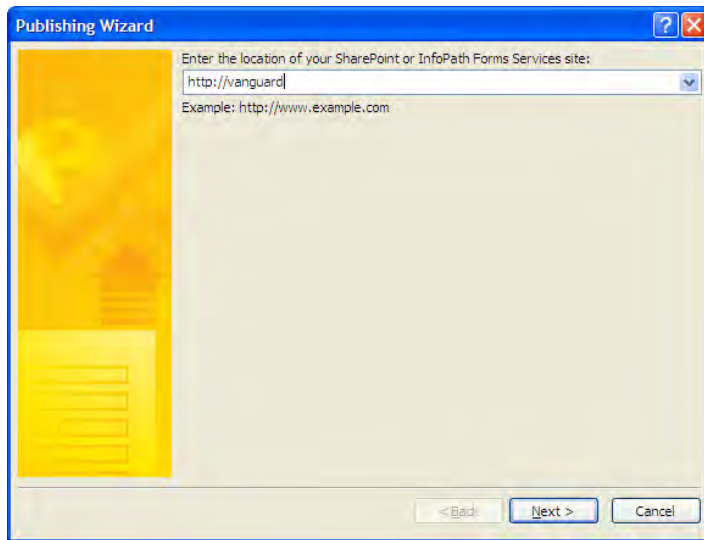


Figure 10-26. Identifying the site where you want to publish the form

On the next page of the wizard, shown in Figure 10-27, it asks you to indicate whether you want users to fill out the form using a browser or if you want them to download the form and open it with a local copy of InfoPath.

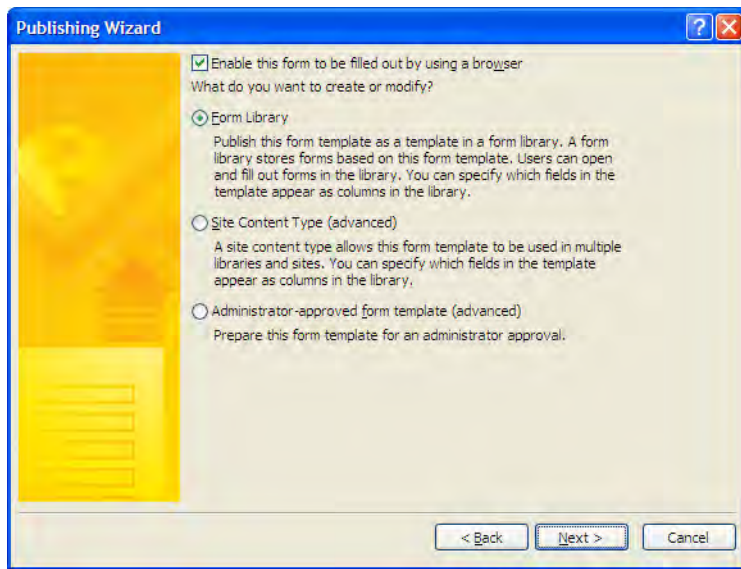


Figure 10-27. Identifying how you want to publish the form

Validating Your Form Before Publishing

Before beginning the process of publishing your form, you should have InfoPath verify that the form does not contain any features that browsers do not support. You can do this by selecting **Design Checker** in the **Info** page of the **Backstage** area. This command displays the **Design Checker** panel along with any incompatibilities with the selected server where you published the form. If you have not published the form yet, you can select the link **Change Settings** at the bottom of the **Design Checker** panel to open the **Compatibility** page of the **Form Options** dialog. Select if necessary the option **Web Browser Form** as the Form Type. To verify the compatibility of the form with InfoPath Forms Services on your specific server, enter the name of your SharePoint server in the text box in the **Server Validation** section. For example, I would enter `http://vanguard` for my server. When I save the form, InfoPath automatically adds the rest of the URL, transforming my entry to `http://vanguard/_vti_bin/FormsServices.asmx`. Click **OK** to accept your changes to **Form Options**. Finally, make sure to select the check box **Verify on server**.

You can then click the **Refresh** button immediately above the check box to check your form for incompatibilities against your form server. It may take a few moments for InfoPath to verify your form. However, when it finishes, it displays a set of errors and messages. You must fix errors before you can publish the form if you want Forms Services to be able to open the form. However, messages tell you of noncritical concerns that you can ignore or address without affecting whether Forms Services can open the form. For example, a message warning you that dialog box validation messages will not show merely reminds you that dialog box validation messages can only appear when you open the form with InfoPath Filler.

Next, on this same page of the wizard, you must select from three choices for how you want to publish your form. The first option lets you publish the form to a form library. If your form only has declarative functionality, you can publish the form usually without assistance to a form library and begin using it as long as your SharePoint administrator has activated Forms Services for the site.

■ **Note** *Declarative functionality* means that the form supports basic conditional formatting that may change the form's appearance, alter the visibility of individual controls, or change the read-write state of controls.

When you publish a form to a form library, I generally recommend that you get started by saving each template to a new library. However, you will see in the section “Working with a Library That Has Multiple Content Types” that you can publish more than one template to a single library using content types, which the second option on this page of the wizard foreshadows.

■ **Tip** When deciding whether to make more than one template available in a single library, ask the users of the library if that makes sense to them. For example, while you might include a gas-mileage-only expense form in the same library as more extensive trip expense forms, you probably would not include either of these in a library with a vacation or absence request form.

Finally, use the last option on this page when you have a form that requires administrator approval. Form templates that use managed code or data connections usually require the assistance of your SharePoint administrator to set up. These forms also typically require **Full Trust** or at least **Domain Trust** to run, since the data is not self-contained in the form and may not even be on the same server.

For this example, I will run you through publishing the **Request for Absence Report** to a standard form library, since it does not use managed code or reference external data.

On the next page of the wizard, shown in Figure 10-28, you can choose to publish the form to either a new library or an existing library. If you choose to publish to an existing library, you can select from the available libraries found on the SharePoint server listed at the bottom of this page of the wizard.

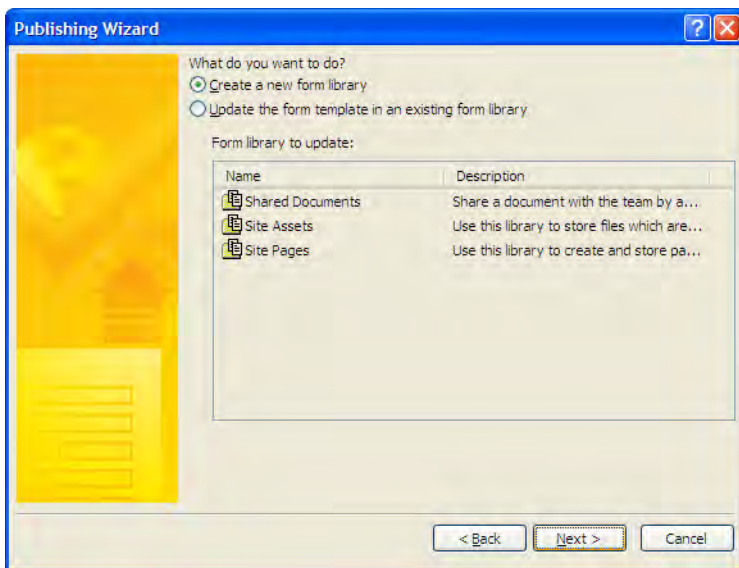


Figure 10-28. Create a new document library at the same time you publish the form.

You may be tempted to try to publish your form to an existing document library by clicking the second option button in Figure 10-28 and then selecting a library from the list. However, if you do not first configure the document library to accept InfoPath forms, it rejects the update. You can only update existing document libraries that already have an InfoPath form defined as the default content type. On the other hand, this list may also display form libraries to which you can directly publish your form. Unfortunately, there is no easy way to differentiate from this list which libraries you defined as document libraries and which you defined as form libraries.

■ **Tip** When I am ready to publish a new form, I generally create a corresponding form library for it before publishing the form since form libraries by default support InfoPath forms.

So you might think that you can simply cancel the **Publishing Wizard** at this point, switch to SharePoint, and manually create a new library. If you create a new document library from within SharePoint, you do not get an InfoPath document as a default template type. This is because unlike Word, Excel, and several other template options that SharePoint does include, it does not include a blank InfoPath form as an option. While you could accomplish this task by creating a new content type first, building the document library, adding the content type to the library, and then making that content type the default for the library, that entails just a few too many steps for me.

You could also create a form library, which is essentially a specialized document library designed to handle XML data created from form templates. A form library uses a Microsoft InfoPath document as its default template type. You could then update the template of that form.

However, the easiest method of publishing a new form is to just select the first option shown earlier in the section in Figure 10-28, and let InfoPath do all the necessary work to create a new form library based on the InfoPath form you want to publish.

In fact, choosing that option prompts you for the name of the form library along with a description. You can see this on the next page of the **Publishing Wizard**, shown in Figure 10-29.

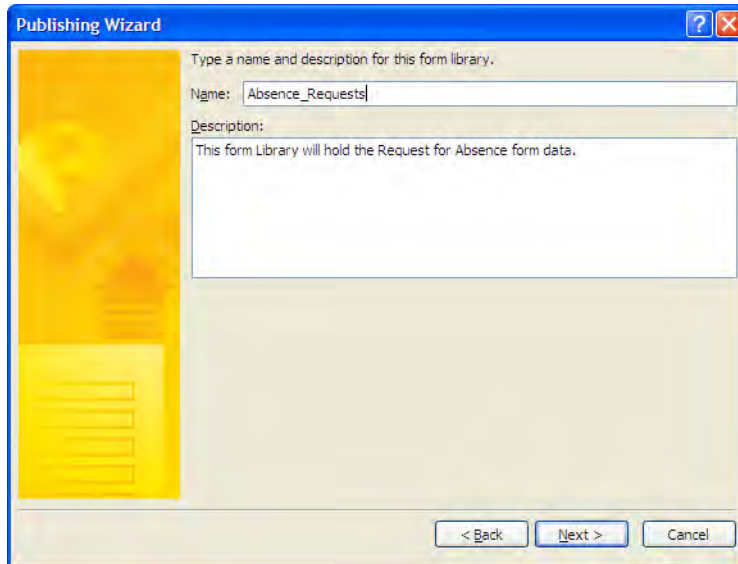


Figure 10-29. Providing a name and description for a new document library

Defining Metadata for the Document Library

When creating a new form library, SharePoint wants to know what additional columns you want to associate with the library. SharePoint gives you the option of adding any of the fields from the InfoPath form as columns. Displaying the major form fields as columns makes it easier to scan through the saved data files after using the form to see important information without having to open each data file individually. It also makes it easy to download the data perhaps through an Excel spreadsheet or Access database that you can use elsewhere.

■ **Tip** Recall from Chapter 7, which covered managing SharePoint lists in Excel, that you can export the metadata from a document library to a spreadsheet. Since the metadata from this library represents data from completing the forms, you can use the resulting Excel spreadsheet to process the data to display groupings, subtotals, totals, averages, and so on.

Figure 10-30 shows that InfoPath recognizes most of the simple data fields and automatically adds them to the list of potential columns in the document library it creates. If you want to check whether the form has any additional fields that you might want to display as a column, click the **Add** button to the right of the dialog box.

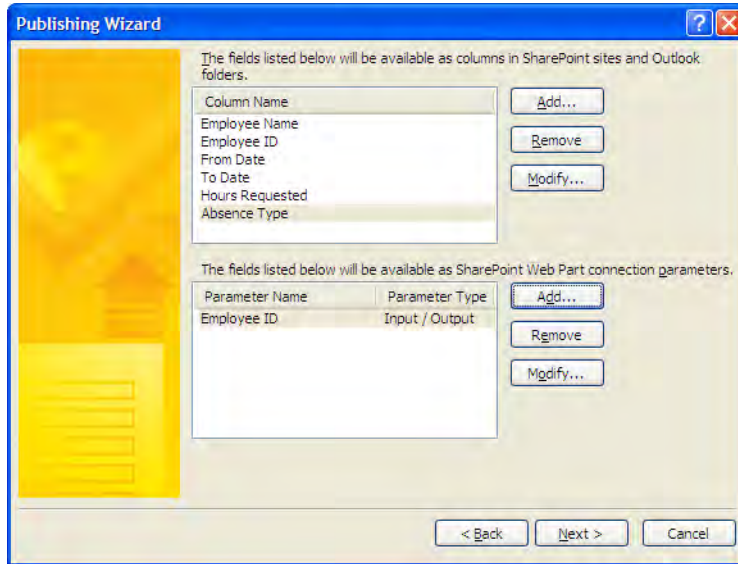


Figure 10-30. Selecting form fields to appear as columns in the library

When you click the **Add** button in the top-half of this form, the **Select a Field or Group** dialog box appears, as shown in Figure 10-31. If you scroll through the list of available fields, you can select any field from the form not already included in the column list. Notice that you can also use this opportunity to rename any form field that may have an abbreviated or complex name with a more descriptive column name when added to the library.

In the second half of this form you can select fields from the form that can be used as connection fields to other lists in the SharePoint site where you save the form library. If you know that you will not need to create connections between this library and any other library or list, you can ignore this feature. In Figure 10-30, I have selected the **Employee ID** field as a field that you could potentially use to connect this library with other libraries and lists.

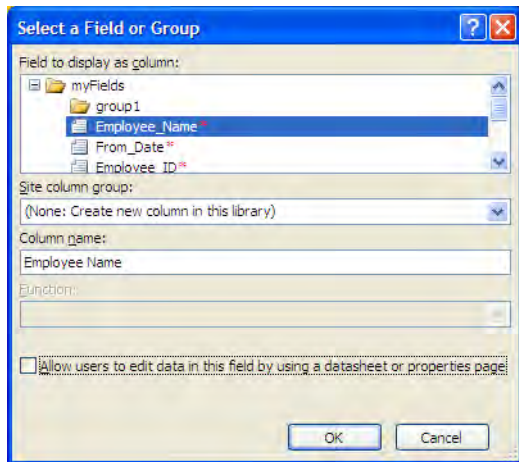


Figure 10-31. Adding a column or changing its name

If you decide not to include any of the columns that InfoPath preselected, you can remove them from the column list before you build the library by selecting them in the list shown earlier in Figure 10-30 and then clicking the **Remove** button. You can even update the column names of the fields that InfoPath preselected by clicking the column name and then clicking the **Modify** button.

The check box at the bottom of the page determines whether the user can edit the data in the select column after it appears in a SharePoint list using the datasheet mode or even the edit (properties) page. You should note, however, that any rules you define within your form do not get translated to the SharePoint list.

When you have all the columns defined that you want to extract from the form, click the **Next** button on the page to proceed to the confirmation page of the **Publishing Wizard**, shown in Figure 10-32. This page displays a summary of the configuration information for the library. If you click **Publish** to continue, InfoPath builds the new document library in SharePoint.

■ **Tip** If you want to manipulate the data in the SharePoint library that holds the form data using a workflow, you must click the check box to allow users to edit the data in the field.

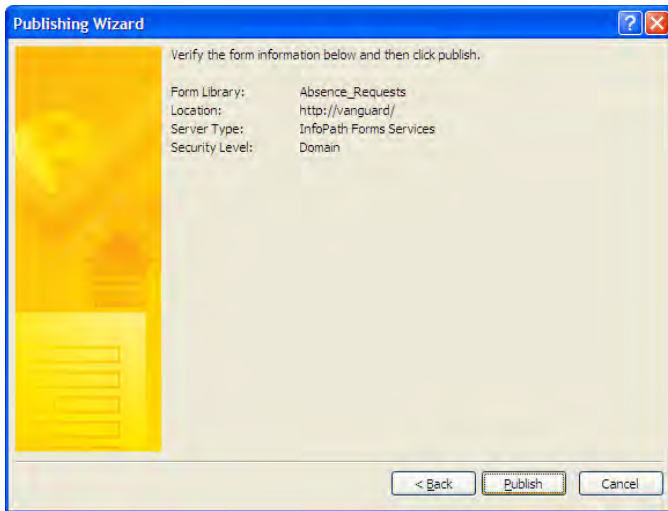


Figure 10-32. Verify action parameters before publishing the form.

It may take a few seconds for InfoPath to create the new document library. However, when it finishes, it refreshes this page of the wizard, giving you the option to open the document library. Figure 10-33 implies that you can open the form immediately in a browser, but if you just created a new library for this form, you may have a few additional library settings to look at first.

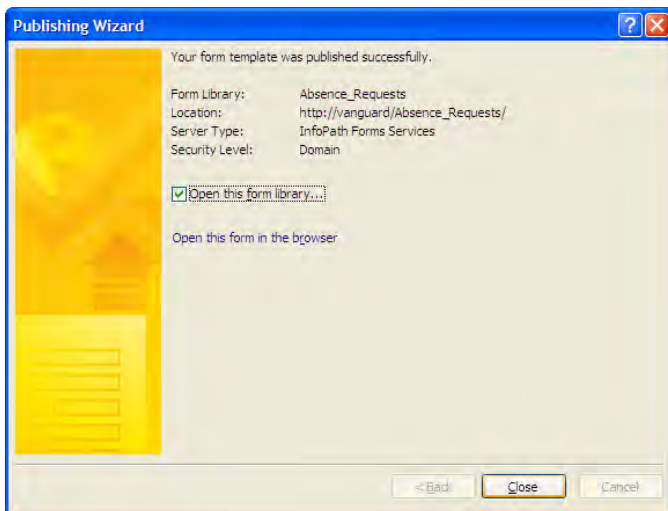


Figure 10-33. Verify the published form by opening it or sending it in an e-mail.

Additional Library Settings

Open the **Library** ribbon and from the **Settings** group click **Library Settings**. Then select **Advanced Settings** under the **General Settings** group. You will see that the **Document Template** has been set to **Absence_Requests/Forms/template.xsn**. The first part of this name is the name of the form library. Think of the next part of the path, **Forms**, as a directory where the library stores all its templates. Then the file name, **template.xsn**, is the name of the default template, which in this case is an InfoPath template, based on its extension of **.xsn**.

So how do you know that this file is the form that you began with? You could click **New** back on the **Library Tools Documents** ribbon to show that the default new document for this library opens a blank copy of the form. You could also click the **Edit Template** link immediately beneath the **Template URL** on the **Advanced Settings** page. Because the extension of the current template is **.xsn**, this action opens the template in InfoPath. It first pops up a dialog box to tell you that you can update the form template. However, if you make changes, you must save the form and then republish it to this library to update it. Republishing the form does not affect any of the existing data records created with the older version of the form.

■ **Caution** The fact that the existing data records are not affected by publishing a new version of the form is not the same as saying that the data will work with the new form. Deleting or renaming fields can cause an apparent loss of data when the new form attempts to display an old data file.

If you click the **Close** button in Figure 10-33 after selecting the option to open the document library, SharePoint opens the new library, as shown in Figure 10-34. Of course, the library starts out empty. So you may be wondering what happened to the form that you published to this library. It is there. However, rather than becoming an entry in the library, as would happen if you simply tried to upload a document to the library, it has become the default template for the library.

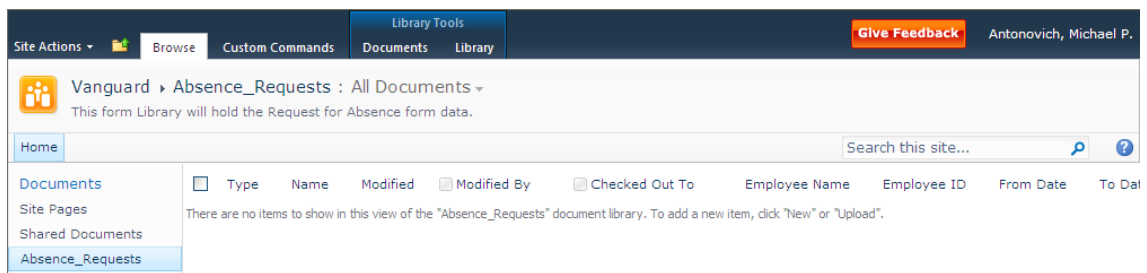


Figure 10-34. New document library for a form showing the custom columns from the form

While you are in the **Advanced Settings** page, look at the next section, named **Opening Documents in the Browser** (Figure 10-35). This setting lets you choose whether to open documents in a browser or client application for those documents that support both modes. By default, SharePoint uses the server default, which is defined as the browser window in this server. Therefore, for a form library, you could

keep the default value or, if necessary, you could change the default setting to **Open in the browser**. In either case, SharePoint will then use Form Services so that users can fill in your InfoPath form online.

<p>Opening Documents in the Browser</p> <p>Specify whether browser-enabled documents should be opened in the client or browser by default when a user clicks on them. If the client application is unavailable, the document will always be opened in the browser.</p>	<p>Default open behavior for browser-enabled documents:</p> <p><input type="radio"/> Open in the client application</p> <p><input type="radio"/> Open in the browser</p> <p><input checked="" type="radio"/> Use the server default (Open in the browser)</p>
---	---

Figure 10-35. Changing the default display in your browser

Finally, if you plan to add more than one form to this library, you need to change the setting for the first option, **Content Types**. By changing the value of this option to **Yes**, you allow the library to support multiple content types, where each content type is a different form. If you plan to use only a single form type within this library, leave this setting at **No**, although setting it to **Yes** will not hurt anything either.

With the **Custom Send To Destination** setting, you can set a name and URL to which to send a copy of the form, generally to another SharePoint library on the current or even another SharePoint site. You may want to do this if you need to have users send a copy of their form data to a second location after they have saved it to the library. Other options include the ability to turn on or off the **New Folder** command in the **New** menu and the ability to determine whether to include this library in search results. Figure 10-36 shows the top portion of the **Advanced Settings** page.

<p>Content Types</p> <p>Specify whether to allow the management of content types on this form library. Each content type will appear on the new button and can have a unique set of columns, workflows and other behaviors.</p>	<p>Allow management of content types?</p> <p><input type="radio"/> Yes <input checked="" type="radio"/> No</p>
<p>Document Template</p> <p>Type the address of a template to use as the basis for all new files created in this document library. When multiple content types are enabled, this setting is managed on a per content type basis. Learn how to set up a template for a library.</p>	<p>Template URL:</p> <p><input type="text" value="Absence_Requests/Forms/template.xsi"/></p> <p>(Edit Template)</p>
<p>Opening Documents in the Browser</p> <p>Specify whether browser-enabled documents should be opened in the client or browser by default when a user clicks on them. If the client application is unavailable, the document will always be opened in the browser.</p>	<p>Default open behavior for browser-enabled documents:</p> <p><input type="radio"/> Open in the client application</p> <p><input type="radio"/> Open in the browser</p> <p><input checked="" type="radio"/> Use the server default (Open in the browser)</p>

Figure 10-36. Decide whether you want to manage multiple content types in the current library.

Using the Published Form

Click **OK** to save your changes in the **Advanced Settings** page. Then click the library name in the breadcrumb area to display the library list again. So if the form itself does not appear in the library, what does appear in the library? Let's see what happens when you use the default form template to enter some data. Click the **New Document** option in the **Library Tools Documents** ribbon to open an instance of the form. Figure 10-37 shows the form displayed not in InfoPath but in the browser.

The screenshot shows a web browser window displaying a form titled "Request for Absence Form". At the top, there is a dark blue ribbon labeled "Edit" with several icons and labels: "Submit", "Save", "Save As", "Close", "Paste", "Copy", "Cut", "Print Preview", and "Give Feedback". Below the ribbon, the form content is displayed on a light gray background. The title "Request for Absence Form" is in a large, bold, red font. Below the title, there is a paragraph of instructions: "You must fill in a Request for Absence and submit the completed form to your supervisor in advance of any planned absence. Do not use this form for sick-time or other emergency leave situations. You can only make requests for absence in units of full or half days." The form contains several input fields: "Employee Name" with the value "Susan", "Employee #" with the value "2", "Date Requested - From" with the value "5/31/2010", "Date Requested - To" with the value "6/4/2010", and "Total Hours Requested" with the value "40". Below these fields, there is a section titled "TYPE OF ABSENCE:" with a list of radio button options: "Annual Leave" (selected), "Personal Leave", "Sick Leave", "Jury Duty", "Military Duty", and "Time Without Pay".

Figure 10-37. Display the form using Forms Services in your browser.

The appearance of the form in the browser mimics the appearance of the form within InfoPath, with the addition of an **Edit** ribbon. This ribbon displays options such as **Save**, **Save As**, **Close**, **Views**, and **Print View**.

The **Save** and **Save As** buttons simply save the form data to an XML file in your form library. When entering data into a new form, both **Save** and **Save As** prompt you for a file name for the XML file. However, after you have saved the form data, you can edit the data and save it again using the same name with the **Save** button or use the **Save As** button to create a second item with the updated data. Saving the form data with either of these two buttons does not close the form.

The **Submit** button allows you to define more options when saving the form data including allowing developers to add custom code to the form's submit event. Submitting options also let you easily define rules that the data must pass before it saves the data. You can also define alternate destinations for the data such as a web service or backend database and, you can even automatically define the XML file name using information from the form data itself. We will explore some of these options in the next section, **Changing Submit Options for a Form**.

■ **Tip** For entering data into a form, you typically do not need the **Views** command. You definitely do not need the **Views** command if you only have a single view for a form.

Changing Submit Options for a Form

If you want to change the options displayed on the ribbon, you need to open the **Info** page of the **Backstage** area and locate the section **Advanced** form options. Then click the **Form Options** button to open a dialog box that lets you set many of the form's options. Because of the number of options, InfoPath groups the options by category. The categories appear in a list along the left side of this dialog box. Select the **Web Browser** category if not already selected. In this area, you can select which commands appear in the ribbon. You can also define whether separate **Toolbars** appear at the top, the bottom, or both the top and bottom if the InfoPath ribbon is unavailable. If you choose to use both top and bottom toolbars, you cannot choose different commands for the top toolbar compared to the bottom toolbar.

Configuring Submit Options for a Form

To use the **Submit** command in the toolbar, you have to configure the submit options for the form. You can find these options by selecting **Submit Options** from the **Info** page of the **Backstage** area. You can configure submit options to send a copy of the form data to:

- E-mail
- A separate SharePoint document library
- A web service
- A hosting environment
- A connection from a data connection library

The **Submit Options** dialog box also provides options to create custom actions using either rules or code. You can even use a data connection option to specify the document library you want to employ and define a file name based on fields within the form, such as the employee's name and the date of her absence. This would eliminate the need for the user to remember the file naming convention discussed in this section.

Saving the Data from a Form

After completing the form as shown in Figure 10-37, you need to save your data. You can click the **Save** or **Save As** option. Both options open the **Save As** dialog box if you began with an instance of a new form. The **Save As** dialog box, shown in Figure 10-38, assumes that you want to save the data from the form into the current library. However, it prompts for a file name. You can enter any name here. Defining a naming convention may help you locate different instances of the form data. For example, Susan filled in the **Request for Absence Report**, shown previously in Figure 10-37, to take a week off beginning May 31, 2010. Therefore, by combining the user's name with the date she requested to have off, you create a meaningful name that helps to identify the user and the date she requested to have off.

Figure 10-38. Save the data from filling in a form using Forms Services.

When you click **Save**, InfoPath Forms Services saves a copy of the form data in the library. When you look at the library's contents, you now see an entry having the name just entered in the **Save As** dialog box as the file name. You also see some other common library columns such as:

- **Type**
- **Modified** (which displays the date modified)
- **Modified By**
- **Checked Out By**

In addition to these columns, you can see the other columns that you selected earlier in the **Publishing Wizard**. If you decide you want to change which columns appear in the list, you can select **Library Settings** from the **Settings** group of the **Library** ribbon. In the **Columns** section, click the option **Add from existing site columns** found beneath the list of currently used columns.

Figure 10-39 shows the first entry in the library.

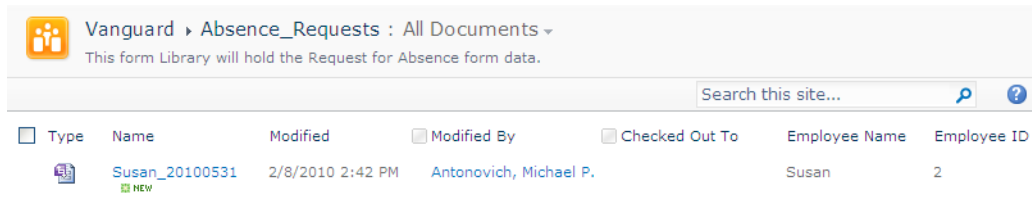


Figure 10-39. This library shows a new item containing the form's output data file.

Like entries in other libraries, you can position your mouse over the item **Name** field to display a drop-down list of options. This list, shown in Figure 10-40, includes options to view and edit the properties, manage permissions, edit the form data, delete the entry, send the data to another location, and check out the file.

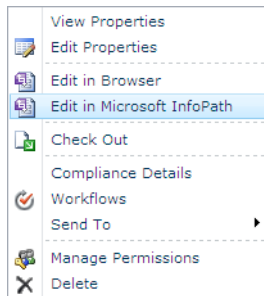


Figure 10-40. This item drop-down lets you open the form data in InfoPath for Forms Services.

To verify that this file is only the data, select the **Edit Properties** option in the file's drop-down menu. The only editable property is **Name**. While you can change the main part of the name, you cannot change the extension, which you can see defaults to **.xml**. If you were to select the option **Edit in Browser**, this XML file would look similar to the one shown earlier in Figure 10-37.

Notice also that the drop-down menu has two **Edit** options for editing the data. If you use the first edit option to open a copy of the data file in your browser using Microsoft Office InfoPath, you can make changes to the data on the form and then click **Save**, not **Save As**, unless you want to create a second data instance with a new name. The second option lets you edit the data file using a copy of Microsoft Office InfoPath from your desktop. If you make changes to the data on the form using InfoPath, you must select **Save** from the **File** menu in InfoPath to save the data changes back to the data file.

In either case, it may at first appear that the metadata for the data file does not update. Remember that SharePoint uses web pages, and you may need to click your browser's **Refresh** button before the metadata reflects changes made to the data.

■ **Tip** If you want to use the XML in another process, you can download a copy of the XML data file by using the file's drop-down menu and selecting **Send to ► Download a Copy**.

Publishing a Form to a Content Type

In the previous section, you published the Request for Absence form to one specific library within the site. However, what if you wanted to use the form in several sites of the current site collection? In this section, you will see how to publish a form to a site content type. With a site content type, you can easily add the form as a content type to any library in the site or its subsites. Therefore, if you have a form that users need to access from many different sites, publishing the form as a content type may be the fastest way to make it available across multiple libraries. It will also let you manage future changes from a central location.

Just like publishing a form to a specific library, you need to begin with the form open in **Design** mode in InfoPath. Then select the **Publish** page from the **File** menu. Then click the **SharePoint Server** button in the **Publish form to a SharePoint Library** section. On the first page of the **Publishing Wizard**, InfoPath may ask you for the location of the SharePoint site. On the next page of the wizard, select the option **Site Content Type (advanced)**, as shown in Figure 10-41.

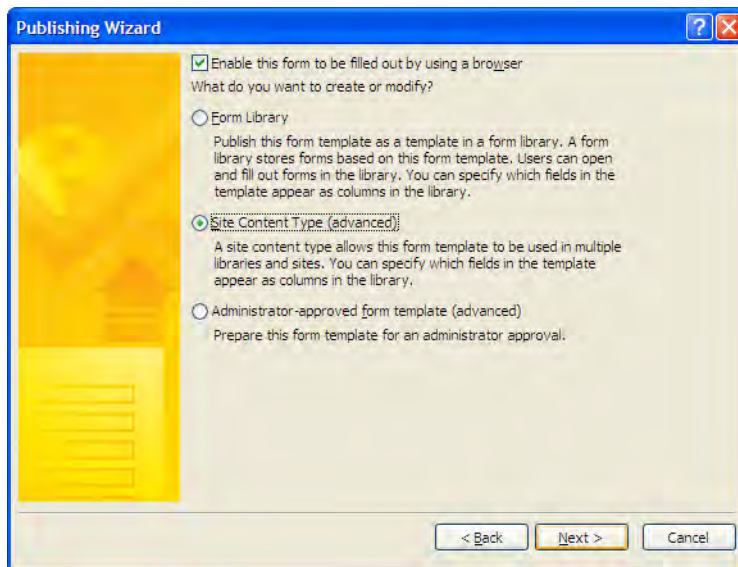


Figure 10-41. Publish your form as a content type to your SharePoint site.

When you click **Next**, the wizard asks what you want to do. You can create a new content type if you never published this form before as a site content type. However, you should select the **Update an existing site content type** option if you previously published the form and need to republish it due to changes. Notice that when you update a content type, SharePoint must update all libraries that use that content type. If you have used it in several libraries, this process could take some time. However, it also shows how you can manage multiple libraries that use the content type from one place.

■ **Note** Content types allow you to store different types of documents within the same document library in which each content type has its own unique set of columns or metadata. Each content type can have its own workflows that act only on files of that content type, not all files in the library. This allows you to publish multiple forms to the same content library in which each form has its own metadata and workflows.

On the bottom-half of the page of this wizard, shown in Figure 10-42, you must select what you want to base the content type on. For a new form, select the generic content type **Form**.

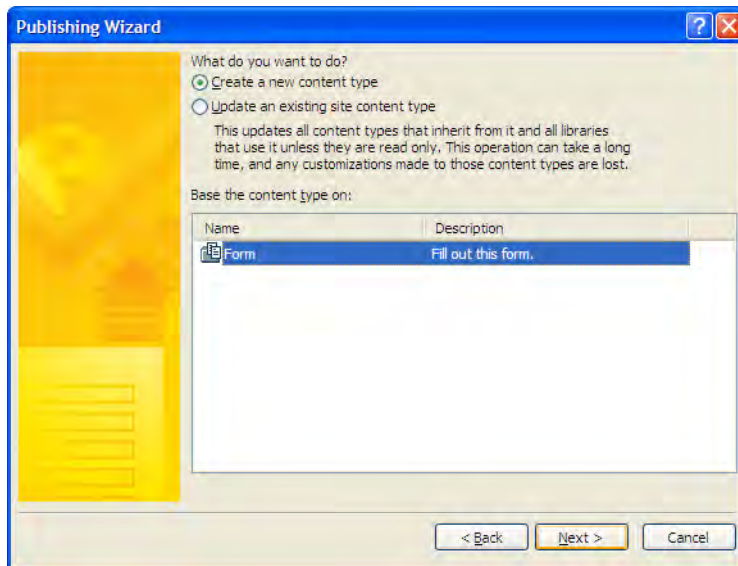


Figure 10-42. Create a new content type or update an existing one.

As with all objects, when you add a site content type, you must provide a name and description for that content type. You must supply a unique name. You should enter the description, although optional, to help users identify what the content type supports. Figure 10-43 shows the minimal entries for these two properties, assuming that you began with the **Request for Absence** form as the source for the content type.

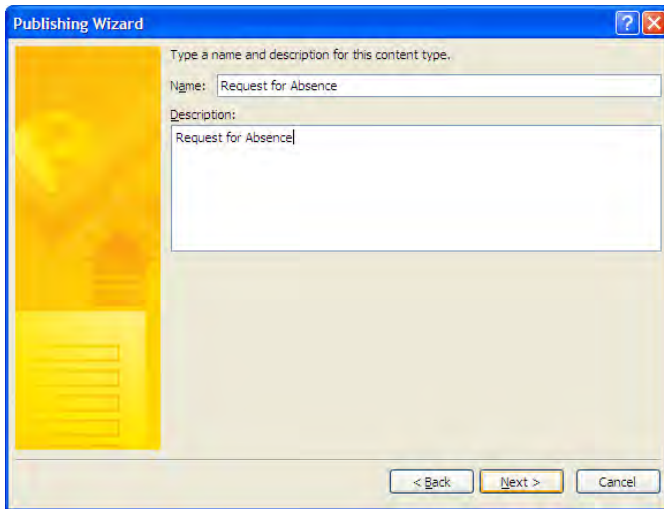


Figure 10-43. Provide a name and description for a new content type.

Next, Figure 10-44 shows that you must specify the name of the site where you want to publish the form. For this example, I will publish the form in the root web of my SharePoint site collection, so I enter the URL <http://vanguard/>.

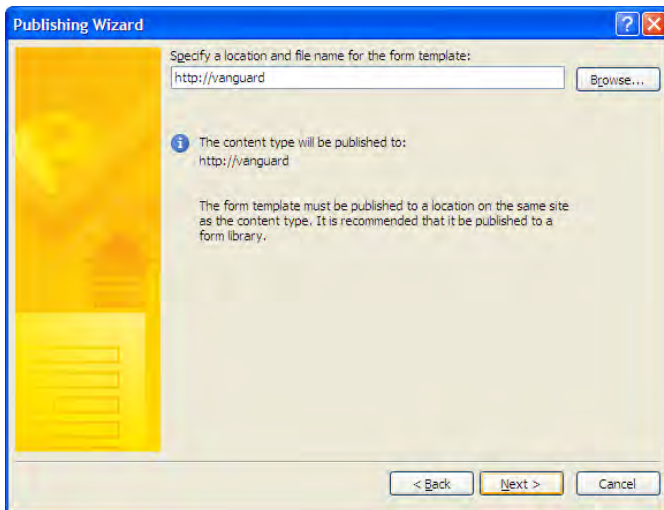


Figure 10-44. Specify the site where you want to publish the content type.

When you click **Next**, SharePoint displays the names of all the libraries that you can access from the requested site (see Figure 10-45). Note that the availability of the form directly relates to the site hierarchy. When you add a content type to a site, all child sites also have access to that content type. Therefore, if you want all of your SharePoint sites to use a specific form, you need to add that content type to the highest site level from which you want to use it. For that reason, you may want to publish the content type to your top-level site.

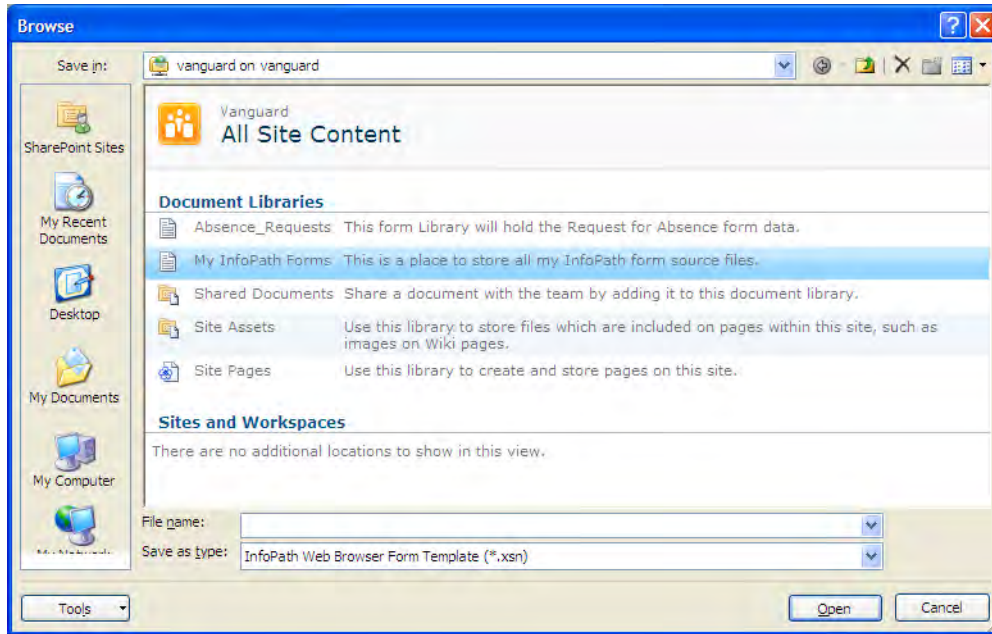


Figure 10-45. Select an initial library to use a content type.

Notice that both form libraries and document libraries appear in Figure 10-45. This can be confusing, as you have to remember which libraries you created as document libraries as opposed to form libraries. When you save the form template source (in XSN format), you should save it in a document library so others can open and edit that source document. On the other hand, you should use form libraries when you publish the form to save the data files from the form. A document library can hold any type of file. However, SharePoint customized the form library to work with XML documents based on one or more form templates defined as content types for that library. The form library stores a single copy of the form template (XSN) and multiple copies of the associated data files (XML) for each time someone uses it.

After you select a document library where you want to store the source, Figure 10-46 shows that you must enter a name for the form template. You can name the template anything you want.

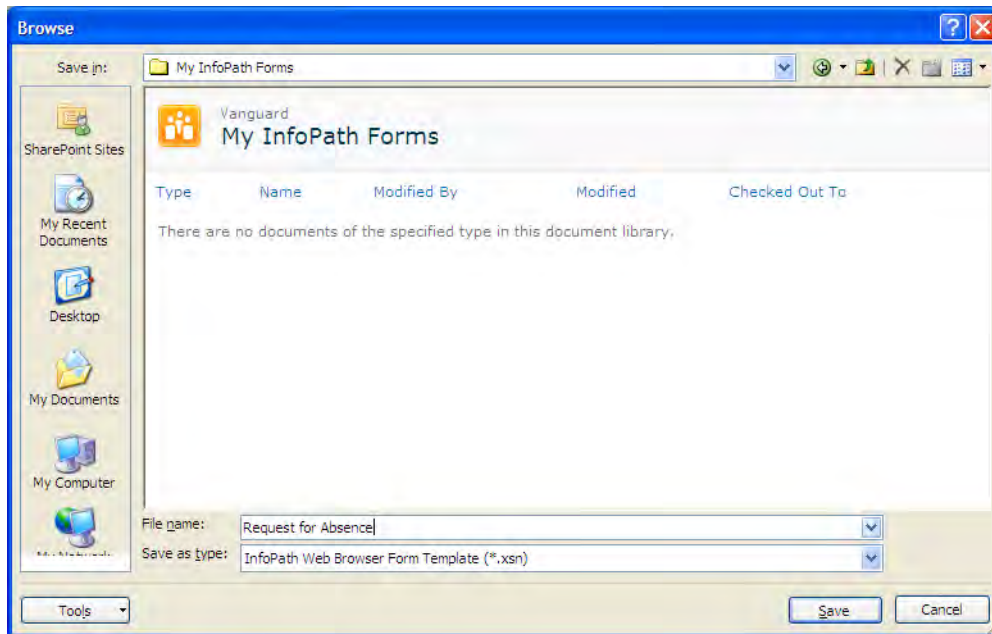


Figure 10-46. Publish the content type to a form library so others can work with it.

On the next page of the **Publishing Wizard**, you have the opportunity to define which fields from the form you want to use as columns or metadata in the libraries where you will use this content type. You do not have to select all the fields. However, remember from earlier chapters that you can export metadata from a SharePoint library to an Excel spreadsheet. This capability can be very useful to perform analysis of the collected data without having to resort to a programming language to extract the data from the XML files.

Using the buttons shown in Figure 10-47, you can include additional form fields as columns, remove some of the columns, and modify the column names, perhaps providing a more descriptive name if the form's field names are not particularly user-friendly.

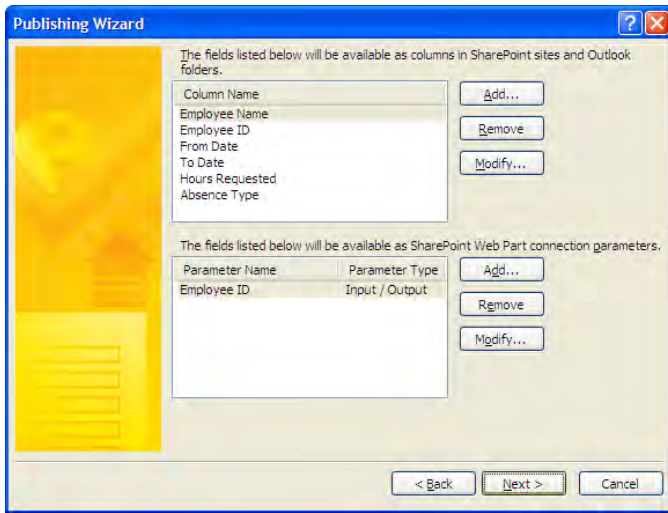


Figure 10-47. Select the form fields you want to publish as columns in a library.

When you are finished defining which fields you want to display as columns, click the **Next** button to proceed to the last page of the **Publishing Wizard** before InfoPath actually publishes the content type. Figure 10-48 shows a summary of the collected parameters. If everything looks correct, complete the publishing of the content type by clicking the **Publish** button.

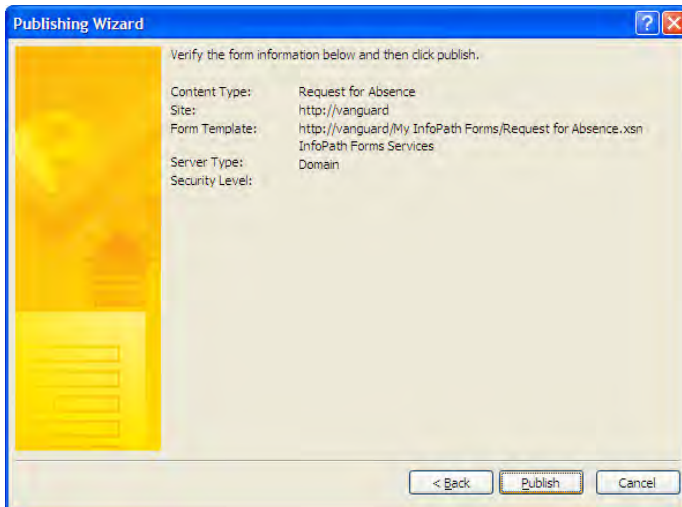


Figure 10-48. Verify your settings before publishing the content type.

The actual publishing process may take a few seconds. However, when it completes, two links appear on this page that let you either manage the content type or open the content type as a form in your browser to review how it looks.

Installing and Using Site Collection Content Types

After you publish a form as a content type, you have to specify the form library where you want to use that content type. However, published content types become available to all libraries in not only the current site where that library resides but also all child site libraries. So how can you tell an existing library to use your new content type?

Adding a Content Type to a Library

Open the specific library where you want to use the content type. Select the option **Library Settings** from the **Settings** group of the **Library** ribbon. If you have not previously gone into the **Advanced Settings** to allow the library to manage content types, you need to do that first. While there, decide whether you want SharePoint to open your form content types using the content type's client application (InfoPath in this case) or to open the form in your web browser.

When you close the **Advanced Settings** page, you should see a section within the **Settings** page with the title **Content Types**. Initially, a form library supports a blank form content type, meaning a blank InfoPath form. However, by clicking the link **Add from existing site content types**, you can add other available content types to the library, as shown in Figure 10-49. While you can view content types from all groups, you can find forms created in InfoPath and loaded as a site content type in the Microsoft Office InfoPath group. After finding the content type you want to use, you can either double-click its name to add it or single-click it and click the **Add** button. You can add multiple content types to the current library while on this page before clicking **OK** to exit.

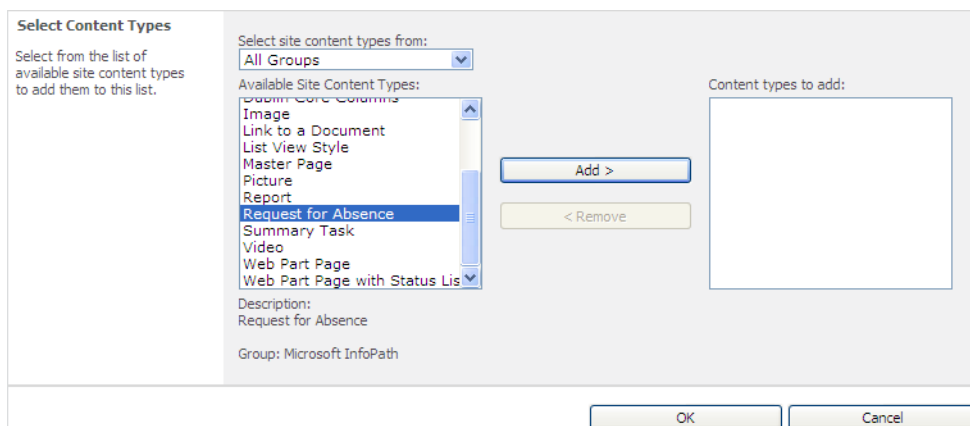


Figure 10-49. Add an available content type to another library/list.

Returning to the **Settings** page, you should see your new content types listed in the **Content Types** area. Notice that by default, all content types activated have a check in the column **Visible on New Button**. This means that when you open the library's **New Document** command from the **Documents** ribbon, you can choose from these content types to create a new document. However, if the user simply clicks the **New Document** button itself, he will get an instance of the default document or form identified by the **Default Content Type** column.

Changing the Default Content Type

To change the default content type, click the hyperlink beneath the content type table **Change new button order and default content type**. Figure 10-50 shows the **Content Types** section of the **Settings** page with the second hyperlink at the bottom of the image used to change the content type order and default content type.

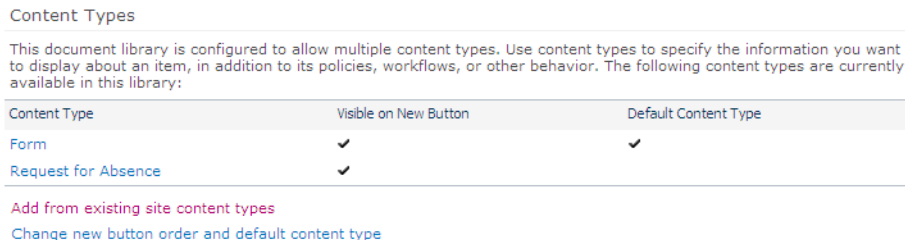


Figure 10-50. Libraries can have multiple content types but only one default type.

When you go to the page that displays the active content types for the current library, you can identify the order of the content types by the numbers in the drop-down boxes on the right side of the screen. These numbers define the order of the content types when you open the **New Document** drop-down list. The content type, identified as number 1, becomes the default content type used by the library. Figure 10-51 shows the process of making the **Request for Absence** form the default content type by moving it to the first position in the list.

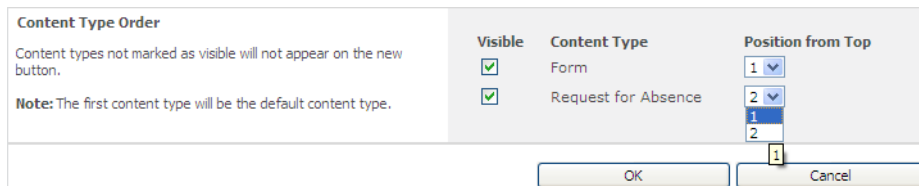


Figure 10-51. Select the default content type by moving it to the top of the list.

When you return to the library list and click the **New Document** command, you see all the available content types for the library. Figure 10-52 shows that this library has two possible content types to

choose from, but that the content type at the top of the list, **Request for Absence**, acts as the default content type.

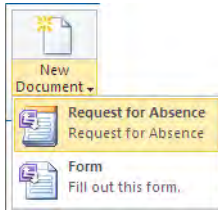


Figure 10-52. Choose a content type from the New drop-down menu.

Working with a Library That Has Multiple Content Types

If you have defined multiple content types for a library, you probably also have unique columns that refer to each of those content types. This probably also means that for any given row in the library, only a few of the columns actually have values. While a few of those columns may be common across more than one content type, most are unique to a single content type. Rather than create a confusing display in which the user has to horizontally scroll through blank columns to find the data she needs for a specific item in the library, you might consider creating individual views for each content type.

When you create individual views for each content type the library uses, you can customize the columns used, the sort criteria, filters, and other view properties. To display only the items for one specific content type in each view, look for a field in each content type that always has a value for that content type but no other content types. You can compare that field to a blank or zero depending on the field type, thus determining whether to include that item in the view. If you do not have a unique column you can reference to identify the content type, you may need to consider adding either a custom column that you can manually update or, better yet, a field in the form of each content type that includes a default value to identify the form. However, it will probably be rare that a content type does not contain at least one required field that can serve as the filter field for the view.

Building Custom Workflows for InfoPath Forms Using SharePoint Designer

SharePoint Designer 2010 is not a part of the SharePoint Server 2010 or SharePoint Foundation 2010 installation. While it looks like SharePoint Designer will not be part of any of the Microsoft Office 2010 packages, it is available as a free download from Microsoft (download can be found at: sharepoint2010.microsoft.com/product/related-technologies/Pages/SharePoint-Designer-2010.aspx), so there is no excuse not to download it and try it. SharePoint Designer 2010 is a great tool for working with SharePoint that most administrators and designers typically require. While SharePoint Designer 2010 can trace its roots back to the days of Microsoft FrontPage, it provides much more functionality than FrontPage. One of those areas of relatively new functionality pertains to the creation of workflows for InfoPath forms published to a web page.

What Is a Workflow?

Let's begin by first briefly defining the term workflow. A *workflow* is a repeatable process that uses specific resources to perform defined actions when certain conditions exist. You can see an example of a process that requires a workflow when an employee at a company requests vacation time. The employee begins the process by filling in a form requesting specific time off, detailing the number of hours and which days he wants off. Upon completion, the employee typically needs to e-mail or carry the form to his immediate supervisor for approval. Of course, the supervisor has several options on how to act on the request:

- The supervisor can approve the request and forward it on to the clerical staff to enter the information into the company's payroll system.
- The supervisor can reject the request and send a notification of the rejection back to the employee with or without explanation as to why she rejected it.
- If the request for time off is over a specific number of hours or exceeds the number of hours that the employee currently has available, the request may need to be forwarded to the next level of management, where the process of approval or rejection begins again.

These steps define one of several different variations of the process, or workflow, that a vacation request might go through. Within SharePoint, you want to model this workflow so the document passes from the employee to his immediate supervisor or manager and eventually to the payroll department. In terms of publishing web pages, a similar workflow might route pages from the creator, to editors, to reviewers, and finally to approvers.

The example of the vacation request workflow illustrates a relatively simple sequential workflow. However, you can model complex workflows with intricate branching conditions and actions performed by individuals and by the computer system. The key advantage of software-driven workflows is that the users can focus on the tasks and not get distracted by thinking about the process steps.

Perhaps you have not thought of attaching workflows to your libraries and lists before, but when you begin to publish forms on your site, the need for workflows becomes apparent. In many business situations, you must route a completed form to one or more additional parties for review, additional data, or approval. Sure, you could simply save the form or other document in a SharePoint library and then separately notify the next person that she needs to access the document to do her part of the process. However, there are problems with this manual technique of passing documents along a process, some of which include the following:

- The more steps/people that become involved in the process, the harder it becomes to track the status of the document.
- Directly notifying the next person to process the document means that you manually have to create an e-mail to him, but, before that, you must know to whom to send it.
- If you must perform an action, you must know exactly what action to perform and how to respond to any result.

Automated workflows improve efficiency by taking the guesswork out of what to do next. Furthermore, SharePoint Designer's ability to create workflows with no coding makes it easy for anyone familiar with creating rules in products like Outlook to handle e-mail to apply similar skills to building a workflow.

Beginning a Simple Approval Workflow

To illustrate the concept of building a workflow for a form, let's build a simplified approval workflow for our Request for Absence form. I will keep this process simple while showing how easy it is for you to build workflows for your libraries.

To begin a new workflow, open SharePoint Designer from your **Start** menu. Before you can start a new workflow, you have to select the site where you want to work. Like all the other Office 2010 products, you can open the **File** drop-down menu to access the **BackStage** options. In the list on the left side, select **Sites**, as shown in Figure 10-53. Notice that you can use SharePoint Designer to create a new Blank site, add a subsite to your current MySite, customize an existing site, and more. In this case, you want to open an existing site to create a workflow for the Request for Absence form created earlier. Actually, you will create an XML workflow on the XML data saved by the Request for Absence form. If you did not select the check box back on Figure 10-30 to allow the user to edit the data added to the SharePoint library as a column, you will be able to change the data in the XML file outside of the form. However, it will allow us to build a workflow that can approve or reject the individual requests.

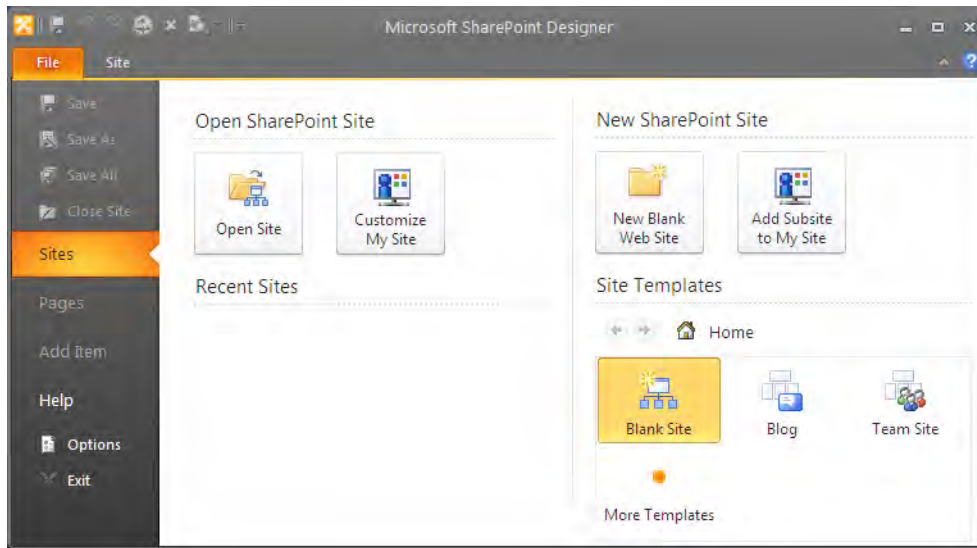


Figure 10-53. Open a site with SharePoint Designer 2010.

On the **Sites** page, click the **Open Site** button. This opens the **Open Site** dialog, which is very similar to the standard **Open** dialog you use to open any file. However, in this case, rather than enter a file name, you want to enter the site name in the text box at the bottom of the dialog. For my system, I would enter `http://vanguard` and then click the **Open** button.

SharePoint Designer then opens a page, as shown in Figure 10-54, where you can view and manage most of the important site settings. The major categories include:

- Site Information
- Permissions

- Customization
- Settings
- Subsites

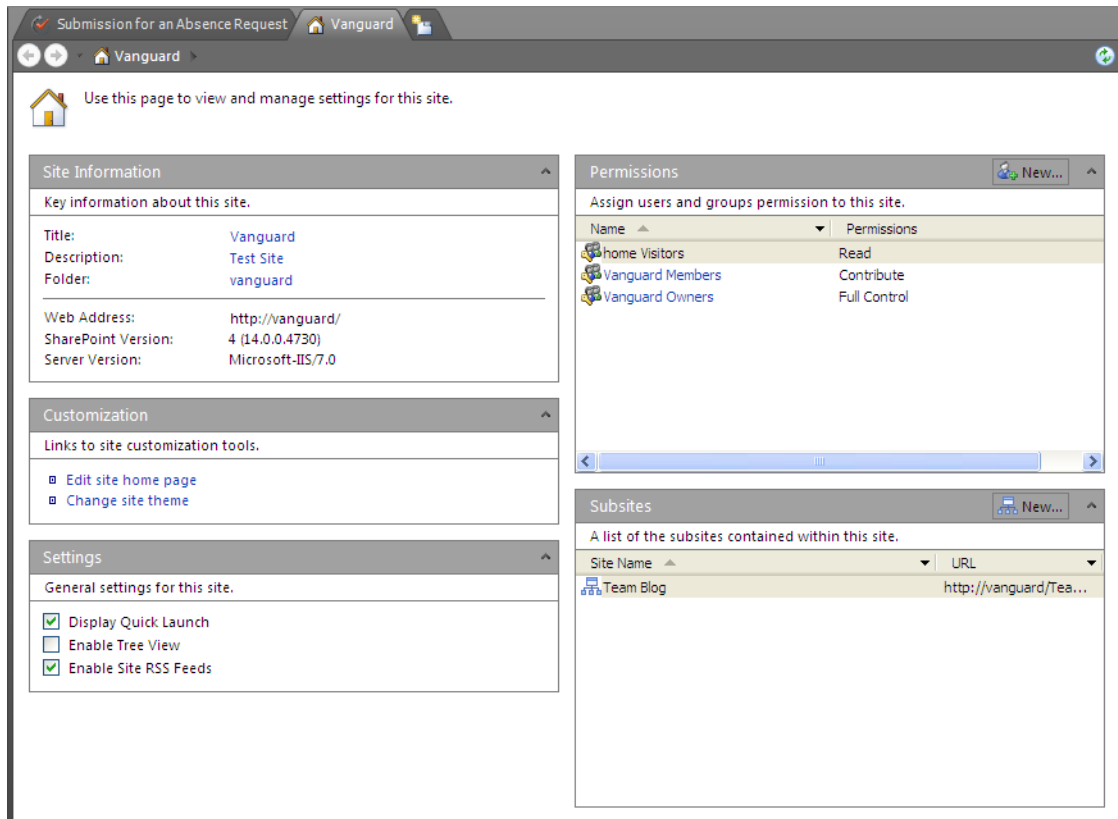


Figure 10-54. SharePoint Designer's site information page

SharePoint Designer may display a message informing you that it is downloading data from the server. This process takes a varying amount of time depending on the speed of your network and the site size. When it finishes, you will see on the screen all the site objects in the navigation menu along the left side of the screen. One of these options is **Workflows**. If you click on this option, you will see in the main portion of the screen a list of all the currently defined workflows for the site. You could go into these workflows and edit them, but I will show you how to create a new workflow for the site, specifically for the Request for Absence library. To do this, you need to click on the **List Workflow** button in the **New** group of the **Workflows** ribbon, as shown in Figure 10-55, because you want to create a workflow for a specific list. Other buttons in this group let you create workflows used for multiple lists or site workflows that you do not even need to associate with a list at all.

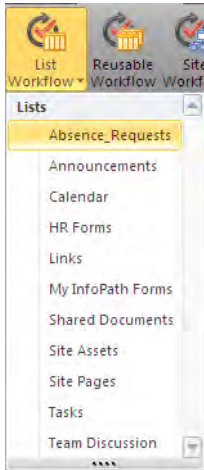


Figure 10-55. Select the list or library for which you want to build a workflow.

Clicking the **List Workflow** button displays all the lists in the current site. Notice that lists include libraries such as pages, forms, and documents. If you remember, I warned you earlier that everything is a list. From this list, select the list for which you want to create the workflow, `Absence_Requests` in this case. After selecting a list, SharePoint Designer opens the dialog box shown in Figure 10-56. In this dialog, you must provide a name for the workflow. You can also provide an optional description to go along with the site to define what it does. When you display the available workflows for an object, this description appears.

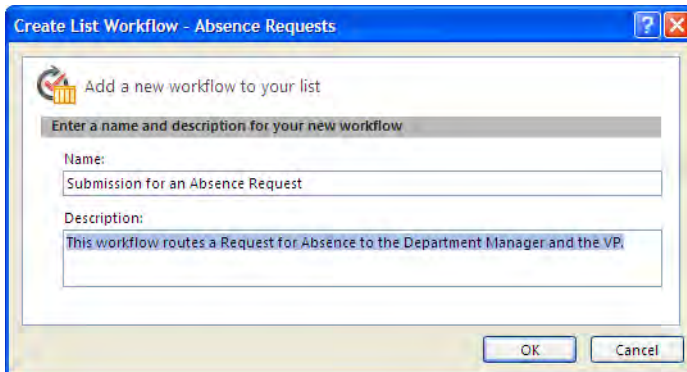


Figure 10-56. Create a new workflow using SharePoint Designer.

When you click **OK**, you can begin the first step of the workflow, as shown in Figure 10-57. SharePoint Designer provides a default name for each step beginning with “Step” followed by a sequential number. However, you can change the step name to something more meaningful such as **Send E-mail to HR**. To change the step name, click on it and enter the new name.

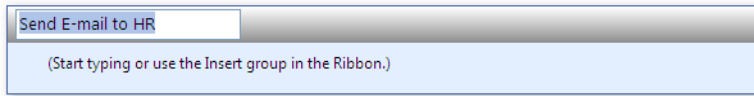


Figure 10-57. Rename the workflow steps.

Defining Workflow Details

Each step consists of one or more sets of details. Each detail consists of a condition and an action that you want the workflow to perform when the condition evaluates to **True**. Condition statements are optional. If you want to execute a specific action every time the workflow runs, you can skip the condition and go directly to the **Actions** button. In fact, for our Absence Request workflow, we want to execute an action immediately after starting the workflow to notify the department manager of the absence request. Therefore, let's first look at the available **Actions**.

When you click the **Actions** button from the **Insert** group of the **Workflow** ribbon, a drop-down list of possible actions appears, as shown in Figure 10-58. As you can see from the list, you have quite a set of actions available. In fact, there are so many actions that the drop-down includes a scroll bar to show all of them.

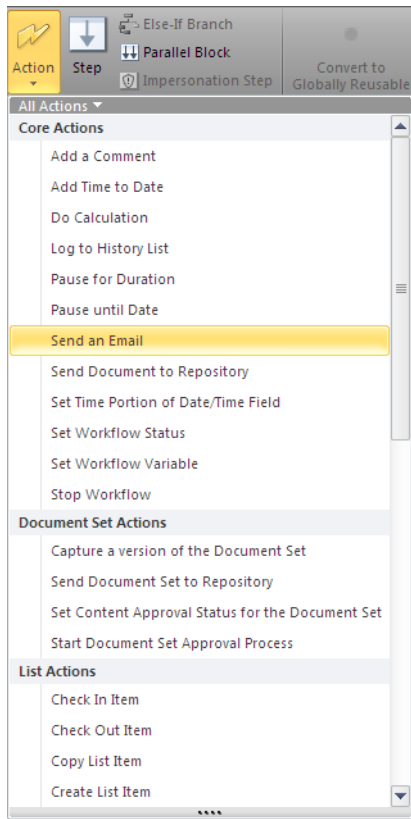


Figure 10-58. Select *Send an Email* from the available actions drop-down list.

In this case, you want to send the user’s immediate supervisor a notification of the absence request. Therefore, the first action you want the workflow to perform when a user saves a new item to the list is to send an e-mail to the person’s immediate supervisor. Therefore, select **Send an Email** as your first option.

Configuring an E-mail Message

This option first displays the command for sending the e-mail, as shown in Figure 10-59. The command consists of the word (command) **Email** followed by the underlined text **these users**. This text represents a clickable area in the command that you can think of as placeholder text that you replace with data. This text is a hyperlink that, when clicked, allows you to define not only who should receive the email but the subject of the email and the body contents of the email.



Figure 10-59. Create an action that sends an e-mail message.

Clicking the link for this placeholder opens a dialog box to define the e-mail message shown in Figure 10-60. Here you can enter the e-mail address of a person directly, or you can click the button to the right of the text box on the **To:** line to select from the users or user groups known to the SharePoint site. Let's assume for this example that the Absence Request form is used in a department site. In fact, the department manager is the site owner. You could enter the department manager's e-mail address directly, but if the department manager changes, you would have to go back into the workflow to change the e-mail address to the new department manager's address. On the other hand, if the site Owners group contains the department manager as a group user, you could simply reference the Owners group. In fact, this defines a better solution because when the department manager changes, you need only change the Owners group membership to "correct" the workflow. This same argument applies to selecting users for the **CC:** line of the e-mail.

■ **Tip** By default, the **FROM:** address for the e-mail can be set in the Central Administration ► System Settings ► E-Mail and Text Messages (SMS) ► Configure outgoing e-mail settings. Then update the From Address field.

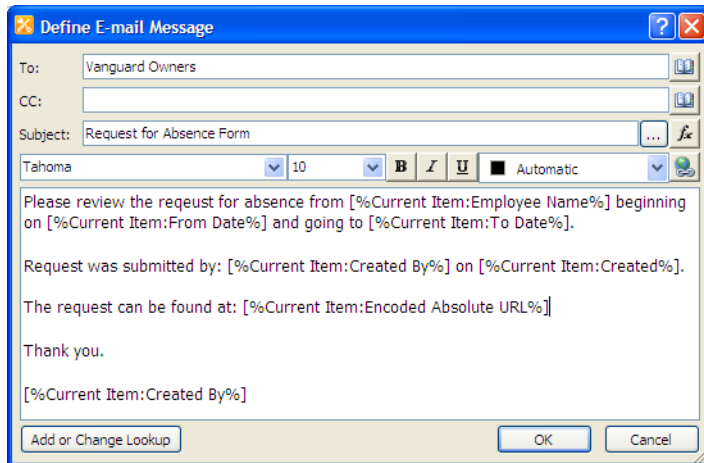


Figure 10-60. Define the properties and content of the e-mail message.

■ **Tip** You can click the lookup button to the right of the To: and CC: fields in the E-mail Message dialog to open a picker list of options that include SharePoint users and groups and the user who created the current item. You can even select the option Workflow Lookup for a User from the left side of the picker list to pick from various data sources including other columns in the current item.

Next, you can enter a text string to appear in the **Subject** field. You can enter a simple text string, as shown in Figure 10-60, or you can click the ellipses button (the one with the three dots) found to the right of the **Subject** field. This opens a dialog box that lets you combine text with values that you look up from a variety of data sources ranging from fields in the current item to fields in other lists. If you choose to use a value from another list, you must identify the item and the field from the list that you want to use.

In fact, the body of the message in Figure 10-60 shows several reference fields. In the first paragraph of the body, the string [%Current Item:Employee Name%] retrieves the value from the **Employee Name** column of the current item and inserts it into the string. Similarly, it also retrieves values from the column **From Date** and the column **To Date**. In this way, you can create a custom message that tells the e-mail recipient more than just that she has something to approve on the portal. You can provide specific information to tell her exactly what she needs to approve. You can even provide a link to the list so that the user does not have to try to remember the URL and then navigate to the required list, all of which takes extra time for the approver.

When you click **OK**, SharePoint Designer returns you to the **Step** page, shown in Figure 10-61, where you can add more actions.

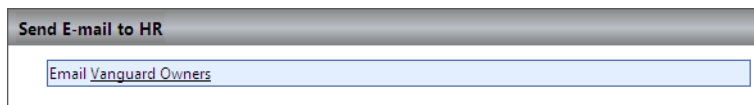


Figure 10-61. Actions without a condition always execute.

Adding Multiple Actions

If you did nothing else in this step, the workflow would send the e-mail and immediately proceed to execute the next step in the workflow without giving the department manager time to look at the request. Fortunately, you can have multiple steps, each with individual actions, or you can have a single step with multiple actions. In this case, let's add a second action to create a task for the department manager. To do this, click the **Actions** button a second time, and click the option **Assign a To-do Item**, as shown in Figure 10-62.



Figure 10-62. Add a second action to a step.

When you click the link **a to-do item**, the **Custom Task Wizard** appears that tells you that it will add an item to the Tasks list for each user you include in the command. It also tells you that until all of the to-do items are completed, the workflow remains paused. A workflow executes step-by-step from the beginning through completion unless you tell it to stop or pause. A to-do item is one of the ways you can cause a workflow to pause. Another common way to pause the workflow is to monitor a field for changes in value.

On the second and final page of the wizard, you can enter a name for the task and a short description of what it must do. Next, click the link **these users** to display the **Select Users** dialog. This dialog shows a list of all the users defined in the site's user groups as well as some other basic user groups such as:

- User who created current item
- NT AUTHORITY\authenticated users
- NT AUTHORITY\LOCAL SERVICE
- SHAREPOINT\system

You can select as many users or groups as you may want. However, when you have multiple users assigned to a task, they must all complete the task before the workflow can continue. When you click **OK**, your step command should look similar to Figure 10-63.

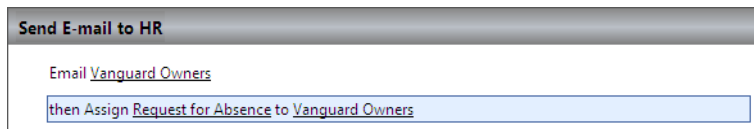


Figure 10-63. To-do tasks cause the workflow to pause until all users complete the task.

Next, we are going to check the number of hours requested. If the person requests less than 40 hours, the corporate policy is to approve the request. If the person requests more than 40 hours, you need to have the vice president approve or reject the request. As an action, you need to send an e-mail to the vice president for these requests. If you do not put a pause or wait action at the end of this step, the workflow would continue executing without giving the vice president time to even look at the absence request. Therefore, you need to add an action telling the workflow to wait at this point. To do this, you can add a second action to this step called **Wait for Field Change in Current Item**. In this case, we want to wait until the vice president changes the **Approval Status** for the request from its initial value of **Pending** to either **Approved** or **Rejected**. They can do this from the drop-down menu for the item in the request library. Also, if the request is less than 40 hours, you want to send an e-mail back to the person who created the request.

Figure 10-64 shows one possible way to complete this step. It sends the vice president an e-mail and then pauses the workflow until the status of the Request for Absence changes to anything other than **Pending**. If the person requests less than 40 hours, the **Else** portion of this step immediately sends an e-mail approving the request.

Send E-mail to HR

Email Vanguard Owners

then Assign Request for Absence to Vanguard Owners

If more than 40 hours, need Executive approval, otherwise, immediate approval

If Current Item:Hours Requested is greater than 40

 Email vp@micmin.org

 then Wait for Approval Status to not equal 2:#Pending

Else

 Email Current Item:Created By

Figure 10-64. One way to define the step to send an e-mail to an approver.

Adding Additional Steps

For the last step of this workflow, let's send an e-mail message back to the person who created the Request for Absence to tell them whether the request was approved or rejected.

For this step in the workflow, you need to define a condition that checks whether the **Approval Status** field of the current item equals **Approved**. When it does, you can send an e-mail back to the person who created the item, informing him that the request has been approved.

Begin by clicking the **Conditions** button and select the option **If current item field equals value**, as you did for the condition in the second step of this workflow. Then select the field **Approval Status** and compare it to the value **Approved**.

Next, create an action that sends an e-mail. In the e-mail dialog box, click the **Select Users** button on the far-right side of the **To:** field and select **User who created current item** from the list of available users and groups list, as shown in Figure 10-65.

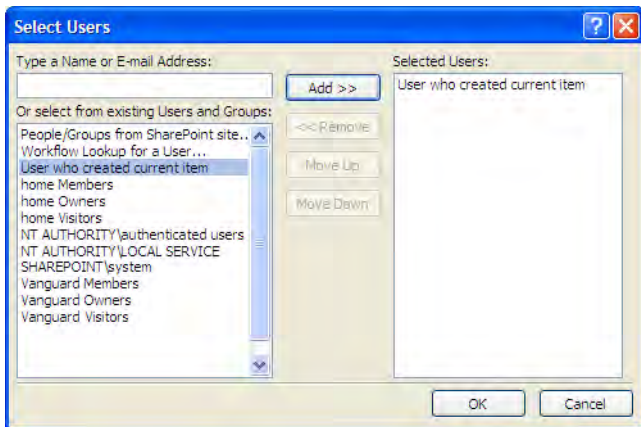


Figure 10-65. Use dynamic properties to define an e-mail's To: field.

In this step, you need to have a second condition, because the approver can either accept or reject the item. The first condition/action set defines what to do when the vice president approves the request. Next you must define what you want the workflow to do when the vice president rejects the request.

To do this, click the hyperlink **Else If Branch** found in the **Insert** group. Then click the **Conditions** button and define the Boolean expression that compares the **Approval Status** to the value of **Rejected**. Next, click the **Actions** button to send the user who created the current item an e-mail informing him that the approver has rejected the item.

■ **Tip** An interesting process you can create places all pending items of a specific type in an initial pending list. When a user creates an item in this list, it starts a modified approval workflow. In this workflow, add an action to the Approved step to copy the list item to a different list, an approved item list, followed by another action to delete the current item from the current list. If the approver rejects the item, you can leave the item in the pending list.

Figure 10-66 shows one possible way to build the final step in this approval workflow.



Figure 10-66. Define the approver's possible actions.

When you finish defining your workflow, you must save and publish it by clicking the **Publish** button in the **Save** group or the **Workflow** ribbon. At this point, you can close SharePoint Designer and return to your browser to test the workflow on some of the Absence Requests you may already have in the Absence Request library (list).

■ **Tip** If you ever create your workflow steps out of order, you can easily rearrange their order by first selecting the step by clicking on its header. Then click the **Move Up** or **Move down** option in the **Modify** group of the ribbon. If you miss a step, just add the step to the end of the steps. Then using the previous tip, move it up in the list of steps to the spot where it belongs. If you decide you no longer need a workflow step, open the drop-down list of step options as described in the previous tips and select the **Delete Step** option.

How to Run the Workflow

The default workflow created with SharePoint Designer creates a workflow for a list that you must start manually. To start the workflow, you need to open the list or library. Then from the item's drop-down list, select the option **Workflows**. This displays the available workflows for that item in an area at the top of the screen, as shown in Figure 10-67. Notice that three of these four workflows are the default workflows provided by SharePoint. However, the fourth workflow, **Submission for an Absence Request**, is the workflow you just created and saved in the last section.

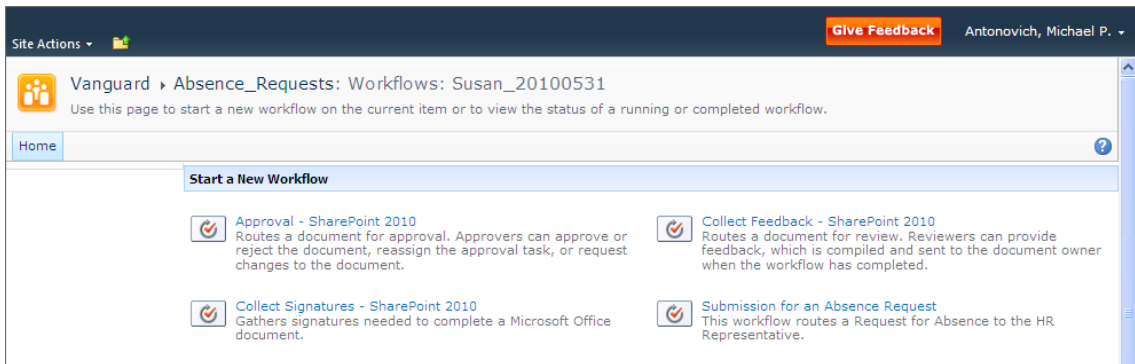


Figure 10-67. Start a workflow manual for a list item.

Click **Submission for an Absence Request** to start the workflow. A dialog pops up for the workflow task with two buttons. The first button starts the workflow, and the second button cancels the workflow. In this case, you want to click the **Start** button. Returning to the library, you can see that the status of the item has changed to started.

If you remember, the first step of the workflow creates a task for the department manager who is the site owner. Therefore, if you open the tasks list, you should see a new task has been created for the site owner, as shown in Figure 10-68.

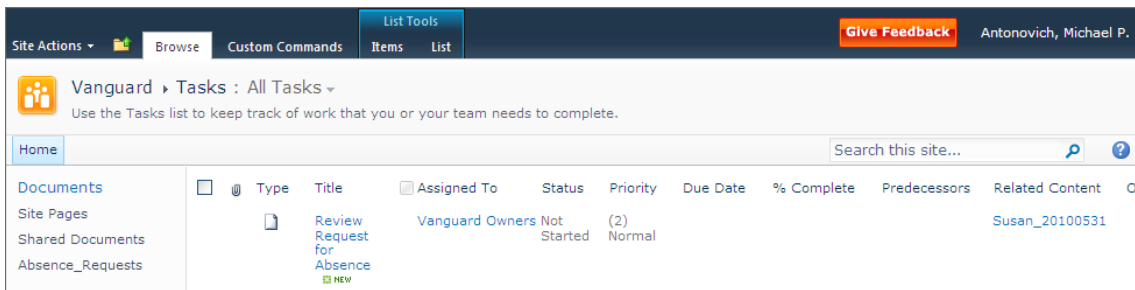


Figure 10-68. Display of task added by the workflow

The purpose of the task is to alert the department manager that someone wants to request an absence. Perhaps they received an e-mail about the task because they previously created an alert for tasks created in this list and assigned to them. Maybe they subscribed to the RSS feed for this list. On the other hand, perhaps you configured the task list to send an automatic e-mail to the person assigned a new task. In any case, the department manager can click on the task to see the screen shown in Figure 10-69. Notice that the task displays a link to the absence request that she can click on to review the details of the request. After reviewing the request, she can then complete the task by clicking the complete button. If she clicks the **Cancel** button, SharePoint closes the task, but leaves the workflow in a suspended state. She can also click the option **Delete Item**. This action puts the task in the Recycle Bin but leaves the workflow in a suspended state as well.

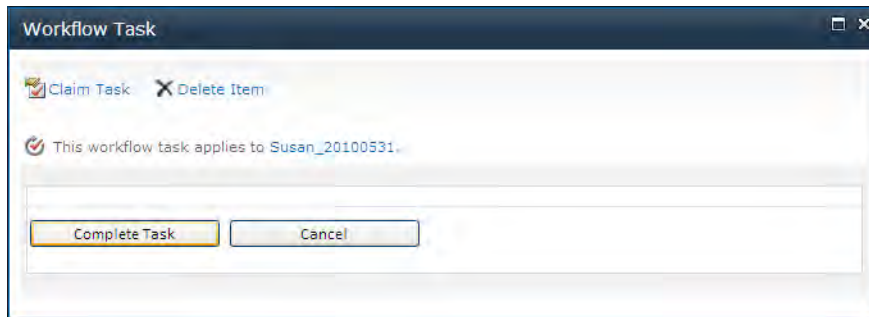


Figure 10-69. Complete a task.

If the department manager clicks the **Complete Task** button, the workflow proceeds with the next step, which in this example checks the number of requested hours to determine whether the vice president needs to approve the request.

Restructuring Your Conditions

If you add a conditional branch that you later decide you no longer need, you can click the down-pointing arrow to the upper-right of any of the existing conditional branches as you click on the condition to display a drop-down menu. From this menu, you can move conditional branches up or down in the sequence of branches. Remember that workflows evaluate branches sequentially from top to bottom by default. The first branch that returns a **True** result for its condition gets to execute its actions. You also have options in this menu to add new branches, delete the current branch, or change the way the workflow executes conditional branches to execute them all in parallel rather than sequentially.

If you have a condition or action with multiple statements, you can also change the order of the actions by clicking anywhere on the line of the statement other than on a hyperlink to select the condition or action. To the right appears a drop-down button that, when clicked, displays a menu letting you move the current action or condition up or down or even delete it. Therefore, even if you miss a condition or action, you can simply add it to the bottom of the list of actions or conditions in the appropriate conditional branch, and then move it to the position where it needs to appear.

■ **Tip** One of the conditions you can use compares the file size to a specific range in kilobytes. You can use this condition to automatically set the approval status to **Approved** or **Rejected** along with sending appropriate e-mail messages to users attempting to add large files to lists. Another condition you can use compares the file type to a specific type. By including a series of conditions joined with an **OR** connector, you can limit the ability of users from uploading specific file types to lists and libraries.

When you finish defining the steps in your workflow, save the workflow by clicking the **Publish** button in the **Save** group of the **Workflow** ribbon. This action saves the workflow to SharePoint, and, in

this case, it specifically attaches it to the list specified when you started the workflow definition. The next time a user adds an item to the list, she can manually start the workflow. However, any time a process is manual, the user may forget to initiate the workflow. Can we tell the workflow to start automatically?

Configuring the Workflow Settings

To modify the settings of an existing workflow, click the **Workflow Settings** button in the **Manage** group of the **Workflow** ribbon. This action shows the page in Figure 10-70. Designer separates the workflow's settings into five groups. Here you can change the name of the workflow, change its description, associate the workflow with a different task or history list, and change its start option. This **Start Options** section has the options we want to change to start the workflow automatically.

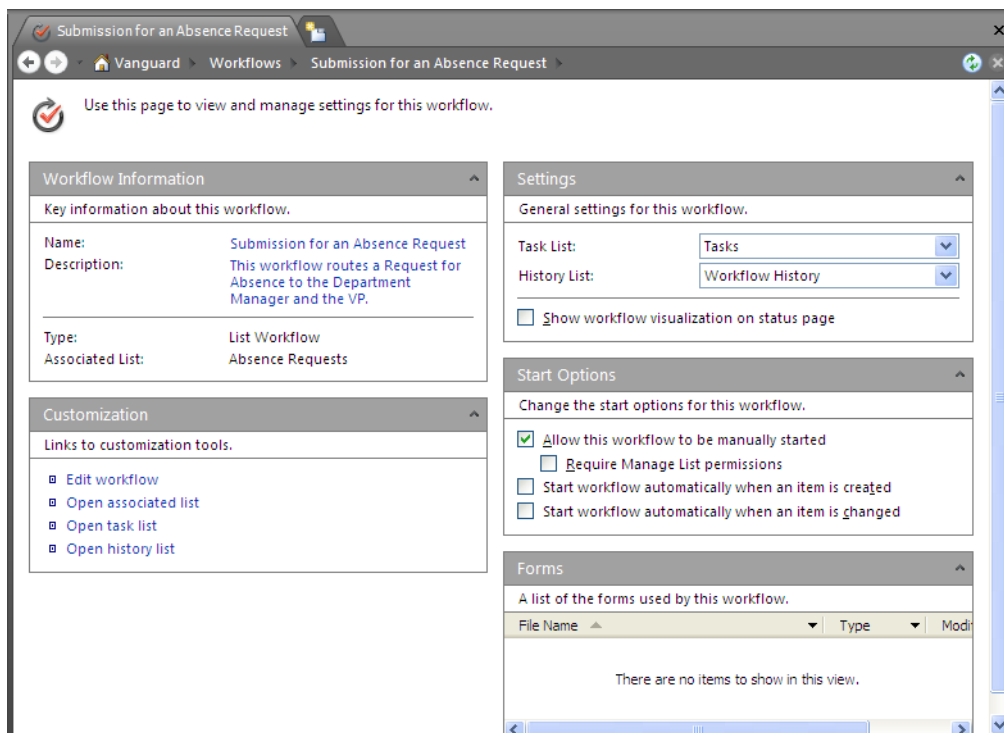


Figure 10-70. The Workflow Settings page

Note that by default, SharePoint Designer sets the workflow to start manually by checking the first check box. Use this option only if you do not need to start the workflow when an item is added or changed, and only if the average user knows when to and when not to start a workflow. For example, you may want the user to be able to create items in a list or library while she works on them over several sessions without starting a workflow until she finishes working on the item. Only at that time will she

want to start the workflow on the completed item. You can also limit the users who can start a workflow to only those who have Manage List permissions.

■ **Note** This is similar to an **Approval** workflow for web pages in which the user typically needs control over when to start the workflow, as they may work on changes to the page over a series of days and only when all changes have been made will they want the workflow to begin.

The third check box tells SharePoint to start the workflow automatically whenever someone creates a new item in the select list. This means that even if the user has not finished entering the item but wants to save what he did so he can finish it later, the mere fact that he saves his temporary work fires off the workflow. If users typically complete the entry of all data for the form in a single session, maybe you do want to select this option to start the workflow when they create the item. Starting workflows upon creating a new item is recommended for libraries such as image libraries that typically are built using a single upload.

The fourth check box starts the workflow whenever an item changes. This feature helps ensure that users do not make changes to items without starting an approval process. Otherwise, users might submit an initial item, get it approved, and then return to edit the item without needing approval of their changes.

Either of these last two options start the workflow automatically. In fact, you can select any or all of these options including combining automatic workflows with manual starts.

While this section introduces you to the ability of SharePoint Designer to create workflows, you can create workflows quite a bit more complex than the one shown here. If you find that you need to perform actions that SharePoint Designer does not support, you can also create workflows using Visual Studio. In addition, you can create workflows that you can install at the site's collection level and then apply across multiple lists and libraries. If you have programming skills and would like to learn more about creating workflows using Visual Studio, you may want to check out this book: *Office 2010 Workflow*, by Mark Collins (Apress).

Summary

In this chapter, you looked at different ways to publish a form created with InfoPath. You started by looking at publishing the form to a network share. This solution may work for those organizations in which only a few people need to use the form and have InfoPath installed on their desktop computers. The major limitation of this method is that the form and its data are static files. Furthermore, forms published this way cannot participate in large automated workflows without substantial custom development, and who has time for that?

Next, you looked at publishing a form directly from InfoPath to a SharePoint library. You can even create a new library for the form at the same time that you publish it. You can also use this method to update the form template of existing libraries. When publishing a form to a library, you can include fields from the form as column data in the library, making it easy to see the form's information. By exporting the library metadata to an Excel spreadsheet using techniques discussed in Chapter 7, you can further analyze the data collected from the forms using a tool you are familiar with.

If you need to use a form with more than one library or more than one site, you can publish the form as a content type to a site. Content types published to a site become available to libraries not only in that site but also in any child sites. By publishing to the top-level site of the site collection, you can make the content type available to all sites in the collection.

Finally, I introduced you to the use of SharePoint Designer to create workflows. While SharePoint Designer replaces Microsoft FrontPage as Microsoft's web page designer, SharePoint Designer offers more than just web page creation. It supports the ability to create workflows visually that you can associate with specific lists/libraries in your SharePoint site. It uses a non-programming approach with point-and-click options to build the workflow. SharePoint Designer then attaches the workflow to the selected list so you do not have to do any configuration to make the workflow operate with your form in your SharePoint library.

There are many other features and capabilities to building workflows in SharePoint Designer such as prompting for parameters when your workflow begins and the use of variables within the workflow. In addition, as mentioned at the beginning of the workflow section, SharePoint Designer lets you create workflows that you can apply to more than just a single list. You can even build workflows not associated with a list that you can manually execute at any time. However, it is my hope that you see the potential of building workflows using SharePoint Designer not just for your form libraries associated with InfoPath but for any of your lists and libraries.



Peer-to-Peer Collaboration with SharePoint Workspace

If you are wondering what SharePoint Workspace is, you are not alone. SharePoint Workspace is the successor to Microsoft Office Groove 2007. You say that does not help much either? Well, Groove 2007 probably should have gotten the award as the newest and least-known addition to the Microsoft Office 2007 Suite. SharePoint Workspace provides you with a personal collaboration area where you can bring together small teams from within or even outside your company. You do not even need SharePoint to use it, but you must have a version of Office that includes SharePoint Workspace. You can even invite friends and neighbors into your shared folder, your shared workspace, or even a shared SharePoint site. Depending on the type of workspace you create, you can:

- Share documents
- Create calendars
- Participate in discussions
- Create forms to manage lists
- Track issues
- Plan meetings
- Share pictures
- And more

The fact that you can do all of these things without involving your IT department or hiring outside consultants puts you in control of sharing information with people outside of your normal network, extending your ability to collaborate with anyone having Internet access. You do not have to worry about firewalls, servers, or security. In addition, since you can invite anyone to join your workspace-based collaboration site and share your files, you can communicate with anyone inside or outside of your company. You can even use your Workspace account between multiple computers as a way to share files and sites between your machines at work and at home.

With all that said, perhaps the greatest advantage of SharePoint Workspace is that it allows you to collaborate with temporary employees or consultants who need to share files and be involved in meetings. Because of their short-time status, your IT department may choose not to add them to the authenticated users of your corporate network, but SharePoint Workspace can help you collaborate with them anyway.

Digging into SharePoint Workspace

First, you should know that you might already have SharePoint Workspace loaded on your computer. Together with OneNote, SharePoint Workspace is now part of Microsoft Office Professional Plus 2010. If you have not installed it yet, go back to your installation disks and modify your options to install it. If you have one of the other versions of Microsoft Office 2010 that does not include SharePoint Workspace, you can still obtain it as a stand-alone application.

Once installed, you can choose from two ways to begin using Workspace:

- Create your own workspace and invite others to it.
- Be invited to participate in someone else's workspace.

Actually, you must do one other thing first. You must create a SharePoint Workspace account with at least one identity so others can find you or so you can create a workspace for yourself. Your Workspace account resides on your computer and holds your identity along with references to workspaces to which you belong, contact information for other members in your workspace, "keys," and information about the devices you use.

Creating Your Workspace Account

When you first start using SharePoint Workspace, the **Account Configuration Wizard** opens, as shown in Figure 11-1, giving you the option of creating a new Workspace account or using an existing account, perhaps from another computer. Let's assume for now that you want to create a new account.

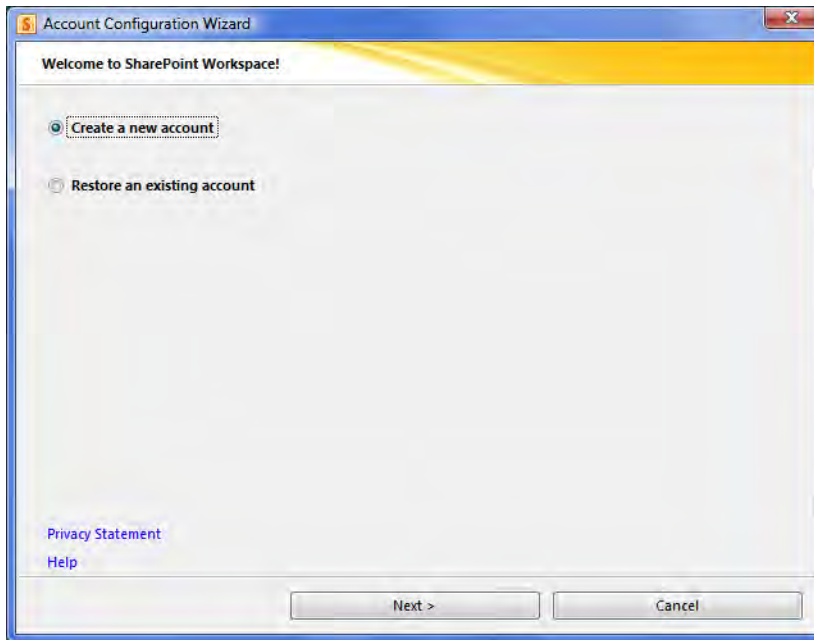


Figure 11-1. Create a SharePoint Workspace on your computer.

The second option allows you to restore an existing account. Once you have created an account on one machine, you can save the account definition file and restore it to another machine effectively adding your existing account to that machine.

When you create a new account, the next screen, shown in Figure 11-2, asks you for your name and e-mail address to create a new account. You can also create an account using an **Account Configuration Code**. This latter option, shown as the second option button in Figure 11-2, relates to corporations who may be hosting a Groove server internally and who have an administrator who supplies new accounts. Let's assume this is not the case and just enter your name and e-mail address. The account wizard uses this information to create an account to identify you and to allow you to access the workspaces where you become a member.

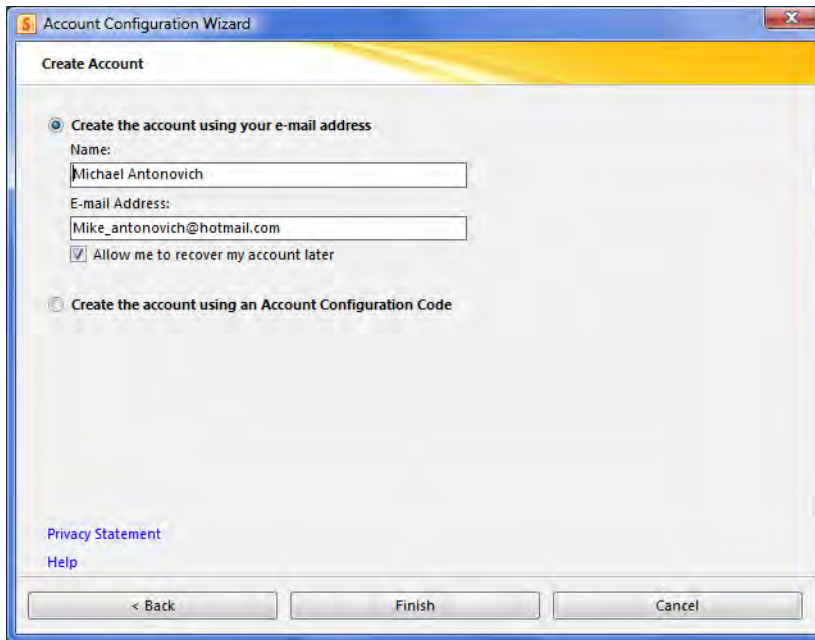


Figure 11-2. Enter your name and e-mail address to uniquely identify your account.

After a few moments, your account creation is complete and the **Workspace Launchbar** appears.

After you create your account, you can open the **Workspace Launchbar** either from the **Start** menu or from the icon that SharePoint Workspace added to the **Quick Launch** bar in the bottom right of your desktop. Using either method, the Workspace Launchbar looks like Figure 11-3. As with all other Microsoft Office products, the Workspace Launchbar has a ribbon.

■ **Tip** If you already have Workspace installed on your computer, you can create a new account any time by clicking the **Workspace** icon in the **Quick Launch** bar of your computer and selecting the **New Account** option. This command opens the wizard described in the “Creating Your Workspace Account” sidebar.

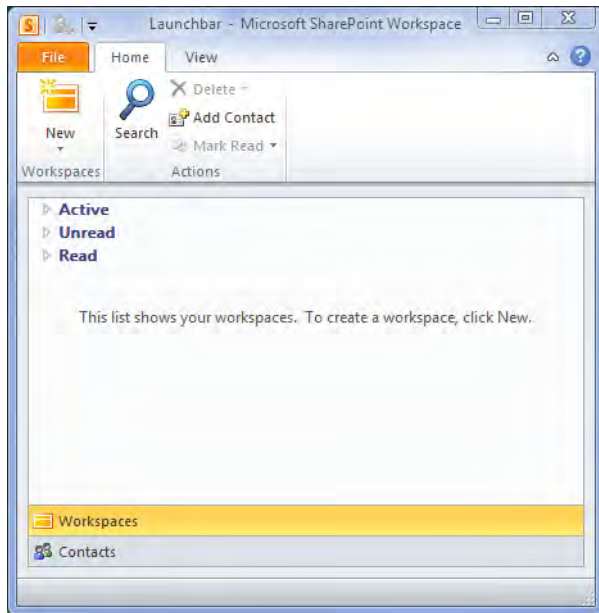


Figure 11-3. The SharePoint Workspace Launchbar dialog

The **File** ribbon lets you open the backstage area. The **Home** ribbon shows your current workspaces divided into four categories. The first category, **New**, shows all recently created workspaces. The **Active** category shows workspaces where at least one member is currently logged in. The **Unread** category lists workspaces that have unread items, and the **Read** category shows workspaces with no unread items. The **Home** ribbon also includes options to search your workspace and to add new contacts. The **View** ribbon defines how the Workspace displays information.

You can now create your own workspace and invite others to join it. Begin by returning to the **Home** ribbon and clicking on the **New** button in the **Workspaces** category. This action displays the drop-down menu shown in Figure 11-4. Notice that you can choose from three types of workspaces. Let's begin with the simplest workspace, the **Shared Folder**.

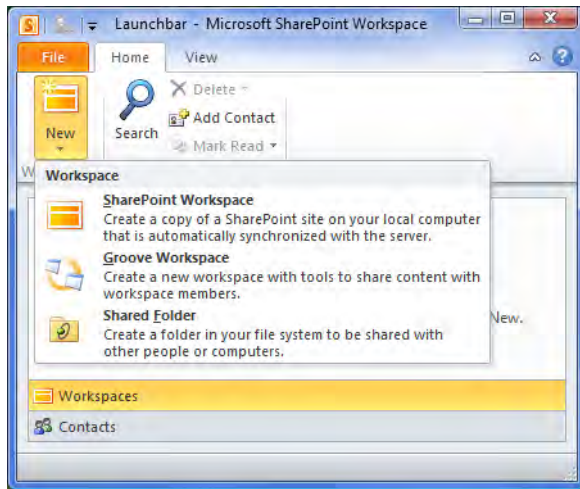


Figure 11-4. Create a Shared Folder workspace.

The **Shared Folder** workspace lets you share one of the folders on your system with other people and computers. At first, you might think that this feature is no different from using a network file share, and perhaps if you only want to share your folder with other people in your company a network file share would suit your needs. However, if you want to share files with people outside of your company or between a work computer and a home computer, the Shared Folder lets you bridge your shared folder with the outside world.

After clicking the **Shared Folder** option from the **New Workspace** drop-down menu, the first dialog that appears asks you to provide a name for the Shared Folder, as shown in Figure 11-5. Note that the name supplied here does not have to be same name as the folder itself; you can provide any name that uniquely identifies the folder.

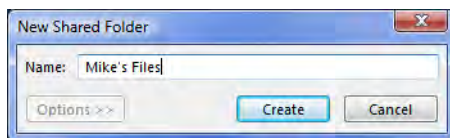


Figure 11-5. Provide a name for the Shared Folder workspace.

■ **Tip** Choose your Shared Folder name carefully because this name becomes the default name for the folder on the computer of all the other contacts for this shared workspace.

Next, you can assign this folder name as an alias to an existing folder on your computer or you can create a new folder with this name on your computer's desktop or any other location, as shown in Figure 11-6. Again, you should consider your options carefully because, after you create the workspace links and invite others to join your workspace, you cannot move the folder to another location without having to reinvite all of the users to the new location. For this example, I will choose an existing folder.

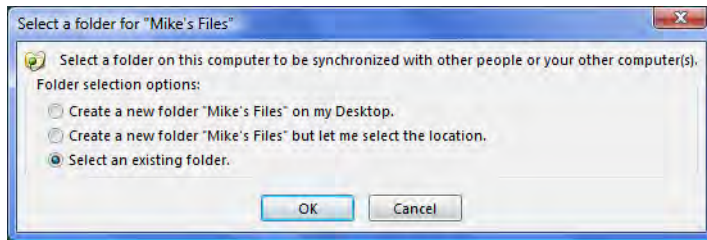


Figure 11-6. Select an existing or new folder for the Shared Folder workspace.

When you click **OK**, Workspace displays a dialog that lets you browse for the folder you want to share, as shown in Figure 11-7. For this example, I selected a folder named Chapter 11 in my **Documents** folder.

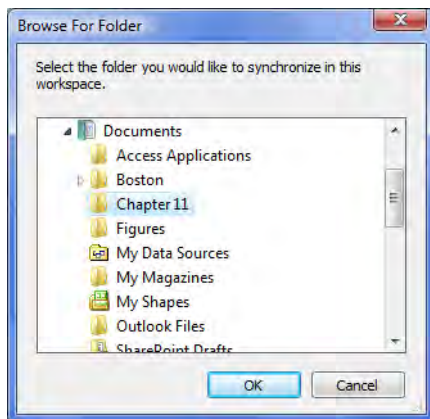


Figure 11-7. Dialog to select the specific folder to use when using an existing folder

When you click **OK**, Workspace opens a modified Windows Explorer-like view of the selected folder with the addition of a panel of options on the left side. This panel, shown in Figure 11-8, begins with the name assigned to the folder. It then lists all of the current people who have the workspace open. Of course, since I just created this workspace, I am the only one currently in it. Looking at the other options, you can see that you can invite other people and computers to join your workspace. You can also show the properties of the shared folder, determine whether to synchronize the files in the folder with others, and set the way Workspace downloads changes made to any of the files in the folder.

In the second area, you can open a chat window with others currently active in the workspace. Again, since I just created this workspace, there are no others to chat with yet. Finally, the third area lets you set various properties of the shared folder. You can mark the entire folder read or unread and you can set alerts for this folder. If you click on any of the files in the right window, this panel changes to show the name, type, and size of the select file. You can also mark the individual file as read or unread. If you select multiple files, the panel tells you how many files you selected and the total size of the selected files.

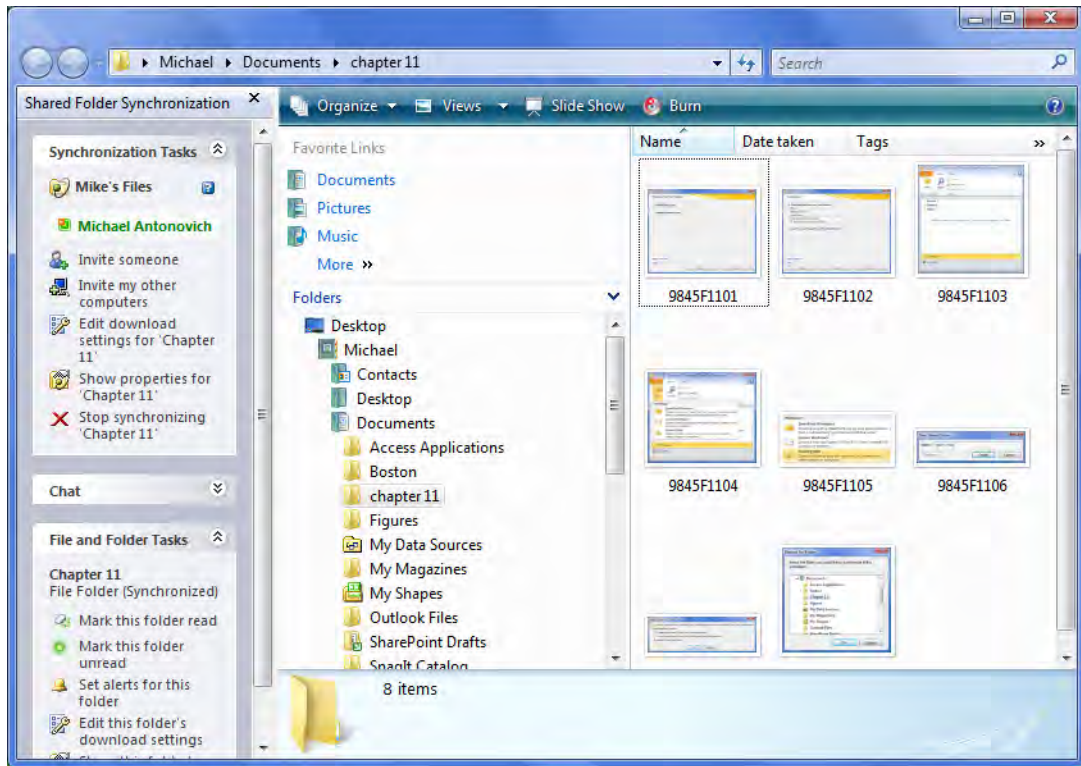


Figure 11-8. Your selected folder as seen through your Shared Folder workspace

Of course, the whole purpose of a shared folder is to allow someone else to share the folder with you. Therefore, click the **Invite someone** option in the **Synchronization Tasks** portion of the panel. You could also go back to the Launchbar and select **Add Contact** from the **Actions** group of the **Home** ribbon. Either method opens the dialog shown in Figure 11-9. In the **To** field, enter the e-mail address of the person you want to invite to your workspace. If you have more than one person to invite, click the **Add More** option to the right of the **To** field. This action opens a dialog box that lets you add as many additional recipients as you want. For each one, you must identify an e-mail address, either business or personal. You can also supply a city and state value for each recipient. The **Search for User** button allows you to search your Outlook Contacts list for a user based on a partial entry of the user's name.

Next, you must assign the user a role. You have three roles to choose from: Manager, Participant, and Guest. By default, people you invite to your workspace receive the role **Participant**, which permits them to do anything on the site except change the roles of other members. In other words, they can add and remove tools and invite new members to your workspace. People with the **Guest** role do not have any of these permissions, and can only read information from the workspace. Finally, anyone allotted the **Manager** role can do everything a Participant can as well as modify the permissions assigned to each of the roles. Keep in mind that you will assign everyone in the current invitation the selected role. If you want to give some people a different role, you must send them a separate invitation so that you can select the desired role for them.

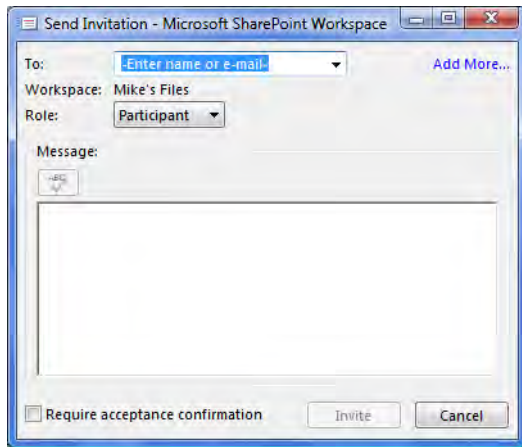


Figure 11-9. Form used to send an invitation to someone to become a member of your workspace

Next you can enter a message to the people you are inviting to your workspace perhaps telling them why you are inviting them. After you enter your message, click the small button in the upper-left corner above the message area to spell check it. You should always spell check messages before you send them so simple spelling errors do not embarrass you.

The last option in the panel is a check box that asks whether you require acceptance confirmation before the invited person can join the workspace. You can choose to select this check box or leave it blank. If you leave it blank, Workspace displays the dialog in Figure 11-10 anyway.

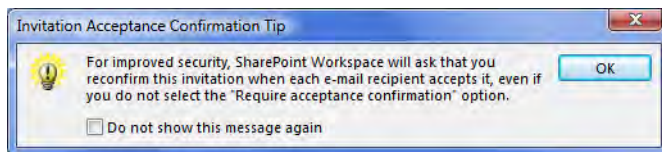


Figure 11-10. The Invitation Acceptance Confirmation message

If you do not want to keep seeing this reminder every time you invite another person to one of your workspaces, click the box at the bottom of this dialog to not show this message again. At this point, Workspace generates an e-mail similar to the one shown in Figure 11-11 to each invitee. As each person accepts the invitation, you will receive an e-mail reconfirming the invitation.

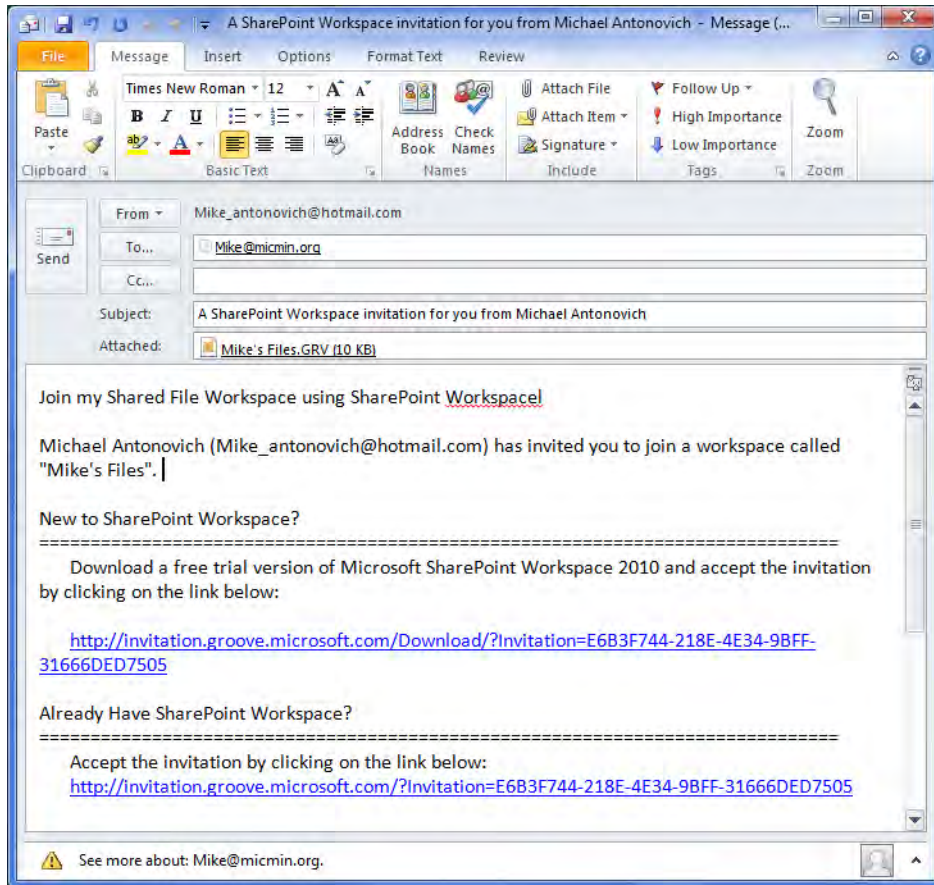


Figure 11-11. The message SharePoint Workspace generates to send as an invitation to your workspace

As shown in Figure 11-11, the invitee can accept the invitation in two different ways. If he has never used SharePoint Workspace and does not have a copy of it, he can choose the first option, which allows him to download a free trial version of SharePoint Workspace. If the invitee already has SharePoint Workspace, he can accept the invitation to the workspace using the second link. This action shows the dialog in Figure 11-12.

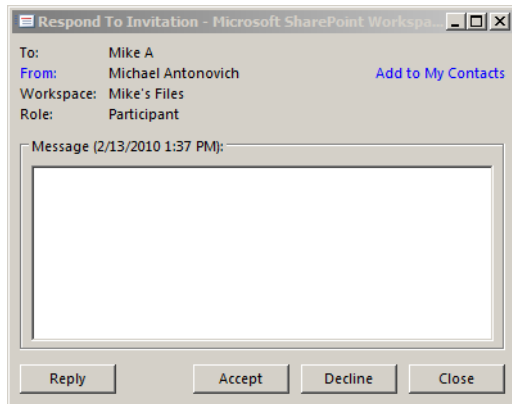


Figure 11-12. The dialog that the invitee sees allowing him to accept or decline the membership invitation

Note that the invitee can accept or decline the invitation to join the workspace using the buttons at the bottom of the dialog. He can also include a message back to you.

No matter whether he accepts or declines, Workspace sends a message back to you to confirm the acceptance. SharePoint Workspace tries to send this message back via the Groove infrastructure. Therefore, you should monitor your SharePoint Workspace account for incoming messages. In the meantime, the invited person does not see the shared workspace. In fact, he receives the message shown in Figure 11-13 when he sends the acceptance back.

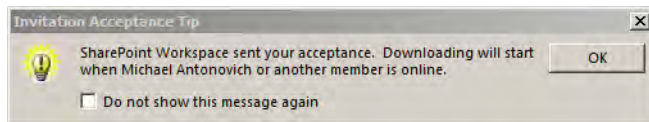


Figure 11-13. Confirmation to the invitee that his acceptance has been sent to the workspace owner

Incoming messages and other actions that you must respond to appear in a box displayed in the lower-right corner of the screen when you hover your mouse over the **SharePoint Workspace** icon in the notification area of the task bar. When a message first appears, it slides up above the **Quick Launch** bar. If you miss the arrival of the message, you can go back and click on the SharePoint Workspace icon to show all messages that require a response, as shown in Figure 11-14.

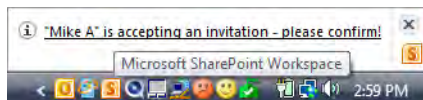


Figure 11-14. Message in the workspace owner's task bar

When you see the incoming message with the invitee's acceptance, click it to open and confirm the invitation. Within the confirm dialog box, as shown in Figure 11-15, click the **Confirm** button to complete the process. As each invitee accepts your invitation to your workspace, his name appears in the **Workspace Members** list on the left-side panel beneath the name of the shared folder.

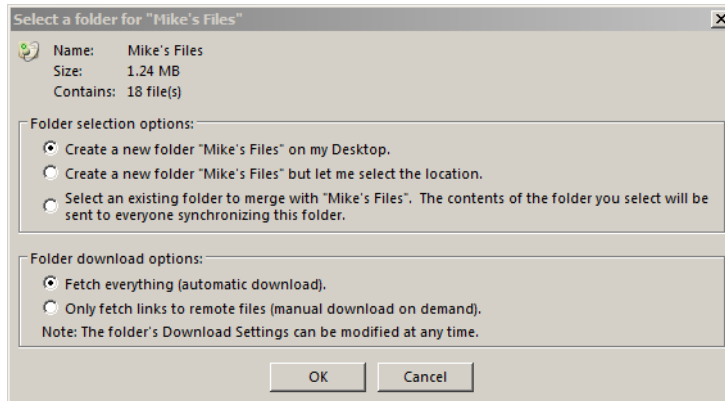


Figure 11-15. After the owner confirms the invitee's acceptance, the invitee determines where to create the shared folder.

In addition, Workspace begins to transfer a copy of the fields to the invitee's computer. The invitee has the option of creating a file with the shared folder's name on their desktop or at some other location. He can also choose to merge the shared folder with the contents of another folder on his machine. However, if he does this, Workspace shares the contents of this folder with all of the other workspace members. This may be exactly what you need to do to perform an initial synchronization of files with all members of the workspace. The other set of options in this dialog lets the invitee determine whether he wants to download everything automatically or whether he just wants to see links to files and then download only those that he wants to open. Users with slow connections may prefer this second option.

After Workspace finishes transferring the folder, the invited member can view the contents of the folder just as if it were any other folder on his computer, as shown in Figure 11-16. Because it looks like any folder, the user can drag files from other folders directly into this shared folder. He can also create new files in this folder using any application including the entire Microsoft Office suite. For example, in Figure 11-16, the invitee can click and drag the Word document named Doc1.docx over to Mike's Folder. When he drops the file here, I, as manager of the shared folder, can open the folder and see the file Doc1.docx. If the workspace had other members, they would be able to see the new Word document as well.

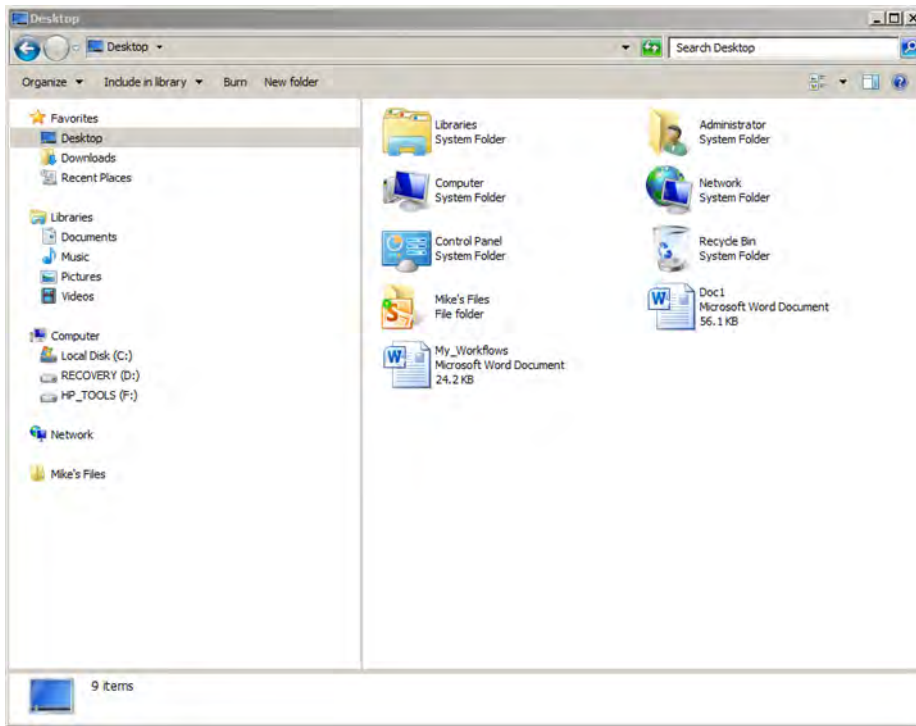


Figure 11-16. Use Windows Explorer to drag files from other directories to the new shared folder.

When I (and others) open SharePoint Workspace, not only do I see the new Word document, but Workspace marks the file with an overlay icon of a folder with a green circle to indicate that the file is new and has not yet been read, as shown in Figure 11-17. After I read the file (or even if I do not read it), I can click the option in the **Files and Folders** section of the panel on the left to mark the file as read. If you need to go back to review any file in a shared folder, you can select the file and then mark it as unread so it places the folder icon with the green circle back over the lower-left portion of the file icon.

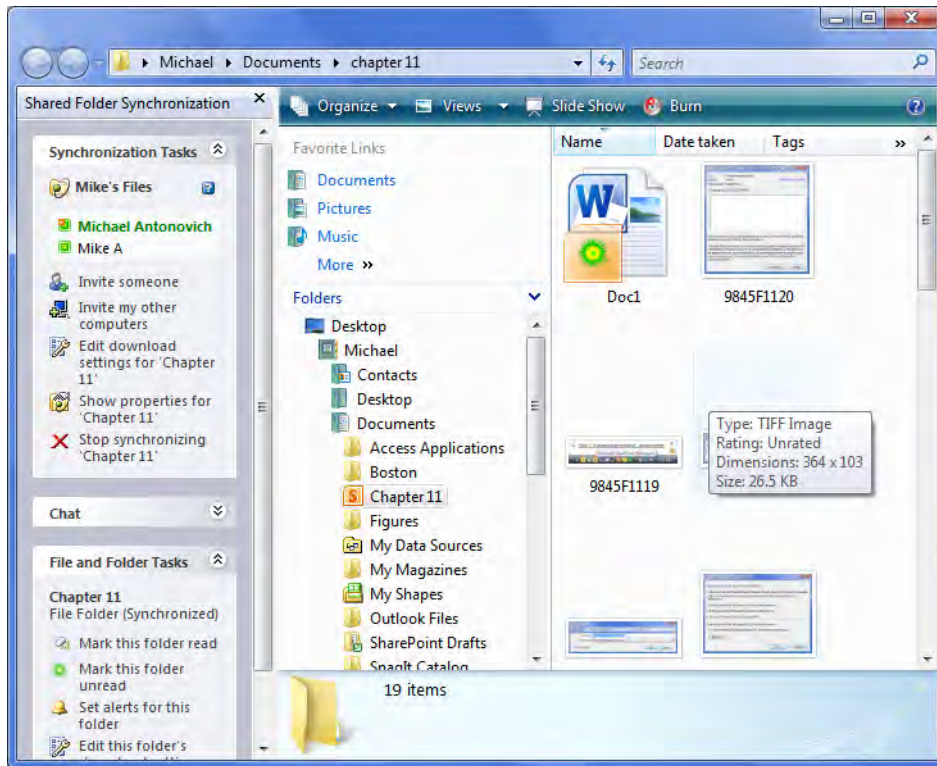


Figure 11-17. Changed or new additions to the shared folder show the Unread icon over their default icon.

Adding Your Account to Other Computers

In the previous section, you saw how easy it is to invite others to join your Shared Folder workspace. If you have multiple computers, you can also add your account to each computer so that you can share the same folder no matter which computer you are using, for example, you could include your account on both your home and work computer so that you can see the shared workspaces wherever you are. SharePoint Workspace makes it easy to add your account information to other computers by clicking the option **Invite my other computers** from the **Synchronization Tasks** section of the panel on the left side of the page, as shown in Figure 11-17. Clicking this option displays the dialog shown in Figure 11-18.

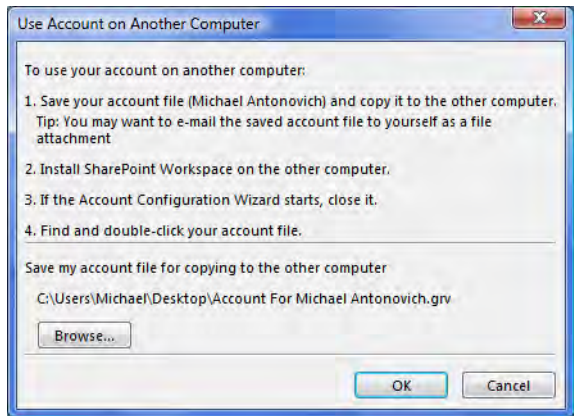


Figure 11-18. Instructions on how to transfer your SharePoint Workspace account to another machine

This dialog gives you instructions on how to copy the account file from your current computer on to another computer, which, of course, must have SharePoint Workspace installed on it. You can quickly set up multiple computers to use your account to view and work with any of the workspaces created by SharePoint Workspace. Clicking **OK** displays the **Save Account As dialog** asking you for the file name to use for the account, as shown in Figure 11-19.

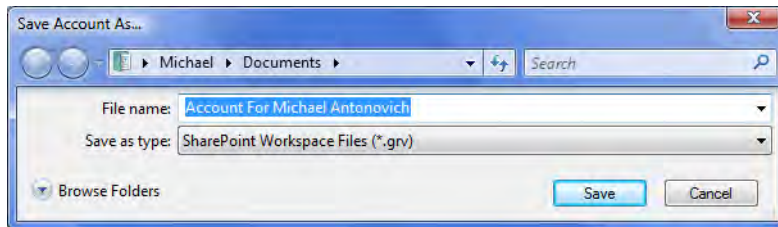


Figure 11-19. Save your SharePoint Workspace account to a file that you can transfer to another machine.

It suggests a file name that includes your user name, but you can change the name and even change the location where Workspace creates the file. When you click **Save**, Workspace prompts you for one more piece of information, as shown in Figure 11-20. It needs a password to protect the account information so that, should anyone else get a copy of your account file, they will not be able to install it on their computer.

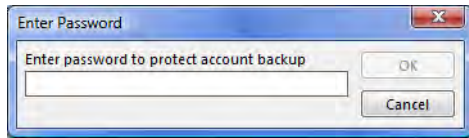


Figure 11-20. Provide a password to protect your account file.

Copy the file created here to the other computer. Then to add the account file to a new computer, start SharePoint Workspace and select the option **Restore an Existing Account** in the **Account Configuration Wizard** as shown in the “Creating Your Workspace Account” sidebar. When prompted, refer to the account field copied to the new computer supplying the password. You can now reference your shared folder from multiple computers using your common account information.

Creating a Groove Workspace

Now that you know how to create a Shared Folder workspace, let’s look at the next level, a Groove workspace. A Groove workspace differs from a Shared Folder workspace in that it adds several more tools that you can share with other members of the workspace. Going back to the Launchpad, open the **New** drop-down menu and select **Groove Workspace**, as shown in Figure 11-21.

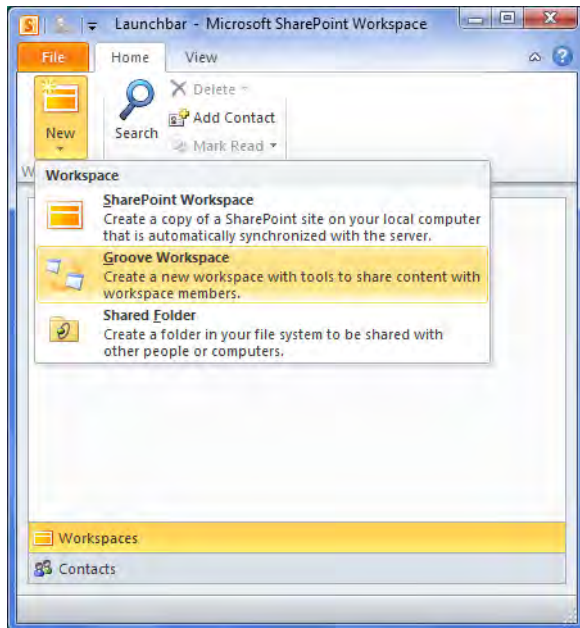


Figure 11-21. Create a Groove workspace.

In the next dialog that appears, you have the opportunity to name your workspace. Perhaps more importantly, you can create your workspace in the 2010 style or revert to a compatible 2007 style to allow potential members who may not have migrated to 2010 yet to join and contribute.

Then, SharePoint Workspace creates your workspace. For the example here, I will use the 2010 style. If you need to use the 2007 style, please refer to my previous book *Office and SharePoint 2007 User's Guide* (Apress, 2008). Figure 11-22 shows the open workspace.

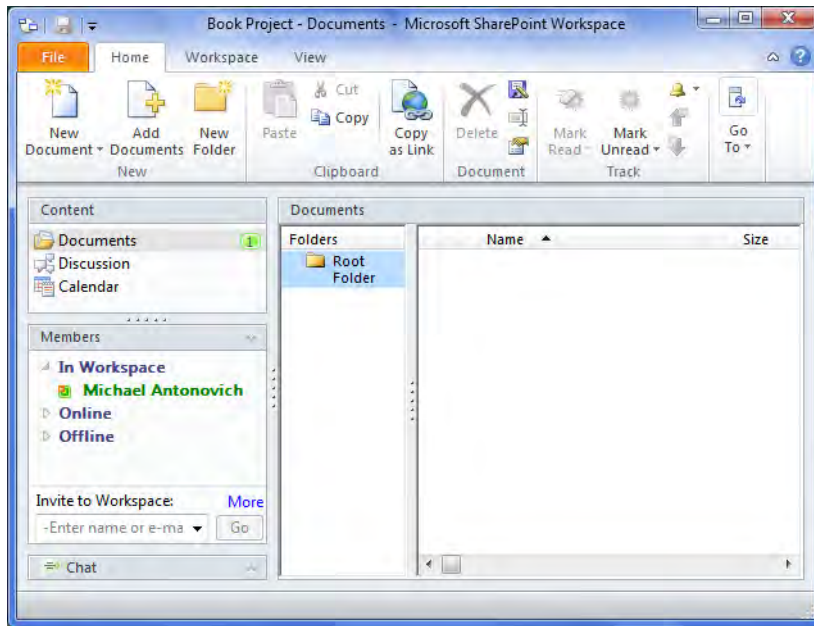


Figure 11-22. A New Documents folder begins with a Root Folder in the Groove workspace.

Notice the panel on the left side of the screen. The first section, named **Content**, lists the available tools that you can use in this workspace. By default, Groove Workspace includes three tools: Documents, Discussion, and Calendar. However, a Groove workspace provides additional tools that you can add to your workspace from the **Workspace** ribbon. I will discuss those tools in more detail a little later.

The second panel section, named **Members**, displays a list of the members currently active in the workspace in the **In Workspace** group. If a member is currently on her computer and connected to the Internet, but does not have the workspace open, her name appears in the **Online** group instead. Finally, if the user is not connected to the Internet, her name appears in the **Offline** group.

Of course, you will not see any members other than yourself until you start to invite other people to become members of your workspace. Even if they are already members of your **Shared Folder** workspace, you must reinvoke them to your Groove workspace. In fact, each invitation applies only to one specific workspace, so, if you have more than one Groove workspace, you must invite members to each one. To invite a person to your workspace, right-click on the **Members** group header in the left panel and select **Invite to Workspace** from the available commands, as shown in Figure 11-23. You can also click on **Invite Members** from the **Workspace** ribbon.

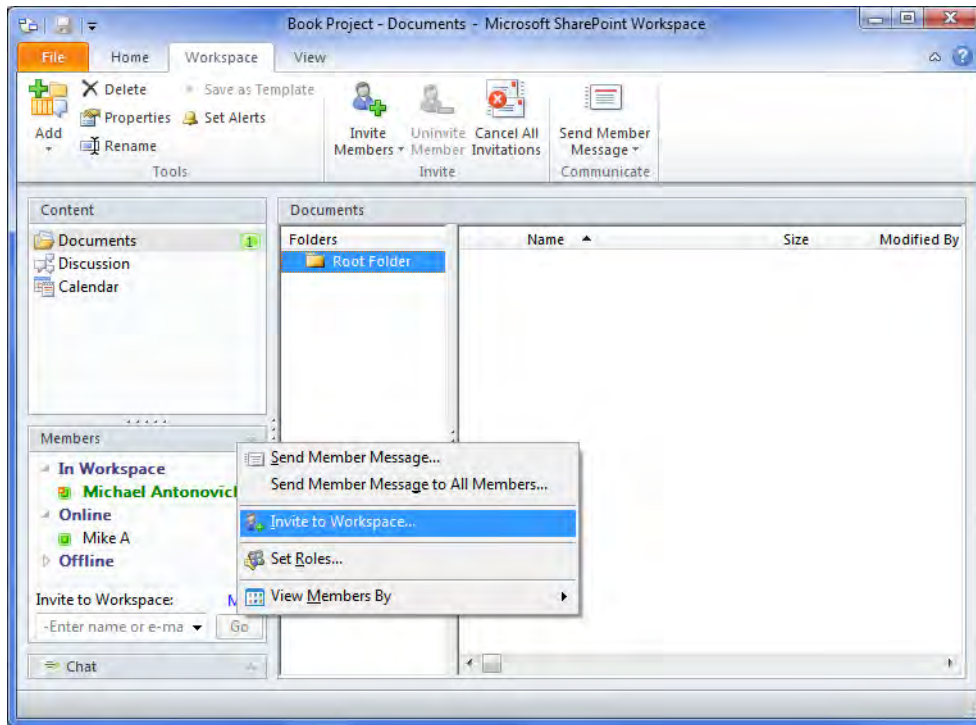


Figure 11-23. Invite other members to your workspace.

Because you have seen how to invite others to your workspace site in the Shared Folder section of this chapter, I will skip over the details here because the process is the same. Let's instead continue on to the initial content tools provided in the Groove workspace.

Documents Tool

The Documents content tool, like the Shared Folder workspace, allows you to drag files and even folders from your local desktop or mapped drives and drop them into the workspace's Root Folder. This tool makes it easy to share non-SharePoint documents with other members of your workspace. In addition to the typical properties you expect from a directory of files, it has a **Modified By** column to tell you the name of the last person who modified the file. Unlike Groove 2007, the new version of Groove Workspace immediately updates the **Modified By** column with the name of the member as soon as she opens a file to edit it. It also displays a small green icon in the first column of the detail row to indicate that the new version of the file is unread. Then, when the other member saves her changes, Workspace shows a small page-like icon with a down pointing arrow to indicate that a new version is available. To get the latest version, open the **Error Tools Resolve** ribbon and click the **Get Available Updates** command, as shown in Figure 11-24. Groove Workspace generally does not synchronize file changes back to the original folder from which you copied the file. If you want a local copy of the file, you must copy the file back from the workspace to the local drive yourself.

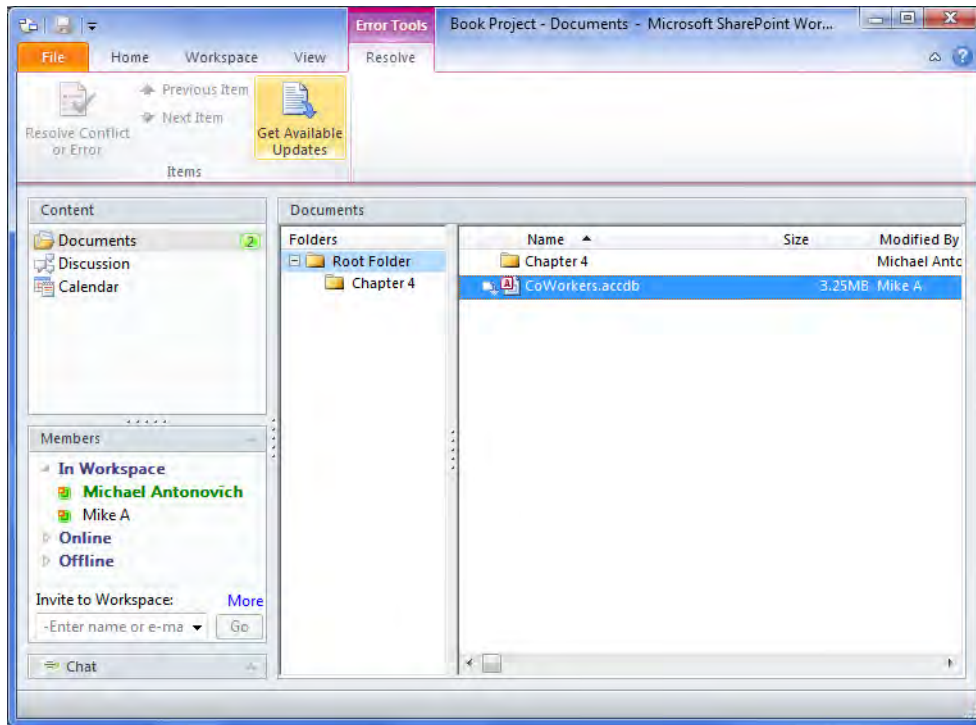


Figure 11-24. Update your Documents folder with changes made by other workspace members.

Discussion Tool

The Discussion tool lets you hold multiple discussions with members of your workspace. Each discussion begins with a single topic. Generally, the purpose of a topic is to introduce the subject of the discussion, such as a question, an observation, an opinion, or just about anything. Once posted to the discussion area, other members of the workspace can add their own comments called **Replies** to the **Topic**. Then the original person who posted the topic might reply to the reply and someone else might reply to them just as a discussion amongst peers might occur in a meeting room, but without having to be physically in the same location. Even more interesting is that the discussion does not limit participation to people who are active at the time of the posting of the original topic. People might log into your workspace and reply to a topic hours or even days after you post the original topic. Figure 11-25 shows a typical set of discussion topics with threaded replies.

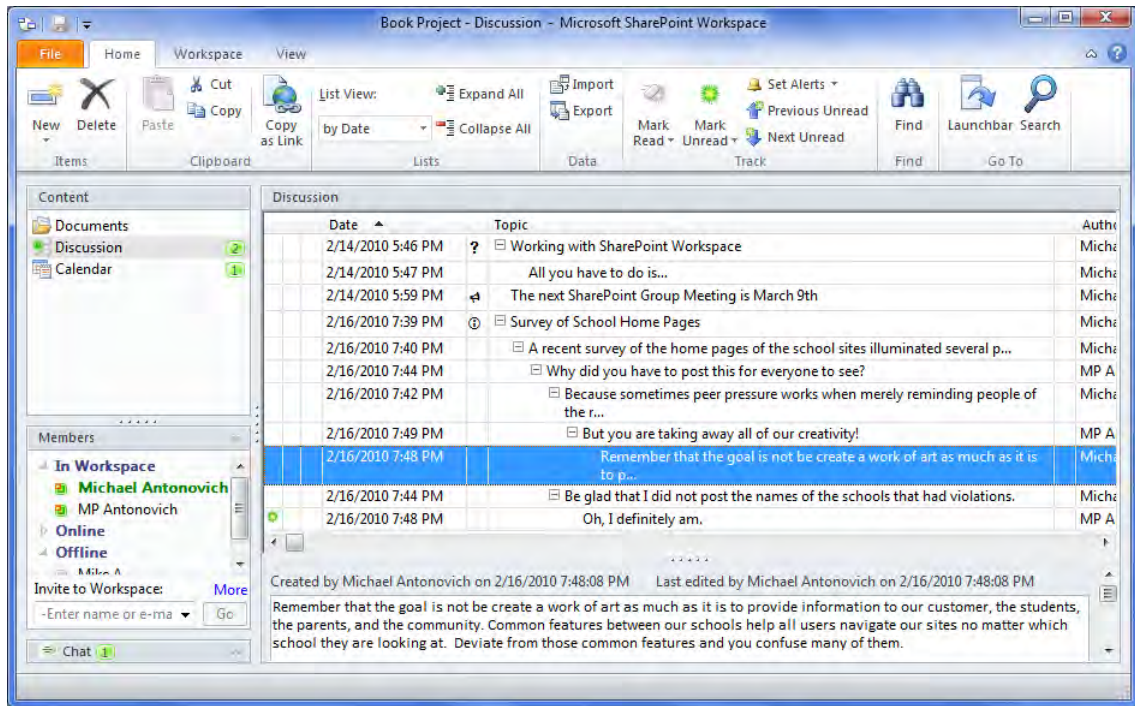


Figure 11-25. Discussion threads with indented replies

Discussions can branch into many different threads as members of the workspace reply to different replies within the discussion topic. As you can see, this tool works in a similar way to the **Discussion Board** list discussed in Chapter 2. You might even think of the **Discussion** tool as a structured chat feature that does not require members to be online, much less to be in the workspace to participate. Of course, resyncing of these responses only occurs when the member returns to an online state.

In some other ways, the **Discussion** tool creates an environment that resembles a blog, in that each member can post new topics in a particular discussion at any time. Members can also return to existing topics to add responses to the topic or even to add responses to responses. Workspace tracks responses in a tree-like structure, indenting each response level a small amount to show the relationship. A small box with a plus or minus sign appears to the left of each topic or response that has a child response. You can click this box to alternately show and hide the rest of the tree beneath that point. If you have no interest in a topic, you can minimize the space it uses by clicking the box to close all responses in that branch. Finally, discussion entries support rich text formatting as well as the ability to add hyperlinks to the text and spell checking, as shown in Figure 11-26.

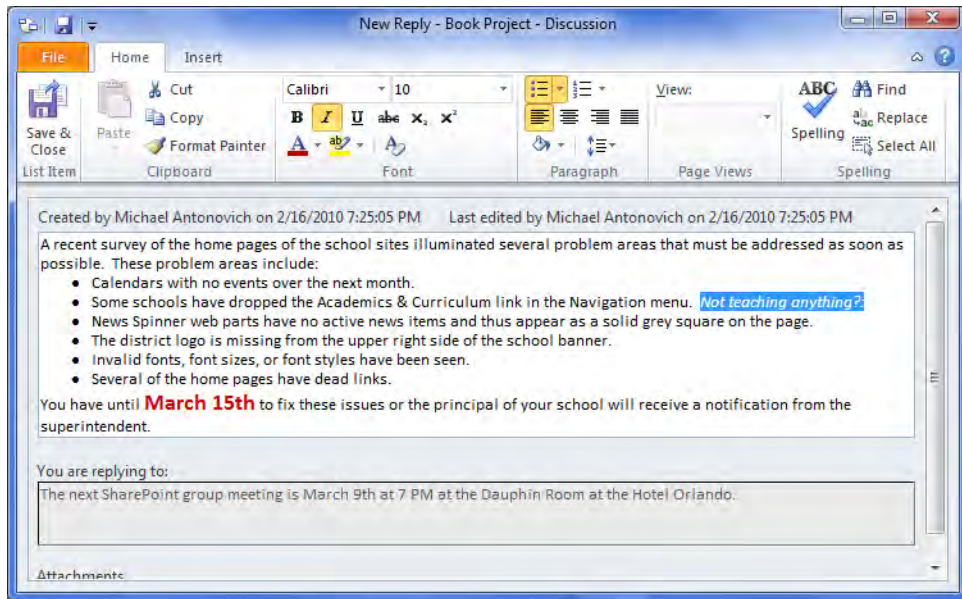


Figure 11-26. Create a Discussion reply with custom formatting of text.

Before leaving the Discussion tool, here are a few other suggestions on things you can do with it:

- Only managers can delete discussion topics and replies. So, unless you are a manager in the workgroup, be careful what you post.
- You can display the **Reading Pane** for the topics on the bottom or on the right side of the window, or you can turn it off completely. To change the position of the reading pane, open the **View** ribbon and look for the **Reading Pane** command in the **Layout** group.
- When you have a highly branched discussion topic, you can quickly open or close all of the branches by using the **Expand All** or **Collapse All** options in the **Lists** group of the **Home** ribbon.
- There are several other views available for the **Discussion** tool. However, only the **'by Topic'** view displays the topics and replies as threaded.
- Once you post a topic or reply, you cannot edit the contents of the message.
- If the text for a reply or topic is long, the list may truncate the text after a point with ellipses (...). To see the full text, click on the topic or reply and view the full text in the **Reading Pane**.
- You can also search for replies or topics with specific word phrases.
- You can mark individual topics and replies as read or unread.

Calendar Tool

The Calendar tool supports a subset of the features found in Outlook. You can display its calendar in month, as shown in Figure 11-27, week, or day mode.

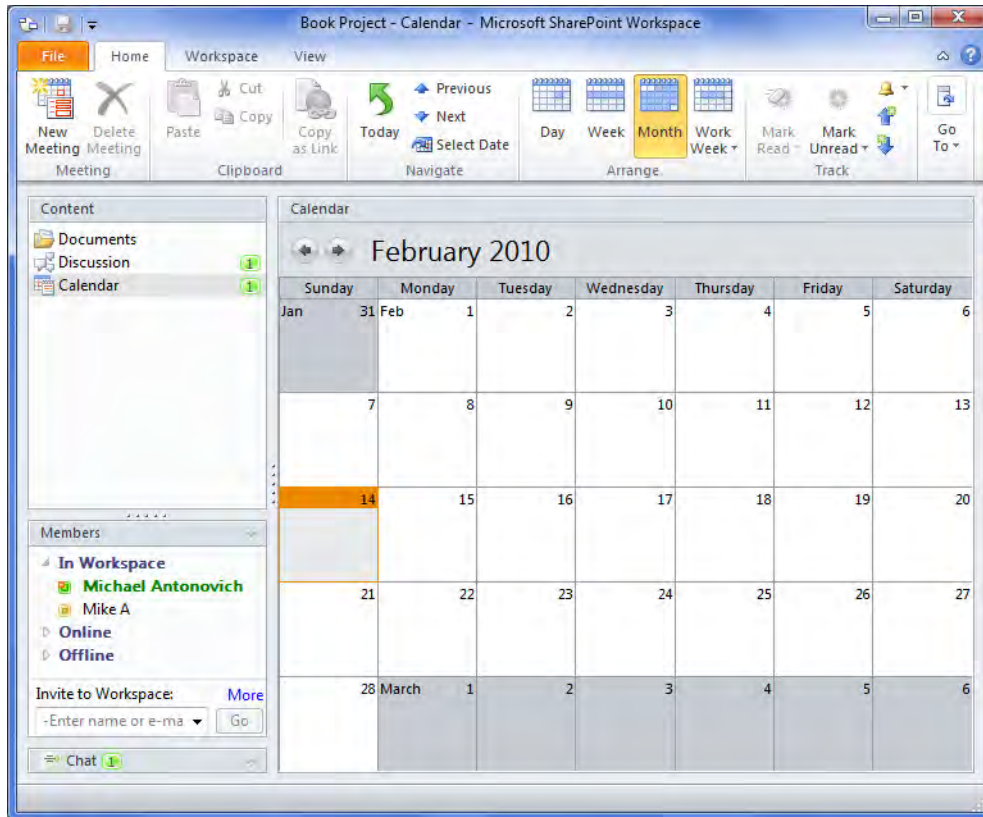


Figure 11-27. The Groove Workspace Calendar tool

You can add meetings to the calendar defining a subject, a start date and time, an end date and time, and details about the appointment. Meetings in Groove Workspace roughly correspond to what you call appointments in Outlook's calendar. With this version of Groove Workspace, you can even create recurring events just as you currently do in Outlook. That is a great feature for teams who have regular meetings every day, every week, or even every other week. In fact, you should be able to schedule most regularly defined periods. You can even select attendees from the current members of your workspace. Figure 11-28 shows a completed meeting entry.

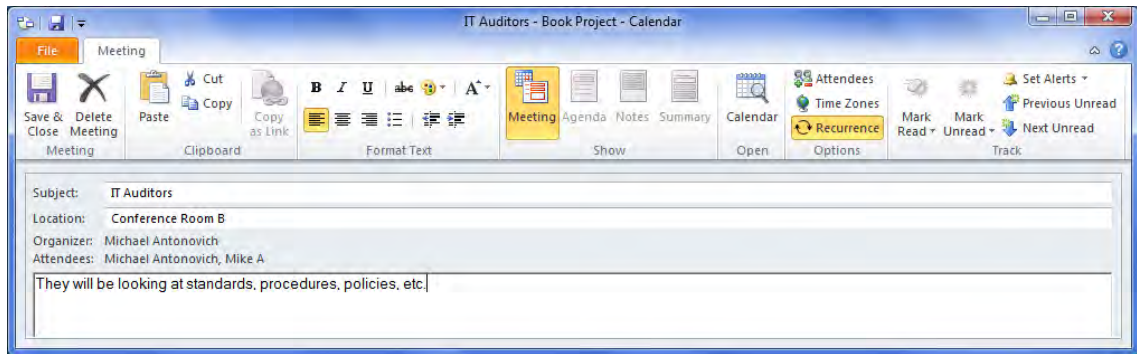


Figure 11-28. Defining a meeting in Groove Workspace looks a lot like defining a meeting in Outlook.

If you go back and edit any individual meeting occurrence (not a meeting series), you can also show separate pages within the meeting where you can define the agenda, add notes during the meeting, and even create a summary of what happened after the meeting. These additional options appear in the **Show** group of the **Meeting** ribbon. Groove Workspace does not enable these options if you edit a meeting series.

Perhaps you may be somewhat disappointed to learn that you cannot transfer appointments between Outlook and your Groove workspace and keep them synchronized. However, if you need to track appointments related to the members in your workspace, especially if those members work outside of your organization, this tool might meet your needs.

Chat Tool

While **Chat** is not specifically a Groove Workspace tool like the first three described above, it is a very useful feature that you might want to explore in more detail, even before trying out some other tools. You can chat with any member currently in your workspace. If he is online, but not in the workspace, you can send that user a message by right-clicking his name in the **Members** portion of the panel and then clicking **Send Member Message**. You can also send messages to offline members. However, they will not receive the message until after the next time they go online. The **Chat** header in the left panel will flash when it receives new chat messages.

The **Chat** area only uses a few of the features in the ribbons at the top of the workspace, such as **Properties** and **Alerts** in the **Workspace** ribbon. However, you do have a button beneath the text box where you enter your chat message that allows you to spell check it before you send it.

What may not be obvious is that there is another button on the bottom right of the Chat area, which displays as a down-pointing arrow similar to the one used on a drop-down list. However, clicking on this button opens a menu of formatting options, as shown in Figure 11-29.

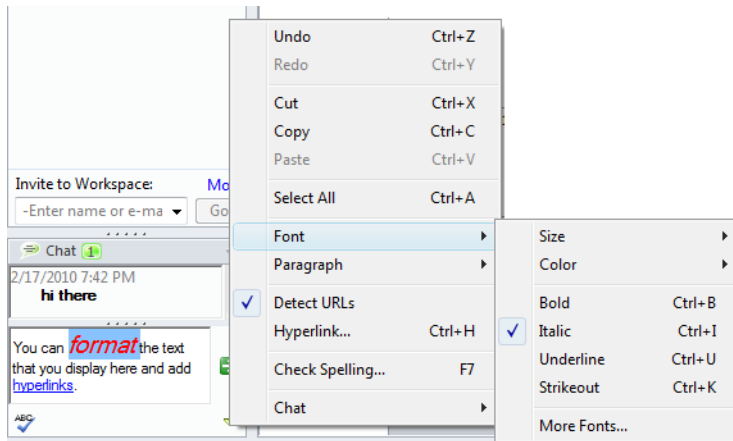


Figure 11-29. Defining a font style for text in a Chat message

You can cut and paste text, change the font style of selected text and paragraphs, add hyperlinks, check spelling, and even manage the chat transcript to print, delete, or search it. The one feature that you may wish you had is the ability to copy the transcript of the chat to a file. However, you can overcome even this minor problem by selecting all of the text in the top control of the Chat area with your mouse, copying it to the clipboard, and then pasting it in Notepad or your choice of text editor.

Overall, the Chat area is a functional tool. It allows you to communicate with other members of your workspace in real time. In many ways, it is very similar to using an instant-messaging program.

Now that we have seen the classic default tools for your workspace, let's open the **Workspace** ribbon and click on the **Add** command to see what other tools you have available.

Notepad Tool

The **Notepad** tool allows you to record text notes. To open this tool, just right-click anywhere in the blank section of the Content panel. A popup menu lets you add a new tool to the content area and change the view order of the tools. As you position your mouse over the **Add New Tool** menu item, a flyout menu appears with a list of the available tools. Once you have added the Notepad to your content area, you can begin adding notes. You can also achieve the same result by going to the **Workspace** ribbon and selecting **Add** from the **Tools** group and then selecting the specific tool you want to add.

Each note must have a name which you might think of as a title. Within the body of the note, you can add only text. However, unlike using the Notepad tool in the operating system, this Notepad lets you style individual words (or characters) in the text as well as add hyperlinks within the text. It also allows you to specify different line justifications by paragraph and to create indented and bulleted sections. In addition to using the ribbon option, you can access any of the styling features including hyperlinking to other sites, spell checking of your text by right-clicking anywhere in the text area while editing your note, and selecting the appropriate option from the pop-up menu.

Figure 11-30 shows a typical example of a note within the Notepad. Notice the three buttons in the upper left. The first button opens and closes the page list. Each note uses a separate page within Notepad. Using the page list, you can quickly locate and open notes based on their name. You can also navigate through your notes by using the second and third button in this area.

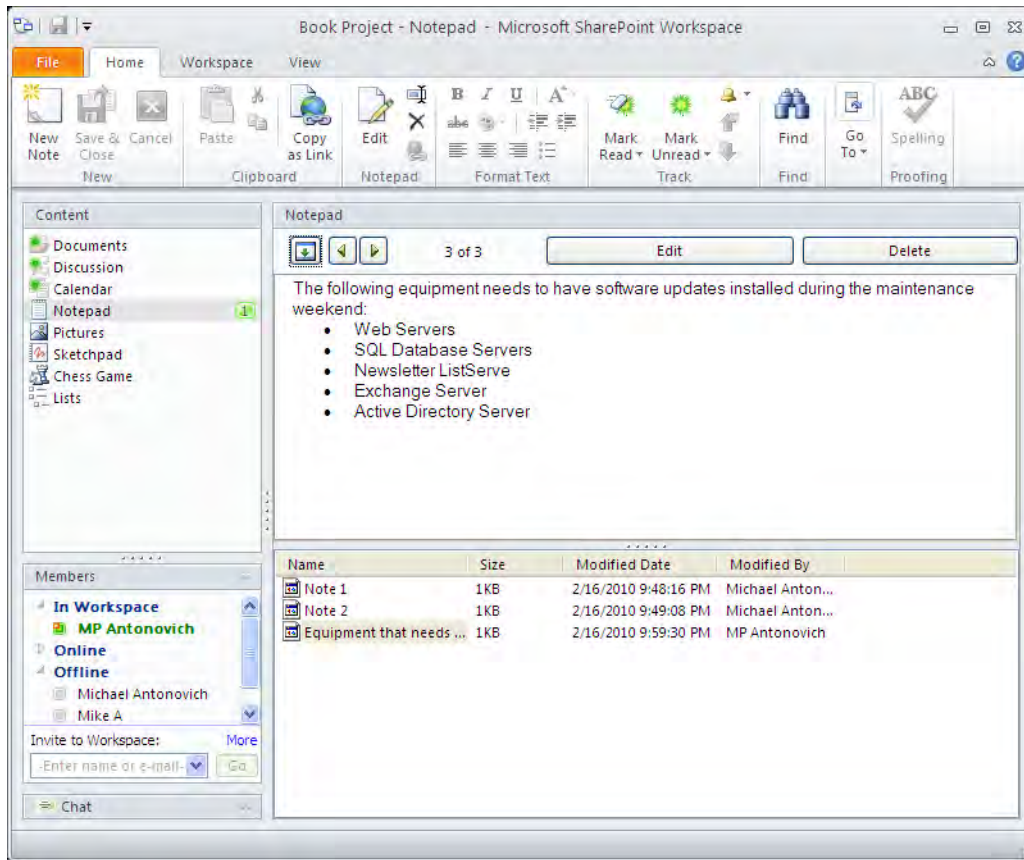


Figure 11-30. Add notes to the Notepad tool.

Pictures Tool

The **Pictures** tool lets you include images saved in JPG and BMP formats to your workspace and share them with other members. Once it is loaded into your Groove workspace, you can rename the image, export another member's image to your local hard drive, delete the image from your workspace, and navigate between images. You cannot edit images directly within Groove Workspace. Figure 11-31 shows a typical **Pictures** tool with several pictures in it.

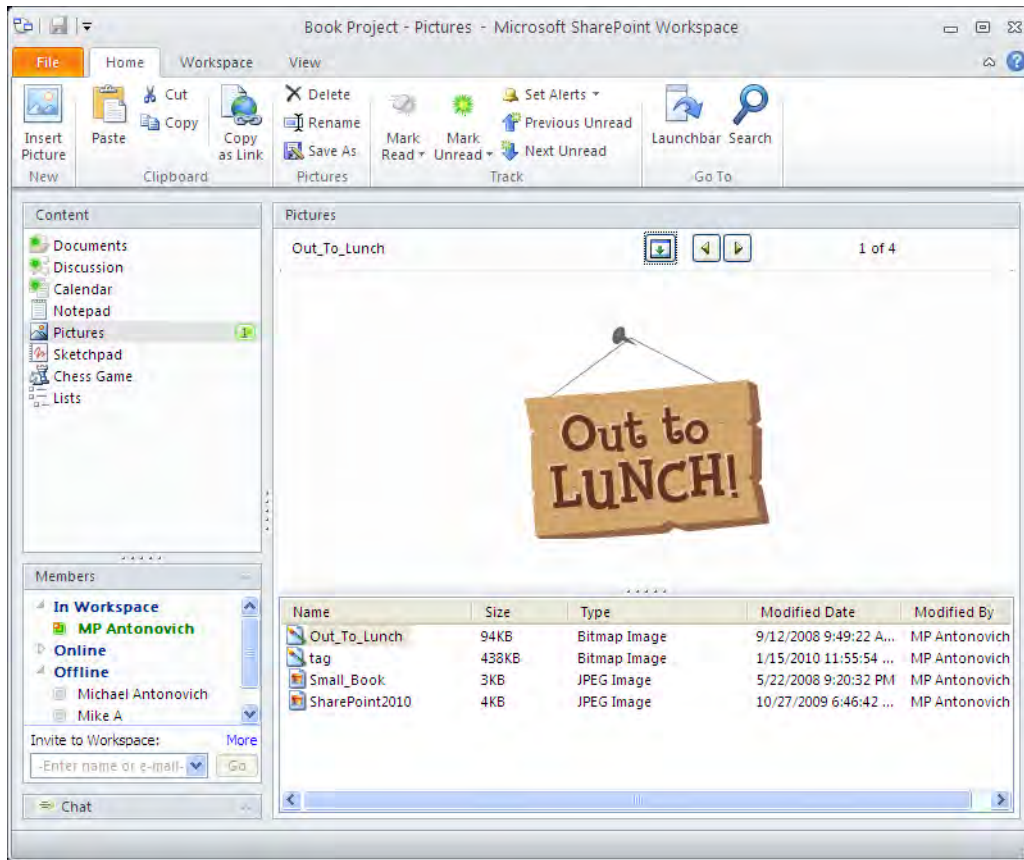


Figure 11-31. Save images in the Pictures tool.

Sketchpad Tool

The **Sketchpad** tool allows you to create simple sketches using drawing tools such as Pencil, Line, Rectangle, Ellipse, Polygon, and Textbox. One interesting feature of this tool is that it lets you begin with a background image (JPG or BMP) and then draw over the top of it. You may find this capability useful to annotate images that you share with other members. However, the tool does not provide a way to export the final sketch. Even the copy-and-paste feature only works within Sketchpad, although you can copy and paste your sketch additions from one sketch page to another. In addition, there is no undo feature and there is no easy way to fill a free-form area with a color. However, other than those concerns, Sketchpad could prove useful for creating some simple illustrations to explain a point. Figure 11-32 shows an example of a sketchpad image that may suggest to other team members the design for a needed report.

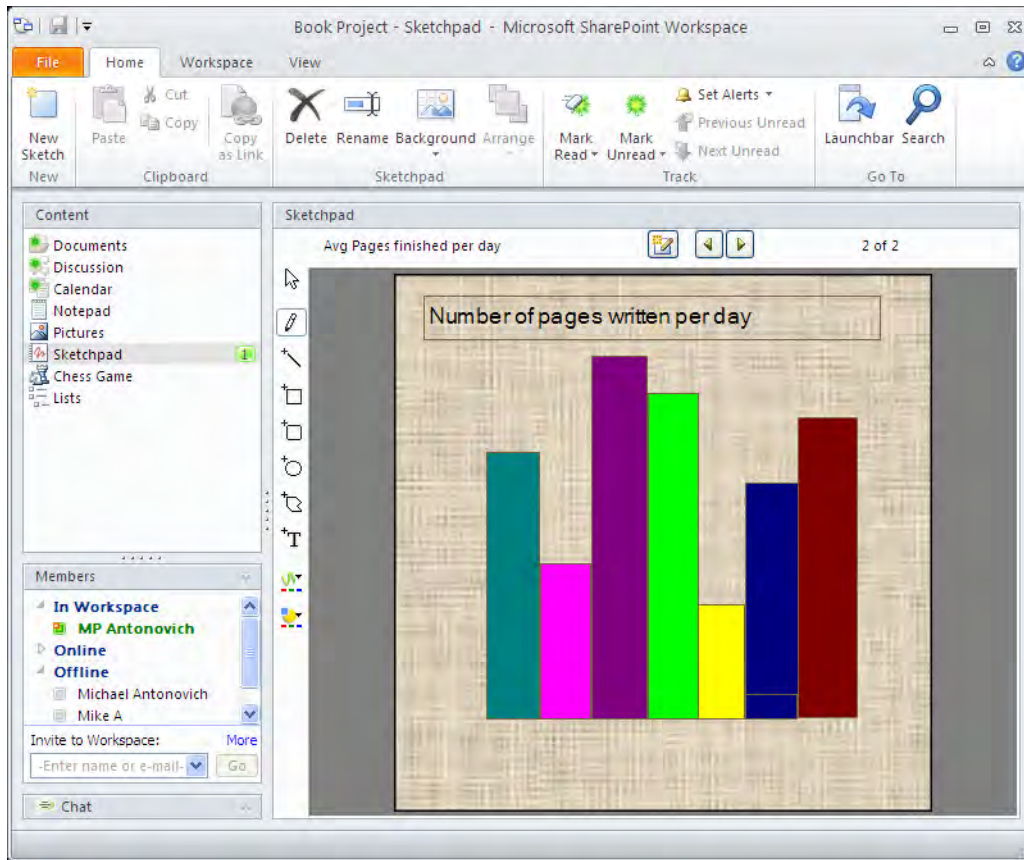


Figure 11-32. Use the Sketchpad tool to create a quick drawing or to illustrate a point.

■ **Tip** If you have a third-party screen capture application or if you use Vista, you can use the Snipping tool to capture the screen and crop the image before saving the image to a file or pasting it into another application.

Chess Tool

Honestly, this is not so much a tool as a way for members to spend some quality downtime playing a simple game of chess with each other after a hard day working on their project tasks. Figure 11-33 shows an example of a game in progress between two workspace members. It is White's turn and Black is about to lose.

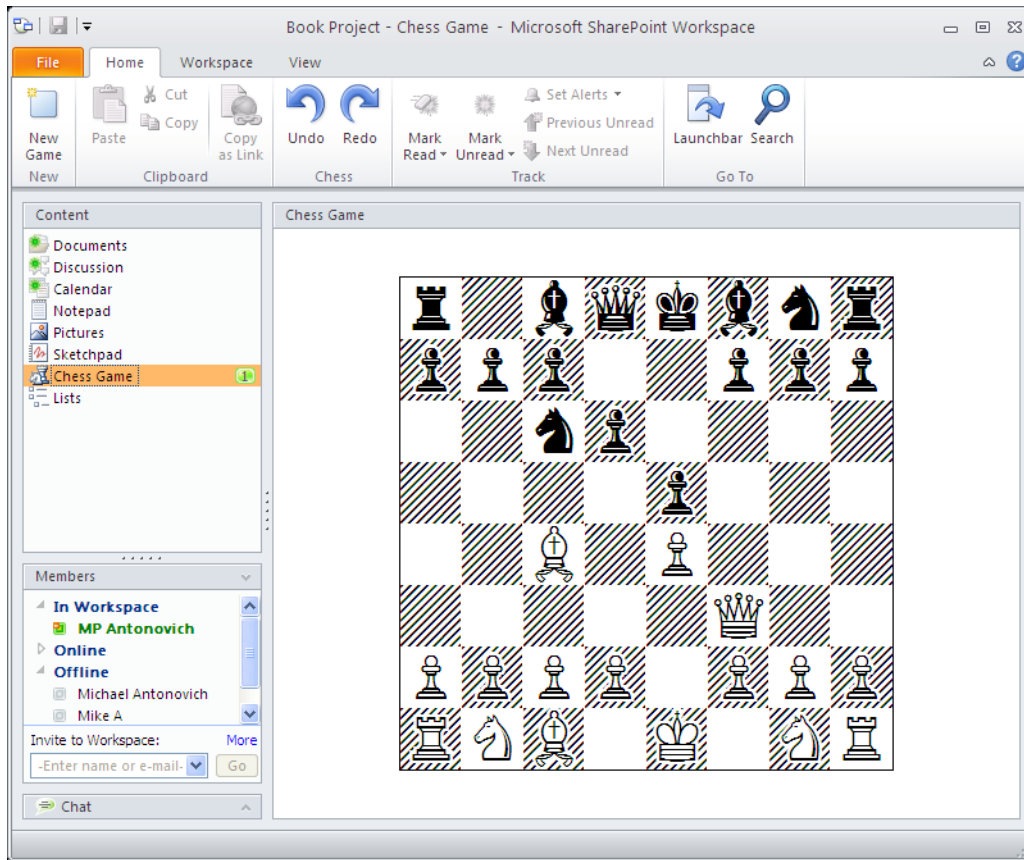


Figure 11-33. The Chess Game tool—Black is about to lose.

By the way, this tool is a very simple implementation of chess that does not validate your move, does not know when you place the opponent's king in check, and it does not know when the checkmate occurs.

Lists Tool

Lists are the last tool that you can use in a Groove workspace that I will cover. It is perhaps the most complex tool within the workspace because it lets you create custom document forms using InfoPath that members of your workspace can fill in to create the list. You can complete most form designs without resorting to coding or development skills. Lists support several different types of fields, styles, and views. Groove Workspace imports data from a list data archive (.gax) which is the same format that the workspace uses to export list data. Therefore, you do have a way to transfer data from one list to another. The list tool cannot read data from other formats, but you can create multiple views to sort and display the data.

The first thing that appears when you create a new list is a window informing you that SharePoint Workspace Lists use Microsoft Office InfoPath to create data input form, as shown in Figure 11-34. When designing a form, you can include multiple view, transforms, sorts, and filter.

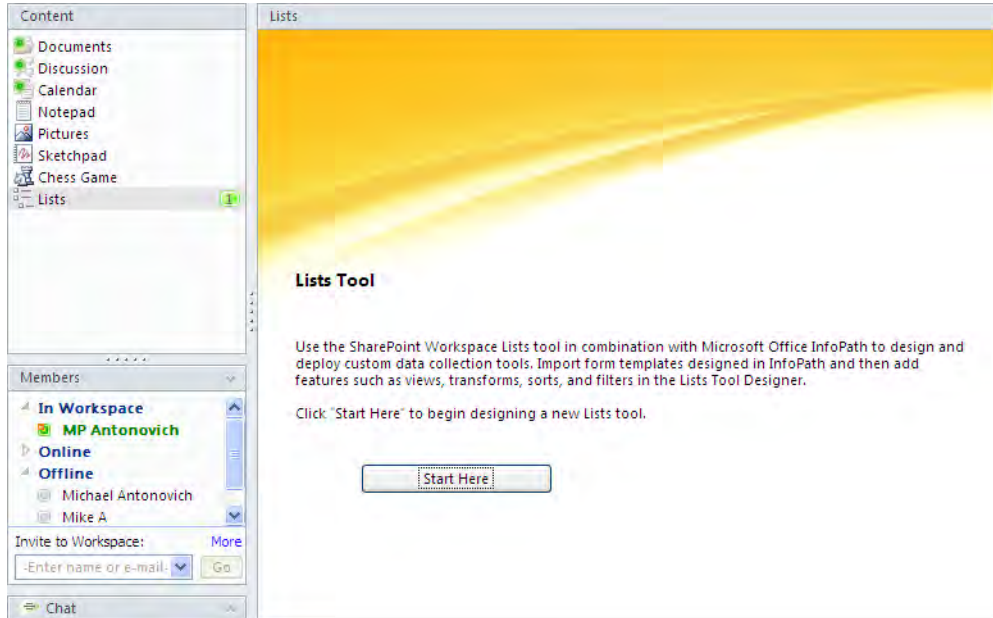


Figure 11-34. The Lists tool initial screen tells you that it uses InfoPath to create the data collection form.

When you click the **Start Here** button to begin a new list, you see the dialog that appears in Figure 11-35. You can define various settings for the list such as the default view, what field to use for search results, whether the user can create new items or change list views, and more. Obviously, you might not know how you want to set these fields when you first begin defining a form for a list. Fortunately, you can return to this dialog at any time by clicking on the **Enter Designer** button in the **Designer** group of the **View** ribbon. In addition, you can select the form and any of the views to open additional dialogs that let you change their individual properties. If you are familiar with XSL Transforms, you can define transforms for the form conditions:

- On New Record
- On Edit Record
- On Save Record

For views, you can not only define basic view properties, but also you can define filters, sort orders, and group definitions. You can also create user-friendly column headers rather than using the field names from the form.

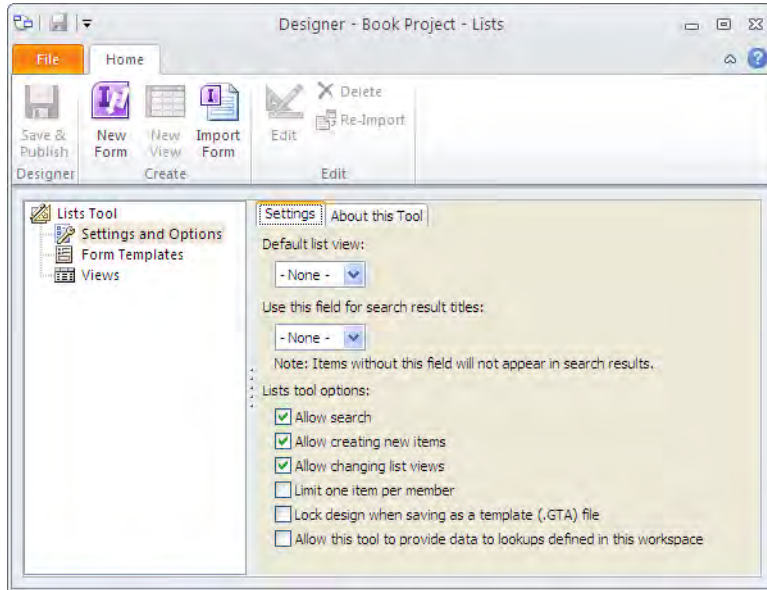


Figure 11-35. The Designer tool for Lists

If you are starting a new form, you can click the **New Form** button in the **Create** section of the **Home** ribbon, as shown in Figure 11-35. You can also import an existing form by using the **Import Form** button in the same group. You should note that you can only import forms created with InfoPath and stored as an **InfoPath Form Template (*.xsn)**. Figure 11-36 shows a simple form designed in InfoPath specifically for use with a list in your workspace. Because we covered creating InfoPath forms in Chapter 9, I will not cover the steps used to create this form.

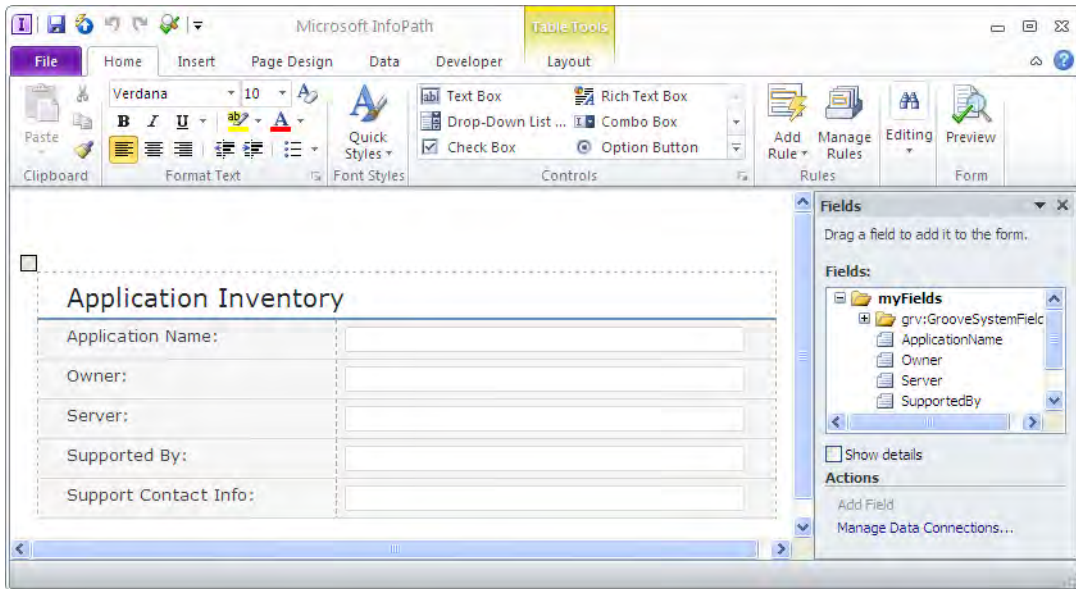


Figure 11-36. The completed InfoPath form design for the Application Inventory list

Rather than publishing the form to SharePoint or a Network share as you saw in Chapter 9, you will publish this form directly to your workspace by opening the **Publish** page in the **Backstage** area and clicking on the **SharePoint Workspace** button, as shown in Figure 11-37. Take note of the instructions under the title **Save for SharePoint Workspace**. This information applies to a choice you must make when you get back into your SharePoint workspace.

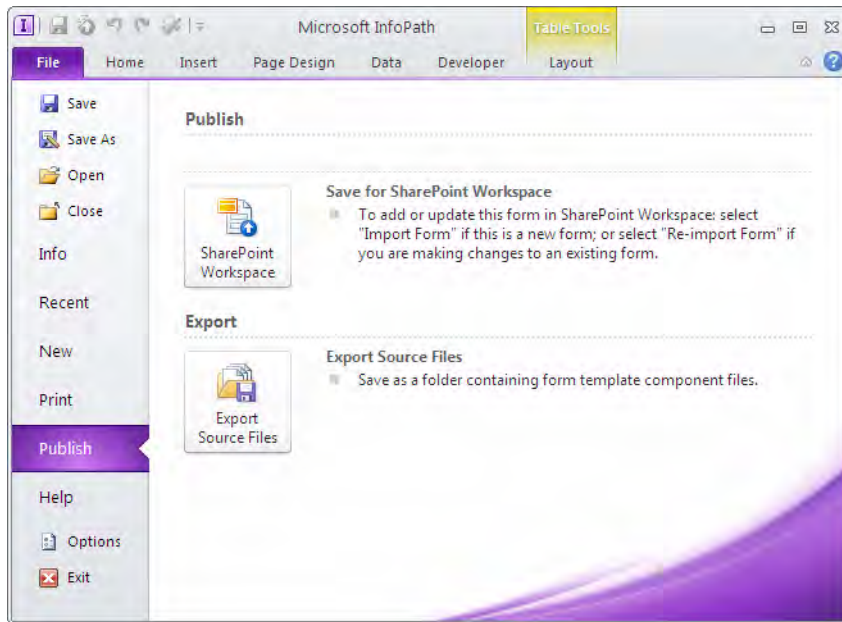


Figure 11-37. Publish your form back to your workspace.

Even though you want to publish the form back to SharePoint Workspace, you must still provide a name for the form. Therefore, InfoPath displays the **Save As** dialog, as shown in Figure 11-38. You do not need to navigate to the folder or drive where you want to save the form. In fact, you want to leave the default provided by InfoPath and just change the **File Name** for the form. Then click **Save**.

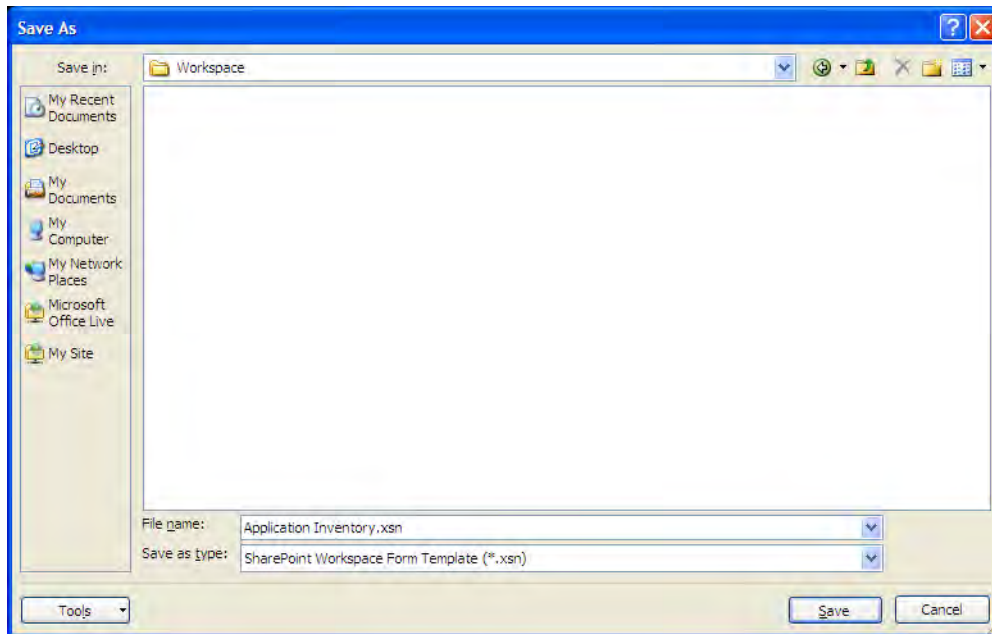


Figure 11-38. Save your form to the Workspace folder.

After clicking **Save**, you should get a message informing you that the InfoPath has successfully saved the form. You should now be back in your SharePoint workspace. However, before you can begin using your form, you must still import your new form to associate it with the list. From the **Home** ribbon, select the **Import Form** button from the **Create** group. This command opens the **Open File** dialog, as shown in Figure 11-39. Again, you do not need to change any of the location references from the default Workspace folder shown. Simply select the form that you just created in InfoPath.

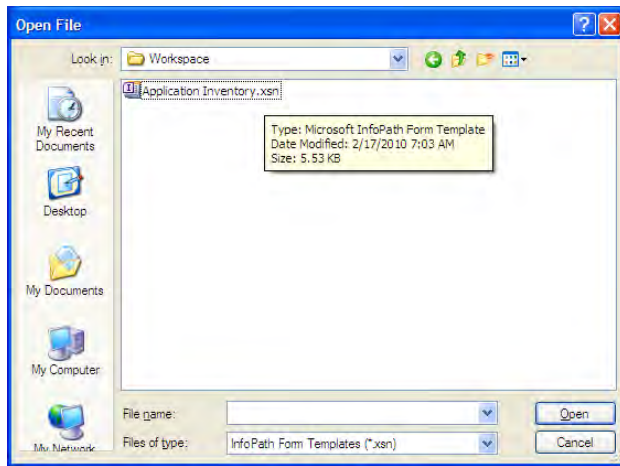


Figure 11-39. From your workspace, open the InfoPath form to use with the list.

After opening the form, you will see the **Designer** again. You first saw this dialog in Figure 11-35, but this time it opens to the **Preview** tab to show you the form. Of course, you can go to any of the other tabs to set properties or transforms. You can also go to the views associated with the form to set the view properties as suggested previously. When you finish setting the properties of the form in the **Designer** dialog, click **Save & Publish** in the **Designer** group of the **Home** ribbon to complete the process, as shown in Figure 11-40.

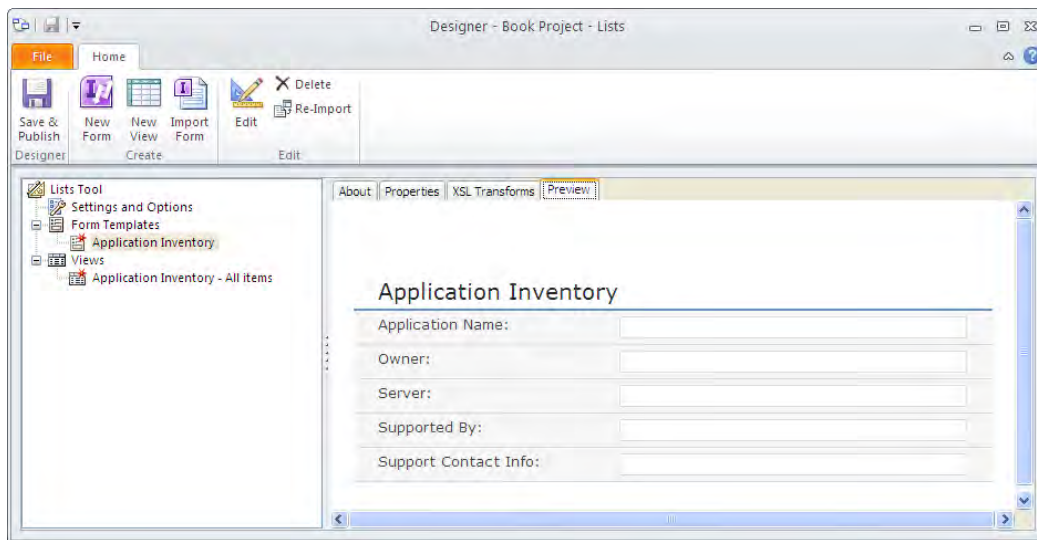


Figure 11-40. Preview of form used with list

The next time you open the list from the left panel, SharePoint Workspace displays the list columns, as shown in Figure 11-41. Of course, the list begins as an empty list. To add your first item to the list, click the **New** button in the **Items** group of the **Home** ribbon.

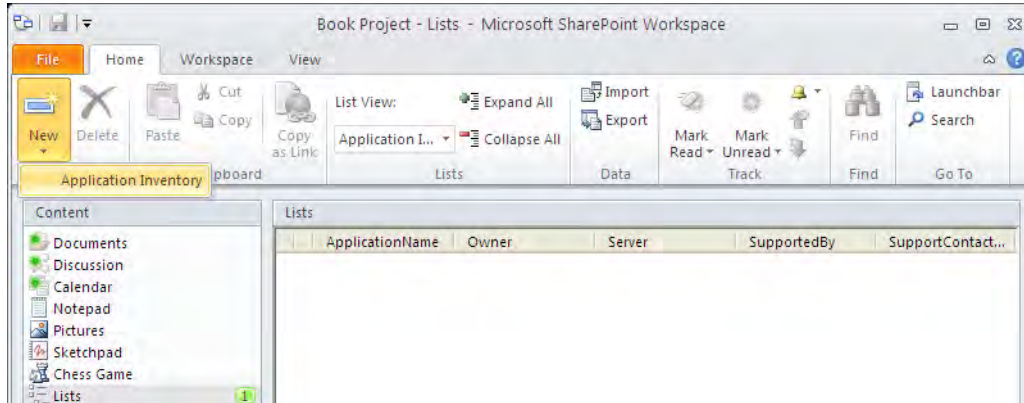


Figure 11-41. Add a new list item.

This command shows you the form you designed for this list. Simply fill in the form and click the **Save & Close** button in the **List Item** group of the **Home** ribbon, as shown in Figure 11-42.

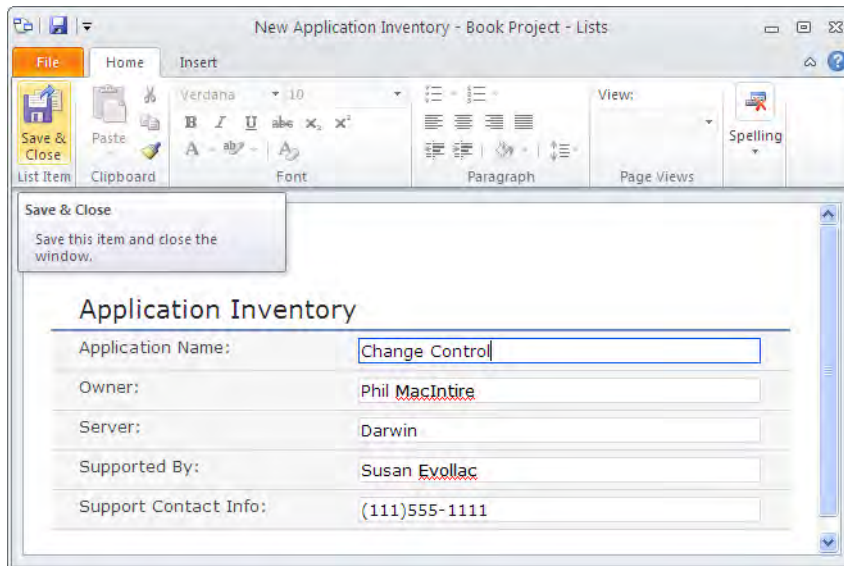


Figure 11-42. Save your list item.

After adding a second list item, your list should look similar to Figure 11-43 with the top portion of the page displaying the list items and the bottom portion of the page displaying the edit form with the column values of the currently selected list item.

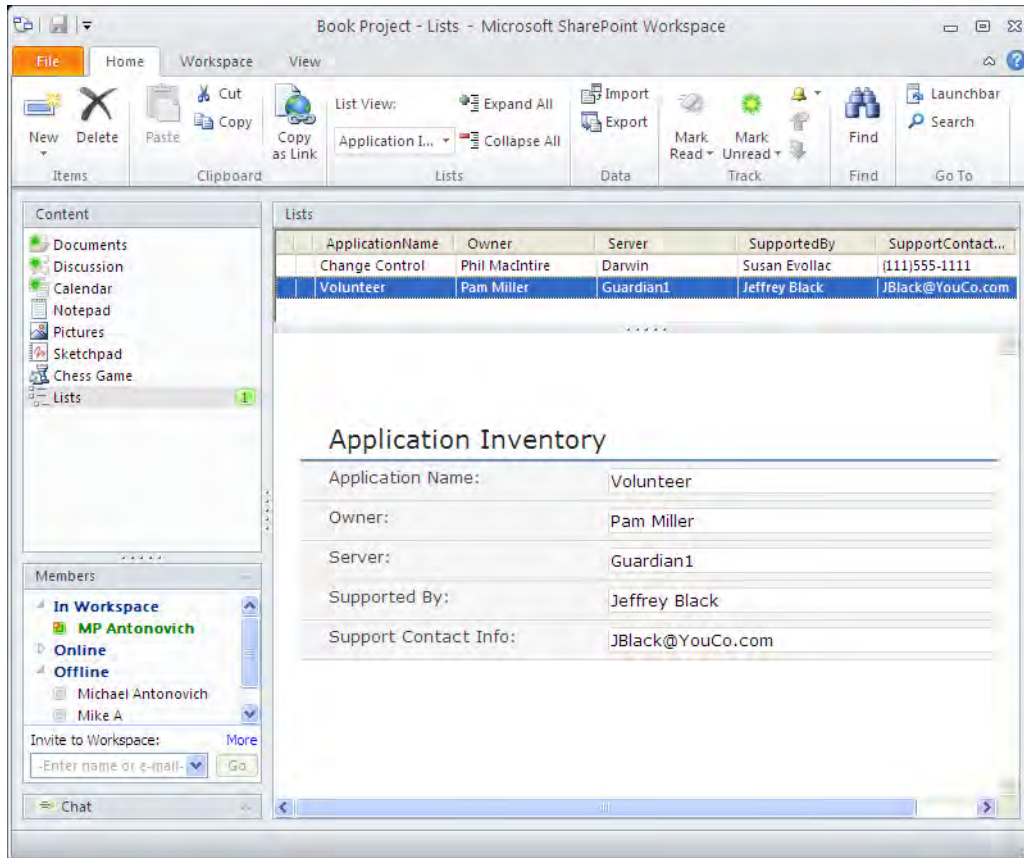


Figure 11-43. The list shows both the list of items and the edit form for the currently selected item.

That is how you can not only create a list within Groove Workspace, but also create a form with one or more views that you can use to enter and see the data in the list. However, that is not all that the SharePoint Workspace application can do for you. There is one more type of workspace that you can create and use. Just to make it confusing, Microsoft decided to call this specific workspace the SharePoint Workspace.

■ **Caution** While Groove Workspaces can exceed 2 GB, performance may suffer and you will no longer be able to invite new members to your workspace.

Working with Your SharePoint Files Within SharePoint Workspace

With SharePoint Workspace, you can now create an offline version of a SharePoint site that you can work on when not connected to the network and then synchronize your changes back with the network version of the site the next time you connect. If you use SharePoint for your public-facing Internet sites, you already have the ability to navigate to those sites from any computer in the world that has Internet access, log into those Internet sites in SharePoint, and manage the content remotely. However, what about those internal sites that you might use for collaboration within your corporate firewall?

■ **Note** You can only synchronize with sites created in SharePoint Server 2010 and SharePoint Foundation 2010, not MOSS 2007.

Unless your organization supports VPN or some other connectivity tool to let you drill through the corporate firewall, you can only maintain those sites from computers within your corporate firewall. If you have more work to do on a site than you can finish before the end of your normal workday, you would have no choice but to stay late to finish the task. However, with a SharePoint Workspace, you can make a copy of the collaboration site to your laptop, disconnect from the network, and go home. Once there, you can finish the work you need to accomplish on your disconnected copy of the site on your laptop. Then, in the morning when you get into the office again, you can synchronize your changes with the version of the site in SharePoint. So let's see how you can do this.

First, open the **SharePoint Workspace Launchpad**. From the **New** command in the **Home** ribbon, select the option to create a **SharePoint Workspace**.

■ **Caution** Yes, I know it gets confusing when the name of the product is SharePoint Workspace and the tool you need to use to work with your SharePoint sites offline is also called SharePoint Workspace. In this section, I hope, through connotation, you will understand to which one I am referring.

The first dialog you see begins the process of creating a new SharePoint Workspace on your computer, as shown in Figure 11-44. To do that, you must enter the name of the workspace.

■ **Tip** If you know the network will be down for maintenance, create a SharePoint Workspace of the site you are currently working in so that you can continue working right through the network downtime rather than sitting around and talking with your friends. Right!

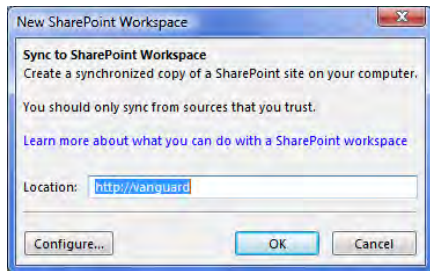


Figure 11-44. Select the SharePoint site you want to synchronize.

If you click the **Configure** button, the **Configure Settings** dialog shows you the name of the libraries and lists in the selected site, as shown in Figure 11-45. At this point, you can select each library and list and select in the **Download** drop-down list how you want to configure that library or list. By default, SharePoint downloads the content for all the lists and libraries. However, for a large site, this may take a very long time and may require a large amount of space on your local machine. Therefore, you can also choose to download only the headers within that library or list or you can skip the content of that library or list entirely if it is not an object you need to work with while disconnected from the network.

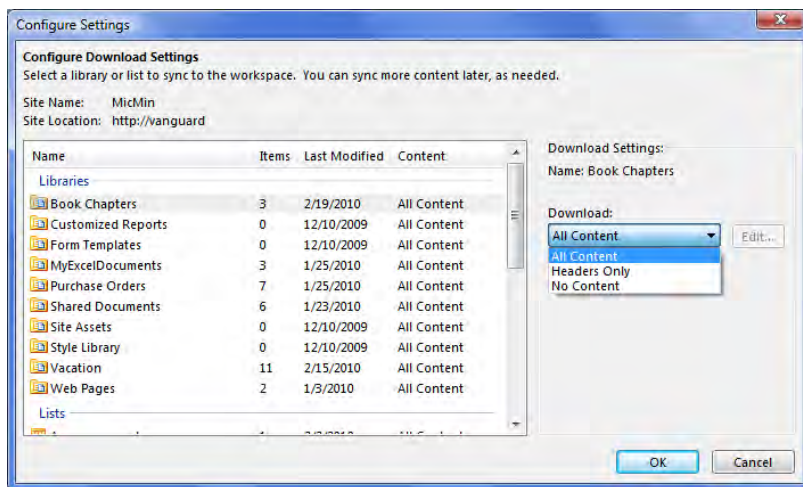


Figure 11-45. Configure the download settings for each object in the SharePoint site.

■ **Tip** You can prevent items from a SharePoint library from being shared with offline clients such as this by opening the SharePoint library with your browser and going to **Library Settings**. From the **Advanced Settings** section, you can locate the **Offline Client Availability** setting and set it to **'No'** to prevent items from this library being downloaded into SharePoint Workspace.

When you click the **OK** button, SharePoint Workspace begins the initial synchronization between your SharePoint site and your local workspace. If you choose to download all the content for all the libraries and lists, this could take several minutes. While SharePoint builds your workspace on your local machine, called initialization, and then downloads the content into this structure, you can monitor the progress, as shown in Figure 11-46.

■ **Tip** You can also create a SharePoint Workspace directly from your site by clicking on **Sync to SharePoint Workspace** from the **Site Actions** menu.

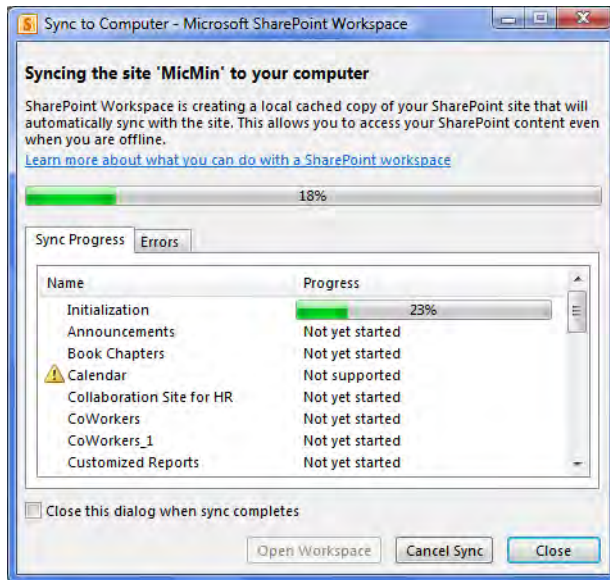


Figure 11-46. Synchronization in progress for a new SharePoint Workspace

After the synchronization process completes, you can click on the **Open Workspace** button at the bottom of the dialog. Perhaps you notice that the SharePoint Workspace skips some of the lists in the site such as calendars, surveys, site page libraries or wikis lists and libraries containing InfoPath forms. These

objects appear at the bottom of the **Content** panel on the left side of the window under the heading **Available on Server**. As long as you still have a connection to your network, you can still access these lists and libraries by clicking on the list or library name. In the right side of the window, the message: This list type is not supported by SharePoint Workspace appears. Beneath this message appears a link, Open the list in a browser, which lets you open a browser window to access the content of the selected list or library.

If you open the **Sync** ribbon, you see three commands. **Sync Status** displays a dialog that informs you whether the last synchronization with each object succeeded or failed. It indicates success with the word **Synchronized**. When synchronization fails, the **Status** column generally displays a message about the failure such as:

An unknown error occurred while attempting to synchronize this tool.

As indicated by this error message, every object you synchronize between SharePoint and SharePoint Workspace is called a tool. The Groove Workspace used the same terminology for objects you created there.

The **Change Sync Settings** option opens a dialog that lets you change the settings of the current tool, as shown in Figure 11-47. All tools support the option to disconnect or reconnect with the server even while your machine remains connected to your network. However, libraries, referred to as folders here, also allow you to change the settings of the folder in terms of where to maintain the contents of that folder. It simply toggles between the current setting, which may be to download the content to your local machine, and a new setting of keeping the content for the folder on the server and removing the folder from the workspace.

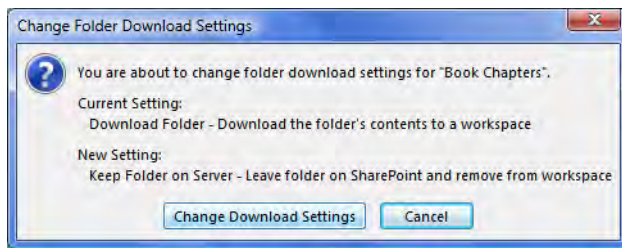


Figure 11-47. Toggle the Folder Download Settings in SharePoint Workspace.

The most important **Sync** command, though, is the first button, which has two options. The first option lets you synchronize the contents of the currently selected tool. Remember that means the currently selected library or list. The second option lets you synchronize the contents of the entire workspace at once. You can synchronize your individual libraries and lists at any time. If someone has made changes to the contents of those objects, SharePoint Workspace downloads the latest version. However, let's see what happens when you edit some of the content in a downloaded library.

Editing Content in SharePoint Workspace

Just like working in SharePoint itself, when you work in SharePoint Workspace, you should check out a document before you begin to edit it when still connected to your network. If you are not connected to your network, you do not need to check out a document and, in fact, you cannot check out the document because you cannot share the SharePoint Workspace with other members. Only you can be a member of your copy of your SharePoint site. Perhaps you already suspected this because you could not find an option to invite other members to this workspace in any of the ribbons.

However, let's assume for the moment that you are still connected to the network and you want to check out a Word document before you begin to edit it. To do this, click the **Check Out** option in the **SharePoint** group of the **Home** ribbon. You can now double-click the name of your checked-out document to open and edit it in Microsoft Word.

When you finish your editing, you will want to save your changes. If you do not first select **Save** from Word's **File** menu but instead just try to close Word, Word displays a dialog asking whether you want to save your changes.

Next the dialog shown in Figure 11-48 informs you others cannot see your changes until you check the document back in. If you click **No**, the document remains checked out to you and stored in your SharePoint Drafts folder.

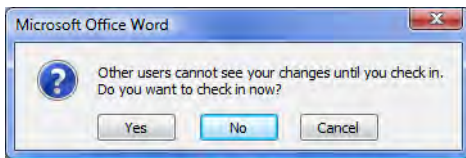


Figure 11-48. Word's reminder to check in your changes

If you click **Yes**, the **Check In** dialog appears letting you provide version comments for this newest version, assuming your library tracks versions. After providing comments, click **OK** to save your changes. This saves your changes to both your local copy and to the SharePoint site.

Alternatively, you could also choose the option to **Save to SharePoint** from the **Share** page of the **Backstage**, as shown in Figure 11-49. Selecting this option saves your changes directly to SharePoint (remember you are still connected to the network), bypassing your local SharePoint Workspace copy.

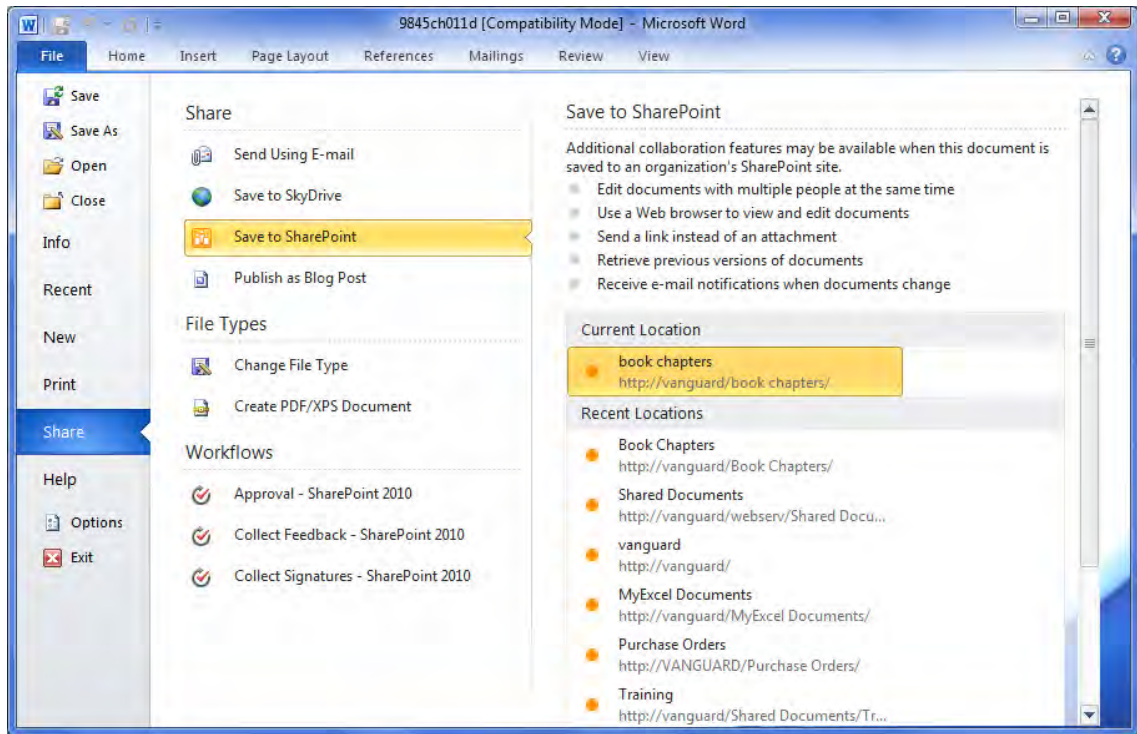


Figure 11-49. Publish your changes directly back to SharePoint, bypassing SharePoint Workspace.

If you open your SharePoint Workspace, your most recent changes would not appear. In fact, in order to get a copy of the update document back into your local copy, you must use the **Sync** option in the **Sync** ribbon to synchronize the workspace or at least the tool containing the document, as shown in Figure 11-50.



Figure 11-50. The synchronization commands from the Sync ribbon

Other Options in the SharePoint Workspace

While selecting any of the libraries in your site, you can click on the **Add Documents** option in the **Home** ribbon to add new documents to your folder. This opens the **Add Files** dialog shown in Figure 11-51.

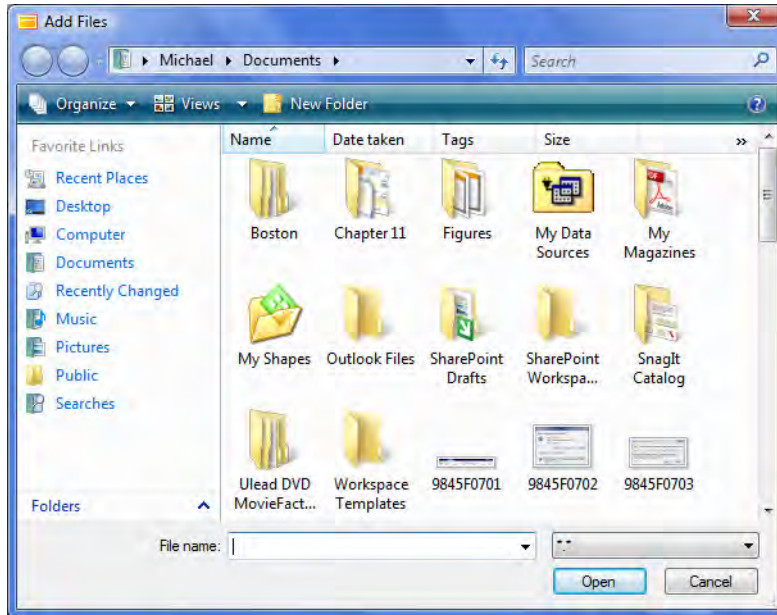


Figure 11-51. Add files from your computer to a synchronized SharePoint library.

You can also add new documents by dragging and dropping them into the SharePoint Workspace folder from another open Windows Explorer window.

You can create additional subfolders by using the **New Folder** command in the **Home** ribbon. This command creates the new folder within whatever folder you currently have selected in the **Folders** panel. SharePoint Workspace also synchronizes these new folders back to the site.

If you delete a document from the SharePoint Workspace folder, SharePoint also deletes it from the synchronized site. However, SharePoint places the deleted document in the **Recycle Bin** allowing you to recover the file if you made a mistake. After recovering the file, though, it does not immediately appear within the SharePoint Workspace site unless you select the **Sync** tool option discussed earlier.

Working with Lists in the SharePoint Workspace

Working with lists in the SharePoint Workspace functions a little differently from working with libraries. For example, you cannot add items to the list from a folder on your desktop. That would not make sense anyway. However, you can add new items to the list by using the **New** command in the **Items** group of the **Home** ribbon. You can also delete items from a list using the **Delete** command in the same group.

Like the library items, the SharePoint site moves the deleted list item from the list to the **Recycle Bin** where you can recover it if you deleted the item by mistake. Also like the library, you must **Sync** the tool, in this case the list, to copy the recovered list item from SharePoint back to your SharePoint Workspace.

Figure 11-52 also shows that lists in a SharePoint Workspace include all the defined views created in the original SharePoint site. In fact, you can change your view of the list by selecting the view you want from the drop-down list beneath the words **List View** in the **Lists** group of the **Home** ribbon. Also, notice in this figure that your SharePoint Workspace shows the traditional list view at the top of the page and an edit form for the list in the lower portion of the page. You can make changes to the list items in this edit form and have those changes synchronized immediately back to SharePoint if you remain connected to the network, or you can synchronize them the next time you reconnect to the network.

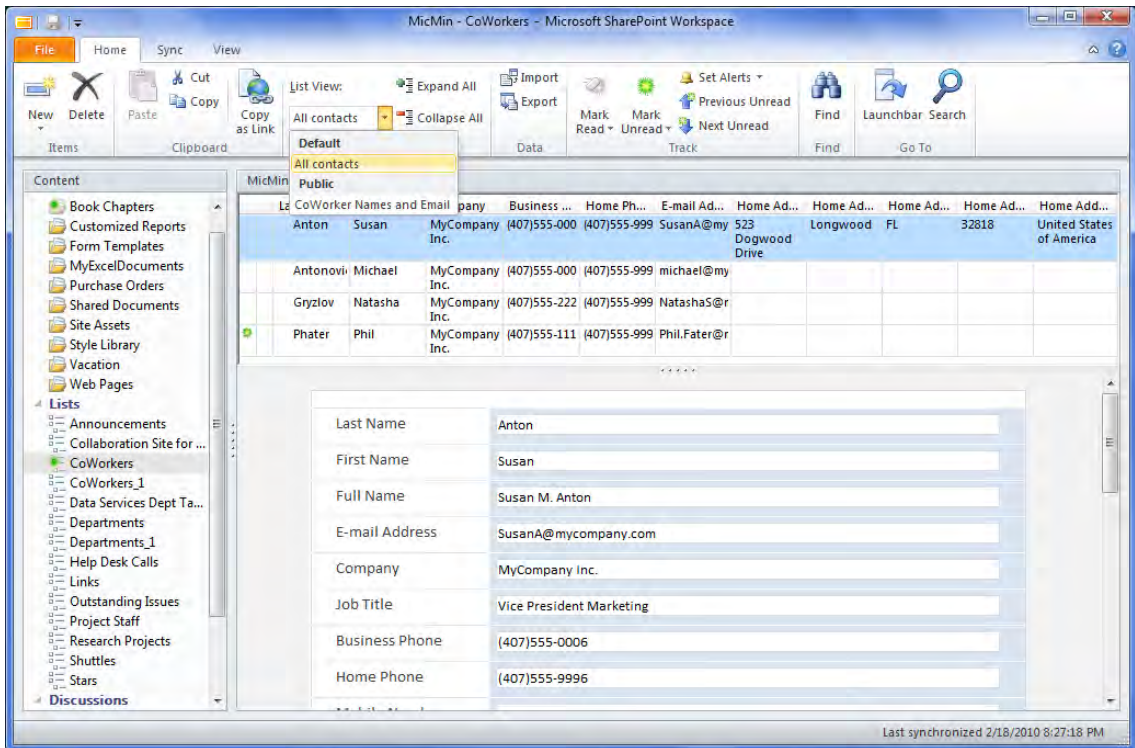


Figure 11-52. A SharePoint list synchronized in a SharePoint Workspace

Working with Discussion Groups in SharePoint Workspace

Working with discussion groups in the SharePoint Workspace functions very much like the list described in the previous section. For example, you can add discussions (topics) and messages (replies) to the discussion list. Of course, unlike a discussion list in a regular SharePoint site, there is no interaction in a discussion list in SharePoint Workspace since you cannot share your SharePoint Workspace with other users. However, you can still add new items to the list by using the **New** command in the **Items** group of

the **Home** ribbon. You can also delete items from a list using the **Delete** command in the same group. Like the library items, the SharePoint site moves the deleted item from the list to the **Recycle Bin** where you can recover it if you deleted the item by mistake. Of course, since SharePoint Workspace synchronizes any new topic or reply you create back to your SharePoint site immediately if you are connected with the network, others could immediately reply to your topic or reply. If you then periodically synchronize your discussion group, you still can have a discussion with other members of your SharePoint site.

Figure 11-53 shows a discussion group in a SharePoint Workspace. The SharePoint Workspace shows the traditional threaded discussion view at the top of the page and an edit form for the list in the lower portion of the page that displays the fields for the currently selected topic or reply. However, in this case, you cannot make changes to the items using this edit form.

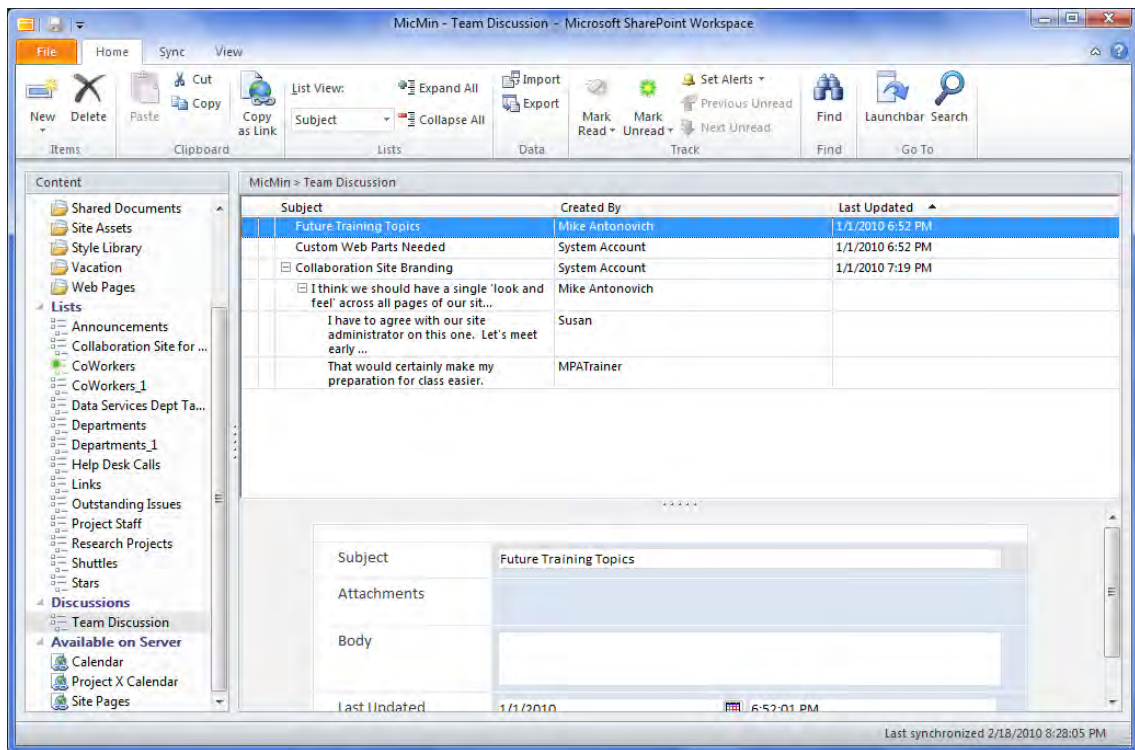


Figure 11-53. A SharePoint Discussion Group synchronized in a SharePoint Workspace

Properties for SharePoint Workspace

Before leaving your SharePoint Workspace, let's look at some of the properties that you can set for this application. As for the other Microsoft Office 2010 applications, you access the properties for this application by opening the **File** tab and selecting the **Options** page. The **SharePoint Workspace Options** dialog then appears, as shown in Figure 11-54. The panel along the left side divides the options into major groups. The only group I want to look at here is the **General** group.

The **General** group begins with the common options that allow you to change the application's color scheme. You can also set the **ScreenTip style**. However, what I am interested in are the options unique to a SharePoint Workspace. You can find these by clicking on the **Preferences** button located in the **SharePoint Workspace Options** section.

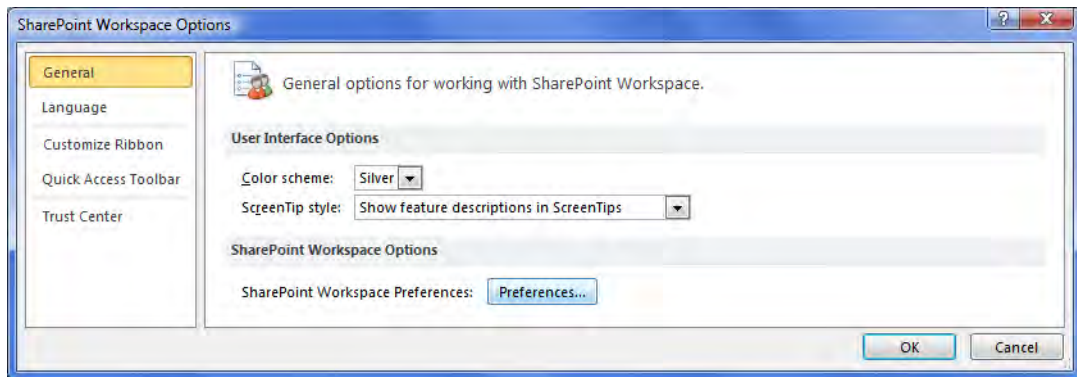


Figure 11-54. The SharePoint Workspace options page

The **Preferences** dialog consists of a six-tab page, as shown in Figure 11-55. The first tab, **Identities**, displays information about the person who created the current SharePoint Workspace which should be you. You can click the **Edit** button to add/edit additional information about yourself including where you work, your address, and your other contact information for both your business and personal views. You can choose to list your contact information in the **Public Workspace Contact Directory** or just the local network directory so that others can find you and invite you to join their workspaces. Of course, you may want to maintain your privacy and not publish more than your name. In any case, others can always invite you to their workspace if they know your e-mail address, as you saw earlier in this chapter.

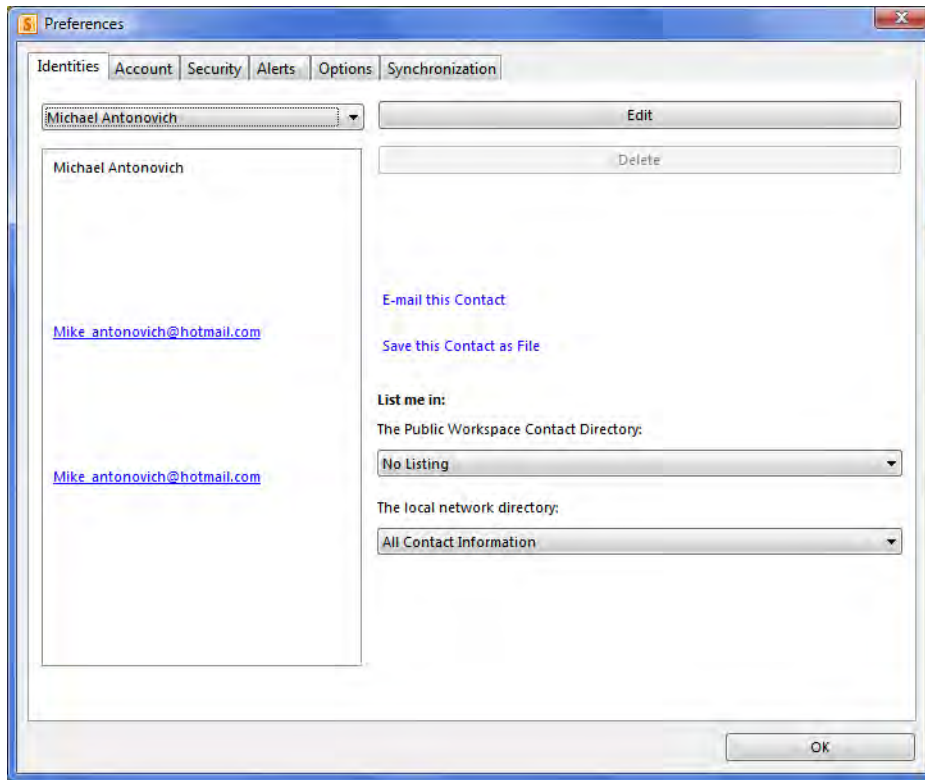


Figure 11-55. The Identities page of SharePoint Workspace Preferences

Figure 11-56 shows the second tab of the **Preferences** dialog that lets you save your account information to a file so you can transfer the account to another machine. Whether you are planning to move to another machine or not, it is good practice to keep a copy of your account information in an offline file just in case your computer crashes and you need to install your account on a reformatted machine.

If you are moving your account off the current machine, you may want to delete the account information from the current machine so that others cannot access your workspace through your account. Remember that you do not need to log into SharePoint Workspace when you start your computer because the account information file takes care of that for you automatically. Therefore, you do not want to leave this information on a machine that you are no longer going to use.

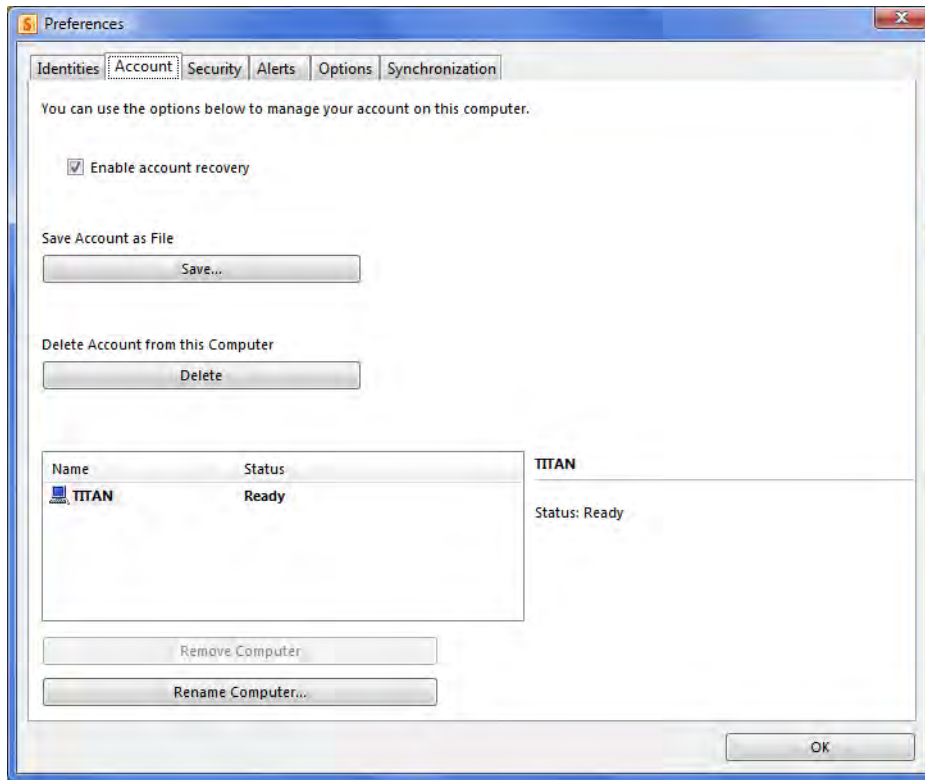


Figure 11-56. The Account page of SharePoint Workspace Preferences

Figure 11-57 shows the third tab of the **Preferences** dialog that lets you view and change some of the security settings related to the current installation of SharePoint Workspace. First, it shows you the digital fingerprint that uniquely identifies you across the entire world. You can also set communication policies. If you intend to include only employees at your company as contacts and members of your workspace, you may choose a more relaxed security. However, if you plan to use SharePoint Workspace outside of a local firewall, you may want to select a more restrictive policy.

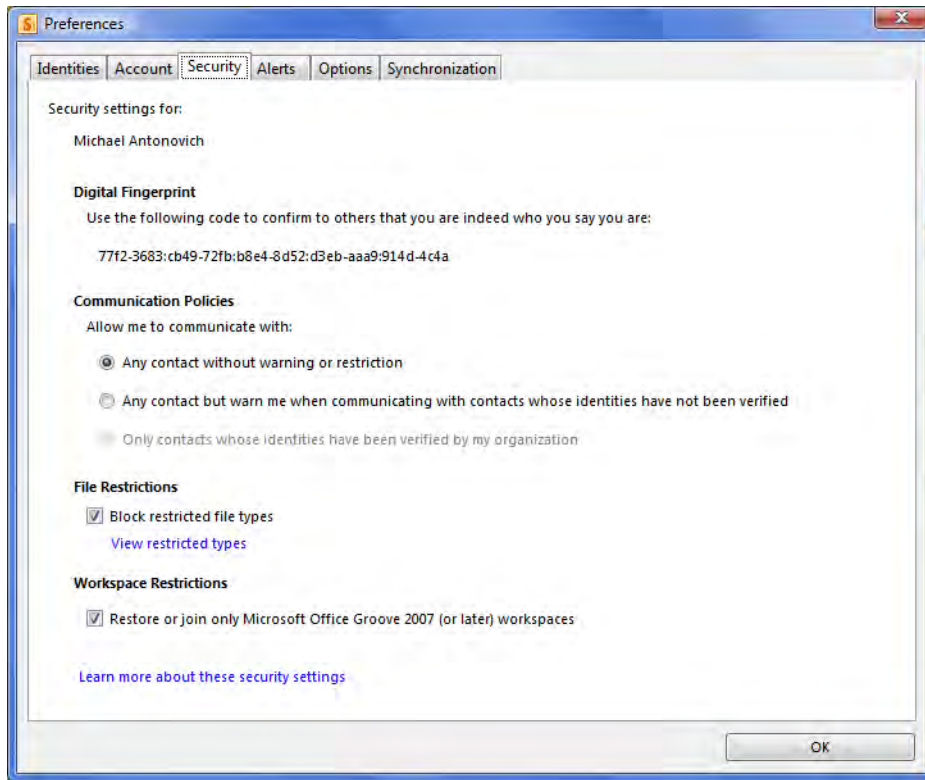


Figure 11-57. The Security page of SharePoint Workspace Preferences

The **File Restrictions** section lets SharePoint Workspace block files with specific extensions from your workspace. You can see the list shown in Figure 11-58 by clicking the hyperlink **View Restricted Types**. You cannot edit this list.

The final option, when selected, limits your system from joining any earlier version of Groove Workspace than Microsoft Office Groove 2007.

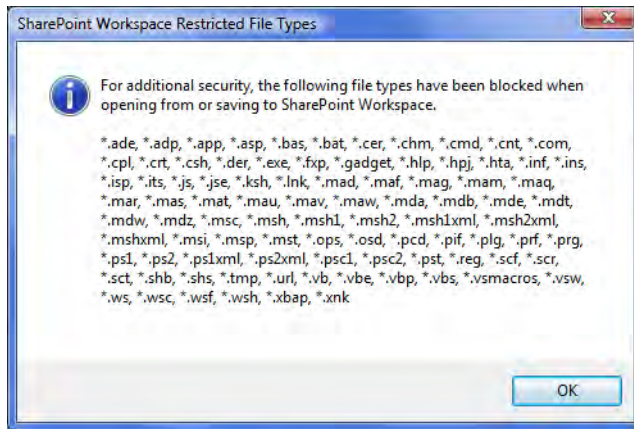


Figure 11-58. Restricted file types

The fourth tab shown in Figure 11-59 defines the default alert level that SharePoint Workspace uses when adding unread information to any of your workspaces, even those you may not currently have open. Table 11-1 shows the levels defined by SharePoint Workspace.

Table 11-1. Alert Levels

Alert Level	Alert Description
Off	Workspace displays no alerts for new or modified content
Medium	Workspace highlights new or modified content with an icon
High	Workspace highlights new or modified content with an icon and displays an alert
Auto	Similar to High but allows automatic removal of ignored unread alerts

On the bottom half of the Alerts page, you can define how long in days unread alerts remain active before SharePoint Workspace automatically removes them. If you change either the alert level or the number of days to display unread alerts, you must click the **Apply** button. If you decide you no longer want your custom changes to these two properties, you can click the **Restore Default** to return to the out-of-the-box defaults of the **Auto** level and retention of unread alerts for four days.

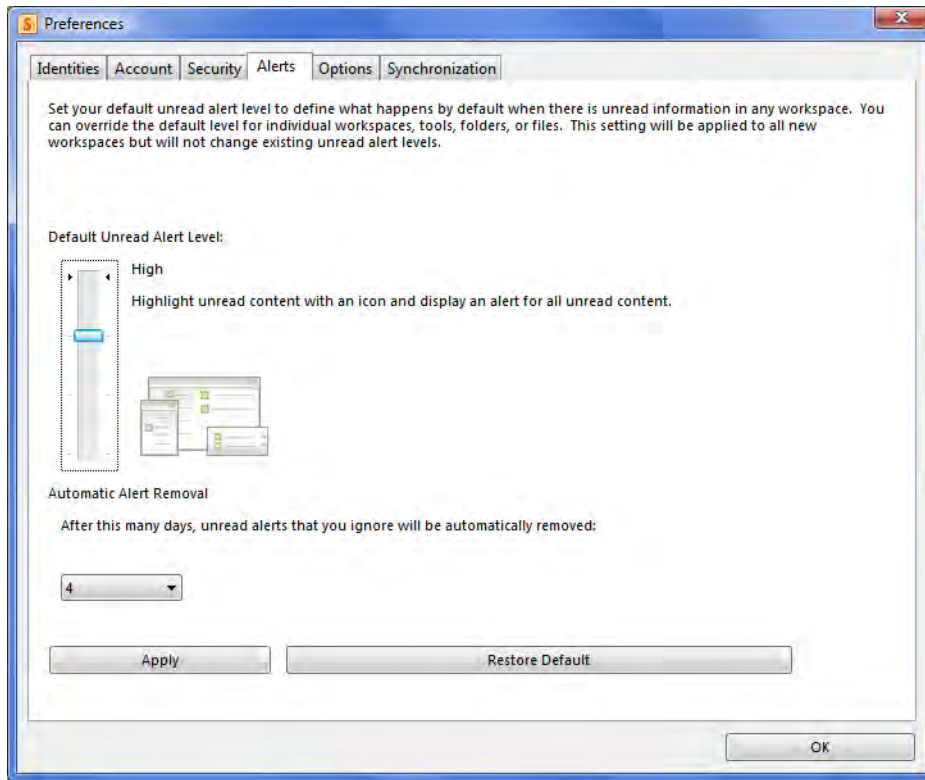


Figure 11-59. The Alerts page of SharePoint Workspace Preferences

Figure 11-60 shows the **Options** tab. It provides you with settings to determine whether SharePoint Workspace launches on startup of your system. You can ignore incoming messages from people you do not know and you can set your inline presence indicator to display to everyone or just members of your workspace. However, perhaps the most important setting is whether to scan incoming and outgoing files for viruses. After all, when sharing data with others, the inadvertent passing of viruses from one system to another can cause serious damage to your system.

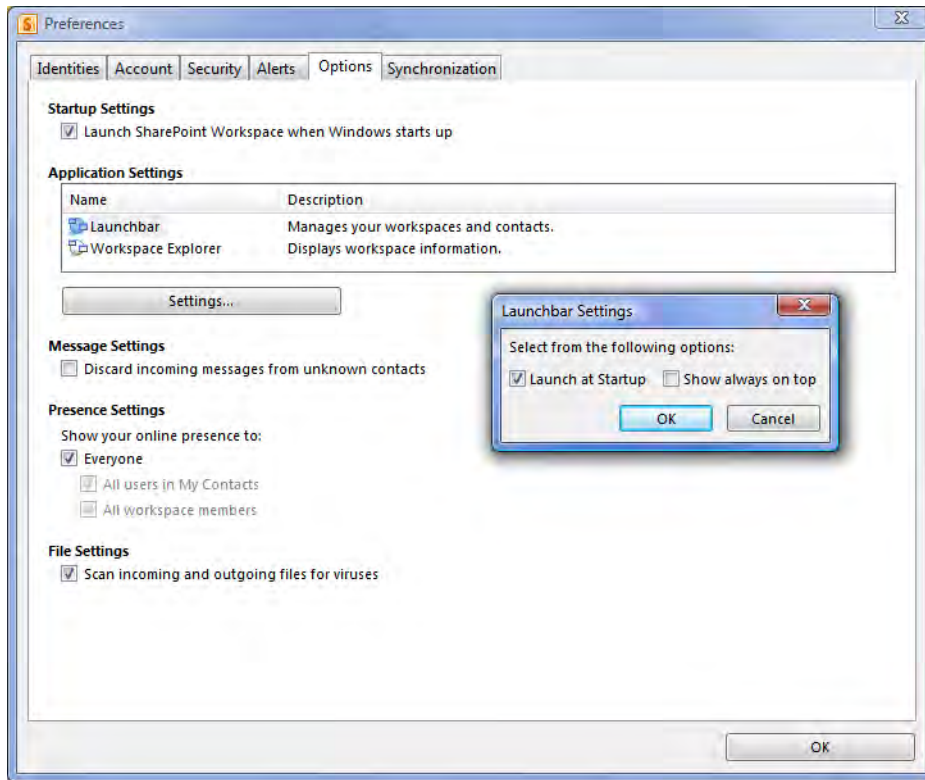


Figure 11-60. The Options page of SharePoint Workspace Preferences

The last tab in the **Preference** dialog is called **Synchronization**. Figure 11-61 shows that it allows you to share some information between computers such as Internet Explorer Favorites. It also allows you to create shortcuts in **Documents** to your **File Sharing** workspaces.

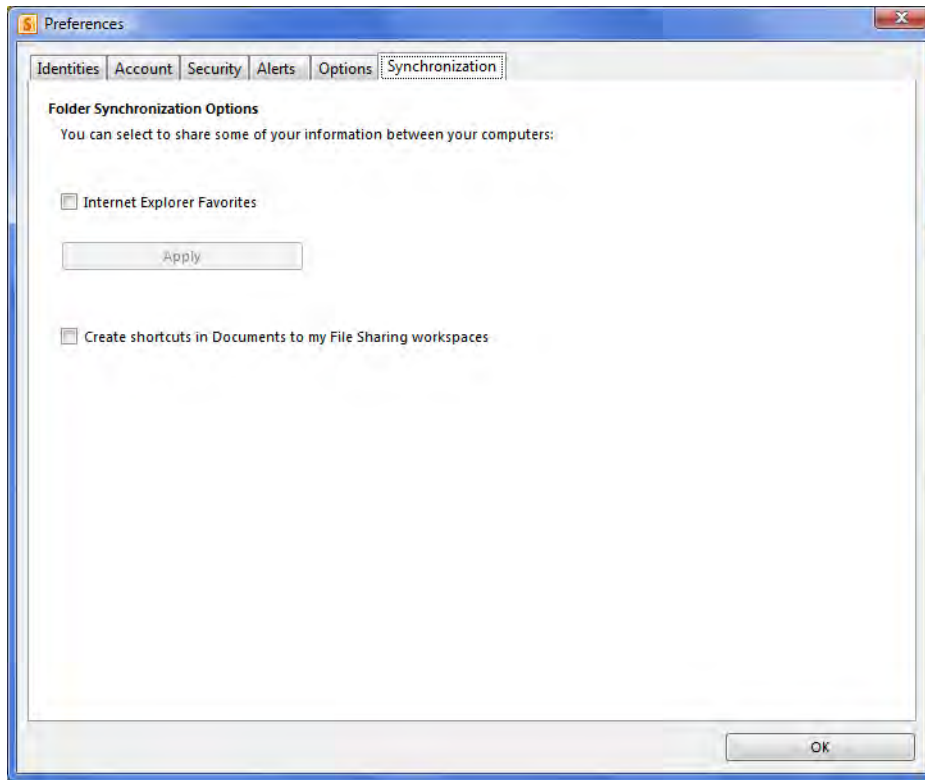


Figure 11-61. The Synchronization page of SharePoint Workspace Preferences

Summary

In this chapter, you looked at one of the newest additions to the Microsoft Office family of tools, SharePoint Workspace, previously known as Groove. SharePoint Workspace allows you to build your own personal collaboration network without needing a server or any special administration tools. As a peer-to-peer collaboration application that only requires Internet access to work, SharePoint Workspace allows you to create collaboration workspaces that include not only people that you work with, but also anyone with Internet access.

SharePoint Workspace supports three types of workspaces. The first workspace type is a simple shared folder workspace. This workspace allows you to share files of any almost any type (see the restricted file types in Figure 11-58). You can then invite other people with Internet access to become members of your workspace. These other people must have their own copy of SharePoint Workspace. While Microsoft will provide a temporary trial copy of SharePoint Workspace for them to use, if you plan on using the workspace for an extended period of time, these invited members may need to purchase a copy of SharePoint Workspace to continue participating in your workspace.

The second type of workspace corresponds to the legacy workspace created in Groove 2007 and is therefore called a Groove workspace. This workspace has many of the tools that sound a lot like similar tools in SharePoint or even Office itself. However, Groove Workspace does not provide integration with SharePoint. Nor does it integrate its tools such as its calendar with the corresponding Microsoft Office products such as Outlook as SharePoint does.

The third and final workspace type is called a SharePoint workspace and this workspace does synchronize with any SharePoint 2010 site. After creating your local workspace version of the site, you can disconnect from the network and work on the libraries and list of the site. The next time you connect to your network, SharePoint Workspace synchronizes your changes to the site. However, working offline increases the potential danger of having two or more people edit the same document at the same time. The ability to check out a SharePoint document before you disconnect from the library may limit other SharePoint users from accessing and changing documents in libraries while you have it open in your SharePoint workspace, but it does not help protect lists since you cannot lock a list. While your SharePoint Workspace recognizes potential conflicts when you attempt to save your changes, you must then determine how to reconcile your changes with those made by someone else.

Microsoft has greatly improved SharePoint Workspace since Groove 2007. SharePoint Workspace can provide an invaluable aid in sharing documents as well as calendars, issue lists, discussions, and other features with people you work with. Especially interesting is its ability to work outside of your corporate firewalls, allowing you to provide collaboration capability with external workers and consultants. SharePoint Workspace then allows you to bring a copy of a site home with you to work on documents in your library or list items rather than being chained to your desk at the office, thus making SharePoint Workspace an auxiliary tool to augment your SharePoint implementation and management.



Additional Supporting Libraries

This last chapter examines three final library types that I have not touched on previously. You typically do not use these three libraries by themselves, but rather you use them in a support capacity with other SharePoint and Microsoft Office functionality. You will find two of these libraries only in SharePoint Enterprise edition. Therefore, if you work with a SharePoint Foundation site, you will not be able to use these libraries, but you may want to read the sections covering these libraries anyway to see what you are missing. I hope that the included figures will help you gain a good understanding of how these libraries could benefit your organization.

The first library type is a special implementation of a document library used for records management that only SharePoint Enterprise edition supports. However, you might be interested in records management if you need to archive time sheets, absence requests, purchase requests, performance evaluations, and other documents that your department or company must retain. Typically, records management provides long-term storage for documents created originally in other libraries.

The second library type is the picture library, which you first saw in Chapter 3. I will give you a deeper look at it here. While the most common use of a picture library may be to support content pages, you can maintain picture libraries that are nothing more than libraries of pictures that anyone can view. For that reason, I will show you the different ways you can upload and view your pictures in this library.

The final library type you will examine is the slide library. You will only find this library in SharePoint Enterprise edition. It works specifically with PowerPoint slide presentations. If you have groups of people who must work together on presentations, a SharePoint slide library may be the best way for them to share slides and easily build new presentations based on pulling together slides from other presentations along with their own slides.

So let's get started by looking at creating a records management system.

Creating a Records Management System to Archive Your Documents

Increasingly, today's organizations spend more time managing records than they did just a few years ago. Regardless of whether the reason for retaining more records comes from the fear of litigation or the need to meet new government requirements, organizations retain more records today than ever before and they must manage these records so that they can be easily retrieved when needed. To meet this need, SharePoint Enterprise adds a Records Center template to the list of Enterprise sites. You might argue that even the basic SharePoint features already serve as a central repository for records by providing departments and management with a single place to create, process, and store data.

SharePoint's collaboration features facilitate the easy creation of multiple sites for departments and project groups, with each one potentially supporting multiple document libraries. However, flexibility can also bring chaos. In fact, it might not take long before you find your organization's records scattered across multiple sites.

A Records Center provides a central repository for long-term storage of records after the department or project no longer actively needs them. In addition to determining what to do with documents from a department or project after projects complete, you may also require records retention as part of your organization's auditing and/or compliance requirements. You might also need to archive records for historical reporting or even tax purposes. Regardless of why you think you need a centralized store for your long-term retention of records, SharePoint's Records Center site can help.

To keep the illustrations relatively simple, let's focus on one type of document in a single document library. Suppose your organization has decided that it needs to archive each Request for Bid (RFB) document on your new SharePoint site. Let's see how a Records Center site can satisfy this need.

Creating Site Columns

Assuming that the need to store RFB documents is a new requirement, you have the opportunity to think through how you want to handle them. For example, rather than letting each manager create his own RFB format each time he needs to send out a new RFB, you could provide a common template that everyone could use. You could then create a library that uses that template as its default document type. Furthermore, by using a common RFB, you could create metadata specific to the RFB so that, when you display that metadata in a library, you could quickly view key information about each RFB record. Finally, after a project ends or the item ordered arrives and you accept it, you can archive the original RFB into a Records Center.

Let's start the process by creating a set of site columns that you can reuse when defining content types. Remember that you can add site columns to libraries as metadata so that when you display a list of the items in the library, you can quickly see important information about each item. Suppose you want to create the following site columns to associate with each Request for Bid:

- **RFB_Number**
- **RFB_Due_Date**
- **RFB_Responder_Name**
- **RFB_Response_Amount**

To create these new site columns, follow these steps:

1. Open the **Site Actions** menu.
2. Select **Site Settings**.
3. Click **Site Columns** in the **Galleries** column of the **Site Settings** page.
4. In the **Site Column Gallery**, click **Create**.
5. Enter the column name and select a column type.
6. Enter other information as needed to define the column such as defaults, valid value ranges, etc.

For example, you might define the **RFB_Number** column as a numeric field, the **RFB_Due_Date** field as a date and time field, the **RFB_Responder_Name** as a single line of text, and the

RFB_Response_Amount as currency. As you enter your first column definition, you must choose to place your new columns in an existing column group or create a new group. Using a new group might make it easier to locate columns related to a common content type. Figure 12-1 shows the creation of the **RFB_Group** for RFB-related columns at the same time that you define the properties for the **RFB_Number** column.

<p>Name and Type</p> <p>Type a name for this column, and select the type of information you want to store in the column.</p>	<p>Column name: RFB_Number</p> <p>The type of information in this column is:</p> <p><input type="radio"/> Single line of text</p> <p><input type="radio"/> Multiple lines of text</p> <p><input type="radio"/> Choice (menu to choose from)</p> <p><input checked="" type="radio"/> Number (1, 1.0, 100)</p> <p><input type="radio"/> Currency (\$, ¥, €)</p> <p><input type="radio"/> Date and Time</p> <p><input type="radio"/> Lookup (information already on this site)</p> <p><input type="radio"/> Yes/No (check box)</p> <p><input type="radio"/> Person or Group</p> <p><input type="radio"/> Hyperlink or Picture</p> <p><input type="radio"/> Calculated (calculation based on other columns)</p> <p><input type="radio"/> Full HTML content with formatting and constraints for publishing</p> <p><input type="radio"/> Image with formatting and constraints for publishing</p> <p><input type="radio"/> Hyperlink with formatting and constraints for publishing</p> <p><input type="radio"/> Summary Links data</p> <p><input type="radio"/> Rich media data for publishing</p> <p><input type="radio"/> Managed Metadata</p>
<p>Group</p> <p>Specify a site column group. Categorizing columns into groups will make it easier for users to find them.</p>	<p>Put this site column into:</p> <p><input type="radio"/> Existing group: Custom Columns</p> <p><input checked="" type="radio"/> New group: RFB_Group</p>
<p>Additional Column Settings</p> <p>Specify detailed options for the type of information you selected.</p>	<p>Description: Request for Bid Number</p> <p>Require that this column contains information: <input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>Enforce unique values: <input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>You can specify a minimum and maximum allowed value: Min: 1 Max: 999999</p> <p>Number of decimal places: 0</p> <p>Default value: <input checked="" type="radio"/> Number <input type="radio"/> Calculated Value</p> <p><input type="checkbox"/> Show as percentage (for example, 50%)</p>
<p><input checked="" type="checkbox"/> Column Validation</p> <p style="text-align: center;">OK Cancel</p>	

Figure 12-1. Create a new site column group while adding a site column.

Similarly, define the rest of the site columns, reusing the **RFB_Group** to organize them. After you finish adding all the fields, you should see all the new columns you added to the **RFB_Group** by selecting just that group in the **Site Column Gallery**. Figure 12-2 shows the new site columns in the **RFB_Group**.

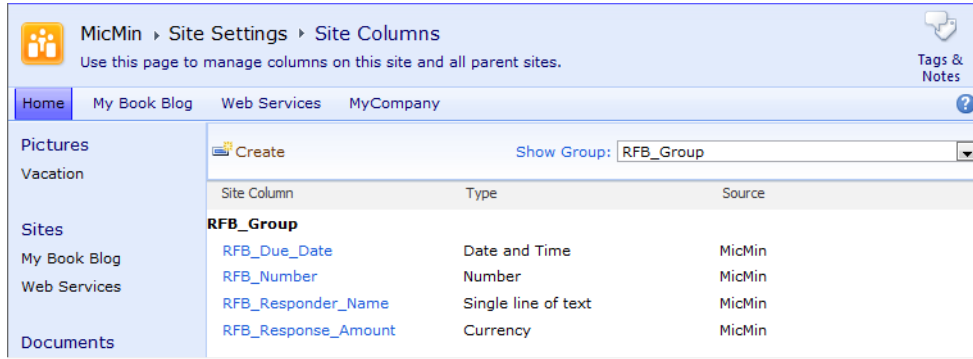


Figure 12-2. New site columns in the **RFB_Group**

Creating a Content Type for RFB Documents

Using a common form for RFB documents not only saves time when creating a new RFB by providing a predefined format, but also helps employees fill in and evaluate forms due to the consistency with which the data appears. Therefore, your next step is to create a basic RFB template using Word that you can then add to the SharePoint library, so that each time a user creates a new document she begins with a common company-wide form for entering the RFB details. Figure 12-3 shows an example of a simple word template for the company Howl at the Rising Sun Software, Inc.



Howl at the Rising Sun Software, Inc. Request for Bid

Title:

Bid Number:

Bid Responder:
 Name
 Company
 Address
 City, State Zip

Date of Bid Meeting:

Final Bid Due Date:

Bid Amount:

Submit Bid to:
 Director of Procurement
 Howl at the Rising Sun Software, Inc.
 1 North Bay Ave
 Nova, FL 32999

Figure 12-3. Word template for the RFB document.

To use this Word template as the default template in SharePoint, follow these steps:

1. Open the **Site Actions** menu.
2. Select **Site Settings**.
3. From the **Site Settings** page, select **Site content types** from the **Galleries** section, as shown in Figure 12-4.

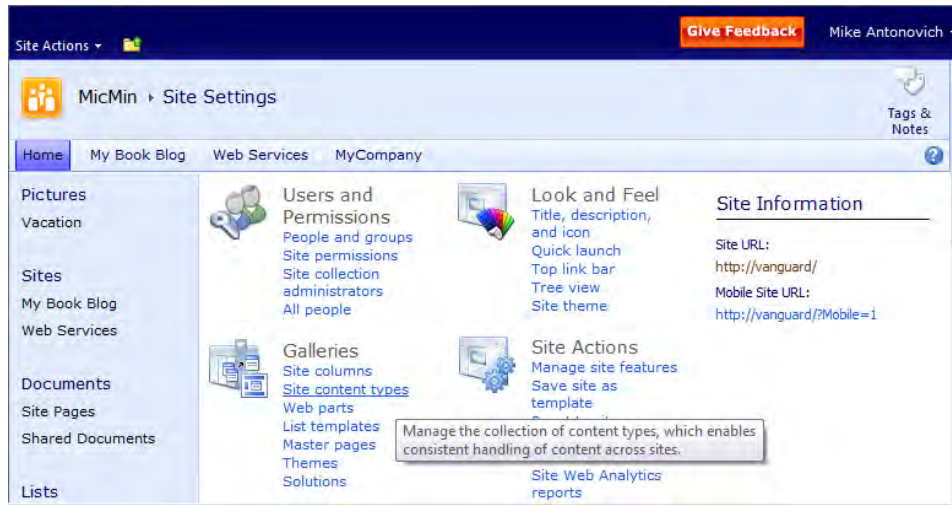


Figure 12-4. Create a new site content type.

- From the **Site Content Type Gallery**, select the **Create** link in the header area of the gallery, as shown in Figure 12-5.

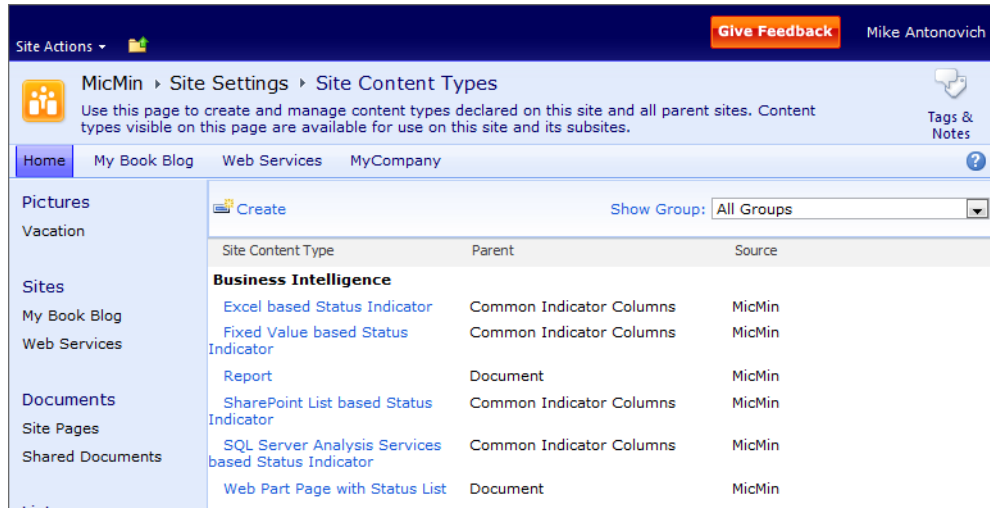


Figure 12-5. Create a new content type from the Site Content Type Gallery.

5. Within the **New Site Content Type** dialog box, enter a name for your new content type. For example, you may want to abbreviate the name for the content type as RFB.
6. Next, supply a description for the content type so everyone knows the purpose of the new content type.

Notice that, in this section, you can also determine from which content group and specific content type you want to inherit the new content type. In the case of the RFB, the most logical content type to inherit from is the **Document** type in the **Document Content Types** group.

You can also determine in which group to place the new content type, including creating a new content type group if you feel that the differences in the new content type warrant its own group.

7. To finish the definition of the content type, click the **OK** button. Figure 12-6 shows the definition of the RFB content type.

The screenshot shows a dialog box titled "Name and Description" and "Group".

Name and Description:

- Name:** RFB
- Description:** Request for Bid
- Parent Content Type:**
 - Select parent content type from: Document Content Types
 - Parent Content Type: Document
 - Description: Create a new document.

Group:

- Put this site content type into:
 - Existing group: Document Content Types
 - New group: [Empty text box]

Buttons: OK, Cancel

Figure 12-6. Define the site content type RFB.

You should now see a content type definition page similar to Figure 12-7. On this page, you can define additional settings for this content type.

The screenshot shows the SharePoint 2010 interface for configuring a Site Content Type. The breadcrumb path is 'MicMin > Site Settings > Site Content Types > RFB'. The left navigation pane includes sections for Pictures, Sites, Documents, Lists, Discussions, and Recycle Bin. The main content area is titled 'Site Content Type Information' and shows the following details:

- Name: RFB
- Description: Request for Bid
- Parent: Document
- Group: Document Content Types

Below this information are two sections: 'Settings' and 'Columns'.

The 'Settings' section contains a list of links:

- Name, description, and group
- Advanced settings
- Workflow settings
- Delete this site content type
- Document Information Panel settings
- Information management policy settings

The 'Columns' section contains a table with the following data:

Name	Type	Status	Source
Name	File	Required	Document
Title	Single line of text	Optional	Item
Managed Keywords	Managed Metadata	Optional	Document

Below the table are three links:

- Add from existing site columns
- Add from new site column
- Column order

Figure 12-7. Initial site content type definition

The most important additional setting at this point is the one that associates the Word template with the content type. Therefore, before setting any other properties, click the **Advanced Settings** link found in the **Settings** section. This option opens a page that allows you to associate a new or existing document template with the current content type. Figure 12-8 shows the RFB content type being associated with a document template previously created and saved as `C:\SharePoint2010Book\Chapter 12\RFB_Template.dotx`. (You find this file in the book download.)

<p>Document Template</p> <p>Specify the document template for this content type.</p>	<p><input type="radio"/> Enter the URL of an existing document template:</p> <input type="text"/> <p><input checked="" type="radio"/> Upload a new document template:</p> <input type="text" value="C:\SharePoint2010Book\Chapter 12\RFB_Tem"/> <input type="button" value="Browse..."/>
<p>Read Only</p> <p>Choose whether the content type is modifiable. This setting can be changed later from this page by anyone with permissions to edit this type.</p>	<p>Should this content type be read only?</p> <p><input type="radio"/> Yes</p> <p><input checked="" type="radio"/> No</p>
<p>Update Sites and Lists</p> <p>Specify whether all child site and list content types using this type should be updated with the settings on this page. This operation can take a long time, and any customizations made to the child site and list content types will be lost.</p>	<p>Update all content types inheriting from this type?</p> <p><input checked="" type="radio"/> Yes</p> <p><input type="radio"/> No</p>
<p><input type="button" value="OK"/> <input type="button" value="Cancel"/></p>	

Figure 12-8. Associate a document template with the content type.

You can also determine at this time whether anyone can modify the content type and whether you want sites and lists that use this content type updated. When you create a new content type, the setting of this latter option does not matter. However, if you modify an existing content type on which other content types have been based, you can use this option to determine whether to cascade changes made here to content types in child sites and lists.

■ **Tip** When you update the RFB form, and I know you will someday because all forms are updated eventually, you would want to cascade the update to child sites and lists.

When you are done, click **OK** to return to the **Site Content Type: RFB** page. Alternatively, simply click the breadcrumb **Site Content Type Gallery** found at the top of the image to return to the gallery. You should now see the new content type listed in your selected type group.

Creating a Site Library to Collect RFB Documents

Now that you have site columns defined along with a content type for the documents you plan to create, you can associate them with an existing document library or create a new one. Let's assume you want to create a separate document library to hold RFB documents created by your department. Go to the department or project site where you want to create the library, which must be in the same site collection as the content type, since SharePoint scopes content types to site collections. There you can open the **Site Actions** menu and select **View All Site Contents**. From the All Site Content page, click

Create. On the Create page, click on the **Document Library** type and then select a new document library. In either case, you should see the **New Library** page, as shown in Figure 12-9. This page allows you to assign a name and description to the new library as well as navigation and version history settings. In the **Document Template** section, select an existing template from the drop-down list such as a Word document.

The screenshot shows a 'Create' dialog box with the following sections and controls:

- Name and Description:**
 - Name: Request for Bids
 - Description: Request for Bids Library
- Navigation:**
 - Specify whether a link to this document library appears in the Quick Launch.
 - Display this document library on the Quick Launch?
 - Yes
 - No
- Document Version History:**
 - Specify whether a version is created each time you edit a file in this document library.
 - Create a version each time you edit a file in this document library?
 - Yes
 - No
- Document Template:**
 - Select a document template to determine the default for all new files created in this document library.
 - Document Template: Microsoft Word document

Buttons: Create, Cancel

Figure 12-9. Create the working library.

SharePoint creates the library and displays the empty library list, but you still have configuration settings to apply to the library. Therefore, with the new library open, select the option **Library Settings** from the **Settings** group of the **Library** ribbon. Select **Advanced Settings** from the **General Settings** option group. In the resulting settings page, locate the section titled **Content Types** and select the option to allow management of content types, as shown in Figure 12-10.

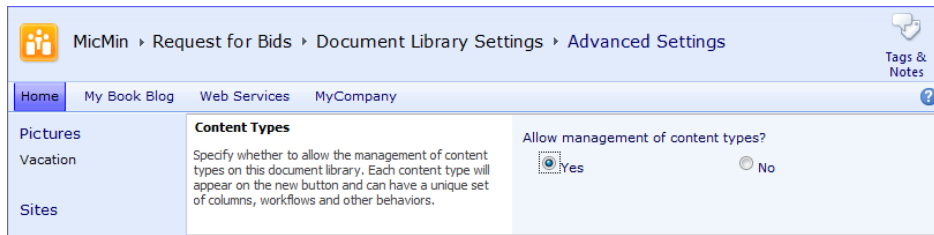


Figure 12-10. Turn on management of content types for the working library.

Click **OK** to accept your changes in the **Advanced Settings** page. Returning to the **Settings** page for the library, look again at the section called **Content Types**. This section lists the content types this library can use. By default, document libraries support the **Document** content type. If no template has been associated with this content type, it opens the Word file `template.doc`, which displays a default blank Word document when the user clicks the **New** button. Figure 12-11 shows the customization page for the Request for Bids library.

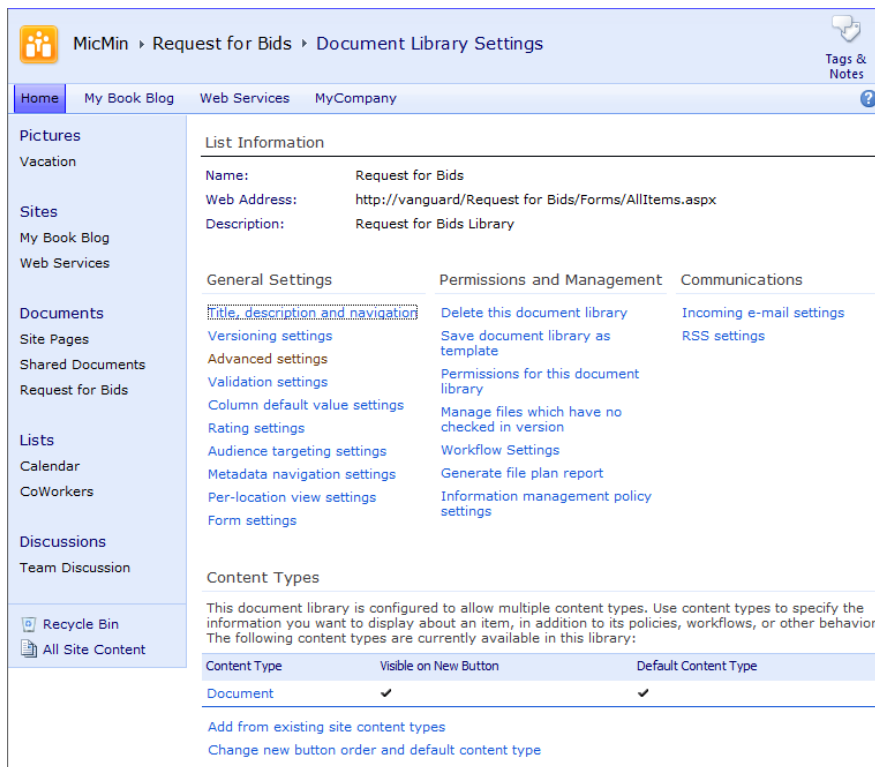


Figure 12-11. Add a new content type.

To add a new content type, click the option **Add from existing site content types** at the bottom of this section. The subsequent page shows the available content types. Scroll through this list, select the RFB content type created earlier, and click **Add**. Figure 12-12 shows that you want to add the content type RFB to the current library. When you click **OK**, SharePoint adds this content type to the library.

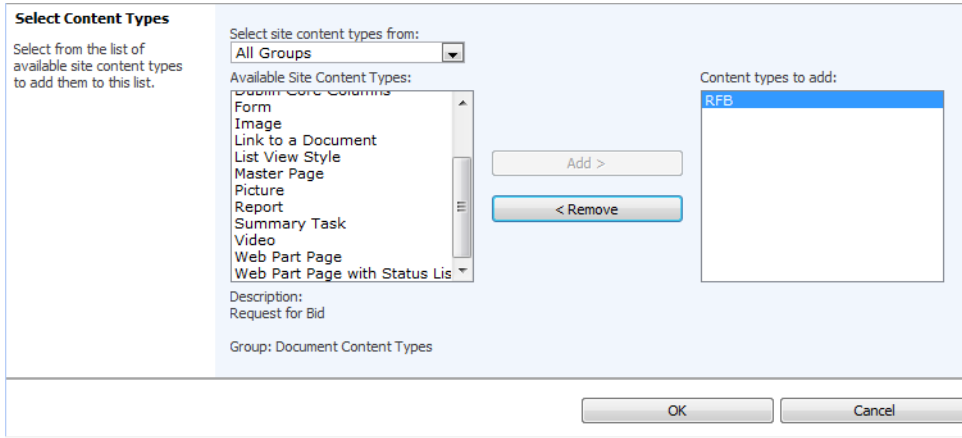


Figure 12-12. Select the content type to add.

After adding this new content type, the blank Word document content type, **Document**, still appears as the default type. While the drop-down menu for the **New** button in the library now shows both content types, **RFB** and **Document**, clicking the **New** button assumes that you want to create an instance of the default content type. Rather than default to a blank Word document, you want to default to a blank RFB form that already has your organization’s header on it as well as formatted sections for the RFB contents.

SharePoint provides two ways to promote your RFB form to become the default type replacing the blank Word document. You could simply delete the default content type. If you never want users to create a generic Word document in this library, this may be your best choice. However, if you want to leave your options open, you could change which content type acts as the default. You can do this by clicking the link **Change new button order and default content type**, as shown in Figure 12-13.

Content Types

This document library is configured to allow multiple content types. Use content types to specify the information you want to display about an item, in addition to its policies, workflows, or other behavior. The following content types are currently available in this library:

Content Type	Visible on New Button	Default Content Type
Document	✓	✓
RFB	✓	

[Add from existing site content types](#)
[Change new button order and default content type](#)

Figure 12-13. View the content types for the library.

The page to change the content type order works much like the page used to change the order of columns in a view. You see a separate row for each content type. To the left of the content type name there is a check box that lets you determine whether users of the library can see that content type. To the right of the content type name, you see the relative order of the content types. The first content type becomes the default content type. Therefore, the second way to make the RFB content type the default type for this library requires that you simply change its numeric position to **1**, as shown in Figure 12-14.

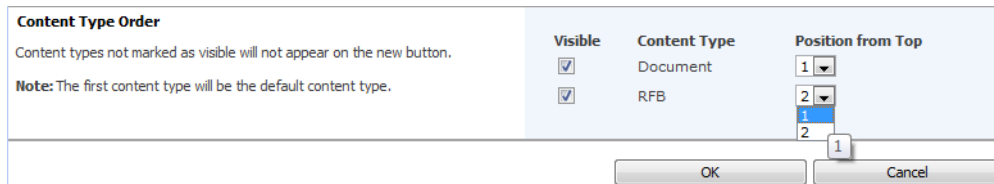


Figure 12-14. Change the default content type for the library.

■ **Tip** You can also remove the original blank Word Document content type by unchecking the check box in the **Visible** column for the **Document Content Type**.

When you return to your library's **Standard View** and open the **New** drop-down menu, you will see that it supports two different content types, **RFB** and **Document**. Figure 12-15 shows this drop-down menu. Notice that the order of the content types matches the order selection made in Figure 12-14. From this drop-down, you can select either content type or even create a new folder. However, if you simply click the **New** button rather than open the drop-down list, SharePoint uses the default content type and opens the RFB template, allowing you to create a new bid.

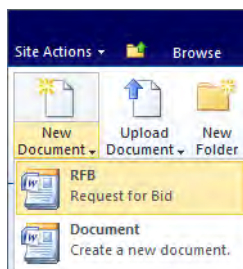


Figure 12-15. Select from content types when adding a new document.

Before you leave this document library, you have one more thing to do. If you already went back to the **Standard View** to see the **New** menu, return to the **Settings** page for the library. Scroll down to the **Columns** section. I mentioned that you could create site columns that you could apply to libraries. Beneath the list of current columns used by the library, click the link **Add from existing site columns**.

This link displays the window shown in Figure 12-16. To see only the columns associated with Request for Bids, select the **RFB_Group**.

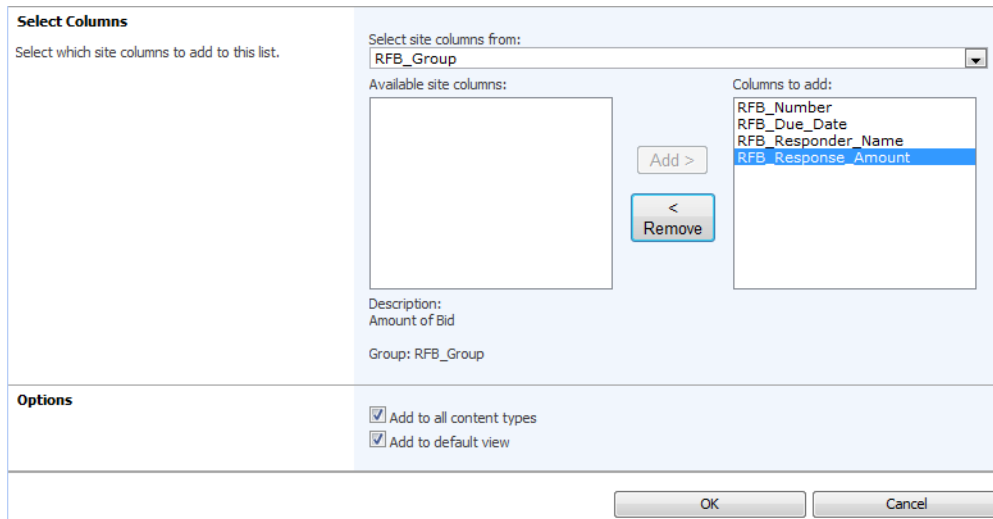


Figure 12-16. Add columns to library metadata from the site columns group **RFB_Group**.

You can now add each of the columns one at a time from the list on the left to the list on the right by clicking it once to select it and clicking the **Add** button. You can also double-click a column name to move it from one box to another. If you have several columns to select, you might find it faster to begin by clicking the first column name. Then, while holding down the **Shift** key, click the last column name, followed by clicking the **Add** button.

After you have added all four columns to the second list box, consider the two options at the bottom of the dialog box. The first option, **Add to all content types**, adds the selected site columns to each of the content types in the library. If you do not want to do this, remove the check from the check box. In this example, you probably would not want to add these columns to the Document content type. The second option adds the site columns to the default view.

If you do not want to add the site columns to all content types, you can still add the site columns to specific content types by performing the following steps:

1. From the library's **Settings** page, click the content type you want to modify.
2. From the **List Content Type** page, click the link **Add from existing site or list columns** beneath the **Columns** list.
3. The **Select Columns** group defaults to **List Columns** to display any columns included in the list, but not in the current content type. If this list shows the **RFB** columns, move them to the list box on the right the same way as previously described.
4. Click the **OK** button to complete the addition of the columns to the content type.

■ **Tip** If you already added the site columns to the Document content type, you can open that Document content type and, from its list of columns, select each column one at a time and, from its properties page, click the **Remove** button.

You should now see the RFB columns included in the **Columns** section, as shown in Figure 12-17.

List Content Type Information

Name: RFB
 Description: Request for Bid
 Parent: RFB

Settings

- ▣ Name and description
- ▣ [Advanced settings](#)
- ▣ [Workflow settings](#)
- ▣ [Delete this content type](#)
- ▣ [Document Information Panel settings](#)
- ▣ [Information management policy settings](#)

Columns

Name	Type	Status	Source
Name	File	Required	Document
Title	Single line of text	Optional	Item
Managed Keywords	Managed Metadata	Optional	Document
RFB_Number	Number	Required	
RFB_Due_Date	Date and Time	Optional	
RFB_Responder_Name	Single line of text	Optional	
RFB_Response_Amount	Currency	Optional	

- ▣ [Add from existing site or list columns](#)
- ▣ [Column order](#)

Figure 12-17. Site columns added to the RFB content type

If you return to the **Settings** page for the library using the breadcrumbs at the top of the page, you will also see the new columns in the **Columns** section, as shown in Figure 12-18. The **Used In** column shows which content types use each of the user-defined columns.

Columns

A column stores information about each document in the document library. Because this document library allows multiple content types, some column settings, such as whether information is required or optional for a column, are now specified by the content type of the document. The following columns are currently available in this document library:

Column (click to edit)	Type	Used in
Managed Keywords	Managed Metadata	RFB, Document
RFB_Due_Date	Date and Time	RFB
RFB_Number	Number	RFB
RFB_Responder_Name	Single line of text	RFB
RFB_Response_Amount	Currency	RFB
Title	Single line of text	RFB, Document
Created By	Person or Group	
Modified By	Person or Group	
Checked Out To	Person or Group	

[Create column](#)
[Add from existing site columns](#)
[Indexed columns](#)

Figure 12-18. Library metadata after adding site columns to only the RFB content type

Now that you have a document library for creating documents based on your custom content type for bid requests, let's look at the next step: creating the **Records Center** site.

■ **Note** You may need the help of your SharePoint administrator to complete this portion of the setup, as you may not have administrative rights to the **Central Administration** site.

Creating the Records Center Site

If you have the necessary permissions to create new sites, open the **Site Actions** menu and select **New Site**. From this **Create** page, filter the list by **Content & Data**, or from the **All Categories** group select the **Records Center** site type, as shown in Figure 12-19. You can immediately enter a title for this site on the right side of the **Create** page or you can click the **More Options** button where you can enter all the site properties in one place. When the **New SharePoint Site** page appears, enter a title and description for the new site. The title appears in the header of the site. The description also appears in the header when supplied.

Next, supply a **URL** name for the site. Developers often use an abbreviated version of the site title for the URL, leaving out spaces or replacing them with underscores. Using shorter URL names makes it easier to enter them later when creating links to the site or referencing the site to upload objects.

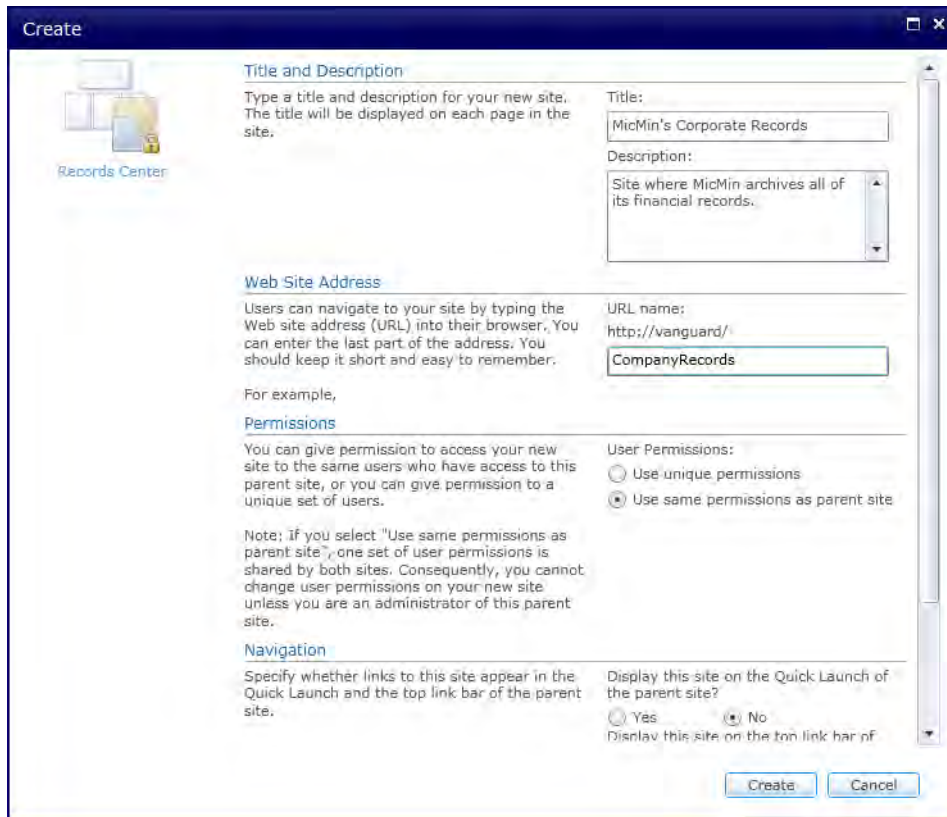


Figure 12-19. Create the Records Center site.

For this subsite, you can choose to use the same user permissions as the parent site, or you can define unique permissions. While you may choose to create your Records Center as the top level of a separate site collection, if you have a small installation, you may choose to create the Records Center as a subsite, as shown here. In either case, most site administrators will probably decide to create unique permissions for the Records Center primarily because fewer people need access to the Records Center, and even those who do typically require more rights than they usually have on other sites.

Finally, as with any subsite, you can define the navigation options, including whether to include the site in the top link bar of the parent site. If you select **No** for this option, you can still locate and enter the Records Center site by displaying **Site Settings** for the current site and looking under **Sites and Workspaces**. Figure 12-20 shows the initial appearance of the Records Center.

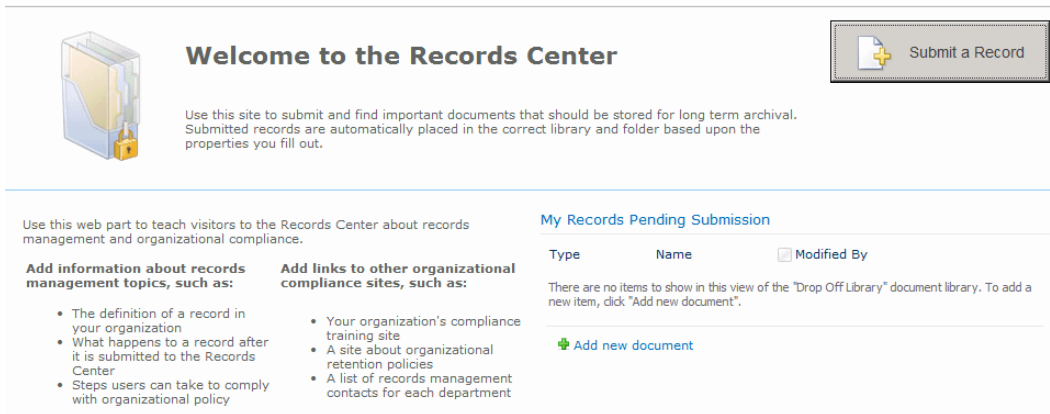


Figure 12-20. The initial Records Center site home page

Creating the External Service Connection

The next step in configuring the Records Center site that you just created involves creating an **External Service Connection**. You must perform this step from the **Central Administration** site for the Records Center site. Open a second browser window and log in to the **Central Administration** site. Switch to the **General Application Settings** page using General Application Settings menu option from the left navigation menu. On this page, select **Configure send to connections** under the **External Service Connections** section, as shown in Figure 12-21.

■ **Note** You may need your SharePoint Administrator's help with this step.

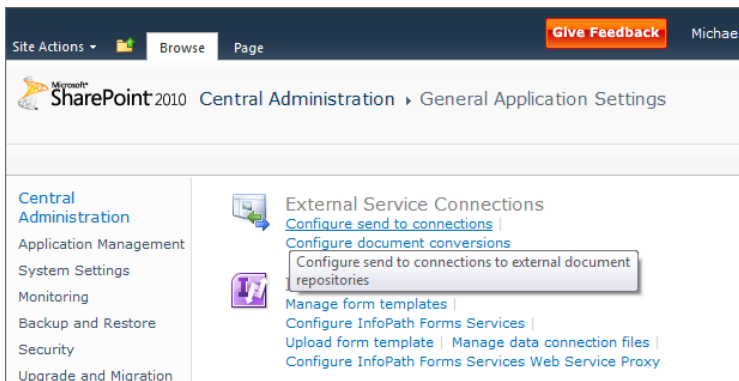


Figure 12-21. Define an External Service Connection for the Records Center.

On the **Configure Send To Connections** page, enter a **Display Name** such as **Records Center**. Your end users will use this name to send documents to the Records Center. Then enter the URL for the Records Center site. The generic version of this URL is `http://server/portal/_vti_bin/officialfile.asmx`. The `server` portion, of course, refers to your SharePoint server's name, and `portal` refers to the site collection. The last portion of this URL refers to a program file that directs items sent to the Records Center to a web service that builds the Records Center folder for the archived file. You cannot just copy files from other site libraries into the Records Center. Instead, each file sent to the Records Center generates its own folder identified by the date and time that you created it. This folder contains the archived document, along with a folder for properties and audit history.

Be sure to click the check box that allows manual submission of a document from the item's **Send To** drop-down menu. You can also choose whether you want to simply copy the document or move the document to the Records Center. If you need to keep a copy of the document in the current library even after moving a copy to the Records Center, you can select **Copy**. You can also move the document but leave a link in the original library so people can still open the document from the Records Center. In the **Explanation** box, you can include a message that appears with the link left in the library so users will know that the original document is in the Records Center.

Finally, click the **Add Connection** button to create the new connection. Note that you can return to an existing connection definition at any time and make changes to these settings. Figure 12-22 shows the **Connection Settings** definition for my Records Center named `CompanyRecords`.

Web Application
Select a web application.
Web Application: **http://vanguard/**

Site Subscription Settings
Choose whether to allow hosted site subscriptions to set up connections to sites outside their subscription.
 Allow sites to send to connections outside the site subscription

Send To Connections
To configure a Send To connection, enter the URL and a display name for the target destination. Unless the target is configured to allow documents to be anonymously submitted, you must configure each web application to use a domain user account.

Send To Connections
New Connection

Connection Settings
Each connection requires a display name and a URL to a content organizer. Optionally, this connection can be made available as a Send To option on the item's drop-down menu and on the Ribbon.

Display name:

Send To URL: [\(Click here to test\)](#)

Example: "http://server/site Url/_vti_bin/officialfile.aspx"

Allow manual submission from the Send To menu

Send To action:

Explanation (to be shown on links and recorded in the audit log):

Figure 12-22. Define the connection URL and display name.

Notice that this external connection only allows you to route records from other sites to your Records Center. It does not tell the Records Center what to do with those records that it receives. We must do that within the Records Center itself.

Adding the Site Content Type for RFBs into the Records Center

Before you can use the Records Center, you must add the RFB content type to it so that it recognizes the document type when you send an instance to it. Open the Records Center site and create a new document library called **Bids**. Select **Library Settings** from the **Settings** group of the **Library** ribbon. In the **Content Types** area, click the link **Add from existing site content types**. Add the RFB content type

here just as you added the content type to your working site. When you are done, you should see your RFB content type as one of the content types in the Bids library, as shown in Figure 12-23.

MicMin's Corporate Records » Bids » Document Library Settings

Home My Book Blog Web Services MyCompany MicMin's Corporate Records

Documents
Drop Off Library
Recycle Bin
All Site Content

List Information

Name: Bids
Web Address: <http://vanguard/CompanyRecords/Bids/Forms/AllItems.aspx>
Description: This is the Bids Archival library

General Settings Permissions and Management Communications

Title, description and navigation
Versioning settings
Advanced settings
Validation settings
Column default value settings
Rating settings
Audience targeting settings
Metadata navigation settings
Per-location view settings
Form settings

Delete this document library
Save document library as template
Permissions for this document library
Manage files which have no checked in version
Workflow Settings
Generate file plan report
Information management policy settings

Incoming e-mail settings
RSS settings

Content Types

This document library is configured to allow multiple content types. Use content types to specify the information you want to display about an item, in addition to its policies, workflows, or other behavior. The following content types are currently available in this library:

Content Type	Visible on New Button	Default Content Type
Document	✓	✓
RFB	✓	

Add from existing site content types
Change new button order and default content type

Figure 12-23. Add the RFB content type to the Bids library.

Creating a Policy for the Archival Library

While still in the Bids library, click on the link **Information management policy settings** in the **Permissions and Management** column at the top of the **Settings** page. If you have not previously created a policy for a content type, a value of **'No'** appears in the **Retention Policy Defined** column for that content type. To create a policy, click on the **Content Type Name** in the **Content Type** column. The **Edit Policy** screen for the selected content type appears as shown in Figure 12-24.

Figure 12-24. Begin a new policy definition.

Begin the policy definition by providing a name and description for the policy. The policy statement describes in text the handling of the file or other information that users might be interested in.

■ **Note** The policy statement does not actually create an action against the file.

The **Retention** section, shown in Figure 12-25, defines a retention period for the items in the library. If your company requires you to keep bid requests for seven years after you archive the file, select the **Enable Expiration** check box. This action opens a dialog that lets you define the retention period. For example, you could define the retention period as a time period based on the file's last modified date plus seven years.

Figure 12-25. Enable expiration actions in a policy.

You can also specify what happens when the item does expire. The first option lets you perform an action such as delete. This moves the file to the Record Center's **Recycle Bin**, where the administrator for the site can permanently delete it or restore it if necessary. You can also start a workflow for the document based on the workflows defined for the site.

Other options include the ability to assign barcodes to each document or item, which you could then use to track printed copies of the document. You can also provide labels and barcodes with the document that it includes when you print it.

You might also want to check the **Enable Auditing** option, as shown in Figure 12-26, which tells SharePoint to audit specific events, such as each time someone views the items in the list, edits them, checks them out, or moves, copies, or deletes them.

Auditing

Specify the events that should be audited for documents and items subject to this policy.

Enable Auditing

Caution: This Web application is configured to enable anonymous access. The actions of anonymous users will be audited, but their identities will not be recorded.

Specify the events to audit:

- Opening or downloading documents, viewing items in lists, or viewing item properties
- Editing items
- Checking out or checking in items
- Moving or copying items to another location in the site
- Deleting or restoring items

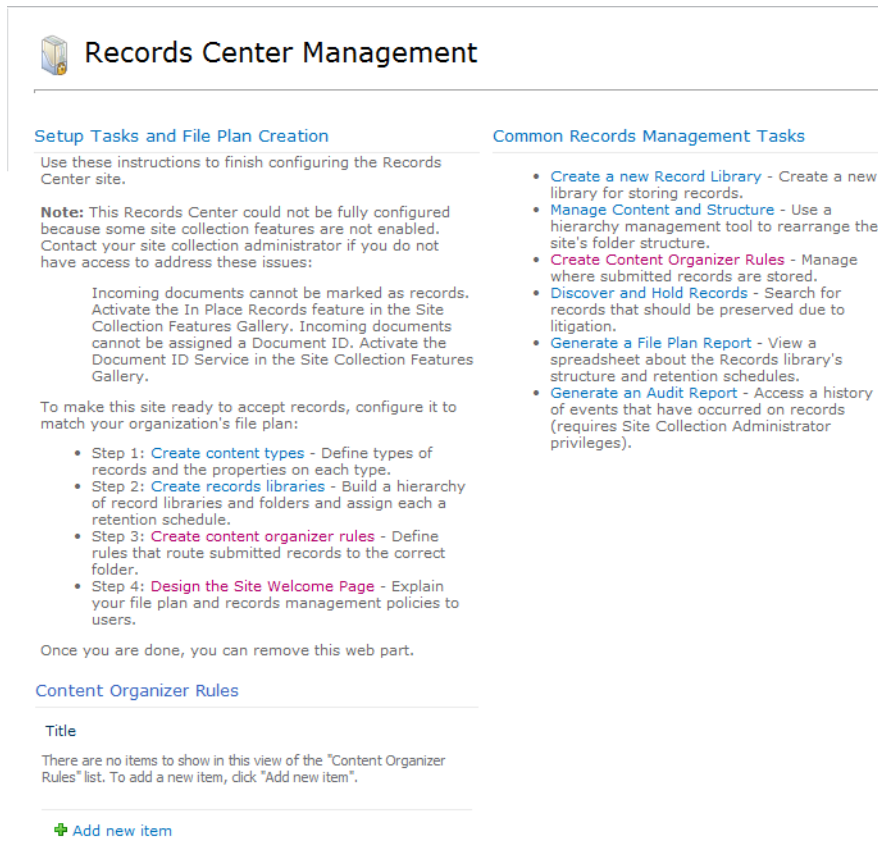
Figure 12-26. Enable auditing in a policy.

Creating a Record Routing Rule

You still have not told the Records Center what to do with incoming documents. Therefore, the last step in setting up your Records Center involves creating record routing instructions. Without records routing, SharePoint would not know what to do with records sent to the Records Center. Actually, it would just leave them in the Drop Off library that SharePoint created as part of the Records Center site template. However, then someone would have to manually route those records to the desired archival library. You can take care of that task automatically by using routing rules. You can have as many record routing rules as you have content types defined. Each rule can then treat each content type individually, sending it to a separate archival library with its own policy. In this simple example, you only have a single archival library, Bids, but you can have any number.

The record routing rule associates a content type with a specific library in the Records Center. By default, SharePoint leaves any content type without a specific routing rule in the Drop Off library, but you can create new routing rules by selecting **Manage Records Center** from the **Site Actions** menu while in the Records Center site.

Figure 12-27 shows the **Records Center Management** page. Initially, the Records Center site includes some default web parts on this page that provide you with step-by-step instructions on how to plan and use the Records Center. You can remove these after you are familiar with their operation. However, the important web part has the title **Content Organizer Rules** found at the bottom of the first column, as shown in Figure 12-27.



Records Center Management

Setup Tasks and File Plan Creation

Use these instructions to finish configuring the Records Center site.

Note: This Records Center could not be fully configured because some site collection features are not enabled. Contact your site collection administrator if you do not have access to address these issues:

Incoming documents cannot be marked as records. Activate the In Place Records feature in the Site Collection Features Gallery. Incoming documents cannot be assigned a Document ID. Activate the Document ID Service in the Site Collection Features Gallery.

To make this site ready to accept records, configure it to match your organization's file plan:

- Step 1: [Create content types](#) - Define types of records and the properties on each type.
- Step 2: [Create records libraries](#) - Build a hierarchy of record libraries and folders and assign each a retention schedule.
- Step 3: [Create content organizer rules](#) - Define rules that route submitted records to the correct folder.
- Step 4: [Design the Site Welcome Page](#) - Explain your file plan and records management policies to users.

Once you are done, you can remove this web part.

Content Organizer Rules

Title

There are no items to show in this view of the "Content Organizer Rules" list. To add a new item, click "Add new item".

[+ Add new item](#)

Common Records Management Tasks

- [Create a new Record Library](#) - Create a new library for storing records.
- [Manage Content and Structure](#) - Use a hierarchy management tool to rearrange the site's folder structure.
- [Create Content Organizer Rules](#) - Manage where submitted records are stored.
- [Discover and Hold Records](#) - Search for records that should be preserved due to litigation.
- [Generate a File Plan Report](#) - View a spreadsheet about the Records library's structure and retention schedules.
- [Generate an Audit Report](#) - Access a history of events that have occurred on records (requires Site Collection Administrator privileges).

Figure 12-27. View the record routing rules list.

To create a new rule, click the link **Add new item** at the bottom of this web part. When the next screen, as shown in Figure 12-28, opens, it allows you to define a new record routing rule. The first property you must supply is the **Title**. While you can provide any name you would like for the rule, I recommend using the name of the content type or something that clearly identifies the content type you want to process.

<p>Rule Name *</p> <p>Describe the conditions and actions of this rule. The rule name is used in reports about the content of this site, such as a library's File Plan Report.</p>	<p>Name:</p> <p><input type="text" value="Requests for Bids"/></p>
<p>Rule Status And Priority *</p> <p>Specify whether this rule should run on incoming documents and what the rule's priority is. If a submission matches multiple rules, the router will choose the rule with the higher priority.</p>	<p>Status:</p> <p><input checked="" type="radio"/> Active</p> <p>Priority: <input type="text" value="5 (Medium)"/></p> <p><input type="radio"/> Inactive (will not run on incoming content)</p>
<p>Submission's Content Type *</p> <p>By selecting a content type, you are determining the properties that can be used in the conditions of this rule. In addition, submissions that match this rule will receive the content type selected here when they are placed in a target location.</p>	<p>Content type:</p> <p>Group: <input type="text" value="Document Content Types"/></p> <p>Type: <input type="text" value="RFB"/></p> <p>Alternate names:</p> <p><input type="checkbox"/> This content type has alternate names in other sites:</p> <p>Add alternate name: <input type="text"/> <input type="button" value="Add"/></p> <p>Note: Adding the type "*" will allow documents of unknown content types to be organized by this rule.</p> <p>List of alternate names: <input type="text" value="RFB"/> <input type="button" value="Remove"/></p>
<p>Conditions</p> <p>In order to match this rule, a submission's properties must match all the specified property conditions (e.g. "If Date Created is before 1/1/2000").</p>	<p>Property-based conditions:</p> <p>(Add another condition)</p>
<p>Target Location *</p> <p>Specify where to place content that matches this rule.</p> <p>When sending to another site, the available sites are taken from the list of other sites with content organizers, as defined by the system administrator.</p> <p>Check the "Automatically create a folder for each unique value of a property" box to force the organizer to group similar documents together. For instance, if you have a property that lists all the teams in your organization, you can force the organizer to create a separate folder for each team.</p>	<p>Destination:</p> <p><input type="text" value="/CompanyRecords/Bids"/> <input type="button" value="Browse..."/></p> <p>Example: /sites/DocumentCenter/Documents/</p> <p><input type="checkbox"/> Automatically create a folder for each unique value of a property:</p> <p>Select a property (must be a required, single value property): <input type="text"/></p> <p>Specify the format for the folder name:</p> <p><input type="text" value="%1 - %2"/></p> <p>When the folder is created:</p> <p>%1 will be replaced by the name of the property</p> <p>%2 will be replaced with the unique value for the property</p>

Figure 12-28. Define a new record routing rule.

The second thing you must specify is the rule status, which can be active or inactive. If a rule is active, you can specify a priority for the rule. The Records Center only uses the Priority setting when more than one rule matches the content type. It allows you to determine which rules to run first.

Next, you define the content type upon which this rule acts. In this example, you can see that I specified the content type as RFB that I created in the Document Content Types group. If you have alternative content type names, you can also specify them. You can also create a general rule by using an alternate type of “*”. This feature can be useful if you want to use a single rule to handle multiple content types.

■ **Tip** The reason you can provide a title other than the name of the content type is that you can specify the content type you want to process in the Submission’s Content Type area.

In the Conditions group, you can further define where to route a document based on values in the available fields in the content type. For example, we can use the **RFB_Due_Date** to route the RFB to different archival folders based on the year of the RFB. With other columns, we could route the RFB document based on the type of bid, the dollar amount of the bid, the division requesting the bid or other criteria. In this case, I will not add an additional condition, as I want all RFB documents for now to go into a single archival folder.

The last group in the rules definition lets you specify the destination location. You must create this location first, which is why you needed to create the Bids library earlier. You can also create folders automatically based on the value of one of the document’s properties. You can even use a property to create the folder name.

After defining the rule, click the **OK** button to save it.

Archiving Your Documents

Now that you have completed the setup for the Records Center, let’s return to the working library where you can create an original RFB document. Suppose you have a RFB called New Laptop Computers. You can now test the archival process from your working library to the Records Center.

If you configured everything correctly, you can open the working library and position your mouse over the file you want to archive to open the drop-down menu for the document. Position your mouse over the **Send To** option to open the submenu, as shown in Figure 12-29. This submenu now contains the entry Records Center. If you do not see this entry or if you see an entry with a different name, then you did something different when defining the **External Service Connection** discussed earlier. Since you must configure this information in the Central Administration site, you may need to contact your SharePoint administrator for assistance at this point, if there is a problem.

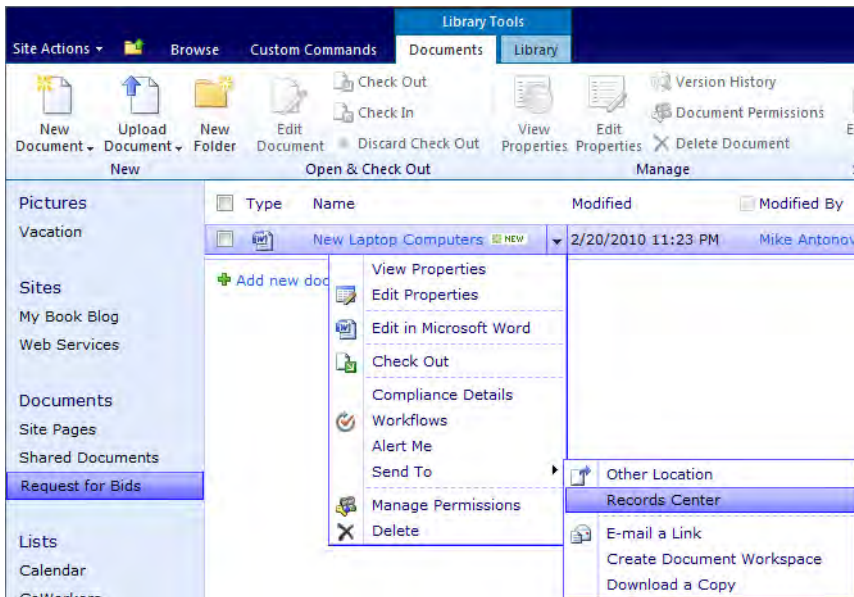


Figure 12-29. Send a document to the Records Center.

Select the **Records Center** option to begin the archival process. You may first see a pop-up message asking if you want to move the document to the Records Center. Remember, you defined the rule to move, not copy, the document. After a few seconds, the pop-up dialog box shown in Figure 12-30 tells you that you successfully sent the copy of the file to the Records Center.

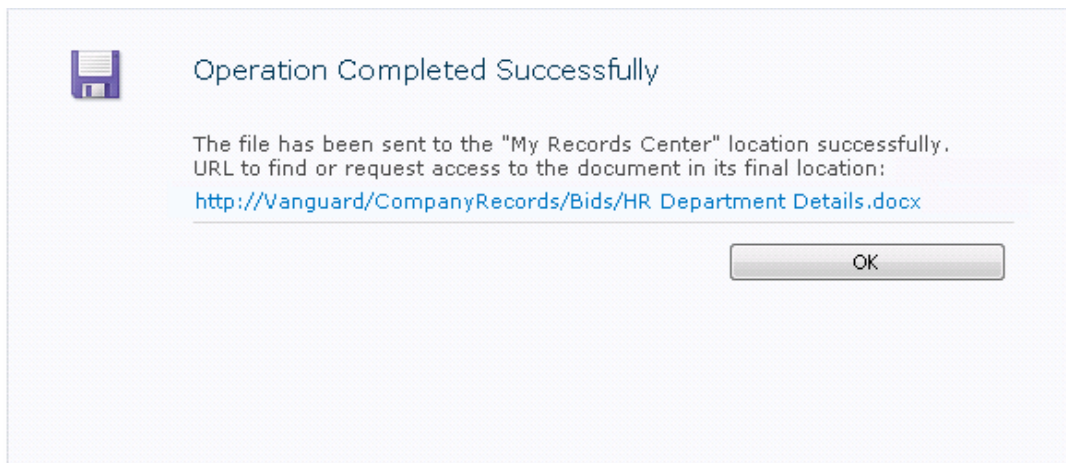


Figure 12-30. Message upon successful addition of document to the Records Center

■ **Note** A copy of the file remains in the working library only if you selected **Copy** when defining the external connection in Central Administrator. If you specified to move the document to the Records Center, SharePoint automatically removes the document from your working library. You can also move the document and leave a link in the library to the new location.

If you now go to the Records Center, you should see the file in the RFB archival library, as shown in Figure 12-31.

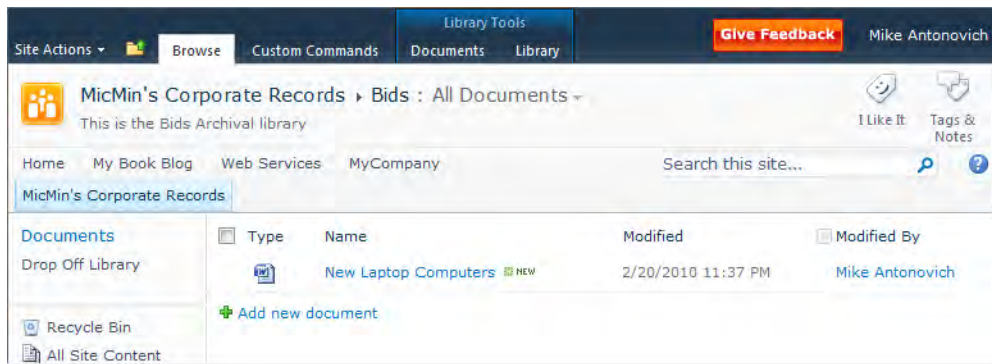


Figure 12-31. Archived document folder

This brief introduction to using the Records Center only covers the basics of how to build and use a Records Center to archive your documents to a central location. You may need to consider many additional factors before creating a Records Center for your organization.

Creating a Picture Library in SharePoint

You can use picture libraries in SharePoint to share pictures with other users of your site. They also let you view, organize, share, and edit common graphics. The ability to create a slide show from a picture library may let you share your pictures with coworkers. However, a very important purpose of a picture library is to supply files to display on your site pages that contain images, icons, or pictures of any sort. To do this, you must first store the picture files in your picture library, where SharePoint web pages can find them.

To create a picture library within your SharePoint site, if you do not already have one, go to the **Site Actions** menu and select **View All Site Content**. From the All Site Content page, click the **Create** option at the top of the page. From the navigation panel on the left side of the page, click on **Library** in the **All Types** section. The **Picture Library** appears as one of the options on the right side of the page, as shown in Figure 12-32. Select it and then click the **More Options** button to provide the properties of your new library.

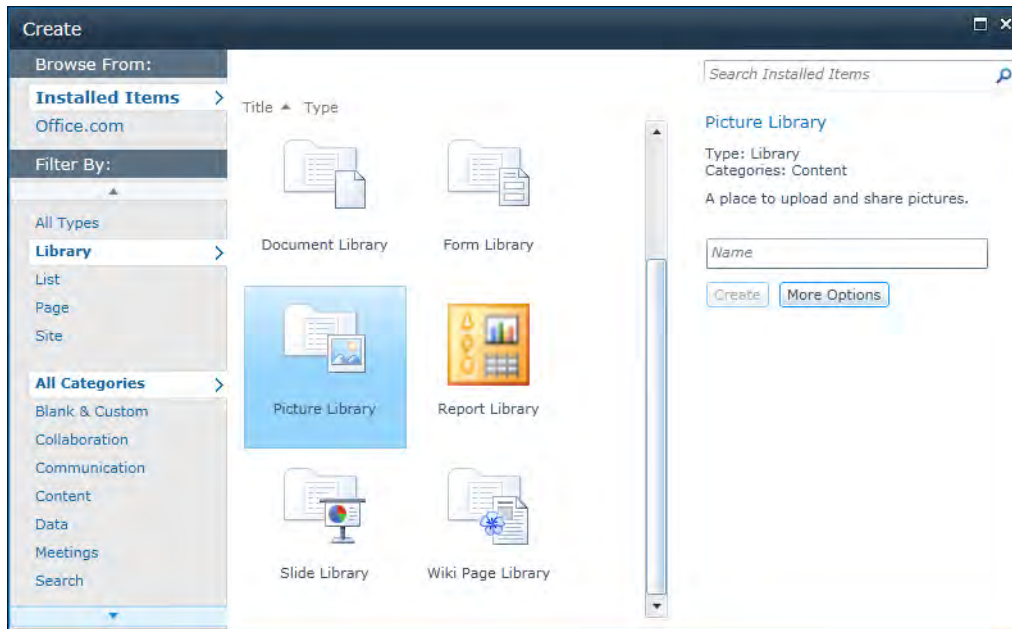


Figure 12-32. Select Picture Library from the Libraries group.

When creating a new picture library, as with any other library, list, or web page, you must name it. Names consist of alphanumeric strings that can include spaces, although some people would agree with me in not recommending spaces. I suggest replacing spaces with underscores for readability. In any case, the name must be unique within the current site. You can also provide an optional description, and, if you do, it appears when you open the library above the library's menu.

Next, choose whether you want the picture library to appear in the **Quick Launch** area. Typically, if you have a picture library primarily to share pictures with other members of your team, you would add it to the **Quick Launch** area so that others can access it easily. However, if your picture library only exists to serve pictures to your site pages or to provide icons for pages, other members of your site probably have no need to regularly access the library, and thus you should not include it in the **Quick Launch** area. If you use a picture library for both purposes, I would suggest that you rethink your design and split your pictures into two or more libraries so that only pictures you really want other members to share exist in libraries that appear in the **Quick Launch** area.

■ **Tip** You can also control access through permissions to picture libraries used within the pages of your site so that others cannot modify or delete those images.

Finally, you can determine whether SharePoint tracks versions of your pictures each time you save a new picture with the same name. If the image consists of time-sensitive information that someone might need to go back to earlier versions to view, then include versioning. However, for most uses, tracking picture versions does not make sense, especially considering the size requirements of most pictures. Remember that each version is stored as a copy of the entire picture. Figure 12-33 shows the properties screen of a new picture library.

Name and Description

Type a new name as you want it to appear in headings and links throughout the site. Type descriptive text that will help site visitors use this picture library.

Name:

Description:

Navigation

Specify whether a link to this picture library appears in the Quick Launch.

Display this picture library on the Quick Launch?

Yes No

Picture Version History

Specify whether a version is created each time you edit a file in this picture library.

Create a version each time you edit a file in this picture library?

Yes No

Figure 12-33. Set the properties of the picture library.

Keeping the Size of Your Images Under Control

The first and most obvious goal is to keep your images as small as possible. Different formats of the same image can result in greatly different file sizes. Usually, JPG or GIF files result in the smallest files. If you need an image that is only 100 pixels square, don't save an image created from your digital camera that is 3500 by 2900 pixels, and then just let the page formatting "shrink" the image down. This process may display a smaller image, but the physical image size in bytes remains the same. In addition, it is not just the physical storage on your server that need concern you. The larger your image files become, the longer it takes to download those images to a browser, making your web site appear slower than it should, especially for those people with slower web connections.

Another technique to reduce the size of your image files is to reduce their color depth. Often the color depth of digital camera images far exceeds what is necessary when displaying the image on a web page.

Usually, you can reduce the color depth from 32 bit to 16 bit or even less with no perceptible difference in the image. If you work with GIF files representing drawings rather than photographs, you can reduce the color depth down to 256 colors or less.

One tool to help you modify the sizes of your images is the Microsoft Office Picture Manager. It can handle most of your resizing and image modification needs.

Once you have created your picture library, you can open it either by clicking its name in the **Quick Launch** menu if you placed it there or by clicking **View All Site Content** in the **Quick Launch** menu and locating your library within the **Picture Library** group.

Within your picture library, you may want to organize your pictures into different folders and perhaps even different subfolders. To create a folder, click the **New** button in the menu bar, as shown in Figure 12-34. Notice that the new drop-down menu only has this one option. You cannot create a new picture from within a SharePoint library because SharePoint does not host its own graphics design tool.

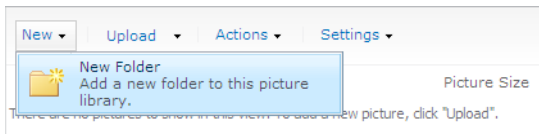


Figure 12-34. Add structure to your library by adding folders.

When you create a new folder, you must name it. Folder names can have up to 128 alphanumeric characters and can contain blank spaces. While you can place periods within a folder name to represent a hierarchy, you cannot put that period at the start or the end of the name. Nor can you put two period characters consecutively in the name. SharePoint also does not allow most special characters. However, because you have to replace blank spaces with the string "%20" in URL references to the library, you may want to avoid blank spaces or replace them with underscore characters, as shown in Figure 12-35. After entering a name, click **OK** to create the folder.

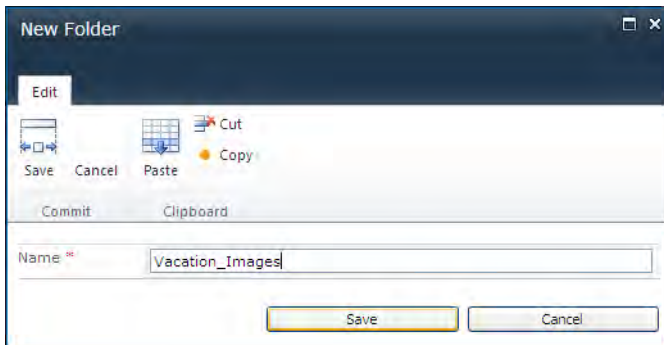


Figure 12-35. Create names for folders.

You do not have to define your folder structure fully before starting to use your picture library. While you may not anticipate every need for the picture library and thus not be able to fully build out the file structure for the library ahead of time, leaving the file structure up to the users could also result in a very disorganized structure, maybe even one in which all pictures appear in just one folder.

Deciding when to add a picture to an existing folder and when to create a new folder for the picture is a lot like saving a file in your local or network drive. Get a group of people together, and you typically end up with several different suggestions for the structure. Some members of your SharePoint site might feel it best to separate images by topic. Others might want to save images by how they use them within the site, such as by page. Still others might want to save images based on who uploaded them.

Of course, even within a single folder in your picture library, you could add a custom column to categorize your pictures. Then define separate views to filter your pictures based on the value in that custom column. This method allows you to define multiple sets of ways that you can categorize your pictures by simply changing the supporting metadata for the picture library and defining appropriate views.

The best recommendation I can give you is that any organization is better than no organization, as long as you follow it consistently. Choose a method to structure your pictures within a library, publish the method so anyone using the library knows how to store and search for images, and then stick with that method. You might even include your file structure logic in the description of the library where every site member can read it.

Uploading Pictures to SharePoint

Now that you have a picture library, you probably want to save pictures to it. Accessing the **Upload** menu of the open picture library shows that you have two options for uploading pictures: one for uploading individual images and one for uploading multiple images. While you can navigate to the folder where you want to upload your images before beginning to upload, you can select the picture folder from within the **Select Picture** dialog. In reality, you can select either option because even the **Upload Picture** option allows you to upload multiple images, and the **Upload Multiple Pictures** option does not fail if you only select a single image to upload. Figure 12-36 shows the **Upload** menu.

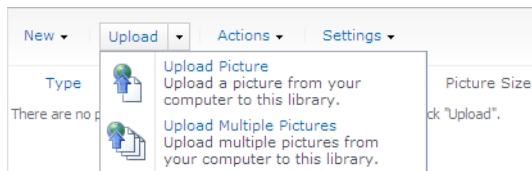


Figure 12-36. Upload pictures individually or in groups.

■ **Caution** This feature may not be available to users who are attempting to access their site directly from the server on which they have installed SharePoint. The easy solution is to access your site/server from another networked machine.

Uploading Single Images

From the upload page shown in Figure 12-37, you can upload a single image by manually entering its fully qualified name. A more reliable way to reference a picture you want to upload to ensure that you not only spell it correctly, but also get the syntax for the URL correct begins with the **Browse** button. Clicking the **Browse** button displays a standard **Choose File** dialog box common to many Windows applications. From here, you can navigate through the directories of not only your local machine, but also the directories of any network drive that you have rights to view.

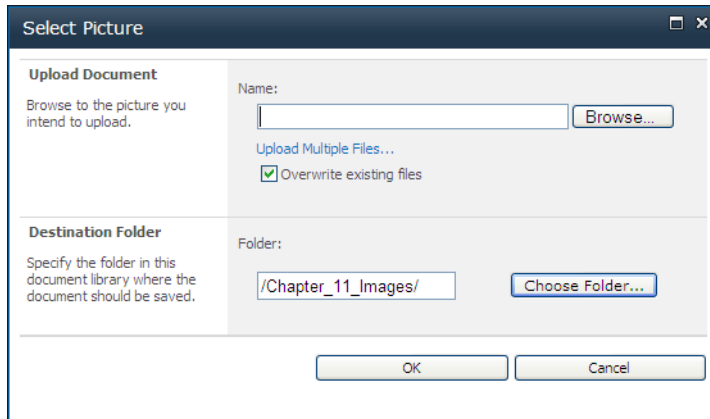


Figure 12-37. Enter the URL for the picture or locate it with *Browse*.

When you find the file you want, click the file name and then click the **Open** button or just double-click the file name. The **Choose File to Upload** dialog box passes the URL for the image back to the **Select Picture** dialog box.

Before clicking **OK**, you can choose to check the box next to **Overwrite existing files** if you want to override any pictures in the library automatically with the same name. If you do not check this box, and SharePoint discovers that the file you are uploading either has already been uploaded or at least has the same name as a file already in the library, the upload fails with an error. The error message identifies the file by name. You can simply rename one of the images and try to upload the picture again.

■ **Caution** When you select the option to overwrite existing files, SharePoint does not check to see which version of the file has the latest date. Therefore, using this option could inadvertently allow you to replace a more recent version of a file with an earlier one.

Notice also that you can choose the destination folder for the image. Using the **Choose Folder** button, you can display the hierarchy of the Picture library and select the folder where you want to place the uploaded image. By default, SharePoint assumes it is the folder you were in when you click the **Upload** command.

Selecting a single file to upload opens a page that lets you immediately update the default metadata associated with the picture in the current picture library. Figure 12-38 shows this page. You can change the name of the file used by the library, and not have to keep the same name as the original file. You can also specify a title for the picture. Next, you can specify the date and time you took the picture. Not all pictures need this type of information, but, to relate pictures to specific times, you can document that information here. SharePoint uses the description field as alternative text when you place the picture on a web page and the viewer of the web page has turned graphics off. Applications for the seeing impaired can sometimes read the alternative text associated with pictures. In either case, a good description of the image could help people who do not see the picture. Finally, you can specify keywords for the picture that the search engine can use to locate specific images.

i The document was uploaded successfully. Use this form to update the properties of the document.


Name *	<input type="text" value="Burrowing_Owl"/> .JPG
Preview	
Title	<input type="text"/>
Date Picture Taken	<input type="text" value="3/23/2008"/> <input type="button" value="Calendar"/> <input type="text" value="10 AM"/> <input type="text" value="17"/>
Description	<input style="width: 95%; height: 40px;" type="text"/>
<small>Used as alternative text for the picture.</small>	
Keywords	<input style="width: 95%; height: 40px;" type="text"/>
<small>For example: scenery, mountains, trees, nature</small>	
<small>Created at 2/15/2010 3:20 PM by Antonovich, Michael P. Last modified at 2/15/2010 3:20 PM by Antonovich, Michael P.</small>	
<input type="button" value="Save"/> <input type="button" value="Cancel"/>	

Figure 12-38. Define a picture's metadata as soon as you upload it.

■ **Tip** You can also create content types for picture libraries just as with other libraries. Those content types can have unique column definitions that can include, remove, or modify the default columns used by the default picture library.

Uploading Multiple Images

If you want to upload multiple files, rather than enter a file name in the first text box or click the **Browse** button, click the option **Upload Multiple Files**. This option opens the dialog shown in Figure 12-39.

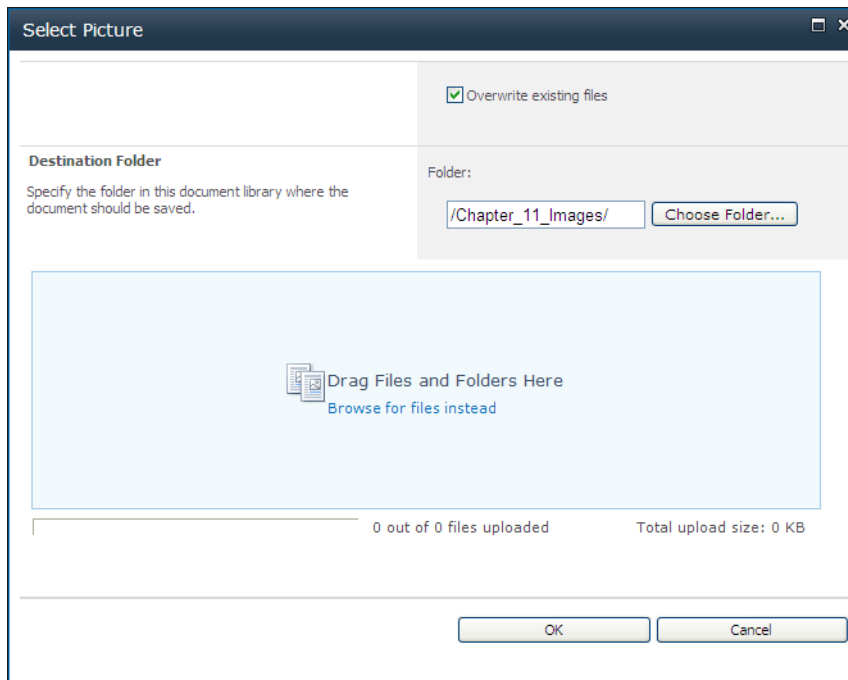


Figure 12-39. Drag files and folders from multiple directories on your local machine when uploading multiple files.

This dialog begins in a similar way to the one used to upload a single file. However, rather than providing a text box and **Browse** button to identify that single file, the **Upload Multiple Files** dialog provides an area where you can drag other files and even folders from another open instance of Windows Explorer. In fact, you can select files from multiple individual folders and drag them into this text box. If you do not have Windows Explorer open, just click the **Browse for files instead** link to open an instance of Windows Explorer so you can locate and select the files you want to upload.

Notice that the text below the area where you drag your files continuously updates to let you know how many files you have uploaded and the total upload size. This upload size could be important if your

SharePoint administrator has placed upload limits on your system. If you need to upload more files than allowed by your upload size limit, you can split the upload into groups of files where each group is less than the upload size limit.

After you have identified all the files you want to upload, you can click the **OK** button to start the upload. You can also get to this same point by selecting the **Upload Multiple Pictures** option from the **Upload** drop-down menu.

Uploading Multiple Images with Microsoft Picture Manager

Depending on your installation, you may instead have access to Microsoft Picture Manager. (Picture Manager is used by default for uploading multiple images when you have it installed.) This is a tool in the Microsoft Office installation. If the people who configured your installation of Microsoft Office included it, you can upload multiple files using it, rather than having to enter a file name in the single file upload text box. You will see this option instead of the screen in the previous section when you click the option **Upload Multiple Files**. Rather than showing a directory tree of the files on your local drive, it opens Microsoft Office Picture Manager, which I will discuss further in the next section. You can also get to this same point by selecting the **Upload Multiple Pictures** option from the **Upload** drop-down menu.

In either case, if you attempt to upload a file with a name that already exists in the library, Microsoft Office Picture Manager pops up an error message that displays four options:

- **Replace File:** This option replaces only the file that raises the current error message. If other files marked for upload also have duplicate names, you will have to address each one separately.
- **Replace All:** This option replaces not only the file that raises the current error message, but also any other files that have a duplicate name in the current upload batch without further prompting.
- **Skip File:** This option skips the current duplicate file from the upload batch and continues with the next file. It continues through the rest of the pictures marked for uploading unless it finds another duplicate. If so, it displays the error dialog box again to let you decide on an action for that file.
- **Cancel Upload:** This option cancels the upload at this point. Files already uploaded remain uploaded, but Microsoft Office Picture Manager will not attempt to upload any of the additional files in the set of selected files.

This ability to handle file name conflicts during upload might be a good reason to use the Microsoft Office Picture Manager, even when you only want to upload a single file. However, there are several other advantages to using this tool to upload your pictures.

Using the Microsoft Office Picture Manager

The ability to preview a thumbnail of the available images in any directory of your local drive is another advantage of the Microsoft Office Picture Manager, as shown in Figure 12-40. The panel on the left lets you navigate to any folder on your local drive and view thumbnails of the pictures found there.

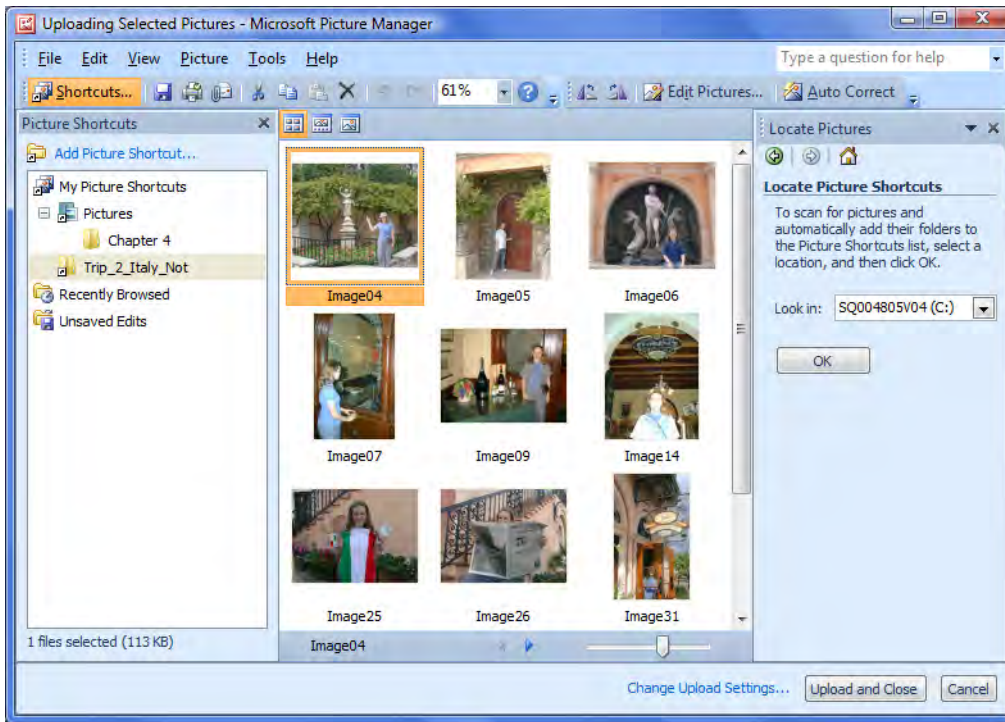


Figure 12-40. Using Microsoft Office Picture Manager to preview and upload pictures

The center panel displays thumbnails of each image found in the selected directory. You can change the size of the thumbnails by using the slide control at the bottom right of this panel. Along the top of the center panel, you should see three icons that allow you to select between three different view modes. The first icon displays each image as a thumbnail with the name of the image immediately beneath it. The second view option, called the **Filmstrip View**, uses the top half of the center panel to display the currently selected image. The rest of the images appear across the bottom half of the panel in a single row. You can move from one image to the next by clicking one of the visible images in the filmstrip area at the bottom, or you can click the left and right pointing arrows found in the control area in the middle of the central panel. An example of Filmstrip View appears in Figure 12-41.

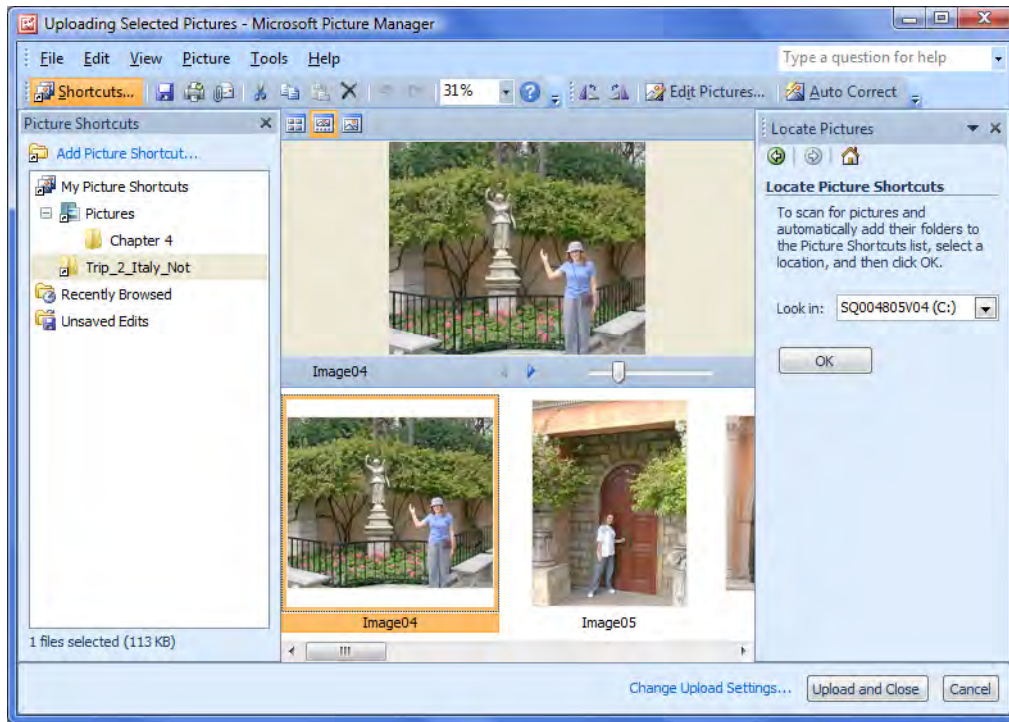


Figure 12-41. Display pictures in a folder using the Filmstrip View.

The third and final option, called the **Single Picture View**, shows only a single picture at a time from the selected library (see Figure 12-42). Beneath the picture, you will find a control bar. Starting from the left side of the control bar, you will see the name of the picture file, navigation buttons that allow you to move to the previous or next image in the directory, and a zoom slide bar that lets you change the size of the displayed image.



Figure 12-42. Display pictures in a folder using the Single Picture View.

You will most likely select pictures to upload from the **Thumbnail View**. When you click an image, the **Upload** panel on the right side of the screen tracks the number of files you have selected, the name of the library that it will upload the image to, whether it will send the original picture, and whether it will optimize the picture for viewing on the Web. As you might expect, this setting helps reduce the file size for images with millions of colors such as photographs, but it can also substantially reduce the size of even captured screen images. You can easily see the difference in size by alternately clicking the two option buttons in the **Upload Settings** section and checking the value displayed beneath them after the label **Total Transfer**. The **Total Transfer** value can also give you an idea of how “expensive” in terms of file size it would be to display a collection of images on your web pages.

■ **Tip** If you do not see the **Upload** panel, click the text **Change Upload Settings** found at the bottom of the Microsoft Office Picture Manager window to the left of the **Upload** and **Cancel** buttons. You can also select a different panel from the drop-down menu found on the right side of the panel header to the immediate left of the close button.

You can select multiple images to upload in the **Thumbnail View** by clicking the first picture you want, and then, while holding down the **Shift** key, clicking the last picture. This includes all of the intermediate pictures, starting at the topmost picture selected, and then proceeding from left to right, top to bottom, to the bottommost picture.

If you only want to transfer selected pictures from a folder, click the first picture you want, and then, while holding down the **Ctrl** key, click each of the additional pictures you want.

Finally, you can also use the mouse to click and drag through the images. The only limitation, which you may find inconvenient at times, is that you can only select images from a single directory as part of a single upload. If you want to upload images from multiple directories, you must select and upload files from each directory separately.

When you have selected your images, click the **Upload and Close** button to begin the transfer of the files to your SharePoint picture library. Depending on the number of pictures you have selected and their individual sizes, this could take a few seconds to complete.

Using Windows Explorer to Upload Pictures

Another way to upload pictures to your picture library begins by switching the view of your picture library to open it with Windows Explorer. You can find this option in the **Actions** drop-down menu, as shown in Figure 12-43.

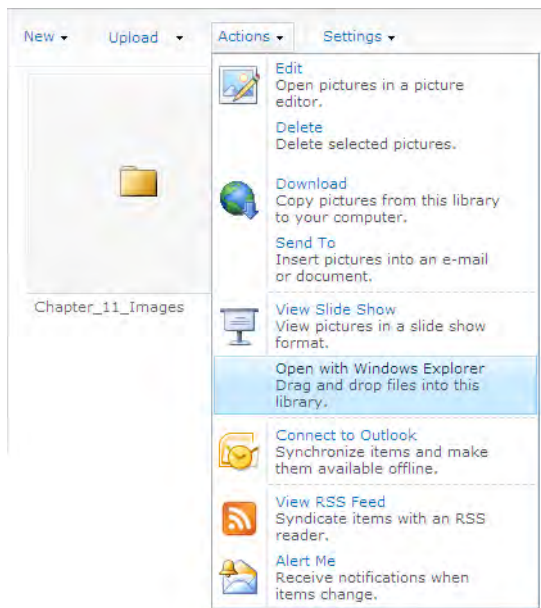


Figure 12-43. Switch to the Windows Explorer view mode.

■ **Caution** This feature may not be available to users who are attempting to access the site directly from the server on which they have installed SharePoint. The easy solution is to access your site/server from another networked machine.

Then open an instance of Windows Explorer from your operating system's **Start** menu. You may want to resize the SharePoint library window and the Windows Explorer window so that you can view both windows side by side. Next, navigate to the directory in Windows Explorer that contains the pictures you want to upload, and select them individually or as a group. With your pictures selected, click and drag the selection over to the SharePoint library area and release the mouse button, as shown in Figure 12-44.

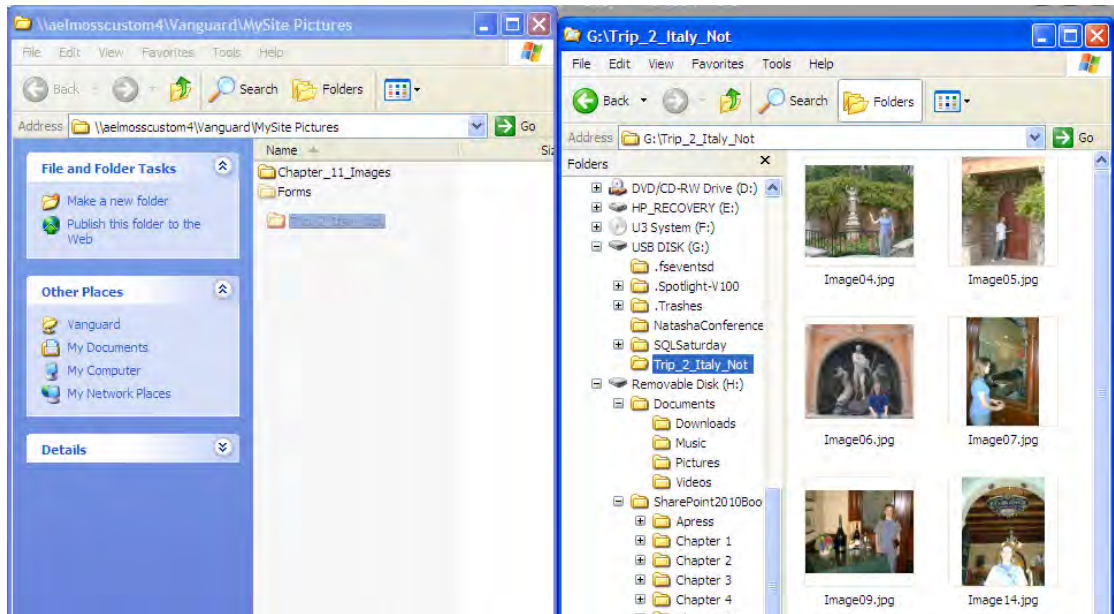


Figure 12-44. Use drag and drop to transfer pictures.

Downloading Images from Your Picture Library

Earlier, I covered how to display pictures from a picture library on a web page. However, if end users of your SharePoint site can view your picture library, they can download the images to their local hard drives. Not only do picture libraries provide an alternative to sending pictures as e-mail attachments to people, but they also have some ability to control the size of the downloaded image. Figure 12-45 shows the **Page Images: Download Pictures** page displayed by selecting the **Download** option in the **Action** menu. Notice that you can download one of three different sizes for the selected pictures: full size,

preview size, and thumbnail. This figure shows thumbnails of a picture selected before choosing the **Download** option.

■ **Caution** This feature may not be available to users who are attempting to access their site directly from the server on which they have installed SharePoint. The easy solution is to access your site/server from another networked machine.

■ **Note** You must select the pictures first before you select the **Download** option.

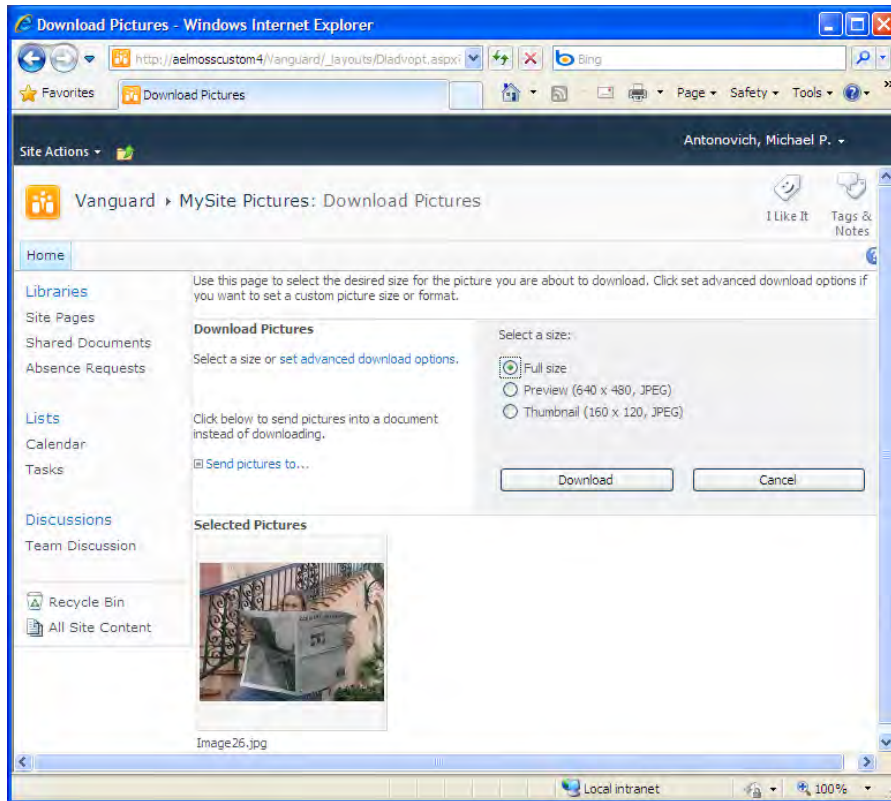


Figure 12-45. Select the size of the pictures to download.

By default, SharePoint downloads the images as saved (Full Size). However, if you click the **Set Advanced Download Options** link, you can choose a different format for the pictures. SharePoint supports converting pictures to the following format types:

- JPEG Interchange Format (*.jpg)
- Tagged Image File Format (*.tif)
- Windows Bitmap (*.bmp)
- Graphics Interchange Format (*.gif)
- Portable Network Graphic (*.png)

You can choose the final size of the image from a larger selection of predefined sizes. You can also create your own custom-sized image by either specifying the width and height of the image in pixels, which gives you independent scaling of the horizontal and vertical image size, or by specifying a percentage to stretch both the horizontal and vertical size. The page in Figure 12-46 specifies retaining the original format and size of the downloaded images.

Use this page to set advanced options for downloading your selected pictures. You can specify a file format and size for the pictures.

<p>File Format</p> <p>Select a new file format for your pictures.</p>	<p>File format:</p> <p>Keep original format <input type="button" value="v"/></p> <p>Keep original format</p> <p>JPEG Interchange Format (*.jpg)</p> <p>Tagged Image File Format (*.tif)</p> <p>Windows Bitmap (*.bmp)</p> <p>Graphic Interchange Format (*.gif)</p> <p>Portable Network Graphic (*.png)</p> <p><input checked="" type="radio"/> Predefined width and height</p> <p>keep original size <input type="button" value="v"/></p> <p><input type="radio"/> Custom width and height</p> <p>640 x 480</p> <p><input type="radio"/> Percentage of original (max 100%)</p> <p>100 %</p>
<p>Picture Size</p> <p>Select a new file size for your pictures.</p>	

Figure 12-46. Choose a file format for downloaded images.

When you click the **Download** button, you must still identify the directory where you want to place the pictures. You can do this either by entering the directory name in the check box or by locating the directory by clicking the **Browse** button to look for it. If you specify a directory that does not exist, SharePoint displays a message box that allows you to create it.

By default, SharePoint assigns the downloaded pictures the same name they have in the picture library. However, you can rename the pictures as you download them by supplying a base name to which SharePoint adds a numeric value to name each image uniquely. Figure 12-47 shows that it will download the images to a directory named **My Pictures\MySite Pictures**. It also will rename each picture included in the download beginning with the text **Italy_Trip** and then appending a number starting with **01**.

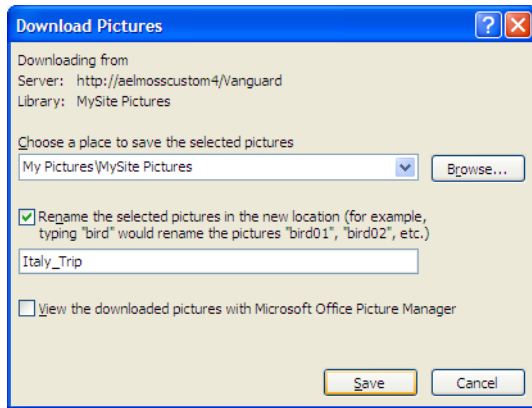


Figure 12-47. Define where to save images and how to name them.

Sending Images to a Microsoft Office Application

Rather than download the image, you could send the image to one of four Microsoft Office applications. Figure 12-48 shows the dialog box that appears after you select one or more of the pictures from the library and then select **Send To** from the **Actions** menu. You can only select one Microsoft Office application at a time. However, you could return to this option several times to resend the image to different applications.

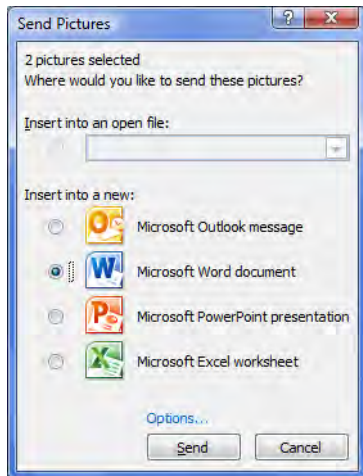


Figure 12-48. Send a picture to an Outlook message.

If you currently have a Microsoft Office file open such as a Word document, the name of the document appears in the drop-down box found beneath the label **Insert into an open file**. In fact, if you have more than one Word or PowerPoint file open, you can insert the graphics into any of them by selecting the one you want from the drop-down list. If you do not have any open Office files, this option appears disabled.

Even if you have a recognized file open, you can still send the selected images to a new Outlook message, Word document, PowerPoint presentation, or Excel spreadsheet. Each possible output destination has its own set of options, which you can display by clicking the **Options** link.

When sending images in an Outlook message, you must first decide whether to send the images as attached files or to embed them into the message. If you embed an image into the message, you get to choose the preview size. Possible output sizes for embedded pictures include

- **Thumbnail (160 x 160 px)**
- **Postcard (448 x 336 px)**
- **Large Postcard (640 x 480 px)**

You can then determine the layout of the images in the message. You can either use a table layout, which allows multiple images in a row, or save a single image to a single row. Figure 12-49 shows an example of the **Options for Sending Pictures** dialog box used to save the selected pictures as previews within the message using the postcard image size and a table layout.

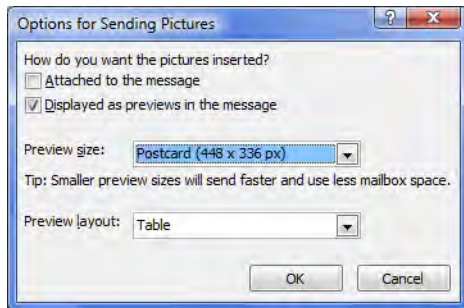


Figure 12-49. Select options for displaying an image in an Outlook message.

■ **Note** The table shows no borders by default. If you want to display borders between and around pictures, right-click between any of the pictures and select **Table Properties** from the pop-up menu. In the **Table Properties** dialog box, select **Borders and Shading**. In the **Borders and Shading** dialog box, click the **Borders** tab if necessary and then select the borders or individual lines you want.

When you send the pictures to a Word document, a PowerPoint presentation, or an Excel workbook, you can set only the image size. You can choose from the following sizes:

- **Original size**
- **Document—Large (1024 x 768 px)**
- **Document—Small (800 x 600 px)**
- **Web—Large (640 x 480 px)**
- **Web—Small (448 x 336 px)**
- **E-mail—Large (314 x 235 px)**
- **E-mail—Small (160 x 160 px)**

Do not think that you can only use the first three size options just because you want to send the pictures to a Word document. You can use any of these seven sizes when sending a picture to a Word document, PowerPoint presentation, or Excel workbook. SharePoint recommends various sizes for different purposes.

■ **Note** While selecting a size smaller than the original picture commands SharePoint to shrink a larger picture to the size indicated, it would not stretch a smaller picture to a larger size.

Viewing the Pictures in a Picture Library

You have several ways to view the pictures in your library. The first way, shown in Figure 12-50, shows the **Details View** of the pictures that you can display by selecting the **All Pictures** view. As with other menus, this symbol indicates that this item has a second flyout menu. As you position your mouse over this text, you should see a flyout menu with the options **Details**, **Thumbnails**, and **Filmstrip**. This **Details** view only shows the item type (a picture in this case), the picture name, the picture size in pixels, and the file size. These image properties tell you a lot about the picture, but they do not show you what the picture looks like. However, you can easily remedy that by clicking the view drop-down menu in the upper-right corner and selecting the **Modify This View** option. Among the available data columns, you will find these three columns: **Preview**, **Thumbnail**, and **Web Preview**. Each of these columns can display the picture. I suggest using the **Thumbnail** column for most list views because it requires the least amount of space, especially for libraries with larger images. There are also columns to track the date of the picture, keywords used by the search engine, versions, check-in status, and more.

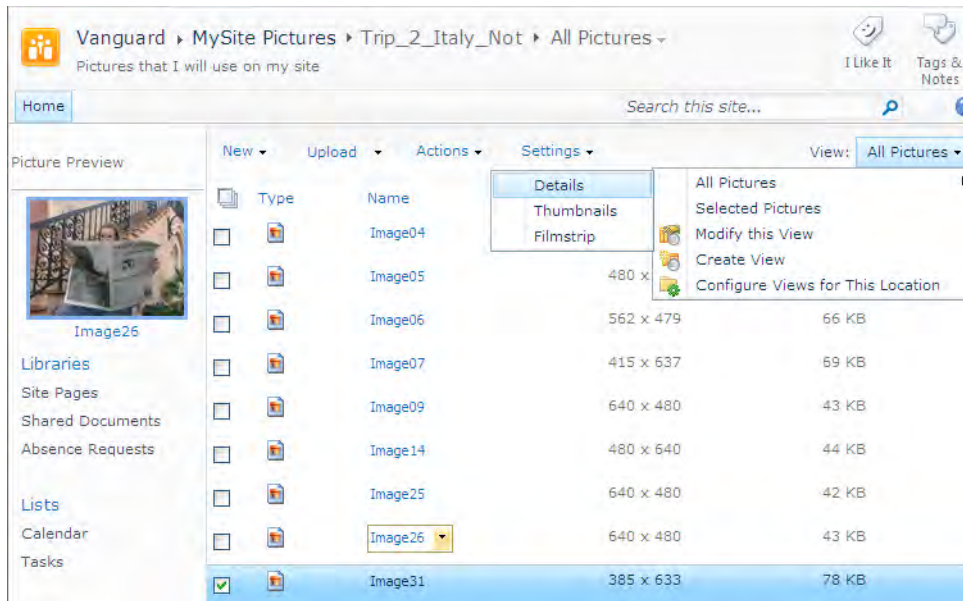


Figure 12-50. View picture library contents using Detail View.

■ **Note** If you attempt to edit an image, SharePoint tries to open a picture editor such as Microsoft Office Picture Manager.

To change the picture view, return to the **View** drop-down. This time select **Thumbnails** to see an image like the one shown in Figure 12-51.

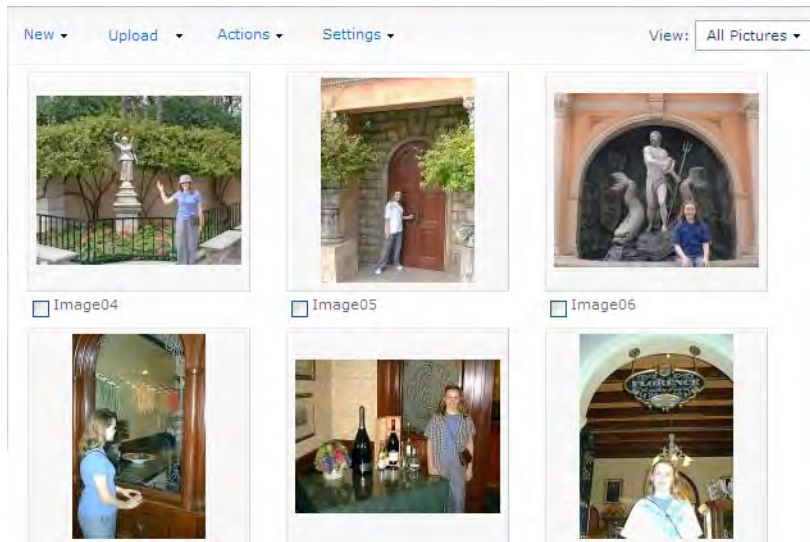


Figure 12-51. View picture library contents using the *Thumbnails View* option.

Notice the check boxes to the left of each item's name that appears below the thumbnail image. You must select one or more of the pictures by clicking these boxes to perform an action on the pictures such as **Delete**, **Download**, or **Send To**.

This figure shows thumbnails of each image in the library in a table-like structure spanning from left to right, top to bottom. If you resize your windows, the number of pictures in each row automatically adjusts based on the available space.

The third view option under **All Pictures**, **Filmstrip**, displays the pictures in a filmstrip mode. This mode displays up to five thumbnail-sized images across the top of the screen. Each of these thumbnails has a check box before the name just like the **Thumbnails View**, allowing you to select images from this view before opening the **Actions** menu to perform an action on them. It then displays one of the images in a larger format in the bottom half of the screen as shown in Figure 12-52. Below this larger image, you will see the image name and a description if you provided one when you uploaded the image.

■ **Note** No matter how wide you can make the window on your monitor, the filmstrip at the top can only display a maximum of five images. Then a vertical bar appears with a green arrow button on the left, the right, or both sides, indicating the presence of additional images. To bring those images into view, click the green arrow to scroll through the filmstrip.

The **Selected Pictures** option in the **View** menu supports the same three subviews as the **All Pictures** option, except that it only displays the images you have selected by clicking the check box before the image names.

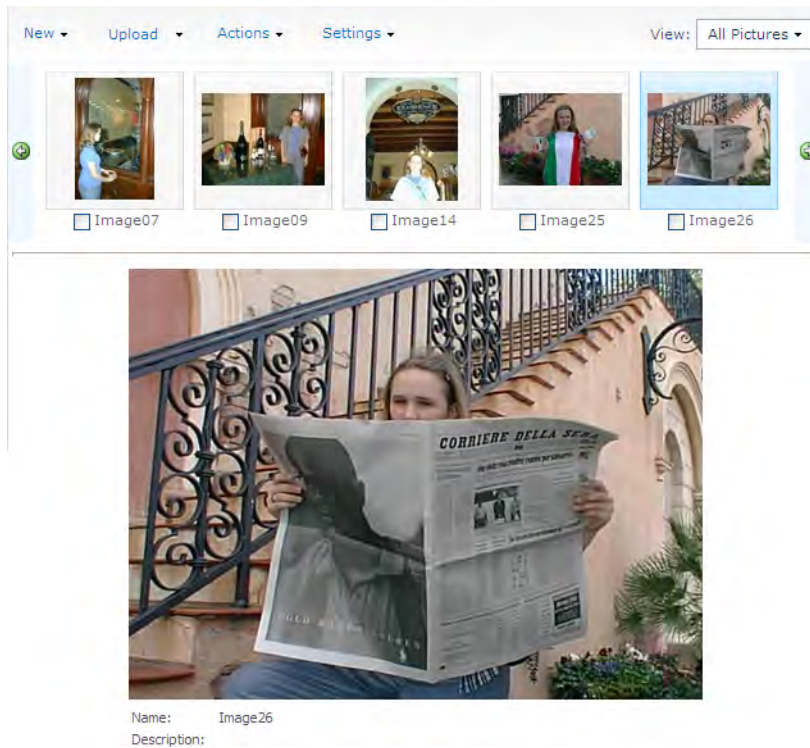


Figure 12-52. View picture library contents using Filmstrip View.

The **Explorer View** option, as shown in Figure 12-53, rounds out the list view options. Remember that you can get to the **Explorer View** by selecting **Open with Windows Explorer** from the **Actions** menu. This option shows the pictures using icons representing the file type. This view allows you to copy and paste images between this view and Windows Explorer.

■ **Caution** If you copy and paste pictures from Windows Explorer to your picture library using this method, remember that you may need to go back into each image to add the additional metadata that Windows libraries do not store or provide.

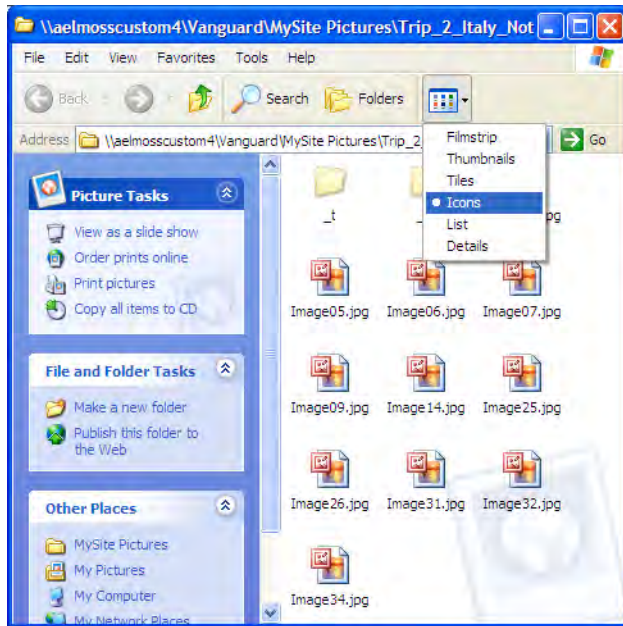


Figure 12-53. Use Explorer View to drag and drop images between folders.

When you click an image in the picture library, SharePoint displays it in a preview form that displays not only the picture, but also the supporting metadata for the image, as shown in Figure 12-54. From this view, click **Edit Item** to open the edit form for the picture. There you can change the picture's name, title, date taken, description, and keywords.

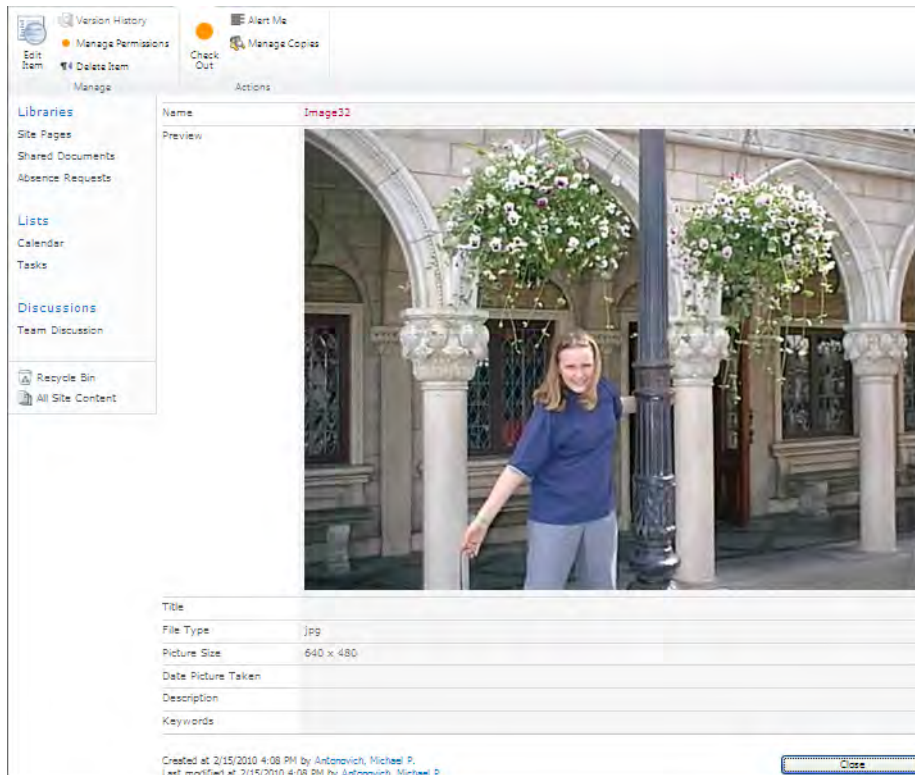


Figure 12-54. Edit preview window for an image

■ **Tip** Keywords can help your search engine find pictures, since basic searches only work on text and would otherwise have no way to identify pictures.

You can also delete the picture, modify the permissions for the picture, manage copies of the picture, check out the picture to exclusively edit it, and set alerts that can tell you when someone else edits or deletes this specific picture.

One last picture viewing option appears in the **Actions** menu of the library. Figure 12-55 shows an example of the picture library after selecting **View Slide Show** from the **Actions** menu.

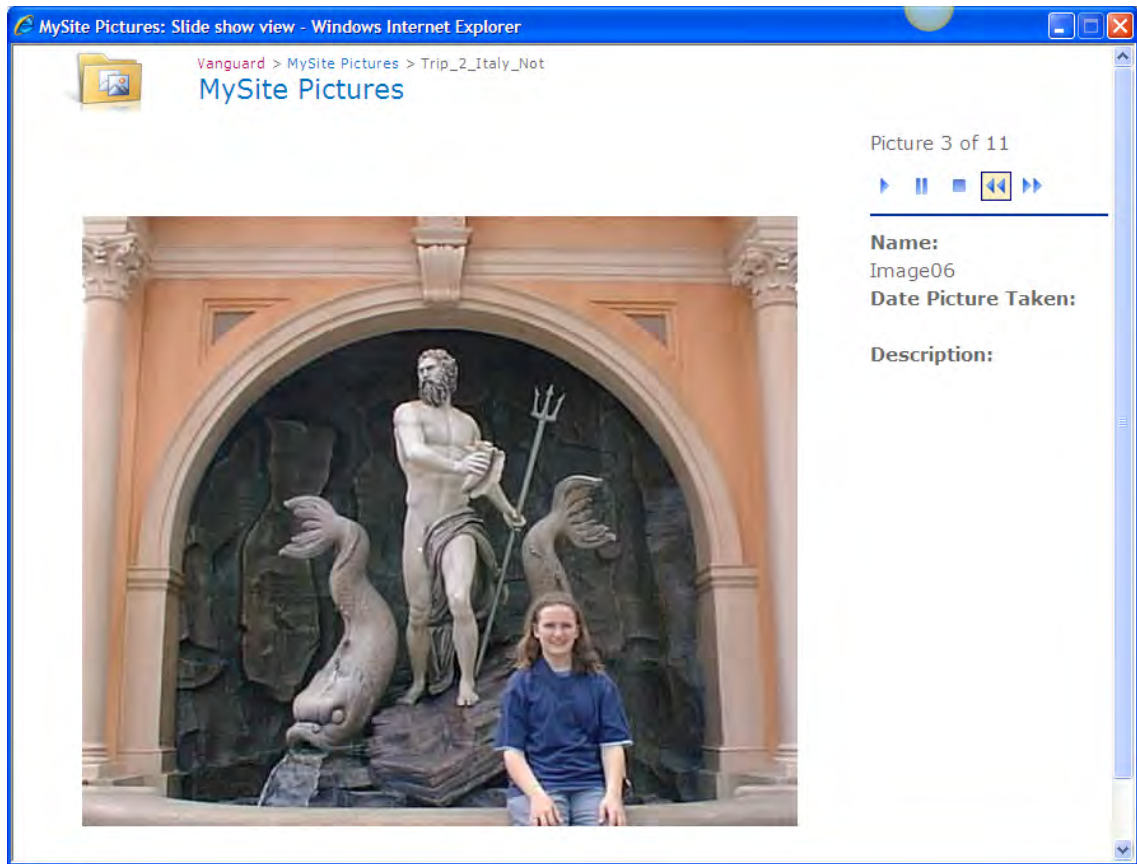


Figure 12-55. Display pictures in a slide show.

While picture libraries work great with static pictures, they do not work well with PowerPoint slides. Therefore, Microsoft adds a special library in SharePoint Enterprise specifically to handle PowerPoint slides. The next section explores that library.

Creating a Slide Library in SharePoint

This chapter closes by looking at the slide library. This library resembles the picture library in that it stores images. However, SharePoint has specifically customized it to store the individual slides from a PowerPoint slide presentation. You can use the slide library to store your slide presentations. However, a more powerful use of this library is to store common slides that your employees can subsequently use in their presentations. Perhaps the slides depict the history of your organization or its products. Maybe you have a set of slides with brief bios of your principal corporate officers. Some slides might represent technical data about your products or services. Whatever the slides may contain, you might want to store

the slides in a common shareable location so that others can easily include those slides while putting together a custom presentation or while making a presentation to a potential customer or client.

SharePoint adds slide libraries to the available library types in SharePoint. To create a slide library, begin by clicking the **View All Site Content** option in the **Site Actions** drop-down menu. Next, click the **Create** button near the top left of the page. Then, as shown in Figure 12-56, select **Slide Library** from the **Libraries** group of the **Create** page and then click the **Create** button.

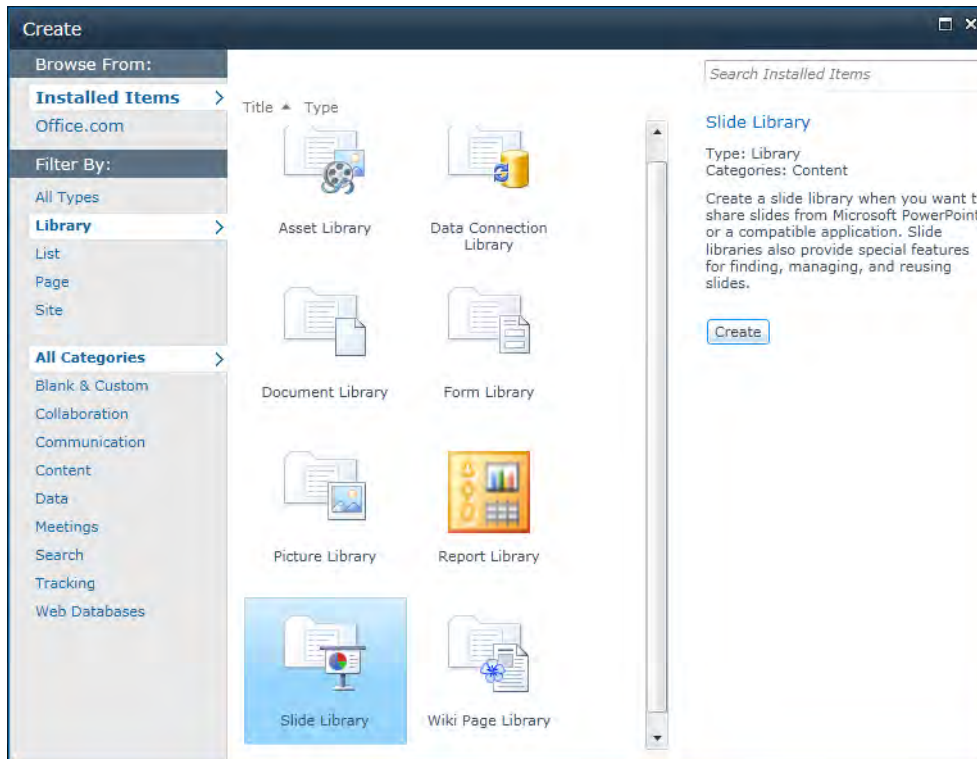


Figure 12-56. Create a slide library for PowerPoint slides.

The settings page for the new library then appears. You must specify a name for the library. If you also include a description, that description appears beneath the library name when you open the library.

As with other libraries, you can decide to include the library in the **Quick Launch** menu. If you want most users to access this library, you probably want to add it to the **Quick Launch** menu. However, even if you do not include it there, you can also get to the library by clicking the **View All Site Content** option in the **Quick Launch** menu and then looking for the library under the section **Document Libraries**.

■ **Note** I know you are probably saying to yourself that there should be a section titled **Slide Libraries**. At the very least, you might have expected to find the slide library under the picture libraries, which it closely resembles. For that reason, take special note that slide libraries fall into the **Document Libraries** grouping when viewing **All Site Content**.

Finally, you can choose to track versions to images added to this library. Unlike picture libraries, which often do not need versions, many people find tracking versions of slides important. If you need to track slide versions, select **Yes** under the **Slide Version History** section.

Figure 12-57 shows a library created to store slides from a recent SQL Saturday presentation. This library does appear in the **Quick Launch** menu but does not track versions of the slides.

<p>Name and Description</p> <p>Type a new name as you want it to appear in headings and links throughout the site. Type descriptive text that will help site visitors use this slide library.</p>	<p>Name:</p> <input type="text" value="SQL Saturday - XML Beginning"/> <p>Description:</p> <input type="text" value="This presentation was given in Tampa in January of 2010."/>
<p>Navigation</p> <p>Specify whether a link to this slide library appears in the Quick Launch.</p>	<p> Display this slide library on the Quick Launch?</p> <p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>
<p>Slide Version History</p> <p>Specify whether a version is created each time you edit a file in this slide library. Learn about versions.</p>	<p>Create a version each time you edit a file in this slide library?</p> <p><input type="radio"/> Yes <input checked="" type="radio"/> No</p>

Figure 12-57. Define metadata for a slide library.

After clicking the **Create** button, you will see your new empty slide library. Before you start uploading slides into your library, you might want to think about the structure that you want to create for your slides. Do you really want to store all your slides under a single folder or list? Would it make more sense to group some slides together, separating them from other slides? Of course, you could create separate slide libraries to store slides for different purposes. However, you can achieve the same results while making it easier to transfer slides between areas by using a folder structure for your slides, much as you create a folder structure to store files on your hard drive.

When you click the **New** option in the library menu bar, as shown in Figure 12-58, the only option that you will see, **New Folder**, allows you to create a new folder from your current location in the library. Starting from the library root, you can create a set of folders for different types of slides.

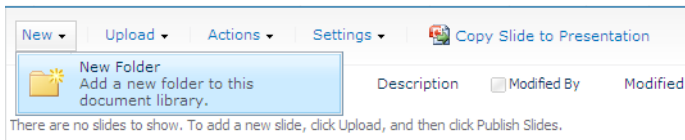


Figure 12-58. Organize your slides with folders.

When you select this option, SharePoint presents you with a very simple form to enter the name of the folder. Folders have no additional properties other than their names. In Figure 12-59, I show the **New Folder** dialog for a folder named `XML_For_DBAs_Beginner`.

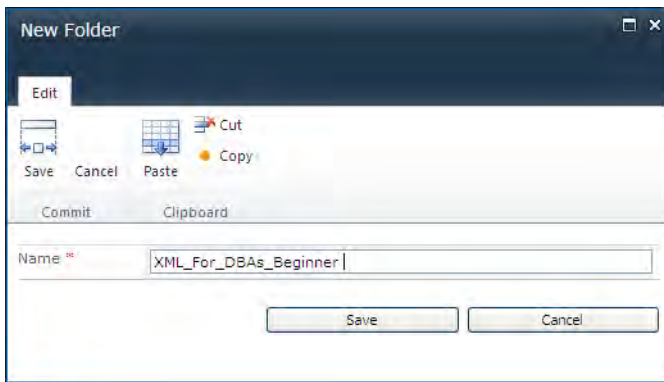


Figure 12-59. Folders must have names.

You can add other folders under the library root in a similar fashion. By double-clicking a folder, you can open it and add a subfolder within it.

Uploading Pictures to Your Slide Library from PowerPoint

While you do not have to complete your entire folder structure before beginning to add pictures to the folders, you should have at least a good idea of the initial folders you need. Once you have your folders, you have two ways to publish your slides from PowerPoint. You can start from your slide library and upload them, or you can start from PowerPoint and publish them.

■ **Caution** This section requires that you have Microsoft PowerPoint installed on your computer along with associated Active X control support for your browser.

Uploading Your Slides

The first way to load slides into your new slide library begins by selecting the option **Publish Slides** from the **Upload** menu. This option begins the process of copying slides from an existing PowerPoint presentation to the library, as shown in Figure 12-60.

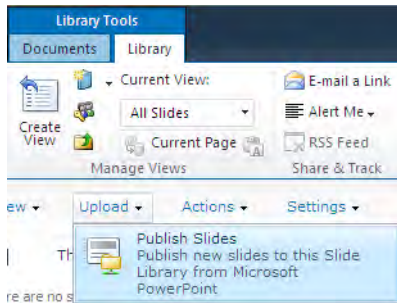


Figure 12-60. Upload your PowerPoint slides to your library.

When you start from SharePoint, it opens an instance of PowerPoint on the client machine and pops up the **Browse** dialog box to help you locate the PowerPoint presentation file and open it. After you select a presentation, the **Publish Slides** dialog box appears that displays all the slides in the presentation as a list consisting of a small thumbnail of each slide, the name of the file that contains the slide, and a short description of the slide.

■ **Note** SharePoint takes the slide description from the slide title area, which is another good reason for descriptive titles.

To the left of each thumbnail, a small check box allows you to select which slides you want to upload. If you want to upload all the slides, click the **Select All** button at the bottom of the window. If you decide to change your selection, you can either unselect the slides by clicking their check boxes again or simply click the **Clear All** button to restart. Once you have selected the images that you want to publish, you can verify the name of the slide library you will add them to by checking the contents of the **Publish To** box at the bottom of the dialog box. If you need to change this library, you can manually update this text or use the **Browse** button to navigate to a different location.

Finally, click the **Publish** button to transfer the PowerPoint slides to SharePoint. Figure 12-61 shows several slides being published to the **SQL_Saturday** library.

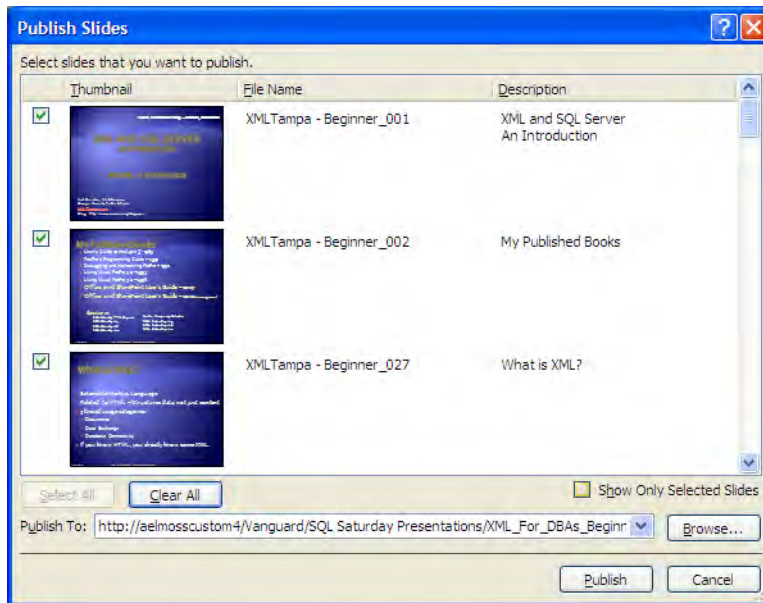


Figure 12-61. Select which slides you want to publish.

Publishing Your Slides from PowerPoint

The second way to transfer slides into your library begins from PowerPoint and publishes the slides to SharePoint. To do this, open your PowerPoint presentation and then, from the **Share** page of the **Backstage** area, click **Publish Slides**. The **Publish Slides** panel tells you that you are about to publish slides to a slide library to provide:

- A location where you can share your slides with other people to use
- Track and review changes to slides
- Locate the latest version of a slide
- Receive an e-mail notification via an alert when a slide changes

Figure 12-62 shows this panel.

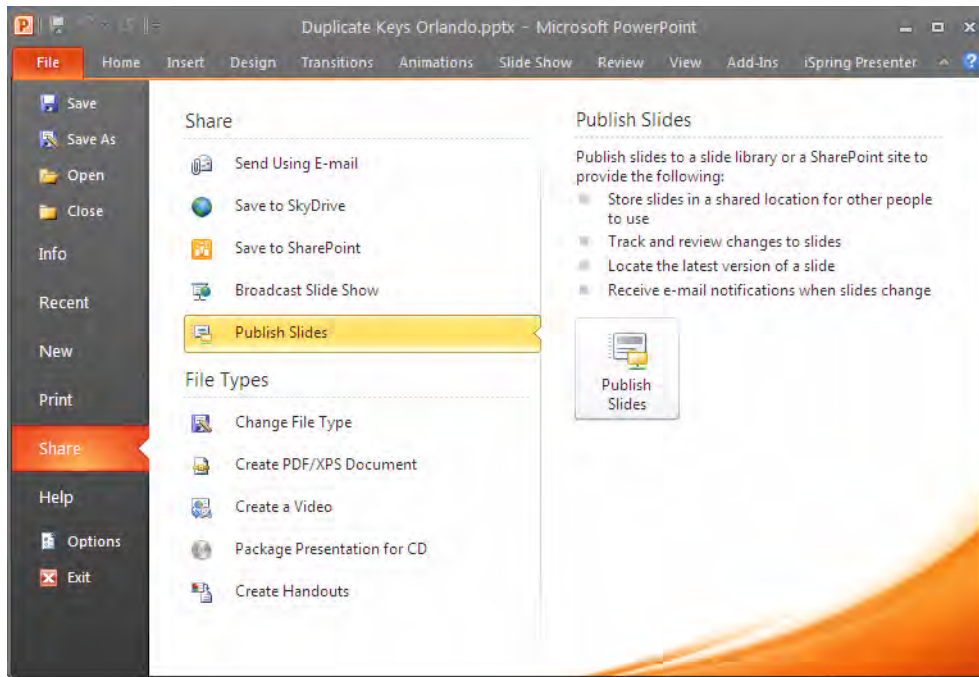


Figure 12-62. Publish slides directly from Publisher 2007.

PowerPoint then opens the same dialog box shown earlier in Figure 12-59 that displays all the slides in the current slide show. To select a slide, you must click the check box to the left of each slide to indicate which ones you want to publish. You do not have to publish all slides in the presentation deck, but you must select at least one before the **Publish** button at the bottom of the dialog box activates.

Before you can publish the slides, you must specify where you want to publish them. When you start from the slide library, SharePoint provides this information to you. However, starting from PowerPoint means that you must enter the URL of an existing SharePoint library in the **Publish To** text box. If you do not know the exact name of the library, you can enter just the root URL to the SharePoint site and then use the **Browse** button to drill down further into the site to locate the folder. However, the folder must already exist. The **Publish Slides** dialog box cannot create a new slide folder for you automatically. When you click **Publish**, PowerPoint transfers the slides from your local presentation deck to the specified SharePoint library.

■ **Caution** You must first create the folder in the SharePoint library where you want to publish your slides. Entering a URL to a folder that does not exist will not create that folder.

Viewing and Performing Actions on Your Slides

Once you have published the slides in the library, they appear in the library list, as shown in Figure 12-63. Like most lists, you can customize this list by opening the view drop-down menu and selecting the **Modify This View** option. However, the default view provides several useful pieces of metadata about the slides.

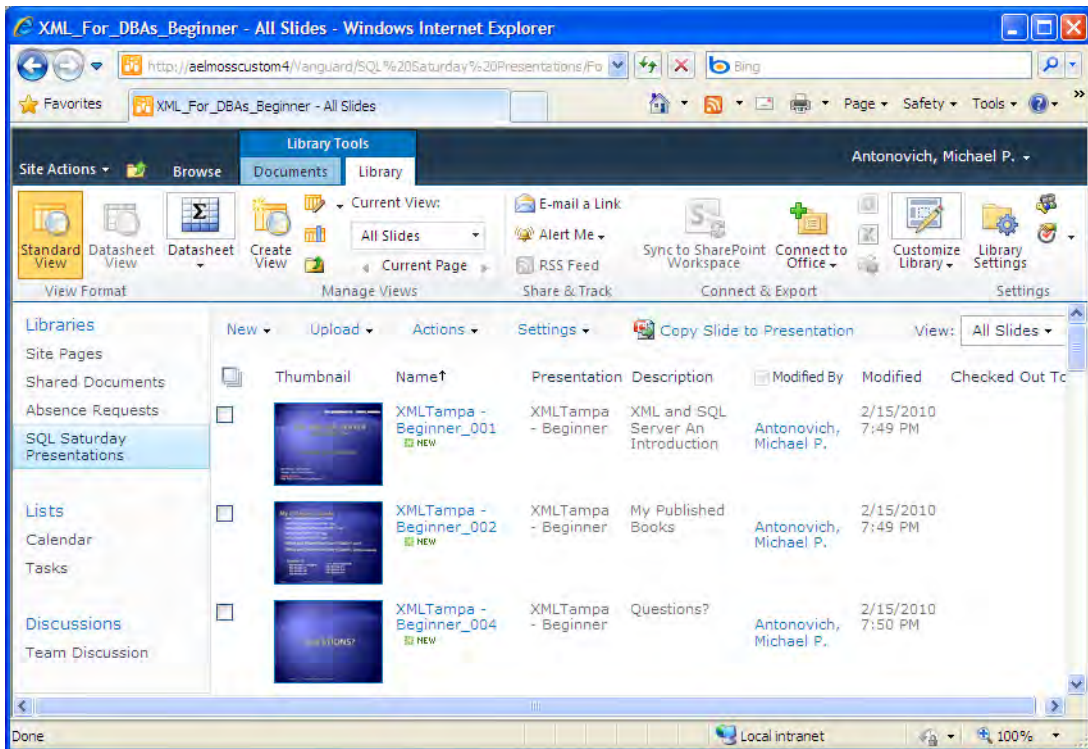


Figure 12-63. View your published slide library.

The list begins with a small thumbnail image of the slide. Following this column, you can find the slide name, taken from the title area of the slide. Immediately after this column, you can find the name of the presentation that contains the original slide along with a number that uniquely identifies the slide. The number is not the order of the slide in the presentation. Rather it is the order of the slide's creation. Also on this default view, you can see who last modified the slide, when she modified it, and the name of the person who has the slide checked out if applicable.

■ **Tip** Slide libraries also use content types. Therefore, you can create your own content type definition for slide libraries.

As with picture libraries, a check box precedes each slide, allowing you to select on which slides you want to perform specific actions. When you open the **Actions** menu, as shown in Figure 12-64, you will not find as many options as for the picture library.

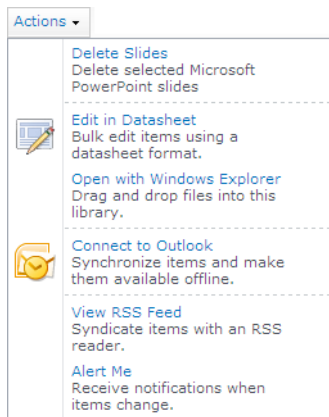


Figure 12-64. View available actions for slide libraries.

For example, you can delete slides from your library by selecting which slides you want to remove and then selecting the **Delete Slides** option from the **Actions** menu. Notice that the **Actions** menu does not provide options to edit slides, change their permissions, or work with them in any other way. I will come back to that in a moment.

The **Actions** menu does contain an option to change the view to a **Datasheet View** to allow you to make mass changes quickly to multiple properties in one or more of the pictures without having to edit the properties of each image individually. It also includes the **Windows Explorer** view. This view allows you to move slides easily between folders in your slide library. However, if you attempt to move them to a directory on your local disk drive, SharePoint will create a separate PowerPoint presentation file for each slide copied.

■ **Tip** To move an image from one library folder to another, click the image in the **Windows Explorer** view and press **Ctrl+C**. Then navigate to the destination folder and paste it there by pressing **Ctrl+V**. You can also use the **Windows Explorer** view to delete folders that you no longer want. Some people also find it easier to manage their folder/directory structure using the **Windows Explorer** view.

So if the **Actions** menu does not provide options to work with individual images in the library, how can you work with these images? Simply position your mouse over the name of the image you want to work with. An arrow for a drop-down menu appears to the right of the name. Click this arrow to display the item menu, as shown in Figure 12-65.

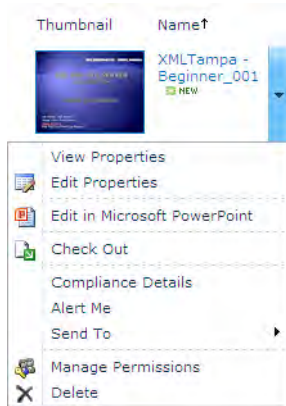


Figure 12-65. Edit an individual slide from the library.

From this menu, you can view and edit the item's properties, manage its permissions, edit it using Microsoft Office PowerPoint (this option requires you to have PowerPoint installed on your local machine), delete the item, download the slide, and send the slide to an e-mail address or other location. You can also check out the image just as you would check out a Word document before editing it, so that others cannot edit the slide while you have it checked out. Finally, there is an option that allows you to create an alert to receive an e-mail when someone changes or deletes this slide.

As useful as all these features may sound, the real power feature is still in the library menu bar. The **Copy Slide to Presentation** feature allows you to copy slides from your library to a new or existing PowerPoint presentation.

Copying Slides from Your Slide Library to PowerPoint Presentations

As mentioned at the beginning of this discussion on slide libraries, you may want to use slide libraries to store commonly reused slides so that anyone in your organization creating a new PowerPoint presentation can import the existing slide rather than create the slide from scratch. To do this, refer back to the library menu bar and the option **Copy Slide to Presentation**, as shown in Figure 12-66.



Figure 12-66. Select a slide to copy to a PowerPoint slide presentation.

Before selecting this option, select the slides you want to insert into the new or existing presentation by checking the box to the left of each desired slide. You could also first open the PowerPoint presentation into which you want to add the slide(s) from the library. When you click **Copy Slide to Presentation**, SharePoint opens the dialog box shown in Figure 12-67. In this dialog box, you can specify whether you want to add the selected slide(s) to a new presentation or an open presentation. If you want to copy the slides to an existing presentation, the drop-down box displays the names of all presentations you currently have open. While typically you will only have one presentation open, the one you want to add the slide into, you could have several presentations open and then add the slides to each of the presentations by repeating the process described here, selecting a different presentation from the drop-down list each time. This technique is always a good way to start a new presentation that uses several existing slides from one or more other presentations stored in the slide library.

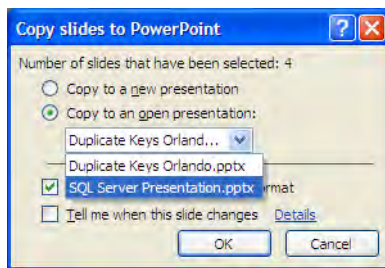


Figure 12-67. Define how to copy slides.

You can also decide to keep the source presentation format (hidden by the drop-down list in Figure 12-67). This option retains the formatting of the slide as seen in the slide library. However, because this formatting may differ from the formatting used in the presentation, you may want to deselect this option so that PowerPoint reformats the slide using the current master format scheme used by the presentation into which you are copying the slide.

The last option in this dialog box allows PowerPoint to retain a link to the slide library so that it can notify you when changes occur to the slide in the SharePoint slide library.

When you click **OK**, SharePoint copies the selected slides from the library to the end of the referenced presentation. At this point, you can use all the features of PowerPoint to manipulate the slide further and to reposition the copied slides within the presentation.

Figure 12-68 shows a single slide copied from the sample slide library `SQL_CASE_Statements` to the end of an existing presentation. After adding slides to a presentation, you can click the slide and drag it to a new position within the presentation.

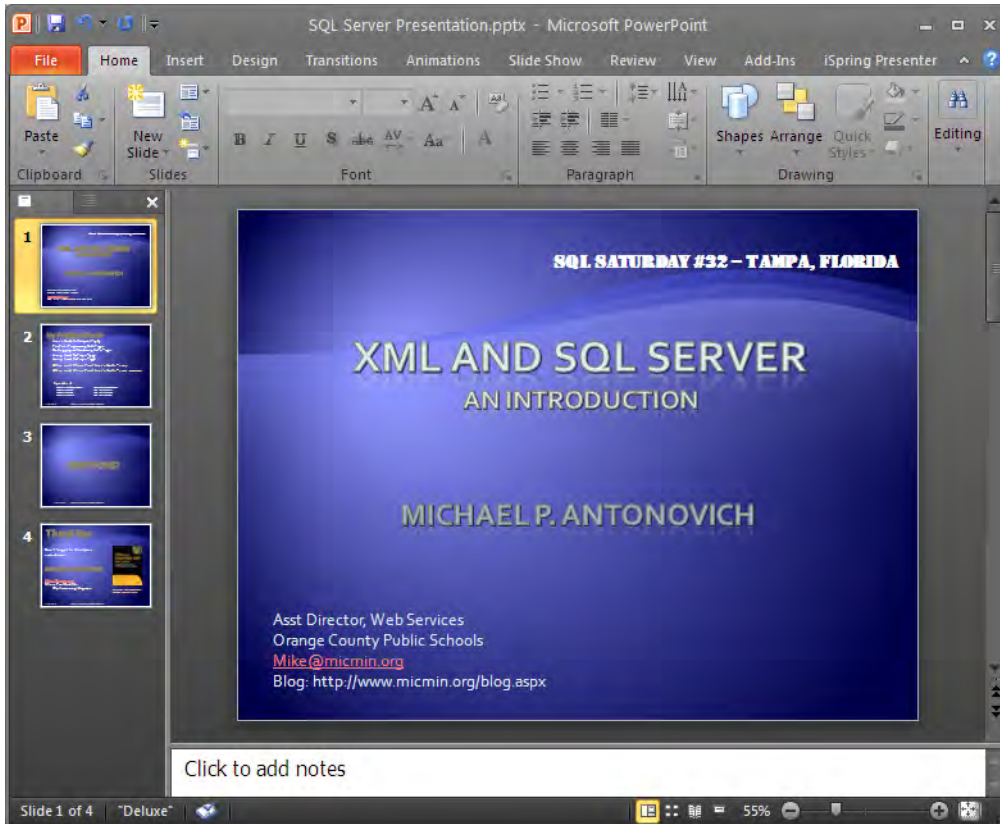


Figure 12-68. PowerPoint appends slides to the end of the show.

Summary

In this chapter, you examined three supporting SharePoint libraries. The first library, the Records Center, is the most complex library implementation presented in this book, although it starts from the basic document library. It requires coordination between at least two different sites, a working document site and an archival site, with libraries in each using content types, site columns, and configuration settings made through SharePoint's **Central Administration** site. However, it provides organizations with a powerful tool to archive documents to protect their most important information.

In learning how to build a records management system, you saw how to create reusable site columns. You also created a Word-based site content type and then made it the default content type for the library. To create the Records Center site, you needed to define an External Service Connection through the **Central Administration** site. You set up a policy on what to do with records after adding them to the Records Center, and you also saw how to create a record routing rule.

You then took a second look at the picture library, which you employed in earlier chapters as the source for images used on web pages. The chapter dived deeper into its ability to serve as a central warehouse for your organization's images, which you can share and view online through the built-in **Filmstrip View** modes. You also looked at the use of the Microsoft Office Picture Manager tool and how you can use it to add and edit pictures in the picture library. Finally, you saw how to export pictures to several Microsoft Office products, changing the picture type as well as some of its other characteristics.

However, the picture library does not solve all of your organization's image needs, especially if your organization uses Microsoft PowerPoint to create both internal and external presentations. The slide library adds features to the basic picture library specifically to support PowerPoint slides. You can use it to store and display slide presentations. However, its real power comes into play when you use it to share common slides with other people who can download them when building their own PowerPoint presentations.

Finally, that wraps up this book introducing you to how you can begin to integrate your use of Microsoft Office products with SharePoint. I know that there are many other topics we could have covered that time and space did not permit. Perhaps over time I will include them in my blog at <http://www.micmin.org/blog.aspx>. I hope you gained an appreciation for how to integrate the Microsoft Office tools that you already know with SharePoint. SharePoint collaboration will change the way you and the rest of your organization work. The ability to share and work with document libraries and lists from any location where you have Internet access lets you work anywhere, any time. This universal access to your information gives your organization the ability to decentralize the way your staff works, increasing their productivity while maintaining the integrity of the information they use. In the office, at home, or on a business trip, you are no longer far from your corporate data when you integrate your daily activities through SharePoint.

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