

SharePoint Server 2007 Survival Guide



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Table of Contents

Introduction

1. What is SharePoint Server?

Part I: Creating a Portal

2. The Building Blocks of an Application
3. Using Lists and Libraries
4. Workflow and process improvement
5. Web Parts
6. Personalization features
7. Searching and retrieving content

Part II: Content Management

8. Web content management
9. Records Management

Part III: Business Intelligence

10. What is business intelligence?
11. The Report Center
12. KPI list templates
13. Excel Services (Admin)
14. The Business Data Catalog

Part IV: SharePoint Server Customization

15. Using the SharePoint Designer
16. The Data View web part
17. Extending SharePoint Server
18. Solution scenario

Appendix A: Installing SharePoint

Appendix B: Out of the box components

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What you will find in this book

There are five parts in this book. Here, I will introduce you to the concepts that they cover and the reasons I believe you should know them.

Part I: Creating a Portal

Everything needs to start somewhere, and this book is no exception. You have already read most of the first chapter already. The second chapter is where it starts getting interesting. That is where we will cover the initial installation and configuration of the product. Much like other information we will cover, I could go into much greater detail than I did. Instead, I'll be focused on best practices and highlight several methods of avoiding some major issues.

In this section I will introduce all the basic functionality of SharePoint Server. I will cover what you should consider when designing your portal site content taxonomy, and its navigation. I will go over SharePoint lists and libraries and how you can use them, and cover web parts in all their glory and flexibility. I will cover SharePoint personalization, and its importance in your enterprise. I will also cover search and indexing, and the new workflow and process automation components built into the product.

Part II: Content Management

The name of this section may mislead you a bit. I'm sure that some of you are now asking yourself "Isn't everything we do in SharePoint Server content management?" Depending on which definition you use for content management you could be correct. But I take the perspective that the uploading, categorizing, and presenting content that you will have learned in the previous section in not all content management. In this section, I will cover what you do to make that content you have work for you. I will introduce the publishing capabilities of SharePoint Server. I will also go over how to use the records and policy management features to archive and manage your important documents and content.

Part Iii: Business Intelligence

Microsoft has made a huge amount of investment into the business intelligence features of SharePoint Server. Considering that every organization from the smallest company to the largest government agency benefits from accurate business intelligence, I'm not surprised. I will go over what business intelligence is, and how it relates to you enterprise portal. I will review the reporting and metric management capabilities of the platform, and introduce the new Excel Services component of SharePoint Server. I will also cover how to get at the data you need for your reporting from within SharePoint Server using the business data catalog.

Part IV: Customization

SharePoint Server 2007 is built on ASP.NET 2.0, and is very customizable. In this part, I will go over the major methods of customization, and when you should use each. I will review modifying the layout and behavior of your sites using templates, site definitions, and master pages. I will cover the new content types functionality in the platform, and how you can greatly extend the features your portal provides with them. I will also introduce you to the SharePoint Designer, which is the new version of FrontPage specifically designed to customize SharePoint 2007 sites and pages. I will then cover the Data View web part that you can create using the SharePoint designer, and the many different features of that component.

Part V: Solution Scenarios

This section is dedicated to helping you get started with your implementation of this technology. These are 5 basic solutions that I have encountered again and again across verticals and markets. Each one has

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a description of the common requirements and a step by step on how to implement a basic solution for it using SharePoint Server 2007.

Who are you?

Not all of you will find interest or need in all the chapters in this book. It is intended to be compressive enough to get you through your first phase completion milestone. So, this book contains value for 3 different high level groups of people.

- Information Worker: Every single user of SharePoint Server 2007 is an information worker. Everyone has documents and content to work on, tasks to complete, appointments to track, and contacts to store and information to share. Most of the book, especially Part II, focuses on concepts that every user should know or at least be familiar with.
- Administrator: This person could be several things. Chapter 2 covers topics that would interest a server administrator or consultant. Most of the administrative topics in this book are intended for a different administrator though, the SharePoint Administrator. This person does not need to be as technical, and can be a non-technician altogether. His/her responsibilities would include managing sites and their quotas, security, and configurations.
- Developer: The developer topics that we are covering do not require a programmer for the most part. While those skills would accelerate understanding, you don't need to be technical to develop a data view web part in the SharePoint Designer, or modify a master page for layout changes. This person will have to be familiar with HTML, CSS, and XML at a minimum though.

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1

What is SharePoint?

Microsoft Office SharePoint Server 2007 is a product installed on one or more servers that provides the basis for a series of solutions. These solutions, if correctly designed and implemented, help information workers to meet business requirements. Office SharePoint Server 2007 combine several technologies and features that have so far only been offered as separate products in one highly scalable, highly available offering. This combination of technologies has proven very successful, and SharePoint Server 2007 has become one of the most popular offerings in the knowledge support and collaboration markets.

We can summarize the mission of the SharePoint Server 2007 as this: SharePoint technologies are intended to organize the content in your environment and then present that content so it is relevant, and allows users to interact with the content in a dynamic and collaborative manner. It is not designed to meet a specific business objective, but to provide a platform of functionality that users request for many different business reasons. For this reason, throughout this book we will refer to SharePoint Products and Technologies as a platform rather than a product.

Now, as with all mission statements, this one is very general. To meet this mission, Microsoft divided it into six high-level requirement categories, as displayed in figure 1.1.

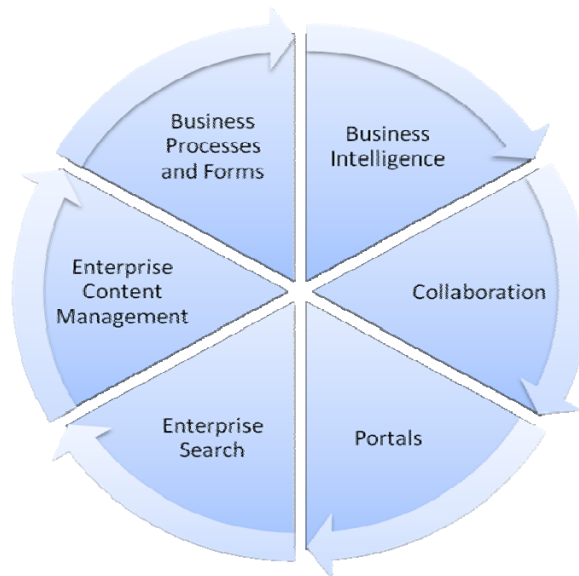


Figure 1.1: The six categories of functionality that are needed in organizations today.

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These different requirement categories map to the different types of knowledge solutions encountered in the market today. Most products on the market provide solutions in only one or two of these categories. However, as any systems integrator could tell you, businesses are constantly trying to tie these solutions together because they are all related. You cannot compartmentalize the intellectual activities of the information worker and therefore any solutions should allow the information worker to work freely between these categories. A solution should allow you as the information worker to assemble your content in the Content Management section, use the Collaboration tools to work on it as a group. You send it for approval using Business Processes, and present it along with all your other data within a Portal. Reports are then generated with Business Intelligence tools. It's then archived with Content Management, retrievable via the Search tools. All of these categories that were different products are required to work together to provide any significant value to you and your organization. SharePoint Server 2007 provides the true "one stop shop" for your line of business content.

In this book, we will cover each of these requirement categories, and show you – the information worker - how SharePoint Server 2007 can provide all of these solutions. We expect you have had some exposure to SharePoint Server; however, the full power of SharePoint is still a mystery to you. You may be a business analyst or a project manager trying to understand how to use SharePoint Server to meet the needs of your organization. Your users, when SharePoint Server was first installed, have created many sites, but now these sites are lying dormant and you believe if you could understand the functionality of SharePoint Server in greater depth, you could encourage them to use SharePoint Server as part of their day-to-day activities.

Before we move on, we'll be referencing several previous and current technologies throughout this book. Officially, Microsoft does not support or provide acronyms for their new SharePoint products, but the communities still reference them in this manner. Table 1.1 contains the names of the products and the acronyms that are commonly used to refer to them.

Table 1.1 Names and Acronyms encountered in this book and in the SharePoint community.

Name	Acronym	Description
Windows SharePoint Services 2.0	WSS 2.0	This was the second version of the base services framework that provided the basic functionality for SharePoint applications.
Microsoft SharePoint Portal Server 2003	SPS 2003	The second version of SharePoint Portal Server, it was built on WSS 2.0.
Windows SharePoint Services 3.0	WSS 3.0	The third version of the base services framework for SharePoint, providing the platform for SharePoint applications with many new features and improvements over the previous version.
Microsoft Office SharePoint Server 2007	MOSS 2007	This is the third version of what used to be called SharePoint Portal Server and Content Management Server. Because it now provides far more than just a portal framework, it has been renamed in this release. It is built on WSS 3.0.
Microsoft Office SharePoint Designer 2007	SPD	This is the primary editing and design tool for WSS 3.0 and SharePoint Server. It is an evolution of FrontPage that has been retooled to be used specifically with SharePoint applications.

You may have come across other acronyms and nicknames for these products listed in Table 1.1. We still get questions like "Why is my SharePoint broken?" or hear statements like "Can you create a SharePoint for me?" The only advice we can give you is to qualify fully the technology before answering or asking a question. We know several SharePoint MVP's and Microsoft Product Support representatives that will thank you for doing this.

SharePoint Server is the culmination of a great deal of effort from many people with false starts, huge leaps, and an evolving sense of what organizations *really* need contributing to its development. We firmly believe that to

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know where you are going, you must know where you have been. With that in mind, we'll now introduce you to the tumultuous history of the SharePoint platform.

"Set the Time Machine for 1999 Peabody...."

1.1 Stumbling into success: a bit of history

In 1999, the term "Web portal" had become a buzz word in the software market. The idea of a landing page for the internet, a single place that users would go, to access Web content, was turning out to be a good one. Several large companies and many small startups vied for the attention of the internet masses. Yahoo, Netscape's Netcenter, and Go.com were examples, embedding their Web portals into partner offerings such as browsers, operating systems, and Internet Service Providers (ISPs). There was also a movement at this time away from static HTML pages, to those pages whose content is dynamically created by the server. Such examples are the changing of content based on the language settings of the browser or dependant on a user's zip code. These dynamic pages also made use of reusable content as needed.

After the dot-com bubble burst, most of these Web portals failed or were sold off to competitors. Just as the public versions of these solutions were going under, organizations began to request the same type of experience for their internal information. Information management became "knowledge management", seemingly in an attempt to define a more abstract view of usable information in an organization. Large Web development and administration departments were created because sites were getting more and more complex with users demanding more integration, interaction, and customization. In addition, the amount of information that was being uploaded on the Web was rapidly exceeding the current interfaces for collaboration and management. Web sites were being inundated with content, and users were getting lost inside portal solutions that were written and designed by engineers that did not understand how the content should be structured or how it was to be used.

Even as this set of problems became defined, there were few products on the market that met these needs. The most common solution was to contract developer consultants and hire Webmasters to provide and maintain a system to meet these demands. Not surprisingly, the vast majority of these Web implementations did not meet the customer's requirements, and those that did were extremely expensive and time consuming.

1.2.1 The initial technologies

To address the turn of the century ideas of knowledge management, Microsoft released three products in 2001 intended to provide software product solutions for collaboration and content management. These were SharePoint Portal Server 2001 (SPS), SharePoint Team Services (SPTS), and Content Management Server 2001 (CMS). The idea behind them was to tie together several products that provided basic collaboration and content presentation into one suite of tools.

This was the intent, but there were some remaining issues for the customers. Each of these products was a standalone implementation. A separate product team at Microsoft produced each of them, so each was implemented differently and there was significant redundancy in features across them. Each product was purchased separately and licensed differently. These issues generated a large amount of confusion regarding the product, which in turn, lowered customer confidence in the products themselves. The following describes the products in detail, laying the groundwork for their evolution into SharePoint Server.

SHAREPOINT PORTAL SERVER 2001

SharePoint Portal Server was a blending Site Server, Digital Dashboards, and the Office Web Components using the Exchange 2000 Web Storage System (also known as WSS) as the storage repository. Each of these products was integrated into SPS 2001 for different reasons. Site Server provided Web page provisioning and search features, Outlook Dashboards provided a framework for Web components called "Web Parts" and a dynamic page to display them, the Office Web Components provided content presentation with custom views and the Exchange Web Storage System, a Web-accessible database, that can store any type of data without the strict structural requirements of a typical relational database. Microsoft was betting that this consolidated system of features would meet the increasing need for an intranet portal solution. They included a document profiling and content metadata capability that, while somewhat limited, made a large impact as well. In addition, SPS was integration with Microsoft Office XP client applications. This produced a wide amount of interest.

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SHAREPOINT TEAM SERVICES

SharePoint Team Services was a different animal altogether from SPS 2001, even though they shared the same name - SharePoint. SPTS was based on FrontPage Server extensions and focused solely on the quick provisioning of team-based Web sites for collaboration and content storage. One of the most interesting features of SPTS was that it stored some of its content in a SQL Server database. Documents were still stored on the file system of the Web server, but the metadata that described the documents was stored in the SQL database. Even so, this provided improved scalability and stability over traditional file system storage or the proprietary SPS 2001 Exchange 2000 Web Storage System. SPTS also focused on integration with the Microsoft Office XP client applications. On top of that, they gave it away for free to anyone who licensed Office XP with FrontPage, in fact, it was shipped on the CD-ROM. A little known fact.

CONTENT MANAGEMENT SERVER

CMS was a product that Microsoft acquired with the purchase of NCompass Labs in 2001. Their flagship product was known at the time as NCompass Resolution. Written in and based on the new .NET framework, it was re-branded and published as Content Management Server 2001. It provided page templates, content publishing and insertion. Within one year, CMS 2002 was released to increase its .NET and SharePoint integration.

These initial products were designed to address the needs of the early twenty first century knowledge management needs, but they were incomplete, and in many ways experimental in nature.

1.2.2 The success of SharePoint

Microsoft seemed surprised and pleased with the successes of SPTS, SPS and CMS, which is how we explain Microsoft's huge level of resource investment into the future versions of the technologies. Microsoft had the feeling that they had hit it big by accident, and began to invest much more heavily into these products. In many ways, they stumbled into SharePoint.

Even though SPS and SPTS could not address all of the requirements and organizations still needed experts to get SPS and SPTS implemented and operational, they still sold. The lack of a fully functional enterprise content management product for many organizations was so apparent that even a 50% solution was better than none.

REFERENCE

By the October 29th 2002, SharePoint Portal Server had sold more than 10 million seat licenses in 17 months. Many users of Office XP were using SharePoint Team Services at this time as well, as it was free.

Even with the features of these products, there were problems. Let's look at those next.

THE ROAD TO AN ENTERPRISE CAPABLE PRODUCT

Solutions to meet most of the requirement categories had an integration of SPS, SPTS, and CMS and this proved problematic at best. While CMS was built on .NET, the other two products were not and while SPTS and CMS used site templates and definitions, SPS did not. In addition, SPS did not scale easily so there was a severe limit on how large a rollout of SPS you could have, and how much content it could manage. Microsoft was inundated by requests from SharePoint customers during the two years from 2001 to 2003.

At this time the uptake of .NET framework was continuing, and it was decided almost immediately after the 2001 release that Microsoft would develop the next version of the SharePoint products on this framework, which would greatly improve the integration and extensibility of the product.

REBUILDING ON .NET

At the time, Microsoft was working on a whole new version of the Office products, and so they decided to version the SharePoint Products with Office. In fact, SPS 2003 was developed by the Office product team. WSS 2.0, the next version of SPTS, was developed by a joint Office and Windows Server team.

The problem was that in order to accomplish these objectives they would have to rewrite the entire platform. So that's exactly what they did. Starting with SPTS they only used some of the existing code base and built WSS 2.0 on .NET Framework 1.1 as part of the Windows Server 2003 operating system.

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As they were working on the WSS 2.0 platform, it was decided that SPS 2003 would be constructed using WSS 2.0 as its code base. This was an excellent idea as the two products would integrate together nicely, and the SPS 2003 team could focus on extending the feature set instead of recreating functionality. In addition, one of the highest priorities for SPS 2003 was to address its scalability, stability, and recovery. A massive amount of work went into building an administrative harness around the SPS 2003 components, and as a result the product was able to scale to vast sizes. The products were released in 2003 with the new version of Microsoft Office (Office 2003).

There were a few problems though. WSS 2.0 and SPS 2003 both had the same release timeframe, which corresponded with the Office 2003 release. This meant that while SPS 2003 was being built on top of WSS 2.0, WSS 2.0 itself was still in development. Features from WSS 2.0 weren't always completed by the time SPS 2003 needed to have them. As a result, there were several features that were in WSS 2.0 that were not available in SPS 2003.

DELIVERING A FOUNDATION FOR THE FUTURE

By this time, it was apparent to Microsoft that they were truly developing a whole new product. They had to rebuild it from the ground up, so the focus was on getting the baseline framework operational. That meant there were less features in SPS 2003 than intended, and even features that they weren't able to reproduce from SPS 2001 such as a workflow solution.

None of these issues made a difference. When the products released, there was unprecedented growth in SharePoint sales with almost every current customer of SPS 2001 upgrading within the first year. We attribute this to three reasons.

SPS 2003 could scale. It could *scale*. It was so scalable that Microsoft themselves were able to replace their whole intranet with SPS 2003 and WSS 2.0.

REFERENCE

Microsoft internal SharePoint architecture serves over 50,000 employees, 5,000 contractors, and 17,000 vendors from 4 farms in Redmond, Dublin (Ireland), and Chofu (Japan). For more information on Microsoft's implementation of SharePoint Products and Technologies, see:
<http://www.microsoft.com/technet/itshowcase/content/spswhwtp.mspx>

WSS 2.0 and SPS 2003 are built on .NET Framework 1.1, and have most of their internals exposed through a .NET application programming interface (API). This means that not only could customers customize their own implementations, but Microsoft channel partners, also known as independent software vendors (ISVs), could develop products and solutions on the SharePoint platform much more easily. This is so important because if the ISVs and service partners can modify the platform, then the features that Microsoft could not finish in this release could be developed as third party solutions, which allowed the SharePoint products to gain a wider acceptance than any previous version.

SPS 2003 could be personalized for a user. A member of the portal can have their own site, an extension of their desktop in the intranet Web environment. They could personalize their views and subscriptions to content. People like to control of their work, and this provided it to them.

1.2.3 Work begins on the next version

With the successful release of WSS 2.0 and SPS 2003, Microsoft went back into the product cycle for the next version. They addressed a couple of items right away that we believe they learned from the previous version. The first lesson was to consolidate teams that were producing similar products. So, the WSS team was integrated into the Office Product team completely. In addition, the Content Management Server team that had been working on a new version was integrated as well.

NOTE

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During the 2003 product lifecycle, there was a lot of market confusion regarding the differences between CMS 2002, WSS 2.0, and SPS 2003. Their features both complemented each other, and overlapped as well. It was therefore, no surprise to the community when Microsoft announced the integration of the two teams and technologies.

The second lesson was to ensure that the code base for the products was completed before building on it. This was no longer an issue though, for several reasons. Now, they had a solid, reusable code base to upgrade and extend. In addition, it was built on .NET Framework, which made the process much easier. The third lesson learnt by Microsoft was that the ASP.NET product team had taken note of SharePoint. The next version of ASP.NET had many of the SharePoint framework features built into it.

NOTE

The ASP.NET team has denied several times that they used the concepts of SharePoint in the newest version of their product. Considering that they didn't come up with the specification for the new version until WSS 2.0 was in production, and the similarities between WSS 2.0 and ASP.NET 2.0, most of the SharePoint community believes the opposite. Of course, both groups are extremely pleased about how it turned out, so it's only a matter of pride.

The lifecycle and development history of the SharePoint products is presented in figure 1.2. There are several other products and platforms that have contributed to the development of SharePoint Server, but these are the one that define the primary platform.

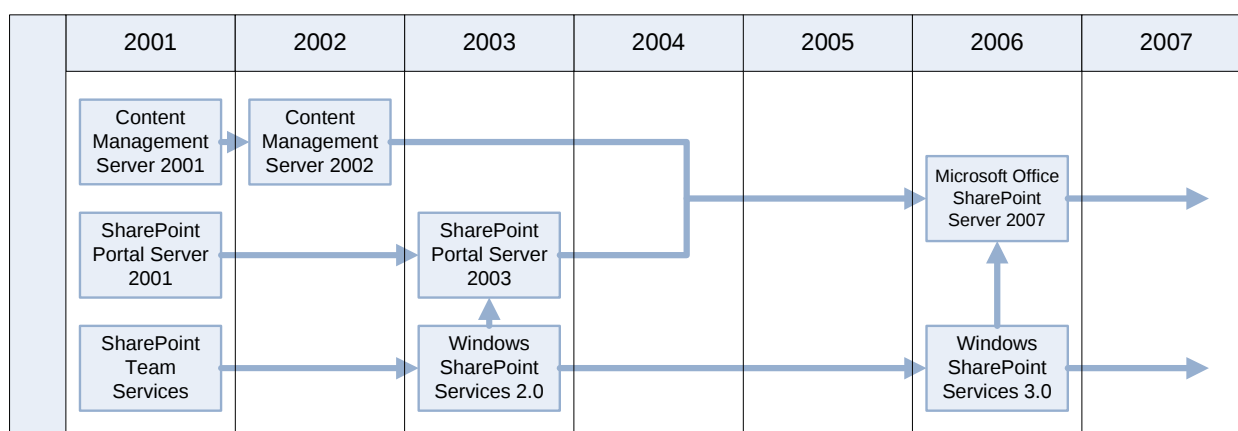


Figure 1.2: Timeline of the major products, and their relationships. Note how WSS 2.0 and WSS 3.0 are used as baseline products.

What this all means is that for the last 4 years, the SharePoint Products and Technologies product team has had to do almost nothing but develop features. In doing so, they have produced a product that is the closest to a comprehensive enterprise knowledge management solution as we've seen. As you go through this book and learn about this product, you will begin to understand how amazingly broad and flexible the platform is.

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1.3 A whirlwind tour of SharePoint

As we have previously mentioned, SharePoint Server is very much an aggregate of several technologies that up until this point had been separate products. Now, we will introduce you to each of these major capabilities in SharePoint Server, so that you can see how Microsoft has addressed each of them with this platform.

1.3.1 Portals in SharePoint

We covered some of what a portal is in the previous sections, so you should have a somewhat clearer understanding of what we mean when we say *portal*. With that in mind, SharePoint Server uses structures called *Web Applications* and *Site Collections* and *Sites* to create locations to aggregate content and applications into a concise interface, which is what we will call a *portal*. These structures and the concepts concerning their use and implementation will be covered in detail in Chapter 2.

The interface for a Collaboration portal that is provided out-of-the-box is displayed in figure 1.3.



Figure 1.3: The basic out-of-the-box interface of a new SharePoint Server Collaboration portal.

This site template is designed as a basis for content aggregation and application integration. It's a springboard to get you started as quickly as possible. A few things to note:

Notice how the navigation elements at the top of the page allow you to separate different content and applications by category or function. There are three types of navigation that will be available on every single SharePoint Server site page by default:

1. The top horizontal tabs to navigate across the top level sites or pages of your portals.
2. The left vertical navigation bar, sometimes known as the Quick Launch bar that allows you to drill into the content of the current site, and to its sub-sites.
3. The Search box in the upper right-hand corner.

If the default layout doesn't meet your needs, the entire interface and the whole site structure can be customized. The pages themselves use the *Web Part Framework* to allow users to add or remove content and application components to a page. *SharePoint Designer 2007* allows the site owner to modify the "look and feel" of the site. The *Web Part Framework* will be covered in Chapter 5, and *SharePoint Designer 2007* will be covered in Chapter 14.

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1.3.2 Collaboration

SharePoint technologies have become well known for their collaboration capabilities. SharePoint Server provides what we call *asynchronous collaboration* features. This is because the system is Web-based, and is not a real-time communication mechanism. Therefore, discussion forums, shared content, and subscriptions are fundamental to SharePoint collaboration. An example of a collaboration site, also known as a team site is pictured in figure 1.4.

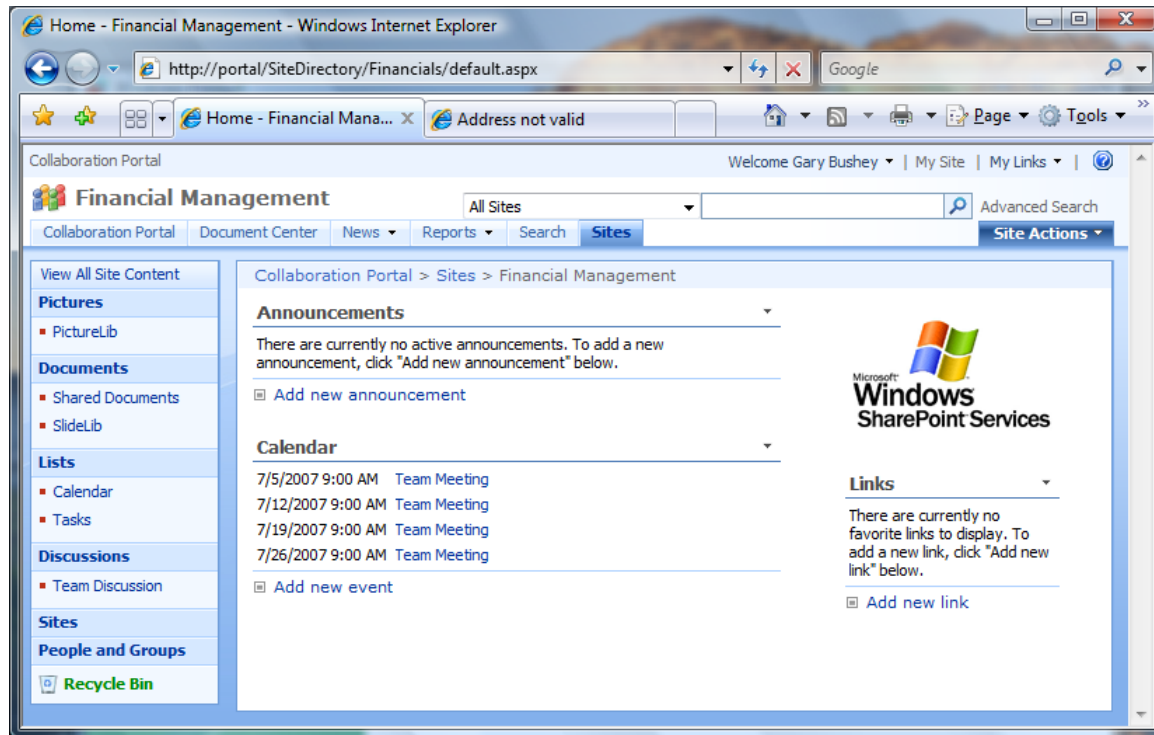


Figure 1.4: A SharePoint Team Site, used for team-based collaboration and content development.

Sites, such as the one pictured in figure 1.4, are the basis for SharePoint collaboration. The stage of work that most organizations need collaboration is at the content development stage. These sites allow the people responsible for developing content to manage the process and store the content in one location. These are the sites you create if you only have WSS installed. We will not be spending much time on the functionality of WSS, but since SharePoint Server is built on WSS, we will detail just enough for you to understand the SharePoint Server functionality. If you would like more information on WSS then we recommend the Microsoft Press book, *Windows SharePoint Services 3.0 Step-by-Step*.

Another powerful collaboration tool that SharePoint Server provides is the My Site. This is a personal site that is created for each user as they are given access to the portal. A sample My Site is displayed in figure 1.5.

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Figure 1-5: A new personal site for a user with the basic profile and blogging features available.

Each portal member can use their personal site to collaborate with colleagues, access their e-mail and calendar, update their profile information, and manage their alerts and the sites in which they participate. A few additional things to note:

Each My Site gives the user the ability to create a blog. Blogging in your organization can turn into a powerful collaborative method. A common use for blogs is for project teams to log their progress, though we've also seen them used as personal status updates for tasks and such.

The colleague tracker is a powerful tool that not only allows you to list your colleagues, but suggests more based on your skills, projects you are part of, and other personal information.

Your profile is a detailed description of you, your abilities, and your contact information. Once your users update their profiles, you will have the ability to search for subject-matter-experts, members of particular projects, and other categorized information. In addition, by specifying your subordinates and superiors it generates a local snapshot of your organizational chart and your place in it.

The My Site features are a powerful collaborative tool, though many organizations don't yet understand the value they provide. The first generation Knowledge Management model (1995-2005) concentrated on users contributing to large central repositories, which often failed due to many factors, including the over reliance on voluntary user contributions, together with the expectation that users could reliably and consistently use a multitude of metadata properties to classify content into a ridged taxonomy. The second-generation knowledge management model now concentrates on supporting the knowledge worker, enabling them to find, contact and communicate with each other, tapping into the wisdom of the crowd and working with people's behaviors, rather than trying to change them. The My Site is just one resource within SharePoint Server that helps with this new

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model of knowledge management. It is an extension of a user's desktop into a virtual environment that is available wherever they can hit the portal with a browser, and they are just as critical as a user's desktop in our opinion. SharePoint Server should be seen as a Knowledge Support System, where people are the center of the system. Chapter 6 covers the personalization features within SharePoint Server

REFERENCE

For further discussion along these lines see:

Knowledge Sharing & Collaboration 2015: <http://blogs.salon.com/0002007/2005/09/29.html>

The knowledge: Euan Semple: <http://tinyurl.com/c8879>

Joining Dots: <http://www.joiningdots.net/blog/>;

1.3.3 Enterprise Content Management

Some of the most powerful features of SharePoint Server are in the area of Enterprise Content Management (ECM). CMS 2002 and its primary features have been incorporated into the SharePoint Server platform as we described previously. That is, SharePoint Server can now manage Web content destined primarily for internet Web sites or Web sites that need a structured mechanism for adding content that may need a workflow process. This is known as Web Content Management (WCM).

In addition, Microsoft has provided new capabilities in document and record management, and policy management. When you tie this up with the new workflow platform, it shows that SharePoint Server is now capable of true enterprise wide content management.

Figure 1.6 shows some of the document management features that are now available.

Collaboration Portal | Document Center | News | Reports | Search | Sites | Site Actions

Collaboration Portal > Document Center > Documents > Settings > Versioning Settings

Document Library Versioning Settings: Documents

Content Approval
Specify whether new items or changes to existing items should remain in a draft state until they have been approved. [Learn about requiring approval.](#)

Require content approval for submitted items?
☐ Yes ☒ No

Document Version History
Specify whether a version is created each time you edit a file in this document library. [Learn about versions.](#)

Create a version each time you edit a file in this document library?
☐ No versioning
☐ Create major versions
 Example: 1, 2, 3, 4
☒ Create major and minor (draft) versions
 Example: 1.0, 1.1, 1.2, 2.0

Optionally limit the number of versions to retain:
☐ Keep the following number of major versions:

☐ Keep drafts for the following number of major versions:

Draft Item Security
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.](#)

Who should see draft items in this document library?
☒ Any user who can read items
☐ Only users who can edit items
☐ Only users who can approve items (and the author of the item)

Require Check Out
Specify whether users must check out documents before making changes in this document library. [Learn about requiring check out.](#)

Require documents to be checked out before they can be edited?
☒ Yes ☐ No

OK Cancel

Figure 1-6: There are many new options available for Document management in SharePoint Server.

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Figure 1.7, shows the page publishing capabilities that have been fully integrated into the SharePoint interfaces. SharePoint components and content can now be used in the same page layout and published through workflow across the SharePoint Server application farm.

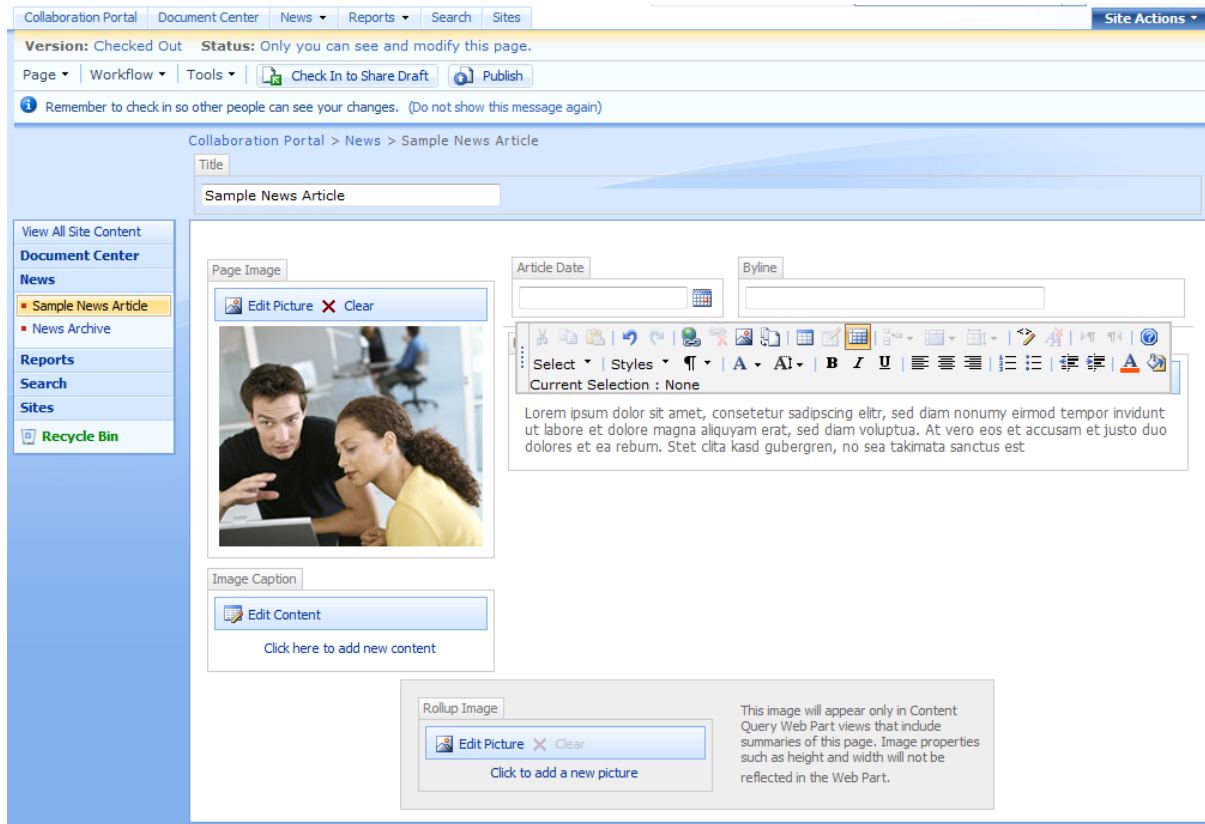


Figure 1.7: The page editing and content publishing capabilities of SharePoint Server sites.

In addition, a new records management capability has been added that allows policies to be defined for criteria such as document accessibility and retention. The Records Center uses the Information Management Policy feature that can be created in SharePoint Server at any site collection level, list or document library level, or associated with a specific content type. Content types are a fundamental component of WSS 3.0 and will be explained in Chapter 3. The new Records Center site template allows you to create a location where any document can be archived according to an organization's document plan and the appropriate document retention/deletion policy applied to it. SharePoint Server is also certified against Chapter 2 of the DoD 5015.2 standard. Figure 1.8 shows the Records Center default interface.

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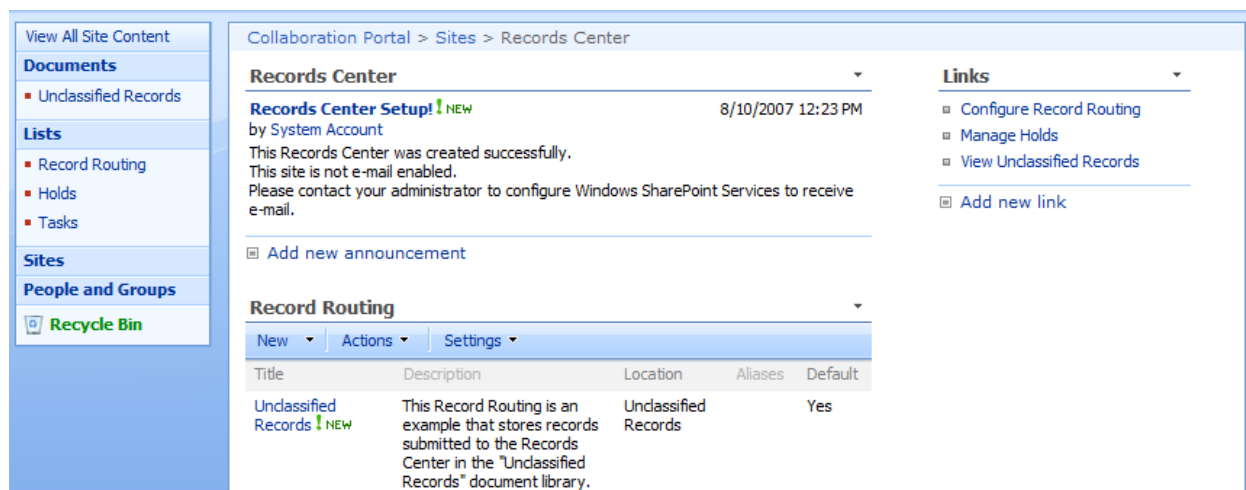


Figure 1.8 The page editing and content publishing capabilities of SharePoint Server sites.

As you can see, a significant amount of work has been done to support varying forms of content management in SharePoint Server. The features we just reviewed are covered in detail in Part 3 of this book.

1.3.4 Search

One of the most powerful forms of navigation is search. If you have doubts regarding that statement, just think of Google or Live Search. Search has become the primary content navigation technology for almost all the content on the World Wide Web. In fact search is seen as such an important feature that organizations can purchase Office SharePoint Server Search separately from the other SharePoint Server technologies.

NOTE

The Search functionality contained within SharePoint Server is on a different development cycle than the rest of product. In 2008, Search Server 2008 and Search 2008 Express were released. Search Express is free and aimed at those organization who have only WSS installed. For organizations that have SharePoint Server installed, the new search functionality can be included in SharePoint Server by applying Service Pack 2.

Most organizations don't have enough content in their content management systems to justify an enterprise search solution when they first implement a system such as SharePoint Server, but you'll find that it will become your primary mode of navigation as your organization's content volume increases. It is a collaborative content system after all, and the volume of content in your portals will increase with exponential speeds. SharePoint Server can also index content external to SharePoint Server, such as File Shares, Exchange Public Folders, Lotus Notes databases, relational databases, Web services and other Web sites.

In the end, the traditional navigational controls such as tabs and menus will be used for local navigation and high-level categorization, but search will be the only navigation option that will allow you to navigate a mature content repository.

Figure 1.9 displays some of the search interfaces for the SharePoint Server platform.

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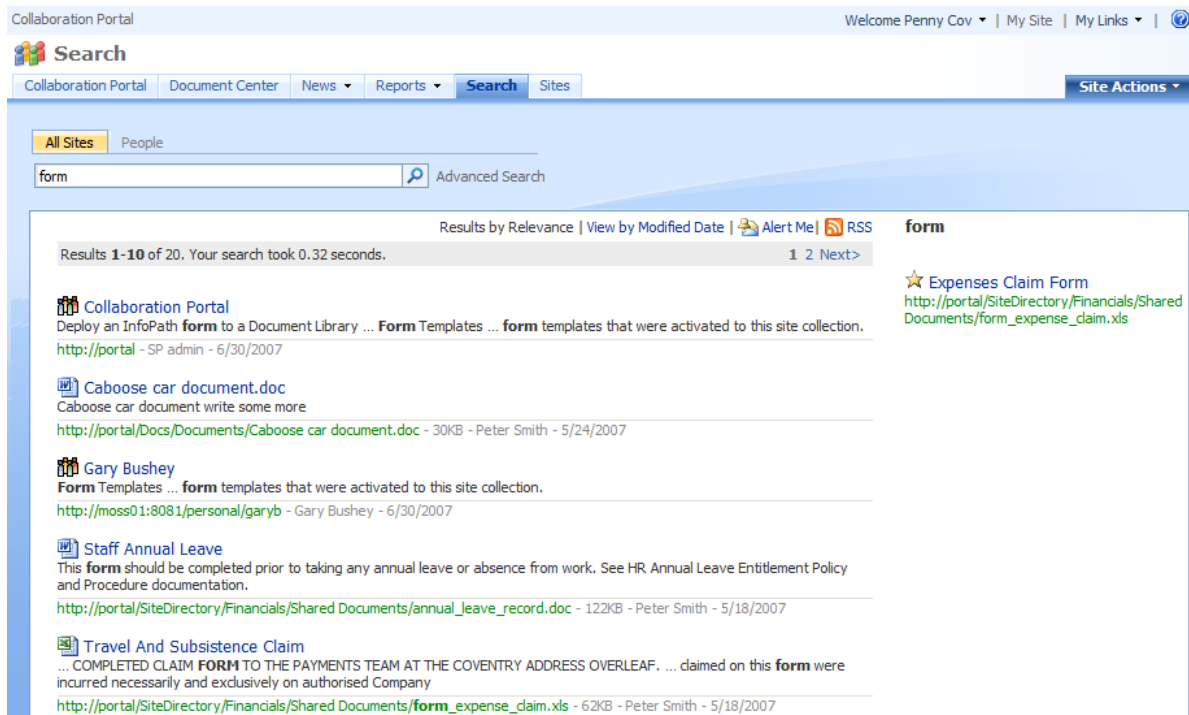
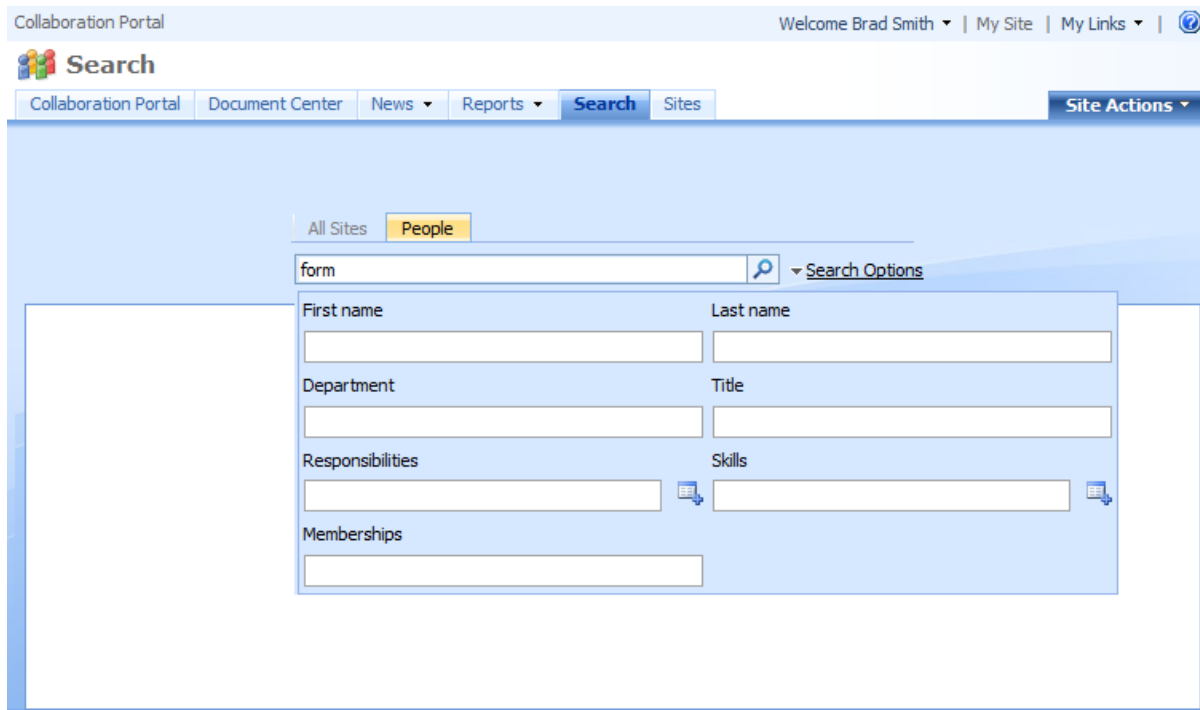


Figure 1-9 The new search results interface.

In addition to the standard search interfaces, SharePoint Server introduces the Search Center. This is the site that handles all of the search requests across your portal, and provides some more advanced search features as shown in figure 1.10.



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Figure 1.10: The SharePoint Server Search Center People Search Options.

Notice that in the Search Center you have far more control over searching for portal members than you do through the standard interfaces. In addition, you have the capability of creating your own custom search pages and having them show up on the tab strip in the center of the page. Search is detailed in Chapter 7.

1.3.5 Business Intelligence

Business Intelligence (BI) is a method of delivering actionable, relevant and consistent information to as many people as possible in a simple, meaningful way. It has for some time been considered a money sink. Custom business intelligence software was very expensive to implement, and there were significant costs that had to be paid to get access to content and to implement the metrics that make the data useful. As a result, the majority of business intelligence was being done by hand using the Microsoft Office Excel application.

With SharePoint Server, Microsoft is trying to make business intelligence capabilities more accessible to organizations. They have integrated the Excel calculation services into the server platform, which can be shared amongst multiple users, and provided features for displaying Excel spreadsheets in a Web based format for collaboration and presentation. Microsoft has also built in a capability for tracking measurements and displaying them as a colorful scorecard. You can group this content into dashboards by category, scope, or other form of presentation. Some of these features are shown in figure 1.11.

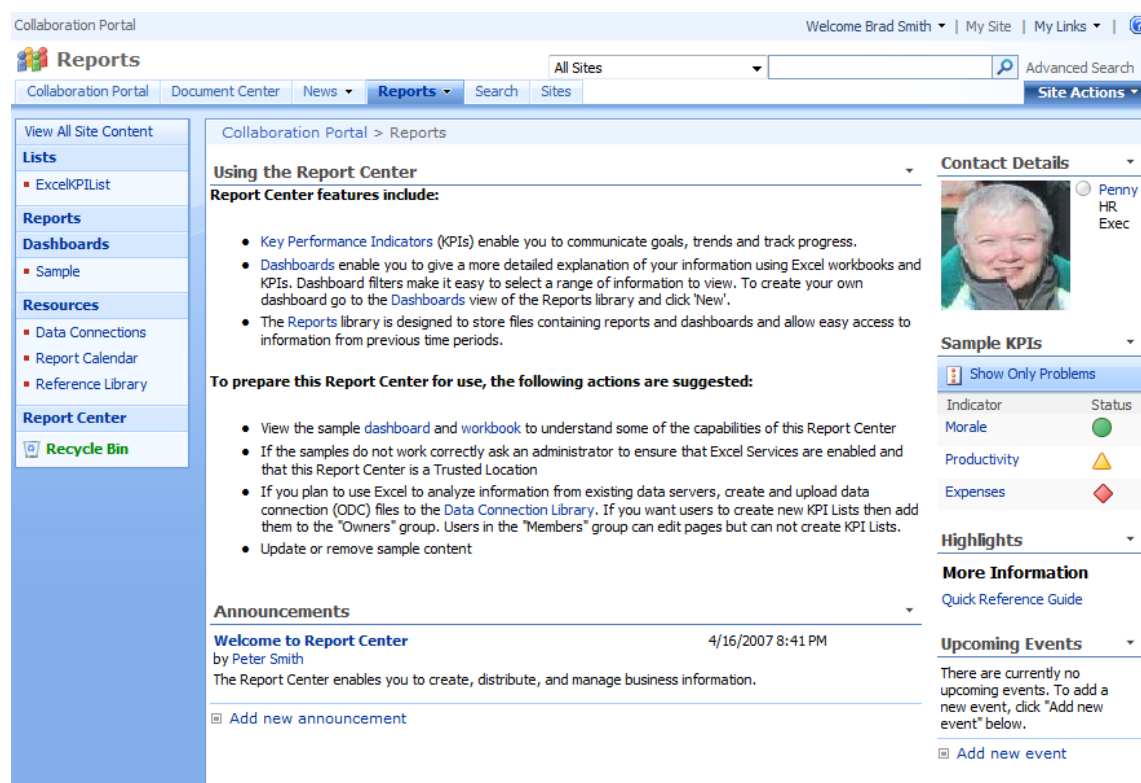


Figure 1.11 The new Report Center is the place that you can measure and report on your organizations performance.

While these are exciting in themselves, one of the most powerful features of SharePoint Server's business intelligence capabilities is the *Business Data Catalog (BDC)*. It allows you to group your pertinent business data, in

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many instances from your legacy business data application and the connections for them into an XML based catalog that can then be used and reused to access the data across the portal.

These features are covered in depth further on in this book in Part 4: Business Intelligence.

1.3.6 Process Automation

For several years now, there has been a push across the government and commercial sectors to create a “paperless” environment. There are many large organizations out there, especially in the civilian government, insurance, and healthcare industries that have been severely limited because of the tremendous volume of paperwork and processes. Of course, the forms and processes are required. Up until recently, the answer has been the same as for business intelligence; very costly and complex systems that require specialists to implement and maintain. As a result, there are very few “paperless” enterprises.

SharePoint Server addresses these issues by using the new *Microsoft Windows Workflow Foundation (WF)* components of .NET Framework 3.0 to provide user driven process automation. Figure 1.12 shows the new workflow configuration interface for the four document management related workflows in SharePoint Server.

Figure 1.12: Every list or library in any SharePoint Server site now has the capability of interfacing with a workflow process.

There are several useful out-of-the-box workflows that can be used to meet many customer requirements with no further effort, just some end-user training to introduce their usage into the business scenario.

If these workflows do not meet the specific requirements, you can design your own. *Microsoft SharePoint Designer 2007* gives you an expanded capability to design workflows within a site. In addition, you have the ultimate flexibility to design your own workflow components within the *Windows Workflow Foundation* using *Visual Studio 2005*.

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When you consider the out-of-the-box capability for workflow inherent in any SharePoint Server site and the extensibility built in to the Windows Workflow Foundation. SharePoint Designer 2007 and Visual Studio 2005/2008, you come to realize that the paperless enterprise is closer. Moreover, the best part; if all of your content is being created, collaborated on, and managed in SharePoint Server, then your workflows have access to it all natively.

1.4 Summary

This chapter took you on a whirlwind tour of SharePoint Server. We discussed the history of the SharePoint platform and why it is important. We've related our perspectives on what these aggregate of technologies can do to meet many different types of requirements and how they are related.

This is a lot of information to cover as an introduction. Each of these technologies could be described in a whole book of itself, and in fact you will see many books published that focused on just parts of this platform. However, we believe you have to have a broad understanding of the technology and how the different parts relate to one another, before you can get the full value out of any one of these technologies.

We hope that you are now as excited about SharePoint Server as us and other members of the SharePoint communities. This is where the future is headed for businesses, and we're going to do everything we can to get you to the front of the line. So hold on to your hats...

3

Working with Lists, Libraries and Content Types

This chapter covers

- Working with Document Libraries and Lists
- Managing Content with Lists
- Customizing lists and libraries
- Working with Views

The two major constructs Windows SharePoint Services 3.0 (WSS 3.0) uses to store data, and therefore Microsoft Office SharePoint Server (MOSS 2007), are sites and lists. In fact, broadly speaking, if it is not a site, chances are it is a list. Just about every interaction that users and content managers will have with SharePoint will occur with a list or a site. Keeping this in mind makes it easy to understand how SharePoint entities work and interact with each other.

Many readers come from a world of thinking about portals as Web pages, however, what you need to do, is to think of a portal as a collection of data that is visualized on Web pages as lists. I looked at sites in previous chapter, so I will not cover them here. In this chapter, I will focus on the various SharePoint lists and special classes of lists called libraries. I will cover a bit of history of why these constructs are used, rather than say a simple network drive, Web page, or database. You will see how to use lists and libraries to help users manage content in SharePoint, and how to expose that content in a sensible manner through **Views**. In addition, we will explain **content types**, which are a powerful new enhancement introduced in WSS 3.0 and how these relate to lists and libraries.

I discuss the material in this chapter in relation to two major categories of users: “contributors” and “content managers”. By “contributors”, I mean people who use the portal to read information and upload or modify documents or **list items**. Content managers refer to people who create and manage the lists and libraries that regular users work with. We are assuming that you will associate most closely with the content manager’s role, and therefore the entire chapter, should be relevant to you. If you are a “contributor” then you may only need to read the first two sections of this chapter.

The online help that ships with SharePoint is fragmented, therefore in Appendix B, We have provided some reference material about lists, libraries and content types. The material in the appendix provides a good overview of all of the out-of-the-box list and library templates SharePoint has to offer. Once you start working with SharePoint on a day-to-day basis, the appendix will be valuable as a place to refer to, which will enable you to quickly lookup what the various types of lists, libraries and content types do.

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3.1 Structuring Content

If you are new to SharePoint, you may be asking yourself, What are lists and libraries? How do they relate to each other? How are they different? What is unique about how SharePoint deals with lists and libraries?

In this section, I'll first define what lists and libraries are and we'll help you, as content managers, to decide when it is appropriate to use a list or a library. Then, we'll look at lists **columns** and Views, and at a new mechanism for defining the columns in a list or library, called a content type.

3.1.1 What is a list and what is a library?

Understanding exactly what a SharePoint list is the single most important goal in this section. The rest of the chapter will elaborate on the fact that a SharePoint list is a container for items that will have similar columns or meta-data, security settings, and user interfaces for viewing and managing the items. If at any point, you get lost or confused about what we are covering or don't understand the relevance, refer back to this paragraph.

A document library is a special type of list where each list item is a single document, the type of file that you would save in you're My Documents folder in Windows. You can think of a document library as a Web-based network file folder with additional features like check-in and checkout, version history, and meta-data tagging. If it's not clear yet, don't worry. The rest of this section will give you a good grasp of lists and libraries.

3.1.2 Why SharePoint?

As we stated in Chapter 1, to support today's knowledge worker, you should not only concentrate on the collection of content, but you must devise solutions that close the information gap between the information that is electronically stored and the information that people retain in their heads. This will enable the people to make quality decisions and accurate predictions. MOSS 2007 has introduced many resources to help you in this task, such as, expertise finders, the visualization of key performance indicators and business intelligence data using dashboards. To support these new enhancements, MOSS 2007, uses SharePoint lists and libraries. Therefore, it is important for you to understand these basic building blocks, so you too, can build solutions that improve business processes and improve knowledge worker's effectiveness.

I previously stated that a list was a container for similar items. Some people find it helpful to think of a list as a Web-based spreadsheet (think of Microsoft Office Excel or a Microsoft Office Access table). That means that the entire purpose of a list is to store data. However, there have been and are many other ways to store data, so, let's take a quick look at why you will use lists to store data rather than other means.

A BIT OF HISTORY

In the 1980's and 1990's, most organizations believed, correctly or incorrectly, that the important information was stored in organizational databases. Today we know better. Ten to twenty years ago, we'd consider a database if it exceeded a few gigabytes (GB) in size. However, today, most knowledge workers use personal computers that have hard drives with at least 60 GB of storage; a single email account can easily house two GB of messages. In short, the largest volume of organizational data resides on personal computers, not in central databases.

Decentralized data is a problem on several levels:

- backing up the information
- allowing workers to share the information with others securely
- retaining information relevant to a particular job role as one worker moves in to fill the job left by another worker

Portals that allow non-technical users to publish standard document types like Microsoft Office Word documents, Microsoft Office PowerPoint slides, and images hold the key to overcoming these problems.

SHAREPOINT'S ADVANTAGE

WSS 3.0, and therefore MOSS 2007, uses document and picture libraries to allow non-technical users to publish ordinary documents to a central repository in a simple and intuitive manner, and work with the documents as if they resided on a network drive.

Now, you may be thinking that they have seen similar kinds of things done with network drives. Document libraries are better than network drives, as they allow users to add **metadata properties**, sort, group, filter

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documents, hold multiple versions of a document and provide business process workflow when documents are changed.

In addition to libraries, SharePoint has many types of lists. All SharePoint lists such as contacts, links, tasks, blogs, announcements, events, etc... are simply customized examples of the generic custom list. The only column the generic custom list has is a single column, named title. SharePoint exposes the other lists as customized lists from the user interface and programming model to reduce the repetitive tasks content managers and programmers would need to do if they only had a generic list type to work with. Imagine always having to add a first and last name column to a generic custom list to create a contacts list or having to add a due date and status column to create a tasks list. Clearly, this would not be a very productive way of using people's time. So SharePoint pre-defines a whole set of lists that we can create with just a few mouse clicks as you will see in the next section. Appendix B details these pre-defined list types.

3.1.3 Creating your first list

We claimed in the last section that one of SharePoint's main benefits is that non-technical users can create places to share information, that is lists. Suppose your boss came to you and said that the company needs a place for its users to be able to post messages to a bulletin board, like the boss has seen in some on-line forums. Let's look at what it takes to create a basic discussion list in WSS 3.0:

1. Open a Web browser and navigate to the SharePoint site where you would like to create the new list.
2. Click View All Site Content from the quick launch menu.
3. Click Create just below the page header.
4. Click Discussion Board list under the Communications section. You will see the screen shown in figure 3.1.

Figure 3.1 The Discussion Board list creation screen

5. Enter SiteDiscussions into the Name text box.
6. Enter Use the Site Discussions list to post and reply to topics of interest on this site into the Description text box.
7. Click the Create button.

That's it. In just a few short steps, we were able to create a threaded discussion board for our site, without any HTML code. One important point we make at this time is that the name you type in the Name text box is important as SharePoint uses it as both the URL for the list and the user-friendly name. The URL name is also of importance for the MOSS 2007 search relevance algorithm, known as **URL Matching**, more about this in Chapter 7. You'll be

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able to change the user-friendly name for the list later on, but you will not be able to change the URL. Therefore do not use the characters: \ / : * ? " < > | # { } % & <TAB> " !, do not use spaces as they get converted into the character %20, keep the name, short, meaningful and include terms that users will enter as their search query keywords, if they wished to find this list. Be consistent in your naming conventions; for example, don't call a picture library – pictures in one Web site and images in another. This will confuse your users. So do take time to consider what you should use, and this is true for other SharePoint components, such as sites, column names and views.

Whenever you create a list there are a number of other tasks you should complete, such as, providing the list with a user-friendly name, setting permissions and creating list columns and Views. However, next, we need to see how lists and libraries (which are a special class of list) relate to each other.

3.1.4 Storing data in lists and libraries

Document libraries are a type of list. However, they are different enough from lists to warrant additional treatment in this chapter. Previously, I said that a document library is a special type of list in which each list item is a single document. That is important.

Because we know that each item in a document library is a document, we can do something special with a document library that we cannot always do in other lists. For one thing, we can view the library not just as a Web page, but also as file folders in a Windows **Explorer View** as shown in Figure 3.2.

NOTE

If you are using Microsoft Vista and Internet Explorer (IE) 7.0, with Protected Mode enabled, you will not be able to view the document library in explorer view within the browser window, instead you will be prompted to allow Windows Explorer to display the contents of the document library.

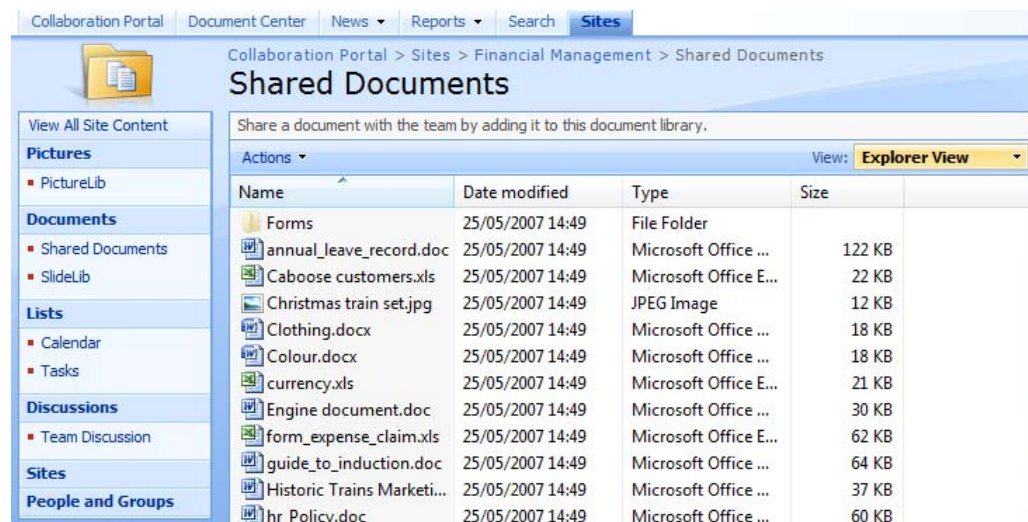


Figure 3.2 Document Library Explorer view

CAUTION

The Explorer View shows the hidden Forms folder to end users. This allows content managers and Web designers to intentionally or unintentionally alter and delete pages needed to work with the library, such as the document template that is used to create new files, as well as the Web pages to upload documents and edit document properties. Content managers should exercise care when working in the Explorer View.

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Because document libraries have a conceptual link to file system folders, document libraries could provide a very convenient construct for quickly migrating documents stored on network file shares into a SharePoint environment. We would recommend not doing this, as without some planning the term – Garbage in Garbage out (GIGO), comes to mind. It is likely that your folder structure and the locations where your documents are located have grown into a chaotic state, with the same document saved in several locations.

You will find that by using SharePoint components, such as metadata properties, you will reduce your need for folders. In my opinion, you should only use folders in document libraries and lists for performance reasons, such as, when you have more than 2000 files in a document library. Although Microsoft provides a guideline limit of 5 million documents per document library, this can only be achieved by nesting folders.

In addition, if you drag and drop folders into document libraries using the Explorer View, you will upload the all files held within those folders. These folders may include files with blocked file extensions, together with, temporary files that remained on your system due to some network problem in the distant past. Such files often have the tilde character, "~" as part of their name, which causes another problem. SharePoint uses the file name to create a URL that points to the document when it is stored in the SharePoint SQL content database. The tilde is an invalid URL character, so SharePoint will display an error message, as shown in figure 3.3.

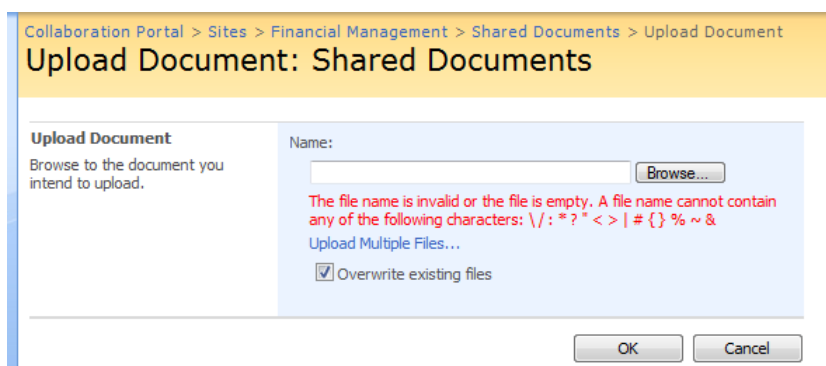


Figure 3.3 Upload filename name invalid error message

THE STRUCTURE OF DATA

The biggest difference between a document library and a regular list is the nature of the data being stored. Lists store items, such as events, contacts, links, or tasks. For example, the contacts list contains a list item for each contact, and each contact has fields or metadata properties associated with it, such as, Last Name, First Name, E-mail Address, Company, Job Title. SharePoint represents metadata properties in lists and libraries as columns, also known as fields. This implies that there is a fair amount of structure to the data a regular list stores. This is great for many reasons like searching and analyzing the data. However, it conflicts with the tendency of most users and organizations to produce mostly unstructured or minimally structured data. For example, if you were writing a report to your boss, there may be standard sections that you should include in the report, but the content within the sections is freeform language paragraphs. In short, you can pretty much enter whatever you want. It would be very difficult to convert this type of data into a structured list. Therefore, if you wanted to make the data available in SharePoint, you would upload the entire unstructured document to a document library. Then, you would enter a few items of metadata about the document, to wrap a bit of structure around the unstructured document.

So, when should you use a document library to store data and when should you use another type of list? After all, as document libraries are just specialized list we can associate metadata properties to documents in SharePoint, and that items in lists can have the same file attachments that are stored in document libraries.

The rule of thumb we use is if the focus of a list is spreadsheet-like data, then you want a list. If the focus of the list is a document, then you want a document library. In the example with the report, the focus of the list was the report document.

Let's look at another example. There is a large spreadsheet in a document library that multiple people need to work on. In this case, the focus of the data is not really the spreadsheet but rather the rows and columns within

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the spreadsheet. The spreadsheet document is simply a container for the rows and columns. For users to get to the data held in a spreadsheet stored in a document library, they need to open the document. By opening a document, the user is downloading it to their personal computer. This could take some time on a slow link and until they open the document, the structure of the data, that the spreadsheet's columns and rows provide, is unavailable to them.

Now, what if we instead created a regular list and then created a field in the list for each column in the spreadsheet. We could then create one list item for each row in the spreadsheet. By the way, we'll show you how to do this in the Import Spreadsheet section later in this chapter. Because the list has a well-defined set of fields, any item entered into the list will have the correct structure. This can make working the data much easier.

CONCURRENCY

Speaking of working with the data, here's a pop quiz: How many people can work on a document at one time? This isn't a trick question. For most documents, the answer is one. Only one person can work on a document at any given time. There are many good reasons for this, not the least of which is that we don't want one user to overwrite the changes another user is making.

This can be problematic though. Let's revisit the spreadsheet example. The spreadsheet happens to be the basis for a large report into which multiple people contribute data. As a spreadsheet, only one person can work on the document. If five people need to work on it, each person must wait their turn before entering their data, even if they are not relying on the data from other people. The reason is that the concurrency restriction, the guard against multiple people modifying the same unit of data, is at the file level. We won't get into the details here, but what it boils down to is that the more people you have working on the same data, the longer it will take. That means that an organization cannot increase the speed of completing a particular task by having more people work on the task. Clearly, this is not desirable.

Let's see what happens if, as in our last example, we converted the spreadsheet into a list, with the columns as fields and the rows as list items. We still want to enforce concurrency. No two people should be able to modify the same data at the same time, but what is the unit of data now? Is it the entire spreadsheet? No. The unit of data on which concurrency is enforced is now the list item (that is, one row from the original spreadsheet). That means that a different person can modify each list item (or row) at the same time. That's a big improvement. Now, the more people we have working on the data, the faster the task will get done.

SECURITY

We just saw how changing the unit of data from an entire spreadsheet to a single row in the spreadsheet you increased the number of people who could work on the data within the spreadsheet at the same time. Keep this in mind because we will now look at how the unit of data we are working with affects data's security.

When our unit of data is a document, like a spreadsheet, the smallest unit of information we can secure is, well, the entire document. For example, we cannot allow one user to modify one set of rows in the spreadsheet and allow another user to modify a different set of rows in the same spreadsheet. We cannot prevent one user from intentionally or accidentally overwriting the rows, another user has entered if both users have the ability to modify the spreadsheet document. It's an all or nothing deal. Either a user has the rights to modify the spreadsheet or the user does not.

So, how do things change, if at all, if we import the spreadsheet into a SharePoint list? Well, as we mentioned before, the unit of data is no longer the entire spreadsheet but rather a list item (or row). In WSS 3.0, and therefore in MOSS 2007, content managers can secure not just sites, not just lists, but each individual list item or group of list items. That means, for example, you could set security so that users from the accounting group will be able to see but not alter the list items entered by users from the marketing group, and vice versa. All SharePoint list items (documents and folders are types of list items) allow content managers to set who can view and edit each item.

Next, we'll explain how data is stored, and for that we need to explain what a column is.

3.1.5 What is a column?

Columns, also known as fields, allow content managers to define the structure of a list or library. Columns allow SharePoint to track information about documents and list items, such as the documents metadata properties, the description for a task or the start date for an event. The values stored in columns can be indexed by SharePoint, and powerful search and filtering queries can be built against them. That is what columns are from the perspective of

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content managers. Contributors see columns from a different perspective, which is, columns are the places in SharePoint where they put their data. For example, a user might say that they'll put today's date in the start date column for a meeting event. It turns out that both aspects of list column are accurate. SharePoint stores list columns definitions, the aspect that content managers see, in one location, and stores the list column data, the part that contributors see, in another location.

COLUMN TYPES

When you create a list or a library, SharePoint provisions it with a number of columns, depending on the list template that you chose. Columns determine the type of data a list can hold. Each column is associated with a SharePoint column data type, also known as a field type. Once you create a list or document library, you can choose to create additional columns as follows:

1. Navigate to a SharePoint list or library where you create a new column.
2. Click Create Column under the Settings menu as shown in figure 3.4.

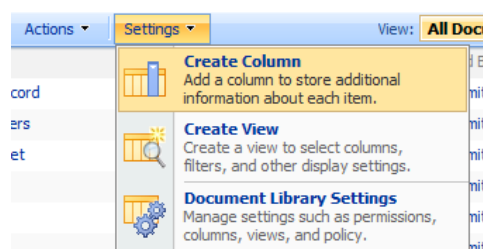


Figure 3.4 Create Column

8. Enter a Column name and select a data type, such as Currency. The Web page will dynamically change depending on the column type you choose.
9. Select the denomination character, for example, \$ or £ and other options to enforce data integrity, such as, an upper and lower monetary limit and whether this column is mandatory or not.
10. Click OK.

CAUTION

WSS 3.0 places more restrictions on changing the data type of an existing column than did WSS 2.0. This means that once you create a column with a particular data type, if you then wish to change the column type, you may have to delete and recreate the column.

Most column types are self-explanatory, but one column type you will find particularly useful is the Lookup column type. Lookup columns dynamically list all of the possible choices for values from one list and display those choices for the column in another list. For example, most projects have people, some of whom have tasks to do, meetings to attend, and deliverables to complete. The project has reference materials, vendors, contractors, milestones, issues and risks. There is no single list or even a group of isolated lists that will accurately represent the data or the relationship between the data. This is where the lookup column type will be useful. Figure 3.5 shows the screen used to establish a connection between two lists by using a lookup column. We pick the list that we want to link and the field whose values we want to display in the drop-down control.

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
☒ Lookup (information already on this site)
☐ Yes/No (check box)
☐ Person or Group
☐ Hyperlink or Picture
☐ Calculated (calculation based on other columns)
☐ Business data

Description:

Require that this column contains information:

☐ Yes ☒ No

Get information from:

Contacts

In this column:

Company

☐ Allow multiple values

☒ Add to default view

Figure 3.5 Using a lookup column to establish a connection between two lists

DATA INTEGRITY

When a contributor enters data into the column, SharePoint will validate the data and if it does not match the column type, SharePoint will display an error message, similar to the one shown in figure 3.6. This is why it is important to use column types other than single or multiple lines of text, as it will allow SharePoint to ensure data integrity and allow your users to produce quality decisions and accurate predictions.

X Delete Item | ABC Spelling... * indicates a

Name *	annual_leave_record.doc
Title	Staff Annual Leave
Projects	SharePoint
Money	10

The value of this field must be between 20 and 10,000.

Created at 4/16/2007 4:30 PM by Peter Smith
 Last modified at 5/18/2007 6:17 AM by Peter Smith

OK

Figure 3.6 SharePoint validates data entry against column data types

SITE COLUMNS

Site columns are a welcomed new feature in WSS 3.0, and although you can create a column to track data within a list or library, you may find you need the same type of data in multiple lists. In WSS 2.0, content managers could create columns with the same name across many lists, however, the columns were treated as distinct columns by the system, and thus made correlating on the columns' data very difficult. Site columns address this limitation by adding the concept of global column definitions. These column definitions have a site-wide name, description, data type, and requirement policy. Site columns make site-wide searches on column data possible, for example, you may wish to categorize invoice documents according to the client they were issue against, and you may have an issues tracking list where you wish to associate issues with clients, who raised them. Instead of creating a Client

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column in both the list and document library, you can use a site column. A site column is a reusable column definition that can be used across multiple site, lists and libraries and therefore enables you to define and update a column in a single place, and have it impact all lists and libraries where it has been used.

Let's look at how to create a site column:

1. On the Site Actions menu, click Site Settings.
2. Click Site Columns under the Galleries section and then click Create.
11. In the Group section, select New Group, and enter In Action in the text box.
12. Enter Client Name in the Column Name text box; select Choice and then Black Blade, Mindsharp, Lois & Clark on separate lines in the Additional Column Settings section, as shown in figure 3.6.
13. Click OK.

Group
Specify a site column group. Categorizing columns into groups will make it easier for users to find them.

Put this site column into:

☐ Existing group:
Custom Columns

☒ New group:
In Action
Put this site column into: New group

Additional Column Settings
Specify detailed options for the type of information you selected.

Description:
[Empty text box]

Require that this column contains information:
☐ Yes ☒ No

Type each choice on a separate line:
Black Blade
Mindsharp
Lois & Clarke

Figure 3.7 Additional Column Settings section

Once you have created a site column you can then add the column to each of the lists or libraries, as follows:

1. Navigate to a SharePoint list or library, click Settings and then for libraries, click Document Library Settings, or for lists, click List Setting.
14. In the Column section, click Add Columns from existing site columns.
15. In the Select site columns from drop down list, select In Action, under Available site columns select Client Name, click Add and then click OK.

Site Columns are very useful and we use them extensively, for example, we create a site column for each category that we use in the Site Directory – the Sites tab in the Collaboration portal. We find the categories we use to classify sites, we also need elsewhere within a Collaboration portal. In this instance, we create the site column at the top-level site of a site collection and therefore the site column is available to all the sites within the site collection.

INDEX COLUMNS

You should use **indexed columns** when you have a large number of items in a list and you should choose those columns, which users are likely to sort and filter list items on. For example, if an invoices list has a column that stores the ship to state of the invoice and users are likely to filter the data frequently by the ship to state, this would be a good column to index.

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TIP

Only index columns that users will frequently sort, filter, or group item on, as indexing too many columns will waste server storage capacity and reduce the overall system performance.

If you want to know more about how list columns are combined with content types to form list definitions, read chapters 17, *Extending SharePoint Server*. While storing data in lists and libraries is great, it does not do a whole lot unless you can show the data to the end users. For that, let's look at Views.

3.1.6 Understanding list Views

Let us consider a calendar list and a contacts list, two commonly used SharePoint lists. The contacts list looks like a spreadsheet while the calendar list looks like a calendar as shown in figure 3.7.



Figure 3.8 The Contact standard list view versus the Calendar list view

The two do not look very similar. Why is that? The answer brings into play a key feature of lists - lists have Views. Views allow data to be entered only once but displayed in many different ways. For example, a calendar view is appropriate for an events list but significantly less so for a contacts list or links list. Allowing programmers, content managers, and ordinary users to define new views for lists allows everyone to work from a common set of data but see the data in the way most useful to them. Views also allow data displays to change as needed without having to go through the time or endure the errors associated with re-entering the data. Anyone who has worked with databases will easily recognize the similarities between SharePoint lists and database tables.

More on Views later in this chapter, next, I need to cover another topic - content types, another new enhancement in WSS 3.0.

3.1.7 Introducing content types

Although most users and content managers will never have to deal with content types in order to accomplish their day-to-day jobs, they are an important building block that WSS 3.0 and MOSS 2007 use extensively; therefore, it is important to have a basic understanding of them. For our purposes, you can think of a content type as a collection of columns. Defining the columns that are part of a content type helps content managers standardize the metadata properties that will be part of various portal structures, such as discussion items, contacts, tasks, documents and so on.

For example, I have an Expenses document library that stores both Client Expense Reports and Regular Expense Reports. When we upload a Client Expense Report, we want to enter the metadata properties: Title,

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Amount, and Client name, while when we upload a Regular Expense Report, we want to enter Title, Amount, and Purpose columns. We could create two content types, one that groups together the columns Title, Amount, and Client name and a second one that groups together Title, Amount, and Purpose. Because we have tied the columns to the content type and not to the document library, the way they were in WSS 2.0, users can store both types of documents in the same document library.

You can also use content types as a basis for creating new content types, so in the example above, we can create an Expenses parent content type that groups together Title and Amount, which are the metadata properties shared by both expense reports. Then we would create the two child content types that would inherit the columns from the Expense parent content type and then add a new column to each Expense report content type. When you group columns together to make a content type, you can also use site columns.

MOSS 2007 comes with a set of default content types, which SharePoint installs when you create site collection (Collaboration Portal). There are root level content types that are used to create all the default lists and libraries, for example, the Document content type, defines the column name, and is used to create all default document libraries. The Document content type is based on the Item content type, which defines the column Title and in turn, the Item content type is based on the System content type that is the top of the content type hierarchy, as shown in figure 3.8. Similarly, content types can be inherited from a parent site in a site collection to its child sub sites.

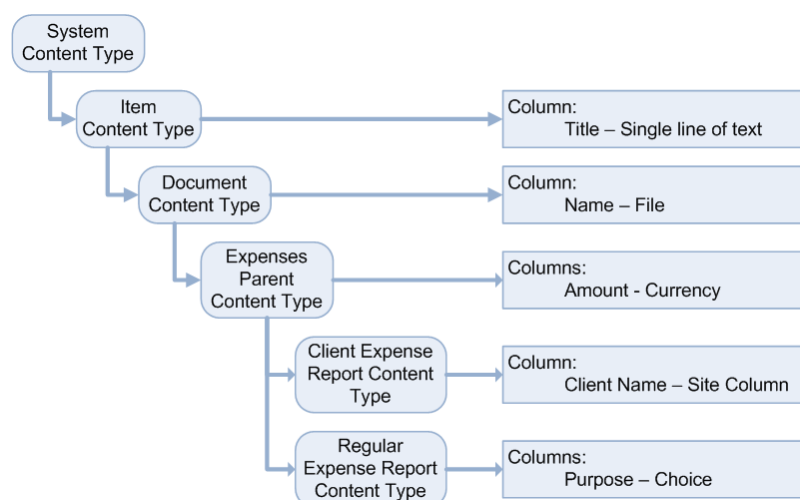


Figure 3.9 Content Type inheritance

NOTE

You cannot use Document Content types in lists, nor can you use list content types in document libraries. You should not modify the out-of-the-box content types. Service packs and/or hot fixes may over-write your modifications.

Let's look at how to create a new content type:

1. From Site Actions, click Site Settings and then Modify Site Settings.
2. In the Galleries section, click Site content types and then click Create.
16. Enter Expenses in the Name text box.
17. Select Document Content Type from the Select parent content type drop down list, and then select Document from the Parent Content Type drop down list.
18. In the Group section select New group, enter In Action as shown in figure 3.9 and then click OK.

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Collaboration Portal > Sites > In Action > Site Settings > Site Content Type Gallery > New Site Content Type

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.

Name and Description

Type a name and description for this content type. The description will be shown on the new button.

Name:

Description:

Parent Content Type:
Select parent content type from:

Parent Content Type:

Description:
Create a new document.

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:

☒ New group:

OK Cancel

Figure 3.10 Create a New Content Type

19. In the Columns section, click Add new site column, and in the Column Name, enter Amount, with a column type of currency, Existing Group, In Action; then click OK.

The Site Content Type page is re displayed, where in the Columns section you can see each site column and the source column displays the content type they are inherited from, as shown in figure 3.10.

Columns			
Name	Type	Status	Source
Name	File	Required	Document
Title	Single line of text	Optional	Item
Amount	Currency	Optional	

☐ Add from existing site columns
☐ Add from new site column

Figure 3.11 Inherited content types

Not only can content types group together a number of columns that relate to one another. Content types can also group together other components to do with that data, for example, in the case of my Expenses scenario, the Client Expense report may be processed by a different set of people than the Regular Expense Report. You can associate with each content type a different workflow, each can have its own document template and retention policies, as well as settings for the **document information panel (DIP)**, thereby supporting the business situation.

NOTE:

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Contributors use the DIP to enter metadata on document opened in Word, Excel and PowerPoint. By default, the DIP shows the columns of the document library, but you can customize it using Microsoft Office InfoPath 2007.

SharePoint uses content types extensively and in Appendix B, we list the built-in content types together with a brief description.

Now that we have talked about lists, libraries, columns, site columns, views and content types, we're ready to see how to work with these entities to manage SharePoint content.

3.2 Managing content: the basics

When most users think about portals, the most basic functionality that comes to mind is document management. Indeed, document management forms the basics of most portal systems in production today and as we saw in Chapter 1, document management is one of the core requirement categories that Microsoft aimed MOSS 2007 to meet. In the following sections, we'll discuss the basics of content management from a SharePoint perspective and then delve more deeply into the tools that SharePoint provides content managers to usable content.

3.2.1 Uploading a document

The most useful ability document libraries have is also the easiest to work with: the ability for users to publish or upload documents to the portal and to download the documents through a Web-based interface, it takes only a few mouse clicks: Upload, Browse, and OK. The document automatically inherits the permission settings of the library to which the document is being uploaded. Similarly, to download the document, right click the document link and from the context menu click Save Target As. However, uploading and downloading a document is not the usual way of working with a document in SharePoint.

3.2.2 Working with documents in SharePoint

The best way of working with the document with SharePoint is just as easy, but you need a WSS compatible editor installed on your client computer. The client application has to be able to open the document and save the document directly to the Web site. Most applications force users to download the document, modify it locally, and then upload it manually to the correct location. This can be an error-prone process for the novice user.

At the time of this writing, the only WSS compatible applications are Microsoft Office 2003 and Microsoft Office 2007 client applications, such as Word, Excel and PowerPoint.

Users can check out a document from the document library via the Web site or directly from the client application that has opened the document. Checking out a document refers to the process by which a user asserts control over a document to prevent other users from editing the document. Checking out the document also lets others users know who is working on the document and when the most recent work began. Checking out and checking in documents is a key practice that allows many people to reliably work with shared documents, even while some of those people are disconnected from the server on which the documents reside.

TIP

If Check Out is not one of the options visible on the document context menu, it means that someone else has the document already checked out.

By default, document libraries do not require that you check out documents before they can be edited. Therefore, contributors should be trained to always check out document prior to working on them. This will save many headaches later, wasting of time, when users find that their amendments are lost as the result of two or more people amending a document and saving it over one another.

When a user checks out a document, and they are using WSS 3.0 compatible client application, such as Word 2007, a dialog box opens asking whether they wish to use their local drafts folder, as shown in figure 3.12.

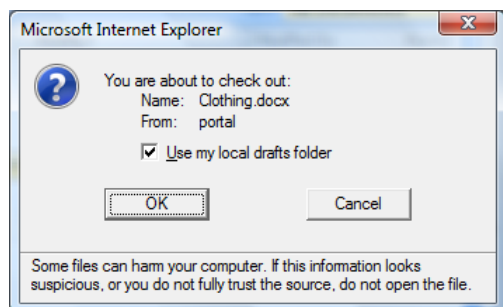


Figure 3.12 Local Draft Folder

NOTE

By using the local drafts folder, users can work offline on the document. The default location for the drafts folder is %userprofile%\Documents\SharePoint Drafts, which usually points to the folder C:\Documents and Settings\[userid]\My Documents\SharePoint Drafts on Microsoft Windows XP computers or C:\users\[userid]\Documents\SharePoint Drafts on Vista. You can change the location for the drafts folder, for example in Word 2007, by going to the Word Options in Save section, modifying the offline settings, as shown in figure 3.13.

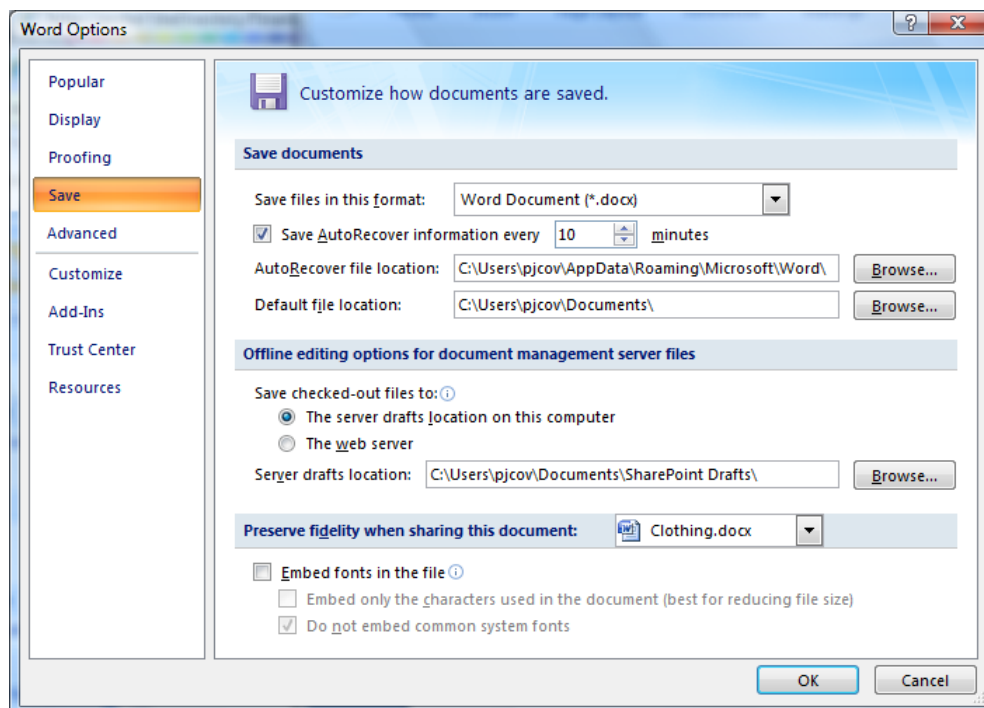


Figure 3.13 Offline editing options for document management on SharePoint servers

When closing Microsoft Office Word 2003 or 2007 while editing a document checked out to you, Word will prompt you to check in the file so that other users will have access to your changes.

We have covered the basics of working with lists and libraries. Most portal users will simply upload and modify documents in existing document libraries, or edit and create list items in existing lists. Most contributors will not need to know more. However, content managers will need to create and customize document libraries and lists to

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meet organizational and business needs. In the next section, we will see how content managers, using a browser, can customize SharePoint's components to create solutions that will allow users to collaborate.

3.3 Customizing lists and libraries

So far, we have talked a bit about a few aspects of lists and list items, libraries and document, such as columns, Views, and content types. In fact, these are but a few examples of a broader set of entities referred to as list properties or attributes. List properties encompass all of the aspects of a list that define the structure and behavior of the list. For example, the name of the list is a list property as is the description, both of which SharePoint uses to rank the list on the search results page. Other important properties include list permissions, audience targeting, workflow and RSS settings. First, let's see how to get to a list's properties page, so that we can customize them. To access the screens in the following sections:

1. Navigate to the relevant SharePoint site, click View All Site Content from the Quick Launch bar, select the list or library you want to work with.
2. Click Settings and select List Settings. If you are working with a library then it will be Document Library Settings.

You use the Customize [list name] Web page, as shown in figure 3.14, to set the list properties. You would use this Web page to create, modify and delete columns and Views.

Collaboration Portal > Sites > In Action > Shared Documents > Settings

Customize Shared Documents

List Information

Name: Shared Documents
 Web Address: <http://portal/SiteDirectory/InAction/Shared Documents/Forms/AllItems.aspx>
 Description: Share a document with the team by adding it to this document library.

General Settings

- Title, description and navigation
- Versioning settings
- Advanced settings
- Audience targeting settings

Permissions and Management

- Delete this document library
- Save document library as template
- Permissions for this document library
- Manage checked out files
- Workflow settings
- Information management policy settings

Communications

- RSS settings

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	
Client Name	Choice	
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

Views

A view of a document library allows you to see a particular selection of items or to see the items sorted in a particular order. Views currently

Figure 3.14: The Customize List Settings menu shows the actions the current user can perform to a SharePoint list.

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The list's properties are grouped into different categories, including links to page that you will use to work with columns and views, which we will detail later in this chapter. A few settings warrant more explanation or discussion and are detailed in the following sections. Some we will covered in other chapters, and then in Appendix B, we detail the categories common to most SharePoint lists.

3.3.1 Versioning settings

Versioning refers to SharePoint creating a point-in-time copy of an item when you save the item. This means that when you enable versioning on a document library and then save a document in that document library, you will be copying the entire document to the document library. The storage space this requires can be significant, especially if a library will likely store large, frequently changing files, such as images. For example, a 10 MB file with 12 minor versions and 3 major versions is actually taking up 150 MB of storage $((12 + 3) * 10)$, not just 10 MB.

Storing the entire document can become troublesome when you group data into large documents, such as spreadsheets, that change frequently. Like concurrency and security, SharePoint versions data at the item level. Storing the data as a set of list items means that SharePoint will only save a copy of the individual list item when it changes. This can mean a great deal of saved storage when there are many items but only a small number of them change frequently, another consideration when you are deciding whether to store data as a document verses list items in a list.

To enable versioning, on the Customize [list name] Web page under General Settings, click Versioning settings, the resulting Web page, not only allows you to enable versioning, but also allows you to configure **content approval**, **draft item security** and require check out. We will now describe each of these in turn.

▪ Content Approval

You should not confuse this with the approval process, which we'll discuss in the next chapter. By enabling this, any document that a contributor creates or modifies, will be placed into a Pending status. The document will be visible to the contributor and anyone who has the approve permissions. You as the approver must then approve the document before it's visible to all users. SharePoint will not automatically notify you when documents are placed a pending status, and therefore, we recommend that you and other approvers place an alert on the document library, so you are informed.

Under the covers, when you enable content approval, two extra column appear, named Approval Status, and Approver Comment; plus two additional Views: Approve/reject items and My submissions and a new option for checked in documents appear on the context menu: Approve/reject as shown in figure 3.15. The Approval Status is a choice column type, with values of Approved, Rejected, Draft and Pending.

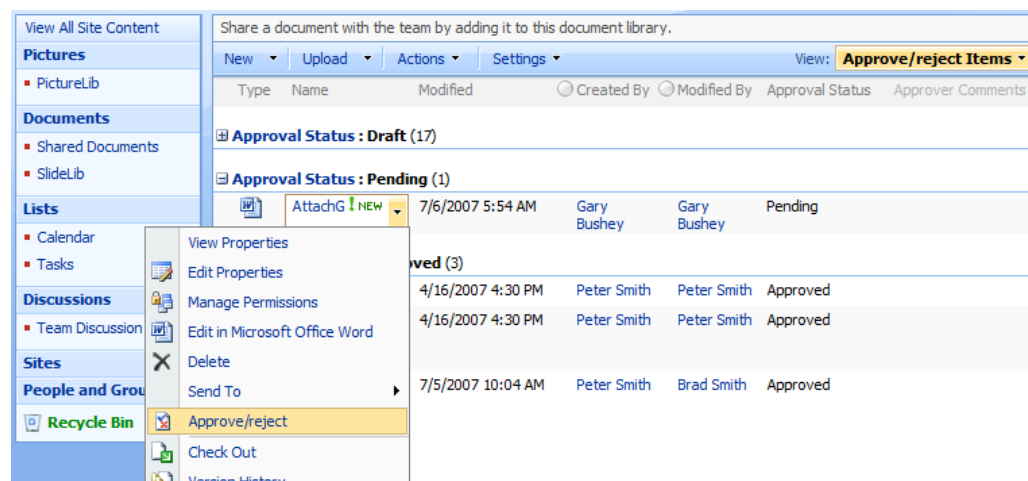


Figure 3.15 Content Approval – use the Approve/reject Items Views to identify those documents in a Draft status

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MOSS 2007 uses content approval extensively on many libraries and lists it uses to implement its many features, for example, publishing Web sites, which we will describe in Chapter 8, and the Sites list which drives the site directory home page, which we described in Chapter 2, uses content approval.

- Document Version History

Document stores the entire contents of the document with each saved major and minor version as shown in figure 3.16. Content managers should be judiciously turn on version control in the places where it makes sense and limit the number of versions the system will keep.

Collaboration Portal > Sites > In Action > Shared Documents > Settings > Versioning Settings

Document Library Versioning Settings: Shared Documents

Content Approval

Specify whether new items or changes to existing items should remain in a draft state until they have been approved. [Learn about requiring approval.](#)

Require content approval for submitted items?

☐ Yes ☒ No

Document Version History

Specify whether a version is created each time you edit a file in this document library. [Learn about versions.](#)

Create a version each time you edit a file in this document library?

☐ No versioning

☐ Create major versions
Example: 1, 2, 3, 4

☒ Create major and minor (draft) versions
Example: 1.0, 1.1, 1.2, 2.0

Optionally limit the number of versions to retain:

☒ Keep the following number of major versions:

☒ Keep drafts for the following number of major versions:

Draft Item Security

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.](#)

Who should see draft items in this document library?

☒ Any user who can read items

☐ Only users who can edit items

☐ Only users who can approve items (and the author of the item)

Figure 3.16 Content Approval

MOSS 2007 supports an enhanced level of version control called Records. Records allow content to be saved at a particular point in time as an official snapshot. Records can also be set to remove themselves after a specified period. For example, financial records may be kept for seven years and then deleted while policy documents may be kept for 3 years. Records management is a new capability in MOSS 2007 and is discussed in detail in chapter 9.

- Draft item security

Use this option if you want to prevent users from seeing minor versions documents or if you enable content approval, those documents that you have not approved. You can also specify which group of users can view draft documents. Users who do not have permissions to see draft documents, will see the last approved (major) version of the document.

- Require Check Out

To specify users must check out documents before making changes, click the Yes radio button in the Require Check Out section, as shown in Figure 3.17.

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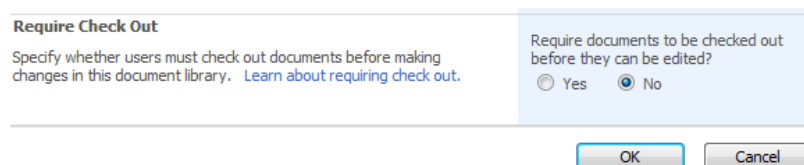


Figure 3.17 Require Check Out

3.3.2 RSS (Really Simple Syndication) Feed

Exposing lists as **RSS** feeds is the easiest way to make SharePoint list content available to non-Microsoft client applications and other server platforms. Users subscribe to RSS feeds by using an RSS feed aggregator such as Microsoft Office Outlook 2007 and IE 7.0.

3.3.3 Column order

Earlier in the chapter, we explained what columns were. Once you have decided which columns you need in a list or a library, you then need to decide in which order you should display them to users. Columns are displayed to contributors when they enter or modify metadata, and they are displayed when users view list items within a list. The column order does not affect the functionality of the list or library, but it can affect the logical flow. As content managers, you can change the column order on the list or library customized Web page, as shown in figure 3.15, which affects the column order when contributors enter or modify metadata or you can alter the column order on Views, which we will discuss in the next section.

TIP

When specifying the column order for contributors to enter metadata, a popular column order places all required column first followed by the optional columns.

3.3.4 Usability

Having just looked at customizing lists and libraries now is a good time to pause and make sense of what you, as content managers are trying to achieve. The modifications we looked at, so far in this chapter, focused on data entry. We highlighted the need for security, data integrity and the names you use can affect how users find information. That, as you create and customize your lists and libraries, ensure you group related items. Therefore, without using the word, we have been discussing *Usability*.

Remember, the technology you are using to create your solutions is a Web site, and therefore, you are now a "Web designer", so you need to follow industry standard Web site best practices, such as, design you Web pages for your target users screen resolution. Just because you have a 19" screen and use a screen resolution of 1280x1024 or greater, do not assume that all users will see what you see. If you are creating an intranet SharePoint site, then find out your company's default screen resolution. If it is an internet site, then the W3 Schools Web site contains browser statistics (http://www.w3schools.com/browsers/browsers_display.asp). As at the time of writing, it showed that 80% of computers are using a screen size of 1024x768 pixels or more. Make sure you preview your lists and libraries, using the resolution of your targeted user. Never develop a Web page that makes the user use the horizontal scroll bar to go back and forth reading and/or looking for information.

In addition, as with any good data entry application, you may find the need to test your site for usability. This need not be elaborate, just ask members of your team to visit your SharePoint Web site, and watch what they do. As they enter the data, did they jump around the screen or get frustrated that the fields were not in a specific order? Ask them if they found the information where they expected to find it, and remember to involve users who are not as technically or as business aware as yourself.

Well that's the end of the pause – for now. In this section we looked at how you, as content managers, can extend the out-of-the-box lists and libraries templates, with the aim that contributors can add and maintain data that is relevant to the work at hand. Next, we'll move on to how to display the data, now that it is added to lists and libraries.

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3.4 Working with Views

Earlier in this chapter, we described how Views allow content managers to present list data to portal users. Content managers can use views to pick which columns or rows users see and in what order. When working with views, content managers should create views that present only the information users need in order to accomplish their goals. Too much information can overwhelm users and make them less productive. Views also allow you, as content managers to display information in different formats without having to enter the information more than once.

In the next few sections, we will look at the various types of views available to SharePoint lists, the actions content managers can perform on views, and the properties views expose.

3.4.1 List View types

SharePoint offers several starter list view types, which content managers can select when they create a new list view, but the view type cannot be changed once you create the view. However once created Views can be customized using the browser or SharePoint Designer, because, under the covers, a view is just an ASP.NET Web page, for example, the "allitems.aspx" page is the default view for most lists and is stored either in the root of the list or in the case of a document library in the forms folder, which we pointed out to you earlier in this chapter when we looked at the Explorer View.

- **Standard View:** This View displays textual or image data (for image libraries) in a tabular format on a Web page. Content managers can apply a styles to Views, such as Basic Table, Newsletter, Shaded and Preview Pane.
- **Standard View, with Expanded Recurring Events:** This view is just like the standard view, with two exceptions: this view is only available to event lists, and this view expands all recurring events, whereas the standard view shows only the recurring event specifications. For example, let's say we have an events list with a single event called "Weekly meeting", and the event is set to occur once every week on Monday. A standard view would show just one item for the weekly meeting. A standard view with expanded recurring events on the other hand, would show many items titled "Weekly meeting", all occurring on sequential Mondays.
- **Datasheet View:** Datasheet views display data in an editable spreadsheet format that is convenient for bulk editing and quick customization. Users who are familiar with using Microsoft Excel or Access will get the most benefit out of datasheet views. In fact the Datasheet view uses the Microsoft Excel 2003 or Microsoft Access 2007 client applications to render this view. It is therefore not available to users who do not have installed one of these products.

TIP

The Datasheet Views makes a separate query to the data stored in the list and updates the data asynchronously. If users modify many rows of data using the Datasheet View and then navigate away from the page before the embedded spreadsheet has had a chance to update the data, a dialog box is displayed as shown in figure 3.18. You should train users how to use the portal.

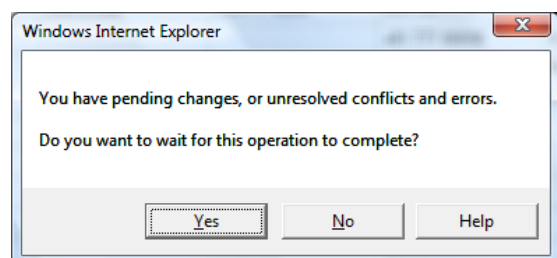


Figure 3.18 Datasheet View, asynchronously updates data resulting in a pending changes dialog warning.

- **Explorer View:** This was described earlier in this chapter, and is only available for document and picture libraries.

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TIP

Because datasheet and explorer views make use of ActiveX controls, only users with the IE can access these views. Additionally, users accessing the view from a default installation of Windows Server 2003 will not be able to use the views due to the higher security settings of IE on Windows Server 2003.

- **Calendar View:** The calendar view allows users to see data as a daily, weekly, or monthly calendar. Any list or library can display its items on a calendar. Select the date columns in the list or library that the calendar view will use as the items' begin and end dates. For example, content managers can show documents on a monthly calendar based on the documents' creation and last modified dates.
- **Gantt View:** The Gantt view is new in WSS 3.0. Use Gantt views to show the relationships between items based on their start and end dates. You would most commonly use Gantt views in project management scenarios. Figure 3.19 shows a Gantt view created on a document library. To create a Gantt View you will need columns that display the list item's Title, Start Date, Due Date and Percent Complete. we used the built in columns: Title and Created, and created, a due date and percent completion columns. The built in Title column only has a value if when you upload a document the Word property Title has a value. This is not normally the case, as you can see in figure 3.19, some of the document have an empty Title column. Also, note that some documents only have a black diamond in the Gantt View, this is because they have no Due Date specified. If you want to use the Gantt View on a Document library, you will need to decide the columns to use, and configure them as required columns for the Gantt View to be meaningful..

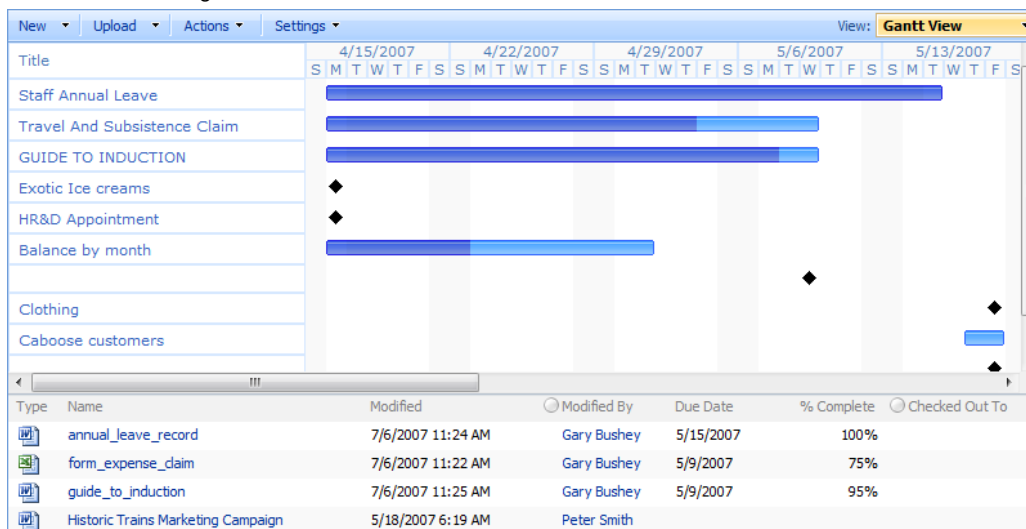


Figure 3.19: The Gantt view shows horizontal bars representing start and due dates for list items, as well as color shading based on completion status.

NOTE

The Gantt View does not support many advanced features of true project Gantt charts, for example, there is no display support for sub-items or item hierarchies; no display mechanism for milestone items or item dependencies. The Gantt View does not expand recurring events in an events list and there is no support for items starting or ending early or late. That said, while these limitations really limit the usefulness of the Gantt view as a Gantt chart, the limitations do not preclude the Gantt view's use as a timeline view. In fact, if you think of the Gantt View as a timeline view, and name your views appropriately to convey the message to your users, things work out pretty well.

Now we have detailed the types of Views, in the next two sections we will look at creating and modifying views.

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3.4.2 Creating Views

To manage views, content managers will use the customize list Web page, as shown in figure 3.14. This Web page allows you to create new views from scratch, create a view from an existing view, modify and delete views.

Creating views from existing view is a new option in WSS 3.0. Many views content managers create for a particular list are similar to each other but have some variations, such as a different sort or filter. Creating a new view from an existing view allows content managers to save time by using view where most of elements they want to display are present, rather than starting from scratch. Starting from an existing view also allows content managers to create consistent views more easily.

Deleting a view removes Web page that hosts the view but does not delete the data, therefore, any links that referenced the view by the view's page URL will be broken links.

3.4.3 Modifying a View

Users' needs change over time. Modifying existing list views allows content managers to change the sorting, filtering, grouping options, and column order on views already available for a list. Content managers may also need to modify existing views to incorporate new list columns.

NOTE

The **List View Web Part (LVWP)** which is used to display the contents of a list or library on a **Web Part page**, can reference views. Modifying or deleting a view does not affect how the LVWP displays it's data. I'll talk more about this in chapter 5.

By modifying the view, content managers can tailor which list items a view displays and how it arranges those items. Most view properties can be set either when the view is initially created or modified later. Not all views have the same properties. The calendar view has only a few configurable properties that control what columns to display. The Gantt view is a variation of the standard view and has only a few additional configurable properties that control which columns to display. The explorer view has no configurable properties, as it is simply a virtual folder view of a document library. The standard view is the main view type that most users and content managers will work with when there is a need to display information in a customizable manner. Table 3.1 details the standard view's properties and how they affect the view's behavior.

Table 3.1 Standard View's properties

Section Name	Description
Name	The name of the view is visible to users and is how users identify the information in the view. The name should be descriptive, such as "Sorted by Author", so that site users know what to expect when they click the link for the view.
Default View	Making a view the default view tells the system to display the view if no other view is explicitly referred to. The default view also determines the data returned to applications that access the list programmatically. Only public views can be marked as default views.
Audience	Users can create views for their own individual use, called personal views, or for general use by the portal users at large, called public views. While only content managers can create public views, any user with rights to personalize content can create a personal view. A personal view will only show up for the user who created it.
Columns	You can select the columns you want to show or hide in a view, and the order in which those columns appear. Only including the relevant columns for a particular view achieves two ends: it presents users with only the information they need and it prevents users from having to scroll the Web page horizontally if the list or library has many columns defined. You should include the columns users need to see for information as well as columns users will want to use to sort and filter the list items.
Sort	You can select up to two columns by which to sort list items in a view. This sort becomes the default sort order for the view. Users can choose to resort items in

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the view, but their sorting will not be saved to the view.

Filter	You can choose to show all of the list items in a view, or display a subset of the items by using filters. Columns can be filtered on the current date or the current user of the site by using the [Today] or [Me] as the column value expressions. Using indexed columns can speed up rendering views with many items. Unlike sorting, where users can override the default, users can only specify an additional filter to the view, not an override filter. For example, if a view is filtered to only show items for a particular user, the user can add a filter to show items from a particular date, but the user will still not see items from other users.
Group By	Use this option to show relevant list items together. Unlike sorting, where all items are displayed as a flat list, Group By, nests items under the Group By column name. In effect, this acts very similarly to showing the items within a folder. The difference is that while an item can only be in one folder at a time, an item may be categorized using metadata in various columns at the same time. You can construct various views with different Group By columns to show different item relationships. Content managers can specify to show groups expanded or collapsed when the view loads. Showing groups collapsed is a great option for lists with lots of items. Like sorting, you can only select up to two columns to group items by.
Totals	Use this option to display summary information, such as, the sum of a column, the average, minimum or maximum value of a selected column. If the Group By option is defined, totals will appear at each group footer as well as for the entire list
Style	The style setting allows content manager to display the list items with a pre-defined format.
Folders	If you use folders in the list or library, you can specify if the current view will display items in the folders or in a flat structure. Displaying items in folders is useful if items are only grouped by their physical folder locations. However, if you wish to group items by metadata, the physical folder location for an item may not be relevant. See earlier discussion in this chapter concerning the use of folders.
Item Limit	Use an item limit to limit the amount of data that the view returns to users of this view. You can make this an absolute limit, or allow users to view all the items in the list or library in batches of the specified size. When setting the item limit for a view, you should think about how large numbers of items will affect the page layout in which the view is placed and about how many screens a user may have to browse in order to find the item. Generally, it is not good to have users page through more than three screens of data. However, it is usually impractical to display more than 100-200 items on a page because it consumes too much system resources to query for the items and to render them.
Mobile	The mobile view is a new option in WSS 3.0. Mobile views are rendered when SharePoint detects that the client browser is a mobile device, such as a Windows Mobile Smartphone, PDA, or just about any Web-enabled device. When creating a mobile view, content managers should keep in mind that mobile devices typically have very small, lower resolution screens, and access to limited bandwidth, as compared to desktop or laptop computers. As a result, it is impractical to include more than a few columns in a mobile view or a large number of items. Most users who access a list from a mobile device will be interested in a very focused set of items, such as items that demand the users' immediate attention or items that the users' have created or are responsible for. Content managers should use the column selection and filtering features for views to tailor the mobile view's content to the limited capabilities of mobile devices and to the scenarios in which users will likely access the views from their mobile devices

CAUTION

Changing a list view from a default view may be an irreversible change to the view. Many lists have highly customized default custom views that are not easy to recreate. If planning to experiment with view settings, it is better to create new views or views based on existing, rather than changing existing views.

This section has given us a good high-level understanding of Views. At this point, you should have an understanding of lists and libraries, list columns and two new mechanisms called site columns and content types. In the next section, we will present a scenario that uses all of these components.

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3.5 Putting it all together

Let's take some of what we've just learned in this chapter into practice by creating a moderated discussion list. We will use as a basis the discussion list that we created earlier in this chapter. The aim of this exercise is to allow moderators to see easily which discussions they are responsible for. The custom view is inspired by the My Tasks View available in tasks lists. We want to see not only how a content manager would create this view but also how a moderator would make use of the new view.

3.5.1 Customize the Discussion list

We'll now see how content managers would create a moderated list together with a view for the moderator:

1. Open the browser and navigate to the discussion list created earlier in this chapter and click Discussion Board Settings from the Settings menu. The Customized SiteDiscussions page appears.
2. Click Add from existing site column in the Columns section.
3. Click Assigned To in the Available site columns list and then click Add, clear the Add to all content types check box and then click OK.

The Customized SiteDiscussions page appears. In the Columns section, Assigned To is listed, but with no associated content type.

4. Click Discussion from the Content Types section, and then click Add from existing site or list columns, click Assigned To > Add > OK.

The List Content Type: Message page appears, with Assigned To listed.

5. Click Settings in the breadcrumb to return to the Customized SiteDiscussions page. In the Columns section, Assigned To is listed, associated with the Message content type.
- 6.
7. Click Create View from the Views section and then click Subject from the Start from an existing view section.
8. Enter My Discussions into the View Name textbox, clear the Assigned To column in the Columns section.
9. Click Show items only when the following is true option in the Filter section, click Assigned To in the Show the items when column drop down list; click is equal to (default) from the next drop down list and Enter [Me] into the next textbox. Figure 3.20 shows the filter settings for the My Discussions view we have created.

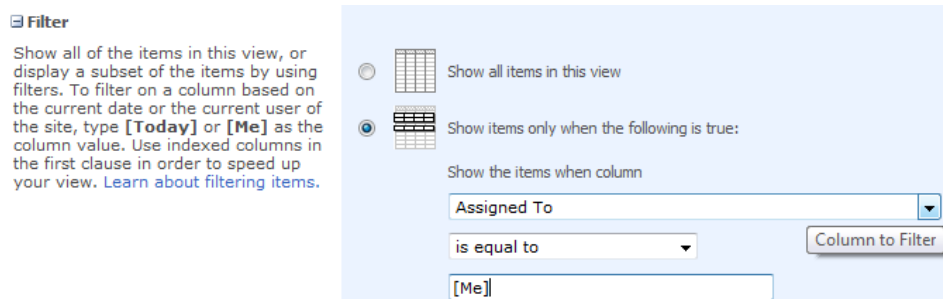


Figure 3.20 The My Discussions View Filter settings

10. Select OK.

3.5.2 Test the customization

Now that we've created our custom view, let's see a moderator put it in action:

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1. Click New on the list toolbar, type Discussion 1 in the Subject textbox, type This is my first moderated discussion in the Body textbox, type your username in the Assigned To text box and then click OK.
2. Repeat the previous step, name it Discussion 2, and type a different username from the one you are using into the Assigned To textbox and click OK.

In the Subject View, you will see both discussions.

3. Select the My Discussions view from the View menu a on the list toolbar. Figure 3.21 shows the My Discussions view selected from the lists view menu. Only discussion assigned to the currently logged in user are shown.

Subject	Created By	Replies	Last Updated
Discussion 1 NEW	Gary Bushey	0	7/6/2007 11:25 PM

Figure 3.21 The My Discussions view shows discussion threads for the currently logged in user

We have just made the moderated discussion much easier to manage by giving the moderators an easy way to see exactly which discussions for which they are responsible.

3.5 Summary

In this chapter, we covered how SharePoint approaches storing data and what content managers need to know when using list properties, columns, and views to structure, organize, and display content. We saw how the decisions content managers make can empower regular users by allowing the users to capture and view pertinent information to complete the task at hand and how to relate information in different lists by connecting the lists using the Lookup column type.

The most important technical fact we learned is that most of the structures we work with in SharePoint are lists of one sort or another. It is important not just for content managers who need to design the data storage to know and understand this key concept, but also users need to be trained on how to use the structures the content managers design. If users understand that everything is a list, then all they need to be trained on is how to use a list, not twenty lists.

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5

Web Parts

In this chapter

- What is a Web Part?
- Using Web Parts
- Deploying Web Parts

So far, we've learned how to create SharePoint sites, how to work with lists and libraries, and what lists and libraries are available when we install SharePoint. Now we need a way to expose these elements to users so that they can interact with SharePoint. In this chapter, you will learn about Web Parts and how you can use them to create effective user interfaces. The Web Part framework is basic to Windows SharePoint Services (WSS) 3.0 and as Microsoft Office SharePoint Server (MOSS) 2007 is based on WSS 3.0, it is applicable to MOSS 2007.

5.1 What is a Web Part?

In order to understand what a Web Part is, it helps to be familiar with the technical history that caused the Web Part to come into existence. When web pages evolved from static HTML and client scripts into server based web applications, the code that accompanied these Web Parts was long, drawn-out, without well-defined entry and exit points. This style of writing code is known as "spaghetti code", and quickly became a problem. In web programming, spaghetti code took two major forms:

- Lack of separation between business and data logic code and code written to present user interface objects, such as buttons and textboxes. This division of code is often referred to as Tiers.
- Lack of well-defined separation between sections of code.

Web applications became monolithic and unmanageable. Organizations found that they could not easily extend application or get one application to communicate easily with another.

With that history as the background, we can investigate Web Parts in more detail. There are three groups of people that deal with SharePoint: developers, administrators, and users. The division between these groups of people becomes very blurred with SharePoint, especially if you put into the mix, web content managers, web masters and web designer. As one might expect, each group has a different answer to the question. What is a Web Part? In the sections that follow, we will look at each group's perspective.

5.1.1 Developer View of Web Parts

Of all the people who belong to an organization that are affected by a SharePoint deployment, Web Parts affect developers the most. Web designer or web master can also be included in this category. As this is not a developer-oriented book, but we are targeting web designers and web masters, so we will cover the developer benefits of Web Parts briefly. Web Parts require developers to think differently about application design, even their understanding as to what is an application, is questioned. When working in SharePoint, developers must think of

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assembling applications from highly modular components, and the unit of development is Web Parts, rather than groups of web pages. A Web Part is a modular unit of information that has a single purpose.

Web Parts address the problems of web application design in several ways. Web Parts run within the Web Part framework, which originated in WSS 2.0, but Microsoft has since incorporated into ASP.NET 2.0. The Web Part framework defines a web page structure in which Web Parts can run, output HTML, access data, and process user input.

Web Parts and the Web Part framework use and extend the server control paradigm that was already part of ASP.NET, with the addition of borders, Web Part connections, and tool panes. The framework uses borders to visually and logically separate one Web Part from another. Developers can use Web Part connections and tool panes to create Web Parts capable of providing data to and consuming data from other Web Parts, and to create runtime configuration user interfaces.

5.1.2 Administrator View of Web Parts

In the early years of web applications, deploying new code was a tricky business, especially for server administrators in charge of multi-server web farms. Web Parts ease the problem by allowing developers to package Web Parts in a feature, which is then deployed as a WSS solution. The solution file contains an number of other files, such as, a manifest file that is used to track all the other files, dashboard Web Part files, assemblies, and resources, such as images and style sheets. An administrator can deploy the solution to the Web farm, then SharePoint manages the installation of the files on each Web server in the SharePoint farm and any new servers you add to the farm at a later date. Therefore, you can be assured of a predictable deployment outcome. Depending on the scope of the feature, you can activate it at the farm, web application, site collection or site level, thereby making the Web Part available to be used where you want to use it. If your developer or third party vendor provides you with files that need to be installed on each Web front-end server, then they have not packaged the Web Part up in the most manageable or supportable method and you should request that they change their delivery method of providing Web Parts.

5.1.3 User View of Web Parts

Users typically see and interact with HTML interfaces objects. SharePoint renders Web Parts into these HTML interface objects. Web Part borders help to separate visually the information and functionality of each Web Part on a page. Users with content management rights, typically see Web Parts as visual components that they can combine to create pages that are more complex.

Spaghetti Code

"Spaghetti code" is a term used to describe application source code written in a long, drawn-out manner, without well-defined entry and exit points. If spaghetti code were a human language, it would be a mass of run-on sentences without paragraph breaks to separate out units of thought. A programmer trying to understand a small section of spaghetti code might well have to become an expert in the entire application just so they can amend a part of the code, a very time-consuming task. Spaghetti code is problematic because it is costly to maintain and difficult to transfer knowledge from one programmer to another. It is also hard to reuse due to the lack of well-defined entry and exit points, or separations in the logical structure.

N-tier Programming

N-tier programming refers to the practice of separating portions of an application based on the functions the code performs. The most common way to partition an application, is into a three-tier application: user interface, business logic, and data access tiers. Each tier can affect the other tiers.

Web Parts and Portals

For those readers who are not familiar with Microsoft applications but are well versed in Java, the description of Web Parts will seem comparable to Portlets. In fact, the two technologies are very similar because they attempt

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to solve the same problem: reduce spaghetti server code and allow end-users to modify dynamically the composition of a web page.

The majority of sites created using WSS 3.0 or MOSS 2007 consist of Web Part pages, which are special pages that contain one or more Web Parts. Web Part pages and Web Parts are designed to be flexible and highly customizable. You can create Web Part pages using the browser, a WSS 3.0 compatible editing tool such as SharePoint Designer or with code. This is where the blurring of the roles starts. With legacy web sites, creating web pages and arranging content was the domain of the developer/web designer/web content manager. Now users who own the information complete such tasks using the browser with interfaces similar to Microsoft Office client applications, such as, Microsoft Office Word 2007. This can be a cultural shock for the developer and administrator as well as the user. The developer and the administrator feel like they are losing control and the user believes they are now doing the work of two people. When, in fact, what is happening is that there is now no Web master bottleneck, and in place of many people entering data in multiple locations, transmitting it between them to achieve this and waiting for customizations, users can enter the data once into the definitive location in the timescale they want and complete the customizations for them. This cultural change is harder to manage than it is to master the technology.

5.4 Working with Web Parts – The Basics

Now that we've had a brief introduction as to what Web Parts are, let's look at how to add them onto Web pages. Adding Web Parts to or modifying existing Web Parts on a page entails placing the page in edit mode, making changes to the Web Part or adding new Web Parts to the page, and then taking the page out of edit mode.

The first construct you need to be aware of is the Web Part zone, which is a special section of a Web Part page where content managers can place Web Parts without needing a developer. Using a browser, you can only add Web Parts to Web Part zones, where each zone can contain a number of Web Parts. Developers or Web designers define Web Part zones, using Visual Studio .Net if the page is part of a site definition or Microsoft Office SharePoint Designer otherwise. See Chapter 15, "Using the SharePoint Designer". Using SharePoint Designer you can place Web Parts outside the zones; these are called static Web Parts and cannot be customized using the browser.

A Web page in SharePoint can have two views:

- Personalize view. This is your own personal view of a page. Not all pages within MOSS allow you to personalize them.
- Shared View. This is the default view, and any changes you make to this view will appear to all users. As a site owner, you will be able to modify the Shared View, as well as create a personalized view.

In Chapter 6, "Personalization Features", we detail these two views, how to switch between them and how to reset a user's personalized view back to the shared view. In this chapter, all our examples use the Share View of a page. So, now we've covered some of the basic, let's add Web Parts to a Shared View of a page by using the following steps:

1. Open your web browser and navigate to the site page you wish to modify
2. Click Site Action > Edit Page and then click Add Web Part in the Web Part zone in which you would like to add your Web Parts.
3. Select the Web Part check box you wish to add as shown in figure 5.1. You can choose to add more than one Web Part using this dialog box.

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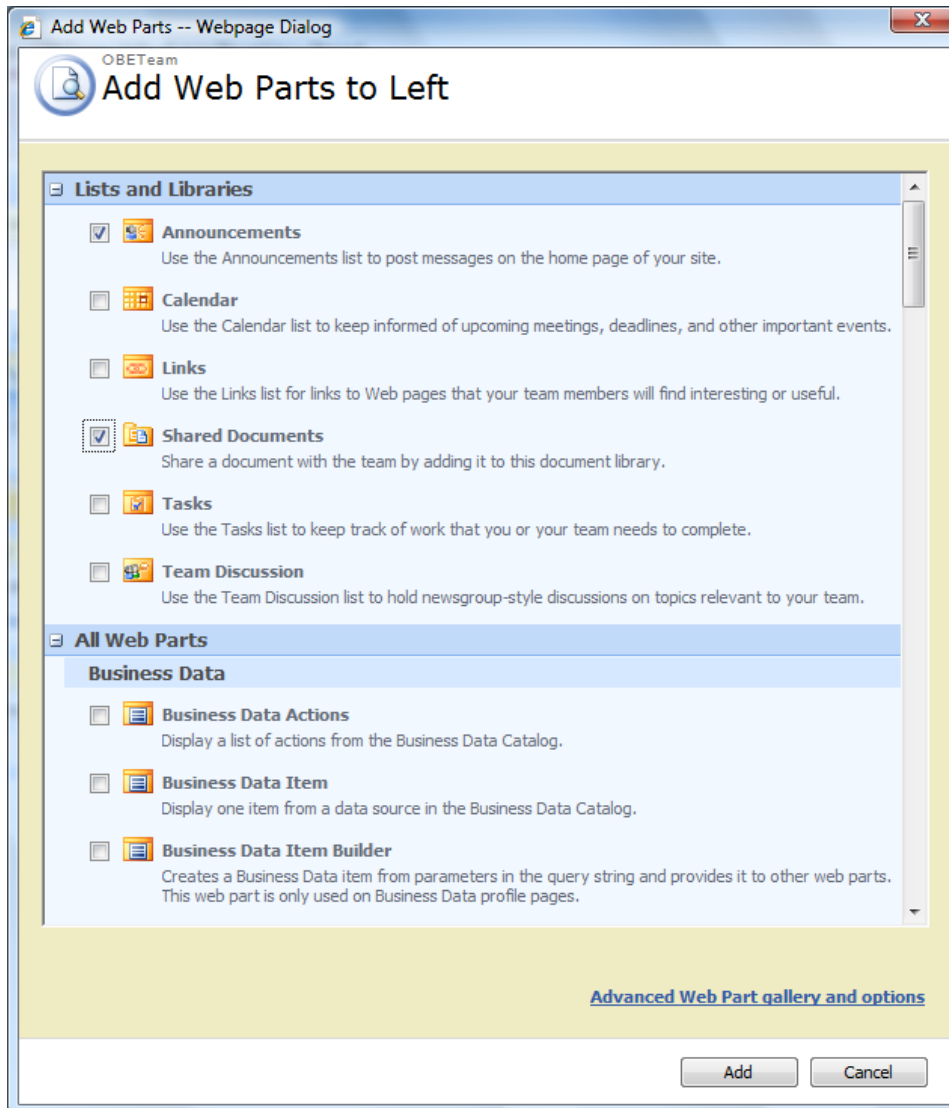


Figure 5.1: The Add Web Part web screen allows content manager to quickly add multiple Web Parts to a Web Part Zone.

4. Select Add
5. Take the page out of edit mode by clicking Exit Edit Mode.

You may have noticed a link at the bottom of the Add Web Parts – Webpage Dialog window, the Advanced Web Part gallery and options. This will open the Add Web Parts tool pane, which was the method used in WSS 2.0 to add Web Parts. In the following steps, we are going to investigate this tool pane:

NOTE

Using the Add Web Part tool pane requires an up-level browser client. This means that you must be using Internet Explorer 6.0. If you are using any other browser, you are better off using the new Add Web Parts – Webpage Dialog window for adding Web Parts.

1. Navigate to the site page you wish to modify, select Site Actions > Edit Page.
2. Click Add Web Part in the required Web Part zone and then select Advanced Web Part gallery and options. The Add Web Part tool pane opens as shown in Figure 5.2.

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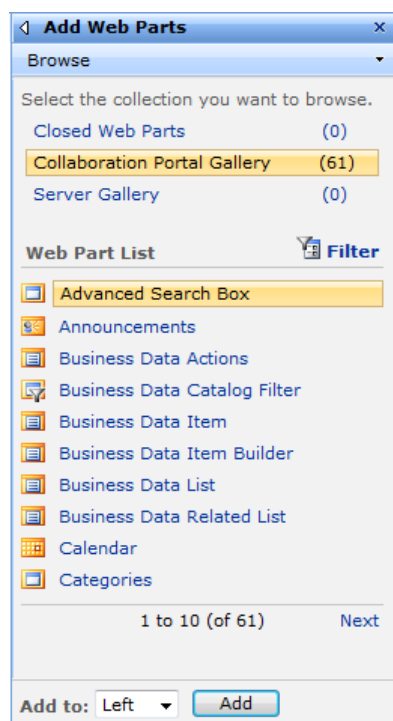


Figure 5.2: The Add Web Part tool pane consists of a gallery section, Web Part List, which you can filter and a method of adding a Web Part to a specific zone.

3. Click the icon to the left of the Web Part name, so that a cross with arrows appears, and then drag-and-drop each Web Part into the desired zone. Alternatively, you can click the Web Part title, at the bottom of the tool pane, choose the Web Part zone and then click Add.

TIP

The Add Web Parts tool pane allows content managers to add Web Parts into any page zone and in the exact order desired. However, only one Web Part can be added at a time. The standard Add Web Parts – Webpage Dialog window allows you to add several Web Parts at a time, but the Web Parts are added to the top of the Web Part zone where you selected the Add Web Part button.

The option you select to take a page out of edit mode depends whether the SharePoint site is a Web Content Management (WCM) site, also known as a publishing site, or a non-publishing site and if the page you are editing is a publishing page. We differentiated between these two types of sites in Chapter 2, “The Building Blocks of an Application”. If you do not know what sort of page you are on, then when you click Site Actions > Edit Page look at the top of the page, a publishing page will have a Page Editing Toolbar as shown in figure 5.3.

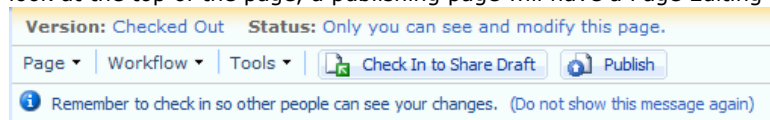


Figure 5.3 Use the Page Editing Tool page to publishing Web Content Management pages.

You can find more details on WCM sites and the publishing model in Chapter 8, “Web Content Management”. For the rest of this chapter, we will be managing Web Parts using a site based on the Team site template.

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We have seen in this section, where we can find Web Parts and how to add them to a page using either the Add Web Parts – Webpage Dialog window or the Web Parts tool pane. In the next section we are going to investigate where Web Part live before you place them on a page.

5.2 Web Part Galleries

SharePoint organizes Web Parts into collections called galleries. SharePoint has four galleries: [Site Name] Gallery, Server Gallery and Closed Web Parts, which you can see in the top section of the Add Web Parts tool pane as shown in figure 5.2.

5.2.1 [Site Name] Gallery

The [Site Name] Gallery contains Web Parts that are part of the current site definition. The Web Parts in this gallery can vary based on the definition for the SharePoint site. Later in this chapter, we will look at the Web Parts that come packaged with the default WSS 3.0 and MOSS 2007 installations. The Web Parts you see in this gallery, you can manage at the site collection level, where it is known as the Web Part Gallery. Click Site Actions, then under Galleries click Web Parts.

5.2.2 Server Gallery

The Server Gallery contains custom Web Parts that a SharePoint Administrator adds to the SharePoint server farm, by using the stsadm command-line tool. This gallery is sometimes referred to as the central Web Part gallery.

NOTE

You can think of Web Parts stored in these first two galleries as blue prints. When you build a house, you refer to the blue print, but the blue print remains in existence, so you can build another house. Therefore, as you add Web Parts to a page from these two galleries, so the Web Part listed in the gallery – the blue print – is used to build a particular instance of the Web Part on the page, but the Web Part blue print remains listed in the gallery for you to use again. It would be nice if we had two different names, one for the Web Part blue print and one for the Web Part instance you add on to the page. However, we haven't so you will need to remember which is which by where you see them. Web Parts blue prints are reusable components. You can configure each instance of a Web Part differently. Going back to our house scenario, each house even though they are based on the same blue print they could have a different color door. The color of the door in Web Part terminology is known as a Web Part property – more about this later in this chapter.

5.2.3 Closed Web Parts Gallery

The Closed Web Parts Gallery initially contains no Web Parts. As you close Web Parts, by clicking the down arrow to the right of the Web Part title and then clicking Close, as shown in figure 5.4, SharePoint places them in this gallery. These are not Web Part blue prints as described in the previous note. These are actual instances of a Web Part. You can think of this gallery as a sort of recycle bin for Web Parts. You add a Web Part from one of the other galleries, thereby created a particular instance of that Web Part, configure it and close it. It's then placed in the Closed Web Parts Gallery. Then later you add it back to the Web page from the Closed Web Parts gallery, and it will still contain all your modifications.



Figure 5.4 When you close a Web Part it is placed in the Closed Web Parts Gallery.

When you close Web Parts, the Closed Web Part gallery's Web Part count is incremented by one, and if you add a Web Part from the Closed Web Parts gallery onto the page, so the count of Web Parts is decremented.

NOTE

In WSS 2.0, there was a fourth Web Part Gallery – the Online Gallery. This no longer exists.

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Now we have seen where Web Parts live, let's look at the different types of Web Parts you can use with WSS 3.0 and MOSS 2007.

5.3 Types of Web Parts

For readers who had some experience with WSS 2.0, you know that there was one type of Web Part: a WSS 2.0 Web Part. Things have changed somewhat. WSS 2.0 was built on top of the .Microsoft Net Framework 1.1. The .NET Framework 1.1 did not have Web Parts, so the WSS 2.0 team had to create the concept based on Microsoft ASP.NET Web Form custom server controls. In fact, the concept of the Web Parts was so successful the ASP.NET team incorporated them into ASP.NET 2.0, which is part of .NET Framework 2.0, which in turn is part of .NET Framework 3.0. This presents WSS 3.0 with an interesting situation: which Web Parts should it use? The answer is both, or, more accurately, all three. In order to maintain backwards compatibility with WSS 2.0, it can use WSS 2.0 Web Parts but also supports the new capabilities of ASP.Net 2.0 Web Parts. However, there is the concept of a hybrid type of Web Part, which is based on the WSS 2.0 Web Part object model but makes use of ASP.NET 2.0 features and serialization, which is used to save Web Part property settings. Developers should create hybrid Web Parts when migrating WSS 2.0 Web Parts to ASP.Net Web Parts. That said, most WSS 2.0 Web Parts should continue to work in WSS 2.0 without any modifications. This may not be true for SPS 2003 Web Parts that use features that Microsoft has deprecated. For more information on upgrade and migration issues, refer to <http://msdn2.microsoft.com/en-us/office/aa905505.aspx>.

Why am I going into this? As a knowledge worker, you may be involved in obtaining Web Parts from vendors or specifying the development of custom Web Parts from the developers in your organization. You will need to be aware of the different types of Web Parts because not only will they consist of an assembly, a dynamic-link library (dll), but they will have a wrapper files. The WSS 2.0 and hybrid Web Parts will use the traditional .DWP eXtensible Markup Language (XML) file wrapper. The new ASP.Net 2.0 Web Parts will use the new .WEBPART XML file wrapper. Any scripts or utilities that search for DWP files will need to be updated to search for both file extensions.

TIP

WSS 3.0 supports WSS 2.0 and ASP.Net 2.0 Web Parts. To distinguish quickly between the two, look at the Web Part wrapper file corresponding to the Web Part. Wrapper files with the .DWP extension represent WSS 2.0 Web Parts. Wrapper files with the new .WEBPART extension represent ASP.Net 2.0 Web Parts.

We have detailed the three types of Web Parts from a technical perspective; however, there are different types of Web Parts that come with WSS 3.0 and MOSS 2007, which is the subject of the next section.

5.5 Out of the Box Web Parts

In this section, we'll look at using the elements common to most Web Parts and examine the Web Parts that come with the default SharePoint site definitions.

WSS 3.0 and MOSS 2007 ship with an extensive set of Web Parts. Going over in detail each Web Part is out of the scope of this chapter. Rather, other chapters in this book cover Web Part usage germane to the chapter topic. For example, the chapter on working with search covers the use of the search related Web Parts. Here, I will simply list the various Web Parts so readers will see what's available. We have divided the Web Parts into the following groups:

- List View Web Parts
- Web Parts that appear on a WSS 3.0 only installation
- MOSS 2007 Feature specific Web Parts, such as, Business Data, Content Rollup, Dashboard, Filters, Miscellaneous, Outlook Web Access, Search and Site Directory. These headings are the ones you will find in the Add Web Parts – Webpage Dialog window so you can quickly find the Web Part we are discussing.

In the next sections, we will detail each group of Web Parts, starting with the List View Web Part.

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5.5.1 List View Web Parts

List View Web Parts (LVWP). These are Web Parts that display the contents of lists and libraries. We briefly discussed these Web Parts in Chapter 3, "Using Lists and Libraries". When you create a list or library, SharePoint creates a link to each list and library on the All Site Content page, which you can navigate to by clicking View All Site Content at the top of the Quick Launch bar. You may also see them listed on the Quick Launch bar, depending how you have configured the list or library. In addition, in the Add Web Parts – Webpage Dialog window as shown in figure 5.1, under the Lists and Libraries section, there will be a LVWP for each list or library in a site. When you add a LVWP to a page, the default view of the list or library is used to display the items stored in the LVWP. You can change the view, edit the current view, and change the toolbar type by using the List Views section in the tool pane, using the following steps:

1. Click the down arrow to the right of the Web Part title and click Modify Shared Web Part. The Web Part properties tool pane opens, the Web Part whose properties you are modifying is highlighted with an orange dashed line, all Web Parts titles now include the text edit, and the drop down menu of each LVWP now contains Delete and Connections options, as well as Minimize, Close and Modify Shared Web Part, as shown in figure 5.5.

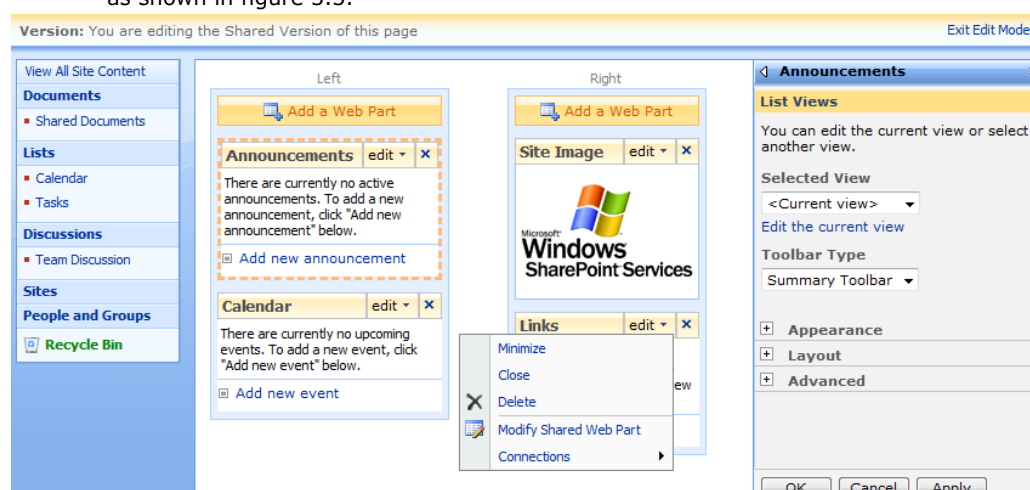


Figure 5.4 Use the Web Part tool pane to customize the List View Web Part.

2. Under Selected View, click Edit the current view. The Edit View page opens and looks very similar to the Edit View pages we described in Chapter 3 in that it has Column, Sort, Filter, Group by, Totals, Style, Folders, Item Limit and Mobile sections. The difference here is that there is no place to enter a name for this view; you are just configuring how the LVWP will be displaying the contents of the list or library within this particular Web Part.

NOTE

You can use the Selected View drop-down list to select a View you have defined for this list or library, but, be careful when switching views as you changes to your current view and you may have to reconfigure any Web Part connections that this Web Part may have. More on Web Part connections later in this chapter.

3. Click OK or Apply and then click Yes if a Warning dialog box, concerning switching views appears.

You will be able to use LVWP on any SharePoint sites. Only those lists or libraries created on a site will be listed as LVWP. If you want to present the contents of a list or library that lives on a different SharePoint site, you will need to use the Data View Web Part (DVWP), which we discuss in Chapter 16, "The Data View Web Part".

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5.5.2 Windows SharePoint Services Web Parts

In a WSS 3.0 installation, there other than LVWP there is only a Miscellaneous section in the Add Web Parts – Webpage Dialog window, where eight Web Parts are listed. These Web Parts are also available on a MOSS installation and are described as follows:

- Content Editor Web Part (CEWP). This is a very versatile Web Part. Not only can you use this to enter content, format text, tables and images but you can use it to enter HTML code and JavaScript. The HTML <FORM> element is not allowed, so if you need to use the <FORM> element, consider using the Page Viewer Web Part of the Form Web Part. In the CEWP properties tool pane you have the option to add content to the Web Part by using the Rich Text Editor or the HTML source editor or by providing a link to a text file. The rich editing capabilities of this Web Part require two things: a browser that understands all of the JavaScript and DHTML required uses an ActiveX control. If you use a browser that does not support this, then you will find the HTML source editor very useful. However, on customer sites where this occurs we have used a free third party tool from Telerik that can be found at <http://www.telerik.com/products/sharepoint/radeditor.aspx>.

When we create JavaScript that is used in a CEWP on a number of pages, then we put the JavaScript in a file, upload that file to a document library and then enter the link to that the file in the properties of the CEWP. This allows us to centrally manage the JavaScript and we don't have to remember which users we gave it to. To find examples of using JavaScript in the CEWP do a search on the internet for SharePoint CEWP JavaScript. We have also used the CEWP to play flash files.

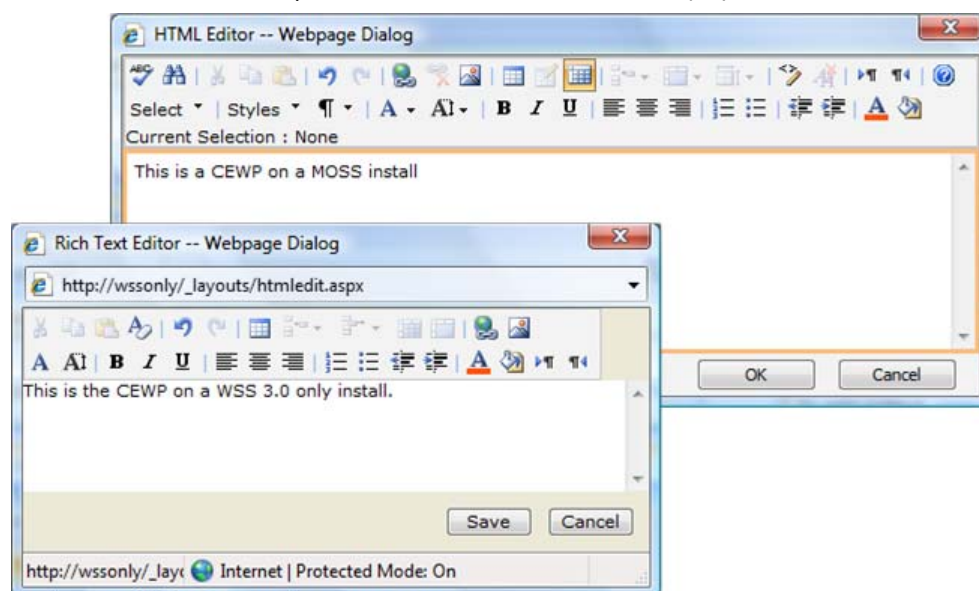


Figure 5.6 A MOSS CEWP and a WSS 3.0 only install CEWP

The CEWP on a MOSS installation gives a fuller end-user experience when they enter content than the CEWP on a WSS 3.0 only installation. Figure 5.6 shows the two CEWP. On the surface, there doesn't seem much difference but explore a bit deeper. The MOSS CEWP dialog box is labeled, HTML Editor – Webpage Dialog, and the WSS 3.0 only install CEWP is labeled, Rich Text Editor – Webpage Dialog. The MOSS dialog window has more formatting functions, including a Spell Check, a Find and a Help, but there are some more important differences, for example, when you want to include an image within the CEWP. The MOSS version of the CEWP provides a more robust solution, taking you to lists and libraries on the current site together with a means of navigating to other sites. On a WSS 3.0 only install CEWP, you get no such help, just a text box for you to enter manually your address. We have seen users enter an image that resides on your computers C: drive, which will result in a broken link to all other

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users. So, in summary, use this Web Part if you want to enter quickly richly formatted text, without content control, and with content that you do not need to tag with metadata. For this and other reasons, we find organizations who need a Web farm with site collections of just collaboration sites, will still choose to install MOSS on that Web farm, so the user experience is the same as collaboration sites create on a portal site collection. This also eases the assistance given to users by the help desk.

- **Form Web Part.** Use this Web Part if you want to enter text, which then filters the data shown in another Web Part. You must connect both Web Parts using Web Part connections. We often use this Web Part together with the LVWP or even the DVWP. You can modify the Form Web Part to display option buttons, check boxes and other controls either by using the Source Editor from the Web Part tool pane or by using SharePoint Designer.
- **Web Parts:Image Web Part.** Used to display images and picture. Although this Web Part has improved with WSS 3.0, since you now can provide alternative text, a must if you are concerned with accessibility standards, and it allows you to position the image both horizontally and vertically, you can't provide a URL for the image. Therefore, we often use the CEWP to display images and pictures.
- **Page Viewer Web Part.** Used to display linked content, such as, Web pages, Shared folders or files. The linked content is displayed asynchronously and is isolated from the rest of the page, and therefore, can only be used in a browser that supports the HTML <IFRAME> element. We have used this Web Part when we wanted to display content on an existing web site, also this Web Part forwards authentication credentials to the other Web site, which has proved very useful from an end-user perspective.
- **Relevant Documents.** Use to show document relevant to you, that is those documents stored in document libraries on the site that you modified, created or checked out. You can modify what you consider relevant to you, by altering the Web Part Data properties using the tool pane, as shown in figure 5.7.

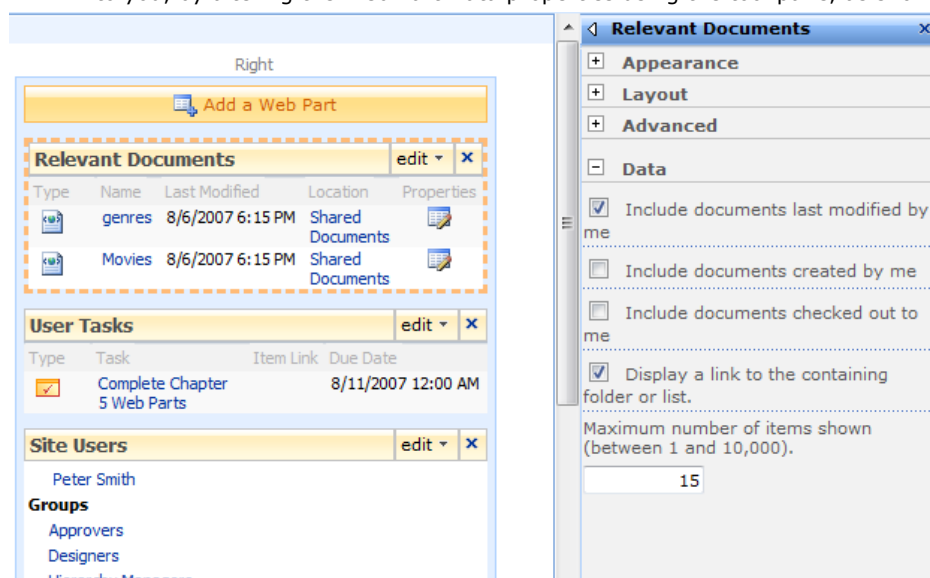


Figure 5.7 Relevant Document tool pane, together with the User Tasks Web Part and Site Users Web Part in the Right Web Part Zone.

- **Site Users.** In WSS 2.0, this Web Part was known as the Members Web Part, and you use it to see a list of users who have access to the site together with their online status, as shown in Figure 5.7. You only see individual users if you have added their username specifically to a permission level, that is, it does not show you the users who are part of an Active Directory (AD) security group or a SharePoint Group, just the name of the group. However, you can choose to display people in the site's member group or the people in a

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specific group, by configuring the Site Users Display Type property using the tool pane.

- User Tasks. Used to display tasks currently assigned to you, as shown in figure 5.7.
- XML Web Part. Used to display XML and to apply eXtensible Stylesheet Language (XSL) to define how the XML is displayed. We have used this Web Part to display XML from RSS feeds, although you can use the RSS View Web Part and the DVWP to do this as well.

Now we have detailed the WSS 3.0 specific Web Parts, we are now going to look at the Web Parts that come with MOSS. There is many more, so we have used the headings in the Add Web Parts – Webpage Dialog window to group them together. So the first Web Parts we'll look at are the Business Data Web Parts.

5.5.3 Business Data Web Parts

The Business Data Catalog is one of the greatest additions to MOSS in the terms of business intelligence and data integration. After that build up, you would be surprise if we didn't have a chapter describing this new addition. Well we have – Chapter 14, "The Business Data Catalog". Therefore, we'll give a brief introduction to this feature and the Web Parts it uses, before we move on to the next group of Web Parts. By using an application definition file, the BDC provides a precise method of defining data external to MOSS and how the data relates to one another. Once your developer or Business Analyst defines an application to MOSS, you can use Web Part and list columns to expose that data. Some of the Web Parts you will find interesting are:

- Business Data List. Used to display a list of items from a data source. The data source is defined in the BDC, but the data is not stored in the BDC. When you configure the Web Part properties, you interact with the definition in the BDC. When request a page to render the Web Part, SharePoint goes to the data source, retrieves the data and presents it to you in your browser.
- Business Data Related List. Used to displays a list of items related to one or more parent items. For example, you could use the Business Data List Web Part to present a list of customers, then using the Business Data Related List Web Part you could show the orders that each customer has placed. Remember, that the list of customers and their order data are external to SharePoint. SharePoint just holds how to access that data source and any relationships between the entities of data.
- Excel Web Access (EWA). This Web Part allows you to to interact with an Microsoft Office Excel 2007 workbook as a web page. This Web Part works together with Excel Services, another new addition to MOSS, which we cover in Chapter 13, "Excel Services".
- IView Web Part. This is a special BDC Web Part that displays an IView from an SAP portal server.
- WSRP Consumer Web Part. Used to display portlets from web sites using WSRP 1.1. Other systems such as Oracle Portal, SAP Enterprise Portal, or Business Objects ListPortlet expose their data in Web Part like structures called portlets, via an XML Web Service. You configure MOSS to consume the presentation details of the portlet by creating a TrustedWSRPProducers.config file in the C:\Program Files\Microsoft Office Server\12.0\Config directory, and then configuring the WSRP Consumer Web part to display the data on a SharePoint page.

WSRP

WSRP stands for Web Services for Remote Portlets. WSRP is an Organization for the Advancement of Structured Information Standards (OASIS) standard approved in August 2003. The following text is an excerpt from the WSRP 1.0 Specification document, available at <http://www.oasis-open.org/committees/download.php/3343/oasis-200304-wsrp-specification-1.0.pdf>. The main goal of the WSRP specification is to enable an application designer or administrator to pick from a rich choice of compliant remote content and application providers, and integrate them with just a few mouse clicks and no programming effort.

This specification is a joint effort of two OASIS technical committees. Web Services for Interactive Applications (WSIA) and Web Services for Remote Portals (WSRP) aim to simplify the integration effort through a standard set

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of web service interfaces allowing integrating applications to quickly exploit new web services as they become available. The joint authoring of these interfaces by WSRP and WSIA allows maximum reuse of presentation-oriented, interactive web services while allowing the consuming applications to access a much richer set of standardized web services through Web Services Description Language (WSDL).

For more information on WSRP, please visit: http://www.oasis-open.org/committees/tc_home.php?wg_abbrev=wsrp.

5.5.4 Content Rollup

There are a number of Content Rollup Web Parts. Not all of them appear on all sites. The Sites Aggregator Web Part appears on most Web sites, and you can use it to display a list of sites. This is a great Web Part to use on site collections where you only have collaboration sites. On a portal it is easy to navigate the site hierarchy, failing that you have the Site Directory to point you to different sites. The best way of describing the power of the Site Aggregator Web Part is to complete an example, as follows:

1. Navigate to the site page you wish to modify, select Site Actions > Edit Page and then click Add Web Part in the required Web Part zone.
2. Under the group heading, Content Rollup, select the Site Aggregator check box and click Add.
3. Enter the URL of one of your SharePoint sites, in the Site URL text box and then enter TAB. If SharePoint is able to find the site, then it will enter the site's title in the Site Name text box.
4. Click Create. A new tab is created and the Web Part shows all documents you created and tasks that are assigned to you, as shown in Figure 5.7.

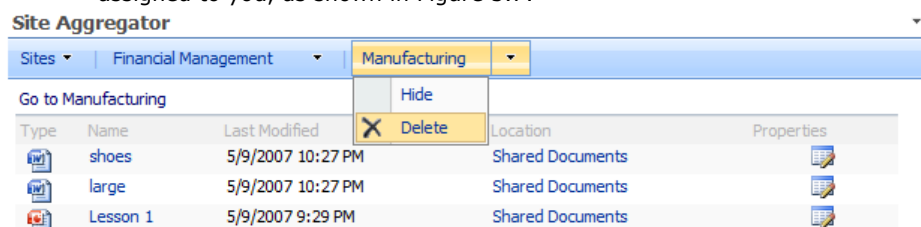


Figure 5.7

Although this is a great Web Part, that allows you and your team to quickly to documents and tasks on other sites, and also to navigate to them. Once you have created a tab we have found no way of either editing the URL or the tab name. Therefore, if you enter either incorrectly you have to delete the tab and start again. You will find the Site Aggregator Web Part on your My Site. The other Content Rollup Web Parts are also available on your My Site, which we will discuss in the next chapter, "Personalization Features". Here is a list of a few of the Web Part you will find on your My Site.

- Colleague Tracker. Used to displays your list of colleagues.
- My Links. Used to display links from your My Site links list, use as an alternative to the IE Favorites list.
- My SharePoint Sites. Used to display documents you have authored on sites where you are a member of the site's Members SharePoint Group and sites of your choice.
- Recent Blog Posts. Your most recent blog posts.

5.5.5 Dashboard

The Web Parts displayed in this group heading concern Key Performance Indicators (KPI), which is the subject of Chapter 12, "KPI List templates".

5.5.6 Default

It is hard to understand the meaning of this group heading, except that the Web Parts listed here are really useful and you should consider using these by default.

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- **Content Query Web Part (CQWP).** In SPS 2003 the most powerful Web Part was the Grouped Listing Web Part and was used on nearly every page of the portal. Well, the Grouped Listing Web Part has gone and this is its replacement. But, even more powerful. You can use it to display a dynamic view of content from any site or web page throughout the site collection based on some criteria, including the use of audiences. If there is only one Web Part you should get to know, then it is this one. The CQWP is only available if the Office SharePoint Server Publishing Infrastructure feature is activated, more on this in Chapter 8. Because the CQWP is so useful, this in itself is a good enough reason, in our opinion, to activate this feature, even if you do not intend to implement a WCM strategy. Having said that, the SharePoint community has developed an enhanced version of the CQWP that you can download from <http://www.codeplex.com/ECQWP>.
- **I need to..** This is another Web Part that is linked to the Site Directory and appears on the home page of the portal. If you select the Top Task check box for a site, then the site is added to the drop-down list of this Web Part. When you select the site and then click Go you will be redirected to that site.
- **RSS Viewer.** Displays an RSS XML feed in human-readable format. However, it can't be used for RSS feeds that require authentication. If you know that the RSS feed isn't updated frequently, then you should enable the Data View Caching Web Part property and set the Data View Caching Time-out property to an appropriate number of seconds, as shown in figure 5.9. By default this is set at 10 minutes, that is every ten minutes, the Web Part will go to the RSS feed to get the XML data. If you do not like how the RSS Viewer formats the RSS feed, then you can provide your own XSLT to change the layout. In organization that use a Proxy server, then to access external RSS feeds, you will need to get your server administrator to modify the web.config file for the SharePoint Web Application on each Web front-end server.

Figure 5.9 RSS View Web Part properties, use to set the number of seconds the Web Part refreshes the content it displays.

- **Summary Link Web Part.** Another very useful Web Part, which you can use to display links on a web page that can be grouped and styled and can be organized by dragging and dropping. An alternative to using a links list. You also have the choice of starting a new windows when a user clicks on the link. Something you can't do with the Links list. The Summary Links Web Part is only available if the Office SharePoint Server

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Publishing Infrastructure feature is activated.

- Table of Contents (TOC) Web Part. Used to display the navigation hierarchy of the current site in a web page. By default this Web Part is placed on the Site Map tab of the Site Directory. You can configure this Web Part to show the site map from the root of the site collection or from any other site in the site collection. The TOC Web Part is only available if the Office SharePoint Server Publishing Infrastructure feature is activated.
- This Week in Pictures. This Web Part is added, by default, to the News portal site and configured to use the This Week in Pictures Library picture library. You can add this Web Part to any site, but the Picture library must be located in the same site, as the Web Part properties only allow you to specify the name of the picture library and not the URL.

5.5.7 Filters

Listed under this group heading is a number of Filter Web Parts. We have already mentioned that Web Parts can be connected to one another, so what you click in one Web Part affects the data displayed in the second Web Part. Well, Filter Web Parts provide additional options on how to filter the data a Web Part displays. Therefore a Filter Web Part must be connected to another Web Part for it to work, just as the Form Web Part needs to be connected to a Web Part to work. The Filter Web Parts include:

- Business Data Catalog Filter. Used to filter the contents of Web Parts using a list of values returned from a data source defined in the Business Data Catalog.
- Choice Filter. Used to filter the contents of Web Parts using a list of values entered by the page author. Once you have connected the Choice Filter Web Part to other Web Parts you cannot edit the list of values you entered. You have to remove the connection, edit the values and remake the connection.
- Current User Filter. Used to filter the contents of Web Parts based on your username or properties from your User Profile.
- Date Filter. Used to filter the contents of Web Parts by allowing users to enter or pick a date.
- Query String (URL) FilterQuery . Used to filter the contents of Web Parts using values passed in via the query string.

Query Strings

The HTTP URL contains several parts. The first is the protocol specifier, usually HTTP or HTTPS. The next is the host address or the server name. The next is a colon followed by a port number. If you leave out the port number, the web browser uses the default port for the protocol, 80 for HTTP and 443 for HTTPS. After the port, the server address for the resource is specified. The address is specific to the type of application server on which the resource resides. For resources residing on Microsoft Internet Information Services (IIS) servers, the type used by MOSS 2007, the resource address is generally the path to an ASPX page. For example, in the URL `http://moss07/topics/pages/default.aspx, /topics/pages/default.aspx` is the resource address.

After the resource address, the URL may contain a question mark followed by more text. This optional question mark and text is referred to as the query string. IIS parses the query string and sends the contents to the ASPX page as a collection of name and value parameters. For example, in the URL `http://moss07/Lists/Contacts/DispForm.aspx?ID=1`, IIS sends ID as a parameter to the DispForm.aspx page. The value of the ID parameter is '1'. Any number of name value pairs can be sent as part of the query string if the pairs are separated by ampersands, the '&' character.

- SharePoint List Filter. Similar to the Choice Filter Web Part, but this Web Part uses a list of values from a SharePoint list.
- SQL Server 2005 Analysis Services Filter. Used to filter the contents of Web Parts using a list of values from a SQL Server 2005 Analysis Services cube.

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- Text Filter. Used to filter the contents of Web Parts by allowing users to enter a text value. Very similar to the Form Web Part, but the Form Web Part allows you to create your own form from HTML elements.

5.5.8 Miscellaneous

The Miscellaneous section in the Add Web Parts – Webpage Dialog window, displays the eight Web Parts we discussed earlier in the WSS 3.0 only install section, plus the following Web Part:

- Contact Details. This is a useful Web Part that you can use to display contact details for the current page or site. We highly recommend you use this.

5.5.9 Outlook Web Access

The Web Parts in this section exposes your information held within Exchange 2003 and Exchange 2007 and provide an alternative to using Outlook. These include My Calendar, My Contacts, My Inbox, My Mail Folder and My Tasks. These Web Parts work with Exchange Server 2003 or later and Outlook Web Access (OWA). The server must not use forms based authentication to Outlook Web Access. This Web Part is place on the My Home page of your My Site. See chapter 6 for more information on using this Web Part to receive personalized content.

5.5.10 Search

We describe the Web Parts in this group in Chapter 7, “Searching and Retrieving content”.

5.5.11 Site Directory

We looked at the Site Directory in Chapter 3, “Using Lists and Libraries”. The Sites Directory is your yellow pages for the sites your create in the portal. It is driven by information stored in the Sites list that the following Web Parts use to display the information.

- Categories. The home page of the Site Directory is category.aspx, where this Web Part is used to display categories of the site directory. All columns in the Sites list with a data type of choice are considered categories.
- Sites In Category. When you click on a category on the home page of the Site Directory, you are redirected to the categoryresults.aspx page along with a query string, that the Sites in Category Web Part uses to displays sites in that site directory category.
- Top Sites. This Web Part is placed by default on the home page of the Collaboration portal and displays the sites in the sites directory, where the Yes/No data type column, Top Sites has been selected.

5.6 Working with Web Parts – Beyond the Basics

For most Web Parts, simply adding them to a Web Part page is enough to get started. Eventually, you, as the content manager will want to tweak the default Web Part settings to change titles, show custom views, or change the way the Web Part is laid out on the screen. You will also want to send data from one Web Part to another. In this section, you will learn to do both, that is, to configure Web Part properties and use Web Part connections.

5.6.1 Web Part Properties

In order to change what a Web Part can do and how it should look, you need to become familiar with the Web Part tool pane. For most Web Parts, the tool pane contains the run-time Web Part properties, which are grouped by headings. All Web Parts have similar properties listed under Appearance, Layout and Advanced. Whilst some Web Parts have additional properties listed under headings, such as, Custom Properties, Miscellaneous and or headings specific to them. For example, the RSS Viewer has a property heading of RSS Properties. We looked at some of these Web Part specific properties as we described those Web Parts earlier in this chapter. We will describe the most common properties for each group heading in the following sections.

APPEARANCE PROPERTIES

The Appearance properties, as shown in figure 5.10 and as detailed below, can be customized, personalized or both depending on the person who developed the Web Part and the Web Part zone the Web Part is placed.

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Content Query Tool Part

Query [Help](#)

Presentation

Appearance

Title
Content Query Web Part

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
Title Only

Figure 5.10 Modify the Web Part properties listed under the Appearance group.

- **Title.** The title property displays the text in the Web Parts title bar. We recommend that when you add a Web Part to the page, and subsequently customize its properties that you modify the Title property to reflect the purpose of the Web Part. This is particularly important when you have multiple LVWP of the same list on a page, but each LVWP shows different content due to filter settings, otherwise you end up with Web Part titles such as Announcements (1) and Announcements (2).
- **Height.** This set of properties allows you to specify whether the Web Part should have a fixed height, specified in centimeters, inches, millimeters, points, picas, or pixels; or whether the Web Part should fit the Web Part zone. Usually the Web Part is allowed to grow to be as big as its contents, within the restrictions of the zone that contains it.
- **Width.** This allows you the same choices for width as we described for Height.
- **Chrome State.** In the previous version, this property was known as Frame State and is used to control whether to display just the title of the Web Part (Minimize) or the Web Part title and content (Normal)
- **Chrome Type.** In the previous version, this property was known as Frame Style or Frame Type and controls if a Web Part will be rendered with a title bar (Default) and / or border.

LAYOUT PROPERTIES

The Layout section allows you to specify the positioning a Web Part on a page. These properties can be personalized depending on the settings of the Web Part zone.

- **Hidden.** If checked, the Web Part is not displayed on the page, unless the page is in edit mode. Figure 5.11 shows a hidden RSS Viewer Web Part rendered in edit mode. Notice the text "(Hidden)" precedes the Web Part's title. Even though this Web Part is hidden it will still retrieve the data from the data source, which in this case is an RSS feed.

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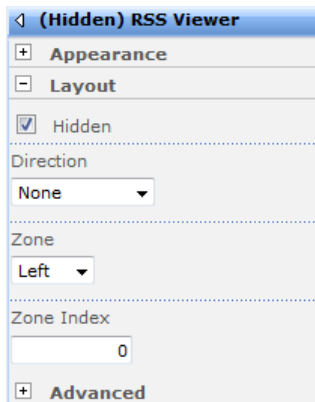


Figure 5.11 Hidden Web Part shown in design mode

- **Direction.** Controls the direction of the text within the Web Part and on its menus. When set to default, the text direction is determined by the language settings of the server.
- **Zone.** Controls which Web Part zone to render the Web Part. This drop down list is automatically populated with the Web Part zone names that are defined on the page. The most common Web Part zone names are Left, Right on collaboration site Web Part pages and on WCM site, which use page layouts: Top Zone, Middle Left Zone, Middle Right Zone, Bottom Zone, and Right Zone. We recommend, particularly, if you create new Web Part zones on page layouts you keep to this naming convention. Then if you switch your WCM page from using one page layout to another, the Web Part will redisplay. See Chapter 8 for more information on page layouts. Figure 5.12 shows a Web Part page in edit mode with the zone names displayed.

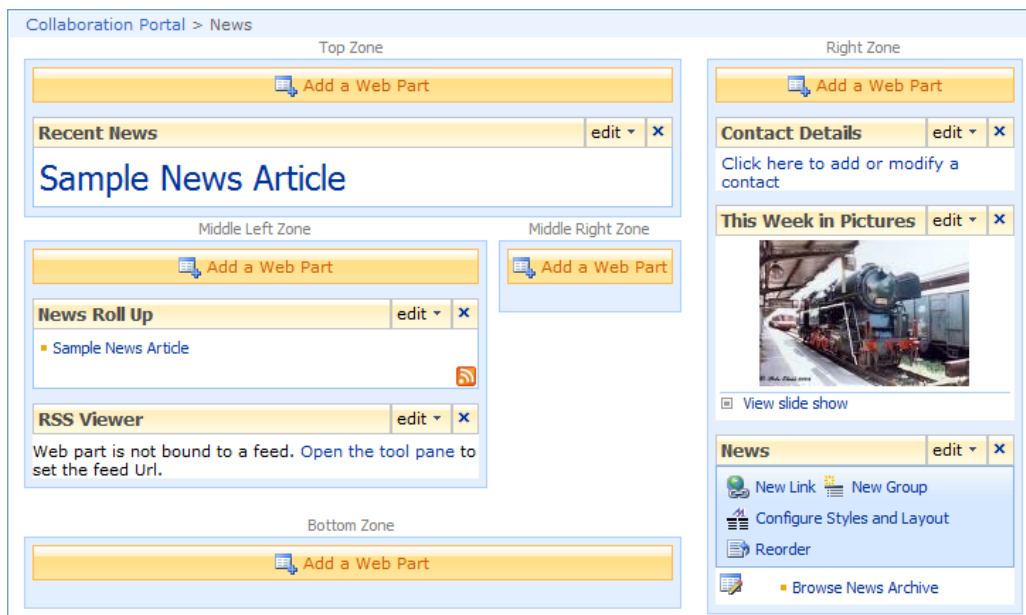


Figure 5.12: Web part zones displayed on a Web Part page on the portals News site. These zones contain examples of the CQWP: Recent News and News Roll Up, RSS Viewer Web Part, Contact Details Web Part, This Week in Pictures Web Part and the Summary Link Web Part: News.

- **Zone Index.** Controls the location of the Web Part in the zone. For example, a value of 1 means that the

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Web Part appears at the top of the zone, when the Web Part Zone properties are set to Top-to-bottom; and a value of 1 means that the Web Part appears on the left of the zone, if the zone properties are set to Side-by-side. You can insert zones and set their properties using SharePoint Designer, which we cover in Chapter 15.

ADVANCED PROPERTIES

The advanced group contains properties that you can customize if you add Web Parts to a zone that allows this. These properties most concern what a user can do once you have added that Web Part to the page. These settings are used when manipulating the Web Part using the browser and do not control how a user manipulates the Web Part using a tool like SharePoint Designer. We will now describe some of the properties that appear under this group heading:

- **Allow Minimize.** Specifies whether users are allowed to minimize this Web Part. When you select the check box the Minimize option on the Web Part's drop down menu will not be available, and the Chrome State property under the Appearance group is disabled.
- **Allow Close.** Controls if users are allowed to close this Web Part, that is, the Web Part is moved to the Closed Web Parts Gallery, we described earlier in this chapter. When you select this check box, the Close option on the Web Part's drop down menu does not appear.
- **Allow Hide.** Controls whether users are allowed to hide this Web Part when the page is in non-edit mode.
- **Allow Zone Change.** Controls whether users are allowed to move the Web Part between zones. Users will still be able to close the Web Part, and when they add the Web Part back to the page from the Closed Web Parts Gallery, they will only be able to add it back to the zone where it was originally added.
- **Allow Connections.** Controls whether users are allowed to connect this Web Part to other Web Parts.
- **Allow Editing in Personal View.** Controls whether users can edit the Web Part properties when editing the personal view of a Web Part page. When developers create Web Part they specify whether properties are shared properties and / or personal properties. If a property is just a shared property, then this checkbox is unavailable.
- **Export Mode.** This drop down list, controls how the Web Part property settings are exported to a XML file. Exported files have a .webpart extension, and capture a snapshot of the Web Part properties at the time of the export, as well as referencing the dll and the .Net classes used to create it. The developer of the Web Part can specify that some of the properties are controlled properties, in which case if you choose the "Non-sensitive data only" option controlled properties are not exported. As these exported files are just XML files, it is very easy for someone to change the file extension to .xml, open and read them, so be warned!

TIP

Exporting a Web Part allows you to save all Web Part's property settings on to your computer. You can then import the XML file to another Web Part page to create quickly a Web Part with the same property settings as the exported Web Part.

NOTE

Importing some Web Parts to a site other than the site from which the Web Parts were exported may lead to errors, because some Web Parts reference content that is only available on a particular site. If the site you are importing the Web Part to is on separate Web farm, then that Web Farm must have the assembly that the Web Part is based on.

- **Title URL.** Contains the URL of the page you are directed to when you click the Web Part title. On LVWPs, this is the URL of the list or library that the Web Part presents the data from, as shown in Figure 5.13.

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Figure 5.13 Announcement LVWP default Advanced properties settings.

- Description. Specifies the tool tip text which is displayed when you hover the cursor over the Web Part's title. If you open the Add Web Parts tool pane, and click the down arrow, you can choose to Search, as shown in figure 5.14. This allows you to search for Web Parts in any Web Part Gallery, which uses words in the Web Part Title and the Description property fields, to find list the Web Part you want.

Figure 5.14 Use Search to limit the number of Web Parts listed in the Add Web Parts tool pane.

- Help URL. Enter the URL of a Web page that contains information that will help the user to use the Web Part. An additional menu item, named help, is added to the Web Part menu, which when clicked displays the help web page in a separate browser window or navigates to that web page in the same browser window, depending on the setting of the next property.
- Help Mode. This drop down list specifies three options: Modal, where the help page is displayed in a separate browser window, but the user can't interact with the Web Part page until the help page is closed; Modeless, which is the default, where the help page is a separate browser window and the user can interact with the web page as well as the help page; and Navigate.
- Catalog Icon Image URL Sets the image URL that SharePoint will display next to the Web Part name in Web Part Gallery. The image size must be 16 by 16 pixels.
- Title Icon Image URL. Specifies the URL of an image file that will be used in the Web Part title bar. The image size must be 16 by 16 pixels.

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- **Import Error Message.** Specifies a message that appears when you import a Web Part and SharePoint can't find or there is an error with the dll associated with this Web Part. Most developers create a default message for this property.
- **Target Audiences.** Target audiences allow you to limit which groups of users see a Web Part on a page. This feature is very useful for displaying different content to groups of users without creating a cluttered page. For example, if we wanted to display a Web Part with local weather information for five different locations without audiences, each user would see all five Web Parts, when each user is only interested in the weather for his or her location. With audiences, we can set each weather Web Part to display only for users whose profile information matches the location of the weather Web Part. This allows each user to see only the one Web Part that has the local weather information relevant to them. For more information on using audiences to target content, refer to chapter 6.

Now we have looked at most of the common Web Part properties and have learnt much about Web Part along the way, it's now time to put some of what we have learnt into practice and at the same time look at connecting Web Parts.

5.6.2 Connecting Web Parts

In the previous section, we saw the various Web Parts that ship with both WSS 3.0 and MOSS 2007. As you read through the section, it is evident that the Web Parts are not meant to be used on their own. The Web Parts with the word "filter" in their names are just one set of parts that can alter the data other Web Parts render. In addition to the filter Web Parts, many other Web Parts can act as data producers, including the LVWPs. In this section, we will look at various ways you can allow users to interact with Web Parts in a rich manner by using combinations of Web Parts to focus the data displayed in a Web page.

In this scenario, we will associate a document library with a tasks list. This will allow us to group each document in the document library with a task in the tasks list. Each task list item allows us track who is responsible for completing the task, when the task was started, its due date, and how close it is to completion. Also by associating the documents with a task, we'll easily be able to check the documents associated with a completed task to validate that the task is in fact completed satisfactorily.

First, we need to create the association between the document library and the Tasks list:

1. Navigate to a document library in a SharePoint site, and from the Settings menu, select **Create Column**.
2. Enter **Parent Task** in the **Column name** text box and select **Lookup Column** for the column type.
3. Select **Tasks** from the **Get information from** drop down list and select **Title** from the **In this column** drop down list.
4. Make sure **Allow multiple values** check box is not selected. Figure 5.15 shows the completed property settings for the new **Parent Task** column in our document library.

Use this page to add a column to this document library.

Name and Type Type a name for this column, and select the type of information you want to store in the column.	Column name: Parent Task 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 ☒ Lookup (information already on this site) ☐ Yes/No (check box) ☐ Person or Group ☐ Hyperlink or Picture ☐ Calculated (calculation based on other columns) ☐ Business data
Additional Column Settings Specify detailed options for the type of information you selected.	Description: Require that this column contains information: ☐ Yes ☒ No Get information from: Tasks In this column: Title ☐ Allow multiple values ☐ Allow unlimited length in document libraries ☒ Add to default view

Figure 5.15: Parent Task column settings

TIP

When you select the **Allow multiple values** check box for a lookup column, SharePoint does not handle Web Part connection properly. This option is useful when you want to group items based on the lookup value and you want the items to be in multiple groups. However, because our intent is to use this column for Web Part connections, we leave **Allow multiple values** not selected.

5. Click OK.

Next, we need to set up some sample data so we have some information to work with. We assume that you have Microsoft Office 2007 client applications installed, in particular Excel 2007 or Access 2007. We assume you are using Microsoft Vista with Internet Explorer 7 or later, and that the MOSS 2007 portal site is either in the Local Intranet or Trusted Sites zones in Internet Explorer.

Set up some tasks data using a spreadsheet view of the Tasks list:

1. Navigate to the Tasks list, and click **Actions > Edit in Datasheet**.
2. Enter three tasks, Task 1, Task 2, Task 3, just as you would if you were using Access. Figure 5.16 shows the Tasks list in spreadsheet mode. This mode allows us to edit the list data just as we would in a spreadsheet.

Collaboration Portal > Sites > In Action > Tasks

Tasks

Use the Tasks list to keep track of work that you or your team needs to complete.

New Actions Settings View: All Tasks

	Title	Assigned To	Status	Priority	Due Date	% Complete
	Task 1		Not Started	(2) Normal		
	Task 2		Not Started	(2) Normal		
	Task 3		Not Started	(2) Normal		
*						

Figure 5.16: The Tasks list in spreadsheet mode

6. Click Actions > Show In Standard View.

Now that we have some tasks, we need a couple of documents to associate with the tasks. We will upload one document and create one document. We will associate each document with a different task. Let's create a new document:

7. Navigate to the document library, click New. Word 2007 opens with a blank document, as shown in figure 5.17.

8. Select Task 1 from the Parent Task drop down list.

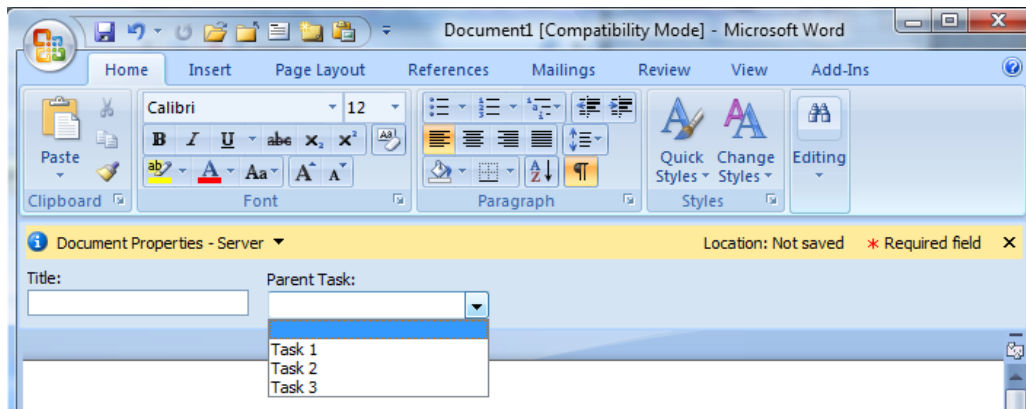


Figure 5.17: Microsoft Office Word 2007 displays the metadata for a new document

9. Enter a sentence or two into the document and save the document; accept the default name and location, which should be the document library where you clicked New.

10. Close Word.

Now for a little variety, let's upload a document:

11. Navigate to the document library, click Upload > Browse and navigate to a document you wish to upload.

12. Click Open then OK.

13. Enter some metadata for the uploaded document. Select Task 2 from the Parent Task drop down list. Notice that the metadata options displayed here are the same as the metadata displayed by Word. That's because the metadata comes from the list schema and is available to all SharePoint compatible client applications.

14. Select OK.

Now that we have our sample data created, we can create the user interface. User's will work with the document library and related Tasks list through two connected Web Parts. We will create a Tasks LVWP that filters the data

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displayed in a document library LVWP. This will allow users to see only the documents that are associated to a particular task.

1. Navigate to the home page of the site that contains the Tasks list and modified document library, click Actions > Edit Page.
2. Click Add Web Part, select the check boxes for the Tasks and appropriate document library Web Parts and then click Add.

Before we can create a Web Part connection between the Web Parts, the views of both LVWP must display the columns we are going to use connect them together. If we convert the LVWP to a DVWP, we would not have this restriction. The default view of the Tasks LVWP displays the Title column, so we just need to alter the view of the document library LVWP to display the Parent Task column.

3. On the document library Web Part title bar, click edit > Modify Shared Web Part. The List View tool pane for the document library opens.
4. Click Edit the current view, in the column section select the check box to the left of Parent Task and click OK. This takes the page out of edit mode. To see the Connections Web Part menu option, we need the page in edit mode.
5. Click Site Actions > Edit Page.
6. On the Tasks Web Part title bar click edit > Connections > Provide Row to and then select the appropriate document library, as shown in figure 5.18.

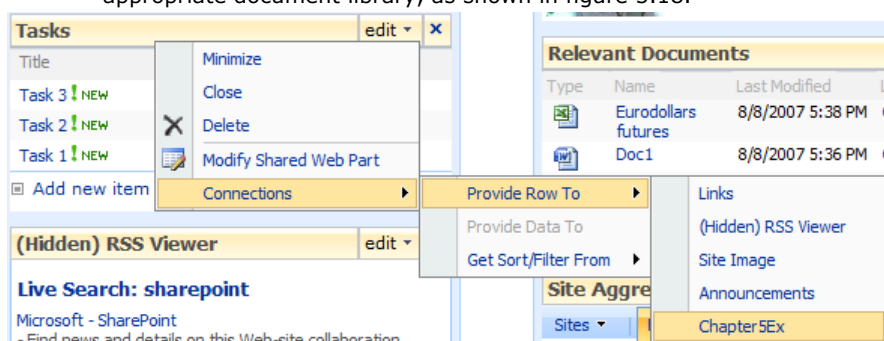


Figure 5.18 Connect the Task List View Web Part with the document library List View Web Part.

7. In the Configure Connection – Webpage Dialog window, select Title as the source column.
8. Click Next, select Parent Task as the target column and then click Finish.
9. Click Exit Edit Mode.

Notice that the Tasks Web Part is now rendered differently on the page. Each task now has a radio button next to the task. Click on the radio button next to Task 1. The page refreshes and the list of documents in the document library LVWP shows only the first document we created. Selecting the radio button next to Task 2 again refreshes the page and now the document library LVWP only shows the document we uploaded and associated with Task 2.

NOTE

To remove the Web Part connection, on the Tasks Web Part title bar click edit > Connections > Provide Row to and then select the appropriate document library. In the Configure Connection – Webpage Dialog window click Remove Connection.

Imagine a task list that contains 100 or so tasks and a document library with about 5 documents per task. That's about 500 documents! This type of user interface is such a huge time saver for users who need to find quickly the document related to a particular task. More broadly, this interface can be applied to any scenario where users need to see items related to an item they select. In fact, you are not limited to connect one Web Part to only

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one other Web Part. You can connect a Web Part to multiple other Web Parts. We worked with an organization who managed grants to countries throughout the world and documents were stored in multiple document libraries, with additional information in a selection of lists. Therefore, they had one Web Part that listed all the countries, and then several LVWPs on the page, one for each document library and one for each list. They then connected the Country Web Part to each LVWP in the manner described above. By clicking a particular country, they could see documents and any list item associated with that country.

Using a browser, you can only connect Web Parts that are displayed on the same page. In addition, LVWPs can only display data in lists and libraries that are created on the same site. The DVWP overcomes both these restrictions, you can display data from lists and libraries on other sites and you can connect a Web Part on one page with Web Parts on another page. You will find more on the DVWP in Chapter 16.

5.10 Summary

In this chapter, we covered what Web Parts are and how to use them. Web Parts are one of the most powerful component of SharePoint, both WSS 3.0 and MOSS 2007. However, with MOSS 2007 you have a greater number of Web Parts available to you. We have only scratched the surface of the knowledge you need to use them fully. We introduced Web Part connection in this chapter, this functionality is used extensively with the MOSS 2007 Web Parts. We recommend that you start to investigate these built-in Web Parts. Get to know their properties and the different options of how to connect them. We have visited organizations that have bought or commissioned the development of Web Parts, only to find that such functionality was available out-of-the-box with MOSS 2007. Don't let that happen with you.

In the next chapter, we'll delve more deeply into personalizing MOSS 2007 sites and pages. This includes working with the MOSS 2007 Web Parts to deliver information that is of interest and relevant to each MOSS 2007 user.

6

Personalization Features

This chapter covers

- Personalization features and functions
- User Profiles and Membership
- Managing personalization features
- Targeting information

So far, you have created a collaboration portal, setup the structure, added some content, and gone over some of the Web Parts that you can use to make the portal do what you want. However, even though one size fits all may work for socks, and even that is doubtful, it does not work for SharePoint.

For instance, the Chief Information Officer (CIO) of a company probably would not want to see the same information as the Chief Financial Officer (CFO) or a department level manager. In the old days of static HyperText Markup Language (HTML) web pages, a developer would need to create a different page for each person or each view of data. However, with SharePoint this is no longer needed. SharePoint can dynamically change the content of its pages as when you select a specific filter value. It can also dynamically change the content depending on the person who has requested the page.

Five great features that Microsoft Office SharePoint Server (MOSS) 2007 provides are the ability to:

- Personalize pages, Views, and Web Parts to suit your tastes, which in this chapter we call User Personalization.
- Provides you with a site, known as My Site, where you can provide information about yourself and keep those documents that you may still be working on or that you do not want to share. In addition, an organization can extend My Site to support your roles, examples of which, Microsoft released some six months after MOSS 2007, known as the Splendid 7 Role-Based Templates for My Site.
- Search for and connect with people within your organization.
- Target information to people according to their membership in a particular audience.

Together these personalization features enable you to create a collaboration portal that not only supports yourself, the knowledge worker, but also enables other knowledge workers to find, contact and communicate with each other, tapping into the wisdom of yourself and others. You should consider the Personalization features of MOSS 2007 as a Knowledge Support System, where people are the center of the system and increasingly we see organizations configuring their user's browser to have My Site as the Home page, also known as a personal portal. Organizations see the My Site as each employee's launch pad into SharePoint and onwards to company information. This chapter details these personalization features.

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6.1 User Personalization

Before, we start describing User Personalization; we wish to differentiate between customization and personalization. Customization refers to you changing a page, a View or a Web Part that is shared by all users, whereas personalization is the ability for you specifically to change a page, a View or Web Part, the changes of which only you can see. For example, you as a site owner may chose to add a Web Part to a site's home page to display the contents of the Site Discussion list (List View Web Part – LVWP), created in Chapter 3. This is a customization, as all users who visit the site see the change. However, you as the content manager of a library may like to include a LVWP of that library on the home page, showing the Checked Out To column, so you can monitor the library as soon as you visit that site. This is a personalization, as the need you are satisfying is a personal need and not a team requirement.

NOTE:

Personalized modifications are stored on a per-user basis, and if widely used will consume a large number of resources, and could affect the rendering performance of pages as SharePoint checks who the person is and whether they have any personal settings. Therefore, you should carefully plan your use of personalization.

The ability to personalize pages, Views and Web Parts is controlled by a combination of code and configuration settings. An administrator or site owner, using the browser, you can configure personal permissions at many levels:

- Web Application: In Chapter 2, we described permissions and stated that by default, three sets of permissions are set when a Web Application is created, that is, Site permissions, List permissions and personal permissions..Personal permissions rights, as shown in figure 6.1.

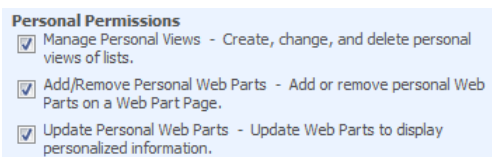


Figure 6.1 Personal Permissions rights

- Site Collection. If the Web Application allows Personal Permissions rights then a site collection automatically gives users who are members of the SharePoint groups: [portal name] Owners, Designers, Hierarchy Managers, Approvers and [portal name] Members the ability to personalize pages, Views and Web Parts. You can change this default behavior if you have Manage permissions right at the site collection level.
- Site. By default when you create site within a site collection, it will inherit the permissions of the top-level-site (TLS). If you break the inheritance then any user or SharePoint group associated with permission levels assigned the Personal Permission rights, will have the ability to personalize Views and Web Parts. The default permission levels that have the personal permission rights enabled, are: Full Control, Design, Manage Hierarchy, Approve and Contribute.
- Pages: When a developer creates a Web Page, they can define whether to allow user personalization. In collaboration portal web sites, you cannot personalize all pages, for example, you cannot personalize any page created in the Pages document library of a publishing site. This includes the home page of the collaboration portal, the home pages of other sites such as News, Sites directory, Report Center, as well as article pages and dashboards.
- Web Part Zones: When a developer or web page designer creates Web Part zones on a page, they can define whether to allow user personalization. You can configure Web Part Zones using SharePoint Designer,

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which we talk about in Chapter 15.

- **Web Parts:** When a developer creates a Web Part, they can specify whether users customize and/or personalize Web Part properties. Therefore, even if a site owner allows personal permission rights on a site, you may not be able to personalize all Web Parts properties. We described adding, modifying and deleting Web Parts in Chapter 5.

You personalize pages, Views and Web Parts using the browser, and as a knowledge worker, you may not know how your collaboration portal or Web Parts are configured. The easiest way to find out is to look for the following links:

- If you have the rights to personalize a page, you will see **Personalize this page** on the **Welcome [your name]** menu, as shown in figure 6.2. Once you have personalized a page, two new links appear **Show Shared View** and **Reset Page Content**. The **Show Shared View** allows you to switch to the Shared View of the page, that is, the page which is the same for all users, whereas **Reset Page Content** removes any personal settings, and restores the default view to the Shared View. This is a common help desk query by users who accidentally personalize a page, wonder why they do not see the same content as another colleague and wish to reset there page back to the shared view.

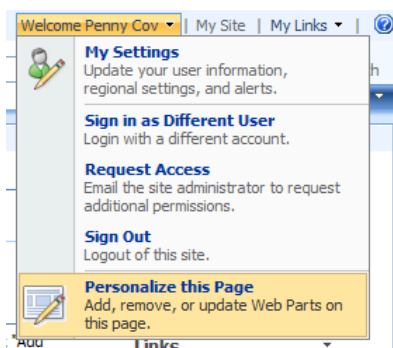


Figure 6.2 Personalize this Page

- If you have the rights to personalize a Web Part you will see a link under the Web Part's menu called "Modify My Web Part", as shown in figure 6.3. Clicking this link will open the Web Part's tool menu where you can modify the settings to suit your needs. If you are an administrator or designer, you will see **Modify Shared Web Part**. To personalize a Web Part, in this instance, first click **Welcome [your name] > Personalize this Page**, then on the link on the Web Part's menu will become "Modify My Web Part".

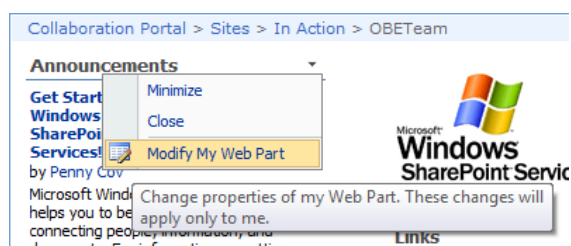


Figure 6.3 Modify My Web Part

- If you have the rights to create a personal view, you will see **Create view** on the **View** drop down menu, as shown in figure 6.4, plus on the **Create View** web page you are able to select the **Create a**

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Personal View radio button.

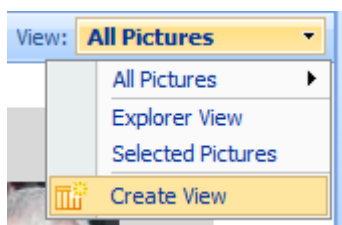


Figure 6.4 Create View

User personalization as described in this section is available in Windows SharePoint Services (WSS) 2.0 and WSS 3.0 web sites. It provides you with a great deal of flexibility, so you can modify the content to meet your needs, however MOSS 2007 provides you with additional personalization features via a personal portal, called My Site, which is the subject of the next section.

6.2 Personal Portal: My Site

The personal site - **My Site**, is just that; a site that is dedicated to you, in fact, the My Site web site is a top-level-site of a site collection. You are the owner of this site collection where you can make any changes you want, within certain restrictions discussed below. The personal portal is not just somewhere where you can store those documents that may be works in progress or that you can share or not share with all or with just certain people. It is also a place, where you start to tell the rest of the organization, who you are and what you know.

My Site by default contains two web pages: My Home and My Profile. These pages are important to you, your organization and MOSS 2007. You can modify them to meet your needs, your organization can push information to you so that it appears on your My Site and MOSS 2007 can start to build the knowledge support system that is so crucial for you to work smarter. Nothing happens by magic. MOSS 2007 can do many things, but it does need some help from you. As you describe yourself on this site, so your skills and wisdom are exposed, and likewise so are other user's wisdom, allowing you to search not only for content but also for people who can help you with your work. Now, you don't have to describe everything about yourself, your Shared Services Administrator should have imported information about you from your organization's Active Directory and if available, any data held in electronic Human Resources repositories, such as the name, address, employment start date, held in programs such as SAP, and PeopleSoft. MOSS 2007 stores the data you enter and data imported, in its SQL Shared Services database in what is known as User Profile properties.

CAUTION

By default, all authenticated users have permissions to read most of the content on your personal site, for example, those documents you upload into Shared Documents. In many organizations, this will include contractors and other non-employees. To modify this settings, click Site Actions > Site Settings > Advanced Permissions; click the check box to the left of NT AUTHORITY\authenticated users; click Actions > Remove User Permissions.

In this section we will explain the personal portal – My Site, detail how to create your My Site, the two pages: My Home and My Profile, what the various default Web Parts do, how to modify your personal information, the My Site Quick Launch bar, the links in the top right hand corner of you're my Site and your My Site blog. In a subsequent section, we will detail what User Profile properties a SharePoint Shared Services Administrator can modify, how they extend the functionality of a member user's profile. Finally, I will show you how, with the proper permissions, you can modify certain pages to suit your tastes.

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6.2.1 Creating a My Site

You may have noticed that in the upper right hand corner of just about any page on the portal there is a link called "My Site". This serves two different purposes. If you have already created your "My Site", when you click on the link it will take you there. If you have not yet created a My Site yet, when you click on the link, it will create one. If the Shared Services Administrator installed more than one language pack, it may prompt you to choose a language. A newly created My Site may look like figure 6.5. If you do not see a My Site link, you do not have permissions to create a My Site.

NOTE:

In my experience, how your My Site looks, how much you can modify it, and even if you are allowed to create a My Site, is controlled by the MOSS 2007 project team, usually part of the IT department. The My Site feature is activated by default when a Shared Services Provider (SSP) is created. This is a central administrative task. My Site is therefore a Shared Services, which means, that if your organization has multiple SharePoint portals, the MOSS 2007 project team can configure it so that you are directed to same personal site whenever you click the My Site link, no matter which portal site you are on. If you are part of the MOSS 2007 project team, the more you can persuade users to use My Site the more they will get out of MOSS 2007, and the closer you will get into achieving a system that supports knowledge.

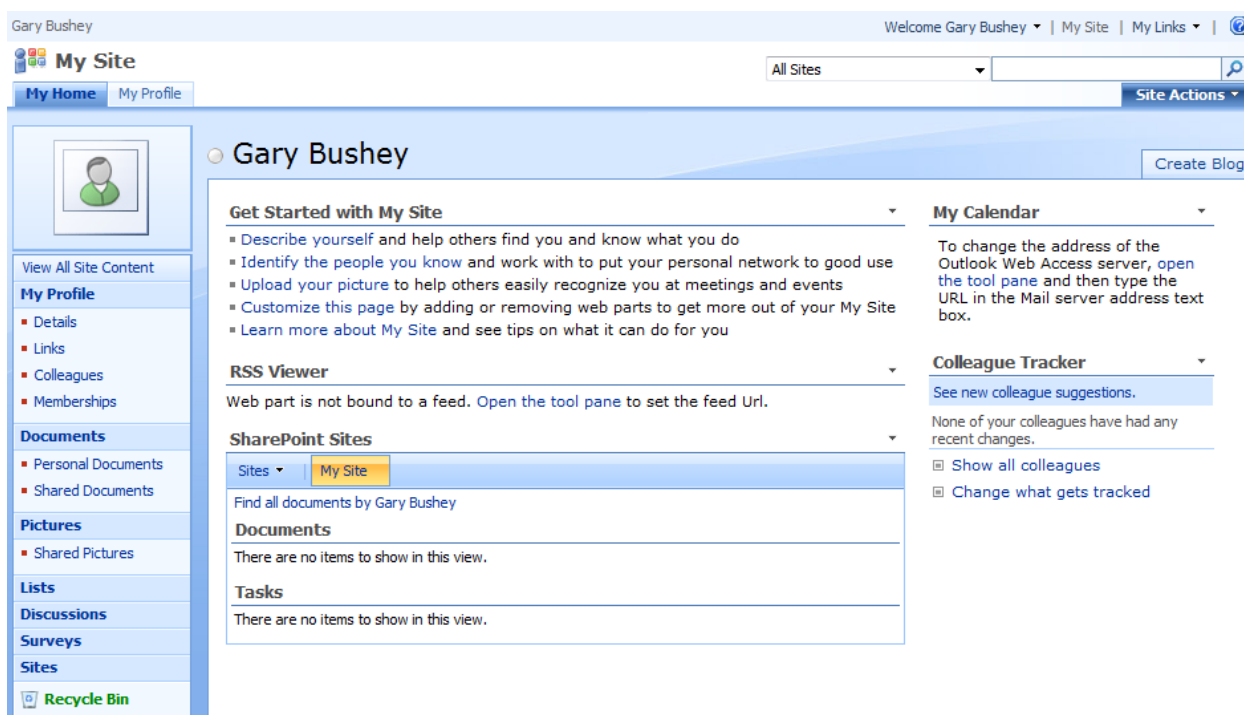


Figure 6.5 A default My Site. Notice the various Web Parts created by default. If your My Site looks different from this, your Shared Services Administrator may have made changes to the default layout.

The My Site shows two tabs, My Home and My Profile, and a link to create a blog. "My Home" contains information that only you can see while the "My Profile" tab is your public facing view of your user profile, it shows the information about you that others can see. Once MOSS 2007, creates a My Site for you, you should describe yourself, identify the people you know, upload a picture of yourself, customize your home page and optionally create a blog. Let's look at these separately.

TIP

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A Shared Services Administrator can add additional tabs on your My Site. These are known as Personalization links for My Site Navigation. The Administrator can configure these personalization links to appear only if you are a member of a certain audience. Although, Microsoft's aim was to use these to link to personalization sites, (we'll explain these later in this section), they can be used for other purposes. For example, you will notice that the My Site page doesn't contain a link to the portal site, this makes sense if there is more than one portal. In such a situation, an organization could use personalized links to provide their users with a quick way of getting to the portals that are of immediate interest to them. If you only have one portal or a main portal, you can include a link to this portal in the breadcrumb in the top left hand corner of your My Site. Click **Actions > Site Settings > Portal site connection > connect to portal site**. Then enter the URL of your portal site in the **Portal Web Address** text box and a meaningful name in the **Portal Name** text box. In this section, we will show how you can provide a link in the top right hand corner of My Site, to your main portal.

6.2.2 My Home web page

The My Home page is the default page, also known as the landing page, which you are directed to wherever you click the My Site link. The My Home page contains various Web Parts, which we will briefly describe, as many are just customized Web Parts that we described in Chapter 5. Again, remember that your My Site may have more or fewer Web Parts than listed here, these are just the ones that are created by a default installation of MOSS 2007.

GETTING STARTED WITH MY SITE WEB PART

This is a Content Editor Web Part (CEWP) pre-filled with links to: the Edit Profile page, My Colleagues list, to switch the page into edit mode and the help file for My Site that explain some of the features and how to use them. I would recommend you use the links as a task list of what you should do with your My Site. We will explain these tasks in this section. Once you have modified your My Site and feel comfortable with its functionality, you can delete this Web Part to free up some valuable page "real estate".

MY CALENDAR WEB PART

This Web Part provides you with a way to access your Exchange Server Calendar via Exchange's Outlook Web Access (OWA). In order to use this Web Part you must configure the Web Part properties as follows:

1. In the Web Part, click the text **open the tool pane**. This will open the Web Part's tool pane.
2. Enter the full URL of your Exchange server's OWA in the **Mail server address** text box. Your help desk or IT department should be able to provide you with this URL. For many organizations, the URL is generally of the format: `https://mail.companyname.com/exchange`. Make sure to add `/exchange` to the end of the URL or the URL will not work.
3. Enter your domain login name in the **Mailbox** text box. This is typically the same login that you use to login to your computer.
4. , Select **Daily** or **Weekly** view in the **View** dropdown list and then click **OK**.

Once you configure the My Calendar Web Part, your browser may prompt you for your credentials, depending on how your Exchange server is setup. You should only need to login the first time you access your My Site home page, unless you close your browser in which case you will be prompted again.

RSS VIEWER WEB PART

This is a very useful Web Part, as much of the knowledge on web sites is exposed as Really Simple Syndication (RSS) feeds, including SharePoint's own contents, such as lists, libraries and search results. This allows me to display feeds from internal and external sites that we wish to monitor often. In fact, we usually add a number of these Web Parts to My Site. However, you cannot use this Web Part if the RSS feed requires authentication, for example, certain financial feeds require you purchase their services and they then provide you with a userid and password to gain access. The default RSS Viewer Web Part does not provide you with any configuration settings for you to use to pass these to the RSS feed.

SHAREPOINT SITES WEB PART AND THE MEMBERSHIPS LIST

Along the top of this Web Part, a number of sites are listed as tabs. MOSS 2007 automatically adds sites to this Web Part if your username is explicitly listed in the site's Members SharePoint group. The number of sites that appear as tabs is five. SharePoint lists sites as tabs based on the total number of members in the site. If

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SharePoint finds more than five sites, it will create links on the Memberships drop down list on the Sites tab as shown in figure 6.6. You can increase the number of tabs by modifying the Web Part property, Number of tabs to show before More dropdown. If the sites have long names the SharePoint Sites Web Part will expand, forcing you to scroll to the right to see Web Parts placed in the Left Web Part zone. This violates the usability rules we discussed in Chapter 3. In fact, instead of increasing the number you may have to decrease it. We described how to modify Web Part properties in Chapter 5.

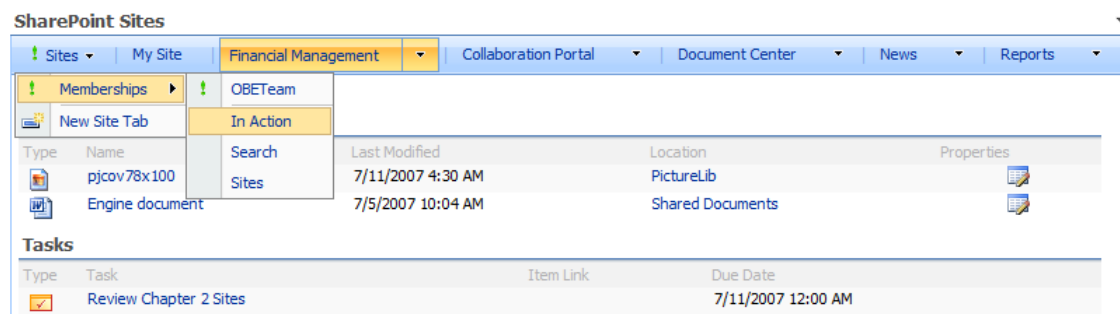


Figure 6.6 You can use the Sites drop down list to see documents and tasks on sites other than those sites specified on the tabs.

As you click on each site tab, the Web Part displays under the two groups: Documents and Tasks, the last 15 documents you have created, opened, saved, or checked out and tasks assigned to you. The default tab is My Site, that is, when you first visit you My Site, on the My Home web page, the SharePoint Sites Web Part displays documents and tasks from your My Site. To add any other Sites that SharePoint that does not automatically find, you will need to add them manually, using the following steps.

1. Click the down arrow to the right of Sites, and from the drop down list, click New Site Tab.

The Web Part display a Create a new site tab form as shown in figure 6.7.

Figure 6.7 Adding a new tab to SharePoint Sites Web Part

2. You can add the new site in one of two ways. If you have set up any Memberships (discussed later) you can click the Select site from Memberships list radio button and then select the site from the drop down list. If you have not added the site in question to your Membership list you can enter the URL for the site in the Site URL text box and enter the descriptive site name in the Site Name text box. This will also be the name of the new tab you are creating and does not need to match the actual name of the site.
3. Click Create and the new tab will appear.

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TIP

The SharePoint Sites Web Part uses the Memberships link list to manage the tabs. When SharePoint or you create a tab to a site, you are in fact creating a link in the Memberships link list. You can manage your sites by clicking Memberships under My Profile in the left navigation (Quick Launch) bar.

Once you have created the new site tab, you will notice that there is a down arrow to the right of the site's name, which enables you to either hide or delete the tab. If you hide a sites tab, it will show up in the Sites drop down from where you can unhide it.

COLLEAGUE TRACKER WEB PART AND THE COLLEAGUES LIST

Your colleagues are your fellow workers (or friends) who you need to interact with them from time to time. In social networking terms, you call these people your "first degree contacts". People who your colleagues know are your "second degree contacts" or your colleagues' colleagues. The friends and contacts of your second-degree contacts are your "third degree contacts" or "everyone else". Second and third degree contacts are also known as your "weak links". In social networking theory, weak ties connect together cliques or subgroups that can provide powerful connections to new ideas, information, and opportunities. The Colleague Tracker Web Part is key to exposing these deep social network profiles, thereby unlocking your knowledge that is not held in a document or index. This Web Part will list all your colleagues, track changes concerning your colleagues and tell you when they are online if your organization is using an Instant Messenger (IM) program like Microsoft Windows Instant Messenger or Microsoft Live Communication Server that provides presence information.

Initially the Colleague Tracker Web Part doesn't look interesting, taking a small portion of space on your My Home web page, as shown in figure 6.8. That is because; it is not fully populated and configured to display in a collapsed-like mode, which only shows colleagues whose user properties have recently changed. To see all your colleagues click Show all colleagues.

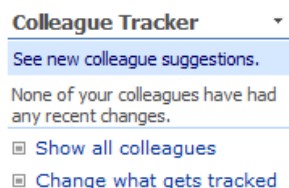


Figure 6.8 Colleague Tracker

You should complete the following two tasks:

- Add or modify your colleague list
- Change what gets tracked

Let's add some colleagues to your Colleagues list. Until you modify the colleagues list, the Colleague Tracker Web Part will display a link, See new colleague suggestions. When you click this link, you will see people you e-mail, Instant Message, on the same distribution list (DL) or people having the same level of membership to SharePoint sites as yourself.

NOTE

For the member ship level to surface in your Colleague Tracker Web Part, then your username and your colleague's username has to be explicitly listed. If you are a member of an Active Directory group that is given that permissions to a site, then MOSS 2007 can not make the link between you and your colleague.

To prevent SharePoint from suggesting a person again, on the Add Colleagues web page, click Stop Suggesting. After using, the stop suggestion actions if you later decide you want to clear the stop suggesting list and see all of your suggested colleagues, just click Reset list for suggested colleagues. On the Add Colleagues web page, you can choose which colleagues you wish to list, and assign them to Privacy and Grouping metadata assignments as shown in figure 6.9.

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Figure 6.9 Suggest colleagues

By default, using the privacy setting, you can control who sees your colleagues. The five privacy categories are: Everyone, My Colleagues, My Workgroup, My Manager and Only Me. Notice that this list is in order from most general to most restrictive. You can also add colleagues to your workgroup. Sharing your Colleagues list with people in your organization is useful for building relationships and growing your personal network. When people visit your My Site, they can see who you work with and in what capacity. By using this information, the people might be able to find the contacts and information they need to do their work. Consequently, when you limit a colleague from everyone's view, you also limit what other people see when they view the In Common with You section of your public, My Profile, page, similarly they will not appear if someone searches for people related to you.

The My Workgroup privacy setting is particularly useful and we suppose, that is why, Microsoft allows you to choose that privacy setting as well as one of the other five. By choosing to add a colleague to My Workgroup, we give access to view content that we set to My Workgroup.

On the Add Colleagues web page, notice, that you can also organize your colleagues into groups to show relationships. By default, all of your colleagues are in the General group. You can create as many groups as you want. It may be useful to organize your colleagues by projects or by role, such as Call Centre, Desktop Refresh Program, or My Team. A colleague's name can appear in only one group.

You can also add new colleagues by clicking on the Colleague Tracker Web Part title or by clicking Colleagues under My Profile in the left navigation (Quick Launch) bar. The My Colleagues list appears, as shown in figure 6.10., from where you can add, modify or delete colleagues.

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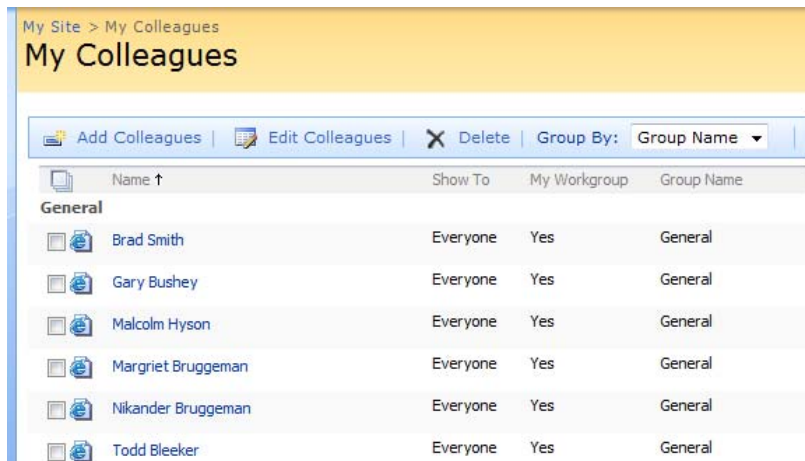


Figure 6.10 My Colleagues list, where you can add, modify and delete your colleagues.

Now you have added some colleagues you can configure when you would like SharePoint to inform you of changes related to your colleague's properties, such as special information like an upcoming anniversary. When MOSS 2007, was in beta, the Colleague Tracker Web Part referred to these changes as alerts. This confused people, as notification of colleague changes do not relate to SharePoint alerts, which is where you can configure SharePoint to send you an email, for example when new documents are uploaded into a library or new content that satisfies one of your search keywords is found. In development documentation, notifications of colleague changes are called person-based alerts, but the Colleague Tracker Web Part describes these as tracked changes. When SharePoint recognizes a change to one of your colleagues, you will see an entry under your colleague's name that indicates what the change is. Click **Change what get tracker** in the **Colleagues Tracker** Web Part. The Colleague Tracker Web Part tool pane appears listing in the **Tracker Changes** section, the change categories: **Anniversaries**, **Profile Property Changes**, **Membership Changes**, **New Documents Out of Office** and **Blog Changes**, as shown in figure 6.11.

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<http://www.manning-sandbox.com/forum.jspa?forumID=459>

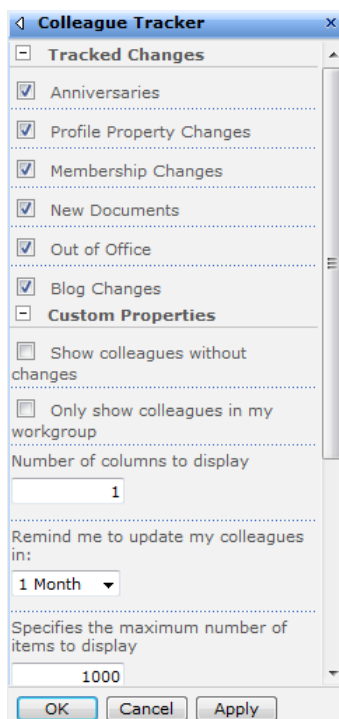


Figure 6.11 Colleague Tracker Web Part tool pane.

Many of this Web Part's properties you have seen before in Chapter 5, for example those listed in the Appearance, Layout and Advanced section. Table 6.1 provides a brief description of the other Web Part properties.

Table 6.1 These fields are used in the Colleague Tracker Web Part and are used to determine what triggers a change and how to show it

Group	Property	Description
Colleague Tracker	Check boxes selected affect the information displayed in the Colleague Tracker Web Part, dependant on how you set the properties in the Custom Properties group.	
	Anniversaries	Allow you to be notified of colleague's anniversaries. MOSS 2007 treats all date fields in a colleague's user profile as anniversaries. When a date in the user's profile matches the current date (based on the time set on the server), MOSS 2007 creates a new anniversary event, which the Colleague Tracker Web Part displays if you configure it to show changes. Note that changes to a date field do not create an event.
	Profile Property Changes	If this checkbox is selected, then colleague User Profile changes are displayed in the Colleague Tracker Web Part if it is you configure it to show changes.
	Membership Changes	If checked, you will be notified in any distribution list you are a member of changes.
	New Documents	If checked, your Colleague Tracker Web Part will show when colleagues upload new documents into their My Site Shared document library.

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	Out of Office	If selected, when a colleague sets their Out of Office Exchange setting, you will be notified if you have configured the Colleague Tracker Web Part to show changes.
	Blog Changes	If selected, changes to a users My Site blog are displayed.
Custom Properties	The Web Part properties in this group affect what colleagues and changes appear as well as the look and feel of the Web Part.	
	Show colleagues without changes	If chosen, the Colleague Tracker Web Part will not show colleague changes.
	Only show colleagues in my workgroup	If checked, only those colleagues in your work group will show.
	Number of columns to display	In this text box, you specify the number of columns to use to show your colleagues.
	Remind me to update my colleagues in:	If this check box is selected MOSS 2007, will notify you that you should consider updating your colleague list. Social networking works best if it reflects your current situation. You can choose between 1, 3 and 6 months.
	Specifies the maximum number of items to display	The maximum number of items to display
	Fix width to first table row	Sets all the columns to display at the same width, defined by the first table row.
	Widths of columns	If you are using more than one column, you can set the widths for each column individually.
	Display text for no result	If you do not have any colleagues, this text is shown.

We have looked at the Web Parts that appear, by default, on your the My Home web page. As you are the owner of this site, you can remove these, modify them and add new ones. We discussed Web Parts in Chapter 5, and many of the skills you learnt in that Chapter you can apply to My Site. For example, you may wish to add the Table of Contents Web Part to enable you to quickly see you lists, libraries and sub sites that make up your My Site site collection. Now we'll look at the links in the Quick Launch bar. The Quick Launch bar is the same whether you view the My Home web page or the My Profile web page.

6.2.3 My Site Quick Launch bar

The quick link bar broken up into various groups, such as My Profile, Documents, Pictures, Lists, Discussions, as well as a place for your picture. Many of these groups are the ones you see on any team site as described in Chapter 2. We will describe in this section the My Profile, Documents and Picture groups.

MY PROFILE GROUP

The links under the My Profile group are Details, Links, Colleagues and Memberships and we detail them below:

- Details: When you click on the Details link, the Edit Detail web page appears, as show in figure 6.12. This is the information that you can see, and in some cases modify, which make up the overall picture of who you are. The information can pertain to whom you are like your job title, where you are like your address, what you do like past projects and interests, as well as some personal information like birthday and phone number. You may even be able to add your own picture, which will show up when you name appears in search results.

NOTE

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The birthday field only accepts the day and month of your birth, not the year, and therefore cannot be used to determine how old you are!

My Site > Edit Details

Edit Details

Save and Close | Cancel and Go Back

		Show To
Name:	Penny	Everyone
Title:	HR Exec	Everyone
About me:	Author of four books on SharePoint: - Windows SharePoint Services 3.0 Step-by-Step, April 2007 - SharePoint Server Administrator's companion, January 2007 - Windows SharePoint Services Step-by-Step, April 2005 - SharePoint Products and Technologies Resource Kit, November 2004 Provide a personal description expressing what you would like others to know about you.	Everyone
Picture:	 Choose Picture Remove Upload a picture to help others easily recognize you at meetings and events.	Everyone
Responsibilities:	SharePoint Architect Browse Responsibilities Include things related to current projects, tasks or job description. (e.g. Sales, Project XYZ, Marketing Driver)	Everyone
Skills:	SharePoint, C#, CSS, SPD, MOSS, Trainer, Author Browse Skills Include skills used to perform your job or previous projects. (e.g. C++, Public Speaking, Design)	Everyone
Past projects:	MOD, Zurich Openwork, Twinings	Everyone

Figure 6.12 Edit Details Screen

Remember, the User Profile properties that you see on your Edit Details page may not be the same as the ones shown in the image above. Whether or not you can edit these properties is dependent on your Shared Services Administrator. To get the most out of the social networking capabilities we discussed earlier, you should enter information in the User Profile Properties: About Me, Responsibilities, Skills and Past Projects.

The properties Responsibilities and Skills are free format fields, that is, are you can enter whatever you like. However, once users enter details in the Responsibilities and Skills properties, you should click the Browse Responsibilities icon to the right of the Responsibilities text box. The Select Properties dialog box appears as shown in figure 6.13. This will ensure data integrity and all people with the same responsibilities and skill set will appear together in the search results.

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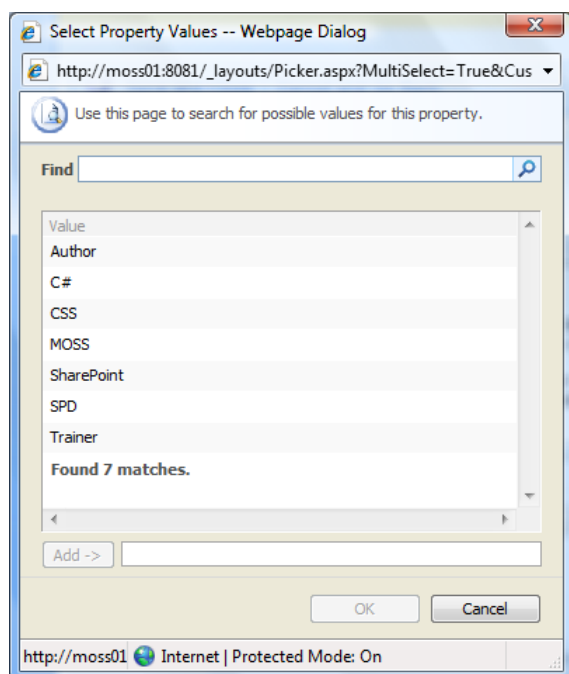


Figure 6.13 Select your Skills from the Select Properties dialog box.

Your organization may specify other User Profile properties of equal importance. In addition to entering values for the various fields, you may be able to determine who specify the visibility of specific properties, which are based on the social networking groups we saw earlier: Only Me, My Manager, My Workgroup, My Colleagues, or Everyone.

- **Links:** These are the links that you care about and want to see wherever you go. Unlike the links you may save with your browser, like Microsoft's Internet Explorer's Favorites, these links are part of SharePoint and are available to you whenever you login into SharePoint no matter which computer you are using. You can categorize each link into a group to show relationships. You used these same groups in your My Colleagues list. By default, all of your links are in the General group. A link can appear in only one group.

In the top right hand corner of portal web pages and My Site there is a link, "My Links", which when you click, a drop down list appears. The links you add to your My Site links list appear on this drop down list, broken down by the groups you use. Depending on your privacy settings, these links are shown to people accessing your public profile - My Profile page.

TIP

The site links SharePoint automatically creates for you and stores in the Memberships list will also appear on My Links categorized under My SharePoint Sites.

Two other links appear in the My Links drop down list, Add to **My Links** and Manage Links, as shown in figure 6.14. This is an alternative method of managing your My Links, other than clicking Links on the My Site Quick Launch bar. This allows you to manage your Links from any page on the portal.

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<http://www.manning-sandbox.com/forum.jspa?forumID=459>

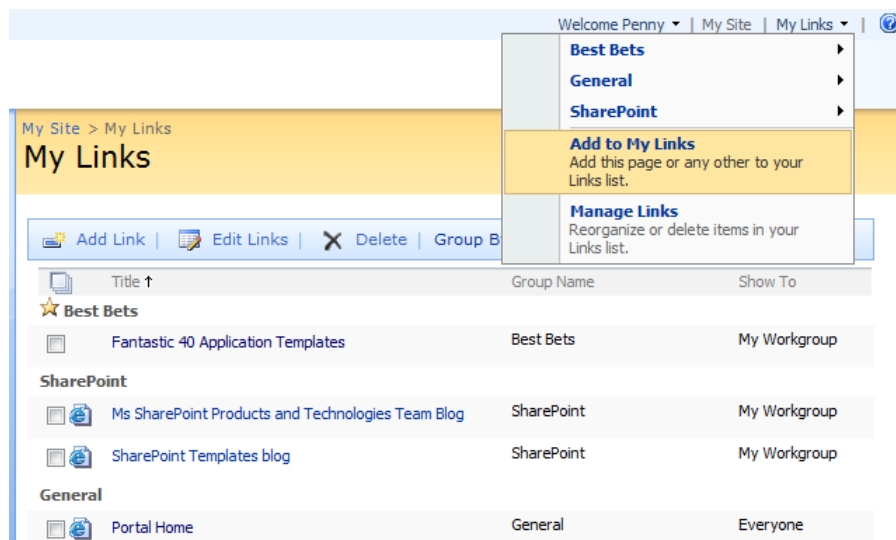


Figure 6.14 The My Links list appears if you click Links on the Quick Launch bar or click Manage Links from the My Links drop down list

- Colleagues: Use this link on the Quick Launch bar to view the My Colleagues list, which is the list that the Colleagues Tracker Web Part uses to display social networking information.
- Memberships: Use this link on the Quick Launch bar to view the Memberships link list, which the SharePoint Sites Web Part and My Links use.

We have described those links under the My Profile group on the Quick Launch bar, now we'll describe the documents listed under the Documents and Picture Library groups on the Quick Launch bar.

DOCUMENTS AND PICTURES GROUPS

This group lists those document libraries with the Display this document library on the Quick Launch? radio button selected. By default, only two document libraries are displayed on the Quick Launch bar as described below. However there is a third library created when your My Site is created – a form library, named Forms Templates.

- Personal Documents: By default, this library does not inherit its permissions from its parent site; therefore, no one other than your self can see documents uploaded into this document library.
- Shared Documents: This is a document library where you can upload your personal documents that you want to share with others. This library inherits permission from its parent site, My Site, and therefore, as already mentioned in this chapter, any authenticated user has read access to documents you upload into this library and these documents will appear in your public view in the "Documents" Web Part.

By default MOSS 2007 only creates one picture library, Shared Pictures: This works just like the Shared Documents described above but rather than saving documents into this library, you upload pictures you want to share. They will also appear in the "Documents" Web Part in your public view.

Now we have covered the majority of links, lists and Web Parts exposed on your My Home page, we next will detail the link, Create Blog, and why you may use it.

6.2.4 My Site Blog

Perhaps one of the most asked for features in MOSS 2007 is the ability to blog. Why do people want a blog? First, before we explain why you need a blog, we will describe what a blog is. A blog (short for web LOG) is an online journal. Ignoring SharePoint for the moment, and talking generically about blogs, when you create a blog, you are creating a web page called a blog **post**. Different from most web pages, you create a blog post without any web developer's help. Most blog systems allow for HTML editing, together with an option that allows other users to comment on your post. They also expose your posts so they can be syndicated using the RSS format, which programs, such as, IE and Outlook 2007 aggregate various blogs in one location. They are popular because they

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are easy to use, and allow users to share quickly information and experiences with others. However, a word of warning, just because it is easy to write a blog post, it does not free you from any social or legal obligations. Many organization we work with, include sections in their employee handbook, not only on e-mail usage, but also sections on blogs and wikis. Wikis we detailed in Chapter 2.

In this section, we will explain the blog web site, how to: create it, post a blog, manage blogs, user comments, and categorize them so other users can easily find information you post.

CREATING A BLOG SITE

To start your own blog, click **Create Blog** on your **My Home** page. This creates a subsite under your **My Site**, based on the **Blog** site template. This subsite inherits permissions from your **My Site**, that is, you are the site owner and by default, all authenticated users have read access to it. The home page of your blog site appears containing two **Web Parts**: the **Posts Web Part** and the **Admin Links Web Part**. Users who visit your blog site, and only have read access, do not see the **Admin Links Web Part**. The **Posts Web Part** displays your posts where initially an introductory blog post is displayed, as shown in figure 6.15. This briefly describes what a blog is and how to use it. You can use the breadcrumb in the top left hand corner of the blog site, **[Username] > Blog**, to navigate back to your **My Site**. Once created, your **My Site** has a link to your blog under **Sites** on the **Quick Launch** bar.

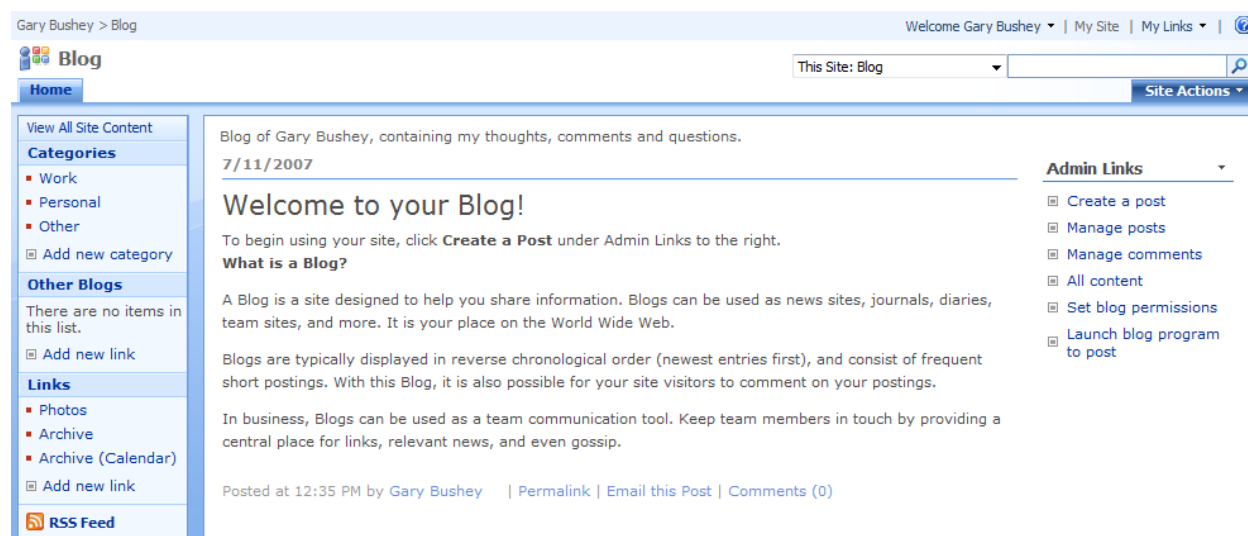


Figure 6.15 Default Blog page

Before you start to post information, we recommend you take some time to think of what you intend to post about and how you would categorize that information. Just as earlier in this chapter, we have seen how categorizing information is helpful to users who visit your **My Site**, so it is useful to you. Therefore, the blog site allows you to group your postings together. In the next section we detail how to manage these categories.

MANAGE CATEGORIES – THE CATEGORIES LIST

By clicking on **Categories** group heading in the **Quick Launch** page, the **Categories** list is displayed, where you can add, edit, and delete the categories you use for your blogs. By default, SharePoint creates the categories **Work**, **Personal**, and **Other**, which were listed on the **Quick Launch** bar. To add a new category, click **New** as you would to create any new list item in a SharePoint list. You can also create a new category on the home page of your blog side by clicking **Add new category** under the **Categories** group name on the **Quick Launch** bar.

TIP

If view the home page of your blog site into edit mode, that is, you click **Actions, Edit Page**, you will notice that the **Quick Launch** bar is not typical. It contains a **Web Part** zone with three **List View Web Parts**: **Categories**,

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Other Blogs, and Links. This means you can easily customize your blog site. When you navigate to lists or libraries within the blog site the normal Quick Launch bar is displayed.

We are still not ready to create our first post, the next task we do is to enable the ability to categorize blog posts by multiple categories. To do this, we first need to explain how to manage posts.

MANAGE POSTS – THE POSTS LIST

To manage your posts including editing your posts and managing who can see them, click Manage posts in the Admin Links Web Part on the home page of your blog site. This will take you to the Posts list where SharePoint stores all the posts you have created, where you can add, edit and delete your posts.

On the far right hand side of the menu bar is the “View” menu. This allows you to see the posts in various ways including All Posts, the default view, Calendar, My Posts (who else would be posting to your blog?) and By Author (again, who else would be posting to your blog?). The Views drop down menu is shown in figure 6.16. Notice that the Views also include Approve/reject Items and My submissions, which should tell you that the Posts list has Content Approval enabled. This means that as you have full control over the list, when you create a new post you have the option to either save the post as a draft or publish it. We discussed content approval in Chapter 3.

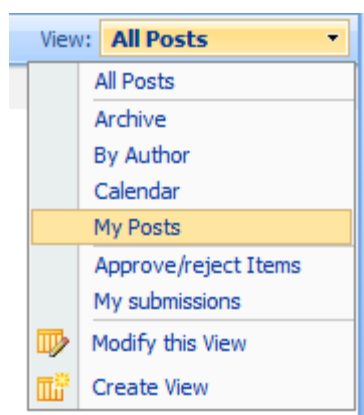


Figure 6.16 The Views created in your Posts list.

So how can you choose multiple categories when you post a blog?

1. From the Posts' Settings drop down menu, click List Settings.
2. Under the Columns section, click Category.
3. Select the checkbox, Allow multiple values, in the Additional Column Settings section on the Change Column: Posts page.

Now we're ready to add a new blog post.

ADDING A NEW BLOG

To add a new blog post you could click New on the Posts list page, but you will normally be on the home page of the blog site, where you can click Create a post in the Admin Links Web Part. You must supply a Title and a Published date and time. The Post Web Part uses the Published field to order posts in ascending order. To prevent users who have only read access from seeing a post choose to save the post as a draft.

MANAGE COMMENTS – THE COMMENTS LIST

As you post information, users will add comments to your blog. There is a link called, Comments, under each post, with a number representing the total number of comments made. If for some reason there are comments that you do not like and want to delete it or if you just want to view all the comments that have been posted, then Manage Comments in the Admin Links Web Part. This will take you to the Comments list. To allow users to your site to make comments, this list does not inherit permissions from the blog site. Unique permissions are set to this list that allows authenticated users to contribute to this list.

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In the Views menu, by default All comments are shown, but you can also see My Comments, in case you reply to someone else's comments which is a great way to have a discussion, or By Author, which will group the comments by those who wrote them – it is not usual to let other users author blogs under My Site. If you need a team blog then you should create a blog site in another site collection. We have found that many organizations are moving away from having team blogs to having a wiki library. You can also create your own views as discussed in chapter 3.

TIP

You should create an Alert Me on the Comments list so you can respond in a timely manner to users who create comments on your post.

If one blog is good then many blogs must be better, right? If you have stumbled on another person's blog that you think others would be interested in, where should you keep note of it? The answer is – on your own blog site, and this is where the Other Blogs group on your Quick Launch bar comes in, which we describe next, together with the Links list.

OTHER BLOGS AND LINKS

The Other Blogs group heading on the Quick Launch bar takes you to the Other Blogs list, which is a links list. By default, it is empty but if you want to add a new item you can do this in one of four ways.

The final List View Web Part displayed in the Quick Launch bar of your blog site is, Links. It has three entries: Photos, Archive, and Archive (Calendar). These are links to the:

- Photos pictures library, where you can upload images.
- Archive view of the Posts lists, we discussed above.
- Archive (Calendar) view of the Posts lists where you can see, in a monthly calendar, when all of your posts were created. Figure 6-13 shows how the page may look. Depending on when you have created your blog entries your page will look different.

By now, you should see that the blog site is a blank SharePoint site customized to meet a specific need. All its functionality is created based on lists, libraries and Web Parts. As with any site to view all lists or libraries, click View All Site Content on the Quick Launch bar.

The web pages and blog site we have looked at are part of your My Site site collection. The next page we will describe, My Profile, is technically not part of the My Site site collection. This page displays the public view of your User Profile properties and information you wish to share with other users. Other users do not see your My Home web page, but instead will see the My Profile page and from there will have access to any list, libraries, list items or documents you allow them to see them. The My Profile page is the entry point to see data that you store in your My Site. In the next section, we will look closely at the My Profile web page.

6.2.5 My Profile web page

Now, we will start to discuss the My Profile web page, as shown in figure 6.17, which is the page that everyone else sees. This can show the information you added to your profile, including an image of yourself, your blog entries, if you have added any, any documents, images, or links you want to share, as well as who your colleagues are and what the person who is viewing the page has in common with you.

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Figure 6-17 My Profile

By using the As seen by drop down menu you can view the page as other users to your site will see it. You categorized visitors to your My Site into the social networking groups earlier in this chapter, when you configured the Colleague Tracker Web Part and Colleagues list, that is, Everyone, My Workgroup, My Colleagues and My Manager. What information My Profiles page displays is a combination of the settings that you have made, and what the Shared Services Administrator configures.

There are really only two Web Parts on this page, which you have not seen before: Organization Hierarchy and In Common With You. One thing that both of these Web Parts have in common, is that your Active Directory, or whatever system you are using for authentication, needs to be setup with the correct reporting structure, for example, the User Profile property: manager, must be filled in correctly. These two Web Part are described as follows:

- Organization Hierarchy: This Web Part, located at the top center of the My Profile page shows the Organization Hierarchy of your organization so that people visiting your site can see who you report to as well as who reports to you. People are shown as a link so that you may quickly go to their My Site and get the information about them. Using these links, you can quickly traverse the entire organizational chart up and down.
- In Common with You: This Web Part contains some valuable information if the person who visits your site wishes to get in contact with you. This Web Part is divide into two sections. The first section shows the first manager you both share. This can be very useful if you are in an organization where you need permission to talk to the other person, sadly, we have worked in such a place before, or to get permission to have this person work on your team. By determining how far up the ladder you will need to go to get permission will help determine the level of effort required. The second section shows which colleagues you both know. This can be quite useful for initial introductions since most people would rather have a mutual acquaintance introduce them rather than going to the person directly without some sort of reference.

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You can use almost any Web Part you want in your My Home page, however only a small number of people in your organization will be able to customize the My Profile page. When MOSS 2007 is installed, your central administrators would have created a Shared Services Provider (SSP). This provides shared MOSS 2007 services such as, a shared search service, so no matter which portal you visit you will always get the same search results set, and a shared personal site provider web application. This provides a link on each portal web site so you do not end up with more than one My Site. It is this web application that hosts the My Profile page. To customize the shared view of My Profile, you need to be a site owner of the personal site provider. Then when you visit either your My Profile page or the My Profile page of another user, you will see the Site Actions link from which you can click Edit Page.

An administrator of the personal site provider cannot manage all MOSS 2007 personalization features. For that, you need to be a Shared Services administrator, others you need to be a site owner or a designer. The next section details administration of personalization features. For those tasks where you need to be a Shared Services administrator, we will only briefly look at it, as this book is not targeted at MOSS administrators. However some, like configuring a list or library for audience targeting, we expect that on some sites you will be the site administrator. We highly recommend you read these sections so you get a glimpse as to what is possible with MOSS 2007. We'll try and not get too technical on you – promise.

6.3 Adminstrating the personalization features

You manage many of the personalization features within an SSP, for which you need to be a Shared Services Administrator. We find that many organizations do not delegate SharePoint management tasks, and therefore whoever is the Central administrator is also the Shared Services administrator. An SSP is just another SharePoint site. A very special one, but still a SharePoint site, and therefore to manage the personalization features you will need to know the URL of that site. Alternatively, if you are a Central administrator you can navigate to the SSP from the SharePoint 3.00 Central Administration web site, which we'll explain next.

To start the Administrative tasks related to personalization you must use the Shared Services home page. To get to this page:

1. On a SharePoint server, click Start > All Programs > Microsoft Office Server > SharePoint 3.0 Central Administration.
2. On the Quick Launch bar, click on the name of the Shared Service that you use. We find most organization only has one. If there is more than one, you may need to make to each one, depending why you have more than one.

You will be directed to the Shared Service home page, as shown in figure 6.18.

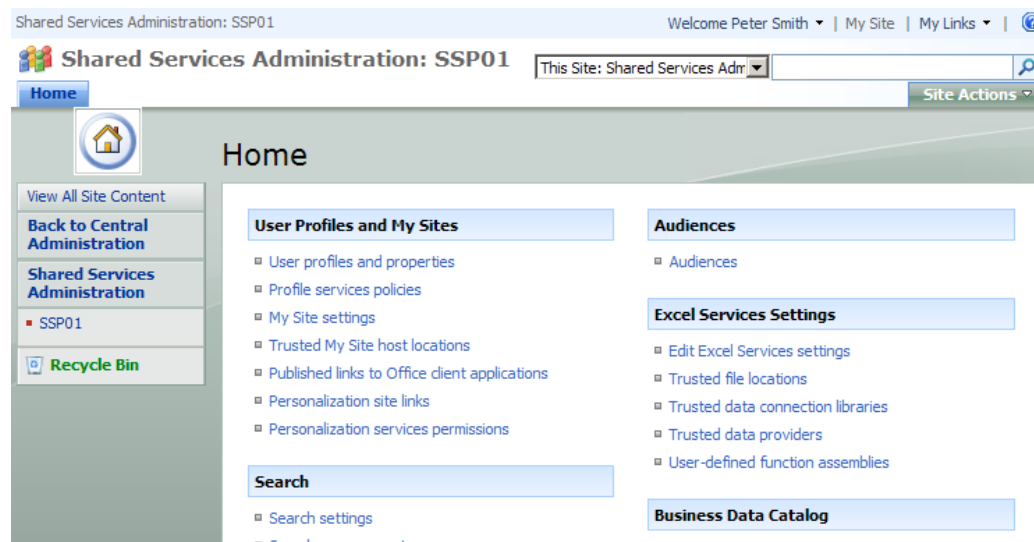


Figure 6-18 Manage Shared Services

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In this chapter, we are interested in two groups of links: User Profiles and My Sites group and Audiences. First let's explain the links under User Profiles and My Site.

6.3.1 User Profiles and My Sites

The User Profiles and My Sites set of links allows the Shared Services administrator to manage the personalization features. We will briefly describe each link:

- User profiles and properties: You recall that earlier in this chapter, we mentioned that you can change some User Profile properties in your My Site. The User profiles and properties page is where you can determine what User Profile properties to show and which ones a user can edit. We'll look at this in more detail in a minute. It is also on the User profiles and properties page, where you also setup where to get the values for your User Profiles from, such as Active Directory, as well as how often MOSS 2007 should contact that source for the most recent updates. There is no permanent connection between MOSS 2007 and the source, and therefore new employees or changes to imported User Profile properties will not be immediately available within SharePoint. If you are involved in a large intake of new employees/contractors and their imported User Profile properties need to be available as soon as possible, therefore you can't wait for the next schedule import. You need to coordinate with the MOSS 2007 project team to arrange a profile import. Ensure that they kick off a crawl after an import as some personalization features do not surface until a crawl has taken place.
- Profile Services policies: Use this page to define User Profile properties to set the default privacy setting, such as, Only Me, My Manager, Everyone, and whether or not the user can change the privacy setting for items of this type.
- My Site Settings: Use this page to manage My Site settings for this SSP, such settings include setting the URL for the Personal site provider, allowing users to choose the language of their personal site and setting the default reader site group. By default all authenticated users have read access to user's My Site, except where specifically mentioned earlier in this chapter.

NOTE

Changes to the default reader site group will only affect personal sites created after the change, therefore this is an important planning decision when implement a MOSS 2007 solution.

- Trusted My Site host locations: Use to prevent multiple My Sites in an implementation that has multiple SSPs or geographically dispersed MOSS 2007 installations.
- Published links to Office client applications: This is a customized link list used to publish SharePoint URLs to Office client applications. For example, when a user uses Word 2007, and wants to save a document to a SharePoint site, if the link to the SharePoint site is specified in this link list, then the user would see a My SharePoints tab when opening and saving documents. You can use audiences to specify that a link is only seen by a specific set of users. More on audiences later in this chapter.
- Personalization site links. We mentioned these link earlier in this chapter. Again, this is a link list, where you store URLs which end up as tabs on the My Site horizontal navigation bar between My Home and My Profile tabs. You can use audiences on this list.
- Personalization services permissions. This list defines who can create personal sites, use personal features, manage user profiles, manage audiences, manage permissions and manage usage analytics. By default, all authenticated users have the rights to personal features and personal sites.

User Profile Properties

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User Profile properties are an important feature for social networking. MOSS 2007, also, has a new People search that allows you to use the User Profile properties as a basis for searches. User Profile properties consist of a name, a data type and a value. Some of these values you are able to enter others are entered for you. Only a Share Services Administrator manage User Profile using in most cases the View Profile Properties page as follows:

On a SharePoint server, click Start > All Programs > Microsoft Office Server > SharePoint 3.0 Central Administration.

On the Quick Launch bar, click on the name of the Shared Service that you use and then click User profiles and properties under User Profiles and My Site.

Click View Profile Properties under User Profile Properties.

The View Profile Properties page appears as shown in figure 6-20.

Shared Services Administration: SSP01 > User Profile and Properties > View Profile Properties

View Profile Properties

Use this page to add, edit, organize, delete or map user profile properties. Profile properties can be mapped to Active Directory or LDAP compliant directory services. Profile properties can also be mapped to Application Entity Fields exposed by the Business Data Catalog.

[New Property](#) | [New Section](#) | 1 - 45

Property Name	Change Order	Property Type	Mapped Attribute	Multivalue	Alias
> Details					
Id	^ v	unique identifier			
SID	^ v	binary	objectSID		
Active Directory Id	^ v	binary	objectGuid		
Account name	^ v	Person	<Specific to connection>		✓
First name	^ v	string	givenName		
Last name	^ v	string	sn		
Name	^ v	string	displayName		✓
Work phone	^ v	string	telephoneNumber		
Office	^ v	string	physicalDeliveryOfficeName		

Figure 6.19 Add, edit, delete User Profile properties.

From here you can add, edit and delete properties, change the order that they appear in the various edit or display pages, see the type of the property, its mapped attribute, determine if it allows for multiple values, and if it is a search alias.

To add a new property, click **New Property** in the menu bar. You can also create a new section, which is a way of grouping like properties together. Click **New Section** on the menu bar to create a new section. To edit or delete a property, move your cursor-over the property's name and then from the drop down menu select either **Edit** or **Delete**. If you wish to change the order that the fields appear in the various pages, select either the down arrow or the up arrow to move the property.

One profile property that you may have noticed is called, **Outlook Web Access URL**. If you set a value for this property automatically configures the OWA Web parts, **My Calendar**, **My Contacts**, **My Inbox**, **My Mail Folder**, and **My Tasks**, as well as adding a new link to user's **My Site** menu bar called **My OWA**, which will redirect the user to your company's OWA web site.

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Now we have looked at managing User Profiles and My Site, it is now time to look at Audiences. We are all suffering from information overload, and audiences provide a great way to target information to users who are interested in it. Of course, you need to know your audience and what interests them. We are going to leave those two aspects to you. In the next section we detail how to configure and use audiences.

6.3.2 Audiences

Audiences are a great way to customize an area for a user without them even knowing about it! By using audiences, you can hide or show particular Web Parts or list item based on who a person is. In SharePoint Portal Server (SPS) 2003, you could only apply audiences to Web Parts or a very specialized link list called a portal listing. In MOSS 2007, you can audiences with any list in combination with the Content Query Web Part. SharePoint uses the following kinds of audiences: SharePoint Groups, Distributions Lists, Active Directory (AD) security groups and Global audiences. Global audiences are groups of users based on a set of criteria. If you want to target information using SharePoint Groups, Distribution Lists and AD security groups, then you are ready to go. However, if you want to use Global audiences, you need to involve your Shared Services administrator. The Shared Service administrator will use Audiences link, on the Shared Services home page and to the display the Manage Audiences page as shown in figure 6.20. The number of audiences shown on this page will be different based on the number of audiences you created. By default, there will always be one audience called All site users.

Shared Services Administration: SSP01 > Manage Audiences

Manage Audiences

Use this page to manage and compile audiences.

Audience Settings

Use these links to manage and compile audiences.

Number of audiences:	3
Uncompiled audiences:	0
Compilation status:	Idle
Compilation time:	Ended at 5/17/2007 11:30 PM
Compilation schedule:	Disabled (Click to configure)
Compilation errors:	No error

- [Refresh](#)
- [Create audience](#)
- [View audiences](#)
- [Specify compilation schedule](#)
- [Start compilation](#)

.Figure 6-20 Manage Audiences

CREATE AN AUDIENCE

To create an audience, click [Create audience](#) and enter a meaning full name. Any user, who can add or modify Web Parts, and any user who is a contributor of a list or library where audience targeting is enabled, will see the audience name. So choose carefully. Specify the owner of the audience and tell MOSS 2007 whether to include in this audience, users who meet all criteria or only one of the defined criteria. MOSS 2007 calls audience criteria,

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rules. Once the audience is defined, you will be taken to the Add Audience Rule page as shown in figure 6-21. Note that the actual title of the page will differ based on the name of the rule.

Figure 6.21 Add Audience Rule

A rule may be based on either on a User or a Property. If you select User you can then select either:

- Reports Under in which case you will then have to enter a username in the Value textbox
- Member Of in which case you will need to enter either a Windows security group or a Distribution List in the Value textbox.

If you select Property, as the basis for your rule, SharePoint presents you with a list of all defined User Profile properties. Depending on which property you select the choice of operators will be either "=", "Contains", "< >", or "Not Contains". The Value textbox will accept any input you want to enter.

After you have entered the first rule you will be taken to the View Audience Properties page. Here, you will see the various properties of the audience, such as, the number of members in the audience, which rules, all or some, that need to be satisfied, when it was last compiled, and any errors that were generated during the last compilation.

TIP

When you create a new audience, ensure you compile it, check there are no errors in the compilation log, and view members of the audience to ensure you have configured it correctly.

So how can you use audiences? We now look at how to use audiences. To use enable audience targeting on a list or library you need to be able to manage lists and to target Web Parts you need the Add and Customize pages permissions.

ENABLING AUDIENCE TARGETING ON A LIST OR LIBRARY

To tag each list item or document in a list or library with an audience you must enable Audience targeting. This you have to do on a list-by-list basis. There is no global setting, say, at a site collection level that you can use.

1. Navigate to the list or library whose content you wish to target at groups of users.

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2. Click Settings > List Settings and then under click Audience targeting settings under General Settings.
3. Select the Enable audience targeting check box and then click OK.
4. On the Customize [List] page under Columns notice a new column is added called, Target Audiences.

Now when you add or modify a list item in this list you can assign an audience to that item. Audiences that you assign to list items or documents are honored in Web Parts and you can configure the Content Query Web Part (CQWP) to honor them. The CQWP we detailed in Chapter 5, remember you will only be able to use the CQWP in site collections where the Office SharePoint Server Publishing Infrastructure feature is activated. This is a site collection feature, so to activate it, click Site Actions > Site Settings > Site Collection Administration > Site collection Features. You cannot alter a list or library View based on audiences. We will now detail how to use audiences on a Web Part.

USING AN AUDIENCE ON A WEB PART

You do not need to enable audience targeting on a list or library to audience content that is displayed in a Web Part to use audience targeting.

1. Add the Web Part to a Web Part page; click the down arrow on the Web Part title and click Modify Shared Web Part.
2. In the Web Part tool pane, expand the Advanced properties group and in the Target Audiences text box add the necessary audience, and then click OK.

To make choosing an audience easier, click the book icon to the right of the Target Audience text box. The Select Audiences – Webpage Dialog appears as shown in figure 6.21, allowing you to quickly find the audience you want.

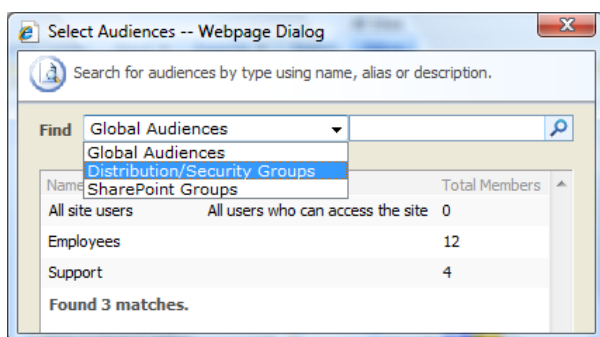


Figure 6.21 Select Audiences to target a Web Part.

We used this method of audience targeting when an organization wanted an image that would act like a button, so when users click on it, a new browser window would open pointing to a business-orientated web site. However not all visitors to the portal were interest in all business-oriented web sites. We used a separate Content Editor Web Part (CEWP) for each image, and associated a hyperlink and alternate text that image, then we used audience targeting at the Web Part level to show or hide the image. We configured the CEWP's appearance so users did not see the Web Part title. So as far as there were concerned it was just a button.

USING AUDIENCES ON A SITE'S NAVIGATION

You can also use audiences on SharePoint's navigation on sites where the Office SharePoint Server Publishing Infrastructure feature is activated. If you have selected to include subsites and pages in your navigation, you cannot associate audiences with those navigation links. Only navigation links you manually add can use navigation audience targeting. To add a targeted navigation link use the following steps:

1. Navigate to the site you wish to apply targeting navigation,

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2. Click Site Action > Site Settings > Modify Navigation
3. Click Add Link or click a link you previously added and click Edit
4. Enter a meaningful name, the URL for the link and an audience name, as shown in figure 6.23, then click OK.

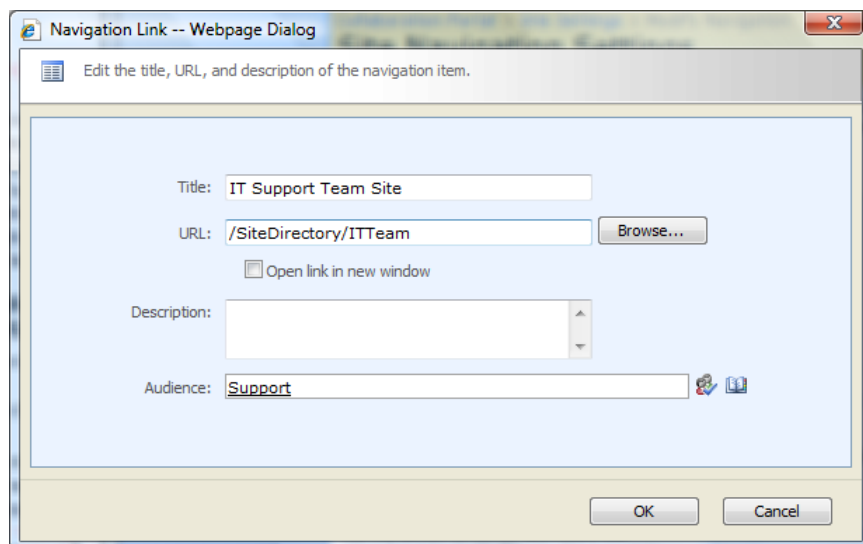


Figure 6.23 Audience target a Navigation link

Now we are nearing the end of this chapter we want to take a moment or two to explain personalization sites and roles-based My Sites. Personalization site generally use the My Site template where as the roles-based My Sites use templates that Microsoft provided after it release MOSS 2007.

6.4 Personalization Sites

Up until this point, we have focused on My Site. This is your personal site, but it need not be the only personalized site. On our way tour through personalization, we have seen that users can personalize their view of a page, and by using audiences, other people can personalize content on a page to the suit you. Also by including filter Web Parts on a page you can allow users to filter the data other Web Parts expose, thereby meeting your business needs. Some people call this personalization.

However, there is such a thing in MOSS 2007 terminology as a personalization site. This is when you create a site using the personalization site template. The resulting site has a My Site look and feel, even though you created it, say, on the portal and because you create the site using the personalization template, MOSS 2007 automatically adds a personalization link for it, and therefore it appears on everyone's My Site between the My Home and My Profile pages. Therefore, a specific group manages the content of the site, but everyone sees it as a page on their My Site. Now you may not understand what we are talking about, so let's create one.

1. On your portal, navigate to a site where you have permissions to create a site.
2. If it is a publishing site, then click Site Actions > Create Site otherwise click Site Actions > Create > Sites and Workspaces.
3. On the New SharePoint Sites page, enter My HR in the Title textbox, and enter MyHR in the URL name textbox. Click the Enterprise tab within the Template Selection section, and then click Personalization Site. Categorize the site if you need it to appear in the Sites directory, and then click Create.

MOSS 2007 creates the site and displays its home page as shown in figure 6.24.

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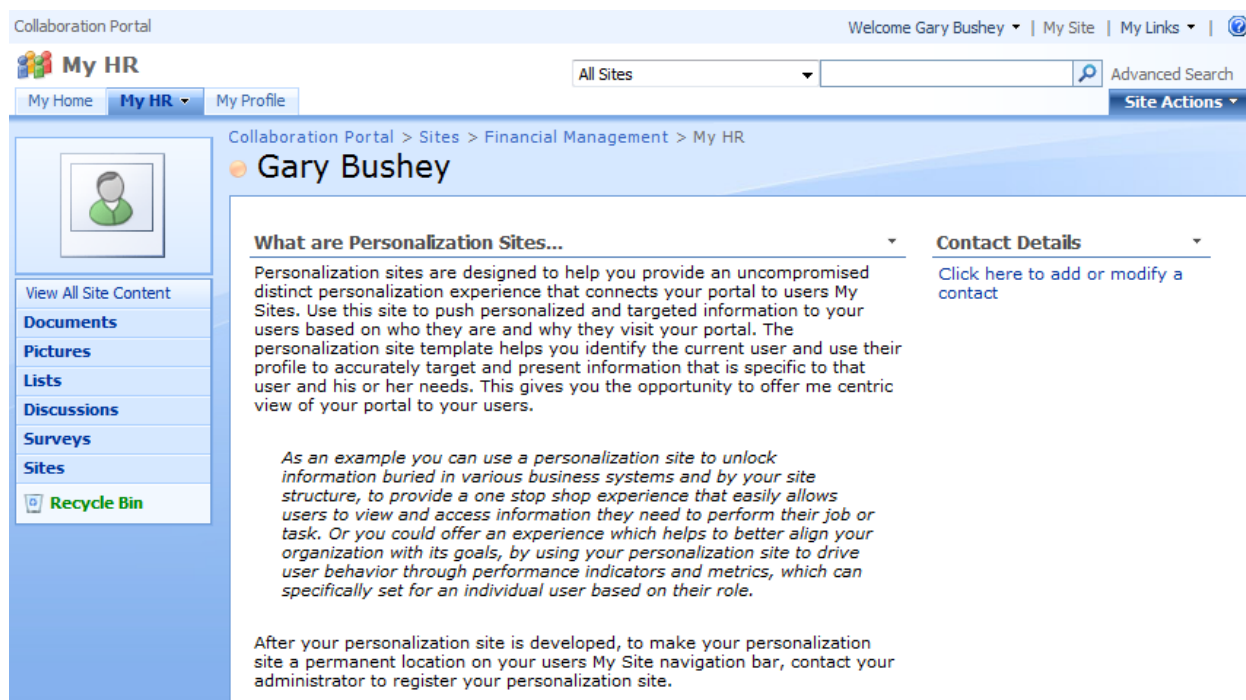


Figure 6.24 The personalization site: My HR.

It looks like you are now on My Site, but the link in the top left hand corner is the name of your portal.

4. Click My Home. The home page of My HR site does not appear. To make the home page of the My HR site to permanently appear on everyone's My Site, you will need to get your Shared Services Administrator to add the My HR site as a link item in the Personalized site link list. Then you could hide the page for some users by associating an audience with the My HR personalized site link as discussed in the previous section.
5. As the site owner of the My HR site, you can now add lists and libraries, expose that data as Web Part and use the Current User filter Web Part, User Profile Property filter Web Parts and Web Part connections to personalize the content on the My HR shared view of the home page. Create additional pages as needed.

So that is what is a personalization site, so next we'll explain roles-based My Sites.

6.5 Roles-Based Templates for My Site

Microsoft released the roles-based templates for My Site, in the first half of 2007. Known as the "Splendid 7", these are personalization site with the aims to demonstrate how My Site can be extended to display information that is important for an individual, who has to fulfill a specific role. The seven templates for My Sites are:

- Sales Account Managers
- Controllers/Financial Analysts
- Administrative Assistant
- HR Manager
- IT Manager
- Marketing Manager
- Customer Service Manager

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You should not expect that you could just install these templates and start using them. You should view them as examples. When you create a site based on these templates, they contain sample data that you can use to investigate the functionality of these sites. The templates have been designed to be extensible for actual implementations through the configuration of audience targeting, KPIs, workflows, Excel Services, Business Data Catalog, and other capabilities in MOSS 2007.

Each template has a companion set of business decision maker and IT professional datasheets. The business datasheet highlights the functionality and details of the scenario which a business decision maker can use to consider deployment. The technical datasheet describes the scenario, Web parts, relevant workflows, lists and document libraries that are part of the template. A setup guide to assist with installation and configuration also accompanies each template. Microsoft have also released a whitepaper, titled "Role-Based Templates for SharePoint My Sites: Under the Hood".

6.6 Summary

User Personalization helps make the portal your portal, you can personalize Web Part pages and Web Part properties. By seeing only the information that you need to see and not seeing information you don't, you save time by not having to sort through information.

You can also setup your own personal site – a web site just for you. You can store your documents here until you want to share them with others, have your own Blog, and enter information about yourself for others to see. This site, the list and Web Parts on My Site build a Knowledge Support system, using social networking to enable you to find people and content. Your My Site provides you with a central place to manage the documents that you have created, opened, saved, or checked out on any MOSS 2007 site throughout your organization. You can also use your My Site to view and access all of the tasks that are assigned to you in every site in the organization.

Shared Services and Personal Provider services Administrators can determine what information users can see, edit, and share as well as where some of this information is imported from. You as a site owner, can use these configurations to target information to suit groups of users to your site.

The My Site concept can be extended further to provide personalization sites, examples of which have been release by Microsoft, known as the Splendid 7.

7

Searching and retrieving content

In this Chapter

- Work with basic and advanced searches
- Understand the structure of search query and search results pages
- Manage search configurations settings
- Customizing the Search Center

Up to this point in the book, we have saved content into our portal using lists, libraries and user profiles. In chapter 2 and 3, we talked about using short and meaningful names, URL matching, completing the description text boxes, and to use columns to expose metadata properties. In the previous chapter, we tried to persuade you and your users to edit your user profile, to enter your skills and responsibilities. Why are we asking you to do this? Well – we have been preparing the ground for this chapter. Remember what we are trying to build – a knowledge support system, an environment that enables you to find information and tap into what people know; a system that enables you to make quality decisions and accurate predictions. To this aim, we talked how, by thinking about your site hierarchy, by customizing pages, using Web Parts, personalization and targeting information you make finding information easier. However, what happens if you move projects or need to research so new topic. Your existing information structure is not going to be so helpful. This is where search comes to your rescue. We want you to have the ability to search for subject-matter-experts, members of particular projects, and other categorized information. Search is one of the most powerful ways of finding information, so let's learn how to use it. .

Searching is an integral part of Microsoft Office SharePoint Server (MOSS) 2007. In fact it is so integral, that there is a search text box on almost every page within the portal. You will find the search text box on the Home page, your My Site, sub-sites, among others. At the heart of the search is the Search Center, which is an example of a Windows SharePoint Services (WSS) 3.0 application written using the features of Office SharePoint Server Search. The Search Center is automatically created as part of a Collaboration portal and a Internet portal.

This chapter will explain the difference between basic and advanced searches. It will also describe the process of searching for people and various keywords that you can use to filter your search. We will also learn which search Web Parts are used in the Search Center and how to extend the out-of-the box search capabilities. No, we are not going to get you to write code. We will do this all by using the browser. Of course, you can go much further with a developer, but that is not the focus of this book. You can configure some search settings at the site collection level, which we will also describe; however, MOSS 2007 search is a shared service, just as My Site was, which we discussed in Chapter 6. Therefore, to configure many of the settings you need to be a Shared Services administrator. We will briefly describe some of these tasks, just enough details so you understanding the possibilities. So, let's start at the beginning with basic searches.

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7.1 Basic Searches

Figure 7.1 shows the default home page of a MOSS portal. In the upper right hand corner is the basic search Web Part. This is the location of the box in almost every page. The basic search Web Part is made up of 4 parts.

- Scope drop down list, which is used to select which scope to use to perform your search.
- Search textbox, where you enter your **query** term(s).
- Search button, use to activate your search
- Advanced Search link, click on this link if you want to perform an advanced search instead of a basic search.

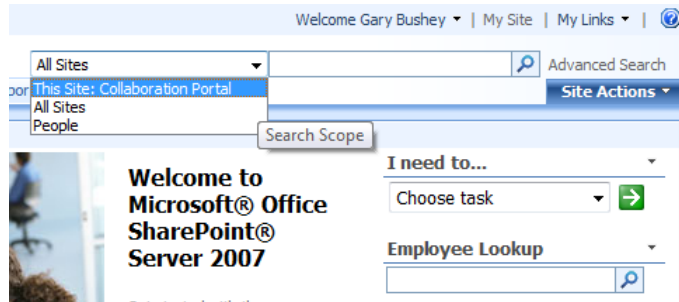


Figure 7.1 Location of the basic search and Employee Lookup search

Basic searches are just that, basic. You enter a term (or terms) and the results are returned. Under the covers, your terms form a search query that MOSS 2007 uses against its indexes. MOSS 2007 builds these indexes when it crawls the different content sources, which your Shared Services administrator defines.

To return content from a subset of the content that is crawled, you can select a search scope when you perform the search query. So what is a search scope? You can think of a search scope as a container of information that you can use to limit the content items returned. Now the search scopes that you see in the search text box are dependant on where you are. By default, if you are on the home page of a portal site, you will see three search scopes:

- **All Sites:** Query all the sites within your MOSS implementation for the information.
- **This Site:** Query the current site for information. If you are on a subsite within a site collection, the name of the subsite is appended to the scope name, for example, This Site: Reports, for the Report Center and This Site: [User name], for your My Site.
- **People:** This search scope is different from the previous two, in that the other search scopes will return content from all content sources, such as sites, libraries, lists, documents, file shares and people that match your query, while the People search scope will only return people.

When you perform a basic search query from a list or library, then an additional search scope is added to the search scope drop down list: This List: [List Name].

NOTE

If you have a WSS 3.0 installation, you will not see the All Sites or People search scopes. Office SharePoint Server Search can only be found in the products Office SharePoint Server 2007 for Search, which is available in Standard and Enterprise Editions and MOSS 2007, again both in the Standard and Enterprise Editions. MOSS 2007 Enterprise Edition also includes the ability to index content from the Business Data Catalog (BDC), which we cover in Chapter 14.

To perform a basic search, complete the following steps:

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1. (optional) Select the appropriate scope.
2. Enter the term(s) that you want to use to perform your search query.
3. To start the search query either press <enter> key or click the magnifying glass icon, known as the "Search" button.

MOSS 2007 directs you to the Search site home page, also known as the **Search Center**, where your search results appear.

NOTE

The Search Center is a web site that consists of a number of pages. The search results page is just one of the pages stored in the Search Center. The default or home page of the Search Center just displays the basic search box. Other pages include the advanced search page and the people search page. These are publishing pages, which is a type of page that MOSS 2007 uses to implement web content management (WCM). You can find more about WCM in Chapter 8. However, we will be describing the Web Parts on the Search Center pages in this chapter.

By using the basic search box, you entered the query terms in free form, that is, you did not apply any restrictions to those terms. You left it up to MOSS 2007 to look for content that contains the query terms in any order, and contains any number of the terms. If you want content to definitely contain a query term, then place a "+" character before the word. For example, sonic +boom, would return content that always contains the term boom, and some of the returned content may contain the term sonic. Boom, in this scenario, is known as an included term. Similarly if you don't want a term to appear in your result set, then place a "-" character before the word. However, you still have not defined the distance between the two words or the order in which they appear. If you want MOSS 2007 to return content where the words appear next to each other, in a particular order, you should enclose those words, a phrase, in quotation marks, such as, "Sonic Boom".

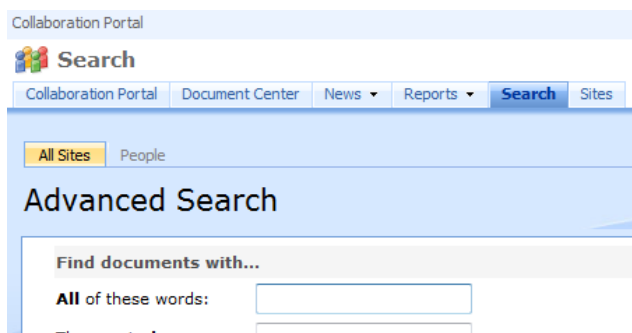
NOTE

MOSS 2007 search is not case sensitive or accent sensitive. However, a SharePoint server administrator can enable diacritical marks by using the stsadm command-line tool, such as, `stsadm -o osearchdiacriticsensitive`.

In most cases, the basic search box will provide you with what you are looking for. However, there will be occasions where MOSS 2007 returns too much content and you have to be more sophisticated with how you search. This is where the advanced search page comes in, which we will describe next.

7.2 Advanced Searches

Advanced searches provide you with more ways to filter the returned results and refine the search query. To use the Advanced Search options, click Advanced Search to the right of the basic search text box. Figure 7.2 shows the Advanced Search page, which contains by default two tabs: All Sites and People. These two tabs are examples of how you can expose search scopes. Your organization may have configured extra tabs. We will first describe the features on the All Sites tab.



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Figure 7-2 Location of the Advanced search section

7.2.1 All Sites

The All Sites tab on the Advanced search page, contains one Web Part, the Advanced Search Web Part that exposes a number of features, which we'll describe below. Any search query that you compose on the All Sites tab uses the All Sites search scope, that is, all content that your Shared Services administrator has configured for MOSS 2007 to crawl. However, by using the features on this Web Part you can limit the content that is return in your results set. The first set of features is grouped under Find documents with, which is shown in figure 7.3.

Figure 7.3 Advanced Search, use the Find documents with section to filter your results set.

FIND DOCUMENTS WITH...

You would use the entries under this grouping to determine what you are searching for.

- All of these words: Enter one or more words here and the system will "and" them together. This means that all of the words entered must appear in the search results.
- The exact phrase: This is similar to "All of these words" except that the words must appear in the exact order entered. See below for a more detailed comparison.
- Any of these words: Enter one or more words here and the system will "or" them together. This means that any of the words entered must appear in the search results.
- None of these words: Enter one or more words here and the system will not return any search results that contain these words. This entry is different from the others in that it must be used in conjunction with one or more of the others.

In order to understand the different types of searches consider the following:

- If you enter the words "Sonic Boom" into the All of these words search box and clicks the Search button. The search results will contain documents pertaining to the sound heard when a plane breaks the sound barrier but could also return a document with the sentence "The new Sonic drill is attached to a 15 foot boom".
- When you enters the words "Sonic Boom" into the The exact phrase search box, in your result set you will see the first set of documents but not any document where boom does not immediately follow the word sonic, since the system is looking for the words "Sonic Boom" together in that exact order.
- If you enter the words, "Sonic Boom" into the Any of these words then not only will the two sets of documents previously appear in the results set but also any documents that contain either one of the words (or both).

Finally, it is worth mentioning that people as well as documents appear in the results set.

NARROW THE SEARCH...

The entries under this group heading, as shown in figure 7.4, are used to filter the results that get returned to the user.

- Only the scope(s): We mentioned scopes earlier in this chapter. Here you can select one or more scopes that you want to use in your search query. Only the content that reside in the selected scope(s) are returned.

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- Only the language(s): Like scopes, select those language(s) that the returned content should be written in.
- Result type: This drop down list allows you to filter the types of documents to return. You can select All Results, Documents, Word Documents (as opposed to other types of documents like text), Excel Documents, or Presentations.

Narrow the search...

Only the **language(s)**: ☐ French
☐ German
☐ Japanese
☐ Spanish

Result **type** All Results ▼

Figure 7.4 Advanced Search, use Narrow the Search features to filter your results set.

ADD PROPERTY RESTRICTIONS...

Finally, you can limit your search results by selecting the property (or properties) that you want to filter on, as shown in figure 7.5.

Add property restrictions...

Where the Property... (Pick Property) ▼ Contains ▼ And ▼ Add Property...

Search

Figure 7.5 Advanced search, use the Add property restrictions section to add keywords to filter your results set.

In the Add property restrictions group, the text boxes are not visibly labeled, although they do have tool tips, so we'll discuss them starting with the left most drop down and working to the right, and using their tool tip names.

- Pick a Property drop down list, Select the property that you want to filter on. With a default installation of MOSS 2007, this drop down list includes Author, Description, Name, Size, URL, Created Date, Last Modified Date, Created By and Last Modified By. These should be familiar to you. These are the column names, you will see in most lists and libraries. Not all properties or column names are available here. Additional properties can be added by configuring the Advanced Search Box Web Part, but first properties have to be tagged as Managed Properties. As MOSS 2007, crawls a content source it finds properties, known as crawled properties. The Shared Services Administrator can then define which crawled properties are Managed Properties.
- Inclusion operator drop down list, the default for this drop down, is Contains, which means that the selected property must contain the value entered. The other options are Does not contain, in which case the document cannot contain the entered value, Equals, where the property must equal the entered value and Does not equal, which returns all the documents where the property does not equal the entered value.
- Enter Search phase text box, This is where the property's value is entered. The value that you enter here is known as **keywords**.
- And/or operator drop down list, used to determine if the you want "And" or "Or" the properties together.

TIP:

Refer to the "Find documents with..." section above for a quick overview of the difference between "And" and "Or" searches.

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- Add Property... link". This allows you to add another row of property filtering. If you have more than one row, another link labeled Remove property..., which will allow you to remove a row.

You can also enter advanced keyword queries in the basic search box by using a property/keyword pair. For example, enter `FirstName:bushey` into the basic search box to find all content authored by gary, and to find content that gary authored in a specific set of sites, enter `site:http://portal/sitedirectory/inaction FirstName:gary`. SharePoint assumes an implicit "and" between these two property/keyword pairs, ensuring that only content authored by gary is returned. The results set of this query, returns content authored by gary in the InAction site and in the sites below the InAction site. So, how do you know the name of the property to use? Remember properties are the metadata you use to describe content and in SharePoint, they are the column names or User Property names. Therefore, you can use this method to execute advanced searches on properties that are not exposed on the advanced search page. Also using this trick, you can execute advance query searches in a WSS 3.0 only installation.

NOTE

If you click on the All Sites tab, it will toggle you between the basic search box and the Advance Search options. In affect, you are being switched between the default page of the Search Center and the advance page.

Once you have entered your keywords and filter criteria, click on the "Search" button to initiate your search query. However, before we describe the search results, we will next detail the People tab, the second tab on the Advanced Search page of the Search Center.

7.2.2 People

If you click the People tab on the Advanced search page, it takes you to the people page, as shown in figure 7.6, which contains one Web Part, the People Search Box Web Part. By default, search queries you execute from this page are limited to the People search scope.

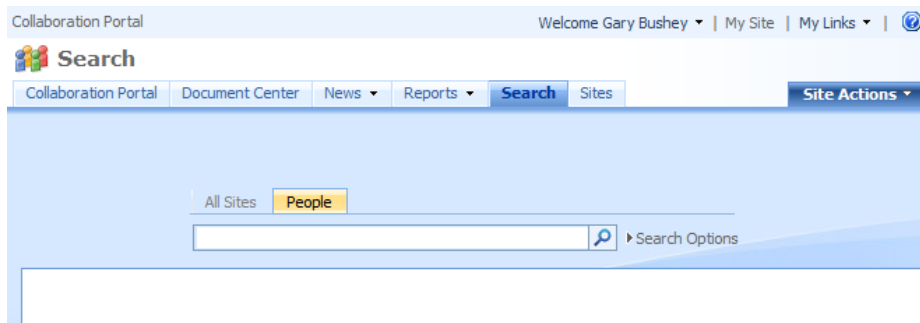


Figure 7.6 People Search box, in which you can use simple and advance queries to find people.

Initially the People Search Box Web Part displays a basic search box from which you can search for people in the way we described at the start of this chapter. If you click Search Options then a number of text boxes appear, as shown in figure 7.7, that you can use to compose an advanced search query. You can use the Search Options link to toggle between these two search modes.

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Figure 7.7 People Advanced Search box

These text boxes relate to User Profile properties that we discussed in Chapter 6. Therefore, by enter values in these text boxes you are executing a query against values that either other users entered into their User Profile properties or where imported from, say, Active Directory or SAP. Notice that Responsibilities and Skills have an icon to the left of their text boxes. Again, we saw this icon in Chapter 6, when you were editing your profile. Clicking on this icon will open a dialog box, as shown in figure 6.13, which allows you to perform a lookup to find the appropriate value(s). As users, enter their responsibilities and skills, so this dialog box will display all the responsibilities and skills in your organization.

Once you have entered the keywords, to execute the search query, click the magnifying glass. On the people search page there is no button titled Search for you to click. Users often find this confusing and may need training on how to use the People search.

TIP

You do not have to navigate to the Search Center to execute a people search, on any basic search box choose the People search scope, or on the home page of the portal enter text in the Employee Lookup Web Part, as shown in figure 7.1.

In this section, we described how to enter search queries. We have limited the discussion to terms or keywords that you can enter into the boxes provided by Web Parts. You can also query the MOSS 2007 indexes using a Structured Query Language (SQL) syntax, which is designed to be used when developing custom solutions. We will not cover this querying mechanism in this book. In the next section, we will look at the content that is returned as a result of our queries.

7.3 Search Results

After executing your search, MOSS 2007 will take you a Search Center results web page. as shown in figure 7.8. Here you will find the content and people that match your search query term, depending on your selected scope. .

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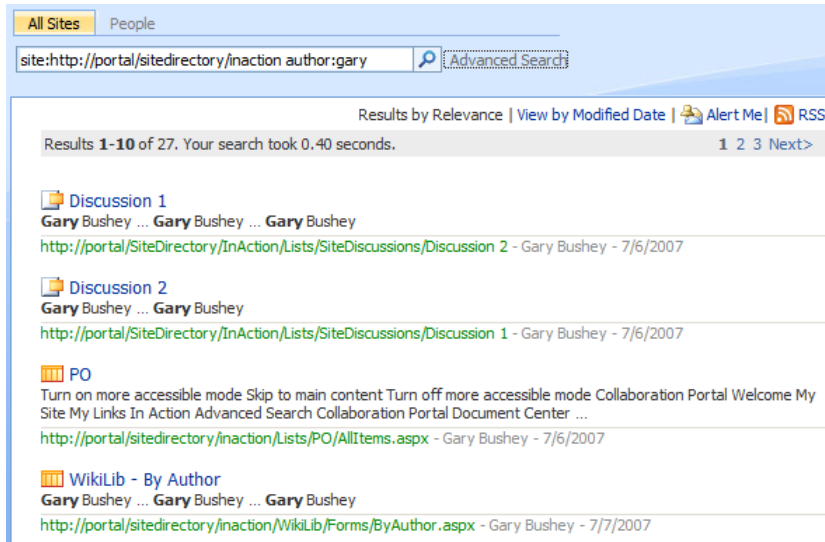


Figure 7.8 The Search Center is where you will find the results of your search.

Notice that you can choose to alert yourself to changes in this query, as MOSS 2007 indexes content sources or you can subscribe to a RSS feed of this query.

For each tab within the Search Center, there is a query page and a results page. From the home page of the Search Center, default.aspx, you can use the basic or advance searches within the All Sites search scope. The matching results page for the home page of the Search Center is results.aspx, which is the page shown in figure 7.8. The People tab uses the page, people.aspx for search queries and peoplereults.aspx to show related result set.

NOTE

If you look at the URL for these two pages in the address box of your browser, you will notice that they are stored in the Pages document library. Therefore, they are part of the publishing or WCM features of MOSS 2007. You can therefore edit them using the browser.

The other search scopes mentioned earlier are not associated with a tab or query page on the Search Center. You can only choose them when the search scope box is displayed, but they do use a different results page, that is, the search scopes, This Site [Site Name] and This List [List Name] use the results page, OSSSearchResults.aspx, which is stored in the layouts directory, which we will talk more about in Chapter 17. This is because the result sets for these two search scopes, is returned by WSS 3.0 search and not by the MOSS 2007 search engine.

As we explained earlier, each tab on the Search Center pages is linked to a search scope, so if, for example, you choose the search scope of People in basic search box, you will be redirected to the People results page, that is, peoplereults.aspx, to see the appropriate result set. In this section, we will describe the result pages, All Sites, results.aspx and People, peoplereults.aspx.

7.3.1 All Sites

Figure 7.8 shows the result set when using an All Sites search scope. The actual information presented will vary depending on the type of item returned, and who you are. As with previous versions, MOSS 2007 performs security trimming of the search results at query time. When SharePoint indexes all the content of configured content sources, if it is able to extract security information from those content sources, then when you enter a search query, SharePoint will honor those security settings based on the identity of who you are.

NOTE

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Developers can build custom security trimmings solutions on top of the in-built security trimmings, using the Application Programming Interface (API), `ISecurityTrimmer`.

We will discuss the various parts of the returned results item below:

- **Icon:** To the right of each returned item and icon appears which indicates what type of item it is.
- **Title:** When you click the title of the returned item, depending on the configuration of your computer, SharePoint and the item type, your browser will behave differently. For example, if the item is a word document and your computer is configured to open the document in a specific application, such as, Word 2007, then the document will open in Word 2007. If the item returned is a web site, then when you click on the title of the returned item your browser will redirect to that site.
- **Relevant information,** this is the line/paragraph below the title, and shows a brief snapshot of the matching information. Use this to determine if the item is of interest to you.
- **URL,** the URL of the returned item. If you click the URL, you get the same behavior as clicking on the result item's title.
- **Document Size.** If the returned item is a document, the size of the document is displayed.
- **Owner,** this displays the individual who is the author of the document or the owner of the web page.
- **Last modified date:** The date the item was last modified.

The All Sites results page uses the data returned by the MOSS 2007 search engine to a hidden object on the page. This hidden object then has Web Part connections to each search Web Part, which then layout the information. We are next going to describe these Web Parts.

NOTE

The hidden object is internal to a search page, and cannot be used by Web Part that you developer may create.

7.3.2 Search Web Parts

The data passed to the search Web Parts is in XML format, and all of them are customized Data Form Web Parts (DFVWP), and use **XSLT** to transform the results into a format that your browser can render. In Chapter 15, we look at DVWP in detail. By altering the configuration of these Web Parts, you can customize your result pages, so let's look at these Web Parts:

1. Enter some search query in one of the search boxes, use the All Sites scope and click Search.
2. On the results, click Site Actions and then click Edit Page.

The results page is now in edit mode, as shown in figure 7.9. Ignore all the buttons on the page editing tool bar, we'll come back to those in Chapter 8.

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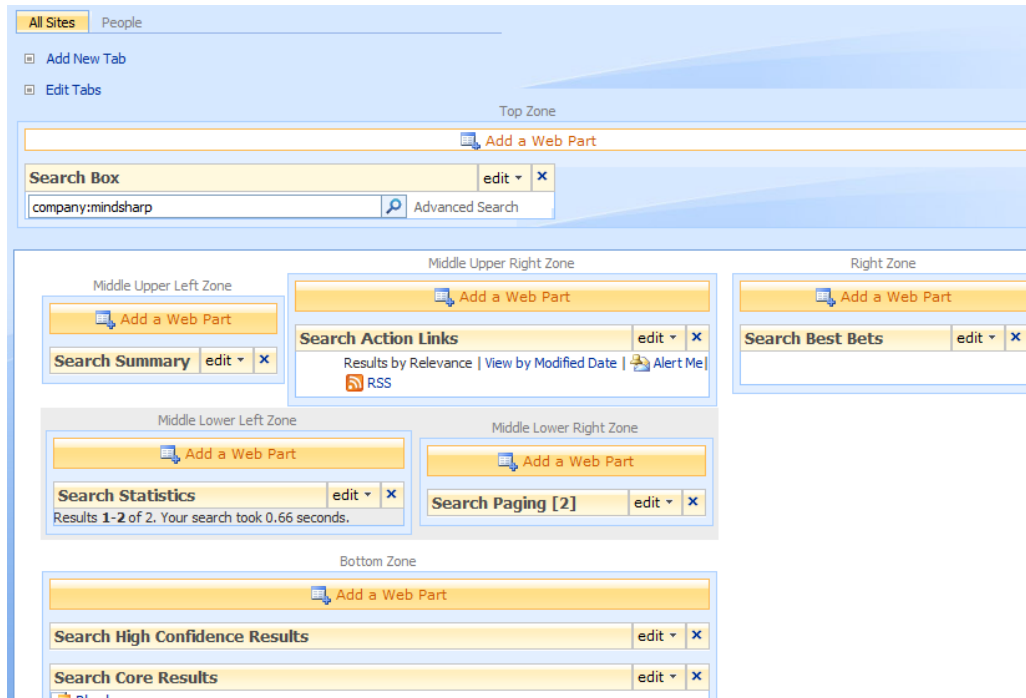


Figure 7.9 The Search Center All Sites result page with the individual web parts highlighted.

Figure 7.8 is identical to 7.9 except that the individual Web Parts are highlighted. Each of the Web Parts on the All Sites results page are explained below:

- Search Box, This Web Part is where you enter either the basic or the advanced search query items. By default, this Web Part's properties are configured not to show the scope drop down list.
- Search Summary, This Web Part displays "Did you mean" spelling suggestions. You can click on the word displayed to initiate a search query on the suggested work.
- Search Action Links,, This Web Part will allow you to sort the results set by either relevance or modified date, as well as creating a new Alert Me or to subscribe to a RSS Feed of this search query. You can choose not to show these four links by editing the Web Part properties, as shown in Figure 7.10.

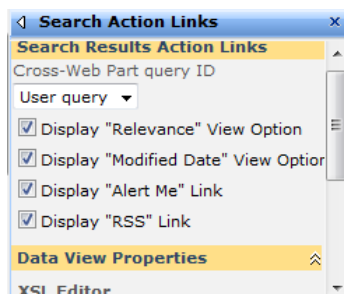


Figure 7.10 Enable or disable the Action links by using the Search Action Links Web Part properties.

- Search Best Bets, This Web Part will show the results that match best bets. The Site Collection administrator can link keywords to specific content, such as, documents, pages, web site and file shares. When you enter that keyword, the documents or sites that have been determined to be a best bet will appear in this Web Part as shown in figure 7.11.

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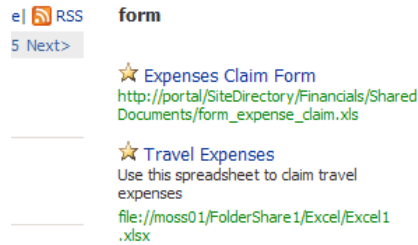


Figure 7.11 The keyword form linked to two content items and shown in the Search Best Bets Web Part.

NOTE

If you defined a definition for that keyword, this will also appear in the Web Part. Custom synonyms can be associated with these keywords to enhance the results that are returned, for example, the word “Lorry” can be associated with the keyword “Truck”, so when you enter either lorry or truck as search keywords the same content would be returned. By editing the Search Best Bets Web Part properties, as shown in figure 7.12, you can alter the default behavior of this Web Part.

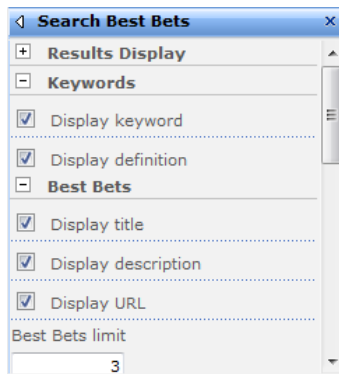


Figure 7.12 Enable or disable the Search Best Bets Web Part properties.

Although OSSSearchResults.aspx looks very similar to the results.aspx page, it is much simpler and does not contain the Web Parts: Best Bets, High Confidence Results, tabs or the Advanced Search link. This may confuse users. Using the browser, you cannot edit this page.

By default, the Web Part only displays the first three best bets. You can change this by modifying the Web Part's Best Bets limits property. See Chapter 5, for details on how to change Web Part properties. This Web Part is the same Web Part as Search High Confidence and Search Core results, but with a different Web Part Title and specific Web Part properties configured.

- **Search Statistics**, This Web Part shows the search result statistics for the search query you have just made. The statistics are of the format Result n-m of x. Your search took y seconds, where content items n to m are shown on the page; x is the total number of content items returned as the result of your query. You can configure the Web Part properties to define what statistics to display and whether to display them on one or two lines.
- **Search Paging**, If you have more search results than fit on one page, this Web Part shows, in the form of a breadcrumb, how many pages there are as well as allowing the user to either select a specific results page or click Next > to go to the next page, if there are any more pages to view. If you are viewing a page other than the first results page there will be a link labeled, <Prev that will allow you to go to the previous page. There are several Web Part properties you can configure for this web part, including the text <Prev

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and Next>, as shown in figure 7.13. There are usually two of these Web Parts on a page, so you can use the search paging breadcrumb either at the top of the page, or if you can scrolled to see result items at the bottom of the page.

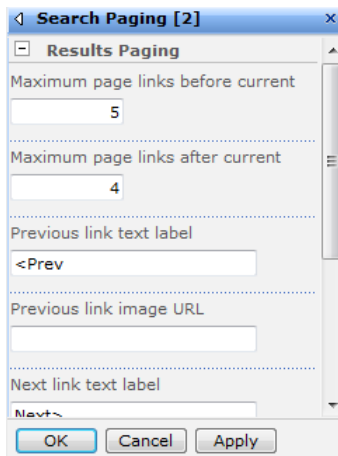


Figure 7.13 Enable and Disable Search Paging Web Part properties.

- Search High Confidence Results, This Web Part will show those search results that are considered high confidence matches. This is where there is an exact match between a keyword as defined by the site collection administrator or some other property such as a user name. This Web Part is a Search Core Results Web Part configured to show only high confidence matches.
- Search Core Results, This web part will return all the other matches that are not considered high confidence matches. This Web Part's properties allow you to configure duplicate results, search term stemming, and noise word queries.

Search Core Results options

If the same content is stored in multiple locations, you can use the Web Part property, Remove Duplicate Results, that only one content item is listed in the results set. Such an option will contain a link (View Duplicates), which you can use to see all duplicates.

In SharePoint Portal Server (SPS) 2003, stemming was turned on by default and was not configurable. The search results in SPS 2003 would contain words derived from the query term, for example, if your search query term was teach, the search results would also return content that contained teaching and taught. In MOSS 2007, stemming is disabled by default, even though the indexer will stem words as it crawls each content source. To enable it, select the Web Part property, Enable Search Term Stemming.

Use the Web Part property, Permit Noise Word Queries, if you have content in multiple languages. This enables you to search for words that are considered noise words, say, in English, but may not be considered noise words in other languages.

Now we have completed describing the results page for the All Sites search scope, we will now move on to the peoples results page.

7.3.3 People Search Results

Refer back to Figure 7.9 and notice that there are two tabs that make up the search results; All Sites and People. The All Sites tab, will return documents and people while the People tab returns just those people who match the search terms on the people's result page; peoplereults.aspx. You do not have to limit your search query to the People scope to use the People results page. You can enter a search query against the All Sites scope,

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and then when you see the results set, you can click the People tab and see the results set as if you executed the query against the People search scope.

Figure 7.14 shows a people search results page.. Notice that there are some differences from not only the document search but a person result from the “All Sites” search.

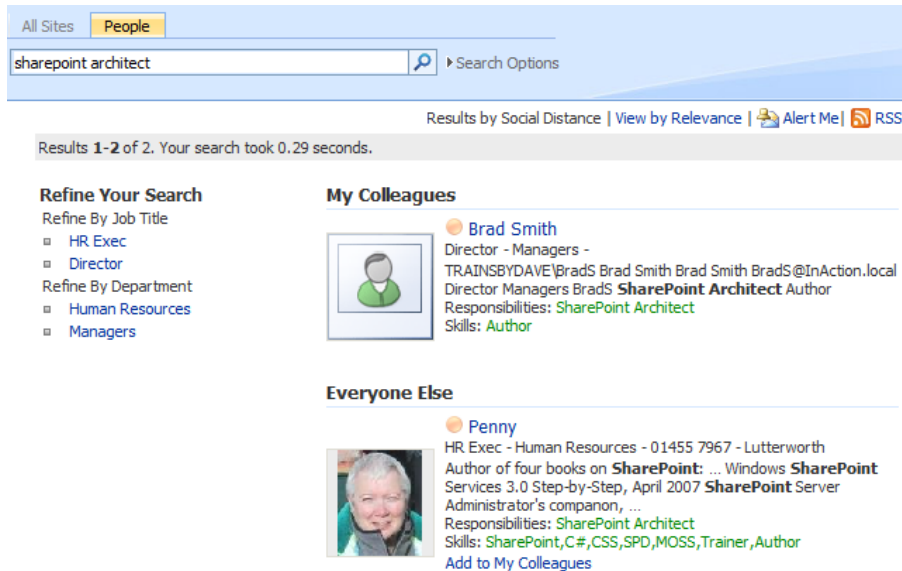


Figure 7.14 Search result for People search

The information that makes up the person results page is sorted in by social distance as discussed in Chapter 5. You can also refine your search by using the Refine Your Search section or clicking View by Relevance. The people information displayed are discussed below:

- Image: Either the generic image placeholder or if the user has uploaded a picture of them a thumbnail of the picture will show. If the My Site is in a browser domain other than intranet, or if it uses a port number other than 80, then you will be prompted for your credentials.
- Person Name, with a presence icon: The name of the person: If you click on the name of the person you will be taken to the person’s “My Site”.
- Relevant Information: The details list here, include Job Title, a brief snapshot of the matching information, Responsibilities and Skill User Profile properties.
- Add to My Colleagues: Click on this link to add the user to your colleagues list.

The people results page consists of the following Web Parts:

- People Search Box Web Part. This Web Part is very similar to the Search Box Web Part on the All Sites scope results page, except configured not to show the advanced search link and has additional Web Part properties such as to show Search Options.
- Search Actions Links Web Part. Again, very similar to the Search Actions Link Web Part on the All Sites scope result page, except it does not have the Web Part property, Display “Modified Date” View Option.
- Search Statistics Web Part. Same Web Part that is displayed on the All Sites scope results page.
- Search Paging Web Part: Same Web Part that is displayed on the All Sites scope results page.
- Search High Confidence Results Web Part. Same Web Part that is displayed on the All Sites scope results page.
- People Search Core Results Web Part. Same Web Part that is displayed on the All Sites scope results page,

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except that the Web Part title is different, it does not defined columns and has different XSLT.

In this section, we detailed the two search scopes, their query and results pages, and the Web Parts that are placed on those pages. As we investigated these Web Parts, we noticed that the two results pages were very similar in composition, with just a few configuration changes to the Web Part properties. Now before we can put it all together and create our own tabs on the Search Center, with its associated query and results pages, we need to briefly describe some of the administrative tasks, particularly those, as a site collection administrator, you have control over.

7.4 Administrative Tasks

Like many other features of MOSS 2007, Search's administrative tasks are broken into two parts. One part can be performed from the portal itself and the second part must be performed using the Shared Services Provider (SSP) web site. We needed the help of the Shared Services Administrator in Chapter 6 to manage many of the personalization features. You may need them again as we will see later in this chapter.

7.4.1 Site Settings – Site Collection administration

To administer, search options at the site collection level you must be a Site Collection Administrator. There are only two site collection administrators per site collection and these are defined using the SharePoint 3.0 Central Administration web site (Application Management > Site Collection Owners). Once you are a site collection administrator, then from the portal Home's page, select Site Actions > Site Settings > Modify All Site Settings. Under the Site Collection Administration section, are the three links to administer the portal specific search settings, as shown in figure 7.15..

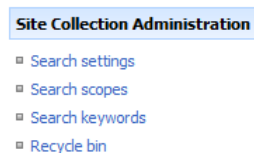


Figure 7.15 Portal specific search settings

TIP

If you are not on the Home Page when you perform these actions there will be an link under "Site Collection Administration" to take you to the top level site settings.

SEARCH SETTINGS

This link allows you to change the basic search settings, specifically you can direct users to a different pages document library on a different Search Center web site, where your MOSS 2007 search query and results pages are stored or you can choose to use the WSS 3.0 results page, `osssearchresults.aspx` page that we discussed earlier in this chapter. By choosing to use a Search Center, you are enabling the custom search scopes, such as All Sites, and People. If you choose to use only the WSS 3.0 search scopes, you will only be able to use This Site [Site Name] and This List [List Name]. Click on the Search Settings link to go to the Search Settings page as shown in Figure 7.16.

Collaboration Portal > Site Settings > Search Settings

Search Settings

Search Center and Custom Scopes

Custom scopes include scopes managed at this site or by shared service provider. When you enable custom scopes, the custom scopes appear in the search list.

A search center includes an advanced search page (/advanced.aspx) and a default results page(/results.aspx). Customize the scopes to show in the search list in the Search Scopes page under Site Settings.

☒ Use custom scopes. Display richer results using the following Search Center:

 Example: /SearchCenter/Pages

☐ Do not use custom scopes. Display results in the search results page (/layouts/osssearchresults.aspx).

OK Cancel

Figure 7.16 Search settings administrative page

SEARCH SCOPES

This link will takes you to the View Scopes page shown in Figure 7.17, where you can manage the search scopes.

Collaboration Portal > Site Settings > Scopes

View Scopes

Use this page to view and manage search scopes. The order in which the search scopes appear in this list is the order in which they will appear in the search scope list next to the Search box.

New Scope | New Display Group | Refresh | 1 - 5

Title	Update Status	Shared	Items
Display Group: Search Dropdown (3)			
All Sites	Ready	☒	1024
People	Ready	☒	27
Skills	Empty - Add rules		empty
Display Group: Advanced Search (1)			
All Sites	Ready	☒	1024
Unused Scopes (1)			
Folder Shares	Ready	☒	19

Figure 7.17 View and modify scopes

This page lists those search scopes available to this site collection, their state and the number of items each search score contains. There are two types of search scopes:

- Shared search scopes. These are search scopes configured by the Shared Services Administrator. These search scopes are available across any Web Application and the site collections that are created in those Web Applications. Once a shared search scope is created, they will appear under the Unused Search Scope group heading and the site collection administrator can choose whether to use them. To add a search scope to a specific Display group, click the display group link, for example, Search drop down.

NOTE

If your developers were to create a new search box Web Part, that displayed search scopes they could choose a new to use a new display group. If you wanted to use this new Web Part, then you would need to create a new display group.

- Site collection level search scopes. The Site Collection Administrator defines these. Click New Scope on the

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View Scopes page. You then give a name to the scope, whether you wish to list it in the search box, drop down list display group and/or advanced search display group and if you wish to use the default search results page or a different results page for this search scope. The new search scope is then listed under the Display Group you choose, with a Update Status of Empty – Add rules. When you click Add rules, the Add Scope Rules allow you to configure what content should be included in this search scope, as shown in figure 7.18.

Figure 7.18 Add Scope Rule.

SEARCH KEYWORDS

The third search link under Site Collection Administration on the site settings page, refer to the “Search Best Bets” Web Part we discussed earlier in this chapter. Remember that this Web Part shows those items that have been marked as Best Bets for the query term. Click Search keywords to display the Manage Keywords page as shown in figure 7.19, from where you can define keywords and best bets.

Figure 7.19 View keywords and Best Bets

To add a new keyword click Add Keyword and on Add Keyword page, as shown in figure 7.20 and perform the following steps”

1. In the Keyword information section, enter the new keyword phrase, for example, form and any synonyms. If there are any additional words that can be used to determine the keyword, enter them in the Synonyms text box, separate each word with a semi-colon.
2. Click Add Best Bet in the Best Bets section. In the Add Best Bet – Webpage dialog box, select either the Add new best bet or Select existing best bet radio buttons. Once you have added a new best bet or chosen an existing best bet, click OK.

TIP

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If you are creating a new best bet, you will need to enter the URL, Title and Description. As there is not browse button for you to get the URL, we recommend you content prior to creating a best bet and copy the URL from the browser address box.

3. Enter the keyword definition. This text will appear in the Search Best Bets Web Part to explain the keyword.
4. Enter the contact. This is the person in charge of this keyword and its associated Best Bets.
5. Enter any publishing information. Enter the date that this keyword becomes valid, the date the keyword expires, and the date the owner needs to review the keyword.

* Indicates a required field

Keyword Information The Keyword Phrase is what search queries will match to return a keyword result. Synonyms are words that users might type when searching for the keyword. Separate them using semicolons.	Keyword Phrase: * form Synonyms: 									
Best Bets Best Bets are the recommended results for this keyword. Best Bets will appear in search results in the order listed.	Add Best Bet <table border="1"> <thead> <tr> <th>Title</th> <th></th> <th>Order</th> </tr> </thead> <tbody> <tr> <td>Expenses Claim Form</td> <td>Remove Edit</td> <td>1 ▼</td> </tr> <tr> <td>Travel Expenses</td> <td>Remove Edit</td> <td>2 ▼</td> </tr> </tbody> </table>	Title		Order	Expenses Claim Form	Remove Edit	1 ▼	Travel Expenses	Remove Edit	2 ▼
Title		Order								
Expenses Claim Form	Remove Edit	1 ▼								
Travel Expenses	Remove Edit	2 ▼								
Keyword Definition Definition is the optional editorial text that will appear in the keyword result.	A A B I U [List Icons] [Image Icon] [Link Icon] [Help Icon]									
Contact The contact is the person to inform when the keyword is past its review date.	Contact: Gary Bushey  									
Publishing In the Start Date box, type the date you want this keyword to appear in search results. In the End Date box, type the date you want this keyword to no longer appear in search results. The Review Date box, type the date you want this keyword to be reviewed by the contact.	Start Date 5/9/2007  End Date (Leave blank for no expiry)  Review Date 									

Figure 7.20 Add Keyword and Best Bets for this keyword.

- Click the OK button to create the new keyword.

Once one or more Best Bets have been associated with the keyword the Add/Edit Keyword page will show all the Best Bets. Notice that you can remove or edit the Best Bets as well as change the order in which the Best Bets show. This completes the descriptions of the search related site collection administration tasks. Now we will briefly look at the tasks a Shared Services Administrator can do.

7.4.2 Central Administration

The Shared Services Administrator using the SSP web site performs the second half of the Search Administration. You may find that your SharePoint Central Administrator is also your Shared Services Administrator. To start the administrative tasks related to search, navigate to the SSP home page: Start > All Programs > Microsoft Office Server > SharePoint 3.0 Central Administration. On the Quick Launch bar select the Share

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Service that you use. The Shared Services home page opens where under the Search group heading two links are listed: Search settings and Search usage reports, which we will describe next.

NOTE:

There are web farm wide search configuration settings on the Central Administration pages, for example to start and stop the search services, as well as configuring crawler impact rules and propagation settings. These are outside the scope of this book.

SEARCH SETTINGS

This is where the majority of the search settings are configured. These include content sources, the default content access account, errors from the last crawl, shared search scopes, file types included in the content index, set the relevancy settings, which properties that were found during a content crawl can be used to filter the result set, known as Managed Properties, as well as, authoritative and non-authoritative pages.

TIP

Only shared scopes can be modified on the Search Settings page. Any site collection scopes created using the Site Settings page are listed here but cannot be edited.

Relevance Settings

Relevance settings determine where in the search results items will appear. You can determine which URLs provide information that is more valuable and have their items show higher in the results list as well as determine which URLs do not have as important information and have their items show lower in the list. You use the Specify authoritative pages link to configure Relevance settings as shown in figure 7.21.

Shared Services Administration: SSP01 > Search Settings > Specify Authoritative Pages

Specify Authoritative Pages

Use this page to specify authoritative Web pages. Search uses these lists to enhance the overall ranking of results.

Authoritative Web Pages

Authoritative pages are those that link to the most relevant information. Search uses this list to calculate the rank of every page in the index. There might be many authoritative Web pages in your environment. Type the most valuable in the topmost text box. You also have the option of specifying second and third-level authorities in the lower text boxes.

Enter one full URL per line. Example: `http://intranet/site-directory.html`.

Most authoritative pages: *

`http://portal/`

Second-level authoritative pages:

Third-level authoritative pages:

Non-authoritative Sites

You can specify that all content from certain sites be ranked lower than that of all other sites. Type the URLs of

Sites to demote:

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Figure 7.21 Add or Edit Relevance settings

Determine how important the URL you need to enter is. Notice that there are three text boxes to enter important URLs labeled Most authoritative pages, Second-level authoritative pages, and Third-level authoritative pages. Enter the most important URLs in the top box (Most authoritative pages), second most in the middle box and the least most in the bottom box (Third-level authoritative pages. If you need to enter more than one URL in any of the boxes enter each on its own line.

Determine if any URLs do not have as much relevant data as the rest. Enter those URLs in the list box called Sites to demote. Items from these URLs will show up lower than other site's items. If you need to enter more than one URL in any of the boxes enter each on its own line.

If you wish to recalculate the item's relevance immediately, check the "Refresh now" checkbox (it is checked by default).

The second link on the Shared Services home page is Search usage reports, that displays the Search Queries Report page, which we will describe next.

SEARCH USAGE REPORTS

You should use these reports, to help you understand what search terms users are performing. You can find out what the most used search terms are, how many searches were performed, where the queries were performed, as well as which scopes were most used. There are two types of reports, which you can toggle between using links on the Quick launch bar. These are:

- Search Queries, This report page contains five reports: Queries Over Previous 30 Days, Queries Over Previous 12 Months, Top.Query Origin Site Collections Over Previous 30 Days, Queries Per Scope Over Previous 30 Days and Top Queries Over 30 Days. On the last report, you can click the search term and a new browser window will open, where the search query will be performed and the results shown. There is also a little search query box at the top of this report, so you can enter any query term and execute it against the Shared Services' index, without needing to navigate to the portal web site to execute the search query.

TIP

You may need to scroll the page down and right to see all the reports. This page does not automatically resize the reports to fit any given screen resolution since the reports could be too small to read on lower resolution displays.

Figure 7.22 shows the Queries Over Previous 30 Days and Queries Over Previous 12 Months reports, which comprise of two different views: bar chart and tabular views. You can export the information into an Excel spreadsheet or an Adobe PDF file, by using the Select a format drop down list and then clicking the Export button. With either format, you will have the option to either save or open the file. Both formats will save all the pages of your report including the bar chart and the tabular view.

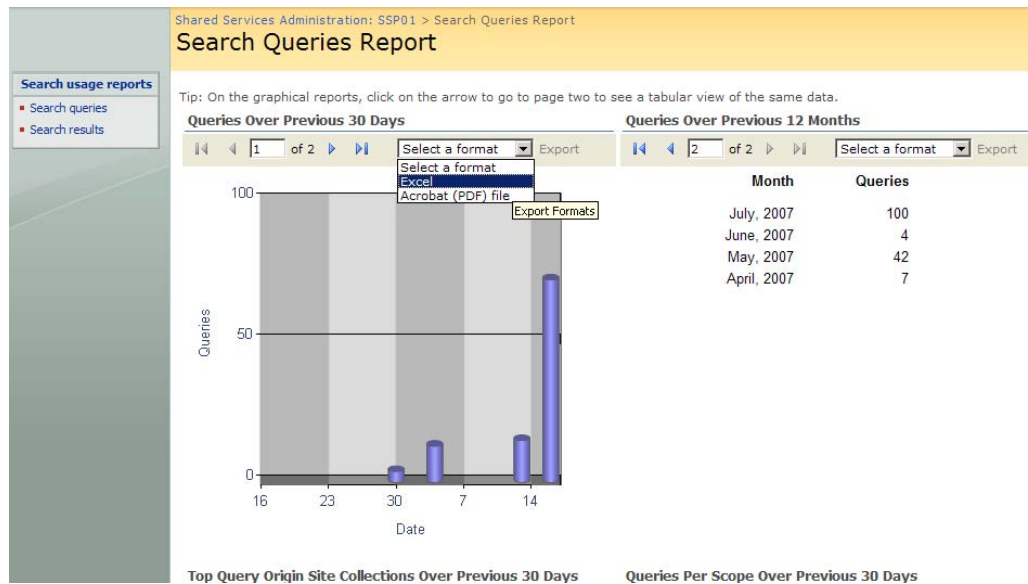


Figure 7.22 Bar charts and tabular views are used to show total number of queries.

TIP

You will only see the "Open" option if your system recognizes the file format. For example, you will not see the open option for the Excel format, if you do not have a program that can open Excel files on your computer.

- Search Results, This is the second set of the reports, and again it consists of five reports, in tabular format. They are: Search Results Top Destination Page, Queries with Zero Results, Most Clicked Best Bets, Queries with Zero Best Bets and Queries With Low Click through.

TIP

Use this report to determine if there needs to be additional Best Bets added.

This section has given us a good high level understanding of administering search configuration settings both at the site collection level and through Shared Services. At this point you should have an understanding of using search, how to use search scopes and how the Search Center web site is used. In the next section, we will present a scenario that uses all of these components.

7.5 Putting it all together

Let's take some of what we've just learned in this chapter into practice by creating a site collection search scope, creating a search query page for, creating a tab for this search query page in the Search Center and associating the tab with the search scopes own results page. The aim of this exercise is to allow you to see how easy it is to extend the search functionality within MOSS 2007.

7.5.1 Creating a search scope

We'll now see how you as a site collection administrator would create a search scope at the site collection level.

- Navigate to the home page of your portal site, click Site Actions > Site Settings > Modify All Site Settings and then under Site Collection Administration, click Search scopes.
- On the View Scopes page, click New Scope.

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3. On the Create Scope page, enter Authors in the Title text box, select the Search Dropdown check box, in the Display Groups section and then click OK. You are returned to the View Scopes page, which should look very similar to figure 7.17.
4. Click Add rules, in the Authors row. The Add Scope Rule page appears.
5. Select Property Query (Author = John Doe) radio button in the Scope Type Rule section. The Property Query section appears; enter your name in the text box, as shown in figure 7.23. Leave the behavior button, include, selected and then click OK.

Figure 7.23 Add scope rule

6. Click Authors, and then click New Rule in the Rules section. Repeat the step above but in the Property Query text box add the name of a colleague.
7. In the breadcrumb, click Scopes, so you are returned to the View Scopes page. There will be a note by the right of new scope that specifies the number of minutes you need to wait until the scope is updated. Click the refresh button once the time has elapsed, after which the scope should be Ready to use and you should see in the Items column, the number of content items you and your colleague have authored. You may need to contact your Shared Services Administrator if this does not occur.
8. So, now let's test our new search scope. Click the home page of the portal, and click the scope drop down list; the Authors search scope should be listed. Select it and in the search word text box enter a search query term that you know appears in the content. Note that you are using the default results page: results.aspx stored in the Pages document library on the Search Center web site.

7.5.2 Creating a Search query page

Now we have created our search scope, let's create a new search query page customized for searching the Authors search scope we created previously.

1. Click Search on the portal's top navigation bar. The home page of the Search Centre is displayed.
2. Select Site Actions > Create Page. Enter Authors in the Title textbox and click in the URL Name text box. Authors should be automatically entered here for you.
3. Select (Welcome Page) Search Page in the Page Layouts section, as shown in figure 7.24, and then click Create.

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Figure 7.24 Create a search page.

4. Click Add New Tab, and enter Authors in the Tab Name text box, Authors.aspx, the page you just created, in the Page text box, enter a tool tip and then click OK. The Authors page is displayed.
5. In the Search Box Web Part, click edit > Modify Shared Web Part.
6. In the Web Part tool pane, expand the Miscellaneous section and enter AuthorsResults.aspx in the Target search results page URL Web Part property text box. Click OK.
7. In the Publishing tool bar, click Publish, as shown in figure 7.25.

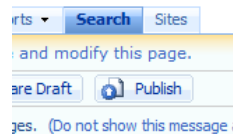


Figure 7.25 Publish the search query page so all users can see it.

7.5.3 Create a search results page

Now we have created our search query page, it's now time to create a search results page.

1. Select Site Actions > Create Page. Enter Authors Results in the Title textbox and click in the URL Name text box. AuthorsResults should be automatically entered here for you, removing the space.
2. Select (Welcome Page) Search Results Page in the Page Layouts section and then click Create.
3. Click Add New Tab and enter Authors in the Tab Name text box, AuthorsResults.aspx in the Page text box, enter a tool tip and then click OK. The Authors Results page is displayed.
4. In the Search Box Web Part, click edit > Modify Shared Web Part. In the Web Part tool pane, expand the Miscellaneous section and enter AuthorsResults.aspx in the Target search results page URL Web Part property text box. Click OK.

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5. In the Search Core Results Web Part, click edit > Modify Shared Web Part. In the Web Part tool pane, expand the Miscellaneous section and enter Authors in the Scope Web Part property text box. Click OK.
6. In the Publishing tool bar, click Publish, as shown in figure 7.25.
7. Now we're ready to test the solution: Click the home page of the portal, click the Advanced Search link; and then click the Authors tab. Look in the Address box of your browser and notice that the URL is pointing to the authors.aspx page in the Pages document library in the Search Center web site. In the search text box enter a search query term that you know appears in the content and click the search button. The results are displayed on the: AuthorsResults.aspx page, which is also stored in the Pages document library.

7.5.4 Associating a Search scope with a results page

Now, just one last task to do: when we created the Authors search scope we did not associate it with its own results page. That was because we first want to test that the search scope worked, and we had not create the Authors Results page at that time. Now we need to go back to the search scopes to complete this task.

1. Navigate to the home page of your portal site, click Site Actions > Site Settings > Modify All Site Settings and then under Site Collection Administration, click Search scopes.
2. On the View Scopes page, click Authors, and then click Change scope settings on the Scope Properties and Rules page.
3. Select the Specify a different page for searching this scope radio button in the Target Results Page section, enter AuthorsResults.aspx in the text box and then click OK.
4. The Scope Properties and Rules page is displayed; notice that the system has prefix the AuthorsResults.aspx page with http://[portal name]/searchcenter/pages.
5. In the breadcrumb, click Scopes, you may have to wait for the scope to be in Ready Status. Click the home page of the portal, and Authors from the search scope drop down list and enter a search query term and click the search button. Note that you are now using AuthorsResults.aspx.

We have just made finding content by a set of authors easier to find. We could next customize the Web Part that these two pages contain, but we will leave you to do this alone.

7.6 Summary

Search is one of the most powerful forms of navigation, and so it is the primary content navigation technology for almost all of the content on the World Wide Web. Microsoft recognizes that, and so we saw, in this chapter, that search is an integral part of Microsoft Office SharePoint Server (MOSS) 2007, and that you can access search from almost every page.

We performed basic and advanced searches as well as how to use the various search scopes, including the People search scope. In addition to the standard search interfaces, we saw how MOSS 2007 provides a Search Center. This web site handles all the search queries across your portal and has far more control over searching for portal members than you have through the standard interfaces. In addition, we saw that you have the capability of creating your own custom search query and search results pages, which show up as tabs on the Search Center pages.

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Part II

Content Management with SharePoint Server

Your office probably hums along like most; processes that have been cobbled together over time are used to manage content of all kinds. However, after the scandals of 2001, for example, Enron, Tyco, and WorldCom) we must all be far more deliberate about the way that information is disseminated and consumed. Enterprise Content Management (ECM) has become a strategic imperative to regulatory compliance and content sanity for most organizations. While SharePoint Portal Server 2003 (SPS) effectively provided collaboration and knowledge management facilities, it had very few ECM capabilities. Microsoft Office SharePoint Server 2007 (MOSS) includes the following ECM functionality in the box:

- Web Content Management (WCM)
- Records Management (RM)
- Document Management (DM)
- Policy Management
- Workflow Foundation (WF)

The first chapter in this part of the book will focus on MOSS WCM features and the out of the box publishing workflow while the chapter 9 discusses RM, content replication including Policy Management and implementing a Records Repository. As in MOSS itself, DM can be found in the penumbra surrounding most of the chapters throughout the entire book. We begin with the challenge WCM helps us overcome.

8

Web Content Management

In this Chapter

- Work with Web Content Management Web sites
- Understand the structure of Web Content Management page

In most offices, a state of content chaos has emerged due to the explosion of structured and unstructured information. Effectively managing this information is critical to the success and overall profitability of every business; yet few have the tools they need to succeed. This chapter will explain how MOSS WCM should ease the management of content displayed on Web pages.

Web content can be especially challenging to manage. Contrast the ease of viewing published Web content with the technical understanding required to create, update, personalize, and at the appropriate time retire that Web content, together with the skills needed to make that content navigable, displayed consistently, aesthetically and graphically pleasing, plus only available to those with the need access to that content. Then couple those challenges with the requirement to get approval to publish web content and the sanctioning of legal implications of any assertions made. A very complex WCM need emerges, usually associated with Internet facing Web sites.

We begin this chapter with an overview of how MOSS WCM emerged from Microsoft's acquisition of a Content Management System (CMS) product that met the technical Web content needs described above and has grown to address the growing regulatory demands. These unfunded regulatory mandates are fueling the need for corporations to adopt an ECM strategy including the implementation of WCM. MOSS provides you with two types of WCM sites, a publishing site, and a publishing site with workflow. To get started, we show you how to create a WCM publishing site - the basis for many of the sites created on a collaboration portal, and we'll take a detailed look at the Page Editing Toolbar that is used to manage all the pages in the site. Using the home page of the WCM site, as an introductory playground, we'll explore the default Field Controls used to store the page's content. We'll then show you how to work with the Publishing site with workflow, which you will find on a MOSS internet portal Web site and turn your attention to the creation of new pages using Page Layouts. Finally, we'll show you how to create your own Page Layouts. WCM is such a huge topic that whole books will be written about it; so the goal in this chapter is to get you familiar with the concepts and some of the out of the box functionality so that you can begin to use this powerful functionality in your own environment.

We begin with how non-technical people, the Web content owners or authors, can manage their content on a Web site using WCM as their technical aid.

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8.1 Empowering non-technical people with MOSS WCM

In a traditional Web environment, content destined for the Web is often crafted by the people that know what needs to be communicated but are often not skilled in building websites. Therefore, these content authors, frequently develop content using tools with which they are comfortable: a word processor (like Microsoft Word), a publishing layout tool (like Quark), or a graphics application (like Photoshop). This content may (or should) go through iterative reviews before approved for publication, by content approvers. This approval process can be arduous without a system to help manage this review process. The approved content is usually then given to someone, a Web designer or developer, with a technical background who can tailor it for delivery on a given Web page on a prescribed website. In some organizations, content authors are given tools like a "What You See Is What You Get" (WYSIWYG) HTML editor they use to publish pages directly to their website. But, since Web development is not their field of expertise, their pages can become inconsistent, lack good page navigation, and often the approval mechanism and expiration practices are only visible when someone notices that the content on the website is wrong or outdated.

MOSS WCM helps manage this Web content by enabling the people responsible for Web content creation to manage the publishing of that content from cradle to grave. They can do this with little, if any, technical assistance. An embedded, customizable MOSS publishing workflow guides content authors to:

- Choose from a collection of predefined page layouts;
- Enter the right content into some predefined editable field controls using predefined styles, colors, and fonts;
- Submit each page through a predefined set of approvals before automatically displaying the completed page on a given start date and discontinuing that page on a given end date.

If desired, Web designers or developers, using SharePoint Designer or Visual Studio, can customize all of these predefined page layouts, field controls, and even the publishing workflow itself. That said, MOSS WCM, like SharePoint itself, could be used immediately using the out-of-the-box options.

The following history of MOSS should give you an appreciation of how it will help you manage complex WCM environments, and a swift overview of some of the regulatory demands corporations and governments currently face should expose mandates that MOSS WCM helps us meet.

8.1.1 A Brief History of how MOSS WCM can to be

On April 30, 2001, Microsoft acquired a company called NCompass Labs, which had developed a product called NCompass Resolution. NCompass Resolution delivered an enterprise-strength WCM system that enabled businesses to quickly, and cost-effectively, deploy highly dynamic, strongly branded, yet personalizable Web sites. NCompass Resolution Web sites dramatically reduced the time required to create these solutions and provided the scalability needed for the most demanding environments. Microsoft swiftly rebranded the acquired product and released it as Microsoft Content Management Server 2001. A little over a year later, Microsoft Content Management Server 2002 (CMS)¹, the most expensive product Microsoft has ever offered and the predecessor of MOSS WCM was released.

At its core, the CMS product enabled customers to leverage common Web page templates for Web content so they could achieve site-wide layout consistency. Developers created the common Web page templates, called Postings in CMS, which were organized into folders, called Channels in CMS, within a role-based security model. Content authors, created new pages based on one of the Web page templates and then using either a browser or Microsoft Word 2003, entered content. When coupled with CMS's extensible publishing approval workflow and scalable performance model, Microsoft had a big hit. However, due to the technical demands of setting up the CMS environment, it typically took a team of technical resources weeks or even months to create a single compelling Web site that content authors could use - better than building websites from scratch, but still a significant technical investment.

Meanwhile, the Office team was busy delivering SPS 2003. While SPS excelled at creating compelling collaboration Web sites in minutes, it lacked the enforced page consistency, in-context editing, workflow flexibility,

¹ Microsoft currently provides details about Microsoft Content Management Server 2002 here:
<http://www.microsoft.com/cmserver>

and scalability of CMS. Therefore, there were two products with very similar functionality but little consistency. Organizations typically used CMS to create Internet Web sites delivering external content and aesthetically consistent solutions while they used SPS 2003 on self-service Intranets, facilitating collaboration, and knowledge management. Unfortunately, neither solution integrated email communications well.

Tangentially and concurrently, corporate scandals like Enron (<http://en.wikipedia.org/wiki/Enron>) as the millennium began complicated the legal and regulatory landscape. These scandals led to a surge of regulatory demands with which most corporations and government agencies now need to comply. The next section details a few of these government-imposed regulations and how MOSS can help you comply with them.

8.1.2 SOX, HIPPA, and DOD 5015.2 and MOSS regulatory compliance help

Who knew what when? That's how I sum up the brunt of the following regulatory examples. With growing volumes of business critical data being replicated in multiple places across the enterprise an increasing regulatory burden (SOX, HIPPA, and DOD 5015.2) is being placed upon corporations to track who knew what when. Consider the following regulatory examples:

SOX2

The Sarbanes-Oxley Act (officially titled the Public Company Accounting Reform and Investor Protection Act of 2002 but commonly called SOX), signed into law in July 2002 by President Bush, is considered the most significant change to federal securities laws in the United States since the New Deal. It came in the wake of a series of corporate financial scandals in 2001. From a layman's perspective, this regulation requires corporations to capture an unalterable audit trail that can be the eyes and ears of investors. Typically, the data is used to show when individuals in a corporation first view content that they may use as a basis for their decisions. MOSS ECM can help establish a rigid process that tracks when content is approved and made generally available to decision makers. Subsequently, MOSS then has the ability to track the publishing process and log who saw what and when.

HIPPA3

The Health Insurance Portability and Accountability Act (HIPAA) was enacted by the U.S. Congress in 1996 requiring healthcare data that uniquely identifies individuals be protected and kept private, even within the walls of a corporation. Only people with the need to know should be allowed to view data that can be attributed to a single individual. MOSS provides a means by which to limit who can see what. ECM add to that the ability to specify when.

DOD 5015.24

The "Design Criteria Standard for Electronic Records Management Software Applications" was issued by the United States Department of Defense in June 2002. Governments must comply with this edict implementing policies that ensure historical records are maintained over time and cannot be tampered with. MOSS includes a Records Repository that can be leveraged to comply with this mandate. MOSS WCM content can be sent to this repository.

MOSS ECM seeks to aid customers in meeting some of these regulatory demands on content management. Specifically, MOSS WCM and the publishing workflow are a significant part of managing content that is presented from our Web servers. The publishing workflow can assist you in only publishing approved content, at the right time, secured for viewing by right audience all that MOSS logs who sees that content when. Again, who knew what when? Fortunately, tapping into these features using MOSS isn't as difficult as it was in CMS; but you won't get far without a MOSS Web site to work with.

2 http://en.wikipedia.org/wiki/Sarbanes-Oxley_Act
<http://www.sarbanes-oxley.com/>

3 <http://en.wikipedia.org/wiki/HIPPA>

4 <http://jtc.fhu.disa.mil/recmgmt/p50152s2.pdf>
<http://www.archives.gov/records-mgmt/initiatives/dod-standard-5015-2.html>

8.1.3 Self service Webs

SharePoint empowers non-technical Information Office Workers to create new Web sites based on a predefined set of site definitions like Team Sites and Workspaces, as we saw in Chapter 2, The Building Blocks of an Application. However, these sites allow any content to be styled and placed anywhere with some general regions on a page – Web Part Zones. When you require more structure to ensure that precise content is styled and placed on pre-approved pages in the site, MOSS WCM is needed.

MOSS includes a number of site definitions for provisioning new Web sites that facilitate this enhanced level of managerial support, collectively known as publishing Web sites. Only WCM Web sites are pre-configured to use Page Layout that define what content should be on a page and how that content should be structured on the page. The key to these WCM Web sites is that the content is separated from it's presentation. Content is stored using Field Controls and presentation is managed by the Page Layouts. Pages based on these Page Layouts can be viewed before being published to the general reader to the site, and some of these WCM sites are embedded with a Publishing workflow allowing for a defined approval process. All this functionality is available due to a Publishing Infrastructure that can be activated on a site collection by site collection basis.

To begin working with the examples in this chapter and WCM in general, you will need to provision a SharePoint Web site that includes the Publishing feature. The next section you will work with a WCM publishing site and we will walk you through how to create such a site and publish a page.

8.2 Provisioning a WCM Web site

The first task in understanding how WCM can help manage Web content, is to provision (or create) a MOSS Web site that includes Office SharePoint Server Publishing functionality, called a feature. The Office SharePoint Server Publishing feature adds functionality and containers (lists and libraries) to a standard SharePoint site to manage and store WCM pages and other Web assets like images and reusable content using a Page Editing Toolbar combined with an embedded Publishing workflow. An obvious addition is to the Site Actions menu, which is different on a publishing site than a non-publishing site as shown in Figures 8.1 and 8.2.

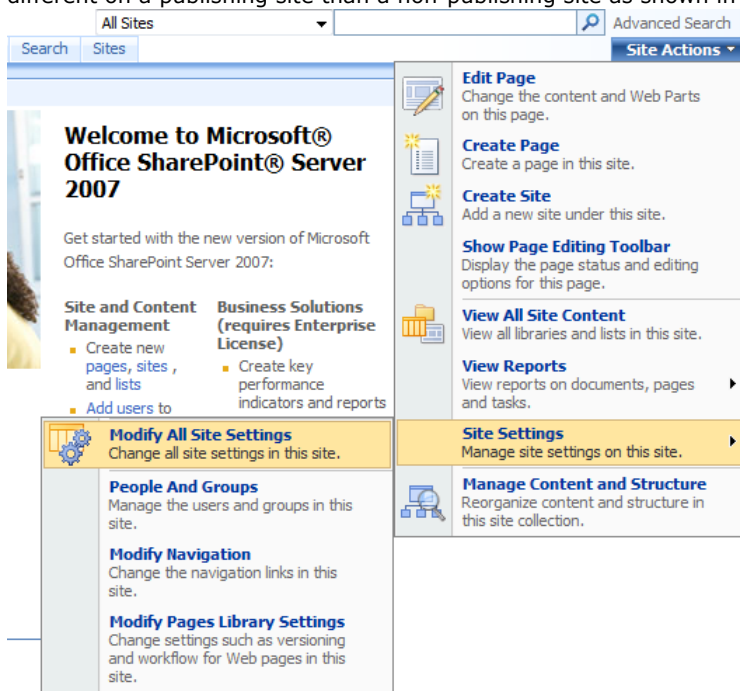


Figure 8.1 Publishing site's Site Actions menu

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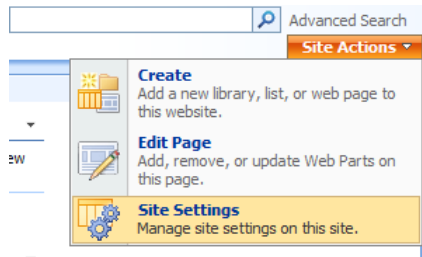


Figure 8.2 Non-publishing site's Site Actions menu

On a publishing site, you have a number of additional menu options, such as showing the Page Editing Toolbar, plus second level menus for View Reports and Site Settings. On a non-publishing site, you only have three menu options for Site Actions. Of course, number of links on the Site Action Menu will differ according to your permissions on the site.

While not an integral part of Windows SharePoint Services (WSS) 3.0; WCM Publishing is available as part of the MOSS product, on site collections, where the Office SharePoint Server Publishing Infrastructure feature is activated. Therefore, to use MOSS WCM you first need a site collection with the Publishing Infrastructure feature activated, and then you need a SharePoint site with the Publishing feature activated. Either you can activate the Publishing Infrastructure feature on an existing site collection, or you can create a site collection based on a site template where the Publishing Infrastructure feature is activated by default, such as the Collaboration Portal or Publishing Portal site templates. Both of these site templates consist of sites where the Publishing feature is activated. You can create additional sites with the publishing feature activated by basing your sites on the site templates: Publishing site or Publishing site with workflow, as well as derivatives of these two site templates, such as the Report Center, Search Centre and News site templates. Alternatively, you can create a site based on any site template and then activate the Publishing feature afterwards. Let us quickly look at what the Publishing Infrastructure provides to a site collection.

8.2.1 Activating the Office SharePoint Server Publishing Infrastructure Feature

If you are working on a MOSS portal Web site, that is a Web site based on either the Collaboration Portal or Publishing Portal site templates, then the publishing Infrastructure feature is activated. Otherwise, to activate the Office SharePoint Server Publishing Infrastructure complete the following steps, you need to be a Site Collection Administrator.

3. Navigate to your site collections Site Settings page from the Site Action menu.
4. Click Site collection features in the Site Collection Administration section, and on the Site Collection Features page click Activate to the right of the Office SharePoint Server Publishing Infrastructure feature,

The Publishing Infrastructure provides you, at the site collection level, with a number of document libraries, lists, Web Parts, additional administrative links and SharePoint Groups, as detailed below:

- Site Collection Documents: You should use this system library to store documents that will be used throughout the site collection.
- Site Collection Images: You should store images in this document library that are used throughout the site collection.
- Style Library: You should use this document library to store custom XSL styles and cascading style sheets.
- Content and Structure Reports list: This list contains the queries that appear under the Reports second level menu of the extended Site Actions menu in a publishing site as shown in Figure 8.1.
- Reusable Content list: Items in this list contain HTML or text content which can be inserted into a Field Control on WCM Web pages. We will look at this later in this chapter. Basically if an item has automatic update selected, the content will be inserted into Field Control as a read-only reference, and the content will update if the item in this list is changed. If the item does not have automatic update selected, MOSS

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will insert the content of the list item as a copy in the Field Control, and the content will not update if the item in this list is changed.

- Workflow tasks list: This tasks list is used if you create any Web sites based on the Publishing with Workflow site templates. You can also configure other Workflows to use this tasks list. See Chapter 4, Workflow and process Improvement, for more information on workflows.
- Administrative links on the Site Settings page: Including the ability to manage Master Pages for both publishing and non-publishing Web sites, Navigation, Searchable columns, Content and Structure, Content and Structure Logs, Variations and Translatable columns.
- Additional Master Pages and default Page Layouts stored in the Master Page Gallery.
- Additional Content Types, Site Columns: Page Layout and Publishing content types and columns.
- Web Parts: Content Query Web Part (CQWP), Summary Links, Table of Content, which we discussed in Chapter 5, Web Parts.
- SharePoint Groups: Approvers, Designers, Hierarchy Managers, Quick Deploy Users, Restricted Readers and Style Resource Readers. The Approvers SharePoint Group is very useful, as long as you haven't configured unique permissions, as members of this group can approve any item or document in any list or library that you have enabled Content Approval. More on these groups later in this chapter.

NOTE

You should not delete any of these components, as this will break the publishing features of any WCM site you create, resulting in a great deal of manual work for you and the IT department.

If your organization creates site collections for your collaboration sites, that is, sites based on the non-publishing site templates, such as team site, meeting workspace or document workspaces. And you have no plans to create publishing Web sites within that site collection, we still would recommend you enable the Publishing Infrastructure feature on such site collections. Then you can use the site collection system libraries, the CQWP and the additional administrative pages, in particular the Content and Structure link that allows you to quickly manage the site hierarchy of the sites within the site collection as shown in Figure 8.3.

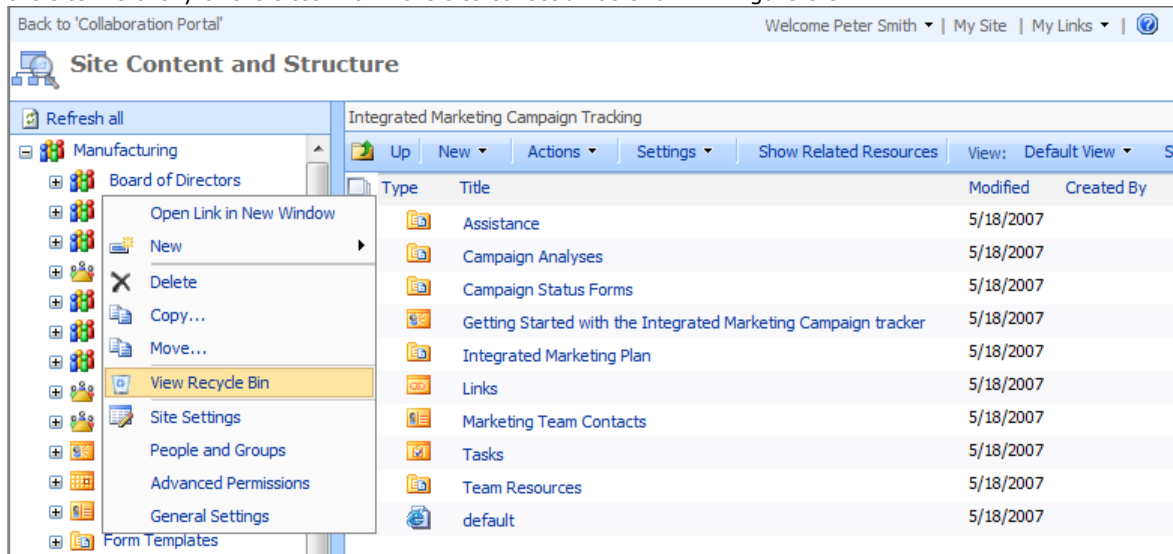


Figure 8.3 Manage Content and Structure

Another administrative page that you will find useful once you have enabled the Publishing Infrastructure, but which is not initially available as a link on the Site Settings page, is the Page Layout and Site Templates Page, as shown in Figure 8.4.

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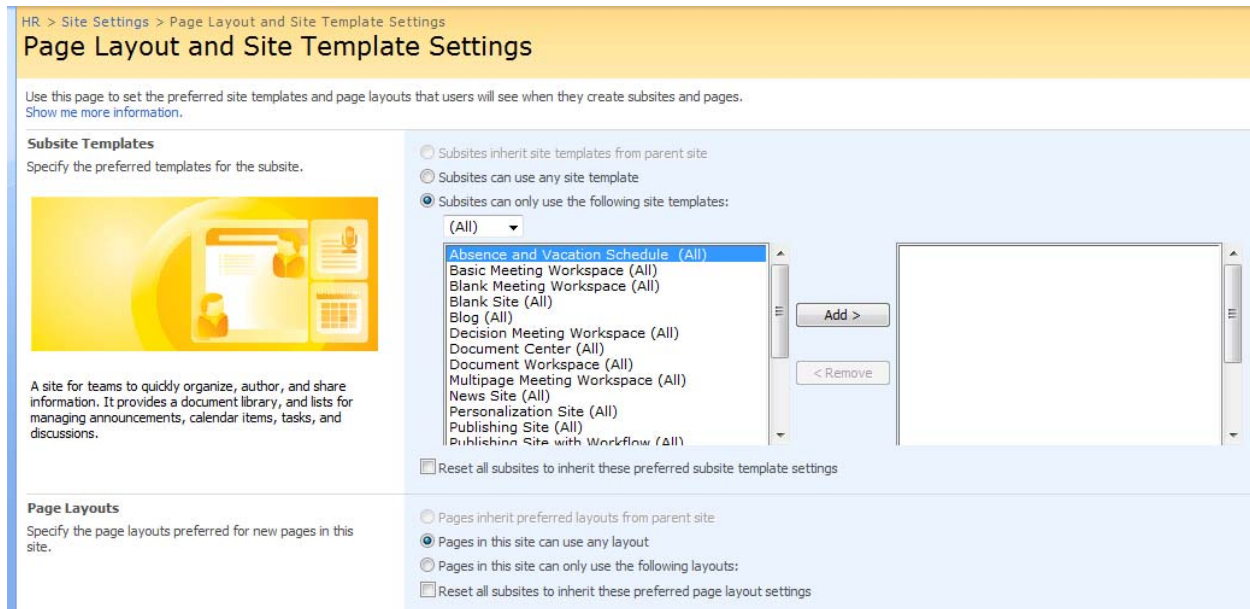


Figure 8.4 Page Layout and Site Template Settings

This page is useful to limit which site templates can be used to create subsites. To display this administrative page, append `_layouts/AreaTemplateSettings.aspx` to the URL of your site collection, for example, if you site collection has a URL of `http://portal/sites/HR/default.aspx` then you can navigate to the Page Layout and Site Template page by using the URL `http://portal/sites/HR/_layouts/AreaTemplateSettings.aspx`. Now you have activated the Publishing Infrastructure feature we can now start working with a WCM publishing site, either by creating one or activating the Office SharePoint Server Publishing feature on an existing site.

8.2.2 Activating the Publishing Feature on an existing site

Before you create a WCM site, first check to see if the Publishing feature is activated on a given site in you site collection that you are working with. If it is, you can simply use your existing site for the exercises in this chapter rather than creating a new site. Although you can tell by just looking at the Site Action Menu, we will now look how to verify that the Publishing feature is activated on the SharePoint site that you are working with:

1. Open a web browser and navigate to the SharePoint site where you would like manage web content.
2. Navigate to the site's Site Settings page from the Site Actions menu. Administrative rights will be needed for many of the tasks that follow.
3. Click Site features in the Site Administration section, and on the Site Features page locate the Office SharePoint Server Publishing feature, as shown in Figure 8.5.

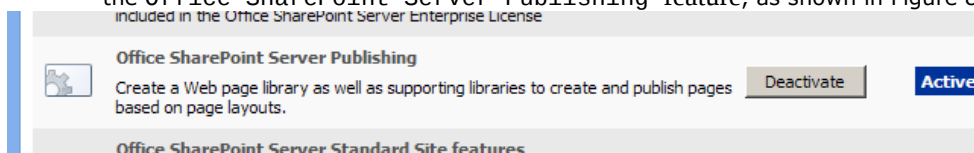


Figure 8.5 The Office SharePoint Server Publishing Feature on the Site Features of every WCM site is Active when publishing is on.

If you don't see the Publishing feature at all, you may only have WSS 3.0 installed. If that is the case, you will first need to install MOSS before you can work with WCM. Appendix A, Installing SharePoint, explains how to install MOSS onto your servers.

If the Publishing feature is already Activated on the Web site you are working with, you are ready to explore WCM. However, if the feature is not activated, you have two choices to work through the exercises in this chapter:

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- Click the **Activate** button to toggle the functionality of the Publishing feature on for the site you are currently using.
- Complete the steps outlined in the next section to create a new site based upon the Publishing site template.

If you try to activate the Publishing feature and the Required Feature page appears as shown in Figure 8.6, then you need to activate the Publishing Infrastructure as described in the previous section.

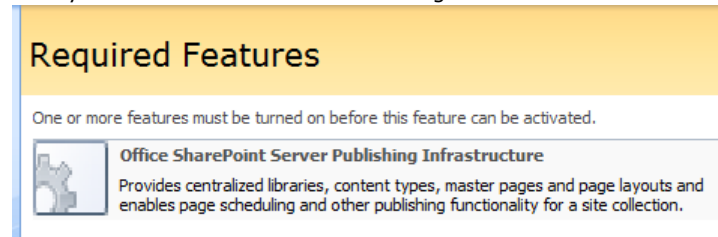


Figure 8.6 Required Feature – Office SharePoint Server Publishing Infrastructure feature must be turned on to use WCM functionality

Even if you have an existing site on which you could activate the Publishing feature; you still may want to create a new site to isolate the impact of the exercises in this chapter. In fact, the exercises assume that you are starting from a brand new publishing site that hasn't had any previous work done on it.

8.2.3 Creating a new MOSS WCM site

The following steps explain how to create a new site based upon the Publishing site template:

1. Navigate to the site under which you wish to create a publishing site and then click **Site Action > Create Site**. The **New SharePoint Site** page is displayed.

NOTE:

If parent site is a non-publishing site, to navigate to the **New SharePoint Site** page, you will need to click **Site Action > Create > Sites and Workspaces**.

4. Enter a title for your new site, in the **Title and Description** section. Be sure to pick something descriptive like: **WCM Site**.
5. Enter a URL name for your new site, in the **Web Site Address** section. We like to use the same name as the Title without any spaces (see **No Spaces in the URL Name Sidebar**), capitalizing the first character of each word. Also, as we stated in Chapter 2 and 3, the URL name is important for the MOSS 2007 search relevance algorithm, known as URL Matching, so do think carefully about the name you use here.
6. Scroll down to the **Template Selection** section, click the **Publishing** tab and select **Publishing Site**, as shown in Figure 8.7

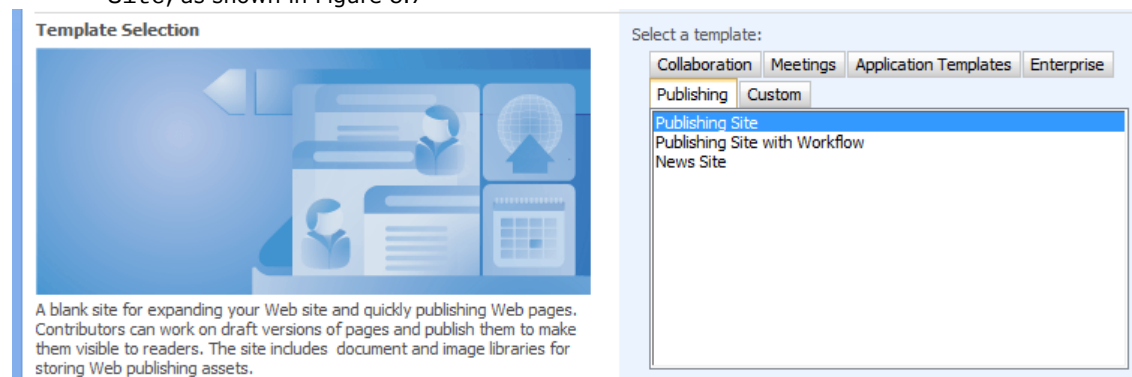


Figure 8.7: Choose the Publishing Site Template from the Collaboration tab in the Template Selection section of the New SharePoint Site page

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7. Either at the bottom or top of the page click Create. The page will refresh and you will see the Operation in Progress page.

No Spaces in the URL Name

While the Title and the URL name fields can be the same, it is best practices to place spaces between business words in the Title and using those same words without spaces for the URL name..

If spaces are included in the URL name WSS 3.0 will substitute %20 whenever it displays the URL. In WSS 3.0 (and WSS 2.0), the Title field associated with a SharePoint component represents the text that will be displayed on the component's Web page, so there's no harm in having a space in that value. However, URLs were never intended to contain the characters: \ / : * ? " < > | # { } % & <TAB> " ! or spaces, so there are at least three problems with having one or more spaces in the URL Name:

Difficult to read: A space in the URL Name is UrlEncoded as percent two zero (%20), so the resulting name is difficult for people to read. Imagine if you were in a Document Library with a URL like a b c. The encoded version would be a%20b%20c, six extra characters and much less readable than the same name without spaces: abc.

Limited URL length: There's a limit of 260 total characters available for a URL. SharePoint refers to every web site, list, library, list item or document as a URL. A document name is prefixed by the document library URL, which is prefixed by the site's URL, which is prefixed by it's parent's site's URL, and so on. So if you consistently use long names you'll eventually have problems. This is significantly exacerbated by an encoded space that consumes three characters in the URL. Also, when editing documents or list items, SharePoint includes a Source variable in the QueryString that represents the URL that the browser will navigate to when the user clicks on Save and Close. Therefore, the two spaces in the previous example, a b c, would consume 12 characters in the URL. You can see how this can quickly multiply and become a problem.

Hard to link to in an email: When you paste an un-encoded URL into an e-mail so the recipient can find a document or list item. E-mail programs will truncate the URL at the first space when sending the clickable link to the recipient, who when they click on it, will be taken to an invalid location in the browser and they won't understand why they couldn't find the document. The recipient will often just assume the URL is invalid.

When SharePoint has created the new site, you will see the empty home page, as shown in Figure 8.8. Look at the URL of this page. The last two parts of the URL are /Pages/default.aspx, that is, the page has a file name of default.aspx and is stored in a document library, named Pages. We will come back to this later in this chapter.

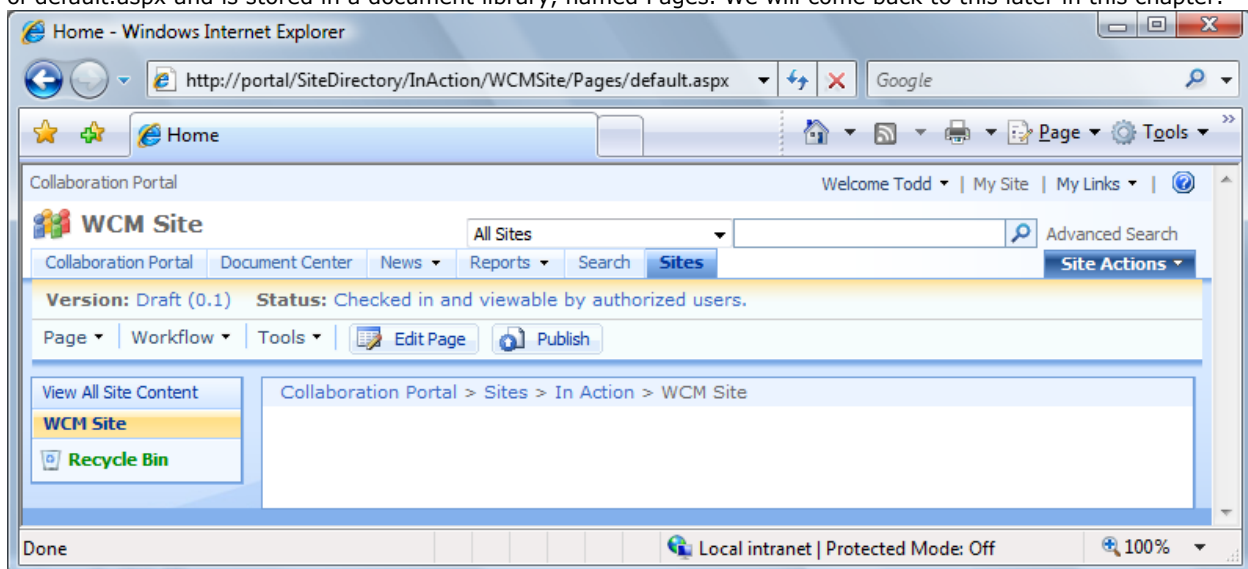


Figure 8.8: Default Publishing Site Home Page immediately after it has been provisioned

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In addition, notice the page is checked in with a version of 0.1 and showing the Page Editing Tool bar, which we'll explore in the next section before we begin working with the Web pages themselves.

8.3 Exploring the Page Editing Toolbar

To manage the page editing process, WCM sites include a horizontal publishing toolbar just below the site tabs and Site Actions menu. It seeks to simulate electronically the page editing, processing, and tracks the activities you would manually do if you were pushing paper versions of this content from person to person. Therefore, the Page Editing Toolbar, as shown in Figure 8.9 consists of three sections:

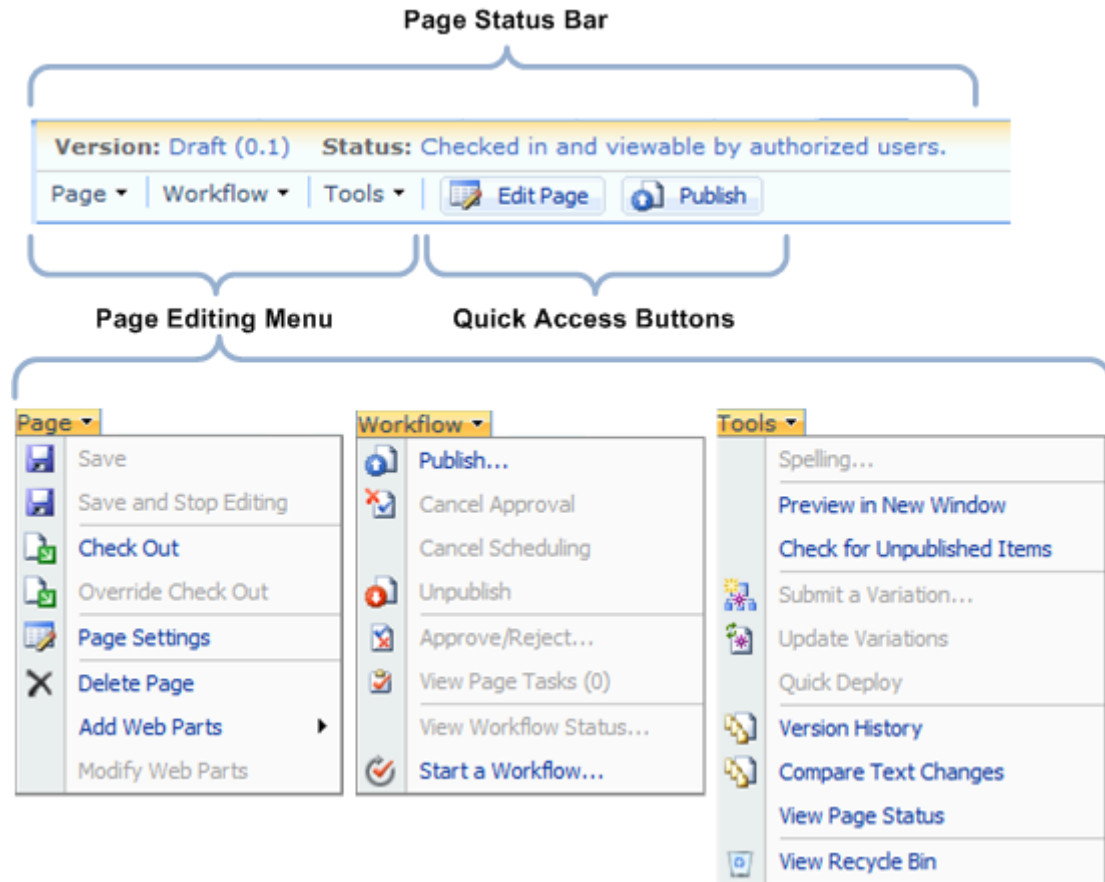


Figure 8.9: The Page Editing Toolbar consists of three sections: the Page Status Bar, the Page Editing Menu (shown expanded here), and the Quick Access Buttons

The first section of the Page Editing Tool bar is the Page Status Bar, which includes information about the status of the Web Content page and consists of two fields: Version and Status. When a page is initially created the Version field shows that the Page is in Draft mode and isn't even considered the first version yet; the major version is 0 (zero) and the minor version is 1 (one). Other values for the Version status are: Checked Out while the page is being edited and Published (n.0) when a completely approved page is being displayed, where n represents a major version number. As we saw earlier, these pages are stored in a document library, called Pages, where major and minor (draft) versioning is enabled. If the Version status of the page is Published, a green band will appear at the top of the Page Status Bar, otherwise an orange band will appear.

The Status field describes who can see and modify the page. When you clicking on the Version or Status links, the Page Status Information -- Web Page Dialog opens as shown in Figure 8.10.

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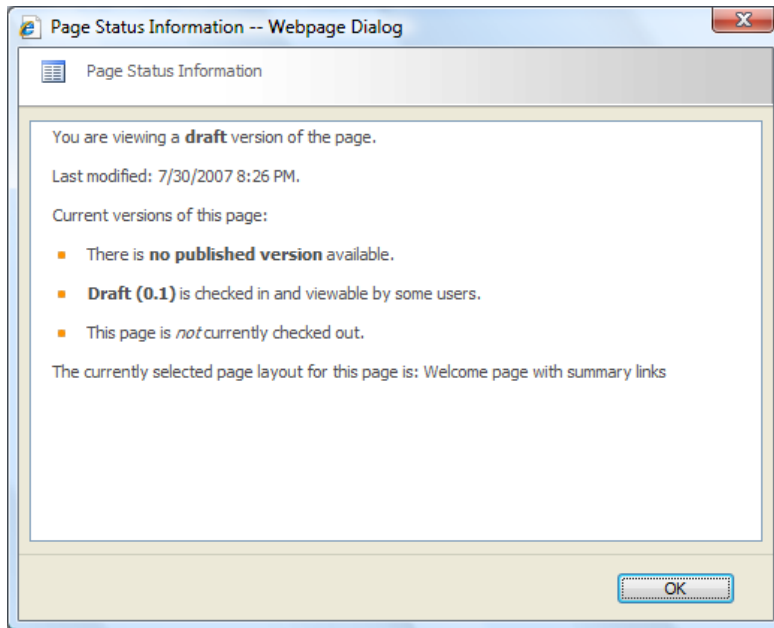


Figure 8.10: The Page Status Information - Web Page Dialog not only shows the version of the page but when it was last modified, the published version number, whether it can be viewed by others, the check out status, and the name of the page layout currently in use

This dialog box provides verbose information concerning the full status of the published, draft, and checked out versions of the page. You can dismiss the dialog by clicking the OK button or closing the window.

The second section of the Page Editing Tool bar is the Page Editing Menu, which consists of three fly out menus as shown in Figure 8.9 and allows the current user to interact with the page. Options like Save, Check In/Out, Delete Page, Publish, Start a Workflow, Spelling, Preview, Variation management, Version History, and Recycle Bin can all be found in these menus. It's curious how similar these menus are to the menu bars that Microsoft Office has provided over the last decade. The behavior of each option related to WCM will be explained as this chapter progresses.

The third section of the Page Editing Toolbar is the Quick Access Buttons. These are context sensitive short cuts to options you find under the three fly out menus of the Page Editing Menu. They provide you with the options you are most likely to need given the current status of the page and context in which it is being viewed/edited. A developer or web designer can modify both the Page Editing Menu and the Quick Access Buttons by changing the data source and/or the user interface controls.

When the context is right, an Information bar will be included at the bottom of the Page Editing Toolbar with a message that serves as a reminder not to forget to do something, or a notice of a condition that you may be unaware of; like the page is checked out by another user. Some of these messages can be restrained by clicking the "Do not show this message again" link.

If you choose to create a WCM site based on the Publishing with Workflow option, you will see additional options on the Page Editing Tool bar and the fly out menus, as the Approval workflow is configured by default on the Pages document library. Options include a Publication Start Date on the Page Status Bar and a Submit for Approval on the Workflow fly out menu. We will look at a site based on the Publishing with Workflow site template later in this chapter, but first will look at using the Page Editing Tool Bar to work with WCM pages in the next section.

8.4 Working with Web Pages

Now that you have provisioned a site for publishing and explored the Page Editing Tool Bar, we will begin working with Web pages. You can use these pages to manage whatever content you need on your Web site. The intent of this section is not to actually enter any content but rather to introduce you to the containers that store the content,

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that is, Field Controls on the page or as Web Parts in Web Zones on the page. This section will not only allow you to explore each control on the default home page, but will provide a good venue for you to learn how to edit and publish WCM pages.

But first let's explore the location of the home page. Earlier in this chapter, we pointed out that the URL for the home page, default.aspx is not in the root of the Web site. Rather, it appears to be in a Pages subdirectory. All Web Pages managed by WCM are kept as documents in a system library (same as a document library but managed by the system) called Pages, that was created by the Publishing feature. This is not the only system library that the Publishing feature creates. By clicking on the View All Site Content link at the top of the left navigation or Quick Launch bar you can see the other system lists and libraries the Publishing feature creates:

- Documents: Stores documents that are used on pages in this site.
- Images: Stores images that are used on pages in this site.
- Pages: Stores pages that are created in this site.
- Workflow Tasks: Stores workflow tasks that are created in this site.

Clicking on the site tab or the site name in the breadcrumb will return you to the home page. But how does the Web site know to use the default.aspx page in the Pages library rather than throw an error as there is no default page in the root of the web site? Fortunately, this is a configurable setting that can be edited by clicking the Welcome Page link in the Look and Feel section of the Site Settings page.

Not all the options on the Page Editing Tool Bar are available to all users; different publishing roles are used to determine what capabilities each user can see. We'll describe these roles in the next section, before going on to edit the home page.

8.4.1 Publishing Roles

You may have noticed that the WCM interface, like the rest of the WSS 3.0 interface, is security trimmed. SharePoint only displays links if they are available to the person viewing the page. If you use an Administrator account, as the examples in this chapter do, you will always see all the options, however, in a production environment not everyone will be administrators. Users will be setup in different roles with different levels of access. When you create a site, then you have the choice of creating unique roles for your site or else inheriting from the parent site. We talked about permissions in Chapter 2, but you should consider who you want to do what as you create, design and configure your WCM site. In most portal installations, we find that WCM sites inherit permissions from the Collaboration portal home site. If this is how you have configured your portal site, you should note, that as WCM pages are stored in a document library, users who are members of the [portal] Members SharePoint Group will be able to edit and publish any pages stored in the Pages document library, including the portal's home page. Therefore, you may want to differentiate between users who can edit and approve WCM pages and those who can upload and approve files in other document libraries. The default behavior of the SharePoint Groups available on out-of-the-box Collaboration Portal web sites on the Pages document library is:

- Approvers, Designers, Hierarchy Managers, [portal] Owners: Users in these SharePoint Groups can discard or check in WCM pages, which another user has checked out. If you enable content approval on the Pages document library or configure the approval workflow on the Pages document library, then users in these SharePoint groups will be able to approve a minor version of a minor page, that is, in WCM terminology, they can publish WCM pages.
- Quick Deployment Users, [portal] Members. Users in these two SharePoint Groups can edit and publish pages in the Pages document library, unless you enable content approval or configure the approval workflow on the Pages document library, in which case, users in these group can only edit and submit the pages for approval.

Site based on the Publishing with Workflow site template have content approval and the approval workflow enabled on the Pages document library by default, and so do all sites created when you choose the Internet Portal site template. Now you understand who can do what, let's go and edit the home page of your WCM site - the subject of the next section.

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8.4.2 Editing the Home Page

The default home page of your newly created WCM site is initially only a draft so no visitors can see the site until you publish the page. Since the process used for editing the home page will be similar to the process used for editing any page, you will want to begin by editing the home page.

Switch the page into Edit mode by clicking **Edit Page** from the **Site Actions** menu or by clicking **Edit Site** in the **Quick Access Button** section of the **Page Editing Toolbar**. What appeared to be an empty page will consist of an abundance of content containers. These will hold the data that the users will see.

The first few content containers are **Field Controls**, which is a component new to MOSS 2007 and are different from **Web Parts** or **Web Part Zones**, which we discussed in Chapter 5. Microsoft specifically designed **Field Controls** to hold and style content in specific, typically restrictive ways. They enforce consistency in the way content is gathered and displayed, very similar to the **Placeholder Controls** found in CMS 2002. **Field Controls** provide the **Web page designer** with granular control over style and the position of the content placed on a WCM page. The content creator provides content detail like text or images within each **Field Control** so the completed page can take on the appearance of the rest of the site. The page looks different when being edited than it does when it is being displayed. Click **Preview in New Window** from the **Tools** option of the **The same data from the Article page will be displayed but the icon will now be on the top right corner of the page to see what the page will look like to the typical reader without all those Field Controls.**

Separating the presentation of the content from its capture allows the presentation to change from context to context using **Page Layouts** or generally over time using **Cascade Style Sheets (CSS)**. Therefore, while **Field Controls** are more restrictive than **Web Parts**, they facilitate uniformity and consistency across your **Web site**; something many sites demand.

The next several sections explore the various **Field Controls** found on the default home page. These **Field Controls** are used to manage the content that must be gathered and presented on the home page. Each control is used for a specific kind of data. **Field Controls** on all other pages are very similar to the **Field Controls** found on the home page.

PAGE IMAGE FIELD CONTROL

The first **Field Control**, the **Page Image Field Control**, as shown in Figure 8.11, facilitates the placement of images on the home page, a very common task.

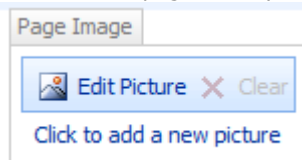


Figure 8.11: The **Page Image Field Control** is a placeholder for an image on a WCM page

Click **Edit Picture** or click the text, **Click to add a new picture** and the **Edit Image Properties -- Web Page Dialog**, appears as shown in Figure 8.12.

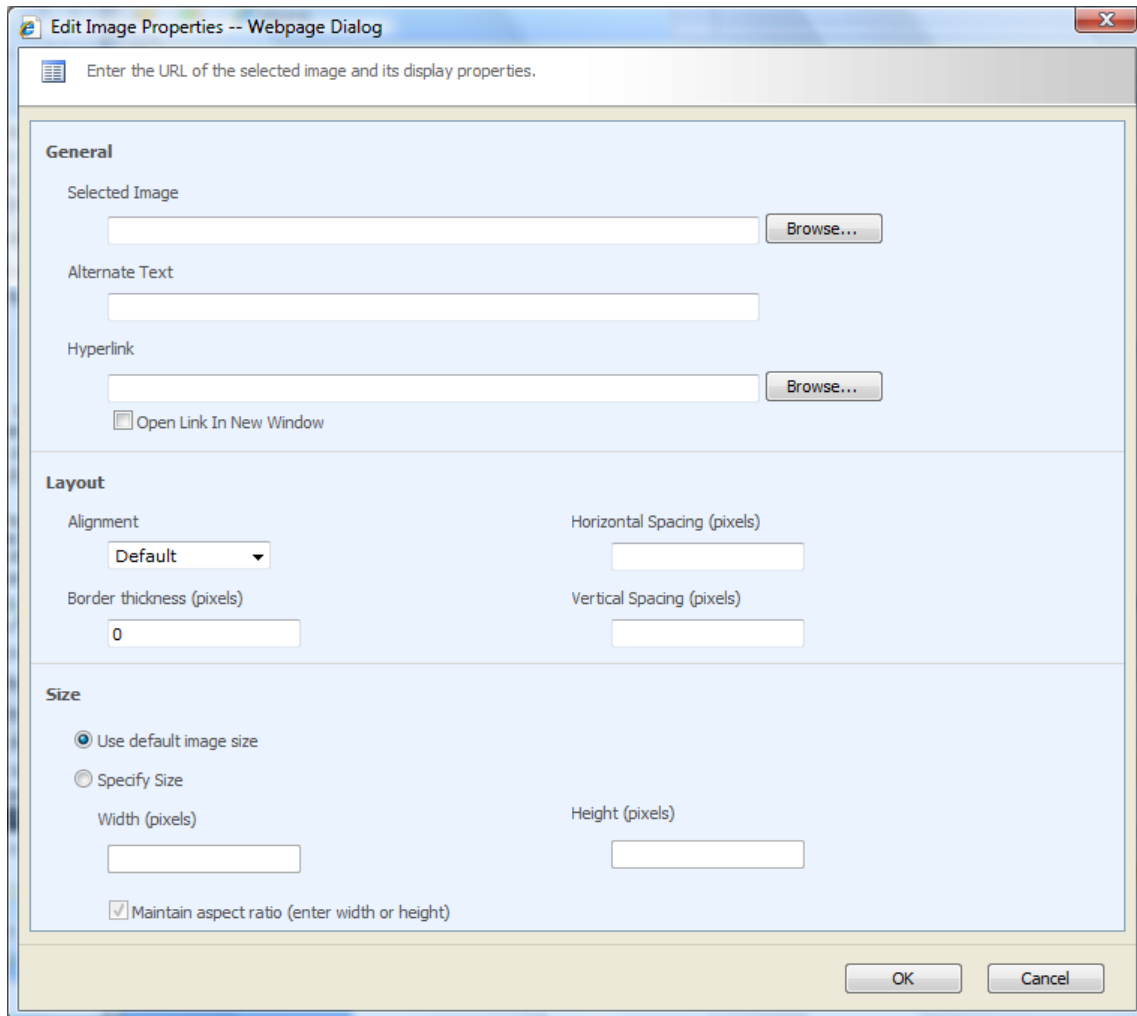


Figure 8.12: The Edit Image Properties -- Web Page Dialog is used to specify an image and optionally the hyperlink associated with that image; the image can have alternate text and the link can be set to open in a new window. You can also specify several layout and size characteristics for the selected image.

In this dialog, you can specify an image to display. If you choose no image, the Field Control will not show anything. Other characteristics that you can optionally use to control the behavior and presentation of the image are:

- The URL to which to navigate if the image is clicked
- Whether to open the link in the same window or a new window
- How to position the image on the page within the confines of the Field Control
- A specific size for the image, if different than the actual image size

Either type a URL to an existing image or click on the Browse button to open the Select an Image -- Web Page Dialog, as shown in Figure 8.13.

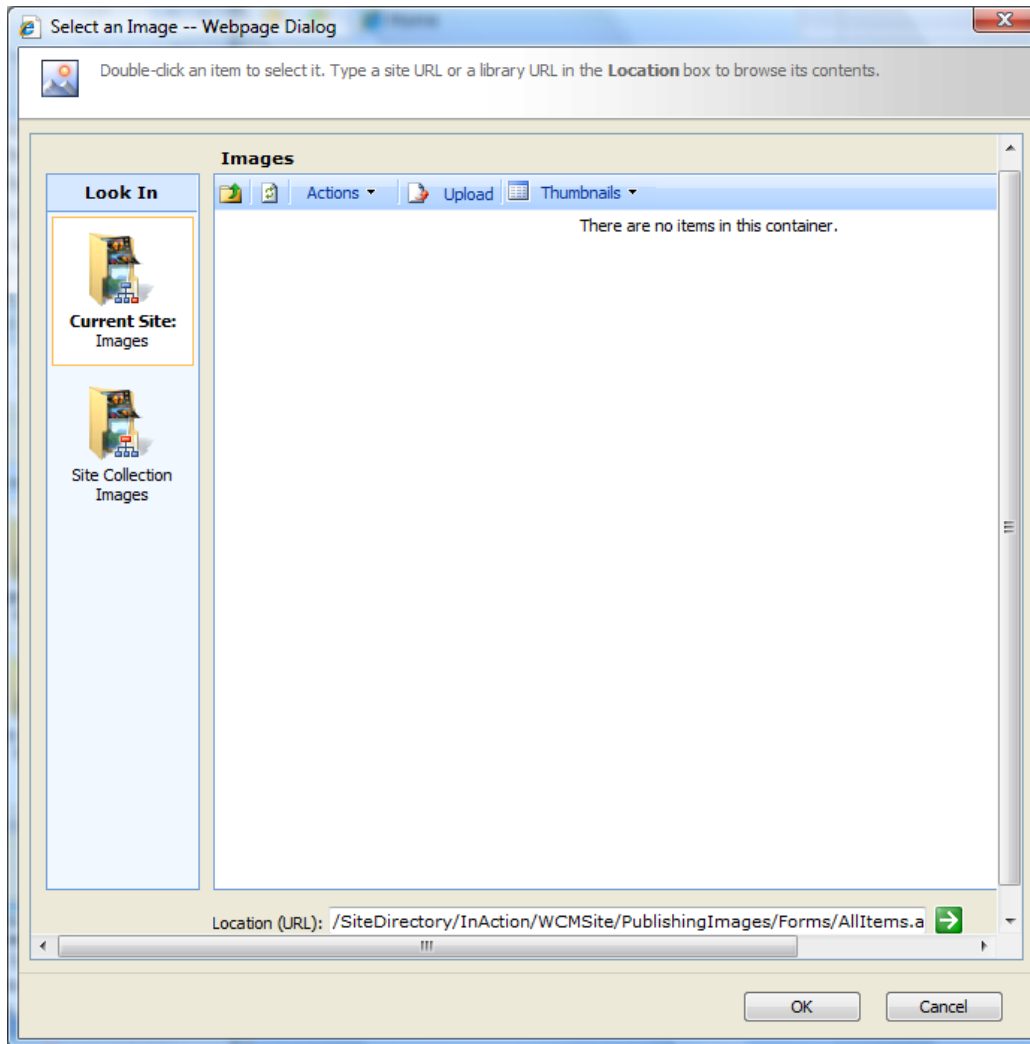


Figure 8.13: The Select an Image -- Web Page Dialog is used to locate an image from the current site, the site collection, or in some other URL location; the chosen image will be shown in the Page Image Field Control on a WCM page

We recommend you use the Current Site Images system library to store images just for this site. In the Site Collection Images system library you should store images for general use for all sites in the collection. However, neither is populated with any stock images, so initially there won't be any images in the dialog box to choose from. You can upload your own images to a library by clicking **Upload** from the toolbar or by specifying your own location, another image library or some static filesystem based images. One of our favorite alternate image location is `/_layouts/images`. WSS 3.0 adds over 2000 built-in images into this location. Browse these images on the Web Server's file system from the "12 Hive" under the `%CommonProgramFiles%\Microsoft Shared\web server extensions\12` directory. The images are in the `\12\TEMPLATE\IMAGES` directory. Although you can reference files from this directory, you will only be able to navigate to the "12 hive" folder on the Web front-ends if you are a server administrator.

After you have selected an image, it will display inside of the Field Control. When the page is no longer in Edit mode, the image will appear without any Field Control outline. Clicking the **Clear** option from the toolbar of the Page Image Field Control will immediately remove the reference to the image. There is no undo or confirmation for this option. A few things that may help you recover from unintentionally choosing the **Clear** option are:

- If the image was set in the previous version of the page, you could click **Version History** from the **Tools** option of the Page Editing Menu. This will show you how the image was set differently in previous

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versions.

- Click Discard Check Out from the Page option of the Page Editing Menu to revert to the previous version of the page. Of course, this will undo all changes, not just the lost image reference.

The next Field Control on the WCM site home page you would use to contains the main textual body of page. If planned correctly, this field control is used to contain the content that frequently brings people to the page.

PAGE CONTENT FIELD CONTROL

The Page Content Field Control, as shown in Figure 8.14, is used to enter/edit the HTML text on the WCM page.

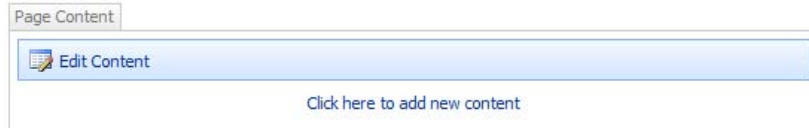


Figure 8.14: The Page Content Field Control is a placeholder for freeform, style constrained HTML on a WCM page

Click Edit Content or click the text, Click here to add new content to a floating WYSIWYG HTML Editor tool bar appears, as shown in Figure 8.15.

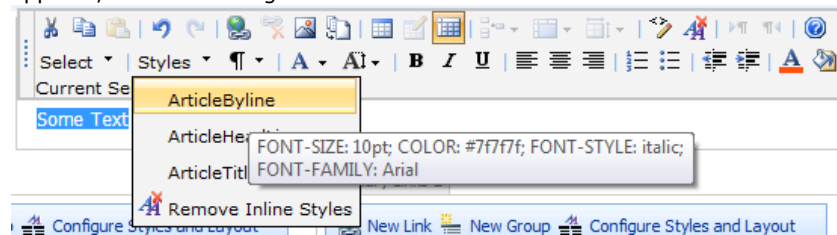


Figure 8.15: The Page Content Field control has a mini-HTML editor complete with two toolbars and style constrained option

This dialog has a plethora of options on the toolbar. Many options like Save, Find, Cut, Copy, Paste, Undo, Redo, Link and Image tools, Help, and all the font styling buttons will be intuitive to anyone that has used any Microsoft Office software in the past. However, there are a few worth calling out. Administrators can configure certain buttons, such as the Insert Table and Edit Table buttons, with formatting constraints so that they appear grayed out.

Click Spelling from the Tools option on the Page Editing Toolbar to spell check the text within this Field Control and other HTML fields on the page. Spell check is a welcome addition, In the previous version of SharePoint you had to use third party browser plug-ins to compensate for this missing functionality. No more, this is now as native to SharePoint as it is to Microsoft Office itself.

The ninth button on the top toolbar, which looks like two pages being inserted into one larger page, can be used to insert reusable content. Reusable content can be very valuable when you have common content in more than one place on your Web site. For instance, whenever we insert the name and number of someone to contact for assistance we like to use reusable content. This way, if either the name or the number ever changes, we can edit that text in one place and anywhere that text was used on our Web site is instantly updated. Reusable content is discussed later in this chapter.

The style of the HTML text can be determined using the custom, context sensitive styles defined in the Style option dropdown or the Paragraph format option dropdown both on the bottom of the floating HTML editor. Web page designer or Administrators can define or revise the styles in these options before or after you decorate the text. Notably missing is the traditional format painter option. Perhaps this will be an option in a future release of SharePoint.

Each Field Control that we've covered so far collects and stores data and subsequently reflects that same data on the Web page. This facilitates the management of that data in the context of this page. However, this next Field Control is unique; it collects, stores, and presents hierarchical links using a uniform presentation. You can use this to extend the navigation or summarize detail leads that this page leads to.

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SUMMARY LINKS FIELD CONTROL

Sometimes links need to be grouped and presented on the page in a very specific way, and this is where the Summary Links Field Control comes in, as shown in Figure 8.16

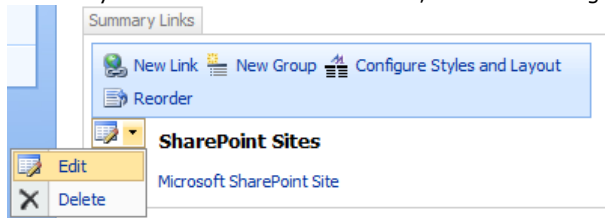


Figure 8.16: The Summary Links after the configuration described in this section

While you could use a Link list to capture links and a List View Web Part (LVWP) to display the contents of that list, the presentation would not necessarily be consistent from page to page. You can create a new link using the Summary Links Field Control as follows:

1. First create the group headers that you will need, by clicking the New Group in the Summary Links toolbar. The New Group -- Web Page Dialog window appears, as shown in Figure 8.17.

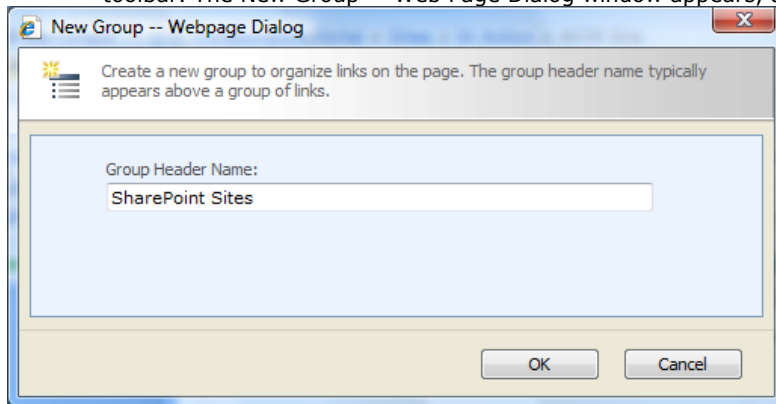


Figure 8.17: The New Group -- Web Page Dialog is typically displayed above each collection of links to organize them into "groups"

2. In the Group Header Name textbox, enter a name for your new group header and then click OK. To edit a group heading, once you have created it, select Edit or Delete from the smart menu to the left of the group header name. If you delete a group heading then any links that were under that group will be moved under the first group header name, if there is one. There is no undo or confirmation for this option.
3. Click New Link option in Summary Links toolbar. The New Link -- Web Page Dialog appears as shown in Figure 8.18.

Figure 8.18: The New Link -- Web Page Dialog is used to capture the characteristics of a link including an optional image and to specify the style that should be used to displayed the link

4. You must enter a value into the Title and Link URL textboxes. You can also choose an image; the group header under which you want the link to appear, the defaults is it will be listed under the first group header, and the style for your link. Just as you can edit the group heading using the smart menu so you can edit links. The smart menu icon will not show on the published page. Caution, choosing the Delete option from the link smart menu will immediately remove the link. There is no undo or confirmation for this option

To manage the style of all the group headers and link styles simultaneously, click **Configure Styles and Layout** from **Summary Links** toolbar. This will open the **Configure Styles and Layout -- Web Page Dialog**, as shown in Figure 8.19.

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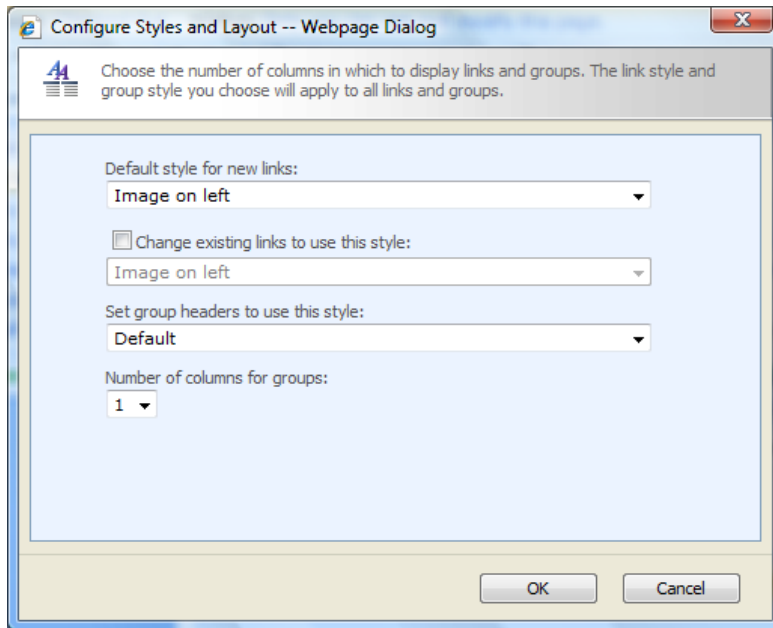


Figure 8.19: The Configure Styles and Layout -- Web Page Dialog is used to not only set the default style that links should use but also to force a given style and number of columns on all group headers and optionally on all links as simultaneously.

Not only can you choose the default style for new links, but you can also reset all existing links and group headers to a new style, or the same style. All styles options are displayed in Figure 8.20. Group headers are all managed as one style so it is technically not possible to create Figure 8.20 with varying group headers as it is presented, but there is no preview option so the Figure attempts to show every out of the box group header style that you could potentially choose. Links on the other hand, can be styled individually, so the options shown in the Figure are possible. However, typically, you will style all links consistently. Therefore, again, the various options are shown so that you don't have to choose each one to see what they will look like; the Figure shows them all.

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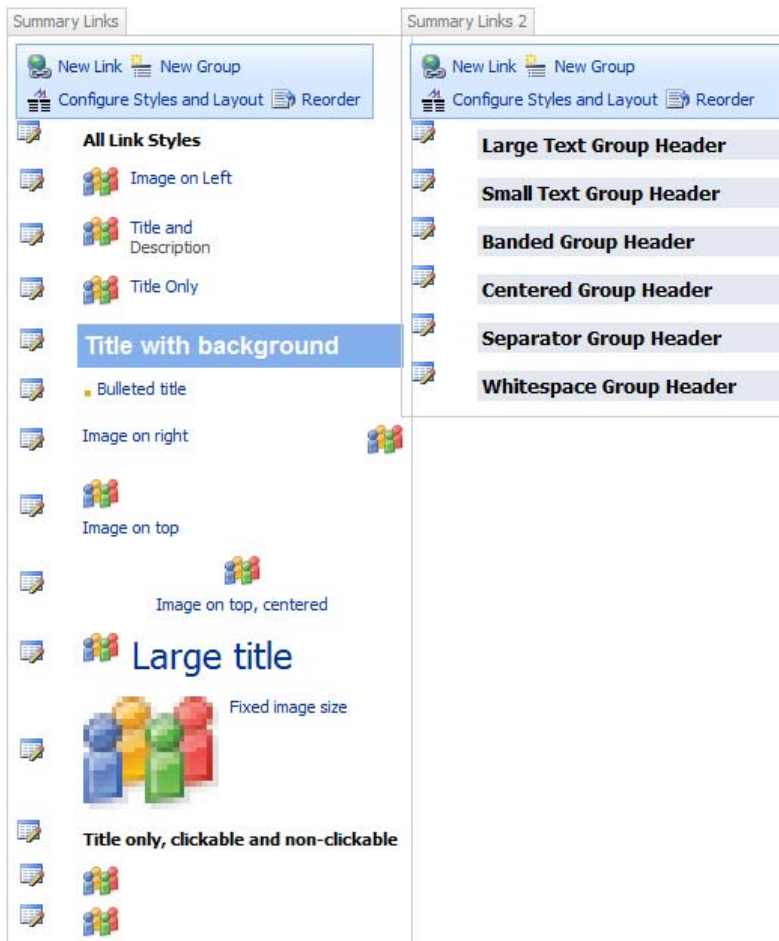


Figure 8.20: The All Summary Link Field Control styles for Group Headers and Links showing all possible styles that could be chosen using the out of the box styles provided in MOSS

When links need to be presented in a specific order that is not alphabetical or the order that they were added to the control, which is the default, click Reorder on the Summary Links toolbar. This will open the Reorder Links -- Web Page Dialog, as shown in Figure 8.21.

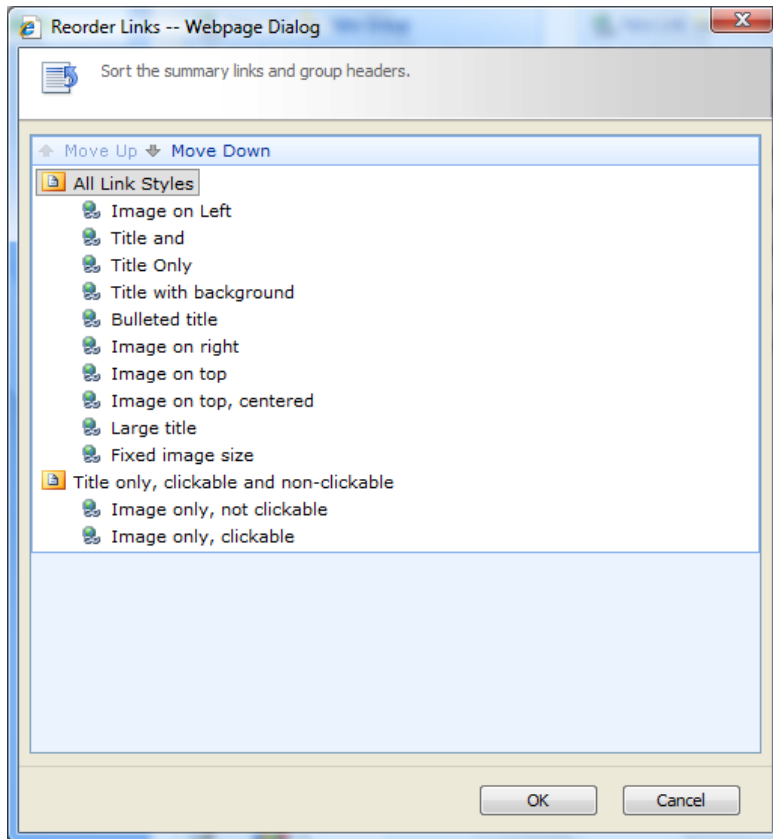


Figure 8.21: The Reorder Links -- Web Page Dialog is used to move links with a group or even between groups

Select a group header or a link and then click Move Up or Move Down to position it where you want within the context of the other group headers and links. Click OK to save your changes.

So far, we have covered the Field Controls you will find on a home page of a WCM site, we would like to mention one other Field Control that appears on any other new page, that is, Title Field Control, as shown in Figure 8.22.

TITLE FIELD CONTROL

This is first Field Control on a page when you click Create Page under Site Actions and can be used to manipulate the page's Title.

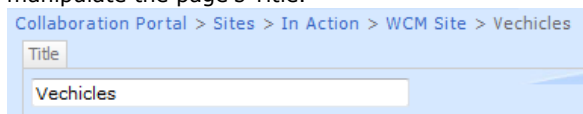


Figure 8.22: The Title Field Control is a placeholder for collecting text that will show at the top of the page, in bread crumbs, and in the title bar of the browser of a WCM page but not in the area where the field control itself is placed

The text in this field determines the display name that will show at the top of the page, in the breadcrumb, and in the title bar of the browser. For the home page of a WCM site, the text that appears in these locations is the name of the site.

The Field Controls that we've covered so far enable you to manage content on WCM pages in a consistent manner. However, you can add other information on a WCM page, data that may be less brand-oriented which you can add wherever the Web designer or administrator has placed a Web Part Zone, which we'll briefly discuss in the next section.

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WEB PART ZONES

Content on the Web page can sometimes best be presented using Web Parts provided in the context of the other content on this page. Working with Web Parts is covered in detail in Chapter 5. However, this section provides a brief review just for completeness.

At the bottom of the Web Part Page are three Web Part Zones, as shown in Figure 8.23, the Top Web Part Zone spans the width of the page and two Web Part Zones underneath.

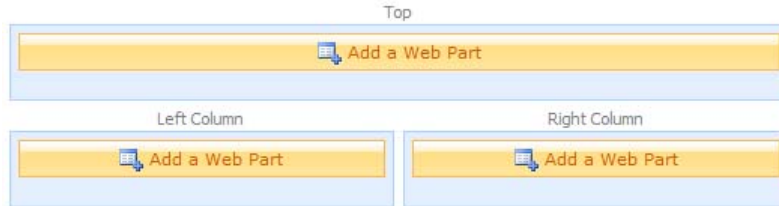


Figure 8.23 The Top, Left Column, and Right Column Web Part Zones that are provided on the default WCM home page

Web Part Zones are designed to contain Web Parts and offer the content creator much more latitude than Field Controls do. After content has been added to the Web page, you can publish the page by clicking Publish on the Page Editing Toolbar. Otherwise if the publishing workflow or Content Approval is configured, you can click Submit for Approval. We will look at the publishing workflow in the next section.

8.5 Workflow for Publishing Web Content

Let's recap where we are. We started by creating a WCM publishing site that initially had a Draft default home page. After exploring the Page Editing Toolbar and all the Field Controls that allowed the entry of data onto a page, you may want to publish the page so that site visitors and Restricted Readers can see it, which is as easy as clicking Publish on the Page Editing Toolbar. But there is a WCM site template, Publishing with Workflow, which adds additional publishing states and you need to understand how MOSS manages the different publishing states. To work through this section of the chapter and see all the publishing states we describe create another site, using the instructions earlier in this chapter, but selecting the Publishing Site with Workflow site template. By using both the WCM site without a workflow and a WCM with a workflow, you will be able to understand the differences between the two site templates and how a pages moves between the different publishing states on both these sites.

8.5.1 Built-In Publishing Workflow

The MOSS WCM workflow is invoked whenever you are working with a Web page in the Pages list of a WCM site. While far more flexible (and more complex) workflows can be created, this built-in, lightweight, out-of-the-box workflow will be sufficient for the vast majority of the business needs. Chapter 4 explained how to create custom workflows in MOSS 2007.

A WCM page can transition among the following page states.

- **Draft (Minor Version):** This is the default state for a new page. When the version of a page does not end in .0, SharePoint considers it as a draft or minor version. Minor versions of a page are not available to restricted viewers (AKA: the viewing public).
- **Checked Out:** This state indicates that the only person allowed to make changes to the page, is the person who checked out the page. Everyone else will not see those changes until the page is checked back in as a draft or submitted for publishing.
- **Checked Out (Edit Mode):** This state is the same as the previous state except that the person is actively working on the page. Some page states can only be transitioned to when the page is actively being edited, hence the distinction.
- **Waiting for Approval:** If you submit a page for approval and you are not a member of the Approvers SharePoint Group, then the page moves to this state. This is the final state before the page becomes a Major Version, published for restricted readers to view.

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- **Published (Major Version):** This is the state of pages that are available to everyone who has access to view.

Figure 8.24 shows how a page can be changed from one state to another and how various operations you perform affect a page's state on a WCM site.

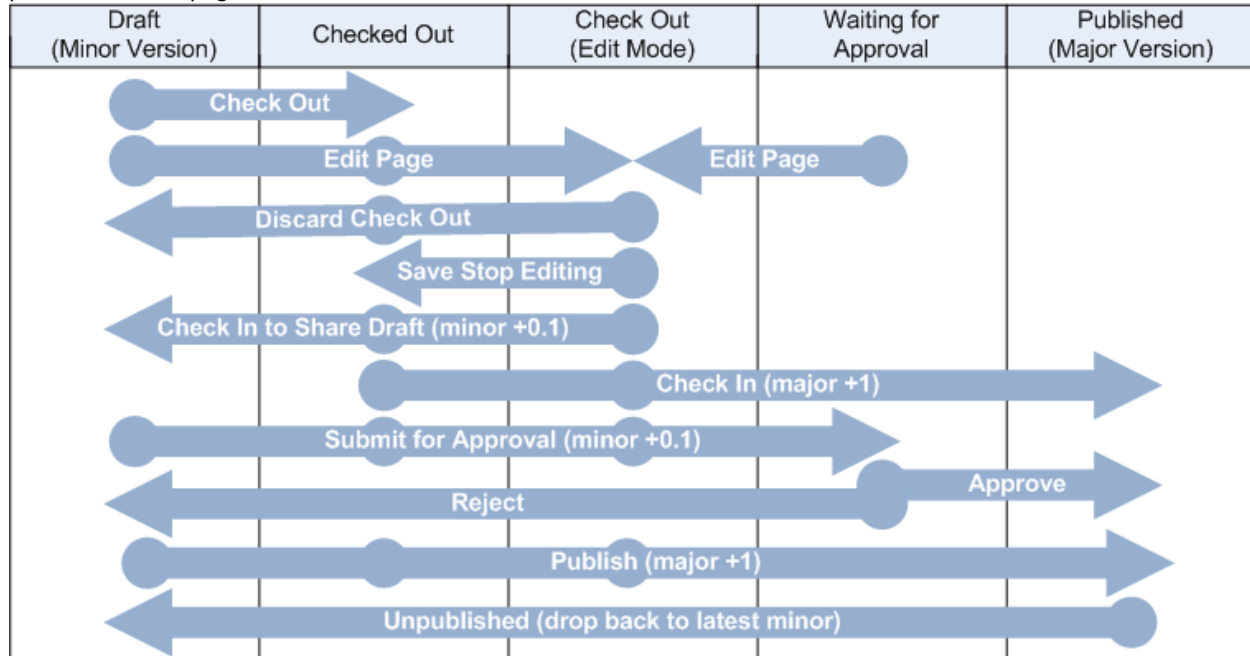


Figure 8.24: The WCM workflow state diagram summarizes state transitions. The dot at the beginning of the arrow represents the starting page state; the dots along the arrows path indicate possible end states, while the tip of the arrow indicates the direction and most aggressive state change that can be achieved using the operations described in this section.

The big dots represent the states that a page can transition to and from while the arrow indicates the direction and most distant state a page can shift in any one operation. These operations are described in detail in the following sections. You may like to refer back to Figure 8.9, which shows the Page Editing Toolbar as you read the following sections.

8.5.2 Operations available from Draft state

When a Publishing site is first created, the home page will be a Minor version (draft 0.1). For other users to see the content on this page, it must become a Major version (published 1.0). As indicated by the state diagram, there are four operations to choose from when the page is in Minor version (draft) state:

- **Check Out:** Choose this operation to prevent explicitly other users from changing the page while you have it checked out. This effectively reserves the page for you to make changes, whether you are editing it or not. Check Out can be found on the Page menu of the Page Editing Toolbar.
- **Edit Page:** This operation will not only put the page into Edit mode but will also implicitly check out the page so others cannot change the page while you are editing it. Edit Page can be found in the Site Actions menu and is a Quick Access Button.
- **Submit for Approval:** If Content Approval is enabled on the Pages document library, this operation is available. If you choose this operation on a Publishing with Workflow site, the Start "Parallel Approval" page will be displayed, where the Approvers SharePoint group is specified as the users who should approve this page. In either case the state of the page to Waiting for Approval. If the page is Approved, it will be promoted to next major version (a whole number like 1.0) and anyone with read access to the page will be able to see it. If it is Rejected, it will be returned to Draft state. This operation is only available for pages in a Draft state; pages in a Published state never need to be submitted for approval. Submit for Approval can be found in the Workflow menu and is a Quick Access Button.

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- **Publish:** If you choose this operation on a Publishing with Workflow site, the Start "Parallel Approval" page will be displayed, where the Approvers SharePoint group is specified as the users who should approve this page, and the page move into the Waiting for Approval state. Otherwise on a Publishing site (with no workflow), this operation will move the page directly to next major version and anyone with read access to the page will be able to see it. Of course, only people with the rights to approve pages, for example, if they are a member of the Approvers SharePoint group, will be able to perform this operation. Publish can be found in the Workflow menu and is a Quick Access Button.

8.5.3 Operations available from Checked Out state

Once you have the page checked out, you can perform other operations:

- **Discard Check Out:** Choose this operation to Check In the page and expunge all the changes you may have made. The version number is returned to the value it held before you performed the page Check Out. Discard Check Out can be found in the Page menu.
- **Save and Stop Editing:** Choose this operation to commit your changes to the database. You can optionally choose Save rather than Save and Stop Editing which will leave the page in Edit mode after committing your changes to the database. This will not Check In the page so the version will not change. Save and Stop Editing can be found in the Page menu. You can find Save in the Page menu.
- **Check In:** Whenever you choose this operation, any changes you've made are committed to the database and the page will always transition to another state depending on the Check In options (see Figure 8.25) you select.

Figure 8.25: The Check In dialog lets you specify the kind of version you are checking in, whether you want to continue to keep the document checked out, and to optionally provide a comment.

If you choose to Check In a Minor version (draft), the page version will increment by 0.1 and although the draft will be available for other content contributors to edit, site visitors will only see the previously published page. If you instead choose to Check In a Major version (publish), keeping the page checked out will not be an option and if you have sufficient rights, the page will be published on the established schedule, which by default is immediately. If the current version is not a published version you will also have the option to overwrite the current minor version. Of course, the version being

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overwritten will be lost; it won't even be in the pages version history. Finally, it is not required, but you have the option of providing a comment with each Check In. Check In can be found in the Page menu and is a Quick Access Button.

- **Submit for Approval:** As previously discussed, this operation will change the state of the page to Waiting for Approval.
- **Publish:** This operation will move the page directly to next major version and anyone with read access to the page will be able to see it. Of course, only people with the rights to approve pages to be published will be able to perform this operation. Submit for Approval can be found in the Workflow menu and is Quick Access Button. When the page is Published, a green band will appear at the top of the Page Status Bar rather than the orange band.

8.5.4 Operations available from Waiting for Approval state

Waiting for Approval has very few options but you will likely either choose Approve or Reject.

- **Approve/Reject:** When a page is in Waiting for Approval status, there are only a few things that you can do. Before you choose Approve or Reject, you may want to consider two helpful options on the Tools menu: Preview in New Window will let you see what the page will look like to a typical site visitor and Check for Unpublished Items will show you if all the reusable content that the page uses, are published or not. If you select the Approve operation, the page will be promoted to next major version (a whole number like 1.0, 2.0, or 3.0) and anyone with read access to the page will be able to see it. If you select the Reject option, the page will be returned to the latest minor version and its status will show as Rejected. Approve and Reject are Quick Access Buttons but there is also an Approve/Reject option in the Workflow menu. The menu option will take you to a page where you can optionally provide a comment, which could be invaluable when rejecting the page.

Of course, if you have rights to both edit and approve the page, you can choose to return to editing the page before you approve it.

8.5.5 Operations available from Published state

Finally, if a page is published prematurely, all is not lost as you can select the Unpublish operation, which will demote a published page back as the latest minor version. Anyone with read access to the page will see the previous published version, if there is one. Unpublish can be found in the Workflow menu.

8.5.6 Operations available from any state

Don't forget, throughout the entire process, you can always see the current Page Status Information -- Web Page Dialog, as shown in Figure 8.10, by clicking the link to the right of Version or the link to the right of Status on the Page Editing Toolbar.

Getting a page from a Draft state to a Published state is a key concept for managing content in a WCM site. The built-in states that the Page move between and the Publishing Workflow is one example of meeting this crucial business need. However, your business may need more approval levels, multiple parallel processes, like language translations, or some other complexity that makes that out of the box workflow unfit for your organization. No problem, MOSS 2007 can host custom workflows in place of the Publishing Workflow. See chapter 4, for how to leverage custom workflow and Chapter 15, Using SharePoint Designer. The next section discusses how to take the content captured on a page and present it in various ways using Page Layouts.

8.6 Authoring Web Pages Using Page Layouts

The home page has provided a good venue for learning how WCM pages are edited and published. But a Web site consists of much more than just one page. In fact, the primary intent of a WCM site is to allow content creators an easy way to generate many, many pages in a controlled way, based upon predefined templates called Page Layouts. Page layouts contain field controls and Web Parts and are based upon Master Pages that contain controls that are shared across multiple page layouts, such as navigation and search, known as the chrome.

This next section will introduce you to the concept of Page Layouts by having you create a new page associated with an initial Page Layout and then subsequently alter it to change how the content is displayed even

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after the content has been captured. After that, we will look at how to create a new Page Layout. Page Layouts help us manage the content on a Web page over time, even in light of changing display requirements.

8.6.1 Using a Page Layout

New pages in a WCM site are always based upon an initial template called a Page Layout. Each Page Layout is based on a Page Layout Content Type. We described content types in Chapter 3, Using Lists and Libraries. The Page Layout Content Type are applied to the Pages document library which if you remember back to Chapter 3 add columns to the document library. These columns have a one-to-one relationship to Field Controls; therefore, a Page Layout Content type defines the Field Controls that at Page Layout can use. The Page Layout Content Type, that will be used in this example is the Article Page Layout and the Page Layout we will use is Article Page with image on the left. This template is used for presenting an article (as in magazine article) on a Web site. Like the home page, the Article template contains a Page Image Field Control and a Page Content Field Control to capturing data as well as a few other simple Field Controls. Use the following steps to create a new page based upon the Article Page content type using the Article page with image on left Page Layout:

1. Click Site Actions > Create.
2. Enter First Article in the Title text box, and then click in the URL Name text box. A URL name that matches the title without spaces will auto-populate for you. We like to use the generated name, see No Spaces in the URL Name Sidebar earlier in this chapter.
3. In the Page Layout section, click (Article Page) Article Page with image on left, as shown in Figure 8.24. The naming convention in this list box, is that the content types name are the words in brackets, and the names of the Page Layouts is to the right of the bracketed words.

Collaboration Portal > Sites > In Action > WCM Workflow > Pages > Create Page

Create Page

Page Title and Description
Enter a URL name, title, and description for this page.

Title: First Article

Description:

URL Name: Pages/ FirstArticle.aspx

Page Layout
Select a page layout to control how the page will be displayed.

The article page with image on left contains an image field and a rich text field.

(Article Page) Article page with body only
 (Article Page) Article page with image on left
 (Article Page) Article page with image on right
 (Article Page) Article page with links
 (Redirect Page) Redirect Page
 (Welcome Page) Advanced Search
 (Welcome Page) Blank Web Part Page
 (Welcome Page) People Search Results Page
 (Welcome Page) Search Page
 (Welcome Page) Search Results Page

Check Spelling Create Cancel

Figure 8.26: The Create Page collects the title, description, and URL name for the page as well as the page layout that will determine how the content will be presented on the page

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controls only show while the page is actively being edited

This new article page can have been published and so it can be viewed by site visitors. However, what if the presentation of the content needs to be altered just a little bit or even a lot? The Page Layout initially selected can be changed to meet today's and tomorrow's business needs. The same content could be displayed in a multitude of different ways over time. The next section shows how to make this kind of change.

8.6.2 Changing the Page Layout

After a page has been created, the way the content on the page is presented can be changed by simply selecting a different, yet compatible Page Layout, that is a Page Layout that uses the same content type. So in the steps below we can use an page layout that has (Article Page) to the left of its name. Use the following steps to change the Page Layout so that the image shows on the right rather than on the left.

1. Click Site Actions > Edit Page.
2. On the Page Editing Toolbar, click Page > Page Settings and Schedule. Note that the schedule can be used to determine the date that the page will start/stop showing to the site visitors.
3. In the Page Layout section, select (Article Page) Article Page with image on right, as shown in Figure 8.29.

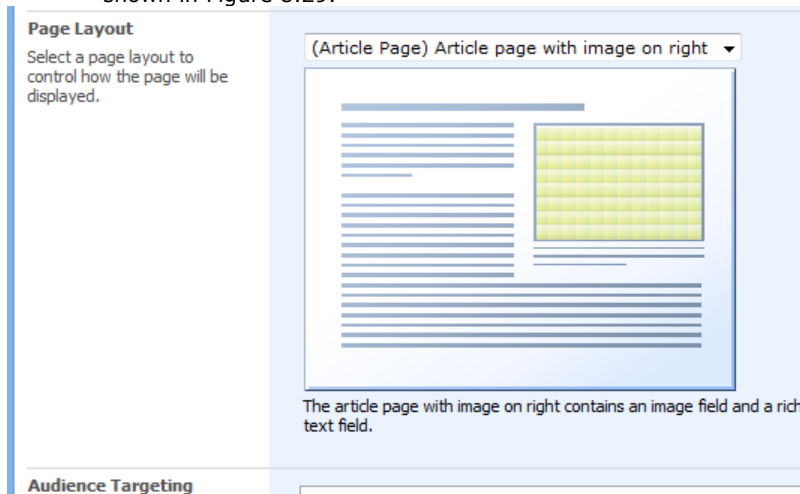


Figure 8.29: The list of Page Layouts is filtered to only include those based on the same Content Type as the Page Layout that was originally used to create the page. Of course, only one Page Layout can be associated with a page at a time so the selection is made from a drop down list

4. Scroll past the Audience Targeting section, which can be used for only showing this page to predefined groups of people, as discussed in Chapter 6, Personalization Features. Remember that targetting information based on audiences is not a security mechanism and at the bottom of the page, click OK. The same data from the Article page will be displayed but the icon will now be on the top right corner of the page.

You can see how easy it is to create a new page, choose a Page Layout, and even change the Page Layout over time. What if the Page Layout that you need to use doesn't exist? The next section will guide you in creating your own Page Layouts.

8.6.3 Creating and Using a New Page Layout

Since the Page Layout defines the look and feel in edit and render mode for any page based on that Page Layout, it is important to understand how to create your own. Page Layouts are stored in the Master Page Gallery for the WCM site. In the following exercise, you will create a new Page Layout using Save As in Microsoft SharePoint Designer (SPD). SPD is the definitive tool for Information Workers to edit their SharePoint sites and it is discussed at length in Chapter 15. Use the following steps to create a Page Layout page that only displays the text of the page (no icon, no date, and no byline):

1. Navigate to the site's Site Settings Page using Site Actions.

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- Click Master Page and Page Layout Gallery in the Galleries section. This gallery is managed at the top-level site of the site collection, so, any Master Pages and Page Layouts that we include in this gallery will be available to all sites in this site collection. Also, note that there are four Page Layouts associated with the Article Page Content Type. Administrators, Contributors, Designers, Approvers and Hierarchy Managers have read access to the Master Page and Page Layout Gallery. Access to this gallery is required to create and edit Master pages and Page Layouts.
- Click ArticleRight.aspx and click Edit in Microsoft Office SharePoint Designer, as shown in Figure 8.30. If you completed the previous exercise, the ArticleRight.aspx Page Layout is currently used by your First Article page.

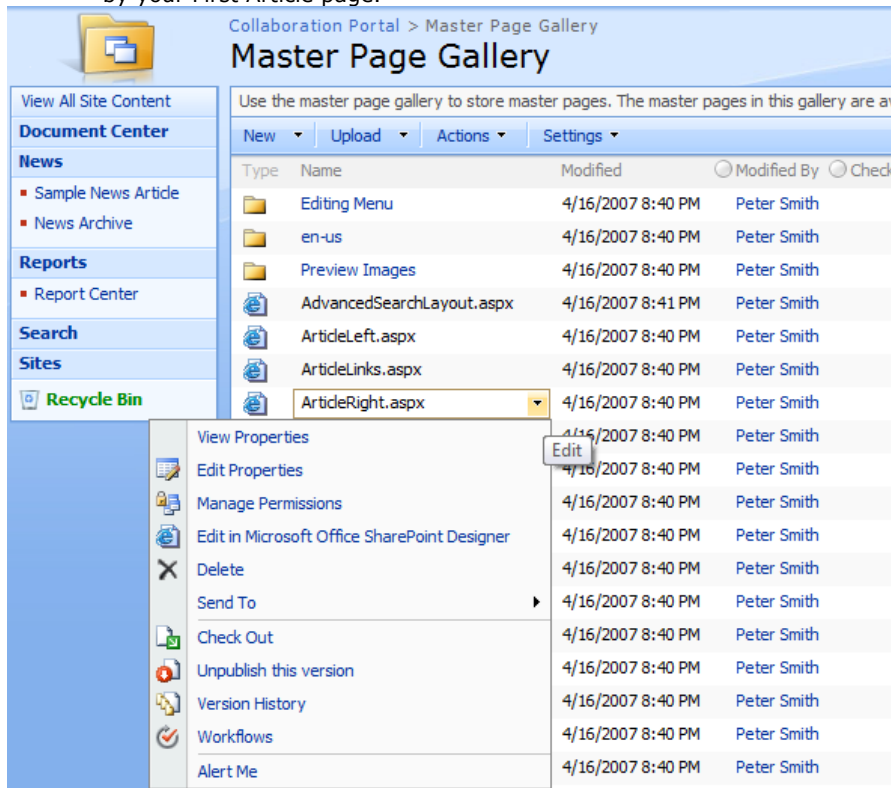


Figure 8.29: The Article Page can be edited using the Edit in Microsoft Office SharePoint Designer link in the smart menu for the page layout in the Master Page Gallery of the site

Unless you are creating your own custom SharePoint 2007 Feature, you can only edit and create new Page Layouts using SPD. No other editor provides the infrastructure to merge the Master Page, the Page Layout, and the data stored in the SharePoint Content database. Also note, everything in the Master Page is grayed out because it cannot be edited from within the Page Layout.

- Click OK to the Internet Explorer window that asks you if you want to check out the page.
- Click on each of the following fields and press the delete key: Article Date, Byline, Page Image, and Image Caption. This will effectively leave only the Page Content Field Control on the page.

NOTE

By removing field controls from the page, does not delete any content that those field controls may contain, we are just deciding not to render that content on the page. The WCM model separates the content from the data. You use Field Controls to decide where to present the data. Each Field control maps to a column defined by the Page Layout Content type, so the content actually lives in the columns of the Pages document library.

- Click Save As from the File menu and enter a File name: ArticleTextOnly.aspx. This saves the new Page Layout, ArticleTextOnly.aspx, into the Master Page Gallery. You may need to click Yes to a browser dialog box to complete the save process.
- Click ArticleTextOnly.aspx, and select Edit Properties.

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8. In the Content Type text box, ensure Page Layout is selected, and then in the Associated Content Type section, select Page Layout Content Types in the Content Type Group text box and select Article Page in the Content Type name text box.
9. Close SharePoint Designer and refresh the Master Page and Page Layout Gallery page in the browser. The Master Page gallery is a document library with Content Approval enabled. The page is in draft mode and checked out to you. Check In, ArticleTextOnly.aspx as a Major (1.0) version and then approve it.
10. Navigate back to the WCM Site, and click First Article in the Quick Launch bar.
11. Click Site Actions > Edit Page > Page > Page Settings and Schedule and in the Page Layout section, select (Article Page) ArticleTextOnly.aspx.
12. Click OK at the bottom of the page. The same data from the First Article page is displayed but with no image, only the text.

You have now successfully created a new Page Layout. We leave it to you to approve and publish the page.

8.7 Summary

While Web Content Management is a large and complex topic, the content in this chapter should help you use WCM meet the regulatory demands increasingly placed on everyone. Specifically, this chapter described the challenges everyone faces when working with content that is destined for a Web site. We described the history of WCM at Microsoft to show how the current MOSS product has matured to meet the demands placed on information workers in managing Web content.

The chapter then explains how to provision a WCM Web site. Whether starting with an existing site and activating the Publishing Feature or creating a brand new site from scratch, this is the starting place for every WCM venture.

The way that Information Workers interact with a page in a WCM site is through the Page Editing Toolbar. This control houses all the commands necessary to manage a WCM page all the way to a published state. Of course, a WCM page wouldn't have any value without content, so, you explore the capabilities of each of the Field Controls on the home page.

The heart of a WCM site is the Publishing states and the Publishing workflow. The best way to understand how the out of the box web content management and approval process works is to see how various operations affect the state of the page. Therefore, we detailed the various states that a WCM page can transition from and to as well as the rules that govern those transitions.

Finally, every WCM page is based on a Page Layout template that determines what data will be collected and how that data will be presented on the page. This chapter included exercises to show you not only how to create new pages but how to change the Page Layout of the content on the page as well as create new Page Layouts.

The next chapter is about Records Management, the second major spoke in the ECM wheel. Like WCM, it can help you meet the demands of the regulatory bodies of the world.

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9

Setting up Records Management

In This Chapter

- What is Records Management?
- How to route records through your portal processes
- Using holds and other records management features

Every company has a need for records management whether it is just Financial Reports or Contracts or Employee Records. With the advent of Sarbanes-Oxley Act (SOX), which is officially titled the Public Company Accounting Reform and Investor Protection Act of 2002, the Health Insurance Portability and Accountability Act (HIPPA), and the Design Criteria Standard for Electronic Records Management Software Applications Department of Defense Rules 5015.2-STD, this is becoming more and more important. We discussed these regulatory burdens on a company in Chapter 8, "Web Content Management". Companies, and in some cases the people in charge of the companies, are getting punished with large fines for not being able to produce the proper documents to back up their financial statements.

We are sure you have already been to a business that has a dedicated records management area: your hospital. All of your information about your visits, tests, results, and prescriptions are stored in one location. For each hospital there is one area where the documents are stored and the physicians know they are the most up to date and correct ones, even if the physician was not the one who last saw you. Most hospitals also have penalties associated with not updating the medical record within a certain period.

Microsoft Office SharePoint Server (MOSS) 2007, now has a special site called "Records Center" that stores these kinds of documents. You may remember from Chapter 2, "The Building Blocks of an Application", that you can reuse site templates repeatedly; however in the case of the "Records Center" template you only want to create one site. If you think about it, one purpose for a Records Management site is to be able to find all the records quickly. If you have to search multiple sites, that defeats the purpose. In addition, you can specify the Retention Policy, that is, how long the document is considered to be active, as well as the Audit Policy, which is what events need to be recorded. This is set on a per document library basis so you can create as many of these policies as you need.

This chapter will provide only a brief overview of the records management process. It is far too deep of a topic and would require its own book, or more than one book, to fully touch every detail. We will discuss planning, setting up the records management site, the libraries and how to: send documents to libraries, create a hold library and add documents to hold library.

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9.1 Planning for Records Management

Someone once said "If you fail to plan, you plan to fail". That statement is particularly true when it comes to records management. As stated above, there are many aspects to consider. What is Records Management? What documents should we consider a record? How do we handle these records? How long should they "live"? What do we do with them when they expire? How do we make sure that any records we need for legal reasons are kept around? Each of these questions we will be handle below.

9.1.1 What is Records Management?

Since people first began recording information whether on stone tablets, papyrus, or paper, there has been the question of what needs to be kept. When it took months to create a document the obvious answer was "everything". However now that a good deal of information can be readily printed or stored as electronic documents the question is a little bit harder to answer.

As stated earlier some companies have to follow laws that dictate what needs to be stored and for how long. Others have to make that decision themselves. For example, we worked with a client who develops and sell an electronic games program, they considered the code, image and executables as records. They were not records when their programmers first started to develop the program, but definitely, once the code reached certain milestones. They also classified certain emails as records, when it contained some reference to financial or contractual information. However, they did not consider an email, as a record when two people were discussing the latest football game. Why did they want to classify this information as records and not just implement a structured document management solution? Well, it's because they considered it as economically vital to their business, and their continued existence and want to give certain information additional importance. A record then is a document, whether it is a physical piece of paper or electronic, that serves as an account of some important piece of information. Therefore, records management is the process where an organization will:

- Determine which documents should be considered records. Granted that other types of information like images may actually become records but since the majority of records will be documents, we will refer to all types of information that will become records as documents.
- Determine how to process those records
- Determine how long a record should be considered viable. Governing laws usually determined this.
- Determine what to do with the record once it expires.
- Determine how to find and save those records pertaining to any lawsuits.
- Create the policies needed to fulfill these determinations
- Enforce the policies!

As shown in figure 9.1, a record starts it life as a document and only becomes a record once its get sent to the Records Repository site.

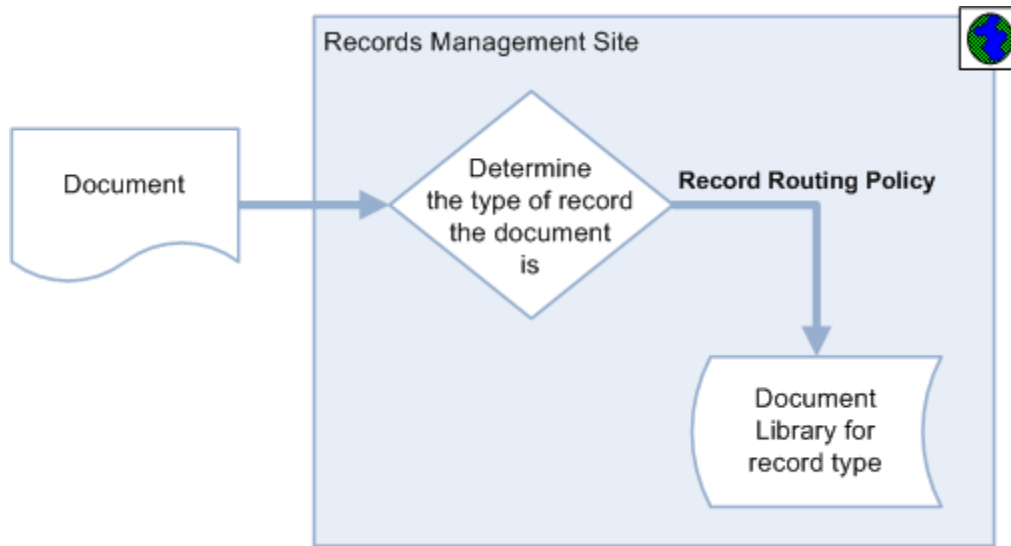


Figure 9.1 A workflow view of adding records to a Record Repository. The record starts out as a document stored anywhere either in the portal or external. It is sent to the Records Repository where its content type is examined and the document, which is now considered a record, is sent to the appropriate Document Library where it will be stored and the appropriate policy implemented.

Now that you have a (very) brief understanding of Records Management, you can start to figure out who to involve and what to do with your records.

9.1.2 Records Management Roles

If you are lucky enough to work for a company that has a dedicated records management department, and the number of companies with these departments is growing every day, then naturally it will be their job to handle all aspects of records management.

However, if you do not have a records management department, then three roles need to be considered:

- Records managers to run the records management process.
- Someone from the IT department to setup the records management system.
- Content Managers that know where the records are located.

The records managers are usually someone from the legal department. After all, they are the ones that would have the best understanding of the legal rules that govern your particular industry. Records managers will help determine what documents your company should consider records, how long they should be kept, and what needs to be done with the records after they expire. They are also responsible for making sure the rules associated with the company's records management policy are enforced.

The IT department is responsible for setting up the records management system. They may also need to assist with the implementation of records management rules. Depending on the needs of the rules, some advanced workflows may need to be designed and implemented.

Content managers may be from any area of the corporation, depending on what has been determined to be records. They are responsible for ensuring that their teams follow the records management policies and procedures.

You may consider adding two additional groups, the individuals that generate the records. They need to be aware of the records management policies so that they can follow them. The second group you may wish to add, are the people who are responsible for the installation, configuration and maintenance of the computer product that provides the records management services, which in this case is MOSS. A good Records Management solution, involves good communication and a team effort.

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9.1.3 Developing the File Plan

Now that you know who is needed, you need to design the file plan, which is just the rules regarding how long the document is considered active. Note that each record could require its own plan or there may just be one plan for all records.

The file plan needs to include three pieces of information for each record:

- The type of record.
- How long it is considered relevant.
- What to do with the record once it is no longer relevant.

It may also be beneficial to have a single point of contact for each record type whether it is a specific person or the section of the records management department responsible for that record. This makes it much easier to track down needed information.

As was stated earlier, this is just the tip of the iceberg when it comes to records management. There are various books, web sites, and courses that go into much deeper detail about how to determine properly what records are and how to handle them.

So far, you have been planning how to handle your records management, both from a personnel standpoint as well as from the record's standpoint. Now comes the fun part, setting up MOSS 2007 to handle records management!

9.2 Setting up the Records Management site

Now that you have planned: who is going to work with your records, including defining what a record is, who places the records into the Records Management site, as well as who is going to help setup the site, it is time to perform the actual setup. This section will show you how to create the site, describe the various web parts and lists that get generated by default, setup the record routing for the various types of records you may have, and how to setup your system so that the records may be sent to your records management site.

9.2.1 Creating the site

Before you can do anything with records management, you must create your records management site. This is done much like any other site; refer to Chapter 2 for a refresher. However, for this site you must select "Records Center" as the site template. If you do not see that template, make sure to click on the "Enterprise" tab. Once the site has been created it will look like the screen shown in Figure 9.2.

The screenshot shows the 'Records Center' home page. The top navigation bar includes 'Collaboration Portal', 'Document Center', 'News', 'Reports', 'Search', and 'Sites'. The left sidebar contains 'View All Site Content', 'Documents' (with 'Unclassified Records'), 'Lists' (with 'Record Routing', 'Holds', 'Tasks'), 'Sites', 'People and Groups', and 'Recycle Bin'. The main content area has a breadcrumb 'Collaboration Portal > Sites > Records Center'. It features a 'Records Center Setup' announcement dated 8/10/2007 12:23 PM, stating the site was created successfully but e-mail is not enabled. Below this is an 'Add new announcement' link. The 'Record Routing' section contains a table with one entry: 'Unclassified Records' (NEW), described as an example that stores records submitted to the 'Unclassified Records' document library. The 'Links' section on the right includes 'Configure Record Routing', 'Manage Holds', 'View Unclassified Records', and 'Add new link'.

Title	Description	Location	Aliases	Default
Unclassified Records ! NEW	This Record Routing is an example that stores records submitted to the Records Center in the "Unclassified Records" document library.	Unclassified Records		Yes

Figure 9.2 The Records Repository Home Page after the site is initially created. Notice the default document libraries and lists that were created as well as the default record routing plan called "Unclassified Records"

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In figure 9.2, you will notice that we have created the Records Center, under the Site Directory in a Collaboration portal site collection. This will suit our needs, whilst we are investigating the functionality of a Record Centre. However, we would not recommend this for a production implementation of a Record Center. We recommend that your IT Department create a separate Web Application to host a site collection, whose root Web site is based on the Records Center site template. Most companies use just one Record Center. Others decide to keep separate the information that is required to meet the needs of the Freedom of Information (FOI) Act, from other information. This can be achieved using a separate site within the same site collection or a separate site collection within the same Web application or with a separate Web application. The decision is yours. Sometimes the solution is more politically driven than technology driven. In most cases one Record Centre will suffice, with each record type mapped to a specific document library. This stops confusion and eases the auditing of your company by an external regulatory body.

In figure 9.2, you will notice that when you create a Record Center Web site, that there are already a number of document libraries and lists created. You will use these lists to hold the record, determine how to route each record, and to store the various records in "Holds". Don't worry if you are not familiar with the term "Hold". We will discuss putting a record on hold later in this chapter. Table 9.1 contains the document libraries that are created when you create a Record Center site.

Table 9.1 SharePoint Records Center default document libraries.

Document Library	Function
Hold Reports	This document library will show all those documents that are currently on hold.
Missing Properties	This document library will contain all those records whose metadata has not been entered. The record owners or record manager should check this library periodically to make sure that records that appear here are processes accordingly. You should at the very least, configure a workflow on this library or an Alert Me.
Records Pending Submission	This document library is a temporary storage location for records submitted to the Records Center that are missing required metadata.
Unclassified Records	All documents sent to this site will be placed in one document library or another based on routing rules, which we'll discuss in further detail later. Any document that does not fit into any of the those rules will be placed here, either to be moved manually or left, if for some reason they should not go into any other document library. If you find a large number of documents in this library, you may need to think about adding a new document library and a routing rule. Microsoft created this library as an example of what you could do with records that do not match one of your record types.

Table 9.2 contains the lists that are created when the Record Center site is created.

Table 9.2 SharePoint Records Center default lists.

Lists	Function
Holds	This is where you define the rules for Holds. See the section on Holds below for more information.
Links	In figure 9.1, there is a List View Web Part (LVWP) on the right side of the page called "Links", which shows the content of this Links list. Basically, Microsoft has created three link list items to common functions that you will be using over and over. The three Link list items are, "Configure Record Routing" that directs you to the Record Routing list, "Manage Holds" that directs you to the Holds list, and

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	"View Unclassified Records" that directs you to the Unclassified Records library. You can add others as needed and they will also show up in the Links LVWP.
Record Routing	This is one of the main features of SharePoint's records management; being able to automatically route documents into the proper document library. This list stores all the routing rules. See the section on setting up routine rules later in this chapter for more information.
Records Center	This is just a renamed "Announcements" list that you read about in Chapter 3, "Using Lists and Libraries". You may have noticed in figure 9.1 that the home page of the Record Centre site has a Record Centre LVWP that displays the one default announcement.
Submitted E-mail Records	This list is used by the Records Repository to temporarily store received e-mail records.
Tasks	This is just like the "Tasks" list you read about in Chapter 3.

These are just the default list and libraries created. In order to make the most of your records repository you will have to add your own document libraries to store your various record types.

Once you have defined your record types the next step is to create your document libraries and determining which records go into which document libraries. This is the subject of the next section.

9.2.2 Implementing Records Policies

The way records policies are handled, is one of the main features of MOSS's records management. Implementing a policy plan is comprised of two parts; creating and configuring a document library to store the documents, and defining the routing rule that specifies which types of records go to which document library. We will look at creating a document library in this section and defining the routing rules in the next.

CREATING THE DOCUMENT LIBRARIES

One of the document libraries that was created was "Unclassified Documents." Any record that has a content type that is not recognized will be placed here. We explained content types in Chapter 3, we will also explain them in the context of records management below. While the Unclassified Document library will hold records for any length of time, it would defeat the purpose of having a records routing plan in place if all the documents stayed in this one document library. Actually, you would not have a records routing plan if this was the case since all documents would end up in this library by default. For this reason, you will need to create new document libraries to store the records from your record routing plans. For example, a college may need to keep a record of the scholarships they award. They intend to create a record for each scholarship which details the students who are considered for the scholarship, the course that the student is studying and the intended scholarship, which they will expose as metadata on the record. However, there college's Nursing and Midwifery department, requires additional metadata, so the school, could consider a separate document libraries to hold scholarship records for that department. may need a Scholarship document library.

You have already read how to create a document library, in Chapter 3 so we will not go over it again here. Just remember that it may be easier in the long run to have a link to the document library on the Quick Launch bar so select that option when creating it. Once you create the document library, you will need to add any required metadata fields that you would need. We gave some examples of metadata in our scholarship example, but sn additional example would be the filing date of a financial record or the effective date of a Human Resources policy. If you are not sure what pieces of metadata you need ask your Records Manager. You can always add more metadata at a later date, so don't worry to much if you don't get it quite right first time. However, you will have to go back and complete the values stored for records you have already created.

Finally, you need to setup the document library to handle the content type. or types, that you want to place in this document library. Therefore, in our scholarship scenario, the Nursing and Midwifery department could save their scholarship award records, in the same document library as the rest of the college, but you would have two content types associated with that document library, one for the Nursing and Midwifery department and one for the rest of the college. Refer back to Chapter 3 for a reminder on the steps required to do this. Each Record Routing

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plan that you create later will refer to an individual document library that you have just created. Therefore, by setting the document library to handle one or more content types and then having the Record Routing plan refer to the document library, you tell MOSS which Record Routing plan to use for each record. All that needs to be done is to make sure the record in question has the correct content type. We will now implement our scholarship scenario.

We will create a document library for the scholarship record in the Records Center as follows:

1. Navigate to your Record Center, click Site Actions > Create and then under Libraries, click Document Library.
2. Type Scholarship in the Name text box, leave all the other values at their default settings, and then click Create. The Scholarship document library is displayed.
3. Click Settings > Create Column and type Award Date in the Column Name text box.
4. Select Data and Time radio button, and select Yes for the Require that this column contains information.
5. Under General Settings, click Advanced settings; in the Content Types section, select the All management of content types, Yes radio button and OK.

Now we have a document library we need to configure the policy for the document library. You would have decided on the policy for this record, when you created the file plan as part of your company's record management strategy.

CREATING THE POLICY FOR THE LIBRARY

To create the policy for the record type:

1. Navigate to the Scholarship document library, if you are not already there, click Settings > Document Library Settings.
2. In the Permissions and Management section, select Information management policy settings. If you have only one content type defined for a document library, which is the case in our scenario, the Information Management Policy Settings page is displayed as shown in figure 9.3. Otherwise, you need to click on the specific content type that you want to set an information policy for.

Collaboration Portal > Sites > Records Center > Scholarship > Settings > Information Management Policy Settings

Information Management Policy Settings: Document

Specify the Policy
Specify the information management policy for this content type. If you would like to use one of this site's predefined policies then select "Use a site policy". Alternatively, you can directly create or edit the policy settings.

Specify the policy:

- ☒ None
- ☐ Define a policy...
- ☐ Use a site collection policy:
Invoice Policy

OK Cancel

Figure 9.3 The default Information Management Policy Settings. Select your policy here.

NOTE:

At this point, either you can create a new policy or select one that the site collection owner created for record at the site collection level, Site Actions > Site Settings > Modify All Site Settings and then under Site Collection Administration click Site collection policies.

3. Select Define a policy and click OK. This will take you to the Edit Policy page shown in figure 9.4.

Edit Policy: Document

Name and Administrative Description The name and administrative description are shown to list managers when configuring policies on a list or content type.	Name: Document Administrative Description:
Policy Statement The policy statement is displayed to end users when they open items subject to this policy. The policy statement can explain which policies apply to the content or indicate any special handling or information that users need to be aware of.	Policy Statement:
Labels You can add a label to a document to ensure that important information about the document is included when it is printed. To specify the label, type the text you want to use in the "Label format" box. You can use any combination of fixed text or document properties, except calculated or built-in properties such as GUID or CreatedBy. To start a new line, use the \n character sequence.	☐ Enable Labels
Auditing Specify the events that should be audited for documents and items subject to this policy.	☐ Enable Auditing
Expiration Schedule content disposition by specifying its retention period and the action to take when it reaches its expiration date.	☐ Enable Expiration
Barcodes Assigns a barcode to each document or item. Optionally, Microsoft Office applications can require users to insert these barcodes into documents.	☐ Enable Barcodes

Figure 9.4 Determine what policy settings your document needs. You can require users to have labels, track what actions are performed, and determine what happens if and when your documents expire.

4. You will notice that the Name field is already filled in with the name of the content type. This makes it much easier to determine which content type this policy is for.
5. Enter Scholarship Awards in the Administrative Description text box. This will be shown to the list managers.
6. Enter It is the college's policy to keep scholarship details for 7 years once they are awarded to a student in the Policy Statement text box. This is displayed to end-users when they open a document that uses this policy. This is a good place to tell the user how the policy applies to the documents or any special handling required, like the required metadata fields.

Now you could enable labels, auditing, expiration and / or barcodes. A form can be converted to an image or HTML. If you wish this to occur so that it may be archived, select the Enable Form Conversion for Archiving checkbox. Your MOSS Web farm administrator can disable any of these policy options. In addition, the Enable Form Conversion for Archiving option is by default disabled, and this feature must be enabled before conversion can take place. See the Administration section later in this chapter. A more thorough discussion of the options on this Web page follows below. In our example, we will enable expiration.

7. Select the Enable Expiration checkbox. The page will refresh and additional radio buttons and drop down lists will appear.
8. Select A time period based on the item's properties radio button under The retention period is:
9. Select Award Date in the left drop down list, and then enter 7 in the text box to the right of the + character.
10. Select Perform this action radio button under When this item expires and click Delete from the drop down list, as shown in figure 9.5.

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Figure 9.5 Edit Policy with Expiration enabled. Here you can set how long a document lives and what to do with it once it expires. You can perform set actions like deleting the document or route the document through a workflow process.

11. Click OK and you have created the policy for the scholarship record.

So now you know the basics of creating the document libraries for your records policy and how to setup the Information Rights Policy. Now it is time to examine some of features of the policies that you may have enabled in greater detail.

SPECIFYING THE LABEL PROPERTIES

Labels are like the document's metadata with the difference being that labels get printed with the document. A Label may contain fixed text like "Confidential - do not distribute", document properties like the Author, or a mixture of both. If you wish to have the label broken up over more than one line, you can separate them using the new line escape character "\n" (without the double quotes).

There is a limitation when using document properties in that you cannot use any property that is calculated like the GUID or a calculated date.

Figure 9.6 shows the Edit Policy page with the Enable Labels checkbox selected.

Labels

You can add a label to a document to ensure that important information about the document is included when it is printed. To specify the label, type the text you want to use in the "Label format" box. You can use any combination of fixed text or document properties, except calculated or built-in properties such as GUID or CreatedBy. To start a new line, use the `\n` character sequence.

☒ Enable Labels

☐ Prompt users to insert a label before saving or printing
 ☐ Prevent changes to labels after they are added

Label format

Examples:

- Project {ProjectName}\n Managed By: {ProjectManager}
- Confidential -- {Date}

Appearance:

Font:

Size:

Style:

Justification:

Label Size:

Height: Inches

Width: Inches

Preview:

Figure 9.6 Edit Policy with Labels enabled. Here you can configure what labels will be printed with the document. This is useful to show additional information about the document like the project it came from or a reminder that it is confidential.

Note that there a quite a few new fields to fill out when this is enabled, these are described in Table 9.3.

Table 9.3 The table below lists the various fields that can be filled out when adding labels to a document policy

Field	Description
Prompt users to insert a label before saving or printing	If selected, the user will be prompted to add their own labels to the document when it is saved or printed.
Prevent changes to labels after they are added	Makes the labels user adds read-only after they are added.
Label Format	This is the actual label. For example "Confidential" or "Author: {CreatedBy}". Note the use of "{" and "}" to surround a document property.
Font	You can either select a font or use the client's default font for printing the label.
Size	Specify the font size.
Style	Specify the font style
Justification	Select either Center, Left, or Right
Height	How high, in inches, is the label size

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Width	How wide, in inches, is the label
Preview	This is a read-only field that shows a preview of the label when the "Refresh" button is pressed. Gives you an idea of how the label will look when printed, although you cannot be sure what the client's default font is if that option was selected.

You can use labels to add information to the document when it is printed to show additional information. However, it does not show who has looked at it, use audit events are for that.

ESTABLISHING THE AUDIT EVENTS

Auditing is a very important part of records management. Not only do you need to make sure the document is up to date, but you also need to watch who performs which actions on the documents. Figure 9.7 shows the Edit Policy page with Auditing enabled.

Figure 9.5 Edit Policy with Auditing enabled. You can determine what events get tracked including opening, editing, check out/in, moving/copying or deleting a document.

Once you have determined that you want to audit the document, you need to determine which events you want to trap. The following events are available for auditing:

- Opening or downloading a document, 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

Now that you can keep track of who is doing what to the records, you need to consider what happens with the record expires? Do you just delete it, review it, or something else? That is what Expiration policies are for.

SETTING THE EXPIRATION POLICY

Since documents usually only have a limited lifetime you can set them to expire after a certain period. To do this, select the Enable Expiration checkbox. Figure 9.5 shows the Edit Policy page with the Enable Expiration checkbox selected.

There are two parts to the expiration policy; the retention period, how long the document lives, and what to do when the document expires. The retention policy is determined by one of three methods, depending on which radio button is selected.

If you choose the option to determine the expiration date based on a document's properties you must select whether to base it on the a column that uses the date column type, as we did in our example. If you do not create a data column for your policy you will only be able to choose the Created or Modified columns as the document's properties. You will also need to enter a numeric value and then the unit of measure, that is, days, months, or years.

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If you choose to set the retention period programmatically, the second option is to have a workflow determine the retention period. You need to make sure that any workflow associated with the document library sets this value programmatically.

The third option, also when you specify that the retention period is set programmatically, would be to use a custom retention formula that has already been installed on the server.

Once you have selected how to determine how long a document lives, you need to determine what happens at the end of that period. Either you can have MOSS automatically perform an action like deleting the document or you can initiate a workflow to perform more complex actions, such as, rerouting for approval or legal review. If you want MOSS to delete the record automatically, you have two options: Delete and Delete record and submission information. When you choose the Delete option, MOSS will move the record into the Recycle Bin. Some regulations require that a record be deleted immediately and irretrievably from the system. If you Record Management strategy requires this permanent deletion strategy you should choose Delete record and submission information. MOSS will process the Expiration policies once every 24 hours, starting at 11:00 PM. Your MOSS Web farm administrator can change these settings.

Now that you have the library set up, let's look at how to specify the record routing for this library.

9.2.3 Record Routing

OK, so far you have determined what information in your company is a record and who will be working with the records. You have created the Records Management site, added the document libraries to store the various records, setup the document libraries to handle the appropriate content types, and setup the Information Rights Policies to handle the records. Now you need to figure out which record type goes into which document library and how to get them there. That is what Record Routing. Remember that the record is routed based on its content type so make sure you have decided on the name of that content type, even if you haven't setup the content type before you create a Record Routing item. In our scenario, we are going to call our content type Awards, but before we create a Record Routing item let's to see what is in the Record Routing list.

On the home page of your Record Center site, click Record Routing in the Lists section of the Quick Launch bar on the left hand side of the screen. This will take you to the All Items view of Record Routing list shown in Figure 9.7. You can also go to the Record Routing list by clicking the title of the Record Routing LVWP on the Record Center home page.

Collaboration Portal > Sites > Records Center > Record Routing

Record Routing

Use this list to route incoming records to the appropriate document library. For each type of record in the list, specify the title and description of the record type, the location where you want to store records of that type, and the names of other record types (aliases) that you want to store in the same location. You can specify any record type to be the default. If an incoming record doesn't match any of the record types in the list, it will be stored in the location you specified for the default record type.

New Actions Settings View: All Items

Title	Description	Location	Aliases	Default
Unclassified Records NEW	This Record Routing is an example that stores records submitted to the Records Center in the "Unclassified Records" document library.	Unclassified Records		Yes

Figure 9.8 Record Routing determines which document library to store your records. Setup the routing based on the document's content type. You can have one or more content types handled by a single record routing entry

Note that Unclassified Records is already defined for you. This is the default routing entry that is used for documents that do not meet any other routing criteria. So let's create a new Record Routing item.

CREATING A RECORD ROUTING ITEM

You need to create a Record Routing item for each record you want to route to a document library in the Record Centre. Remember you need to have decided the name of the content type that matches the record, prior to completing this procedure:

1. Click New. This will take you to the Record Routing: New Item page as shown in Figure 9.9.

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Collaboration Portal > Sites > Records Center > Record Routing > New Item

Record Routing: New Item

OK Cancel

Attach File | Spelling... * indicates a required field

Title *	Awards
Description	College Scholarship records
Location *	Scholarship The title of the library where records matching this record routing item should be stored. Libraries used to store submitted records cannot be deleted.
Aliases	 A '/' delimited list of alternative names that represent this record routing entry.
Default	☐ If checked, this routing item will be used for submitted records that do not match the title or aliases of any other record routing item.

OK Cancel

Figure 9.9 Setup a new Record Route. The title needs to match the content type. In addition you can provide a description to help describe this entry, the location of the document library where these records will be stored, additional content types this entry will handle can be added in the Alias' textbox and you can set this entry to be the default so that all records that do not meet any other record routing entries will use this one.

2. Enter Awards in the Title text box and enter College Scholarship records in the Description text box.
3. Enter Scholarship in the Location text box. This is the name of the document library where documents with a content type of Awards will be stored.
4. Click OK.

You can find more information about the fields on the Record Routing: New Item page in Table 9.4.

Table 9.4 The table below lists the fields that can be filled out when creating a new record routing policy/

Field	Description
Title	The title of the record routing entry. This needs to match the content type of the record
Description	A brief description. This should include what types of documents will be stored here.
Location	This is the title of the document library where the documents will be stored.
Aliases	Include any alternative names for this record routing entry. These also need to match the content types of any other record types you want this entry to handle. Separate entries with a "/".
Default	Check this box if this is the default routing entry. Remember that the default entry is where any documents that do not fit any other record routing entry will be filed.

By filling out the fields in the table above, you create your records routing entries. By doing this you define which document library, MOSS stores the various records, based on their Content Types.

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TIP:

It may be easier to use the same name for the document library and the record routing entry in order to quickly determine where the documents go.

Now just two more tasks that you may have to do. One you may be able to do, is to set permissions so that users or other Web farms or MOSS sites located in other Web Applications can submit their records to the Record Center. The second one, a MOSS farm administrator has to register your Record Center Web site as the Record Center for each Web application, whose users will use it as their main Record Center. This provides users with a Send To option to the Record Center on a document context menu. We'll look at the Record Centre permissions here and document the administrator task in the next section.

ADDING USERS TO THE RECORD CENTER WEB SERVICE SUBMITTER SHAREPOINT GROUP

The Record Center Web Service Submitter SharePoint Group, which has the Add Items permission on the Records Center site, is intended to grant limited access to users that submit records from other server farms. In addition, if you have created your Record Center in a separate Web farm or in a different Web Application from your company's other MOSS Web sites, you need from your SharePoint farm administrator, the usernames that the other Web farms or Web Applications use as their Internet Information Server (IIS) Application Pool Identifier. When users on other MOSS Web sites on other Web farms or Web Application, do not directly submit their records to your Record Center, MOSS submits the records on their behalf by using the username of the Application Pool Identifier. Therefore, once you have that username, you will need to complete the following procedure

1. Navigate to the home page of your Record Center, click People and Groups on the Quick Launch bar.
2. Click More, under Groups on the Quick Launch bar. The People and Groups: All Groups page is displayed.
3. In the list of Groups, click Records Center Web Service Submitters for Records SharePoint Group.
4. Click New. The Add Users: Record Center page is displayed. If you do not see this, then you do not have sufficient permission and you will need the help of your site collection administrator.
5. In the User/Groups text box, type the username provided by your SharePoint farm administrator, clear the check box, Send welcome e-mail to the new users and then click OK.

That's all there is to it. Your Records Management site is all setup and ready to automatically put the records into the correct document library. Of course, you may be asking yourself how do I actually get the records into the Records Management site? Simple, you just send them there using the "Send To" feature of SharePoint's Records Management.

9.3 Sending files to a Records Center

Take another quick look at Figure 9.1. Remember that a record is not a record until it is actually in the Records Center, it is just a document. The document may reside in SharePoint or in other external sources. So how does the document get to the Records Center? It gets sent there.

SharePoint has three ways in which you can send records to the records repository. You can:

- Setup the Send To command
- Use Microsoft Exchange Server 2007's managed folders to send Emails to the records repository site, or
- Create a workflow that ultimately sends the file to the Records Center site.

The last two options are outside the scope of this chapter as they involve technologies outside of MOSS, but I will discuss the first one here.

SharePoint servers have the ability to send documents to a records repository directly from a SharePoint document library using the "Send To" command. However, in order for this to occur some setup steps need to be performed first. The MOSS Web farm Administrator will need to setup the URL that points to the Records Center using the Central Administration Web site.

This allows users to utilize a menu option on a document in a document library to retain the document as a record in the appropriate location. Because the server knows the location of the Records Center, it can submit the file on behalf of the user and will present the user with any properties that they need to enter.

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9.3.1 Configuring a Records Center Connection

In order to be able to send documents to your Records Center site, the MOSS Web farm Administrator must configure the "Send To..." menu option.

1. On the MOSS server, click Start > All Programs > Microsoft Office Server > SharePoint 3.0 Central Administration.
2. Click the Application Management tab.
3. Click Records center in the External Service Connections section, as shown in figure 9.10.

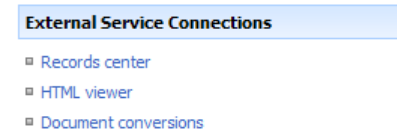


Figure 9.10 Central Administration Application Management. Click Records Repository to setup the "Send To" feature of MOSS.

4. On the Configure Connection to Records Center page, as shown in figure 9.11, select the Connect to a Records Center radio button.
5. Enter the URL of the Records Center you created earlier in this chapter. Note that you need to include `/_vti_bin/officialfile.asmx` at the end of the URL.

The screenshot shows the 'Configure Connection to Records Center' page. The breadcrumb trail is 'Central Administration > Application Management > Configure Connection to Records Center'. The page title is 'Configure Connection to Records Center'. On the left is a navigation pane with 'View All Site Content', 'Central Administration' (selected), 'Operations', 'Application Management', 'Shared Services Administration', 'SSP01', and 'Recycle Bin'. The main content area has a section 'Records Center Connection' with instructions: 'To connect to a Records Center, enter the URL and a display name for a Records Center server. Unless the Records Center is configured to allow records to be anonymously submitted, you must configure each Web application to use a domain user account.' There are two radio buttons: 'Do not connect to a Records Center' (unselected) and 'Connect to a Records Center' (selected). Below the radio buttons are three input fields: 'URL:' containing '/vti_bin/officialfile.asmx', 'Example:' containing 'http://server/portal/_vti_bin/officialfile.asmx', and 'Display name:' containing 'Records Center'. At the bottom right are 'OK' and 'Cancel' buttons.

Figure 9.11 Create an external service connection so users can send their records to the Records Center.

6. Enter the name that will show in the Send to menu that users will use to send the document to the Records Center Web site. This needs to be descriptive enough so that the end users know the purpose of the menu option.
7. Click OK.

Now that you have setup MOSS to enable the Send To command in order to send documents to your Records Center, now let's use it.

9.3.2 Using "Send To" command with a Records Repository

Assuming everything went well, your knowledge workers should now be able to send documents directly to the Records Center via the Send To menu. First, we need to create a content type that matches the Name property of the Records Routing item. For our example, we'll create a new document library and rename the Document content type to Awards. In a Production environment, you would create a new content type, Awards and associate the new content type with this document library as well as the document library in the Records Center. See Chapter 3 for more information on content types.

1. Navigate to another site, create a document library, call it Math Scholarships.
2. Click Settings > Document Library Settings and then click Advanced Settings under General Settings.
3. Select Yes to under Allow management of content types? and then click OK.

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4. Click Document in the Content Types section, and then click Name and Description in the Settings section on the List Content Type: Document page.
5. Enter Awards in the Name text box and click OK.
6. Use the breadcrumb to go to your document library's All Documents view.
7. Upload a document and then hover the mouse-over the document, click the drop arrow to the right of the document name, click Send To, and click on the name of the Records Center, you entered in the previous procedure, in figure 9.12 we called it Records Center.

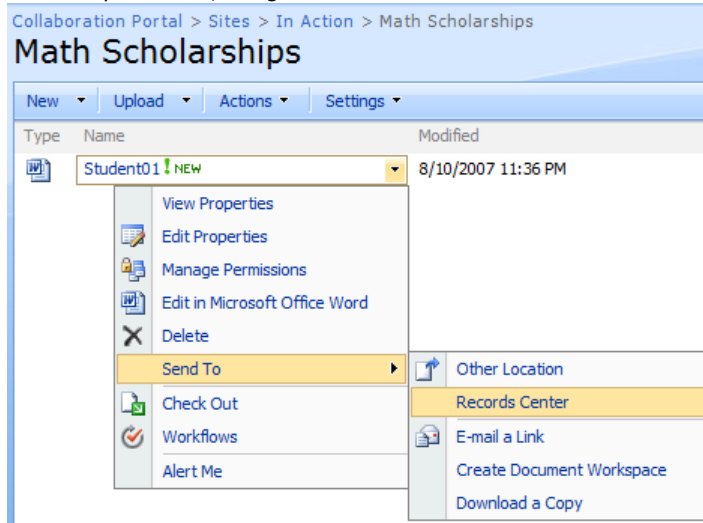


Figure 9.12 Once you have your route setup you can send your documents directly to your record center.

The document is automatically be sent to the Records Repository, and an Operations Completed Successfully page will be displayed. If there are any pieces of required metadata missing you will be asked to enter the property values as shown in Figure 9.13. If the document library you were sending from had these properties as columns and if you had entered values for these columns, then you MOSS would not prompt you for the required properties. MOSS would automatically promote these values for you to the Records Center. Notice that the item is created by a username System Account. This is an alias for the Application Pool Identifier for the Web Application. Even if you are sending documents from Web Sites within the same Web Application, it is still the Web Application Pool Identifier that is submitting the document as a record on your behalf. Once you have entered the required properties and clicked OK, an Operation Completed page is displayed. Click OK to return to the document library.

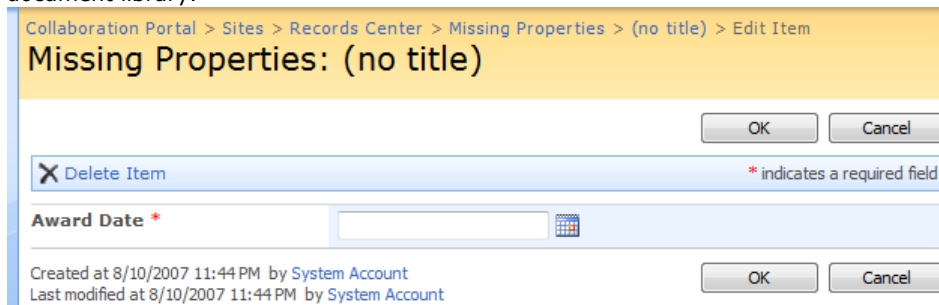


Figure 9.13 If you have not entered all the required data, you will be prompted for them. All the metadata, including both optional and required, fields will be displayed.

If you go to the appropriate document library in your Records Center site, remember this is based on the content type or the default Records Center, you will see folder there, with today's date some random characters added, as shown in figure 9.14. All records of the same content type are place in this folder. The random characters guarantees a unique folder name.

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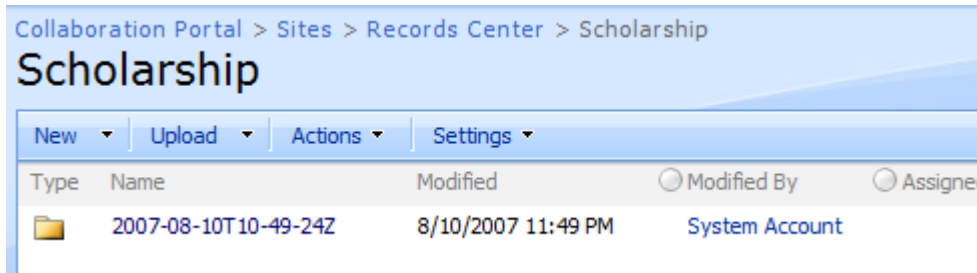


Figure 9.14. When you send a document to the Records center they are place in a folder.

Click the folder name and you will see the document you just sent to the Record Center. Send some more files including the same file you just sent to the Record Center to see what happens. Your Record Center should look similar to figure 9.15. When you send documents to the Records Center the Records Center Web Service copies the document to the appropriate document library and appends some random characters, so even if you send the same document twice, MOSS does not overwrite the original copy. Therefore each record you submit is retained and visible. You have not needed to enable versioning on the Records Center document library to keep each version of a document. There are also separate folders to keep the Properties and Audit History of the records.

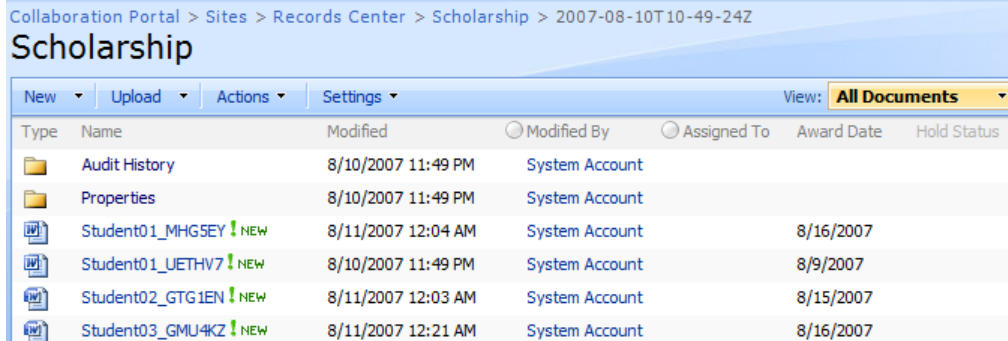


Figure 9.15 Sending the same document more than once to the Record Center results in automatic versioning of records.

You now have your Record Center setup and ready for use. If for some reason you need to collect some of these records together and make sure they are not deleted, for example, if you are audited and the audit could take a number of days, then during that time, the auditors may not want any records deleted. This would happen if you had a expiration policy on the files. To prevent record deletion you need to use the Holds functionality, which we cover next.

9.4 Configuring and using Holds

At some point in time, your company may be involved in a lawsuit, either as the plaintiff or defendant. In either case there may be files that you need to save in regards to the lawsuit. This is where holds come in.

As was stated earlier, most records have a specific time in which they are considered viable. However, some lawsuits may drag on for years in which case the record may be marked as no longer active and could be deleted. This could lead to the loss of the lawsuit and whether you are the plaintiff or the defendant this is not a good thing. Either way your company could stand to loose money or in some cases people could face jail time.

By placing a record on hold, it is considered not to have an expiration date and the system will not automatically delete it. In addition, having a central area for all the documents pertaining to a lawsuit makes it much easier to locate them in the future.

In this section you will learn how to create a hold, add records to the hold, release records when they are no longer needed, and exclude records from the hold that do not follow the assigned policy.

9.4.1 Creating a Hold

To create a hold, perform the following steps.

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1. Click Hold on the Quick Launch bar of the Record Center home page. The All Items view of the Holds list is displayed.
 2. Click New. The Holds: New Items page is displayed.
 3. Enter text in the Title, Description and Managed By text boxes and click OK.
- The hold is now created. The next step is to add records to the hold itself.

9.4.2 Adding items to hold

Once you have created a hold item, you need to add items to it. There are two different ways to do this; either by using a search within the hold itself, or by adding individual items to the hold.

To add items using a search within a hold:

1. Click Hold on the Quick Launch bar.
2. Click in the hold list item that you created. The Holds: [item name] page appears as shown in figure 9.16. Note that the actual information will be different based on the information you entered in step 3 above.

Collaboration Portal > Sites > Records Center > Holds > Auditor Hold

Holds: Auditor Hold

Close

New Item | Edit Item | Delete Item | Manage Permissions | Alert Me

Title	Auditor Hold
Description	Awards audit for 2007
Managed By	Gary Bushey
Hold Status	This hold is active. Search for items to add to this hold... Release hold... View hold report...
Items on Hold	
Report Date	

Created at 8/11/2007 12:32 AM by Gary Bushey
Last modified at 8/11/2007 12:33 AM by Gary Bushey

Close

Figure 9.16 Hold Properties page.

3. Click Search for items to add to this hold in the section. The Search for items to hold page is displayed.
4. Enter in your search term and click on the magnifying glass icon. The system will perform a search and return items as shown in Figure 9.17. Note that the actual items returned will be based on the items in your system. If you have recently sent documents to the Record Center, they will not show immediately. You will need to wait until either the next incremental crawl or full crawl of the Web site.

Collaboration Portal > Sites > Records Center > Holds > Auditor Hold > Search for items to hold

Search for items to hold

Search for items to hold Add search results from the Records Center to the following hold:

awards Auditor Hold Hold

Results 1-9 of 9. Your search took 0.27 seconds.
Results by Relevance | View by Modified Date | Alert Me | RSS

Student01_Y6FHUB.doc
Test Student01
http://portal/SiteDirectory/Records/Unclassified Records/2007-08-10T10-42-23Z/Student01_Y6FHUB.doc - 27KB - Kay - 8/10/2007

Student01_UETHV7.doc
Test Student01
http://portal/SiteDirectory/Records/Scholarship Awards/2007-08-10T10-49-24Z/Student01_UETHV7.doc - 27KB - Kay - 8/10/2007

Figure 9.17 Once you have performed a search for the items to be placed on hold you can then select the items that you actually want.

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5. Select the hold from the drop down list that you want to place all the items the search returned. Note that all of the items the search returned will be placed in this hold.
6. Click Hold to place all the search result set on hold.

The second method to place records on hold is to add records individually using the follows steps:

7. Go to the document library in the Records Center Web site where the record is stored.
8. Click the down arrow to the right of the document name and select Manage Holds. Alternatively click View Properties and then click Add to a hold in the Hold Status section. Using either method, the Item Hold Status screen is displayed as shown in figure 9.18.

Figure 9.18 Item Hold Status. Here you can add a document directly to an existing Hold or remove a document from a Hold.

9. Select the appropriate hold from the Add to a hold drop down list.
10. Add any comments needed and then click Save. The All Document view of the document library is displayed. Notice that the record you just place on hold will have its Hold Status column value changed to On Hold as shown in Figure 9.19.

Type	Name	Modified	Modified By	Assigned To	Award Date	Hold Status
Folder	Audit History	8/10/2007 11:49 PM	System Account			
Folder	Properties	8/10/2007 11:49 PM	System Account			
Document	Student01_MHG5EY NEW	8/11/2007 12:04 AM	System Account		8/16/2007	On hold
Document	Student01_MHG5EY NEW	8/10/2007 11:49 PM	System Account		8/16/2007	On hold

Figure 9.19 Once an record has been put on hold you can see its status from the document library

Hopefully you will not need to have records put on hold for very long. When you are done with the holds, you can release the records from the hold.

9.4.3 Releasing a Hold

If you want to remove the records from hold, perform the following steps:

1. Click Holds on the Quick Launch bar of the Records Center home page.
2. Click on the hold in question and click Release hold under the Hold Status section.

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- Enter a comment and click Release Hold. The All Items view of Holds list is displayed. Notice that the hold you just released has its Hold Status changed to Pending Release as shown in figure 9.20. The hold will actually be released the next time the Hold Management job is run, at which time if any of the document expiration date for deletion expired during the hold period, they will now be deleted.

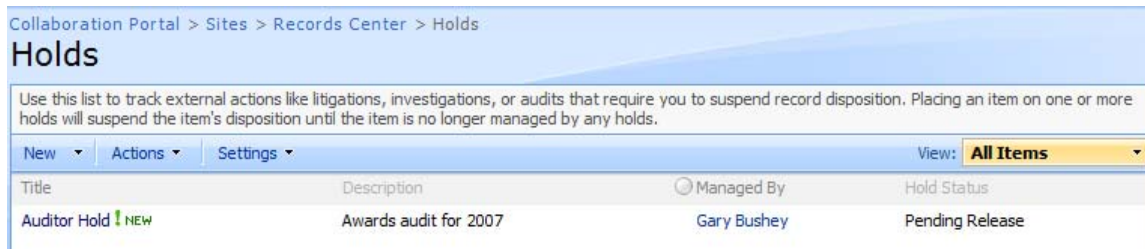


Figure 9.20 Even though you have released an item it will not really be released until the next time the Hold Management job is run.

You can also release individual records from a hold by clicking the down arrow to the right of the document name and select Manage Holds. Click Remove from a hold in the Hold Status section, add some comments and then click Save.

NOTE

Adding a document in a hold is not the only way of preventing an expiration policy from deleting the record. An alternative method is to click the down arrow to the right of the document name, select View Properties, and then click Exempt from policy. The exception will suspend any Expiration Policy that applies to the record. It does not alter any other policies, such as auditing or labeling that may apply to the record. If the Record Center site administrator restores a document from the Recycle Bin, then that document, it is automatically marked as exempt from expiration policies to prevent it from being deleted again.

You have now created and managed a Record Center Web site, however, you might like to know whether your records management solution is meeting your requirements as was defined in the file plan. MOSS does provide some auditing and reporting tools, but they are only available to the MOSS Web farm administrator, who you will need to contact.

9.5 Summary

For effective Records Management usage, you must first plan. In fact, you must do a lot of planning before you use it in your company. Best practices in records management are continually evolving, and if your company is seriously considering implementing records management then you need to form a team of people, that will never be disbanded. You will need to plan, which people will make up the records management team, the types of information that are records and the layout of the actual records repository. You will also need to define a new set of business processes together with the appropriate level of procedures which can guide and govern the use of records management within your company reaching all users. Records management is not so much about the technology but about the processes with the aim of providing a consistent and easy to use solution.

In this chapter, we concentrated on the technology side of records management, in particular the implementation of a electronic records management system based on MOSS. We introduced you to the Records Center Web Site. Creating the Records Center involves not only the SharePoint site itself but also the document repositories that will hold the records, the information management policy, an example of which is the retention policy, what happens when a record expires, and how to determine which documents fall under what records policy. In addition, to make it easier for the users to send documents to the records repository, you setup the "Send To" feature.

Once documents are records, you can place them on "Hold" so that the retention policy no longer applies. Using the Record Center Web site, there is one central place to find all the records. You can place documents on hold and remove them when the hold is no longer needed.

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10

Understanding business intelligence (BI)

In This Chapter

- Business Intelligence Overview
- Explanations on different Business Intelligence Methodologies.
- Overview of some of the Business Intelligence tools on the market.
- Some examples of Business Intelligence uses.
- Ways to justify undertaking a Business Intelligence effort.
- Microsoft's direction in relation to Business Intelligence with their product lines.

In previous chapters, we focused on implementing specific Microsoft Office SharePoint Server (MOSS) 2007 features and functionality. In the next four chapters, we will concentrate on MOSS 2007 features in relation to the business intelligence (BI) arena.

Many of you have probably noticed an aggressive push by Microsoft into the BI arena. Before we cover the tools provided by the MOSS 2007 platform we need to take a moment to understand the methodologies and tools currently available to help build a BI solutions. In this chapter we will start by defining what BI is and then cover a brief overview of methodologies and terms you will likely encounter when creating a BI solution. Then we'll take a brief look at the tools provided by MOSS 2007 to support it. We will also define how other Microsoft products integrate with the MOSS platform to provide an excellent suite of tools for the BI developer.

10.1 Introducing BI

A common issue facing all organizations is the presentation of data in quantifiable forms. As more systems are added to handle the flow and collection of data there needs to be additional requirements placed on an organization in the realm of visualization and analysis. The methods used to gather, quantify, display and act on information are defined as BI. MOSS 2007 provides an impressive suite of tools to enable information workers to implement their choice of BI methodologies in an effective manner. However, before we look at them, let's take a look at BI – what it is, how you use it, and some of its basic tools.

10.1.1 What is business intelligence?

We once heard a story about an extremely large retail chain that decided that it would be a good idea to put tools next to the gift cards and candy boxes around Valentine's Day. Why would they do this you may ask? By analyzing purchase trends and inventory data, they noticed a spike in hardware purchases in the first half of February. A little more analysis led them to the conclusion that they had more male buyers during that period, shopping for their significant others and while they were in the shop, some of the men were picking up a little something from the hardware isle for themselves. The next logical conclusion was to move some of the most popular hardware in front of the card and candy isles to capitalize on the February trend. This is a classic use of collecting and analyzing data to improve the way companies are doing business - just one of many samples of a BI implementation.

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Wikipedia⁵ defines BI as “a set of business processes for collecting and analyzing business information. This includes the technology used in these processes, and the information obtained from these processes.” An effective BI solution will normally comprise of one of more methodologies and business processes implemented with a software solution to aid in the formulation of quality business decisions. The relevancy of the data displayed to your end user will be one of the key factors, if not the only factor, in determining whether your project is a success or failure. Solutions that look great are nice but ones that aid in a business’s decision making process are invaluable.

While in the past developers and business analyst have had the individual tools available to create rich BI applications, they now have well-defined platforms from which to create their BI solutions. A majority of past BI applications were data source dependant in that they required the data to be placed in a specific location and structured in order to be utilized within its display architecture.

Most business analyst and developers do not have the ability to change corporate policy or legacy systems, meaning that your data sources will come in a variety of formats and locations. Today’s BI suites provide connections to most well know data formats as well as ways for you to integrate custom applications using interfaces defined within the BI suites. Many software companies are now starting to offer entire suites of tools with a focus on gathering BI. Microsoft has also begun focused initiatives in the BI areas, of the most notable are the new BI capabilities built in Microsoft SQL Server 2005.

BI projects are often looked at as undertakings for only large organizations with well defined reporting solutions built on top of larger data warehouses. While this is a valid scenario, we believe you would have a hard time finding any organization that does not need some form of BI in some form. Reports, Spreadsheets and data analysis are forms of BI we use on a daily basis.

We have a friend that uses the expression, “Where there is a problem there’s business” and Microsoft has recognized some of the issues within the BI realm and created several products to tackle your problems.

10.1.2 Microsoft’s Business Intelligence Initiatives

Microsoft has recognized the void in BI capabilities in a majority of the existing tools on the market today and has begun a focused effort in extending its platforms and services in this market. MOSS 2007 includes an architecture to allow you to integrated your BI solution into its application framework. Operations as simple as creating Key Performance Indicators (KPIs) on list items or as complex as data mining and analysis can all be integrated and extended within MOSS. As we examine the amount of tools packed into MOSS, it will become obvious that much effort has been placed in allowing users to implement effective data displays using data from applications they are already familiar with.

SQL SERVER 2005

SQL Server 2005 includes BI projects allowing developers to create SQL Server solutions with Visual Studio 2005. By installing the SQL Server developer components, you gain access to the components that are part of the SQL Server BI suite. These components are Analysis Services, Integration Servers and Reporting Services. MOSS 2007 provides a framework to leverage the BI tools included with SQL Server to deliver the results of the SQL BI Suite through dashboards and reporting services Web Parts in conjunction with the MOSS components provided with the out of the box installation. So what is a dashboard – it’s a collection of KPI reports and analyses that provide you with a single view of business data that can help you monitor information associated with you job, project or objective. Figure 10.1 contains a dashboard displayed on page that is stored in the MOSS 2007 Report Center Web site.

⁵ Referenced from Wikipedia at http://en.wikipedia.org/wiki/Business_intelligence



Figure 10.1: Microsoft Office SharePoint Server 2007 Report Center Dashboard displaying the sample data included with a new installation.

As SQL Server 2005 has become the core storage and BI engine in Microsoft, it makes sense to take a look at some of the other technologies that build on top of the SQL platform. We will start with looking at what could easily be the next step up in Microsoft's BI effort.

PERFORMANCEPOINT 2007

The Microsoft Office Business Scorecard Manager (BSM) 2005 was Microsoft's entry in the scorecard and dashboard display arena. We'll explain what is meant by scorecards and dashboards later in this chapter. BSM 2005 has become an excellent tool in Microsoft's BI arsenal. It's emergence in the marketplace delivered customizable intelligence and reporting on a highly customizable platform.

The BSM platform is delivered to the end user in the form of SharePoint Web Parts so integration within the MOSS 2007 platform is fairly straightforward. There has already been integration between BSM and SQL Server 2005 Analysis Services (SSAS) in the form of a KPI synchronization utility called KPIUtil. This tool allows developers to define KPIs SSAS or BSM while providing synchronization between the two. At the time of writing many are expecting Microsoft to release a Service pack to BSM to allow for the proper operation of the Web Parts within MOSS 2007.

Microsoft acquired ProClarity Analytics Server and is combining this technology with BSM to form their next major entry into BI realm with Microsoft Office PerformancePoint Server (PPS) 2007. ProClarity provides data analytics and visualization. It... The release of PPS 2007 provides Microsoft with one of the premiere suites in the BI realm a move that is turning plenty of heads in the data analysis and BI community.

Microsoft's acquisition of ProClarity displays the company's further commitment to providing a comprehensive BI platform. PPS will rely on both Microsoft Office Excel 2007 as a rich client and MOSS 2007 for presentation. Like many other Microsoft products PerformancePoint also comes ready to integrate with your MOSS environment out of the box.

OTHER TOOLS

MOSS 2007 has delivered even more BI functionality in the form of integrated Reporting Sites, KPIs, published Excel spreadsheets using Excel Services and Business Data Catalog (BDC) data connections. We will talk more on Excel Services in Chapter 13 and the BDC in Chapter 14. The development team for MOSS has provided an excellent model for quick business analytics implementation while still providing connectivity to more robust tools as needed. Microsoft's concentrated push into the BI arena has delivered a suite of tools to aid in the tackling of any BI initiative.

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10.1.3 A day in the life of BI

No explanation is complete without an example so let's use the example of a software product manager for the next revolution in technology, Product X. This product manager has just received an email from his BI system alerting him that his customer satisfaction KPI grouping, commonly referred to as objectives, has fallen below his target threshold of 70 percent.

He logs onto his internal portal and selects his dashboard view. Upon initial review, he notices his customer perspective is at 67. Since his perspective is a rollup of customer specific measurements, he drills into the data from the scorecard view. Closer evaluation of the measurements show that the customer survey response KPI is at 54 percent and he now clicks on the measurement title to continue on to the customer survey report views.

Reviewing the survey data our product manager notices customer satisfaction is well over 85 percent with Product X after installation but the values for the ease of installation question have an average value of two out of a possible five. Therefore, the custom installation software built by his development staff is souring customer's perception of their product.

At this point, his BI system has provided him with a problem definition with the associated data related to the cause. Armed with this information, the manager talks to his installer development staff about the deficiency. The manager remembers the evaluation of the installation pre production process received acceptable reviews but was flagged as an item to be enhanced with the next release. After reviewing this decision, he decides to start a new high priority initiative to integrate a commercial installer package into Product X and sets the review cycle for this initiative to 90 days. At the end of the review cycle, the manager receives an email reminding him of his initiative review, complete with notes from his initial kickoff 90 days ago. This is just one example of how a BI system can help guide the direction of an organization.

You can also use BI solutions in your everyday working environments. For example, a network manager can utilize BI to monitor and manage an operational systems environment. Let's say he wants to know when any system in his care reaches 80 percent disk utilization. In the past, this involved scanning daily reports or checking the system itself for resource utilization. Today that same manager received an email notification alerting him to this critical condition. That alert can direct him to a network scorecard that details the affect of this server in the scheme of corporate network health. So now, without having to crawl through pages of data, he has the information in front of him to decide what his business issues are and what actions he can take based on the overall effect of the problem machine.

Once you identify an opportunity to enhance your organizational processes you have to provide your managers above you with a reason to implement your solution so in the next section we will give a few ways to justify building a BI solution.

10.1.4 Justifying a Business Intelligence Effort

As with most new efforts, you may be asking, "how do I justify a BI effort in my organization?" There are many opinions on how to quantify the value of a BI effort and none of them are one-size-fits-all approach.

There are five areas of concern that will aid you in defining how the application of a new solution will assist your organization in achieving its vision. While some of the suggestions will seem obvious they are worth mentioning since we believe you will have to take them in consideration once you begin to request time and funding for your BI solution.

TIP

Try to hit 'em where they live. Your solution has greater chances of success when connected to or wrapped within applications end users already know and love. Simple things like serving up your application as a Web page link within Microsoft Office Outlook will give your end user an environment they are comfortable with and increase the acceptance of your new tool.

1. Ensure your solution can be mapped to a current business strategy⁶. – This sounds straightforward but it is a key component in preparing your proposal. Therefore, when your executives ask how this applies to me you have the reply.

⁶ See Vijay Sankarn's article Justifying Your BI Project in These Times of Need. <http://www.gantthead.com/content/articles/93697.cfm>

2. Demonstrate that you can deliver results quickly – With software becoming more reliable and easier to use it's very hard to approve expending any amount of resources without seeing quantifiable results. It would also be advisable to display the return on investment in a short amount of time by giving quantifiable examples of saving time or money with the implementation of your solution. Short, of course, is a relative term and can be easily misinterpreted maybe we should say reasonable.
3. Provide samples relevant to a current business process. – Using internal data and relevant examples can go a long way in demonstrating how a proposed technology can be implemented within an organization. Garnering the input of a functional Subject Matter Expert (SME) with intricate business knowledge will allow you to build sample solutions that solve issues pertaining to a specific line of business (LOB). Be sure that you tailor your demonstration to include content that decision makers will find familiar.
4. Quantify the return on investment (ROI) – we know it sounds like another management flavor of the month but it really does deserve a mention when explaining the benefits of a BI solution. Showing how an application can impact the organizational bottom line in relation to time and resources speaks in terms that all organizations understand.
5. Explain how your solution will benefit the current organizational culture – By providing a vision of the how your proposal will aid organizational information workers toward the achievement of their daily objectives.

One way of gaining additional support for your effort is to align to a current business initiative. The reason for this is twofold, mainly it is that when associating your proposal with an existing effort you will most likely have some subject matter expertise in that area and secondly you can garner additional support when adding the task to an already approved business initiative.

TIP

Know your audience and focus your presentation to them. Make sure you adjust your presentation to target the group of decision makers to whom you are attempting to justify the solutions. We would recommend explaining your understanding of the problem and then presenting your solution to it without the technical jargon. Focus on the problem, the fix and not the technology.

Understanding ways to justify your effort are essential. Once your project is approved you need to focus on the most important aspect, delivery. In the next section, we are going to cover a few keys to success for BI efforts.

10.2 Developing a Business Intelligence Solution

Don't be afraid to mix and match approaches to get your ideal solution. There is loads of information on-line to help you architecture your implementation. Of course, as you start to create your own methodologies and exciting approaches share them with the rest of the community since we all benefit from each other's research. Just remember your pain is always someone else's gain.

There is no one ideal method on how to implement a BI solution. Most solutions are combinations of several applications connected to take advantage of their specialties. To truly make an effective decision making tool you must understand the underlying data and how to represent it to your end customer in a manner that they perceive to be useful. With this in mind let's cover a few key points involved with the development and implementation of a BI project.

10.2.1 Identifying the Objective

Most problems have multiple solutions and the BI arena is no difference, there is usually more than one way to tackle a given issue. The first thing you must decide is what problem you are trying to solve. Try to think of objectives that are key to your organization, for example, "How do we increase organizational profitability" or "What issue causes decreased customer satisfaction". By identifying these issues, you will be able to define your solution architecture.

Regardless of how you decide to implement your solution, we would recommend basing your solution architecture on a previously defined methodology. By doing this you will increase your chances of realizing a successful product. MOSS 2007 provides you with a platform to implement your BI.

MOSS 2007 aids in the adherence to organizational data policies and guidance through its customizable workflows and metadata features. This is important because the process of defining your data repositories and how the information will be managed is often overlooked within many organizations. By indentifying these data stores and information pockets, you can begin to build your organizational data strategy, which will help you define how you can provide your information workers with a guide as to where to store content and usage scenarios.

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10.2.2 Defining the solution

After you have defined the objective, the next logical step is to start your solution definition. At a minimum, you will need to know how to access your data and how to display it to your end customer. Gathering this information is not a trivial task and the effective display of the data can be even more daunting. Make sure you enlist the aid of a local business operations expert who understands where the data is stored and who uses it.

MOSS 2007 contains all of the essential components to make your vision of an Enterprise Data Strategy a reality. With this information in hand, your solution can exploit information that has already been defined and populated. For example, you may have to validate and clean the previously populated data in accordance with your organization's expectations. As we saw in Chapter 4, "Workflow and Process Improvement" MOSS 2007 is built on top of .NET Framework 3.0, which includes a workflow engine, therefore enabling you to effectively manage data management and by using the BDC, connect to backend LOB system. With these tools in your arsenal, you can integrate your organization's data stores into dynamic BI applications that can change the way people function and interact with disparate systems. You can look at MOSS 2007 as a type of glue that allows your information workers to utilize multiple data systems within a single interface. Once these content repositories are established you have well-defined locations from which you can base your BI projects. As with any project, you will need a set of key people as part of the project team and now is a good time to cover who should be included in your BI solution.

WORKING WITH THE KEY BI PERSONNEL

Identifying personnel and how they will interact, is crucial to any project. There are certain individuals that are essential to a successful deployment of a BI system; they are your Solutions Architect (SA) whose knowledge of the selected platforms will ensure it operates as expected and the Subject Matter Expert (SME) who will provide your SA with a framework to build your solution. In short, your SA will solve the problem and your SME will give the SA the right problems to solve.

Many groups become enamored with visual displays and new ways to integrate BI platforms within their organization. We understand the initial excitement of using a new software package and you will have to resist the all too familiar urge to change internal processes to fit the technology. Successful solutions are those where technology supports business processes, not vice versa.

Make sure you get to know your SME and SA. Your SME is an individual with knowledge of the BI problem and the desired solution. He will guide you through how to use BI tools and their integration into your organization's business processes. By explaining your methodologies to the SME and evaluating his input, your solution will have a much greater chance of achieving technical and functional success. Also by enabling the SME to produce a relevant organizational tool you will gain technology champions who will carry your solution to the decision makers within the organization. When you have people with an organization selling your solution to the rest of the group you know you have created a product that was worth the investment.

TIP

Listen to what your SME tells you about what the organization wants to see. Since he or she will surely have more detailed knowledge of the clients wants and needs, you can use their input in conjunction with the clients to determine where you will focus your efforts. If you find a conflict between the SME's suggestion and the client's request, make sure you resolve the discrepancy since this will lead you to producing a product that meets or exceeds their expectations.

You must also listen and evaluate the opinions of your SA before coming to a conclusion. Don't fall into the trap of "It should do this" if your SA tells you your request is not feasible. Trust in his or her technical expertise just as rely on the SME for their domain knowledge. The blending of the two inputs will undoubtedly yield a much better result than if either party were to do it alone.

When working on a BI project, the technology you enlist will most likely be the least difficult hurdle you have to jump. Most issues are due to the politics of an organization when you try to utilize data from different groups whether they are internal or external to the organization. Many efforts with good intentions have stalled due to the fear of sharing information across organizational boundaries. In our circle of colleagues, we cannot think of one SA who has not started a project with the sole intent of helping their customer to the best of their ability, only to be stonewalled by the internal politics of the very organization they are trying to assist. This is not to say that these

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initiatives cannot be successful, but just to warn you that you need to factor in extra time to solve issues due to organizational attitudes toward data ownership. Now you understand BI methodologies and tools let's take a look at what Microsoft is providing to further enable you to achieve better BI within your organization.

SELECTING THE RIGHT APPROACH

Deciding how to model your intelligence gathering effort depends on where your data is located and what content you are trying to extract from it. We recommend that you use one or more of the pre-defined models described in the next section to produce customized guidelines to tackle specific organizational objectives, in is the true way you will realize the best ROI. It's likely your solution will mix and match methodologies to meet you're the objective of your organization. Regardless of what methodology you select, you will find that MOSS 2007 can help you implement your vision.

10.2.3 Selecting a Methodology

We have included the following definitions of a few notable BI methodologies as an overview to aid in the selection of a solution that meets your needs. As we stated before, selecting a pre-defined methodology will increase your applications chances of success.

DATA WAREHOUSING / DATA MINING

It is hard to look at any technology magazine and not see some information about today's data warehousing and data mining methods. Organizations are continually collecting data at a dizzying pace. Due to the volumes of information in multiple data stores, techniques have been developed to enable the extraction of information in a timely manner from large amounts of content. The process of gathering data from single or multiple systems and placing them into common data stores is called data warehousing, whereas data mining refers to analytics performed on warehoused data to extract specific pieces of knowledge.

BUSINESS PERFORMANCE MANAGEMENT (BPM)

BPM is also known as Corporate Performance Management. Wikipedia states that BPM is seen as the next form of BI³. BPM is a methodology on how to manage and direct your business activities based on a defined set of organizational objectives and measures. The BPM concept places a heavy focus on the utilization of metrics to quantify the success or failure of business entities. This methodology lends itself very well to implementations using tools, such as, scorecards due to its emphasis on measures and indicators. You would use business scorecards in conjunction with data dashboards to visualize this type of methodology.

TIP

By aligning your technology initiatives with known management techniques, you will improve your chances of acceptance by the executives who must approve your expenditures. The BPM approach is one such technique that has started to gain acceptance in many organizations and we would recommend you spending some time to learn about this methodology to aid you in your discussions with your executives.

BALANCED SCORECARD

The Balanced Scorecard Methodology⁴ has really taken a key role in the performance management initiative in both the private and public sector. The Balanced Scorecard institute contains best practices and definitions of the Kaplan / Norton scorecard methodology. This methodology contains a vision and strategy statement with four perspectives that direct your business activities, see figure 10.2 for a visual example of Balanced Scorecard relationships.

The balanced scorecard has four recommended perspectives:

- Learning and Growth: Focuses on internal employee training and organizational attitudes.
- Business Process: Defines the relationships between internal business processes and the organizational mission.
- Customer: Defines customer interaction within an organization and measures the effect.

³ http://en.wikipedia.org/wiki/Business_Performance_Management

⁴ Balanced Scorecard Institute at <http://www.balancedscorecard.org>

- Financial: Provides the measurements and direction to track the financial status of an organization.



Figure 10.2: Balanced Scorecard Relationships

Each perspective contains the following items:

- Objectives: These are the organizational specific goals that relate to a specific perspective.
- Measurements: Measurements provide organizations with a mechanism to associate business data with a specific objective. Data for measurements can reside in a variety of locations and provide different perspectives based on the specific business goal. One use to quantify the value of the data systems in your organizational efforts is to weigh how they affect the measures of your scorecard. Define your objectives and measures. List those systems that do not contribute to your objectives, thereby deciding whether you have misjudged your organizational focus. You may also choose to remove the functionality provided by these non-business objective aligned systems from your organization.
- Targets: Defines what value you would like to achieve with a specific business measurement.
- Initiative: The organizational processes involved in achieving a specific goal. Initiatives that relate to an objective are scored by the measurements of the objective.

When you implement a performance-based management methodology, such as the Balanced Scorecard, within your organization, each individual's daily work activities are mapped to the business mission. A balance scorecard also provides data to your organization's executives, allowing them to focus their limited time on key business issues. In short, managers can spend time on items requiring attention instead of wasting time trying to find items that need attention.

DOCUMENT MANAGEMENT

The process of managing document storage and content can provide excellent sources of internal intelligence capital. There are as many types of methodologies as recommendations that pertain to the management; storage and retention of documents. DOD 5015.2 for the Department of Defense and the Sarbanes-Oxley Act of 2002 are two regulatory document management approaches. These were discussed in Chapter 8, "Web Content Management" and Chapter 9, "Records Management". Much of an organization's functional knowledge commonly resides in documents created by information workers. Defining a strategy to capture this information can greatly boost the ability to transfer domain specific knowledge throughout an entire organization.

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CUSTOMER RELATIONSHIP MANAGEMENT (CRM)

Tracking customer information and trends can provide valuable information when trying to forecast future projects. CRM applications exist in many flavors from as simple as keeping a contact log to recording any external customer interactions. Lead tracking and customer contact logging are popular uses of CRM systems. Microsoft's CRM also contains tight integration with Microsoft's Outlook; figure 10.4 contains a sample screenshot with CRM integrated in Outlook.

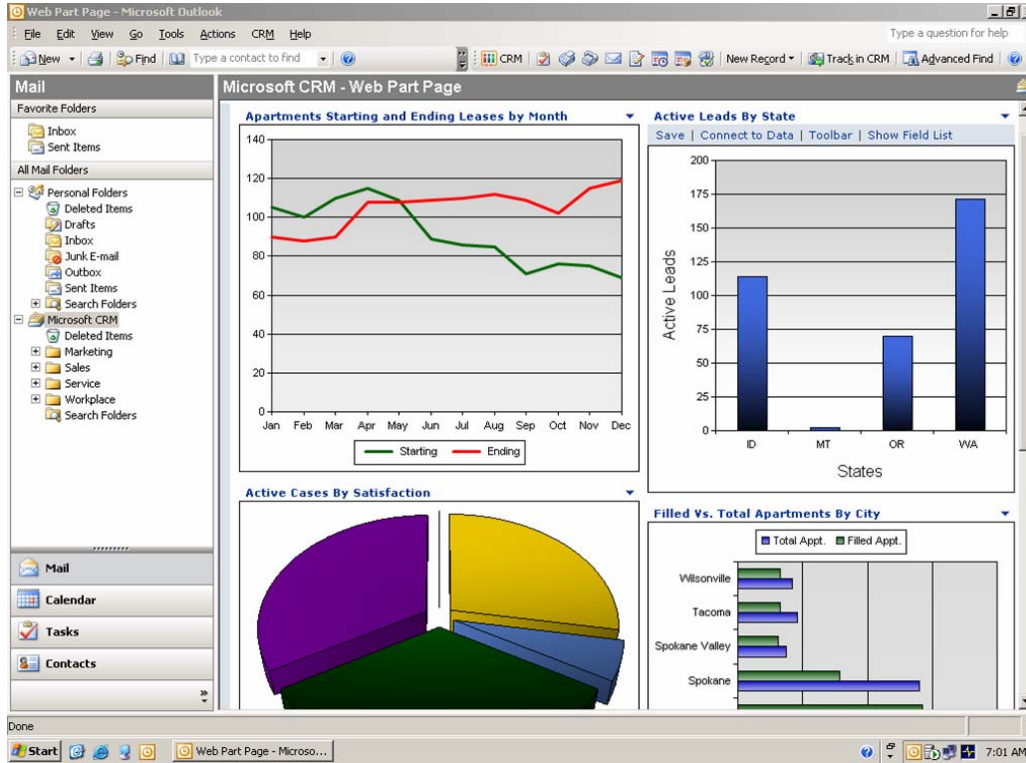


Figure 10.4: CRM reports access from within Microsoft Outlook

ON-LINE ANALYTICAL PROCESSING (OLAP)

These systems provide data analytics with drill down functionality using custom cubes. You can look at a cube as a three dimensional data store where as a database table would comprise of only two dimensions rows and columns. So your query structure and result set from a relational table is based on the column heading / row value concept. In an analysis service cube your data is partitioned along values called dimensions and measures. A dimension is a value or set of values that partition your data for example months of the year whereas a measure is the value of data like web access rates. By dividing your measures by dimensions, commonly called slicing, you can perform detailed analysis quickly since when your cube is built with the predefined values you can quickly query and manipulate the results set from multiple angles. One example would be to look at our web access rated for a particular site by Year and Month column dimension. This would give a hierarchal result set similar to our relational table but now let say we wanted to see the same result set but they see how many hits we had for each page over the same time dimension. We could add this as a row dimension and then see how many hits we are getting per page sliced with a yearly / monthly breakout.

Due to the ability to glean quick responses to a variety of questions, OLAP systems have gained popularity in a variety of markets. Data is stored in cube structures, which are made up of measures and dimensions. Dimensions can be utilized to segment or slice data contained within the cube. Measures represent the value of a specific

6 <http://www.microsoft.com/library/media/1033/business/images/businesssolutions/screenshotimages/opportunitiesoutlook.jpg>

dimension at a given point. See figure 10.3 for a sample OLAP cube query the ability to drill into cube data make OLAP cubes excellent data sources for scorecard implementations.

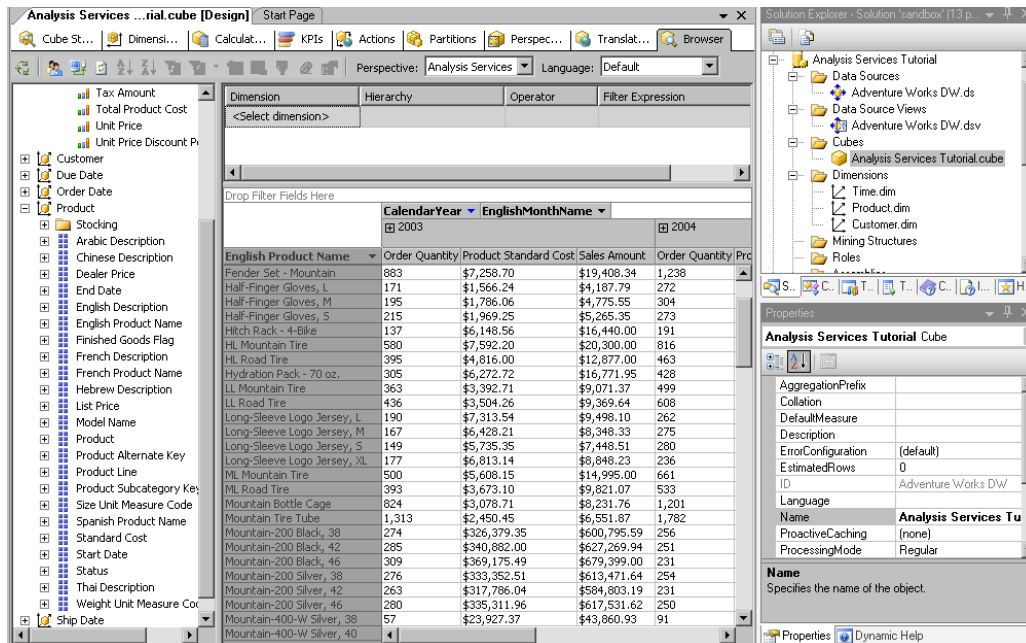


Figure 10.3: OLAP Analysis Server Tutorial Cube data displayed in Microsoft Visual Studio 2005 using the cube browser to create ad-hoc queries

Now that we have covered the different methodologies, we'll review a few of the tools that implement these approaches in the next section. Each tool may implement all of some of the methodologies listed before but most will focus on a specific methodology.

10.3 Microsoft Business Intelligence Tools

Throughout this chapter, we have commented on Microsoft's push into the BI arena. We are now going to take a moment to review the products that make up Microsoft's BI suite of platforms.

10.3.1 Today's BI tools

As the need for the utilization of BI within organizations has become known the tools to support organizations has evolved to fill these voids. A well-deployed BI system will become part of an information workers toolkit that they will utilize daily. Let's look at some of the tools used to perform BI.

Relevant data manifests itself in many ways within an organization. Two of the most common BI systems include reports and spreadsheets. While both options can provide detailed information, they routinely fall short when it comes to meeting enterprise intelligence gathering and visualizations.

As organizations continue to grow the amount of systems involved in managing and enabling the workforce has grown with it. While building reports on the raw data contained within your internal systems is often provided as a requirement rarely does this method of data analysis meet the needs of the organizational decision maker. Today tools have changed from being data display mechanisms to information delivery systems¹⁰ that provide focused intelligence and information displays. Now that Web and email systems are standard applications in most organizations, information can be analyzed and delivered in a variety of means in which the end user is already familiar with.

⁵ see the Allen Bond Group whitepaper on BI systems implementation at: http://www.onixnet.com/actuate/actuate_allen_Bonde1.pdf

Most information workers will agree that the amount of content that they deal with today must be managed in a judicious manner. It is quite easy to spend too much time running down the rabbit hole trying to track down that small nugget of information that will provide the guidance on what your next decision will be.

MOSS 2007 provides an environment that is both familiar and easily modifiable to deploy or integrate your BI tool of choice. Many of our colleagues agree that in the past a majority of BI solutions have been utilized as hyped up reporting tools. This does not mean that the systems were of poor quality but it does stress the use of the tools available at the time. Today's BI tools sit closer to the source data so that the creator of the data can define BI data exports in the context of the solution they are developing.

10.3.2 The MOSS 2007 tools

Earlier in this chapter, we looked at some of the most common methodologies. In this section, we investigate the tools provided by MOSS 2007 that allow these methodologies to operate in your environment.

There is no one-size-fits-all tool, so choosing the right application to meet your business need requires knowledge of the available systems and their use in the BI space. Also knowing how the different tools interact is critical to properly implementing your application.

The following are common MOSS BI utilities.

DASHBOARDS

Dashboards consist of a combination of BI utilities and status displays allowing information workers to digest large amounts quickly. You use dashboards to aggregate information from multiple sources into a single display window, which is commonly a Web page. Many of these reports show data that is related to each other, that is, dashboards provide a connected presentation framework. MOSS 2007 provides this functionality with connected Web Parts that allow you to pass data from one Web Part to another. We discussed Web Part connections in Chapter 5. Figure 10.5 shows an Excel 2007 dashboard in MOSS 2007.

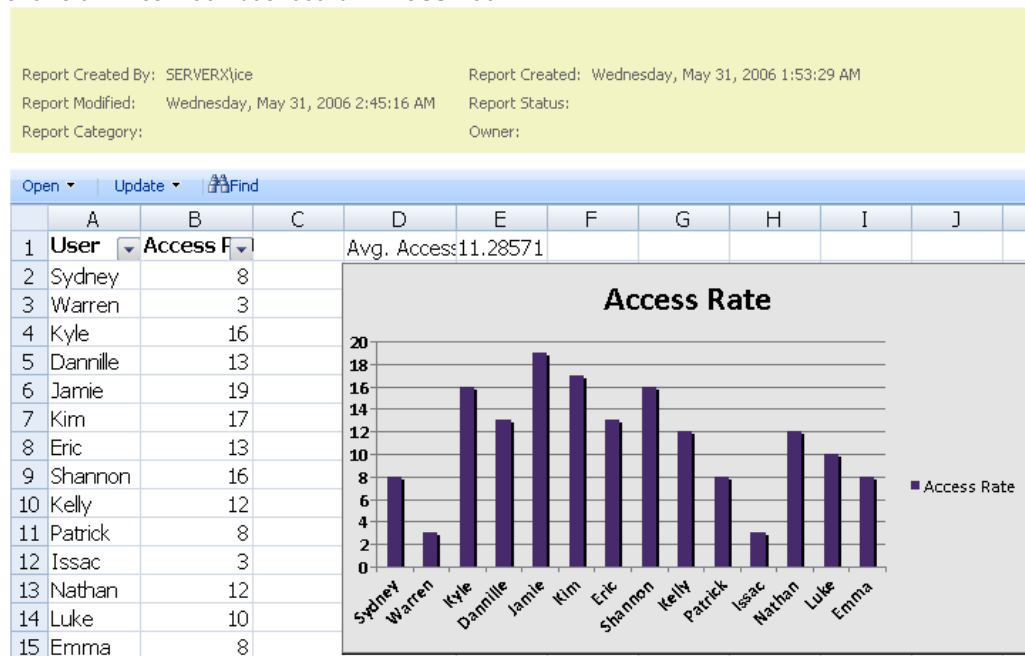


Figure 10.5: Excel 2007 Dashboard with integrated charts

Since a dashboard can consist of multiple data display items such as scorecards and reports let's review these next.

SCORECARDS

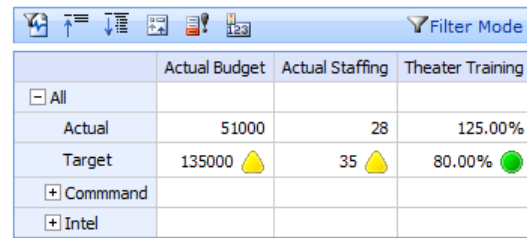
Scorecards are graphical display tools that utilize visual indicators to display the values from information sources of interest. They are very well suited for displaying the health of multiple items and allowing an individual to locate quickly issues in the organization without having to scan large volumes of data. You would use scorecards to

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display information to a specific business vertical based on the KPIs that represent measurements of interest to a specific business unit. PPS 2007, see figure 10.6, provides a platform for scorecard development.

Organizational Status



	Actual Budget	Actual Staffing	Theater Training
All			
Actual	51000	28	125.00%
Target	135000 	35 	80.00% 
Command			
Intel			

Figure 10.6: Performance Point 2007 implementing a Balanced Scorecard with trend indicators

TIP

Scorecarding technologies have rapidly gained acceptance within multiple markets. Learning how to scorecard a specific business vertical by defining common measures and indicators is quickly becoming a desired skill.

Scorecards consist of KPIs comprised of actual data values and target values, which are the goals for a specific indicator. These values can be group in a hierarchal fashion to allow aggregate values to be displayed in logical groupings of objectives.

Scorecarding has been pushed to the forefront of the BI landscape due a shift in performance-based management, largely due to the increased acceptance of the balanced scorecard methodology, which can be represented easily in a scorecard display. This shift has placed a focus on creating BI systems that are used to measure the health of an organization based on a predefined set of organizational goals.

If you decide to implement a scorecard within your organization, you can utilize BSM 2005 or PPS 2007, depending on your requirements and whether you have one of these products already installed. Both products contain a user interface to allow the generation of custom scorecards based on SSAS cubes, custom queries, or hard coded values. BSM 2005 and PPS 2007 also contain XML Web services to allow the development of custom applications against your scorecard.

REPORTS

One of the most common tools used to display business data are reporting tools. BI dashboards often utilize reports to display detailed information on specific items of interest. Microsoft SQL Server Reporting Services supplies an excellent framework for reported development and delivery. One of the primary features of the platform is its Web-based delivery model, see figure 10.7, allowing reports to be distributed via custom interfaces.

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User Transactions By Week

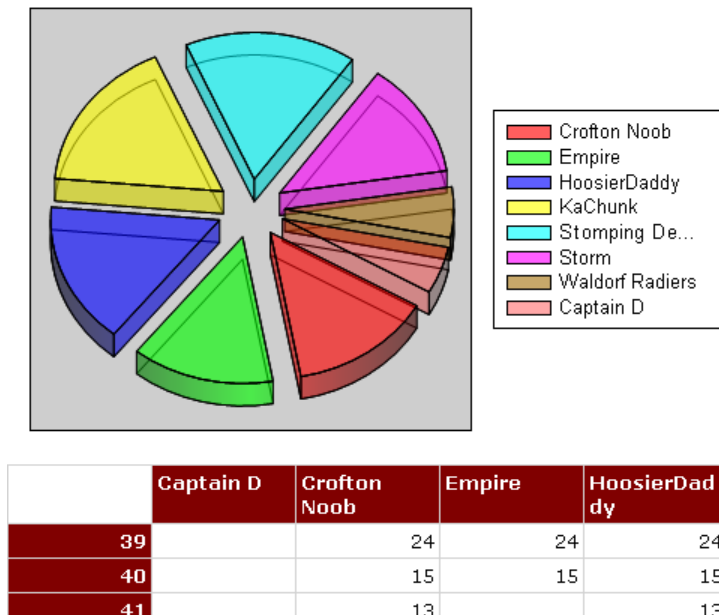


Figure 10.7: SQL Reporting Services with a web pie chart

Like the other BI tools, reports provide another method of data representation in a format digestible by the end user. Spreadsheets are also common in the BI realm to give report like functionality on items in a tabular format. We will look at spreadsheet next.

SPREADSHEETS

It is a safe bet to say that spreadsheets are one of the most commonly used BI tools on the market. They are routinely used to interpret data in forms that are understandable by multiple end users. Spreadsheets often contain information created by organizational SMEs who use the spreadsheets to show information most valuable to an organization due to their ease and ability to represent a variety of data points as reports and graphs. Many look at spreadsheets as the first BI dashboards. The example in figure 10.8 contains an Excel spreadsheet inside the Excel Web Access (EWA) Web Part.

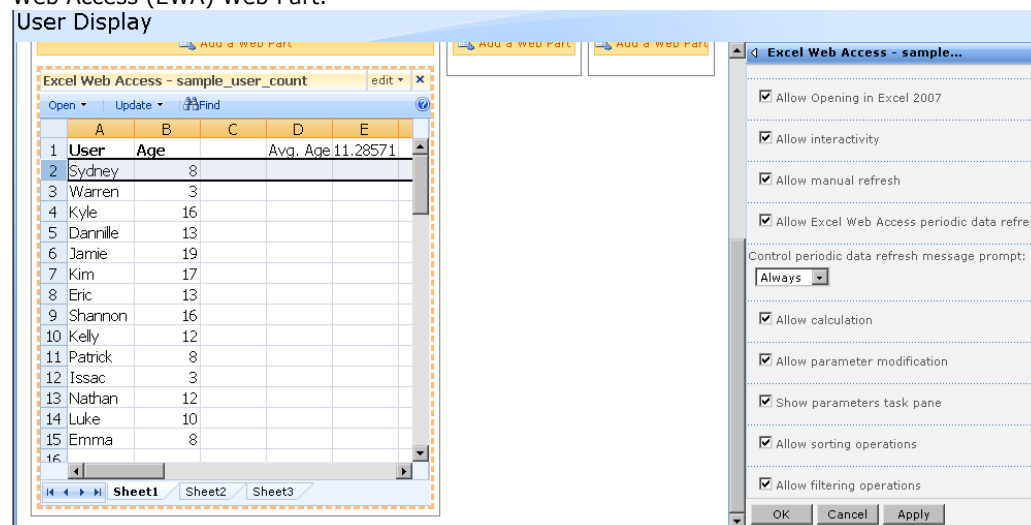


Figure 10.8: Excel Web Renderer displaying an Excel spreadsheet in a SharePoint Web Part

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Utilizing the Excel 2007 renderer in MOSS 2007 allows you to publish spreadsheets directly to a portal site using Excel Services.

ALERTING TOOLS

Alerting tools are used to provide customizable notifications based on configurable parameters. They are usually combined with some other package such as some form of email notification capability. The major benefit of any alerting package is that content is delivered to information workers when specific data conditions are met allowing your application to inform the user when new information is available. Alerts are commonly based on threshold values or change conditions.

MOSS 2007 provides integrated alerts to allow your users to request email notifications based on application events. SQL Server 2005 Integration Services (SSIS) provides the ability to automate business transactions based on data values contained in a variety of locations. These events can be email alerts, pager notifications, web postings or any other type of programmable item.

DATA MINING AND OLAP

OLAP tools provide a means for analyzing large volumes of data in an easy to query format. Data mining is the process of deriving intelligence from data collected over time. One of the most common uses for this type of tool is predictive analysis. SSAS, shown in figure 10.9, is Microsoft's entry in the OLAP analysis field.

EnglishMonthName ▼	Country-Region ▼				
	Australia			Canada	
	Order Quantity	Product Standard Cost	Sales Amount	Order Quantity	Product Standard Cost
June	1,359	\$528,250.00	\$891,839.53	659	\$120,071.25
July	870	\$353,217.27	\$602,749.20	573	\$72,188.56
August	864	\$334,496.95	\$560,392.48	670	\$92,295.35
September	968	\$368,952.13	\$616,028.42	567	\$56,092.00
October	1,078	\$442,452.68	\$749,898.85	498	\$48,842.85
November	999	\$386,190.16	\$649,485.46	649	\$75,668.61
December	1,146	\$520,714.72	\$863,187.19	693	\$105,372.63
Grand Total	13,345	\$5,375,145.51	\$9,061,000.58	7,620	\$1,147,923.36

Figure 10.9: SQL Server Analysis Services sample cube with EnglishMonthName and Country-Region dimensions

SSAS provides OLAP cube storage and the data mining wizards to provide the analyst with the ability to extract data intelligence.

10.4 Summary

In this chapter, we have covered provided a quick definition and example for the term BI. We covered Microsoft's push into the BI realm through the introduction of new technologies and integration with its new platforms such as MOSS 2007. After that, we covered some of the most prominent BI methodologies and tools that support them. Realizing that for most of us our vision for a BI strategy will have to be justified before becoming a full fledged effort we detailed strategies to assist you in displaying the benefit of a BI effort to your decision makers. We also covered how to approach a BI project from a personnel, staffing and technology standpoint. We are now ready to put these concepts to use and start implementing some of the BI features in MOSS 2007.

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11.1 Report Center Overview	188
11.2 The Report Center Template	189
11.3 Creating a Report Center Site	191
11.4 Creating a dashboard page	195
11.5 Modifying the KPI list	197

In This Chapter

- Report Center Overview
- Report Center Configuration
- Creating Dashboards
- Connecting to KPI List
- Integrating Excel Web Services
- Putting all together

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11

Report Center

As you get familiar with the concept of the different site available in Microsoft Office Servers 2007 templates you have undoubtedly have come in contact with the Report Center template. Just like the rest of the site templates it looks harmless enough at first glance but when you it a closer look you can't help but appreciate the platforms approach to Business Intelligence displays by providing out of the box support for integrating reports and dashboards seamlessly into the web part page architecture which allows you to further exploit your organizations investment. In this chapter we will look at how to configure your report center by integrating different data sources into concise tailored data dashboards.

Reporting is a great way to gauge the effectiveness of your organization and its advancement to a set of goals. The key to good reports are having good data which means you will have accurate results, having a known set of goals this will allow you to pick the right types of reports to build, and having defined set of actions to perform based on the report data. By defining your actions you are forced to think about your business strategy in relation to the reporting effort you are putting in place. When your execs have pushed for me to create a report that has "everything" I have always come back with I can give you a long list of reports that you will never use or a short list of reports that you won't be able to live without.

The most common business scenarios for report's & dashboards I have faced involves conveying information to interested parties based on data stored in existing business systems. In short, getting information out of existing systems and displaying it in a way that makes your customer happy. In the BI realm information on your report should influence business decisions if not you should question the usefulness of your effort. I always like to ask why am I going to build this report and what is going to be done with it. I use the answers to those questions to target your content and structure of my report. For example if you are building a report show network outages over time your want to show the systems with the most downtime first since those will most likely be the items of concern when the report is viewed by a network manager. Once again the one of the general rule with BI solutions is to target your audiences issue and reporting is no different.

11.1 Report Center Overview

The Report Center template provides you with a consolidated storage location for reports and dashboard displays. If you look at the out of the box installation you are given a reporting site under the /reports relative URL out of the box this may be good for some general organizational reports I would recommend splicing the Report Center templates throughout your taxonomy enabling you to denote where your are placing unique organizational information to the end user. This approach also allows you to inherit security from the parent site assuming you are structuring your site architecture across organizational or functional boundaries.

Before we delve into the individual items that comprise the Report center let's take some time to look at the template as a whole. Many of the technologies we cover in this chapter will be covered in depth in subsequent chapters. So if you would like to jump ahead and read about each component we integrate into the Report Center feel free to do so. I would recommend reading through this chapter first though so you can get a good conceptual overview about how some of the technologies covers in the later chapters are use in the context of the report center.

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Now is a good time to take a look at the items that comprise the report center template.

11.2 The Report Center Template

When create a new site collection using the collaboration portal template a site based on the Report Center template is created for you along with a sample dashboard. Figure 11.1 is a screenshot of an initial report center page.

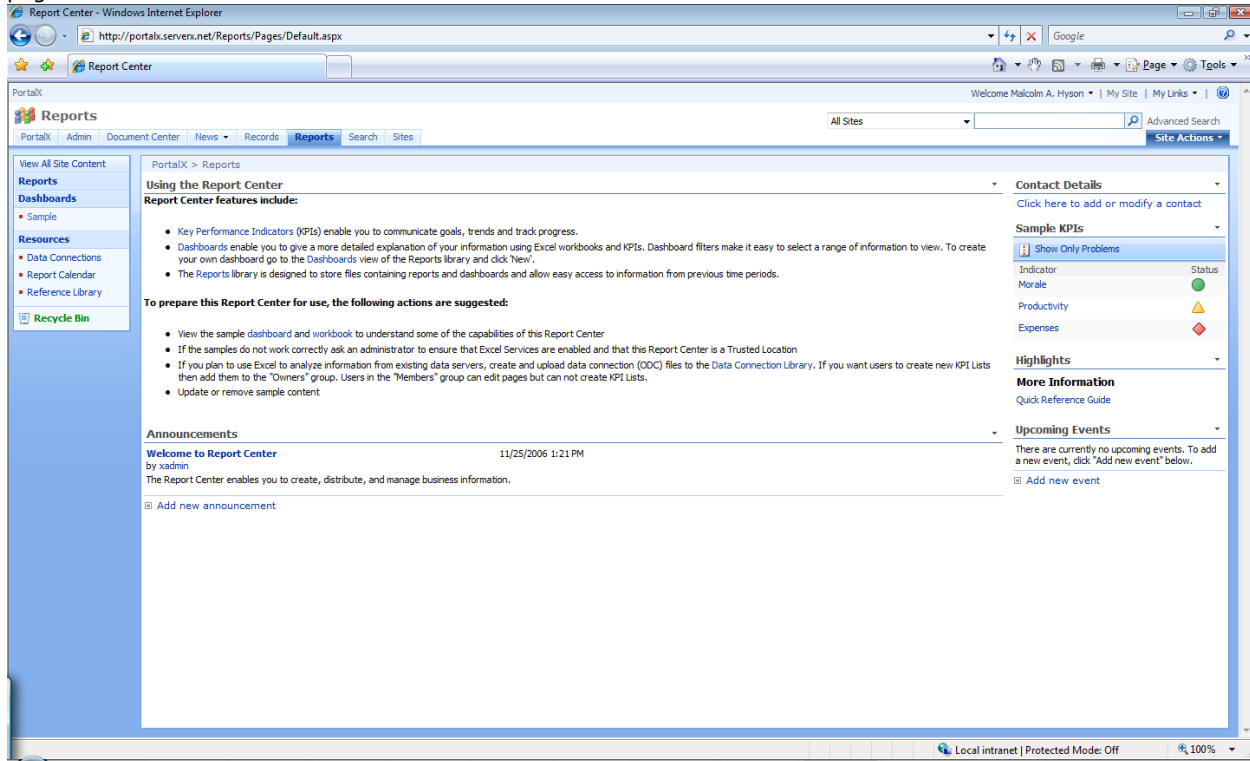


Figure 11.1 The report center initial welcome page created under your root sites /reports location.

So I know at first glance it there does not seem to be much on the page but let's look a little closer. We will start by looking at the features listed under the bullet list called "Report Center Features Include". Notice that the first entry you is Key Performance Indicators. As you work with the BI capabilities in the other Microsoft products you will notice that the KPI is almost like a bit of BI glue between the applications. Even though we defined the term KPI in the Intro to BI chapter its now is a good time to reiterate its purpose. KPIs exist to provide quantitative measures for business information. What that gives you is a way to take values from different systems and platforms and show them using a common agreed upon display mechanism. We will cover how to connect to and display KPIs in this chapter but don't worry because we will cover how to create and implement them in the next chapter.

One of the key products of the Report Center template is a dashboard page (see figure 11.2). Dashboards are often used as ways to group reports together that relate to a specific item of interest. So if you were creating a dashboard page for a sales manager of a retail chain his dashboard may consists a variety of web parts including KPI details for sale targets, a report showing team member sales results by region and links to important customer sales reports. This is just a sample configuration of course as an architect you will build to what requirements the customer gives you but rest assured you will be able to meet the challenge head on with the capabilities provided in the Report Center.

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Figure 11.2 The default Sample dashboard included with the out of the box SharePoint installation.

TIP

Take a good look at the sample content provided with the Report Center dashboard site. Spend time looking at the configuration of the Excel spreadsheet as well as the report center web parts.

The Report Center template also includes a Reports Library. This library is simply a document library with the Report and Dashboard Page content types associated with it. It is where you will store the components that will make up your dashboard displays such as Excel Spreadsheets, and Report Pages.

Now that we have covered the generalities let's take some time to see why you would use the Report Center template. While the out of the box site has a top level Reporting Center template I have found that this template actually fits better as a sub site in within your navigational taxonomy. For example there is no technical reason you could not mix reports and dashboards for your accounting and sales teams but why would you want to. You can imagine the confusion when your account clicks the pipeline dashboard or when you get the standard "If this doesn't apply to me then why is it here?" question. If you don't think this will happen I challenge you to implement a single top level reporting site for all in your organization and I'll wait for your call.

By providing your teams with individual reporting sites not only can you tailor the dashboards and reports to specific team needs you can also delegate the management and creation of these items to those that have true knowledge of the data and its value. I believe that the most successful portal implementations are ones with the data driven by the end users so the closer you can get the consumer to the creator creator of the content more dynamic your solution and beneficial will become.

So what makes a good dashboard? First and foremost it is delivering what your customer expects to see based on inputs provided. This is the obvious goal of any type of IT engagement so let's step back a bit and put statement in context. The first thing to understand is that the a dashboard built to render set of data into quickly understandable displays which means your real focus is on how to organize data in a way that its value can be conveyed with a minimal amount of analysis.

One of the things you definitely want to avoid when building scorecard pages is the need to explain what the page does. You know you have a good dashboard or scorecard display when you can show the same display to people with multiple roles and responsibilities and still get similar answers as to what the display represents from a majority of them.

One example I like to display for perspective is an ammunitions dashboard we did for a specific customer. This dashboard consists of multiple KPI's and reports all meshed together to give the team in charge of ammunition

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distribution the status of ammunition readiness at a glance. One of our scorecards in the display rolls up of the distribution status supply and demand measures segmented by the region and ammunition type.

So when the inevitable question comes up "Why would my organization want to invest in a dashboard technology" I point to the ammunition demonstration and give them the following explanation. Looking at display in front of you where we have three of the scorecards 60 KPIs rolled up into the three top level regions one showing a red indicator and the other two showing green where you focus your time as a leader in this organization? Of course the response comes back in favor of tracking down what is causing the indicator to turn red at which point I can then state. You know realize that without knowing a thing about the organizational mission or role you have been able to diagnose a region affected by the sample organizations business practices.

The next step is to drill down in to the expanded detailed view that shows the breakout for that region. Once this display is my next comment is to the affect that out of the 20 indicators you see in front of you I now know that I should focus on these five problem areas and leave the other 15 alone and I'll ask the person who posed the usefulness of the scorecard question to me, "And why do I need to focus on these five items?". Normally they are very quick to respond because the display icons are yellow or red and the light bulb turns on. At that point even if they don't agree with the technology or not they have gained the fundamental understanding of what you are trying to display. You have provided an organization with a tool to view organizational status and its managers now have an effective means to quantify the reasons for making the decisions that will affect those displays.

TIP

If trying to explain dashboarding technology to someone make sure you have an example that is easy for them to comprehend. There is nothing worse than trying to convince someone as to why the technology is worthy of implementation only to have your point lost because the person you are trying to convince is stuck on not understanding the problem.

So now that this individual and I both have a common ground to base the rest of our discussion I'll start to cover how this scorecard came to be. I explain that the architecture was actually created for a customer who wanted to catch supply shortfalls based on incoming orders before his customer did. One of the reasons I like this angle is that military or not we all can understand supply and demand. If you are military you really appreciate this principle even more if not it is a simple enough concept to grasp and you can understand the importance of the scenario. Supply is the lifeline of any forward based unit it's like the blood flowing through your body. Your organs can be perfectly healthy but without blood they will die. In the military the forward units are the organs and the supply lines are the blood.

To further drive the point home I'll then display some SQL reports linked to the same data source that show the full breakout for each of the KPI's. I'll then detail the real world story how they organizational heads used to get daily PowerPoint slides to get this level of detail and now they can look displays feed from live systems to get a real world view of what's going on.

So to sum it all up a good dashboard should be able to inform your end user what it is displaying and the status of those items allowing the data consumer to garner some business process situational awareness without having to know how the organization is structured or operates. Now that we have discussed the components of the report center template and why you would use it lets see how you actually create some content.

11.3 Creating a Report Center Site

Now that we have an understanding of the Report Center template and its uses let's get down to the nitty gritty and take one of the templates for a test drive. We'll start off by creating a new Report Center for a fictional internet access provider who provides allows for the creation of custom free internet user hosted sites as long as the users stay below 1 GB worth of traffic per month. Users that exceed this limit face one of three options pay a per MB usage premium, add targeted advertising provided by the hosting company controls to their site or they will have to display a bandwidth exceeded message when someone attempts to access the site after the bandwidth limitation has been exceeded.

The sales department has begun a targeted campaign to get gain more advertising revenue so they are looking buy using a twofold approach selling more advertising banners and offering incentives to the top 20 users

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who exceed the bandwidth limitation. We are going to create a series of displays that will allow the sale team to identify those users and target the most important ones based on log analysis data.

The steps for creating the Report Center are simple so let's walk through them fairly quickly. For our example we are going to use a Corporate Intranet portal that includes a Sales Publishing Area to house our Report Center site.

Select the Sales Site and click the Create Site Option from the Site Actions menu (see figure 11.3).

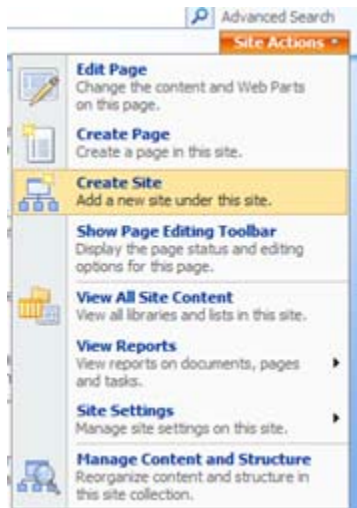


Figure 11.3 Selecting Create Site from Site Actions menu

Let's give our site a general name since we can have multiple sale dashboards. We'll use the easy to remember name Reports.

Select the Enterprise Tab and choose the Report Center option. We'll accept the rest of the defaults and press the create button. The image below shows the site selection pane with the Report Center template selected.

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The screenshot shows a SharePoint site creation wizard with the following fields and options:

- Create** and **Cancel** buttons at the top.
- Title:** A text box containing "Reports".
- Description:** A text box containing "Sales Report Center".
- URL name:** A text box showing the URL "http://portalx.internal.serverx.net/sales/" followed by a text box containing "reports".
- Select a template:** A section with four tabs: "Collaboration", "Meetings", "Enterprise" (selected), and "Publishing". Below the tabs is a list of templates:
 - Document Center
 - Records Center
 - Personalization Site
 - Site Directory
 - Report Center** (highlighted in blue)
 - Search Center with Tabs
 - Search Center
- User Permissions:** Two radio buttons:
 - ☒ Use same permissions as parent site
 - ☐ Use unique permissions

Figure 11.4 The Report Center template resides underneath the Enterprise collection of site templates

Now that you have created the site you are presented with initial homepage for the Report Center template. Here you should see a KPI list web part connected to a sample KPI list comprised of manual entries. There is also an initial dashboard connected to a sample spreadsheet. If you have not configured Excel Services yet you will receive errors in the dashboard view when the Excel Services web parts attempt to render the content. I like to configure the Excel Services at this point if it has not already been done but it is not mandatory. If you are not going to use Excel Services in your Report Center solution then you can ignore the errors and push forward with the implementation of your content.

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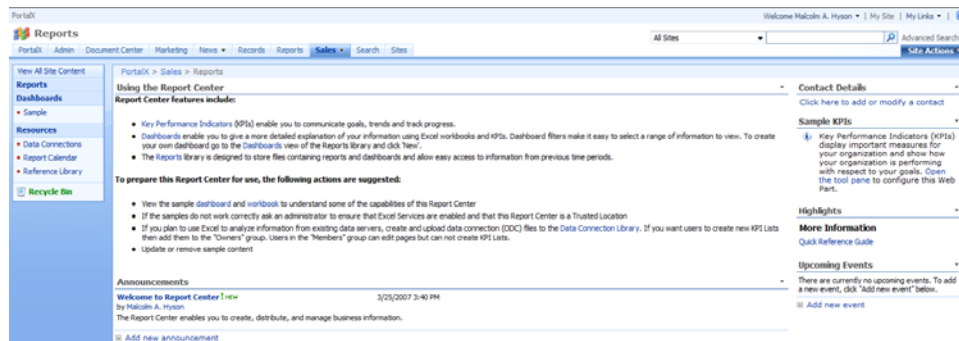


Figure 11.5 The default Report Center welcome page provides you with an overview of the sites templates features

The Report Center supports the ability to publish content from a variety of sources. Now that we have created our Report Center let's get started by creating a creating our user bandwidth dashboard. We'll start off using and Excel spreadsheet as the data source then we will add additional sources to enhance the display. I think you will find that in many organizations you are asked to start with one source and then quickly integrate other sources of data with it. It always seems that every executive has his per application that is fed from several others and if you want to succeed you had better make provisions to get that content in your solution.

This is the same spreadsheet used in the Excel Services Chapter but so we'll give it a quick review now. The following image is a screenshot of our top 20 user spreadsheet.

Top 20 Consumers		
User	Bandwidth in GB	
Sydney		9
Warren		3
Frances		4
Kyle		17
Danielle		14
Issac		3
Shannon		17
Kelly		13
Patrick		9
Jamie		20
Kim		18
Eric		14
Luke		12
Nathan		14
Emma		10
Martin		30
Bernard		58
Barbara		58
Paschal		75
Angela		74

Figure 11.6 Excel Web Services web part view of our Bandwidth Consumer spreadsheet.

This spreadsheet also contains a pie chart to help your sales staff visually identify your high bandwidth users named Bandwidth Consumer Chart. This chart is displayed in the following screenshot.

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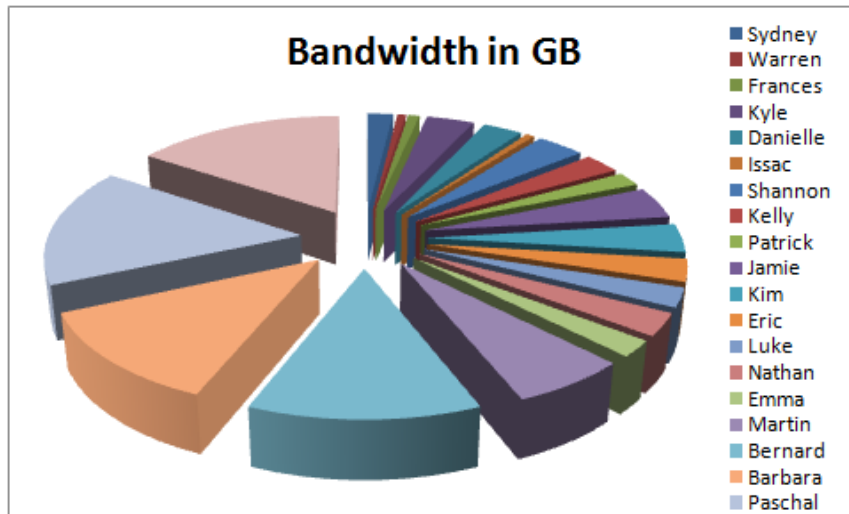


Figure 11.7 A chart view of the Bandwidth Consumer spreadsheet

Once our spreadsheet is ready we will upload to our spreadsheet to the Reports Library document library under our Report Center. This location must be trusted by Excel Web Services trusted location so we can load our spreadsheet with our Excel Web Services Web Parts. I have found that Excel Web Services provides user with easy ways to create and publish content therefore they lend themselves very well to being primary sources of content for BI dashboards. Now that we have our content in place let's build a dashboard that allows your sales team to visualize your spreadsheet.

11.4 Creating a dashboard page

Dashboards are where the rubber meets the road in a Report Center template. They are great for displaying data from a single or multiple sources in a focused easy to understand format. Using our Excel 2007 spread sheet we will now create a dashboard for our sales team to quickly target high value bandwidth consumers.

Starting from the homepage of our Report Center site click the Dashboards link.

TIP

Microsoft includes a sample dashboard as part of the Report Center template I would definitely recommend using it as a means to understand how a Report Center site is used but it also has the bonus benefit of being a great Excel Web Services troubleshooting tool. If your sample page doesn't work chances are the rest of your Excel Web Services content will fail also. So I make it a habit to check out the sample dashboard at least once just to verify my Excel Web Services settings.

This will take you to the Dashboards view of the Reports Library where you will see the single entry for the Sample Dashboard.

1. From the New menu select the Dashboard Page option.

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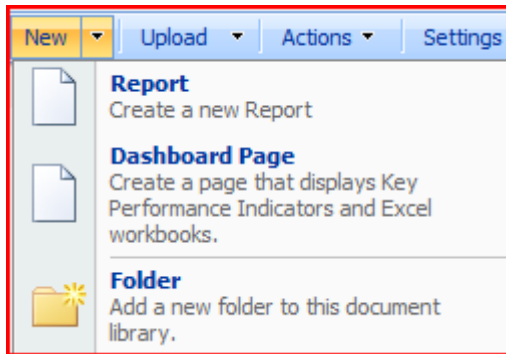


Figure 11.8 The Reports Library comes with both the Report and Dashboard content types pre associated to the library

The New Dashboard page is pretty straight forward for starters we will enter "High Volume Users" in both the filename and Title fields. You will notice your location and folder fields are grayed out since we started the creation of this page within an existing reports library. After that you have the option to determine whether or not your new page gets added to the left side navigation pane. Next you are given the layout options for your page. Finally you are presented with the option to include a KPI list with your dashboard lets choose the default option and let the service create the KPI list automatically for us.

HINT

You can't help but notice that anything that has the hint of BI from Microsoft includes some type of way to represent values using KPI's take some time out with each of your products to understand how to create and expose the KPI functionality because it will undoubtedly come in handy when trying to integrate with another BI product.

2. Now click the Create button and wait for your little piece of BI heaven to appear right before your very eyes. Initially you are presented with a pre built web page containing your standard Contact Information, Rich Text and a links web part called related information. Your page is also contains a KPI list and place holders for your Excel Content. Looks like a good place for some previously created spreadsheet content some lets wrap up by adding the high bandwidth users list range and the display chart.
3. Select the Modify Share Part from the actions drop down for Excel Web Access [1] web part.
4. Select the ellipses next to the workbook text box select the bandwidth_consumers spreadsheet by browsing to the Reports Library document library.
5. Enter the named range for our top 20 bandwidth consumers in the Named Item text box in this case we are using the name Top_20_Bandwith_Consumers.
6. Under the Toolbar and Title options remove the Auto Generate Web Part Title selection.
7. Expand the Appearance tool pan options and change the Title to Top 20 Bandwidth Consumers.
8. Press OK. After Excel Web Services loads and renders your spreadsheet you should see the content listing displayed in your dashboard. Now let's finish up by adding the pie chart.
9. Select the Modify Share Part from the actions drop down for the other Excel Web Part.
10. Select the ellipses next to the workbook text box select the bandwidth_consumers spreadsheet by browsing to the Reports Library document library.
11. Enter the name of the Bandwidth consumer chart in the named item text box. We are using Bandwidth Consumer Chart as our chart name.
12. Press OK. You now have a quick easy to access dashboard for your sales team to use as a point of reference in the conduction of their daily sales activities. Let's make it publically available by publishing the page.

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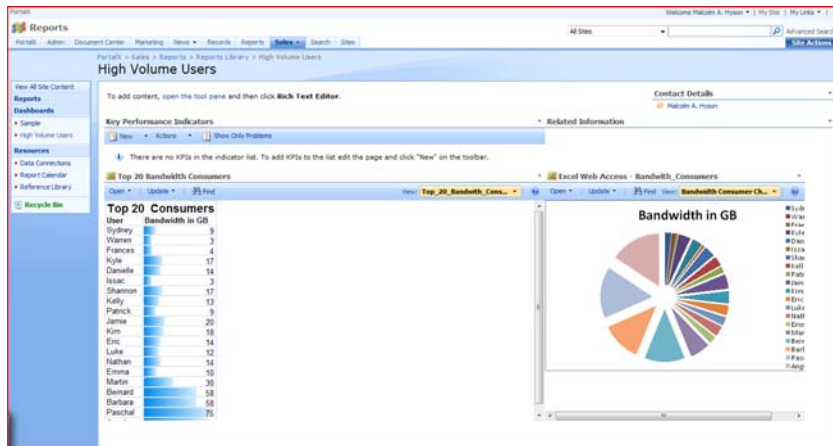


Figure 11.9 Excel Web Services web parts on the dashboard page

NOTE

One of the reason I like to use Excel Services for the first example is because of its ease of use and because its already has a large user base this makes it a prime candidate for dashboards and reporting.

As you can see the process of creating and publishing your dashboards pages fits well within the SharePoint methodology of content creation and publishing now that we have our first dashboard we need to take some time to integrate a few KPI's.

11.5 Modifying the KPI list

After showing your dashboard to the sales team of course they are ecstatic but the sales manager now realizes he can further incentivize his sales team by showing how close or how far they are away from their sales targets. One of the best ways to display situational status is with a KPI. Since we cover KPIs in another chapter we are going to enter our KPI values manually.

1. First select the Indicator using manually entered information option from the web part menu

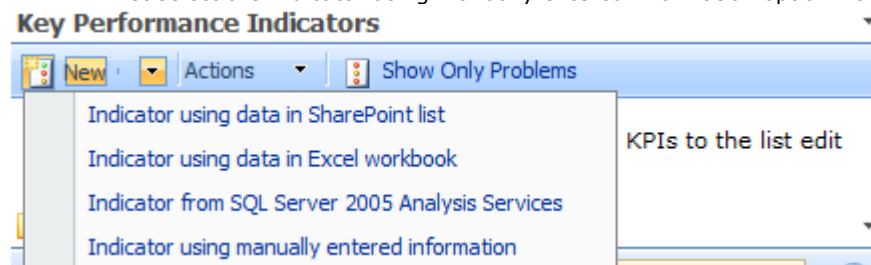


Figure 11.10 You can create four types of indicators using the KPI List library each with a custom set of fields allowing you to quickly integrate indicators from SharePoint, Excel and SQL Server 2005 Analysis Services

2. Lets name the indicator Closed Advertising Plans.
3. Enter some text in the Description and Comment fields
4. Since the sales team goal is to get half of the of the top level users to sign advertising agreements. In our scenario we are going to enter the following values:
 - a. Value: 12
 - b. Enter 15 next to the green indicator
 - c. Enter 10 next to the yellow indicator
5. You should now have a dialog box with the following values

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High Volume Users KPI Definitions: New Item

Name and Description Enter the name and description of the indicator. The description explains the purpose or goal of the indicator.	Name Closed Advertising Plans * Description High bandwidth user who have signed advertising banner agreements
Comments Comments help explain the current value or status of the indicator.	Comments Ipsum Lorem
Indicator Value Specify the current value for the indicator	Value: 12 Value is required.
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 has met or exceeded goal 15 * Display  when has met or exceeded warning 10 * Display  otherwise
Details Link	
OK Cancel	

Figure 11.11 Entering KPIs manually is the easiest and fastest way to populate your KPI list. If your KPI data source has not been prepared manually entered KPIs can serve as great placeholders until they are ready.

6. Press OK to create the indicator.

You now have a dashboard for the sales team manager who at a moment's notice can log in and determine who the top users are and what the closure rate for the advertising plans. If this customer wanted to include additional data sources we could add them to this display to provide a comprehensive overview of the organizational goals and status.

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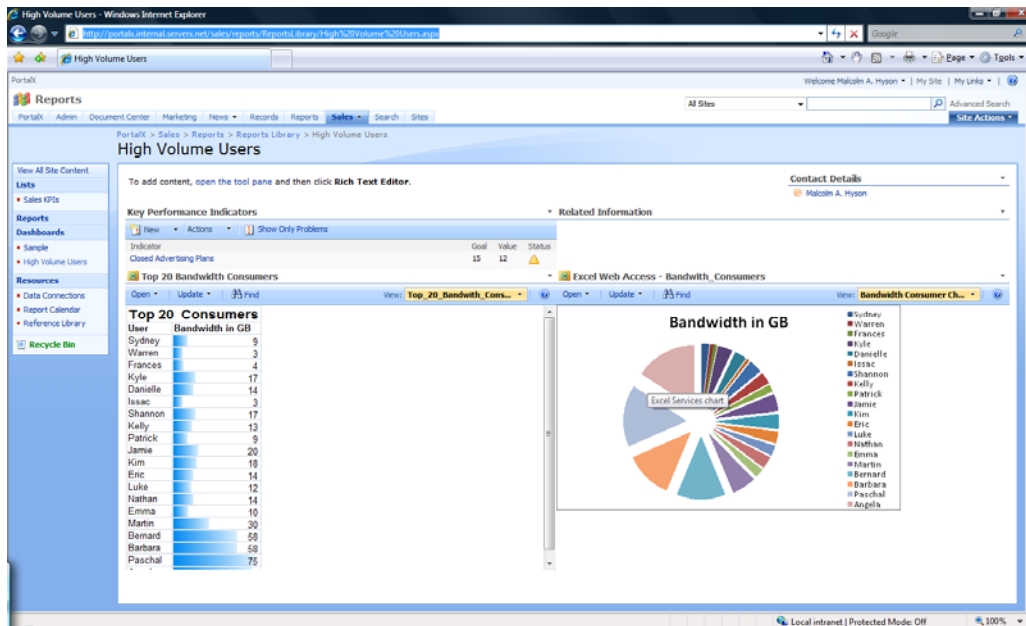


Figure 11.12 Report Center dashboards can provide excellent mediums for the visualization of multiple data sources with common elements in a structured display

One of the features of a dashboard is the ability to add filter web parts to allow for the dynamic filtering of the dashboard displays based on a set of inputs to dynamically adjust the dashboard display based on a set of user supplied values. You can add page filters to the page while it is in edit mode. Once your page is in edit mode you will see the Filters zone above the left hand navigation pane. By adding filter web parts your dashboard you can allow your data consumers to select relevant points of interests across multiple displays. You can add any of the other web part to customize your display to meet your requirements so take some time to experiment and see what works for you.

11.6 Putting it all together

One of the reasons BI dashboards have grown in popularity I believe will continue their rapid acceptance is the ability to mix separate sources of information into informational displays that your end consumers can ingest with little or no advanced training. You will notice that in this chapter and throughout the book we have talked about the implementation of these technologies as solutions and not just functional components. What this means when it comes to dashboarding is that you should not limit yourself to single page dashboard displays.

I definitely recommend building the top level informational dashboards with the smaller supporting data displays underneath to give your customer the ability to navigate their organizational data stores. With the connectivity of the report center parts and a little simple design skill you can exploit an awesome array of data sources. For quick integration projects I like to start with the BDC and Excel Services. If you are only concerned with the visualization of data Excel Services delivers rich UI displays with flexible data connections make it an attractive first option. I also like to utilize SQL 2005 Report Services if that option is available due to its lightweight displays and ability to export the results in a variety of formats.

11.7 Summary

Creating effective dashboards go far beyond the old methodology of writing reports filled with line on top of line of data. Today's dashboards provide interactive information to your target audience many of them also aid in the implementation of business processes by providing links to action items your team members can implement directly from the display.

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The MOSS 2007 team has provided the Report Center as a template information dissemination framework. While it is great to know the recommended usage patterns and content implementation strategy for this type of template don't hesitate to customize it and make it your own. Just like all frameworks it is a building block for you to use in the implementation of your full solution.

So now that you have seen how to design and create dashboards you have the ability to create integrated data displays allowing you to integrate disparate data sources into easy to understand situational displays. In this chapter we covered the reasons for creating dashboards followed by how to create one. We then focused on how to customize the dashboards to tailor the UI to meet the client needs. Then we finished up with a brief overview of the dashboard filter capabilities and an explanation as to why you would use them. The new business intelligence components of Microsoft Office Server 2007 all have a home under the Report Center site template and by exploiting its capabilities you can easily introduce BI into your client solutions.

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Key Performance Indicators (KPIs)

- What are Key Performance Indicators
- Why would you create a KPI List
- Creating a KPI list
- Displaying KPIs from other sources
 - o SharePoint list
 - o Excel Spreadsheets
 - o SQL Server 2005 Analysis Services
- If you need more detailed analysis

12

Key Performance Indicators (KPIs)

In This Chapter

- What are Key Performance Indicators
- Why would you create a KPI List
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- Displaying KPIs from other sources
 - o SharePoint list
 - o Excel Spreadsheets
 - o SQL Server 2005 Analysis Services
- If you need more detailed analysis

Before we start building KPIs let's take a second and try to define exactly what KPI are. Key Performance Indicators are representations of values associated with a particular item of interest providing its consumer with a value that displays the status of a particular item of interest. Now I'll be the first to tell you this is one of the most vague and loaded definitions I have come up with but there is a good reason for it. If you go out and search for KPI definitions you will find tons of them. This is because a KPI means something different to type of users. For example to a member of a sales team his KPI may represent his sales target in relation to his actual sales amount obviously a higher actual value would be better. While to a network engineer a KPI could be the percentage of network downtime so the closer to zero the indicator is the better the result. I could drum up all types of definitions but I think you get the point a KPI can vary in meaning based on its consumer.

I am sure many of you reading this have heard of some of the many tools that provide BI on the market today. One thing you will notice about an overwhelming majority of these tools is that they provide some way to visually display status using some form of KPI. This is not to say that in order for a BI tool to be considered worthy it must have architecture in place to display KPIs. I am bringing up this fact because I want to emphasize that to the average buzzword executive a KPI is what BI tools are built to provide. This is only partially true but we have to remember the audience that will fund your effort and ensure that it is supported within the organization is the same individual who will not consider your project a success unless he can see the indicators created by your solution. This is not a bad thing but it is something to keep in mind as you architect and build your BI solution.

Knowing that your executive consumer and most consumers really for that matter will spend an inordinate amount of attention to how nice the solutions looks in relation to how well it functions I recommend that whenever you decide to propose new features and functionality your ensure that your proposal includes a way to represent the health of your effort with an indicator. I have found that the introduction of status indicators to projects aid in maintaining the support for the guys who will fund your efforts

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So now that we have a good idea of why we would create KPIs let's cover how to build the different KPI items available in Microsoft Office SharePoint Server 2007. We'll start off with how to create the list and then show the different KPIs you can create within a list.

12.1 Creating a KPI List

As a point of reference for the samples I am going to use a site created using the Report Center template to build my KPI list. The KPI list is not exclusive to this template so you can follow along by creating your KPI list anywhere you would like. OK now let's get on with it we for starters select your site and go to the All Site Content View by clicking the View All Site Content link on the left hand site navigation pane or selecting the link from the Site Actions menu.

1. Click the create button on the site tool pane.
2. Select the KPI List link from the Custom List group (see figure 11.1).

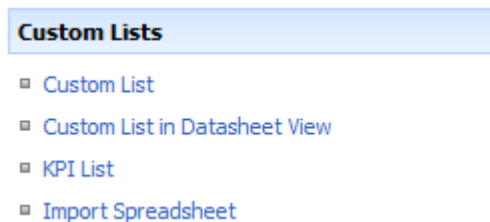


Figure 12.1 The KPI list library can be selected from the Custom Lists grouping in the content creation menu

3. Now name your KPI List. I am going to label my list Organizational Goals. You should now have a blank KPI list that looks like figure 12.2.

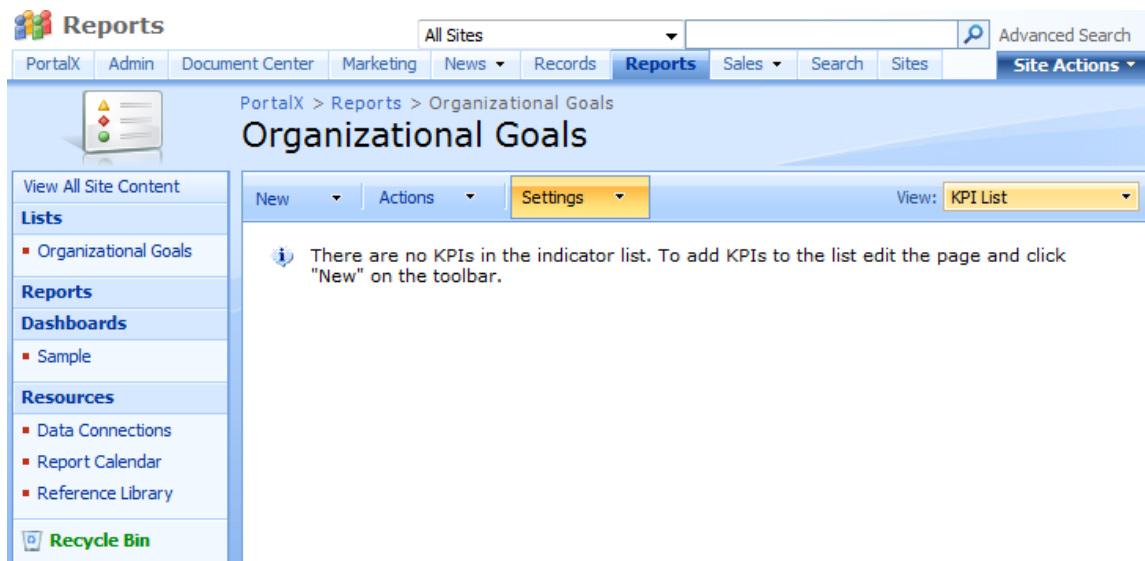


Figure 12.2 The standard KPI list waiting to be populated with relevant content

Now let's look at how we add a few KPIs to our list. Select the actions menu from the tool bar and you will see the available KPI options, as shown in figure 12.3.

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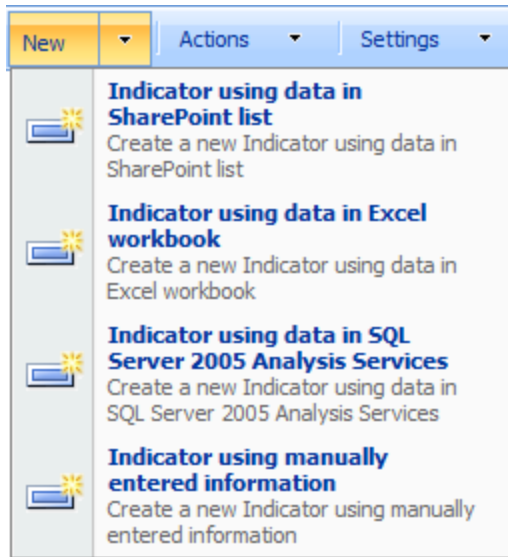


Figure 12.3 The KPI list allows you to create KPIs for SharePoint list, Excel workbooks, SQL Server 2005 Analysis Services and manually entered information. By combining content from these data sources you can easily integrate systems into a common display platform.

We'll create each of these items in the order they will be used the most. Each KPI type is fairly straightforward to create and choosing which kind you would like to use will really depend on where your data is housed. I can see organizations starting with a simpler KPI item enter manually and then graduating to a more dynamic Excel Workbook or Analysis services KPI. So now let's start off with a manually entered information KPI.

First select the Indicator using manually entered information link from the new menu option on the tool bar. At that point you will be presented with the display shown in figure 12.3.

PortalX > Reports > Organizational Goals > New Item

Organizational Goals: New Item

Name and Description Enter the name and description of the indicator. The description explains the purpose or goal of the indicator.	Name: * Description:
Comments Comments help explain the current value or status of the indicator.	Comments:
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 has met or exceeded goal Display ☐ when has met or exceeded warning Display ☐ otherwise

☐ Details Link

OK Cancel

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Figure 12.3 Manually entered KPIs are the simplest form of KPI item available. I normally use these as placeholders for my BI displays until I can expose KPIs from an external data source.

The Name, Description and Comment fields are self explanatory so I'm not going to cover these. The indicator value field is where you will place the value of your KPI. The value you place here is completely up to you. So let's say you are creating a KPI called Percentage of Completed Request and your actual percentage is 75 percent. You would enter 75 in the value text box.

Now that you have entered your indicator value it's now time to determine what icon gets displayed. The status icon fields will let you determine what icon will get displayed based on the indicator value. Using the Status Icon Rules you can adjust whether or not your indicator shows a more favorable value as it increases or decreases.

Finally you can enter your KPI thresholds that will determine what icon gets displayed based on the value. With manually entered KPIs this value almost seems unneeded since you know what you want your display to be with a manually entered KPI. It does allow you to quickly change the value and not have to adjust the display thresholds. In reality this set of options is really more helpful with the other types of KPIs. Figure 12.4 displays a sample of a completed form.

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PortalX > Reports > Organizational Goals > New Item

Organizational Goals: New Item

Name and Description Enter the name and description of the indicator. The description explains the purpose or goal of the indicator.	Name Percentage of Sales Goals Met * Description Percentage of sales goals achieved in the previous quarter
Comments Comments help explain the current value or status of the indicator.	Comments Manually entered value
Indicator Value Specify the current value for the indicator	Value: 67
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 has met or exceeded goal 75 * Display when has met or exceeded warning 50 * Display otherwise
Details Link	

Figure 12.4 The manually entered KPI creation page with sample values

If you expand the Details Link you can enter an URL to a detail information page. You would normally make this a link to another page explaining how the KPI got its value. This is commonly represented in the form of a report or detailed set of charts. If you don't set this value clicking the KPI will take you to a page displaying the information contained in the creation screen.

After pressing OK you will be returned back to the KPI list view with your new creation ready for display. Figures 12.5 and 12.6 show the list view and the default detail view for the KPI, respectively.

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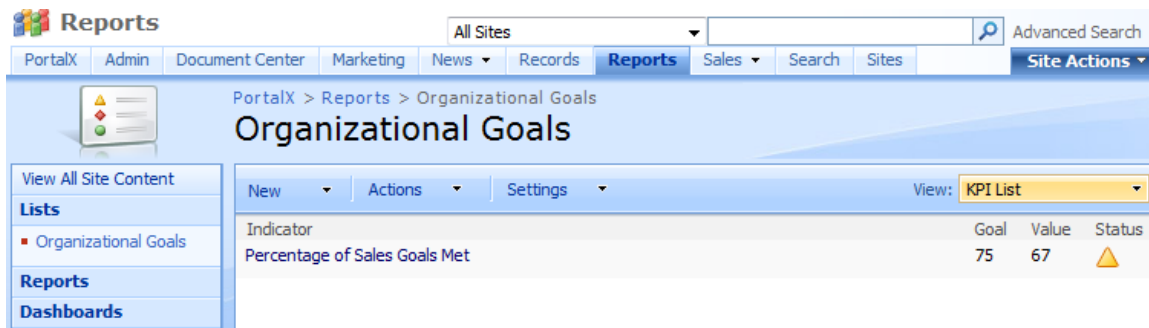


Figure 12.5 Our manually entered KPI in the KPI list page



Figure 12.6 The manually entered KPI detail view page

As you can see the creation of KPIs is simple and straight forward. Now let's take some time to build a KPI from a more dynamic data source. For the next sample we are going to use a custom SharePoint list named Sales Goals with the entries shown in figure 12.7

New ▾		Actions ▾		Settings ▾		View: All Items ▾	
🔍	Title	Target Amount	Actual Sales	Target Percentage			
	H. Martin	\$20,000.00	\$18,000.00	90%			
	B. Frances	\$30,000.00	\$25,000.00	83.33333333%			
	Y. Sydney	\$25,000.00	\$19,000.00	76%			
	A. Warren	\$21,000.00	\$17,000.00	80.952380952%			
	H. Isaac	\$14,000.00	\$10,000.00	71.428571429%			

Figure 12.7 The Sales Goals SharePoint list will provide content for SharePoint list KPIs

The first column contains a the name of the salesman while the remaining columns hold the sales target, the actual sales amount and a calculated column the derives who close the sale person is to the goal called Target Percentage

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by using the following formula: $\text{=[Actual Sales]/[Target Amount]}$. Figure 12.8 shows the columns view for our sample list.

Columns	
A column stores information about each item in the list. The following columns are currently available in this list:	
Column (click to edit)	Type
Title	Single line of text
Target Amount	Currency
Actual Sales	Currency
Target Percentage	Calculated (calculation based on other columns)
Created By	Person or Group
Modified By	Person or Group

Figure 12.8 The Sales Goals SharePoint list column details

Our sales manager has established that if the sales team does not meet a target percentage a value of at least 75 his job as well as the members on his team is in jeopardy. Also if the team reaches the 90 percent mark they will all receive a well deserved bonus. So we now have enough information to build the KPI from the list. We'll start off by selecting the Indicator using data in a SharePoint list option from the new menu on our Organizational Goals KPI list which will take you to the configuration page for this type of KPI.

Just like the manually entered KPI the Name and Description section is pretty straight forward. I have provided a completed sample of the list indicator configuration dialog. As one would expect the List Url field allows you to provide the URL to your source list. After the list is selected you have the option to select a specific view of the list. One of the features of the SharePoint list KPI is the ability to customize how you select your indicator data from the list. There is no one size fits all and the Value Calculation provides you with an excellent method to customize your indicator value selection these options are worthy of examination.

The radio option will provide you with a count of the items in the view. Honestly I haven't seen a real use for this one in reality but I can understand why they added it. This can be a good option to use if you are utilizing a view that limits the amount of data returned. The percentage selection acts as a value based filter which then provides you with the percentage of items that match your filter. This is a good option when building items on a list that has some type of status column. It can provide a good way to quick analysis on how many items meet a certain status criteria. Lastly you can select the Calculation using all list items in the view radio button allowing you to select a summation calculation based on a column in the list. When you select this radio options you must choose one of the following summation calculations: Sum, Average, Minimum and Maximum. You also must select the list calculation column that will provide the values for the summation calculation. Figure 12.9 uses the sales staff scenario mentioned earlier.

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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

SharePoint List and View:

List URL: *

<http://portalx.serverx.net/Reports/Lists/Sa> 

Examples:
<http://portal/site/list/AllItems.aspx>
or
</portal/site/list/AllItems.aspx>

View: *

All Items

Value Calculation: *

☐ Number of list items in the view

☐ Percentage of list items in the view where

Select column...
is equal to

And Or

Select column...
is equal to

Show More Columns...

☒ Calculation using all list items in the view

Average
of
Target Percentage

Status Icon Rules:

Better values are higher

Display  when has met or exceeded goal 0.9

Display  when has met or exceeded warning 0.75

Display  otherwise

Figure 12.9 The SharePoint list indicator KPI creation page allows you to select how you would like your KPI to be calculated from the source list. It's not uncommon to create several KPIs from one list using different calculations for each different indicator.

Another feature of this type of KPI is that the default detailed view displays the list content in conjunction with the KPI display to provide quick data analysis. Figure 12.10 shows the KPI detail view for the sales sample.

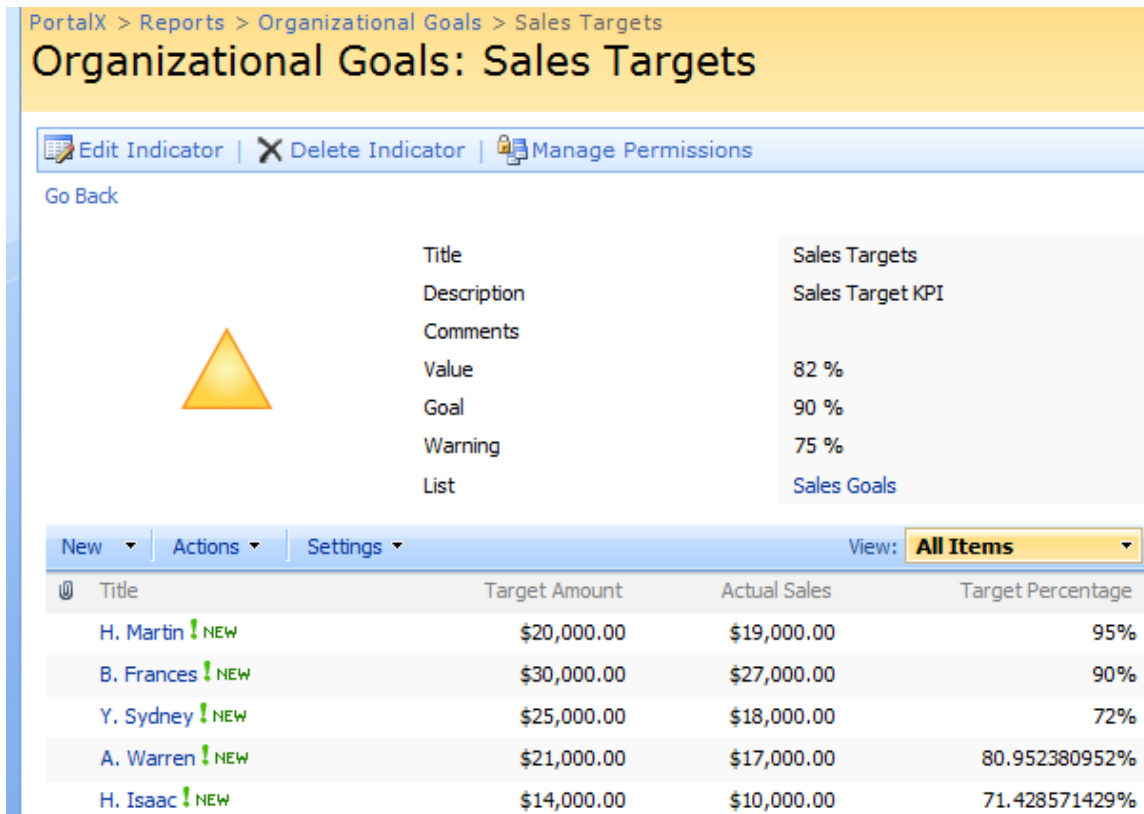


Figure 12.10 The list used for the KPI display is shown in the detail view for the indicator.

In this view you can easily spot who is below the Target Percentage of 75%. So without having to wait for reports to generate and then evaluate the outcome of said reports your sales manager can keep his finger on the pulse of the sales team with an intuitive visually guided interface.

12.2 Indicators using data in an Excel Workbook

Now that we have created KPIs using native SharePoint content let's take second to focus on consuming data from external content sources. We'll start off using an Excel Workbook that measures client reactions to a survey questionnaire. Our spreadsheet tracks the number of responses with a value greater than or equal to three on a scale from one to five. Figure 12.11 shows a screenshot of the spreadsheet.

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C2		fx	=B2/\$B\$10
	A	B	C
1	Client	Answers >= 3	Acceptable Survey Rating
2	C. Kent	20	80.00%
3	J. Bond	15	60.00%
4	S. Fli	23	92.00%
5	F. Castle	21	84.00%
6	B. Wayne	18	72.00%
7		Avg:	77.60%
8			
9			
10	Total Questions:	25	

Figure 12.11 An Excel spreadsheet that will be used as the source for and Excel KPI indicators

Our customer relations staff is concerned when the Acceptable Survey Rating value drops below ratings below 75% and must take immediate action if it drops below 60%. Now that we have the data source and parameters established let's add the KPI to our Organizational Goals KPI list. The Excel spreadsheet KPI offers its own unique configuration options most notably the ability to select Indicator, Target and Warning values from cells contained in the spreadsheet. These fields can be the result of spreadsheet calculations utilizing spreadsheet data or external data sources. Using this method of integration you can consume data from multiple connections to build your KPI displays using Excel Services as the data integration layer.

For the sake of demonstration we are going to stick with our sample spreadsheet and the simple calculations contained within it. Like all KPIs you start with the new menu option on a KPI list I this case select the "Indicator using data in Excel workbook" option. This KPI has the standard Title, Description and Comment fields but it also allows you to select the source workbook and value cells via browser dialogs. Figure 12.12 shows the Cell Address dialog using the selected spreadsheet.

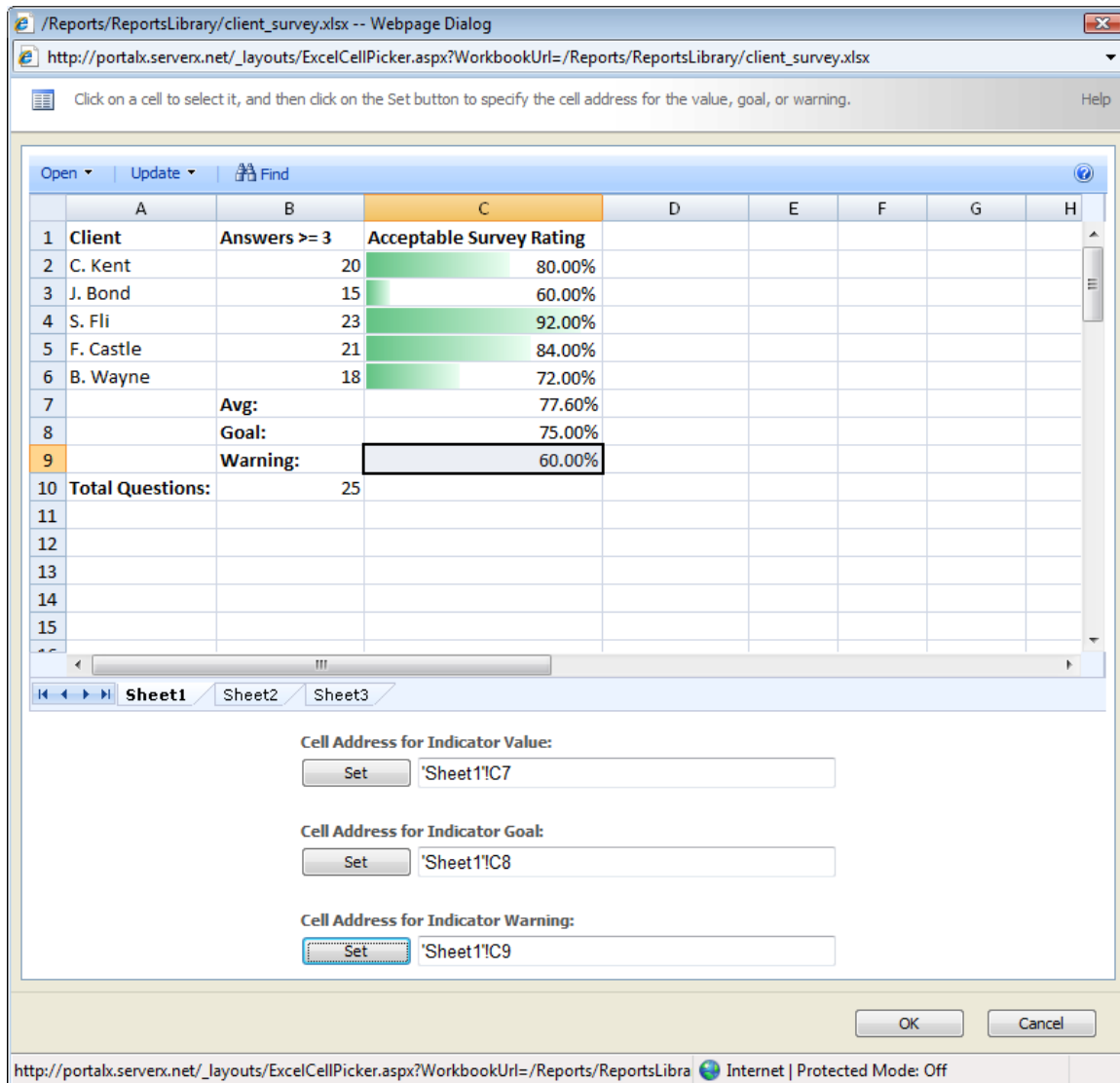


Figure 12.12 You have the option to set threshold information from spreadsheet data or manually entered values with Excel based indicators.

You can select cells for each indicator value or leave the field blank to enter numeric constants on the KPI creation page. Figure 12.13 displays the KPI creation dialog with the completed values.

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Indicator Value

Select the workbook that contains the information for the indicator value.

Select the cell in the workbook that contains the indicator value.

The cell address can be any valid Excel cell address for the selected workbook such as Sheet1!\$A\$1 or the name of a cell such as 'Total'.

Status Icon

The status icon rules determine which icon to display to represent the status of the indicator.

Values can be either numbers, or valid Excel workbook cell addresses such as: Sheet1!\$A\$1 or Sheet1!A1.

For some indicators, such as 'The percentage of tasks completed', better values are usually higher.

Workbook URL
 *

Examples:
 http://portal/reports/workbook.xlsx
 or /reports/workbook.xlsx

Cell Address for Indicator Value
 *

Example: Sheet1!A1 or Total

Status Icon Rules:

Better values are

Display  when has met or exceeded goal *

Display  when has met or exceeded warning *

Display  otherwise

Figure 12.13 A complete Excel KPI creation page

Once you accept the settings your KPI value will be displayed in the KPI list along with the other values. This again emphasizes the ability to mix and match KPI sources to meet your display needs. Last but not least no KPI sample is complete without showing its detail display. You will notice that the Excel Web Services takes care of displaying the spreadsheet display within the view, as shown in figure 12.14.

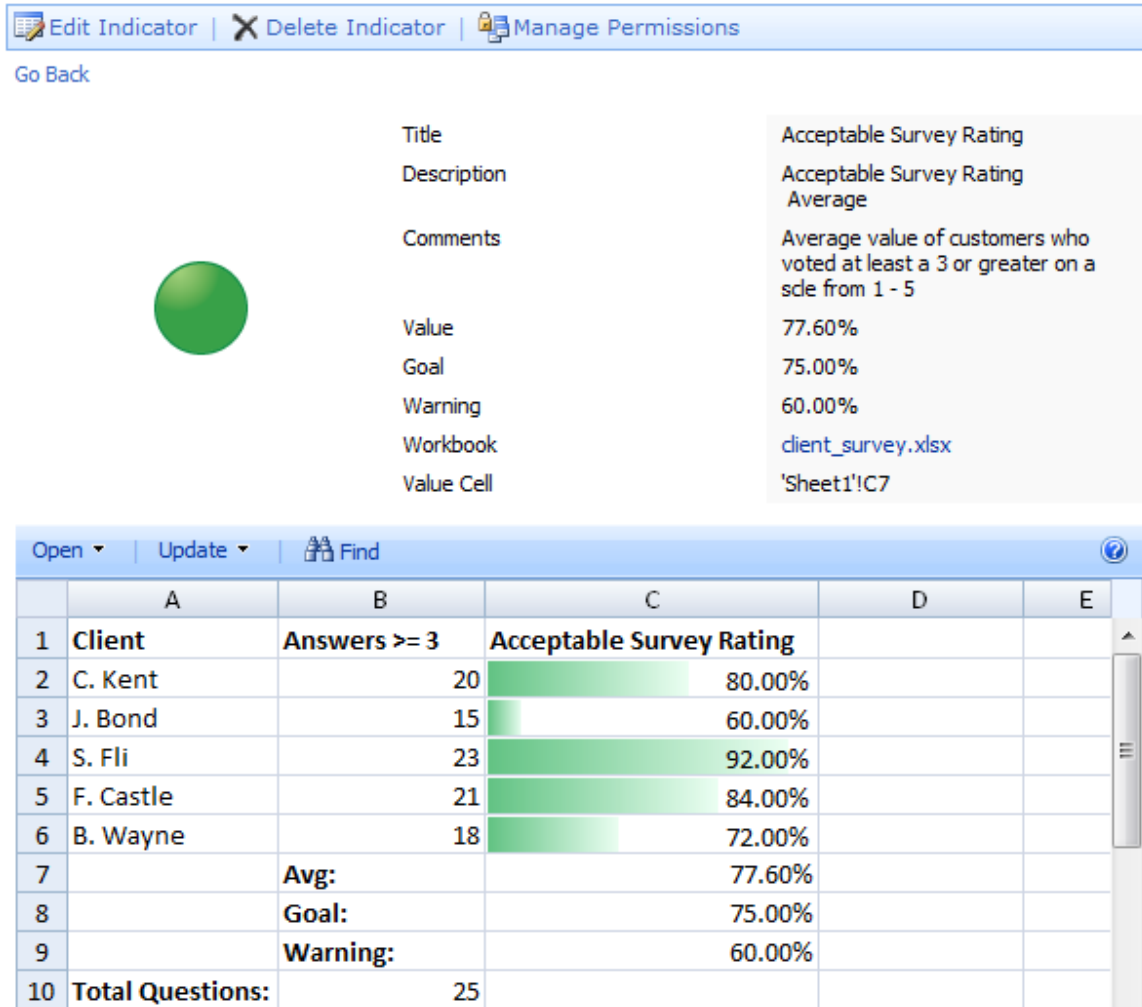


Figure 12.14 The detail view for Excel KPIs will display the spreadsheet using Excel Web Render web parts. It will also contain a link to the spreadsheet so your information consumer can get detailed information for the source document.

12.3 Creating KPIs with Analysis Services data

As you look around at different BI products you will see some type of KPI concept contained within the product. SQL Server Analysis Services 2005 allows you to create sourced from the SSAS 2005 indicator. This is a great way for you to leverage the investment in a top notch BI and data analysis tool with easy integration into the KPI list. I will assume you already have a cube in place and an existing data connection file I will use the sample Analysis Services 2005 project as my data source.

For this walkthrough I am going to use an existing Analysis Services Datasource. If you don't want to invest the time building your own Analysis Services solution you can use the Adventure Works sample for SQL Analysis Services 2005 available for download from Microsoft. If you install the Bi samples you may get an error when attempting to deploy the Analysis Services project. This is most likely due to case that the Data Warehouse database is not attached during the installation of the samples. If you look at the install directory you should be able to find the AdventureWorksDW database and log files to attach and allow you to drive forward with the samples. Now that you have a defined datasource you need to create a odc connection file to the Analysis Services database and upload it to a trusted connection library.

Since this KPI is a view only display of a KPI already defined within SQL Server Analysis Services 2005 it is one of the simplest to configure. Figure 12.15 shows the options available with the Analysis Services KPI.

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Adventure Works KPIs: New Item

Data Connection Select the data connection that contains the connection information for the SQL Server 2005 Analysis Services server, database and cube that contains the KPI.	Data Connection: /Reports/Data Connections/demomoss.ml- * Examples: http://portal/dataconnections/datacube.odc or /dataconnections/datacube.odc This data connection does not use encryption for the communication with the SQL Server 2005 Analysis Services server. It is recommended to enable encryption for the SQL Server 2005 Analysis Services server to help prevent unauthorized users from viewing this information.
SQL Server 2005 Analysis Services KPI Select the SQL Server 2005 Analysis Services KPI for this indicator. Some KPIs have several other KPIs that contribute to their value. Select Include child indicators to display these other KPIs in the KPI List.	KPI: Only display KPIs from display folder * All KPIs KPI List * GeoStatus KPI ☒ Include child indicators Indicator Details Description: Value: 52 Goal: 0 Status:  Trend: Parent Indicator: None Child Indicator: None Default time slice: None
Name Enter the name of the indicator.	Name: Gep Informational Status *

Figure 12.15 SQL Server 2005 Analysis Services KPIs can be accessed from the KPI list. This is a great way of quickly exposing all of the work done within your Analysis Services project. If your customer is working with Analysis Services and has Microsoft Office SharePoint Server 2007 be sure to exploit this capability.

Once you press OK your SQL Server KPI will appear just like the rest of the samples we have covered in this chapter. This is a great way to expose data that Analysis data that had previously been glanced over by your end users since these types of projects tend to generate an organizational buzz and taking advantage of pre built real world working applications aid in the acceptance of both applications.

12.4 Displaying your KPI items

After creating your KPI list items you will undoubtedly want to display your valuable information within a dashboard or informational page. The KPI List is a little quirky in relation to other list displays in that, when you place a view of the list on the page, it will not show the indicators associated with the KPI. To display your indicators, you can use the KPI List Indicator display or the KPI Details web part (see figure 12.6). This list indicator part allows you to select a list of KPIs to display while the details part displays the detail view of a selected KPI.

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Sales KPIs			
Show Only Problems			
Indicator	Goal	Value	Status
Percentage of Sales Goals Met	75	67	▲
Sales Targets	90 %	82 %	▲
Acceptable Survey Rating	75.00%	77.60%	●

KPI Details		
▲	Title	Percentage of Sales Goals Met
	Description	Percentage of sales goals achieved in the previous quarter
	Comments	Manually entered value
	Value	67
	Goal	75
	Warning	50

Figure 12.16 The KPI list indicator and KPI details web parts. Many people attempt to display a KPI but using one of the KPI views on the page. Since the actual indicator does not display when you expose the view from a web part page be sure to use these web part to show your KPI data

12.5 Summary

In this chapter we have covered what a KPI is and why you would use them. Then we stepped through the creation of a KPI list. After creating the list we added KPIs using the each of the available KPI creation options within Microsoft Office Server 2007. Finally we covered how to display your KPI items using the Key Performance Indicator List and details part.

KPIs come in many varieties and mean different things to different people and the MOSS 2007 team of developers has provided content developers with a suite of options ranging from manually entered value to integration with high end BI tools such as SQL Analysis Services 2005. I would recommend taking the time to test your own scenarios and figure out not only how to create KPI and displays but how to integrate them into BI dashboards. Having this skill set in your library will prove invaluable to your end consumer.

By enhancing your knowledge of the KPI functionality deliver with MOSS 2007 you can provide your customers with easy to understand status displays utilizing data entered into SharePoint list or other backend sources. This type of integration defiantly give your end customers a wow factor but more importantly when implemented properly it delivers on the promise of streamlining business processes and speeding up the ingestion of large volumes of data. This alone makes the KPI functionality in MOSS an impressive tool and when you couple it with the Report Center dashboards along with the rest of the components delivered with MOSS you can see why the adaptation of the SharePoint platforms has increased at such a rapid pace.

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13

Excel Services

In This Chapter

- Overview
- Architecture
- What's not supported
- Management
- Publishing
- Consuming External Data

With all of the tools that have come to market to aid in the utilization and quantification of business data many information workers still choose Microsoft Excel as the data analysis tool of choice. MS Excel provides a great amount of functionality in relation to the amount of time you have to spend learning how to use it. Another common tool for displaying Excel information is Microsoft PowerPoint. One of the nicest PowerPoint features is that you can save your slide presentations in an html format. With this in mind one can see why embedding your data into PowerPoint becomes an acceptable way of getting your spreadsheet data published to the web.

While this method of publication works there are inherent issues. First off it's a static snapshot of the spreadsheet that gets published as an image. One of the biggest features for MS Excel is the ability to use formulas and filters from live data on the fly and by removing this option you lose one of the most relevant features of the application. If you choose this option lets face it Excel is reduced to a table with values without the ability to provide calculations.

By publishing them as charts you also remove the option to utilize the automatic filters. Automatic filtering allows you to utilize large amounts of information and a quickly segment the displays which is great for publishing targeted information to multiple organizations from the same data source. It gives each area a way to view information of interest while providing higher level users the ability to see aggregated values of the data. I have seen many organizations use this as a quasi database solution. I would recommend you use the data import features of Excel for this option but that is another issue outside the scope of this book.

Of course there are plenty of other features I could cover but I think we all can now get the gist of the conversation. There has been no Microsoft supported method of publishing dynamic spreadsheet data to the web until now. The Excel Services feature provided with Microsoft Office SharePoint Server 2007 provide a wealth of web enabled BI tools to allow your analyst efficient access to data without limiting their application capabilities.

Just having the ability to publish a spreadsheet to a web based format is a huge benefit in itself but MOSS 2007 doesn't stop there. There are quite a few other features that make this method of data publishing and attractive one maybe even more attractive than just providing the spreadsheet in its native file format to the required users.

- Publishing via Excel Services allows you to restrict the user viewing options. This allows you to tailor and define the display to match the needs of your business user. This option delivers the ability to encapsulate

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your business logic into the spreadsheet without having to send it to the business user.

- One of the reasons for Excel's popularity is the quick and easy access to in-line functions and calculations. With very little training an analyst can quickly become an effective application designer and information manager. Like anything with power comes responsibility and your analyst will now be more responsible for the message sent to the end customer. This may allow your business analyst to publish information that would have normally gone through a set content approval process. Be sure that any content delivered to your end consumer goes through the appropriate content approval process.
- Another issue that commonly faces not only business analysts but also application developers is how to programmatically extract data from and insert data to the spreadsheet. Without Excel Services you must provide access to the individual file which also may lead to file locking issues. With Excel Services your developers can access spreadsheet data via a well defined Applications Programming Interface (API). Now your developers can integrate applications utilizing the expertise from your business analyst without having to code it into the application itself. This feature also allows you to permit developers outside of your organization to interact with your published data. How to use the API is outside the scope of this book and can be found in the Software Developers Kit (SDK).

Now that we have given valid reasons as to why you would use the Excel Services let's go over how to actually use them. The Excel Services could comprise a product within itself and given that it's included as part of the Microsoft Office SharePoint Server 2007 Enterprise Edition makes it a tool worth mastering along with the other services provided in the Microsoft BI suite.

13.1 Architecture

It is always good to gain a working knowledge of the system architecture before you start to build solutions on top of it. There are three core components that comprise the Excel Services framework they are Excel Web Access, Web Services, and Calculation Services.

13.1.1 Excel Web Access

Microsoft Office SharePoint Server 2007 provides and delivers web parts that allow you to render Excel spreadsheets to a standard web browser. The Excel Web Renderer will load the spreadsheet at runtime in the configured web part. Having worked on several integration projects I have come to find that the migration of Microsoft Excel data into a solution tends to be a requirement that is ubiquitous across most data-centric organizations. With this new feature you can now display and interact with spreadsheet content without the need for data conversion, figure 13.1

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ServerX Portal > Reports

[Go Back to "Reports Library"](#)**adventure_works_sales**

Report Created By: SERVERX\jce

Report Created: Friday, June 23, 2006 9:09:49 PM

Report Modified: Sunday, June 25, 2006 1:04:07 PM

Report Status:

Report Category:

Owner:

Open ▾ Update ▾ Find							
	A	B	C	D	E	F	G
1	Row Labels	Sum of SalesY					
2	Australia	1758385.926					
3	Tsoflias	1758385.926					
4	Canada	4954295.232					
5	Saraiva	3189356.247					
6	Vargas	1764938.986					
7	France	3827950.238					
8	Varkey Chudukatil	3827950.238					
9	Germany	2241204.042					
10	Valdez	2241204.042					
11	United Kingdom	5015682.375					
12	Pak	5015682.375					
13	United States	26496508.32					
14	Abbas	219088.8836					
15	Alberts	636440.251					
16	Ansman-Wolfe	0					
17	Blythe	4557045.046					
18	Campbell	3587378.426					
19	Carson	3857163.633					
20	Ito	3018725.486					
21	Jiang	677558.4653					
22	Mensa-Annan	1931620.184					
23	Mitchell	5200475.231					
24	Reiter	2811012.715					
25	Grand Total	44294026.13					
26							
27							
28							
29							
30							
31							
32							

Figure 13.1: Adventure Works spread sheet viewed with Excel Web Access

13.1.2 Excel Web Services

Once loaded into Office Server you now have the option to access the information contained within a spreadsheet over a well defined set of web services. Using the Excel Web Services you can gain programmatic access to the spreadsheet data and operations without the having direct access to the file itself. Of course how you use this

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technology is up to you with it you can perform operations that update spreadsheet data, retrieve data from spreadsheets and refresh data connections to name a few.

The utilization of web services is a developer centric operation therefore I will refer you to the SDK if you looking for more details. There is plenty of information in the Excel Services development roadmap to allow you build you own custom solutions.

13.1.3 Excel Calculation Services

This is the workhorse component of the Excel Services architecture. The Excel Calculation Services are responsible for the management of loading, caching and updating of workbooks. Since Excel workbooks are based on a file access methodology there needs to be a scheme put in place to provide server based access to the data they contain and this is where the Excel Calculation Services come into play.

Each component plays a critical role in the consumption and delivery of spreadsheet based content. Knowledge of the architecture will assist in your planning, deployment and development of you Microsoft Office SharePoint Server 2007 Solution, figure 13.2 contains a screen clipping of the architecture supplied in the Office Server 2007 SDK.

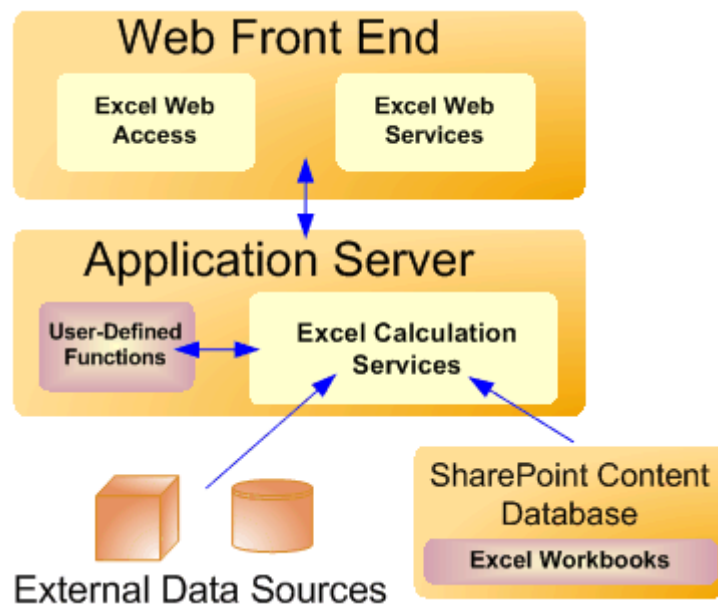


Figure 13.12: Office Server 2007 SDK Excel Web Services Architecture diagram (Reference Office Server 2007 SDK <http://www.microsoft.com/downloads/details.aspx?FamilyID=6D94E307-67D9-41AC-B2D6-0074D6286FA9&displaylang=en>)

13.2 What's not supported

There is nothing worse than working on a solution only to find out the path you have chosen to follow is not supported by your architecture. I have included this section in hopes of sparing you the pain of reading through the entire chapter only to find out your envisioned configuration is not supported. Knowing what Excel Services will prevent you from doing will also help shape your knowledge of the toolbox of what you can accomplish with the Excel Services framework.

The Office Server 2007 SDK categorizes the unsupported features into the four categories. They are features that prevent Excel from loading, Features that will not be displayed, Features with limited interactive support and Authoring workbooks. Once you have a good understanding of what is supported in Excel Services you can tailor your solutions to work equally well with the full rich client and web functionality.

The Office Server 2007 SDK contains detailed information on what will and will not be loaded with Excel Web services (<http://www.microsoft.com/downloads/details.aspx?FamilyID=6D94E307-67D9-41AC-B2D6-0074D6286FA9&displaylang=en>).

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13.2.1 Features that prevent Excel from loading

This is the most severe of the unsupported category groupings. It makes no difference what is or is not supported if you can't get your application to load. Pay attention to this list of gotchas since it can save you time and ease the pain of troubleshooting your Excel applications. I will cover a few of those items here and I will also recommend you look into reading the Microsoft Office SharePoint Server 2007 SDK for the full list of items.

- **Code:** The Microsoft Office suite has done an excellent job of allowing application modifications in a well defined framework. Due to the client side requirements of VBA, form controls, toolbox controls, Excel 5.0 dialog and macrosheets they will not be able to load in Excel Services. If you have a need for any of these items for your spreadsheet you will need to stick with the distribute and download method.
- **Information Rights Management:** IRM is used by organizations that have a need to protect document content beyond the file access level. With IRM your security rights are embedded within the document and this feature will not work with Excel Services.
- **ActiveX Controls:** ActiveX controls run on the user's desktop client context which is not available with Excel Services.

After viewing the SDK and seeing the laundry list of items not supported by Excel Web Services you are not sure your spreadsheet can be loaded you can test it by publishing it from Excel 2007 and viewing the spreadsheet as a web page. If you have any of the features mentioned beforehand included with your document you will receive an error. One good thing is that this will be the largest of the unsupported items list.

13.2.2 Features that will not be displayed

There are certain features that Excel Web Services will not be able to render in as rich a detail as the Excel application. The reason for these limitations is due to the additional functionality provided with web based applications. The following is a list of items that will not be displayed using Excel Web Services: Split and frozen panes, Headers and footers, Page layout view, Cell patterns, Zoom, SQL Analysis Services members and tips, Cell formatting not supported by HTML, New Excel 2007 chart effects.

13.2.3 Features with limited interactive support

Obviously when using the Excel 2007 client application it can utilize all of the rich UI components available to any application running on the user's machine but when your spreadsheet is rendered via Excel Web Services you are limited to what UI your browser can deliver. Most of these features are related to display and view management of the workbook.

13.2.4 Authoring Workbooks

Authoring applies to the creation of new content and formatting. In short if you want to modify a workbook outside of adding or changing rows and or columns you will need to do so with the desktop application. While the Excel Web Access browser view does make for an impressive display I would recommend you stick to the Excel 2007 desktop application to edit your spreadsheet. The reason I feel this way is that with the desktop application you have 100 percent of the application functionality available to you. If you are forced to perform authoring task via the browser interface you can view the list of limitations in the Microsoft Office Server SharePoint SDK 2007.

13.3 Managing Excel Services

Excel Web Services settings are managed under the Shared Services Provider administration page, figure 13.3 shows the menu grouping for your Excel Services architecture under the Shared Services Provider administration page. By being tied to the Shared Service Provider model you can utilize all of the features provided by the SSP in your Excel Services implementation such as front end load balancing and the ability to distribute services across multiple servers. You may not be the administrator of your platform but as you publish your Excel documents to your solution you will more than likely run into a few configuration gotchas. We'll cover some of the most common ones here but I would definitely recommend you take some time to browse and understand what configuration options are available in the Excel Services management UI.

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Excel Services Settings

- Edit Excel Services settings
- Trusted file locations
- Trusted data connection libraries
- Trusted data providers
- User-defined function assemblies

Figure 13.3: Excel Services Settings Shared Service Provider menu group

13.3.1 Edit Excel Service Settings

This page will be located at <<SSP Admin URL>>/_layouts/ExcelServerSettings.aspx. The following configuration groups are allow you to tailor your installation to your environment:

EXTERNAL DATA

It is not uncommon for a spreadsheet to consume data from multiple sources as part of a spreadsheet based dashboard. To facilitate the management of spreadsheet data Excel Services includes an unattended service account to keep your data consistent and up to date when your users require it. You are given the following parameters, shown in figure 13.4, to configure how Excel Services will access remote information:

External Data
Handling external data connections in Excel Calculation Services.

Connection Lifetime
The maximum time (in seconds) for a connection to remain open. Older connections are closed and reopened for the next query.
1800
Valid values: -1 (never recycle); from 0 through 2073600 (24 days).

Unattended Service Account
The credentials for a default Windows account that Excel Calculation Services uses for connecting to data sources that require user name and password strings for authentication. If this account is not set, connections to these data sources fail.

Name:
serverx\services

Password:

Retype password:

Figure 13.4: External Data configuration section

TIP:

Create a specific account for unattended data access and closely manage the permissions granted to this account.

13.3.2 Trusted file locations

The Excel Web Renderer web part will only be able to access spreadsheets from areas deemed as trusted by the Shared Services Provider Administrator. By allowing the Excel Services account to access only approved locations you can ensure that published content has gone through the appropriate internal procedures before being delivered to the end user.

TIP

If your configuration requires that published spreadsheets meet custom guidelines use content libraries that have approval workflows attached. This will ensure that any published spreadsheet has passed an internal quality assurance process before being viewed by end users.

TRUST CHILDREN

By selecting this option you grant Excel Web Services access to serve files from all levels below the entered address. Before you set this option be sure you understand what is below the root directory.

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WARNING

This is one of those little options that can cause large scale issues if used haphazardly. The combination of and elevate impersonation coupled with access to level deep down in a content share can lead to the release of sensitive information unbeknownst to the owner of the data.

Last but not least you can enter data into the description element to aid in the identification of the trusted library location. This is an optional element but I would recommend entering information that in a verbose format to remind you of why you created the source in the future.

EXTERNAL DATA

It is not uncommon to consume data from external sources such as databases and other spreadsheets. The External data section, shown in figure 13.5, allows you to define caching and connection settings for a trusted file location. Never assume that you can rely on your data consumers to adhere to your data publishing rules unless you enforce it via a defined policy. By publishing content via a spreadsheet you may bypass critical security and business logic restrictions and publish unapproved data. By configuring this section of the Excel Services settings you can ensure that the only content published via your spreadsheet data sources comes from known locations.

By displaying data from other data sources your content publishers can provide interactive contextually relevant dashboards of information. Allowing connection to external content is not without its pitfalls. Treat every trusted data source as if every bit of information you will make accessible was going to be displayed and then assess the impact of that scenario. Then if you feel that you have control of the content being consumed and can deal with the consequences of other areas of the datasource being published without approval push forth with your external data connection.

External Data

Handling external data connections in Excel Calculation Services for workbooks from this location.

Allow External Data

Trust level for external data sources:

- ☐ None
- ☐ Trusted data connection libraries only
- ☒ Trusted data connection libraries and embedded

Warn on Refresh

Display a warning before refreshing external data for files in this location.

- ☒ Refresh warning enabled

Stop When Refresh on Open Fails

Stop the open operation on a file in this location under the following circumstances: The file contains a Refresh on Open data connection and the file cannot be refreshed while it is opening and the user does not have an Open user right to the file.

- ☒ Stopping open enabled

External Data Cache Lifetime

The maximum time (in seconds) that the system can use external data query results.

Automatic refresh (periodic / on-open):

Manual refresh:

Valid values: -1 (never refresh after first query); from 0 through 2073600 (24 days).

Maximum Concurrent Queries Per Session

The maximum number of external data queries that can execute concurrently in a single session.

Valid values: any positive integer.

Figure 13.5: External data configuration section

WARNING

When consuming data from external sites take note as to how the data relates to on another. Harmless bits of content tied together may represent information that should not be released by an organization. The combination

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of your different data connections may represent knowledge that is not suitable for the audience to which you are published. Remember the adage “the whole is more than the sum of its parts”.

13.3.3 Trusted data connection libraries

If your spreadsheet consumes data from external data sources they must be published in an approved trusted data connection library. This adheres to the same concept as the trusted file locations in that there is a mechanism to provided managed access to external data connections.

TIP

Just like trusted file locations if your implementation requires tight control of externally accessed content place an approval workflow on the library storing the data connection files.

To configure your trusted data connections enter the path to the library and an optional description, as shown in figure 13.6. Once configured you can utilize office data connection files loaded into the trusted library within your Excel Services applications.

Excel Services

Edit Trusted Data Connection Library

Location

A data connection library from which workbooks opened in Excel Services are permitted to access data connection description files.

Address

The document library address of this data connection library.

Description

The optional description of the purpose of this data connection library.

Figure 13.6: Excel Services Trusted Data Connection Library edit menu

13.3.4 Trusted data providers

To further ensure approved content access beyond the connection level you can also restrict access to data based on the provider used. For example if you were allowing access to an Analysis Services cube and wanted to ensure that no published content access the back end data sources you could remove the SQL data provider. By default all of your usual suspects such as SQL Server, SQL Analysis Services, OLE DB and others are enabled as trusted providers. To enter a new provider you will have to load it to your Excel Services machine and enter the appropriate Name and Type properties with an optional description. Figure 13.7 displays the SQLOLEDB provider in edit mode.

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Excel Services Edit Trusted Data Provider

Provider
An external data provider that workbooks opened in Excel Services are permitted to use.

Provider ID
The identifier for this data provider.
SQLOLEDB

Provider Type
Data provider type:
☒ OLE DB
☐ ODBC
☐ ODBC DSN

Description
The optional description of the purpose of this data provider.
 Microsoft SQL Server OLEDB Driver (MDAC)

OK Cancel

Figure 13.7: Calculation Behavior section

NOTE

If you add a new type of data provider you will need to enable it here before Excel Services can access the content contained in the system you are trying to connect to.

WARNING

When editing a trusted data provider be extremely cautious since an invalid configuration affects every instance utilizing the Shared Service Provider.

13.3.5 User defined function assemblies

When the formulas provided with Excel are not enough users can still extend the model by creating .NET based user defined assemblies. Before they are invoked in the context of Excel Web Services they must be loaded into the user defined assembly store or the server global assembly cache (GAC).

13.4 Publishing Excel Spreadsheets

The Excel Web Services architecture provides your content procedures with an excellent rich framework in which to publish and display your spreadsheet information. You can use many of the features available with the desktop application within Excel web access. Features that make Excel a stand out application in the realm of business analytics such as filtering, sorting, chartings and formulas are all available within the Excel Web Access framework.

Now that we are comfortable with the administration of the Excel Web Services platform we can publish content to be utilized by the Excel Web Services web parts. The easiest way to cover the features is with a demonstration so we will grab a small companies access logs and enter user access rates to analysis usage patterns. For this demonstration you can create an Excel 2007 report page that we will use in the Excel web render after it is published.

Before we can display content to our end users we must be author our content with Excel 2007. As stated before you cannot author content via the web renderer so we must use the Excel application to create a spreadsheet suitable for publishing.

1. Create the sample spreadsheet data.

Starting in a new spreadsheet enter the sample data show in figure 13.8 representing user access rates over a one hour period to our system.

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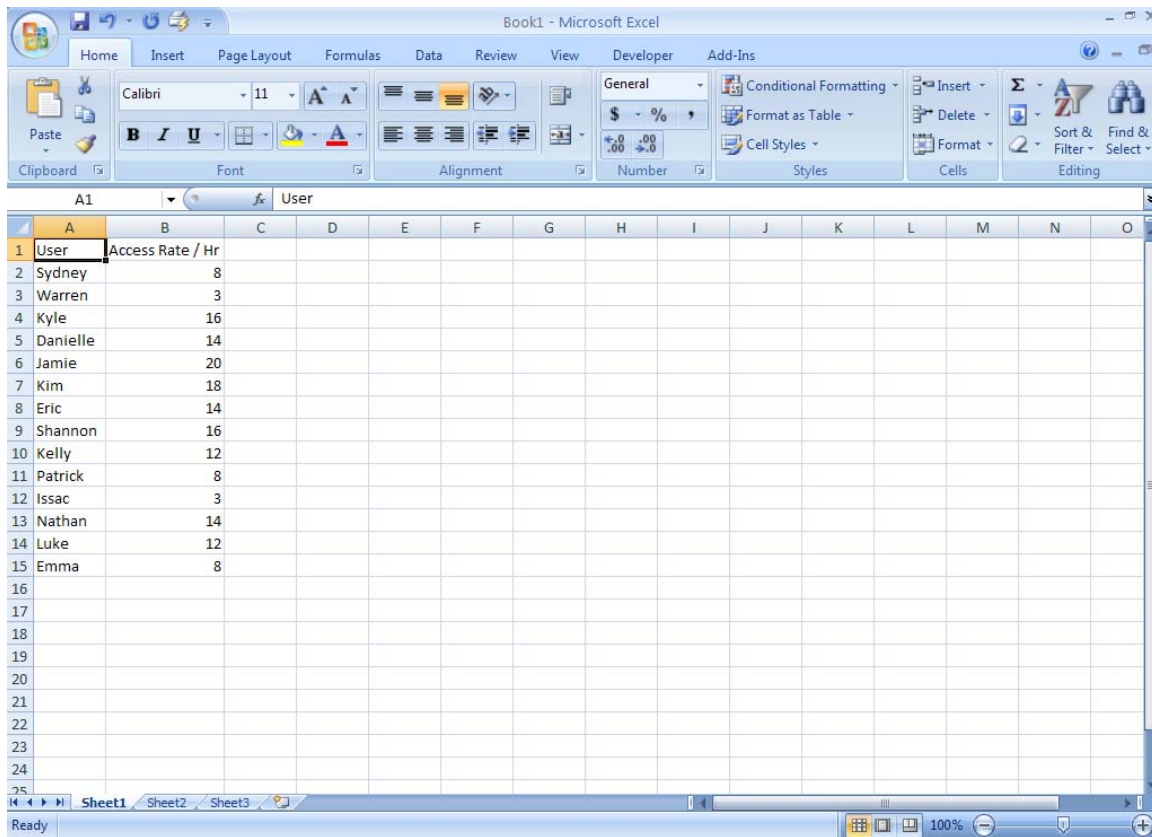


Figure 13.8: Users Access Rate / hour spreadsheet

2. Add conditional cell formatting to emphasize the data points

NEW FEATURE

Excel 2007 offers new conditional cell formatting features to provide visual relationships between items in a data set. Using this feature in combination with the excellent charting capabilities provided by Office 2007 have positioned Excel as an exceptional tool for the creation of business data dashboards.

Select the cell range B2 through B15 and the conditional formatting button from the styles section of the home ribbon bar. Select the Data Bars menu option and choose the Blue data bar menu item. Figure 13.9 shows our user access rate spreadsheet with the conditional formatting menu display.

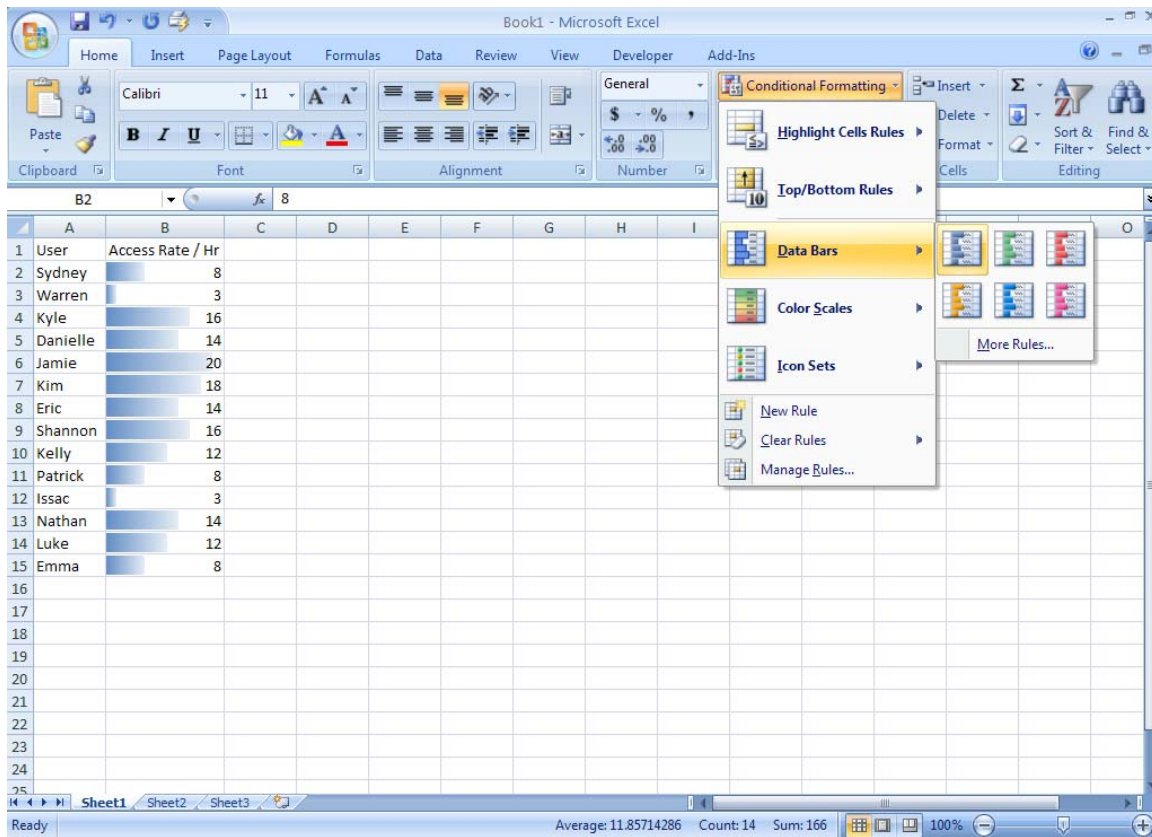


Figure 13.9: Excel 2007 conditional formatting

1. Create a formula showing the average access rate

Select cell D1 and enter the text Avg. Access. Short for average access rate. Enter the following formula in cell E1: `=AVERAGE(B:B)` to calculate the average.

Using our sample data the following value is now displayed in cell E1: 11.85714286.

2. Create an access multiplier cell

To demonstrate parameters in Excel Web Services we will multiply our access rates by a configurable value in cell E2. Place the value 10 into cell E2 and change the formula in E1 to `=AVERAGE(B:B) * E2`. You will now see the average multiplied by our user supplied value as displayed in figure 13.10.

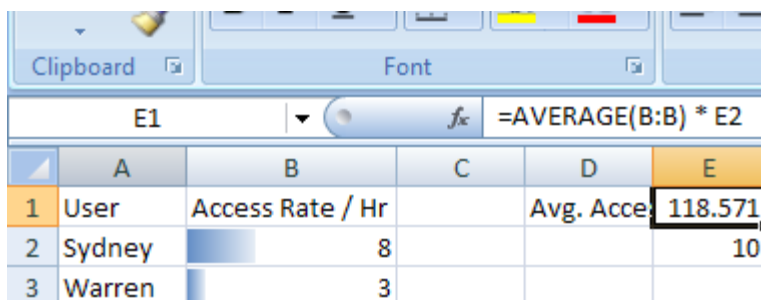


Figure 13.10: User access rates with an Excel formula

3. Enter names range values

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Now that we have the multiplier value we must name it before Excel Web Services can utilize it. Right click cell E2 and select the Name Range ... menu option. Enter the name AccessMultiplier in the name field and press OK.

Repeat the same steps and assign the name SydneyAccessRate to cell B2.

TIP

You can also access the name Manager under the Formulas ribbon.

4. Create a chart to graphically represent your spreadsheet data

Highlight cells A1 through B15. Click the insert ribbon. Select the column button and click the first cylinder option, shown in figure 13.11. We now have a simple 3-D chart displaying our data values.

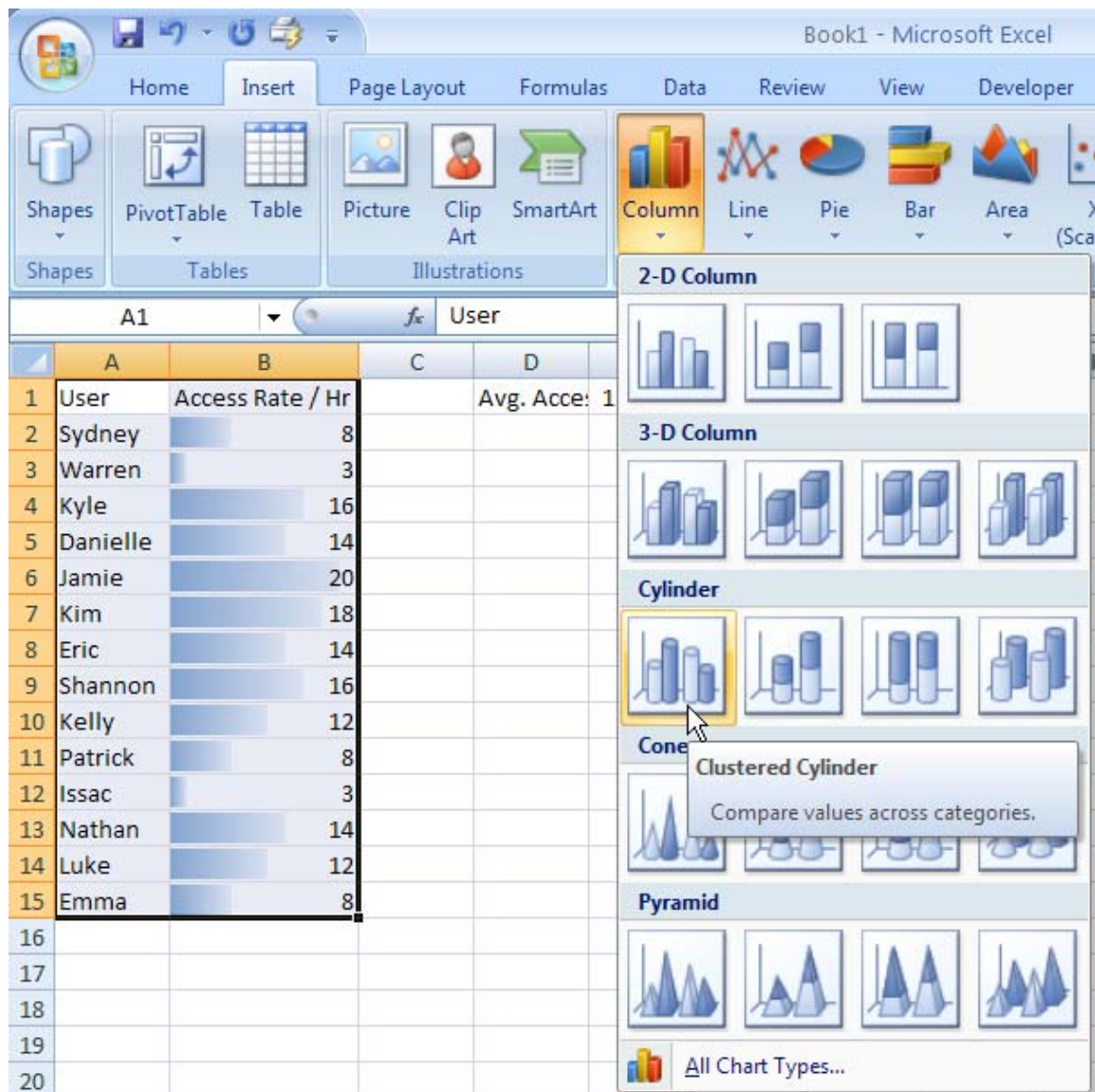


Figure 13.11: Excel 2007 column chart menu

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We now have a spreadsheet, similar to the one in figure 13.12, that demonstrates a lot of the functionality you will need to construct your BI dashboards. The only left to figure out is how to get that content into our Excel Services architecture. This is covered in the next section.

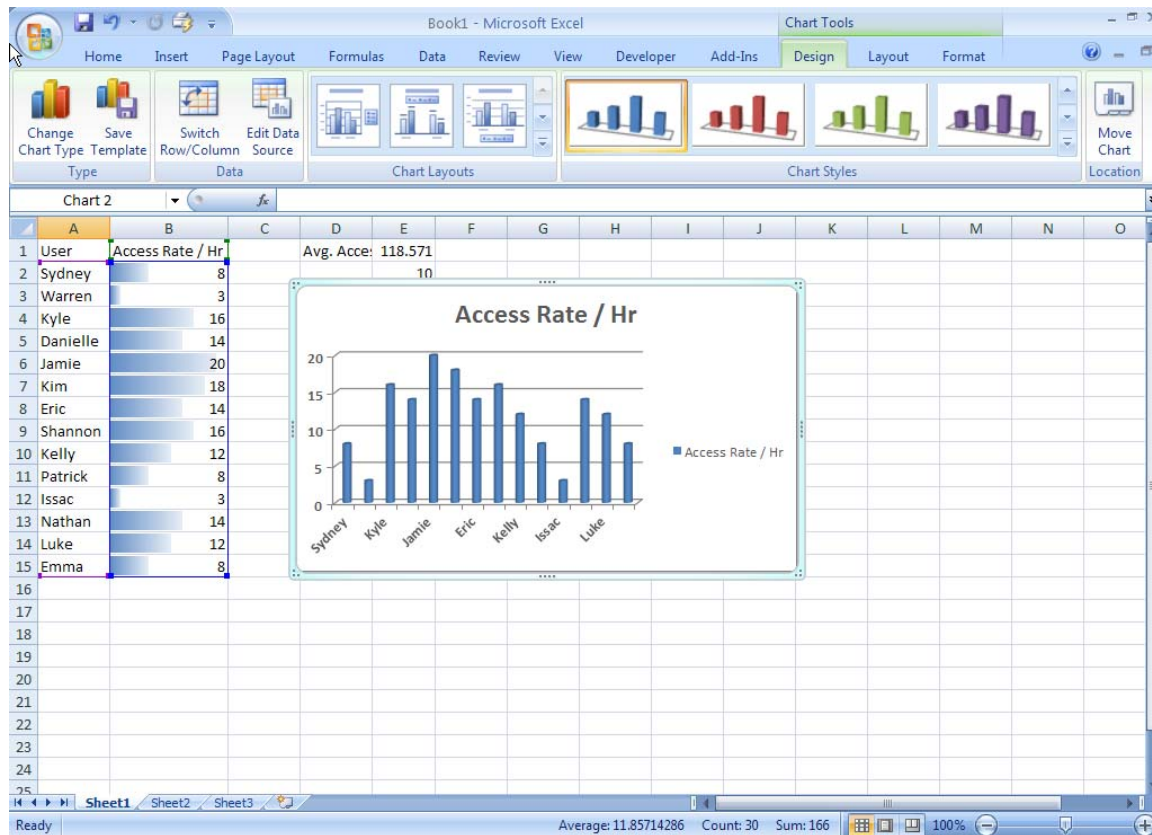


Figure 13.12: User Access Dashboard

13.4.1 Spreadsheet Publishing

Now that we have a spreadsheet ready for consumption we must publish it to a trusted file location before it can be accessed by the Excel Web Access web part. In our case we have defined a location under our report center `http://<server name>/Reports/Report Library`.

1. Select File > Publish > Excel Services
2. Select the Excel Services Options.. button.

Here you can select what items to show. You have the ability to choose from entire workbook, an individual worksheet or a specific named item. In this case we will publish the entire workbook.

3. Select the Parameters tab in the Excel Services Option dialog
4. Add the AccessMultiplier named range to the list of Excel Services parameters.

This is accomplished by selecting the Add.. button and selecting the AccessMultiplier named range. You now are ready to publish the interactive spreadsheet to Excel Services.

Repeat the same steps to add the SydneyAccessRate parameter to the Excel Services Options dialog. Figure 13.122 shows a completed dialog box.

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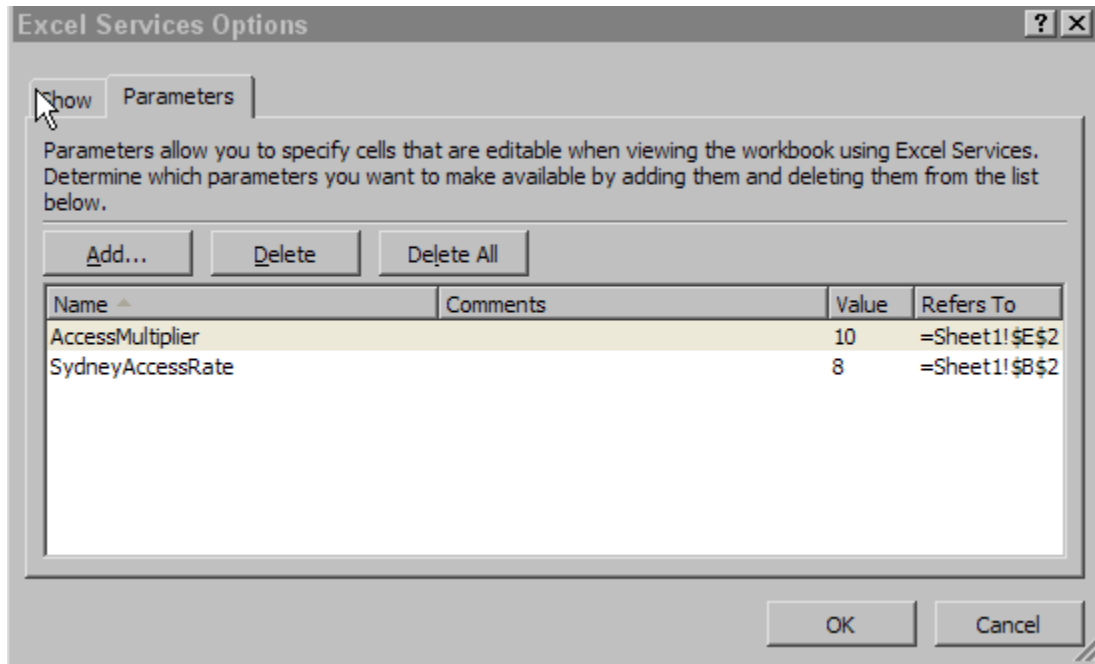


Figure 13.13: Excel Services Options dialog Parameters tab

5. Press OK to close the Excel Services Options dialog.
6. Enter the path to the file and press save. In our case we are using `http://<server name>/Reports/ReportsLibrary/user_access_rate.xlsx`.
7. Ensure the open workbook in my browser option is selected to get a quick preview of what your Excel Web Access web part will display.
8. Press save in the Save as dialog box.
9. Select the Excel Report option from the Choose Document Type dialog to set the proper attribute for the Reports Library to recognize the type of content you are publishing.

CROSS-REFERENCE

See chapter 12 for more information on the Reports library.

10. Press the OK button on the bottom of the dialog to access our values.
11. Examine the published spreadsheet.

The Parameters tool bar also gives you the ability to update the value in your AccessMultiplier and the SydneyAccessRate variables From the right side menu pane. range by entering a value and pressing the Apply button on the bottom of the tool pane. When you perform your updates your charts and graphs will reflect your changes like those in figure 13.14. You will also notice that you will have lost some of the 3-D chart formatting this is one of the features that will not be displayed we discussed earlier. This is a fairly small price to pay for the ability to dynamically publish and update your data and charts on the fly. If you open the spreadsheet in the browser you will also notice the value is saved to the file.

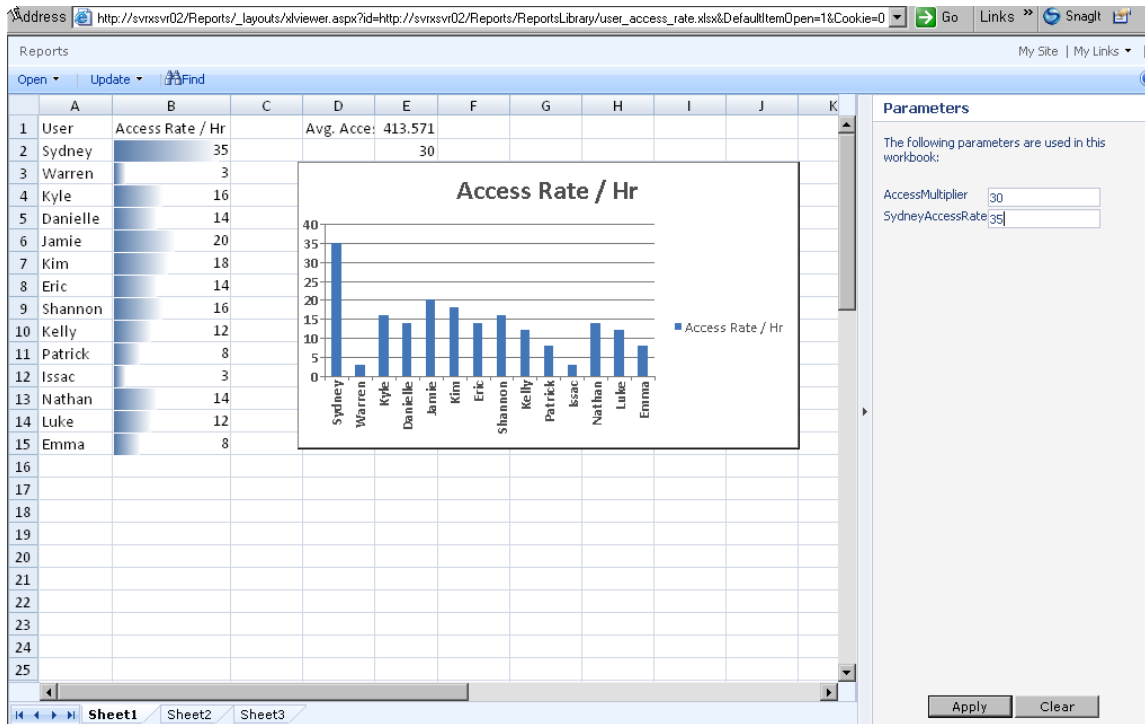


Figure 13.14: The Excel Web Renderer displaying the user access spreadsheet

Mixing the web renderer with a set of named value parameters allows you to create interactive dashboards without having to write an ounce of code. Now you users can consume and manipulate your spreadsheets all from a standard web browser.

13.5 Using the Excel Web Services Web parts

We have already seen the functionality supplied with the web renderer lets investigate how the technology is implemented within a web part page framework. First we will examine the Excel Web Access Web part followed by a sample implementation of the part.

13.5.1 Excel Web Access Options

After the web renderer processes your spreadsheet will be displayed in the web part. You will also notice that your calculated values are displayed. This new web publishing offering in Office Server provides a powerful method of information exchange utilizing tools that data managers work with on a daily basis. Let's take a look at what features are available in the Excel Web Access web part implementation. Figure 13.15 shows the interactivity section of the toolbar pane which houses the unique Excel Web Access features for the web part.

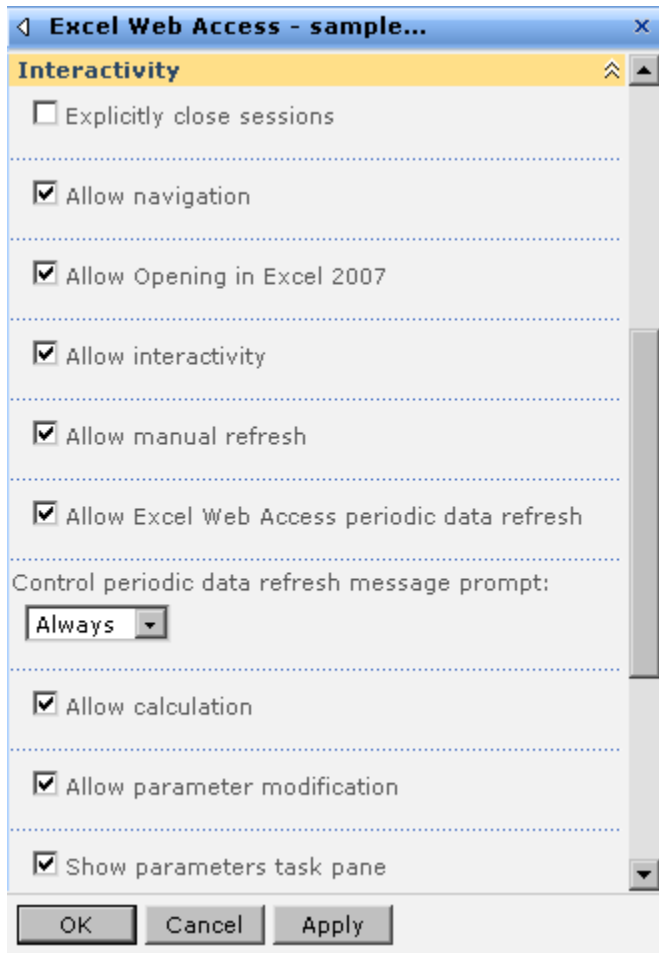


Figure 13.15: Excel Web access tool bar pane

Thos features are:

- **Explicitly close sessions:** This will close the users Excel Services session when they navigate way from the pane. This aids in the conservation of server side resources at the cost of a performance hit to the user viewing the content.
- **Allow Navigation:** This option allows users to navigate the spreadsheet within the web part. While setting this to true would seem to be a favorable choice turning it off allows you to display a single section of a spreadsheet such as a summary page without having to export the content. This used in conjunction with some of the other Excel Web Access features saves time from content creation to publishing.
- **Allow Export to Excel 2007:** If you want provide your data consumers with the ability to read your spreadsheet in its native Excel 2007 format select this option to display the Open Snapshot in Excel 2007 icon.
- **Allow Interactivity:** Providing your users with a way to view dynamic data in a web based environment is a powerful option. Many reports are based one non interactive static data and therefore incurring multiple calls to see the same content becomes a waste to bandwidth. By removing the Allow Interactivity option your consumers get a single non updating snapshot of your content.
- **Allow Manual Refresh:** Lets the user refresh the spreadsheet data on demand by clicking a refresh icon.
- **Allow Periodic Refresh:** You can determine how Excel Web Access refreshes the page content on an

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automatic basis. Your options are to enable automatic refreshes, disable content refreshes or make refreshes optional.

- **Control periodic refresh message prompt:** Many of us have been victims of excessive prompts when accessing online applications. I have found many users want to be prompted only during critical events if at all. This option with Excel Web Access allows you to manage the amount of times a user will be prompted per session when the data is refreshed.
- **Allow Calculation:** If you would like your formula available to the end data consumer select the Allow Calculations option. Disabling this option means that only the calculated values will be displayed in the cell and the functions will not be available. Now you can publish the results to a client without giving them your "special sauce"/
- **Allow Parameter Modification**
- **Show Parameters Task Pane**
- **Allow Sorting Operations:** This is a pretty straight forward option. Leaving this checked allows your data consumer to sort the data within the spreadsheet.
- **Allow Filtering Operations:** List filters and are commonly use to allow analyst to quickly filter and sort spreadsheet data. This is an extremely useful option if you are providing bulk data to your trusted consumers but not if you are providing an discrete view to one specific customer. You now have the option to turn parameters off to ensure that the view presented is the only view available to the customer.
- **Allow Pivot Table Operations:** One of the most powerful analytic features of Excel is the ability to quantify your data into Pivot Tables. By disabling this option your end users will receive a snapshot of the calculation in the pivot table as oppose to the actual operations used to build them,

By utilizing combinations of these options you can quickly publish your spreadsheet content to both internal and external consumers with the confidence that your data integrity will not be compromised. The Excel Web Access components now allows your business intelligence displays to incorporate content in a form that is second nature to many analytic professionals.

13.5.2 Using the Excel Web Access web parts

We have described what the Excel web render parts lets do a quick implementation to see them in action. We will utilize the spreadsheet we published in the earlier section as the content source for this example.

1. Start off by creating a simple web part page in a document library.
Select the View all site content link from the left hand site navigation pane in a site with a document library.
2. Click the Create toolbar button on the content listing page, as shown in figure 13.16.

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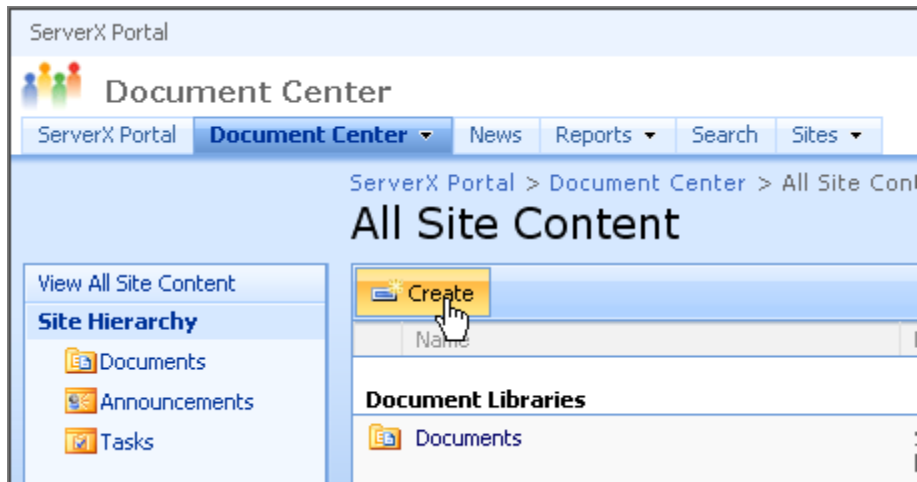


Figure 13.16: Document library create tool bar button

- Choose the Web Part Page menu link under the Web Pages menu grouping, figure 13.17 shows the location of the menu option.

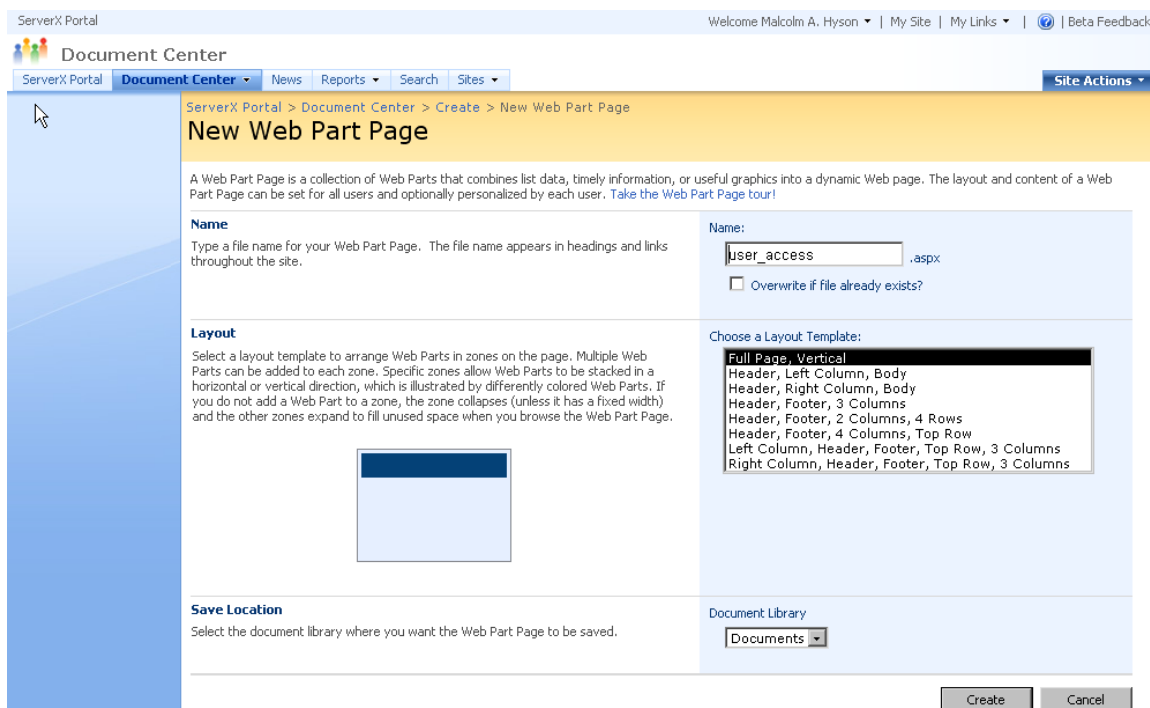


Figure 13.17: Web Part Page selection in the Create page

- Enter a name for the page and select the page layout type. We will use user_access for the page name with Full Page, Vertical as the layout type selection. Select your document library name location from the Document Library drop down option. Your page should now look similar to figure 13.18. Next press the create button on the bottom of the page to create it.

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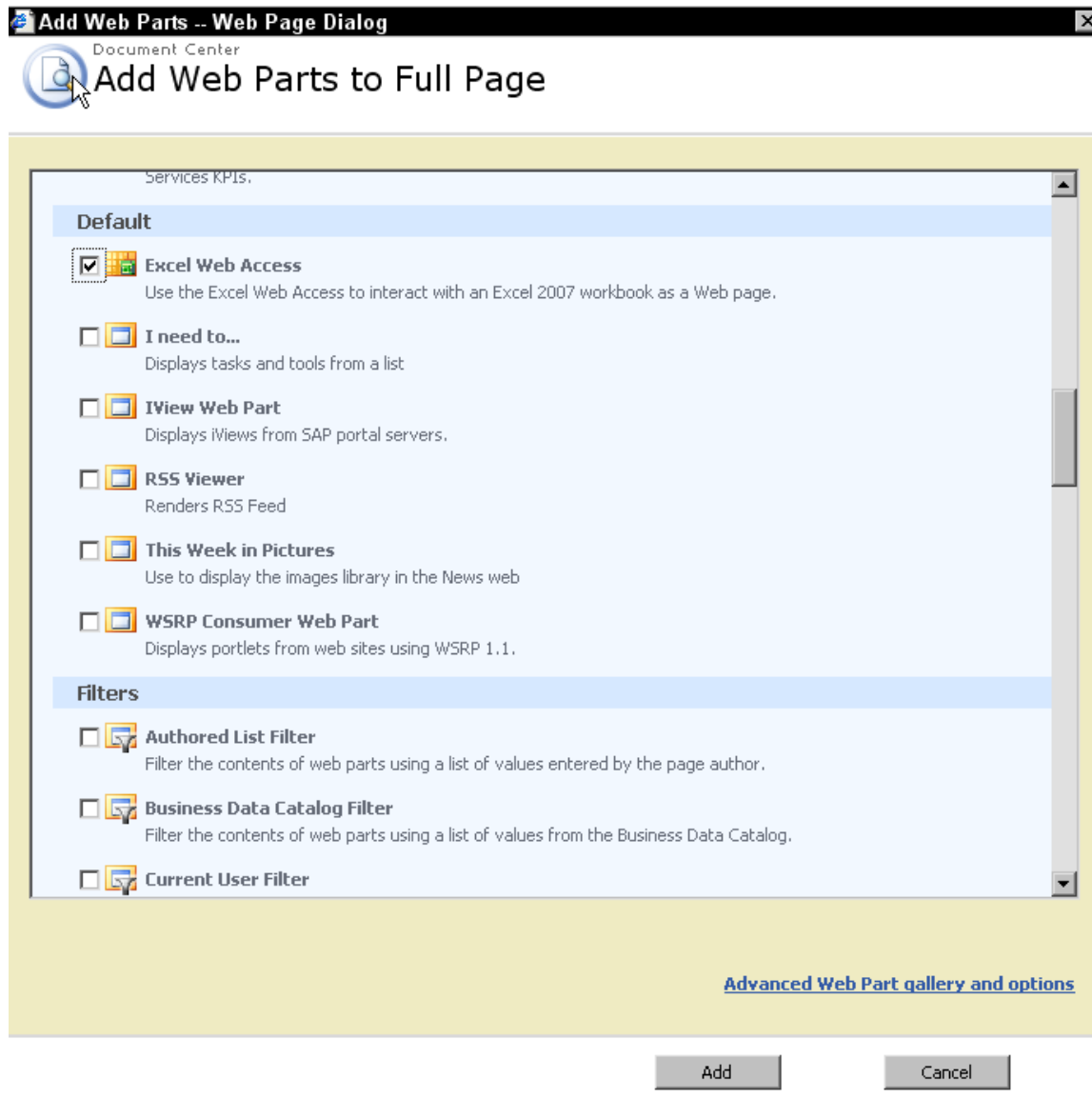


Figure 13.18: New Web Part Page creation menu

7. When the page is displayed click the Add a Web Part option on the middle of the web page.
8. Scroll down until you see the Excel Web Access web part check the box under the Default menu grouping, as in figure 13.19. Check the box by the name of the part and click the Add button at the bottom of the dialog. You will see the web Access web part with the option to open the tool pane.

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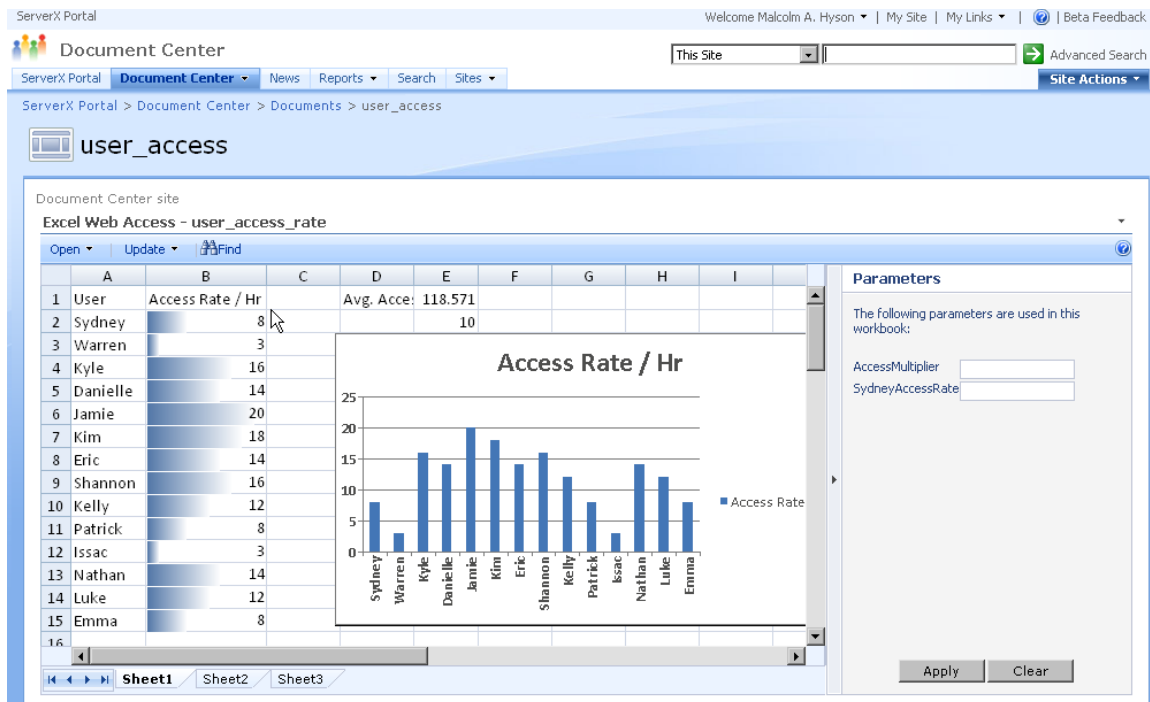


Figure 13.19: Excel Web Access part selection

9. Click the "Click here to open then tool pane" link from the edit drop down on the top right of the web part.
10. When the tool pane opens enter the URL of your workbook under the workbook to display option.
11. Accept the default options by pressing the OK button at the bottom of the web part tool pane.
12. Press the Exit Edit mode option on the middle right hand side of the page to exit edit mode.

You will see the Operation in Progress, animated menu and then your web access page will be displayed, similar to figure 13.20. The Excel web access part acts the same as the web access view of the page allowing you to modify named parameters and update the spreadsheet.

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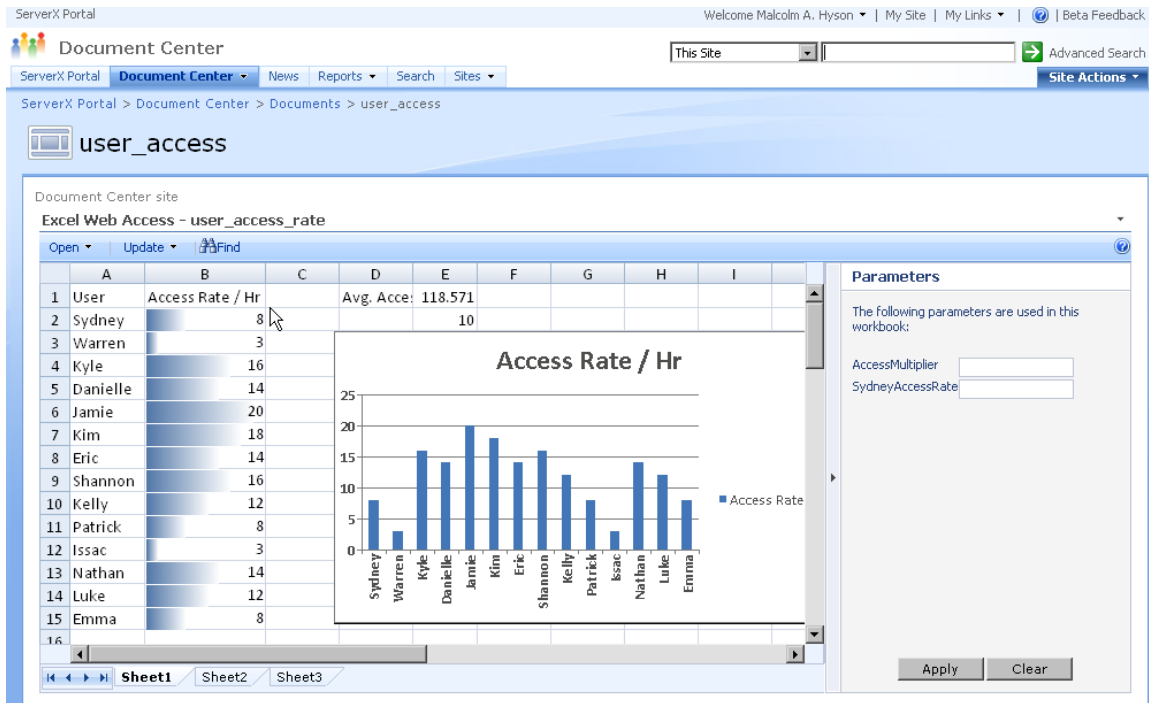


Figure 13.20: Excel Services Web part

13.5.3 Connecting to External Data Sources

Having published a spreadsheet to Excel Services its now time to extend our knowledge by connecting an application to an external data source. For this demonstration I will use the Adventure Works database sample included with SQL Server 2005 and available for download from Microsoft.

SQL SERVER 2005 SAMPLES

The SQL 2005 sample databases are available for download from Microsoft <http://www.microsoft.com/downloads/details.aspx?FamilyId=E719ECF7-9F46-4312-AF89-6AD8702E4E6&displaylang=en>

Office Server 2007 uses the Office data connection format to store its connection properties. One of the easiest ways to create an office data in Excel is to use the connections dialog pane.

OPENING THE DATA CONNECTION WIZARD

To open the data sources pane follow the following instructions:

1. Create a new spreadsheet and select the Data ribbon.
2. Select the From Other Sources button on the ribbon.
3. Choose the From SQL Server button from the drop down menu.

CREATING A NEW CONNECTION

Once you have the Data Connection Wizard open follow the options to connect to the SQL Server view.

1. Enter the server name running the Adventure Works database and press the next button on the bottom right corner of the dialog box.
2. Leave the Connect to a Specific Table option selected and choose the vSalesPerson view with the owner value of Sales from the list of tables in the dialog selection, as in figure 13.21. Press the next button from the bottom right corner of the dialog box.

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Select Database and Table

Select the Database and Table/Cube which contains the data you want.

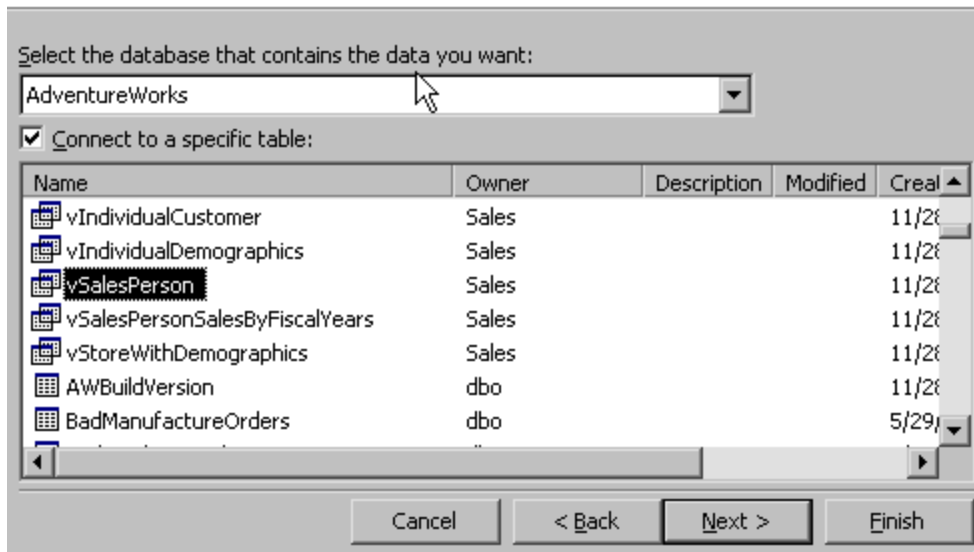


Figure 13.21: vSalesPerson view selection in the Data Connection Wizard

- Now we will determine where we want our data connection stored. Press the Browse... button next to the filename text box if you would like to store your .odc file in another location other than the default My Data Sources folder. We will change the name to AdventureWorks_SalesPerson.odc.
- Enter the following value for the description in the description text box: Adventure Works Sales Person data view.
- Change the Friendly Name field to the following value: Adventure Works Sales Person.
- Next let's examine the Authentication Settings, shown in figure 13.22, button toward the bottom of the dialog box. Clicking this button will allow you to configure how the credentials will be passed to your external data source in the dialog. You have the ability to choose any of the following options:



Figure 13.22: Excel Services Authentication Setting Dialog

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7. We will stick with the default selection Windows Authentication so press OK on the dialog box to close it.
8. We have configured all of our values similar to the sample in figure 13.23 so press Finish to save the file and move onto the Import Wizard.

Data Connection Wizard

Save Data Connection File and Finish

Enter a name and description for your new Data Connection file, and press Finish to save.

File Name:

☐ Save password in file

Description:

Friendly Name:

Search Keywords:

☐ Always attempt to use this file to refresh data

Excel Services:

Figure 13.23: Data Connection Wizard Dialog box

MICROSOFT OFFICE ONLINE

<http://office.microsoft.com/en-us/default.aspx>

9. The Import Wizard and all of its features can be examined further on the Microsoft Office site. For our purposes we will use the Pivot Table Report with the value of =\$A\$1 in the existing worksheet field, your dialog box should look like figure 13.24. Press the OK button on the dialog window to close it.

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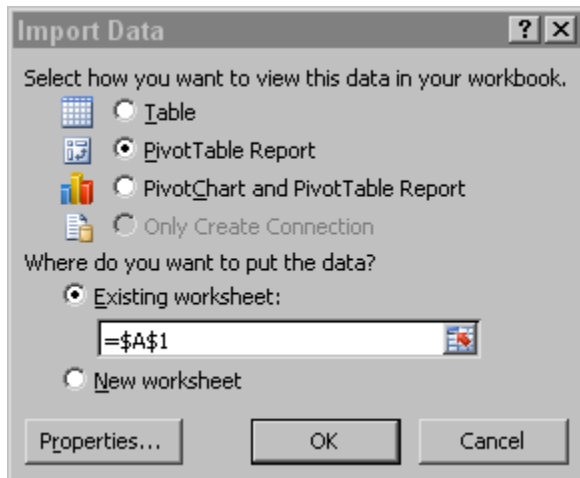


Figure 13.24: Import Data dialog box

10. Add the SalesYTD value from the Pivot Table Field list selections to the values area of the Pivot Field List pane.
11. Next add the CountryRegionName then the LastName fields to the Row Labels area of the Pivot Field List pane. This will leave you with a pivot table similar to figure 13.25.

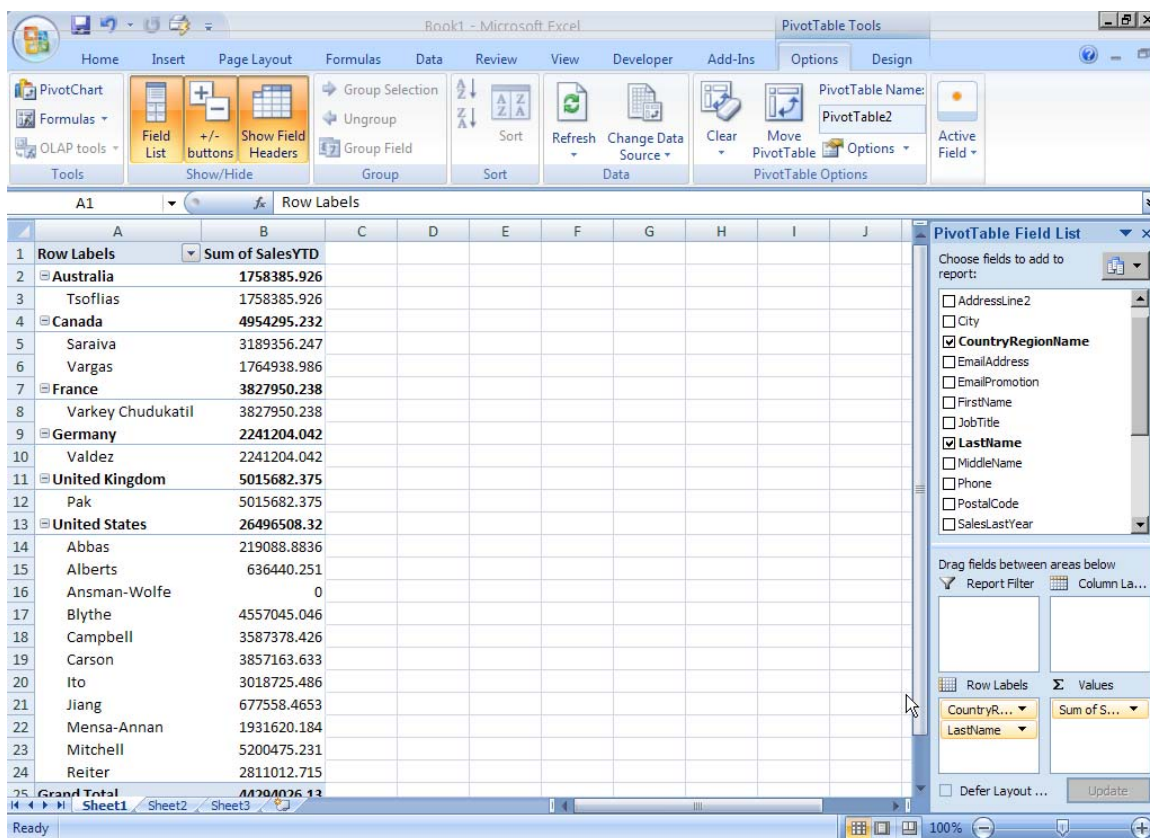


Figure 13.25: Adventure Works sales pivot chart

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12. Now that we have our data displayed lets add some visual effects to emphasize our distinct values. We will use the control selection feature with Excel values. While holding down the Ctrl key select the following cell ranges: B3, B5: B6, B8, B10, B12 and B14:B24.
13. With the data range selected choose the Home ribbon. Then press the Conditional Formatting button and select the Color Scales menu option (see figure 13.26). Choose the first color scale menu option which adjust the background color from red to green with green being the highest value.

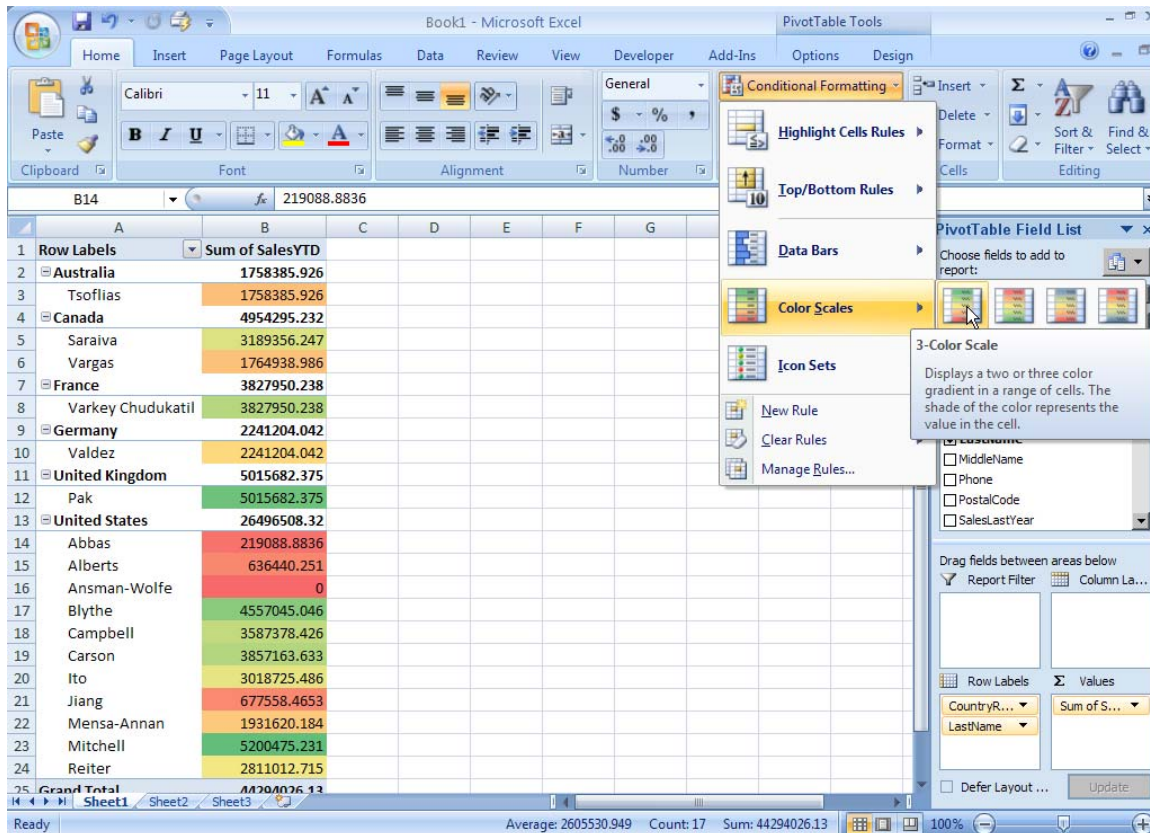


Figure 13.26: Adventure Works sales pivot chart with conditional formatting

14. Now that you have built your spreadsheet publish it to a trusted file location using the steps we defined earlier.

Your display should be similar to figure 13.27 with a pivot table grouping and your cells dynamically shaded based on the data provided.

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Reports							
Open ▾ Update ▾ Find							
	A	B	C	D	E	F	G
1	Row Labels	Sum of SalesYTD					
2	Australia	1758385.926					
3	Tsoflias	1758385.926					
4	Canada	4954295.232					
5	Saraiva	3189356.247					
6	Vargas	1764938.986					
7	France	3827950.238					
8	Varkey Chudukatil	3827950.238					
9	Germany	2241204.042					
10	Valdez	2241204.042					
11	United Kingdom	5015682.375					
12	Pak	5015682.375					
13	United States	26496508.32					
14	Abbas	219088.8836					
15	Alberts	636440.251					
16	Ansman-Wolfe	0					
17	Blythe	4557045.046					
18	Campbell	3587378.426					
19	Carson	3857163.633					
20	Ito	3018725.486					
21	Jiang	677558.4653					
22	Mensa-Annan	1931620.184					
23	Mitchell	5200475.231					
24	Reiter	2811012.715					
25	Grand Total	44294026.13					

Figure 13.27: Adventure Works sales pivot chart

13.6 Summary

In this chapter we reviewed the covered what features are available with Excel Web Services and how they relate to the Excel 2007 desktop application. We also covered the Shared Service Provider settings and how they apply to the Excel web Renderer. Lastly we connected our spreadsheet to an external data source and used the Excel Web Renderer web parts to present our data on the page.

The Excel Services team has provided an excellent model for the publication and management of spreadsheet data. With this new feature content publishers can focus on the creation of shared knowledge with an application they are already familiar with without worrying about spawning another effort to convert the data into a consumable form. By integrating publishing location with content approval workflows organization can now distribute institutional knowledge in an efficient and controlled manner.

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The introduction of Excel Web Services to the MOSS platform further enhances the ability to publish information in a source that is familiar with the content creator. By allowing your end users to publish with this and the other Office formats you can ensure that you have fresh relevant content by easing the pain of publishing.

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14

The Business Data Catalog (BDC)

Application integration is major feature to most corporate portal implementations. By providing a central location to access multiple internal data systems web portals have rapidly become one of the key components in an organizational enterprise data strategy. Developing applications to fit within the portal frameworks can quickly become a large undertaking itself. When faced with the different systems, data structures and user interfaces it takes to tie these multiple systems together in the past you were forced to depend on knowledgeable developers who understood the portal framework and also had an understanding of how to interface with the backend data system. One off implementations of integrated applications will meet the immediate client requirement but are inevitably the request will arrive to integrate additional systems or provided current application modifications causing the redeployment of the compiled components.

If you are a system architect, it is unlikely that your only goal is the implementation of out of the box functionality. You are often faced with the added challenge of mapping the technology to the company's business process and content. Many implementations typically have a honeymoon phase where your customer is awed by the new capabilities provided but soon after that the realization sets in that these new capabilities are not worth anything unless they provide your information workers with information for them to accomplish their daily missions. What separates an application specialist from an architect is the ability to integrate the customers business process with the technology implementation.

So how do you create an application that provides tight data integration and the flexibility to quickly integrate and deploy additional integration efforts? The Microsoft SharePoint Office Server 2007 answer is the Business Data Catalog (BDC). This is one of the greatest additions to the new platform in the terms of business intelligence and data integration. The BDC provides a well defined method of defining external data systems and how they relate to one another with application definitions. This sounds like a lot of marketing jargon but let's examine what is really provided.

The BDC has been provided to give a systems architect a well defined robust form of data integration without the prerequisite of needing to learn a bunch of new Application Programmers Interfaces (API's) to be successful in his endeavor. I have seen some statement that now you can incorporate disparate data systems with "no code". While I agree that you don't need a compiler so there no compiled code I would caution against using that particular statement. I will explain my reasoning for my view of the BDC as I cover the implementation of its features for now I will just state that to me scripting is considered to be a form of code. A script is code that gets compiled at runtime; therefore if you have to write entries that change your returns based on variables and conditions you are implementing some form of code. This is by no means meant to knock the awesome functionality provided by the BDC. The interfaces it provides will dramatically increase your time from envisioning to implementation and thus leaving you with a happy customer.

As you explore the new features of Microsoft Office SharePoint Server 2007 you will notice that there are a variety of integration points with the BDC throughout the platform. Don't think this is just due to the BDC development team lobbying to integrate their code within the product. The Business Data Catalog integration is

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essential in the extension and integration of Microsoft Office SharePoint Server 2007 with external applications. Some of the key features of BDC integration include:

- **Search Integration:** The BDC provides a path to integration with the Office System search architecture. You can define what values are indexed and available for searching. System administrators can then include the results in the enterprise search results or provide localized searches of application content.
- **Profile Property Importation:** Ideally all of your user profile data is stored in a central location such as Active Directory but that is not a realistic scenario in most corporate environments. Platform administrators can map specific BDC values to Office Server user profiles. This functionality allows for the building of concise user profiles from multiple authoritative sources. Combined with the Office Server search and profile personalization options MOSS 2007 is positioned extremely well to serve as the global catalog of profile information.
- **Remote System Content Integration:** This is the heart and soul of the Business Data Catalog. The ability to integrate data from multiple disparate sources into a common framework with a well defined and consistent interface makes the BDC a formidable force in the data integration arena.

14.1 Business Data Catalog Web Parts

As your BDC is populated with applications you will have an easy well defined method to integrate the backend business data into your displays and pages with the Business Data Catalog WebParts. These Web Parts provide customizable displays with the use of XSL. The BDC Web Parts also can utilize Web Part connections to provide more in depth data based on selections from an associated list. All of the BDC parts support common set of Data Form Web Part settings that allow you to adjust the display and source items that feed the respective parts.



Figure 14.1: The Data Form WebPart delivers the ability to integrate remote data sources without the need to write API calls.

The following options are available with each Web Part (see figure 14.1):

- **XSL Editor:** Provides the ability to adjust the XSL that displays the selected items. You are given a default transform when you build the item selection. I would recommend using this as a starting point for your custom modifications.

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- Data Source ID Editor: Allows you to adjust the source id for the web part.
- Parameters Editor: This option gives the content manager the ability to specify parameters that control the data used to select items in the web part.

By providing the Business Data Web Parts in conjunction with the Business data catalog you have you now have well defined standard integration path for your disparate backend systems.

NOTE

When starting any integration effort utilizing Office Server 2007 take a serious look at the Business Data Catalog web parts and how they can speed up your implementation timeframe. They obviously do not span every possible integration scenario but they do provide a tested well defined framework with a consistent look and feel.

Office Server 2007 provides the following WebParts to provide you with the ability to consume and utilize applications defined within the BDC without having to write custom interfaces and deployment methods:

14.1.1 Business Data List

Just as the name implies this WebPart displays a list of entity instances from a BDC application. This part delivers the ability to display pre configured Business Data Items based on set parameters while allowing the user to provide custom parameters at runtime.

To utilize the part place it on a web part page and select the Modify Shared Part option.

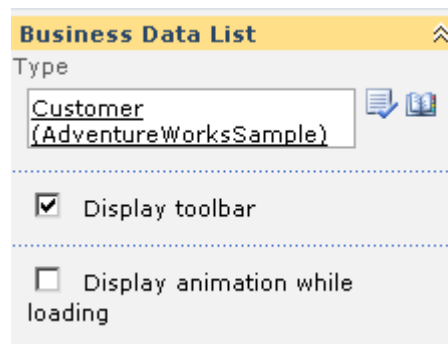


Figure 14.2: The business data list web part provides a simple configuration tools pane making it extremely easy to list your BDC entities.

In the tool bar pane you will have the following Business Data List configuration options (see figure 14.2):

- Type: Gives the content manager the ability to specify the entity to display in the data list.
- Display toolbar: If selected the toolbar will be shown on the Business Data List display.
- Display animation while loading: the web part will show an animated loading gif while data is being retrieved if this option is selected.

While the Business Data List Web Part is in edit mode you can customize the display and selection options by selecting the Edit View option for the Web Part tool bar.

Items to Retrieve

Choose which items to retrieve from AdventureWorks and display in the web part. You can allow users to choose by selecting Retrieve items specified by the user. To display personalized data, choose Retrieve items that meet these criteria and select a user profile property of the current user.

☐ Retrieve all items
☐ Retrieve items specified by the user
☒ Retrieve items that meet these criteria:

☒ Allow user to change criteria
 ID (exact match) ▼
 is equal to ▼
☒ A value:

☐ A user profile property of the user viewing this page:
AboutMe ▼
[Add](#)

Figure 14.3: I definitely recommend making heavy use of the data filter abilities to limit the amount of useless information on screen at any given time.

The Edit View page allows you to configure the following display options (see figure 14.3):

- **Items to Retrieve:** This section of the page allows you to customize what items are displayed in the Business Data List. You can supply a predefined set of parameters or you can allow the user to select what items to display at runtime. You are given the following options in this section:
- **Retrieve all items:** Selects every entity from the selected source.

TIP

Before you choose the Retrieve all items option examine its impact on network and application performance. Queries that take a long time to display will sour the user experience on the site. Attempt to provide the smallest amount of data needed to render the control on the initial page load. This will give you quicker pages loads and your users will thank you for it.

- **Retrieve items specified by the user:** This is the default option. It sets the Web Part to display entities based on user input,
- **Retrieve items that meet these criteria:** When this option is selected you must supply the parameters that control the display of content. Using the menus you can set your result set to be based on a specific value or derived from a user variable at runtime. You can use multiple criterions by clicking the Add hyperlink in this section.
- **Item Limit:** Limits the amount of results returned to the client.
- **Columns:** Provides the ability to select which columns are displayed in the result set.
- **Filter:** By filtering data content manager can restrict result sets even after user selected queries are presented.
- **Sort:** This option allow for the selection of the result set sort row.
- **Pages:** This menu section defines how many items are returned per page.

Final outcome is shown in figure 14.4.

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BDC Components

Customer List

Actions ▾ 1 - 20 ▶

ID (exact match) ▾ is equal to ▾ Add

➔ Retrieve Data

ID	FirstName	LastName
173	Gabrielle	Adams
218	Natalie	Adams
660	Miguel	Adams
870	Kaitlyn	Adams
932	Marcus	Adams
972	Amanda	Adams
1155	Hailey	Adams
1664	Morgan	Adams
1890	James	Adams
1902	Robert	Adams
1951	Mary	Adams
2215	Elijah	Adams
2266	Luke	Adams
2281	Bailey	Adams
2324	Adam	Adams
3043	Stephanie	Adams
3467	Logan	Adams
3582	Kevin	Adams
3641	Mackenzie	Adams
3891	Wyatt	Adams

Figure 14.4: Business Data List example using the adventure works database.

14.1.2 Business Data Item

This Web Part displays detailed information on a selected entity instance. It utilizes the web part connection framework to feed the required selection parameters. The Business Data Item Web Part can also be set to display a specific item if desired.

To connect the Business Data Item to a Business Data List use the following steps:

1. Add the Business Data Item Web Part to a Web Part page that contains a Business Data List.
2. Display the Web Part properties tool bar.
3. Select a type that is currently being displayed in the Business Data List Web Part.
4. Select OK.
5. Select the Business Data List from the Edit > Connections > Get Data From web part menu (see figure 14.5).

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BDC Components

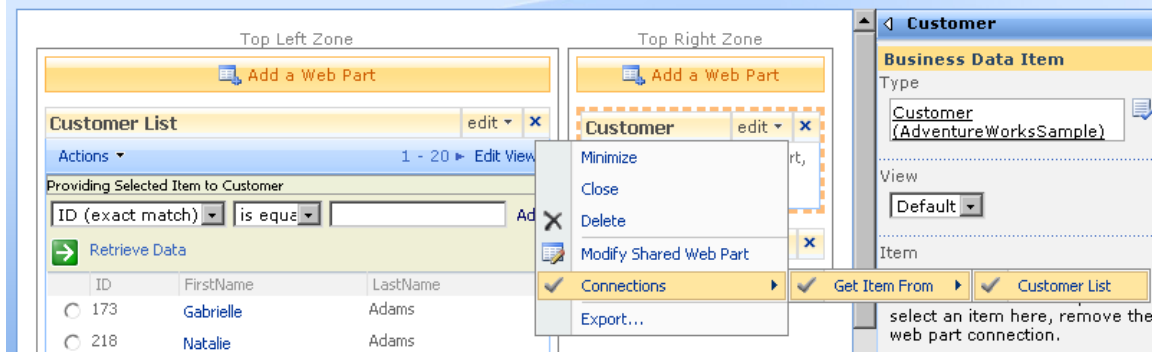


Figure 14.5: Business Data Item Connection Selection

6. Press OK.
7. Select an item radio button from the Business Data List (see figure 14.6).

BDC Components

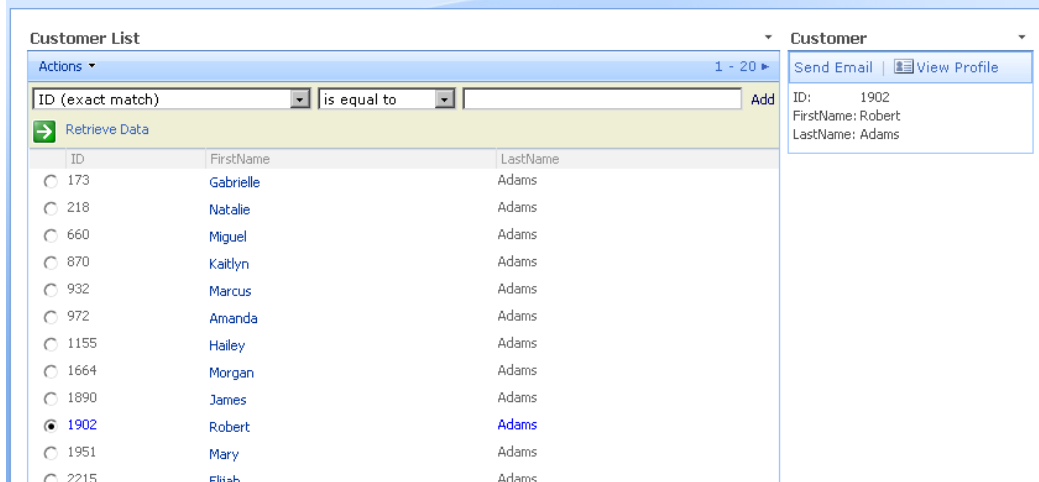


Figure 14.6: Sample Connected Business Data List and Item Web Parts displaying item specific information for the selected entity

You now have a list of items stored within your BDC application definition. Without the BDC the creation of a WebParts similar to this would be its own custom application in itself. So then as you wanted to integrate other applications you would be forced to edit your application to support the new changes as well as maintain them. You now have a common support method of showing items from lists of multiple formats without having to create a custom UI for each one.

14.1.3 Business Data Related List

This Web Part displays a list of items that are relevant to your current Business Data List selection. This type of functionality is great for a parent / child display system. For example if you selected an individual within your organization you could show individuals with the same title in the related list to provide your end user with a listing of individuals who may also be interested in the same information you are providing to your selected employee.

After Adding the Business Data Related List Web Part to a page use the following steps to associate it to a Business Data List (see figure 14.7 for the final result):

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4. Open the Web Part Properties tool pane.
5. Select an entity type that has an association with the Type selector.
6. Select from the list of defined relationships with the Relationship menu option.
7. With the page still in edit mode select the Edit View menu option on the web part toolbar.
8. Select the row to be displayed in the web part.
9. Press OK.

BDC Components

The screenshot displays a SharePoint web part interface. On the left, the 'Customer List' web part is shown in edit mode. It features a search bar with the text 'ID (exact match)' and a dropdown menu set to 'is equal to'. Below the search bar is a 'Retrieve Data' button. A table lists customer records with columns for ID, FirstName, and LastName. The record with ID 1902 (Robert Adams) is selected. On the right, the 'Customer' web part displays the details for the selected customer: ID: 1902, FirstName: Robert, and LastName: Adams. Below this, the 'Sales Order List' web part is shown, displaying a table of sales orders for the selected customer. The table has columns for ID, IndividualID, Order Date, and SubTotal. Two orders are listed: one with ID 32269 and another with ID 36681, both associated with IndividualID 1902.

ID	IndividualID	Order Date	SubTotal
32269	1902	6/7/2002 12:00:00 AM	3578.2700
36681	1902	3/3/2004 12:00:00 AM	2338.9700

Figure 14.7: Sample Connected Business Data List and Related List Web Parts

The BDC related list part quickly allows you to display entities related to your item based on the relationships defined in your application definition.

14.1.4 Business Data Actions

Allows you to perform actions on a particular entity in your application. These actions are defined in the Business Data Catalog and can vary based on the entity definition. If your Metadata Author was generous enough to define actions you can perform on a given entity you can access them here.

To connect the Business Data Actions Part to a Business Data List use the following steps:

1. Add the Business Data Actions Web Part to a Web Part page that contains a Business Data List.
2. Display the Web Part properties tool bar.
3. Select a type that is currently being displayed in the Business Data List Web Part.
4. Select OK.
5. Select the Business Data List from the Edit > Connections > Get Data From web part menu.
6. Press OK.
7. Select an item radio button from the Business Data List.

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BDC Components

Customer List

Actions ▾ 1 - 20 ▶

ID (exact match) ▾ is equal to ▾ Add

➔ Retrieve Data

ID	FirstName	LastName
☐ 173	Gabrielle	Adams
☐ 218	Natalie	Adams
☐ 660	Miguel	Adams
☐ 870	Kaitlyn	Adams
☐ 932	Marcus	Adams
☐ 972	Amanda	Adams
☐ 1155	Hailey	Adams
☐ 1664	Morgan	Adams
☐ 1890	James	Adams
☒ 1902	Robert	Adams
☐ 1951	Mary	Adams

Customer Actions

- Send Email
- View Profile

Customer

Send Email | View Profile

ID: 1902
 FirstName: Robert
 LastName: Adams

Sales Order List

Actions ▾

ID	IndividualID	Order Date	SubTotal
32269	1902	6/7/2002 12:00:00 AM	3578.2700
36681	1902	3/3/2004 12:00:00 AM	2338.9700

Figure 14.8: Sample Connected Business Data List and Action List Web Parts delivering content to the end user in an easy to interpret interface.

14.1.5 Business Data Item Builder

This Web Part is used in the Business data profile web pages. With this part you can build Business Data items based on values from a query string. Currently there is little documentation on using the data item builder. Once the query string format is provided you will be able to use this web part as a data provider to other web parts on the same page. This web part has no runtime interface as its sole purpose is to direct data to its consumer parts.

14.2 Extending Search

When defining your application definitions you can also declare how MOSS will index and search your data. What does this mean exactly? You'll notice that you can search just about anything you place into MOSS and BDC applications are no different. So now you can search your custom applications just by doing simple or advanced MOSS searches. Before the BDC if you wanted to add your custom application to search you had to write your own Bulk Protocol Handler which is a set of C++ interfaces that define how to crawl and import data into the SharePoint search engine. To debug your handler you either have to attach to the search service and add breakpoints to your dll or you had to build your own debug application.

With the BDC you can declare entities as enumerable which means that the search engine can crawl and index the content of the item to be included with your MOSS search results. I highly recommend declaring your entities as enumerable since it will only aid in the discovery of information within your BDC application and providing additional knowledge whenever possible is a good thing.

By adding your BDC application as a content source for your search settings for the SSP your BDC application will be indexed during the crawl process. This means that when a user enters a search via the search dialog box your BDC application data will be displayed in conjunction with the result sets if the matching terms are found.

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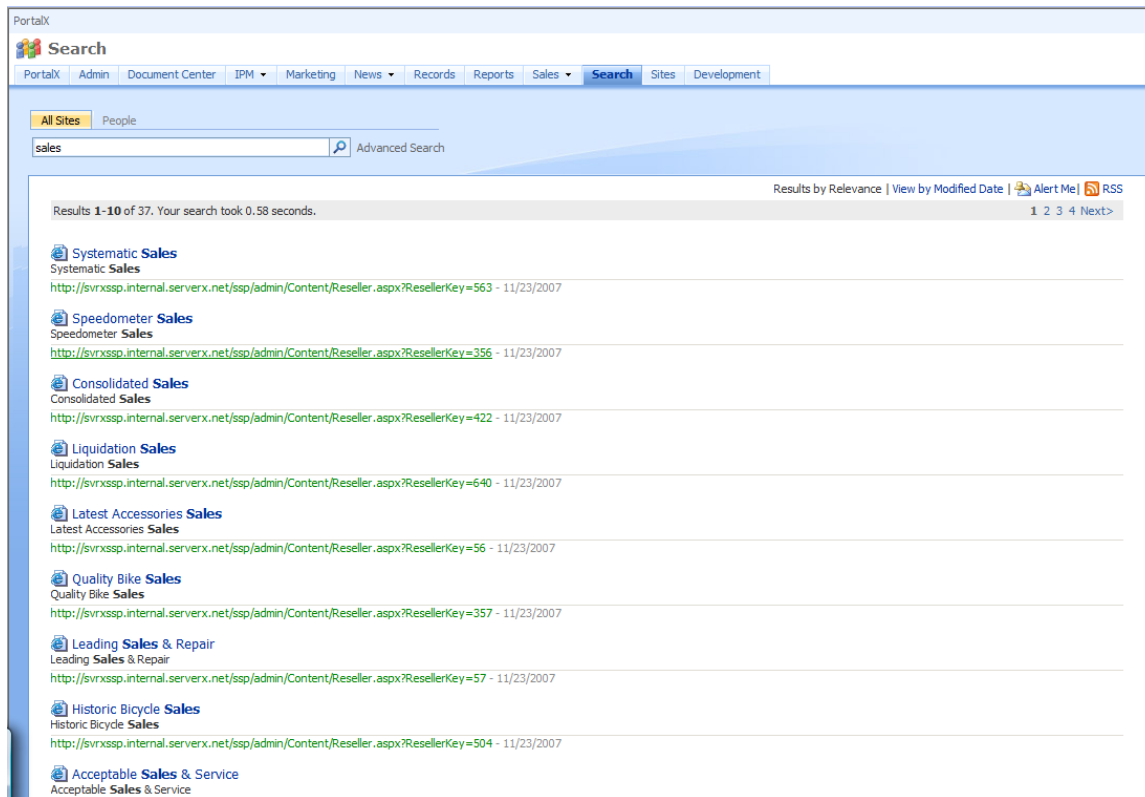


Figure 14.9 The Adventure Works DW BDC sample integrated with the search center.

14.3 Creating a BDC Database Application Definition

Creating a BDC application definition can seem a bit intimidating at first but as long as you know the options available I believe you will find the creation of new definitions a manageable please notice that I didn't say simple endeavor. The MOSS 2007 SDK has always included a sample of the creation of an application definition created manually and it was the only way to create one using the utilities provided by Microsoft until the August 2007 release of the SDK which includes the BDC Application Definition Editor (BDCADE), seen in figure 14.10.

Even though BDCADE sounds like something you should be drinking in between workouts you can't underestimate its impact in the realm of solution developers. With the release of MOSS 2007 the word from the dev team at Redmond was that there would be no UI editor for application definitions planned in the near future.

Many of us found it hard to believe that Microsoft would develop such a great and wonderful tool and not give you a simple point and click editor to create application definitions for it. I personally like to edit application definitions in an XML editor but I completely appreciate how important it is to have a good UI to accomplish the rapid creation and editing of complex XML files.

In sticking with my this is a type of code paradigm its like not having an IDE for C# developers. While sure they could develop applications without the use of the Visual Studio interface having that visual editor has made the creation of .NET applications almost a joy to create. C++ is still my favorite language (insert all old dinosaur jokes here) and I believe it or not enjoy command line compilation and editing the source code in all type of text editors but when someone walks into my office with a new project I crank up Visual Studio and worry about the creation of the solution and not whether or not I have matching curly braces. Having that same type of UI utility for the BDC will only make its adaption more popular and further ensure its place in BI / data integration toolkits.

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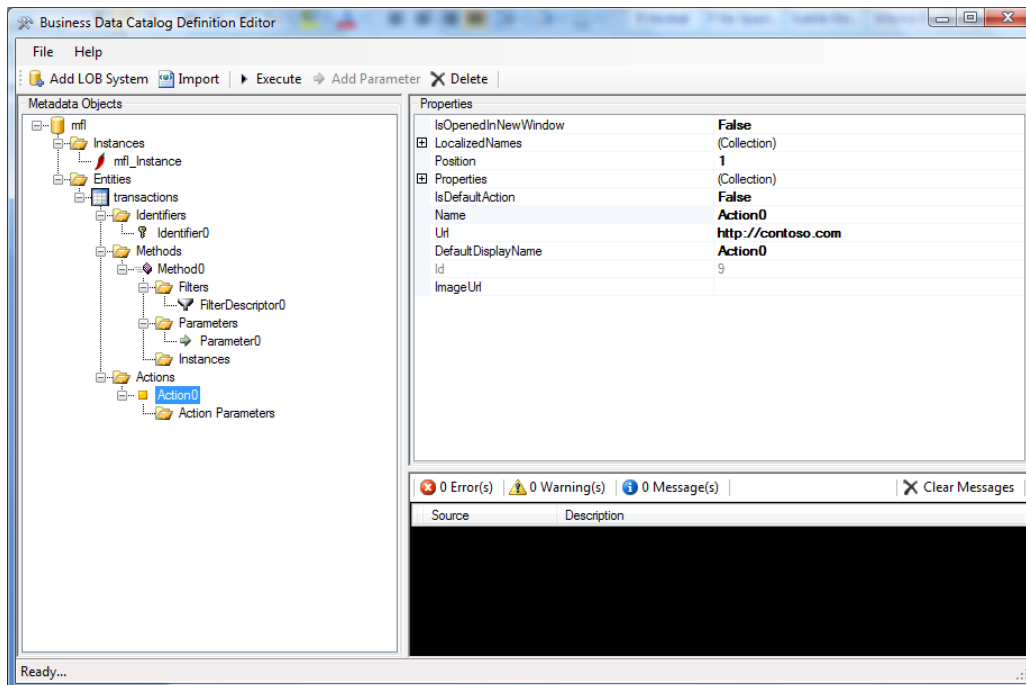


Figure 14.10 BDC Application definition editor. It is available in for download in the Office SharePoint SDK 1.2 and above from Microsoft.

Before the release of BDCADE there were a few tools that stepped in to fill the void of being a UI editor for application definition files. One that has gained some popularity is the BDC Meta Man tool. This MetaMan tool is fairly straight forward and makes short work out of the production of BDC Application Definitions files.

NOTE

You can download the BDC MetaMan from (<http://www.bdcmetaman.com/>) there is a free developer version available for download. If you need a few more additional features check out the professional version.

Before we discuss the implementation of data source lets cover the primary roles needed to successful to define and create an effective business data integration source.

- **Business Analyst:** Your business analyst will provide the metadata definitions as well as their locations. Your analyst should be knowledgeable enough about your internal data repositories to define the content locations and relationships to conceptualize them a form understandable by the rest of the team.
- **Metadata Author:** While you expect your business analyst to have the ability to tell you what they want you would not expect them to be able to explain how to get what they want within the context of an application definition. This Metadata Author can be seen as the middle man between the business analyst and your backend data systems.
- **Administrator:** The administrative role in the development of the application definitions is fairly straight forward. You r administrator is responsible for ensuring the application definitions are added to the business data catalog and configuring the needed server side components for your developers and metadata authors. For example if your application needs Single Sign-On your administrator will configure the SSO application and provided the definitions to the required parties.

NOTE

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Even though the administrator seems to be a trivial role in the creation of the BDC definition do not underestimate this role. The administrator will control the “keys” to your application and most likely several others. Utilize his knowledge in when defining your data connection schemes to decrease the time needed in figuring out the proper connection parameters.

- **Developer:** Now that the connections and metadata have been defined your developers can now extend your solution by creating custom applications that utilized the business logic in the BDC. This provides you development team with a common way to connect to your business data sources. Your developers can know leverage the critical business logic incorporated in the definition by the business analysts and metadata authors.

This role breakout is meant only as a reference point. There can be additional definitions based on your organizational structure requirements. Providing clear definitions of roles and responsibilities will aid in the development of a successful application integration project. While we will touch on the roles of the business analyst and developer we will focus the bulk of our attention on the metadata author and administrator roles.

Each system in your BDC is defined with an application definition. These are created as xml formatted files that follow the BDC Metadata schema. The default location for the BDC Metadata schema file is <root>:\Program Files\Microsoft Office Server\12.0\Bin\BdcMetadata.xsd. As you build your application definition it is recommended that you design and test small sections of the definition as you go. This approach will aid in the testing and debugging of your application definition by allowing you to find implementation errors quickly. It also allows you to focus on small sections of the application definition as opposed to attempting to debug the entire file at once.

14.4 Connecting the BDC to a Web Service

While there are volumes of content stored within database back ends the move to services oriented architectures built on top of we services provides us with more system integration opportunities than ever. The Business Data Catalog is built to consume web services natively and thus provides us with an optimal integration path when web services are offered.

If you are connecting to a web service you are more than likely a developer and have knowledge of the different SDKs needed to connect to your back end data source. The Office Server SDK provides an Amazon web service example to give you a good working sample of a BDC application in this type of architecture. Due to the developer centric nature of web service development and integration I will defer to the Office Server SDK for a full example. In it you will find a nine step example with a load of sample lines demonstrating this functionality,

To create a web service application you follow steps one through four from the database connectivity example. You would then define your methods, entities and filters using the same structures mentioned above. After that you then define your system associations to complete your application definition.

14.5 BDC Administration

The BDC Administration is provided as one the Office Server shared services under the Business Data Catalog grouping (see figure 14.11). From this location you can manage your BDC applications by importing new definitions, managing entity security, configuring SSO Settings and other task that are involved with BDC application administration.

Business Data Catalog

- Add application
- View applications
- View entities
- BDC permissions
- Edit profile page template

- **Figure 14.11: Business Data Catalog Core Services Menu Group menu hierarchy**

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The BDC menu includes the following links to administer the Business Data Catalog:

- **Add Application:** The add application page allows you to import your custom application definition into the Business Data Catalog. Application Definitions will be covered in more detail in this section.
- **View Applications:** This link displays a listing of applications that have been added to the BDC. Each list item contains several options:
- **View Application:** This link displays an application configuration dashboard with links to the drop down menu options and a list of entity items contained in this application definition with context sensitive entity menus (see figure 14.12).

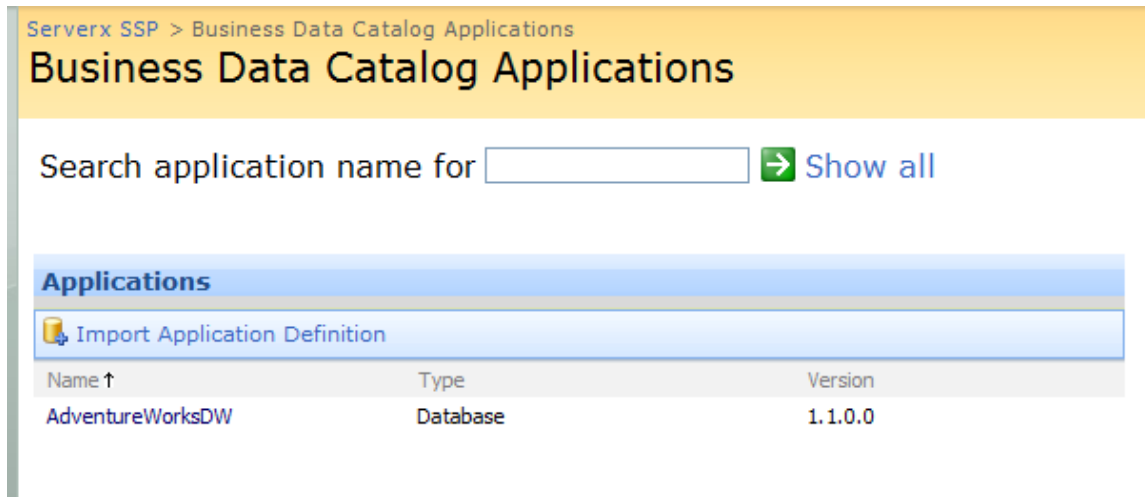


Figure 14.12: View Application form

- **Change Settings:** The page provides options to change the application connection settings. You can configure the data source connecting string, how user credentials are stores, and the amount of simultaneous connections available to your end users (see figure 14.13).

Shared Services Administration: ServerXSSP

Welcome SERVERX\xadmin | My Site | My Links | Beta Feedback

Shared Services Administration: ServerXSSP

Home

ServerXSSP > BDC Applications > AdventureWorks > Change Settings

Change Application Settings : AdventureWorks

Name and Type

Application Name:
AdventureWorks

Application Type:
Database

Connection

Data Provider:
Microsoft Sql Server

Connection String:
Data Source=svrxsvr02; Initial Catalog=AdventureWorks2000; Integrated Security=SSPI; Pooling=false;

Access Account

Select the account the Business Data Catalog uses to access the database. To take advantage of database connection pooling, you must access the database as a service account. If the database enforces per-user permissions, you must access it as the end-user.

To use authentication modes that require stored credentials, create a Single Sign-on application to securely store the credentials.

The Single Sign-on service is not configured. Please contact the Sharepoint administrator to correct this problem

☐ Server process account

☒ Logged-on user (requires Kerberos delegation)

☐ Windows credentials from Single Sign-on

Figure 14.13: Change Settings form

- **Manage Permissions:** Allows you to manage the permissions in the context of the application definition. You can use this option to set which users have the rights to Edit, Change properties for the application and who can change application permissions (see figure 14.14). If you have imported a BDC definition and your users are complaining that they are not getting any results you will need to check to ensure they have the appropriate rights in this section.

Shared Services Administration: ServerXSSP

Welcome SERVERX\xadmin | My Site | My Links | Beta Feedback

Shared Services Administration: ServerXSSP

Home

ServerXSSP > BDC Applications > AdventureWorks > Manage Permissions

Manage Permissions : AdventureWorks

Use this Page to control access to AdventureWorks

[Add Users/Groups](#) | [Remove Selected Users](#) | [Modify Permissions of Selected Users](#)

	User/Group	User/Group Name	Rights
☐	xadmin	SERVERX\xadmin	View, Edit, Manage Permissions, Selectable in clients
☐	services	SERVERX\services	View, Edit, Manage Permissions, Selectable in clients

Figure 14.14: Manage Permissions configuration page

- **Export Application Definition:** Saves the application definition to a file format.
- **Delete:** Removes the application from the BDC.
- **View Entities:** The Business Data Catalog Entities page list any entity items defined in the application definition with context sensitive configuration menus. The view entity context menu options are listed below:
- **View Entity:** The View Entity option displays entity item information using the default entity view (see figure 14.15).

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Home Site Actions

ServerXSSP > BDC Applications > AdventureWorks > Customer

View Entity : Customer

Entity Settings

Name : Customer
 Application : AdventureWorks
 Crawlable : No

Manage Permissions

Fields(of default view)

Name↑	Type	Title	Display by Default
FirstName	System.String		X
ID	System.Int32		
LastName	System.String		X

Relationships

Name↑	Related To	Role in Relationship
CustomerToSalesOrder	Sales Order	Source

Actions

Add Action

Name↑	Type	Default	URL
Send Email			mailto:{0}.msn.com
View Profile		X	http://svrxsvr02:80/ssp/admin/Content/Customer.aspx?IndividualID={0}

Figure 14.15: Entity View Permissions form

- **Manage Permissions:** Allows administrators to define what users can view or edit entities contained in an application. This is where you can define your security at the entity level.
- **Manage Permissions:** The BDC Application configuration permissions for editing and permissions management can be configure with the BDC Manage Permission UI.
- **Edit Profile Page Template:** The default page layout for a new BDC profile can be configured with this menu selection. Here you can customize your page layout and design to fit your needs.

14.6 Summary

The Business Data Catalog is where Office Server 2007 meets your enterprise data sources. Leveraging the BDC as your corporate data integration suite will provide your staff with a well defined and structured approach to external content consumption and management.

I firmly believe that the BDC will grow in popularity as Office Server 2007 is adopted into organizational architectures due to its focus on content integration not importation. Since many systems contain defined data structures pre built application definitions have begun to become available with more in development as at the time of this publication.

Office Server 2007's approach allows each system to maintain its function within the organization while integrating them into a common UI with a consistent look and feel. The pursuit of a standards based user interface within a portal environment has always been a tricky one and the BDC is a gigantic step in this direction.

Before the introduction of the BDC many hours of development were spent integrating different applications into a common model. Even then they were mainly custom developed applications without a common data model underneath. Even those that took the time to model their applications still had disjoint data islands when it was all said and done. The BDC gives you that BI glue across all of your enterprise applications with the support of a common data model. Every once and a while you see an application released that makes you say "Man why didn't I think of that" for me the BDC is one of those apps.

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15

Using SharePoint Designer 2007

In This Chapter

- Why Design – the role of Web design in SharePoint?
- How SharePoint Designer 2007 can enhance usability in SharePoint sites
- Using SharePoint Designer 2007 to add functionality to, and change the look and feel of, SharePoint sites

In 2006, Microsoft released two new Web design technologies, Expression Web and SharePoint Designer 2007. Expression Web is aimed at designing, and integrating rich media content into, *non*-SharePoint sites. SharePoint Designer 2007 is specifically for customizing and extending functionality within SharePoint sites. Both products are built on the ASP.NET 2.0 framework and integrate features such as master pages and Cascading Style Sheets (CSS).

SharePoint Designer 2007 is well suited to the information worker who wants to customize SharePoint sites beyond the browser capabilities without writing complex code. This includes creating new SharePoint master pages to change the look and feel of SharePoint sites while still maintaining the benefits of the core Microsoft Office SharePoint Server (MOSS) 2007 content management functionality. Further, SharePoint Designer 2007 alleviates IT administrative overhead by including the ability to limit the editing features made available to end users as well as built-in safety net features to undo undesired editing changes to SharePoint pages and sites.

SharePoint Designer 2007 is a powerful Web design tool and, while we can't cover all of the features within a single chapter, we'll introduce the key customization features such as working with SharePoint master pages and CSS files. The aim of this chapter is to show the type of customizations that can be achieved using SharePoint Designer 2007, as opposed to detailed, step-by-step walkthrough exercises. By the end of this chapter, you'll understand key aspects of the product and how it can help you to effectively customize sites throughout your SharePoint deployment.

Before we delve into working with SharePoint Designer 2007 and surfacing some of its capabilities, we'll cover fundamentals of Web site design to help prepare you for customizing your SharePoint sites.

15.1 The Role of Design in SharePoint Sites

In this section we'll look briefly at several Web design concepts which will help you make design decisions in customizing SharePoint sites. Even before embarking on the actual technology, you would do well to consider Web site design concepts when planning your SharePoint deployment. You shouldn't assume that by simply installing MOSS 2007 all your design needs will be met or that SharePoint sites are exclusive of Web site design fundamentals. There are considerations such as the layout of the pages, how the navigation will look and function, positioning of menus on pages and logos, and color schemes for sites. Other considerations include identifying with the intended or potential users of the Web site, for example, if you're designing an ecommerce site as opposed to a

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University student collaborative site you'll want to consider the different use case scenarios for each site and the way users will interact with the different types of information within each site..

Below, we've summarized some of the more common Web visual and interaction design concepts and design best practices you may want to consider in designing your SharePoint sites, and in preparing to customize SharePoint sites using SharePoint Designer 2007. Later, we'll discuss best practices for implementing those design concepts using the tools within SharePoint Designer 2007.

15.1.1 Design Tools

You can use design tools to more effectively structure and design SharePoint sites. Here are some of the tools and techniques to consider:

- Wireframes – mockups of Web pages used in determining the site's information architecture, how pages will be structured and users will navigate between each page.
- Card sorting – used in categorizing and matching menus and sub menu items, such as 'Apple' belonging to 'Fruit'. This methodology is useful during the initial phase of information architecture to determine how users will find information. .
- Color charts – help to identify Web safe colors and match colors against corporate styles and colors, such as red, green and blue (RGB) and cyan, magenta, yellow and black (CMYK) color patterns.
- Universal Modeling Language (UML) – uses a methodology comprising *actors*, *scenarios* and flowcharting to help determine how users will interact with a Website.

15.1.2 Web Standards, Compliance and Accessibility

Includes those standards as identified and recommended by the the World Wide Web Consortium (W3C), such as standards for Web page coding language and the way Web pages work with and display in different browsers. Web page standards also include Section 508 accessibility standards, such as testing pages for readability and color for the visually challenged users. Accessibility goes a long way further than making Web pages accessible to the visually challenged user, such as consideration for the elderly user in terms of page layout and Web site navigation. In some countries, organizations, such as Government, can be held liable for making a Web site inaccessible to users with physical or psychological conditions.

SharePoint Designer 2007 includes editing features and tools which recognize W3C standards and includes the ability to test SharePoint pages for compatibility against different browsers and coding standards.

15.1.3 Navigation

Users who visit your Web site will use one of two methods to find information – navigation and search. We've already mentioned card sorting as a way of identifying primary categories for a site's navigation and recognizing how users will find information. In fact, experience tells us that if a user has to click through more than two levels of navigation to find information on a Web site, they're likely to give up and go somewhere else. The positioning and styling of navigation is also important, such as whether you'll include both horizontal and left-sided menus within your site structure and whether those menus will be *static* or *dynamic*, such as *dropdown* or *flyout* menu actions to allow users to access sub menus. There is a degree of fine tuning between the information and presentation layers of navigation and you shouldn't underestimate the importance of developing a good navigational scheme for your Web site. Next to visual Web site design and search capabilities, navigation is key to a successful Web user experience.

The in-browser capabilities of MOSS 2007 provide a degree of navigational flexibility such as the ability to display parent navigation within subsites and enable dropdown menus from top horizontal navigation. SharePoint Designer 2007 extends in-browser navigational customization by including the ability to change the orientation, look and feel, and placement of a page's navigation, as well as switch between static and dynamic menu actions.

AVOID DISORIENTING END USERS

Another aspect of navigation is the flow of navigation – backwards, forwards and sideways. You should always ensure that your users can easily find their way back to where they came from by structuring your navigational hierarchy so that it connects throughout sites and pages within sites. This is often referred to as reciprocal

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navigation – *the way back*. MOSS 2007 does a good job of this by using a navigational schema referred to as Breadcrumb navigation which shows the user's path in relation to their current location within a Web site. We can relate breadcrumb navigation to the story of Hansel and Gretel who left a trail of breadcrumbs so they could find their way back through the woods. Breadcrumb navigation looks something like:

Site A > Sub Site B > Page A > Page A1

Page A1 is the current page, while each preceding section identifies pages and sites which lead back to the beginning – Site A. Preceding pages and sites in breadcrumb navigation are formatted as hyperlinks so users can easily navigate back through a navigational hierarchy.

15.1.4 Colors

Color plays an important role in the visual design of your Web sites. Web page color composition can range anywhere from adding to 'eye candy' effects on Web pages to setting the mood for a Web site. For example, you wouldn't envisage the color black as being the dominant color for a Florist Web site, but you might use the color black as a background color to more fully expose a blooming floral display.

15.1.5 Fonts, Text and Images

Plan to standardize on font type and size throughout your Web site. For instance, don't swap font type between Arial and Times Roman on the same page and monitor the font size as you test your Web pages in various page resolutions and using different Web browsers.

Text *chunking* is another consideration. Aim to keep paragraphs on Web pages to around 10 lines to enhance online readability.

Identify hyperlinks as hyperlinks! Users appreciate being able to see where they're already been, which is typically achieved by using styles throughout your Web site to display visited hyperlinks in a different color to unvisited hyperlinks. You can also add decoration to hyperlinks such as including an underline when users hover over a link.

If you intend associating text with images on a Web page, then make sure you group the text and images close together so users will be able to identify the relationship between the two.

Take care when using images and animations on a Web page. For instance, identify with the intended audience of the Web site. A marketing site is more likely to make heavy use of animations, such as Flash, as opposed to an engineering site. Does the user want to be entertained or are they more likely a user who is visiting your site to quickly locate information? Also, consider the size and resolution of images included on Web pages and remember that users attempting to view your pages over slower connections will find a 600dpi image much slower to load than a 75dpi image.

15.1.6 Portability of information in sites

Summarizing Web site information by placing it into a PDF (Portable Document Format) can provide a means for offline reading. But, remember also that some users will rather see the information in its entirety on the actual Web page. Some users won't necessarily have a PDF reader available and some users will find it difficult switching between a Web page and PDF format. So, if you do use PDF for summarizing Web page information, use it for just that – *summarizing*. Have the same information available in both Web page (HTML) format and PDF format. Remember too that to enhance accessibility PDF files should be made accessible to screen readers and there is a setting available when saving PDF files to enable this capability.

15.1.7 User Testing

User testing in any Web site development is paramount to the success of a Web site and whether the site will be used productively. By identifying the primary and secondary audiences for a Web site and including representatives of those audiences throughout the development stages can mean the difference between a make or break of a Web site. Plan to include a user testing strategy throughout your SharePoint site deployment plan.

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In this section, we've covered Web design concepts which you can consider when customizing your SharePoint sites. Next, we'll dive into using SharePoint Designer 2007 and show you how you can effectively use SharePoint Designer 2007 to both administer and customize your SharePoint sites.

15.2 Designing SharePoint Sites using SharePoint Designer 2007

SharePoint Designer 2007 is specifically designed for customizing, and enhancing functionality in, SharePoint sites. We've outlined Web site design best practices above, including Web standards and visual and interaction design considerations. SharePoint Designer 2007 includes design tools which we can easily employ while customizing SharePoint sites, such as accessibility, compatibility and CSS (Cascading Style Sheets) reports and validation tools to ensure that Web pages customized using SharePoint Designer 2007 will function correctly in Web browsers and meet the minimal design standards as defined by the World Wide Web Consortium. SharePoint Designer 2007 includes the ability to view customized SharePoint pages in real time design view ahead of publishing pages, meaning that you can view positioning of Web page objects, such as text, images and menus before choosing to make pages visible to end users.

15.2.1 Key Features

From a broad perspective, SharePoint Designer 2007 does a lot more than styling Web pages and visually enhancing the look and feel of sites - in fact, far too much to cover in one chapter. So we've summarized the main feature areas below and which we'll expand on in subsequent sections of this chapter.

ADMINISTRATION OF SHAREPOINT SITES

SharePoint Designer 2007 includes the ability to backup and restore sites and site collections and move sites, as well as move documents between sites. It also integrates directly with user permissions in SharePoint sites to configure the level of end user customization allowed, referred to as contributor settings. For example, you may have some users throughout your organization who you'll want to allow unlimited editing capabilities within SharePoint Designer 2007, such as editing a site's master page, while you may want to limit other users to basic customization such as only being able to edit pages within a particular folder. SharePoint Designer also extends the SharePoint reporting capabilities with custom reports, such as usage reports and broken hyperlink reports, and the ability to check on master page usage throughout sites, such as in the case of using multiple master pages which master page a page is referencing.

DESIGN IN SHAREPOINT SITES

SharePoint Designer 2007 works directly with SharePoint master pages, which are based on the ASP.NET 2.0 framework. This makes it easy to quickly change the look and feel of an entire SharePoint site or site collection. You can add common Web page objects, such as menus, banners and logos, search area and links and update the look and feel of a SharePoint site *from a single master page*. You can combine master pages with one or more cascading style sheets (CSS) to add color and style to your sites. For instance, you could create a single master page to address the layout of pages and placement of common objects, such as navigation, and then reuse that master page across multiple sites and change the CSS file to add an alternative color scheme where applicable. In addition, SharePoint and SharePoint Designer 2007 also supports nested master pages, which means you can have parent and child master pages and use a child master page to extend functionality included within a parent master page, such as additional menu components or other special functions.

BUSINESS LOGIC AND DATA INTEGRATION

The data integration features in SharePoint Designer 2007 make it easy to integrate SharePoint sites with legacy and external databases, using built-in data source providers. For example, connect to an external MSSQL database and use data form Web Parts (also known as data views) to create custom and formatted views of data and add the ability to edit and update external data directly from within SharePoint sites. Data Views and Data View Web Parts (DVWP) are covered in detail in Chapter 16, "The Data View Web Part".

BUSINESS PROCESSES

Using the SharePoint Designer 2007 workflow tool, you can automate existing manual processes, or extend existing automated processes, within your organization by creating custom workflows. For instance, say you have an existing travel database whereby an employee submits an online Web form and an e-mail is sent to the employee's manager - and stops there. Using custom workflows, you could extend that system to include

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additional actions, such as including the ability to have the employee's manager reject or approve the travel request and then for the e-mail to be routed appropriately depending on the manager's decision and also have the requesting employee alerted at certain stages of the workflow.

15.2.2 Comparison to In-browser Customizations

MOSS 2007 out-of-the-box includes the ability to perform in-browser customizations, such as modifying links in the top and left-hand navigational menus throughout sites and uploading CSS files to override *existing* CSS styles throughout sites. But, if you want to perform more advanced customizations, such as repositioning and changing the orientation of menus, and creating new CSS styles and master pages, then you'll need to use SharePoint Designer 2007. Table 15.1 snap shots some of the key differences between in-browser and SharePoint Designer 2007 customizations for two key functional areas - navigation and look, and feel-design.

Table 15.1 Differences between customizing SharePoint navigation and design using in-browser tools and SharePoint Designer 2007

Functional Area	Browser Tools	SharePoint Designer 2007
Menus and navigation	• Modify links in horizontal and left-hand menus • Add new links • Modify existing links • Hide links from end users • Choice of using Quick Launch and Tree View style menus • Disable Quick Launch menu from display • Inherit parent navigation • Sort navigational links by Title, Created Date, Last Modified Date in ascending or descending order	• Reposition and change orientation of menus on pages • Remove menus from sites and individual pages, and realign page guttering • Add site navigation to Web Part pages • Modify menu content • Menu behavior - toggle menu display between static and dynamic, such as fly out menu effects • Limit the number of submenu items displayed • Modify the style of menus – font, background • Bind particular navigational styles and menus to SharePoint master pages • Add custom ASP.NET menus to SharePoint sites
Look and Feel – Design	• Change the master page for a site and site collection by choosing from existing master pages • Upload a CSS file to override existing CSS styles throughout sites • Change a page layout by choosing from existing page layouts • Change the site logo, description and title • Change the site theme by choosing an alternate default theme	• Edit existing and/or create new master pages • Associate one or more CSS files to a master page • Create new CSS styles and bind to master page • Modify the positioning of all page elements, for example, site logo and menus • Create new page layouts • Completely change the look and feel of entire sites and site collections

15.3 The SharePoint Designer 2007 Environment

The SharePoint Designer 2007 design environment is composed primarily of a What-You-See-Is-What-You-Get (WYSIWYG) interface and integrates directly with SharePoint sites to give you a true real time design experience. You can view your customizations as they'll appear in a Web browser and ahead of publishing pages and releasing them for general viewing. Additionally, you can configure SharePoint Designer 2007 to test Web pages in against multiple Web browsers, such as Internet Explorer and Firefox. Most importantly, menu-driven tools give you the ability to perform complex design tasks without the need to use code but the interface is extensible enough to support code-only customizations.

The SharePoint Designer 2007 environment comprises Task Panes, which are effectively portable chunks of menu items which can be dragged and dropped into different sections of the screen to suit your editing needs. They allow for easy access to features, such as styles when working with CSS files. Figure 15.1 shows the overall

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SharePoint Designer 2007 editing environment. The page displayed in the middle of the screen is the home page of the Design site open for editing in *design view*, which is the default view for performing code-free customizations. The task panes are included on either side of the page open for editing, including the Folder List, Tag Properties, Toolbox and Manage Styles task panes.

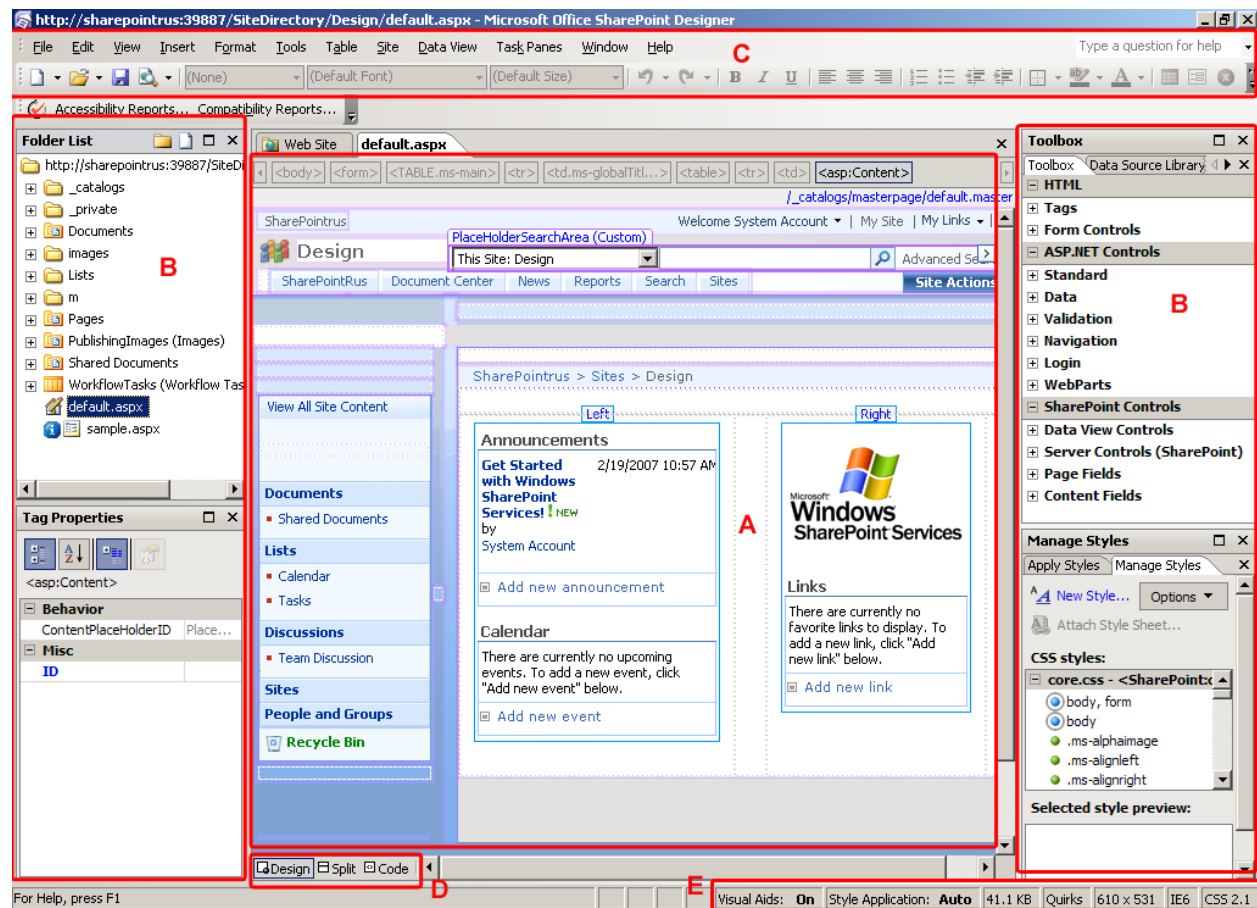


Figure 15.1 SharePoint Designer 2007 editing environment, with main functional areas highlighted in red and defined below

1. Main workspace area, where SharePoint pages are opened for editing.
2. Task panes on either side of the main editing workspace. Task panes may be toggled on and off, and moved to different sections of the screen to suit individual editing requirements.
3. The main menu of SharePoint Designer 2007, which provides access to features such as sub menu items and additional task panes.
4. The different views available when editing. There are three views:
 - a. Design - WYSIWYG editing mode. Useful for laying out tables and dragging and dropping objects directly onto the page.
 - b. Split - Allows you to see half the screen in design view and the other half in code view. This is useful when you are editing the code directly and want to see the immediate changes in design mode.
 - c. Code - Shows you the HTML and other page code, and gives you the opportunity to edit the code for the page directly.

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5. Usability features, where you can toggle different settings to enhance design and usability when editing SharePoint pages. Includes features such as estimated download time for page, the size of the page and the associated HTML and CSS schemas being used which will determine how the page will render in a browser, such as CSS 2.1.

15.3.1 IntelliSense

IntelliSense is a feature derived from Visual Studio 2005 and added to SharePoint Designer 2007 to enhance Web page editing capabilities, specifically when editing in Code view. IntelliSense is an autocompletion tool which, in the case of working with SharePoint pages in code view (or code pane in split view) in SharePoint Designer 2007, is trained to recognize variable names, methods and functions, such as CSS and HTML properties, and will offer suggestions when typing which you can choose to insert simply by double-clicking. Figure15.2. This can save an inordinate amount of time and save having to otherwise look up related function or code syntax.

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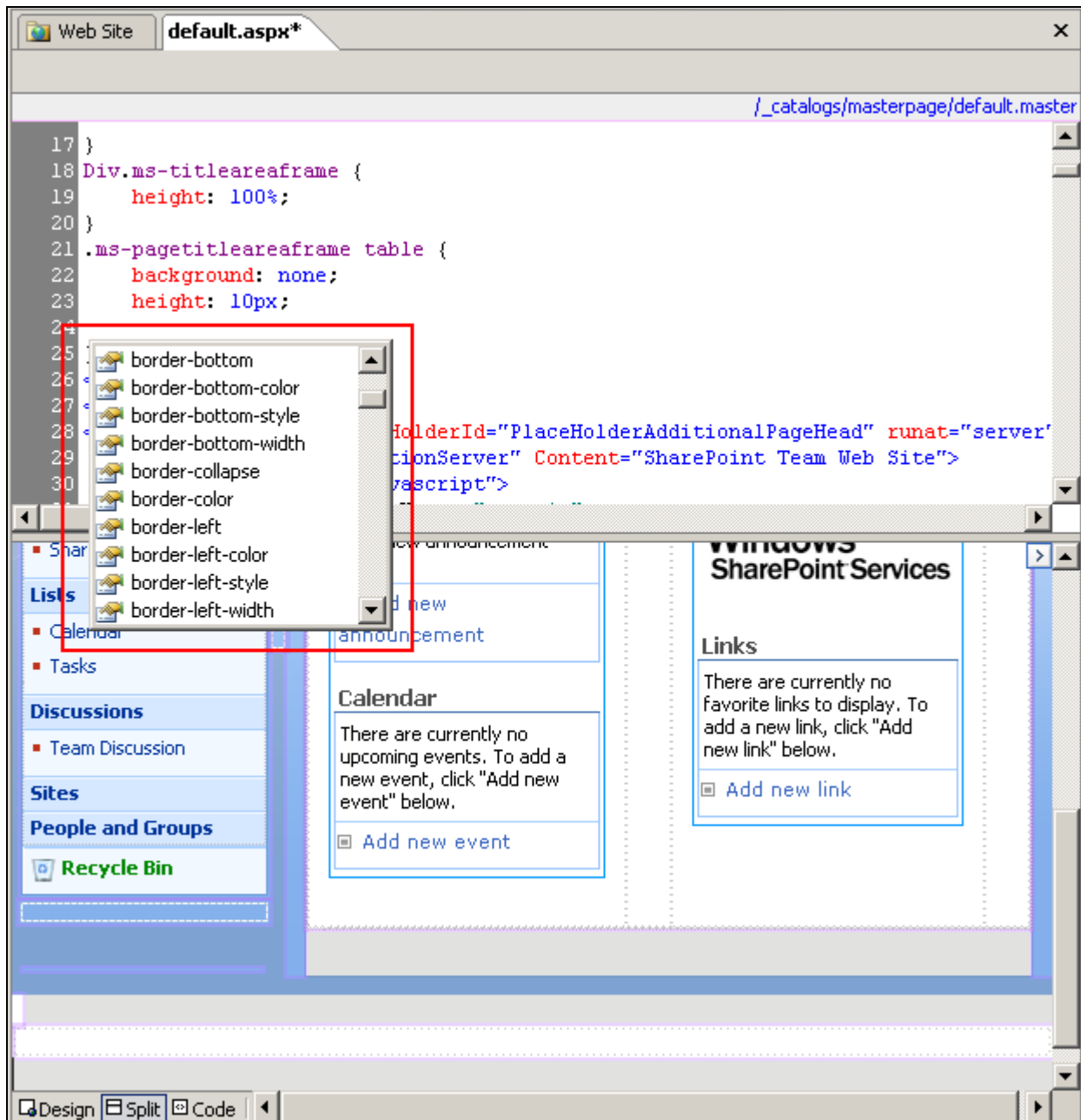


Figure 15.2 Use of IntelliSense in SharePoint Designer 2007 for CSS autocompletion

15.3.2 Schema for IntelliSense

SharePoint Designer 2007 includes several schema versions which determine the IntelliSense autocompletion suggestions added during editing, such as the schema to use with CSS, such as CSS 2.1, CSS IE6, CSS 2.0 or CSS 1.0 and depending on which CSS version you are currently using or designing with. This way, IntelliSense will autocomplete CSS styles based on the schema version. Schema versions are configured using the Page Editor Options window, available from main Tools menu.

15.3.3 Compliance and Accessibility Tools

SharePoint Designer 2007 includes tools for checking both compliance and accessibility when accessing Web pages via a browser, such as the Section 508 Web standards which includes Web site design recommendations for the

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visually impaired. For example, you may want to design specifically for people who suffer color blindness and avoid using certain color combinations which may otherwise lead to the inability to successfully read a Web page.

The Accessibility Checker allows you to check Web pages against Web Content Accessibility Guidelines (WCAG) Priority 1 and WCAG Priority 2, as well as Section 508, shown in Figure 15.3. When editing and authoring in SharePoint Designer 2007, you can choose to check the current page being edited or all pages within a site. Results will be displayed at the base of the workspace.

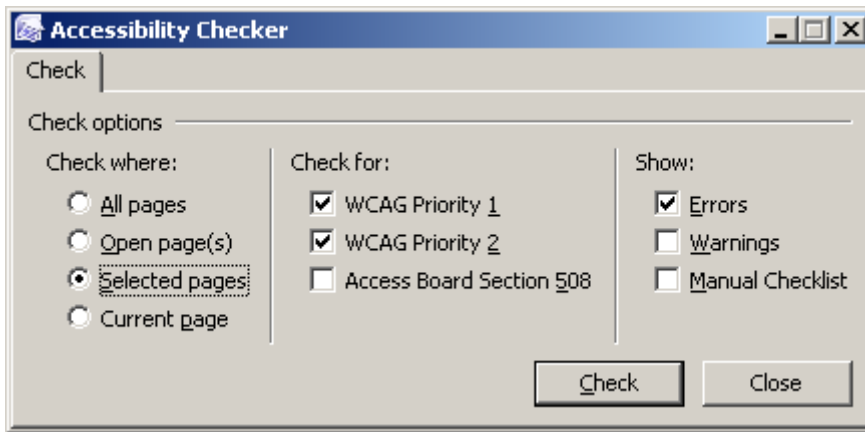


Figure 15.3 SharePoint Designer 2007 Accessibility Checker and settings

The Compatibility Checker also allows you to check Web page compatibility against different browsers and XHTML types, as well as CSS versions, shown in Figure 15.4.

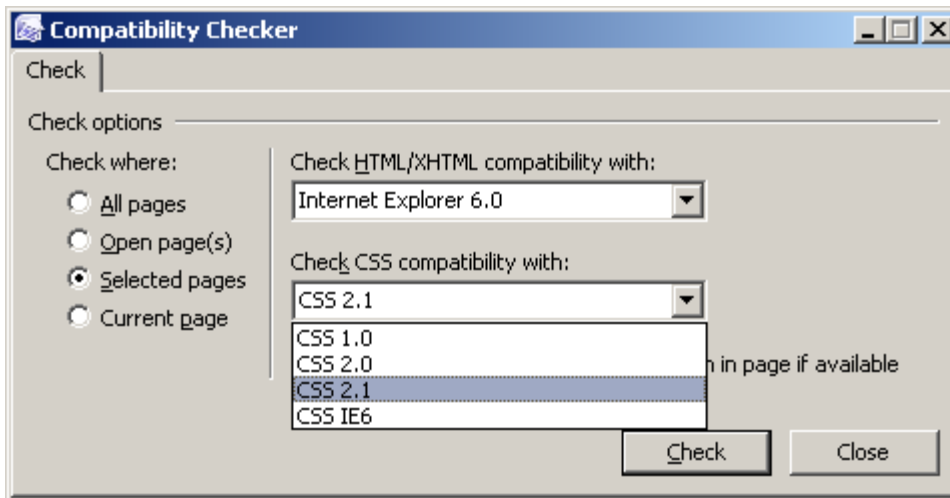


Figure 15.4 SharePoint Designer 2007 Compatibility Checker and settings

15.4 Managing SharePoint sites

SharePoint Designer 2007 includes features to control the extent of editing users can do within SharePoint sites and pages using the SharePoint Designer 2007 tools, referred to as Contributor Settings, as well as built-in safety net features which make it easy to undo undesired changes, such as the ability to undo custom formatting added to a SharePoint page during editing in SharePoint Designer 2007.

UNCUSTOMIZING PAGES

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You also have the option of undoing customizations to specific pages or all pages within a SharePoint site using the in-browser administrative user interface. However, you will have more granular control over removing customizations applied within SharePoint Designer 2007 by using the SharePoint Designer 2007 tools. You will also have greater visibility of specific page customizations in SharePoint Designer 2007.

In addition, SharePoint Designer 2007 extends the in-browser reporting tools with additional reporting features such as reports to show broken hyperlinks within SharePoint sites. SharePoint Designer 2007 also includes a tool for backing up and restoring SharePoint sites and site collections.

15.4.1 Contributor Settings – Editing Restrictions

Contributor settings determine the extent of customization users can make to SharePoint sites using the tools in SharePoint Designer 2007. For instance, certain users may be blocked from accessing the Code view during editing Web pages because of the increased risk of error when directly modifying code. Contributor Settings are tied directly to a site's permission levels. For example, if a user is a member of the site's Contributor group then that user can be given certain editing privileges by binding a contributor group within SharePoint Designer 2007 directly to the Contributor permission group back in the actual SharePoint site.

Another feature of Contributor Settings is the ability to lock down the type of content that can be added when editing master pages, those pages which govern the look and feel of an entire SharePoint site and/or site collection. For example, certain sections of a master page can be locked down so that it is only possible to insert text as opposed to both text and images. This is shown in Figure 15.5 where a user who is a member of the SharePoint Designer 2007 Content Author Contributor Group is not able to insert images into the main section of a master page.

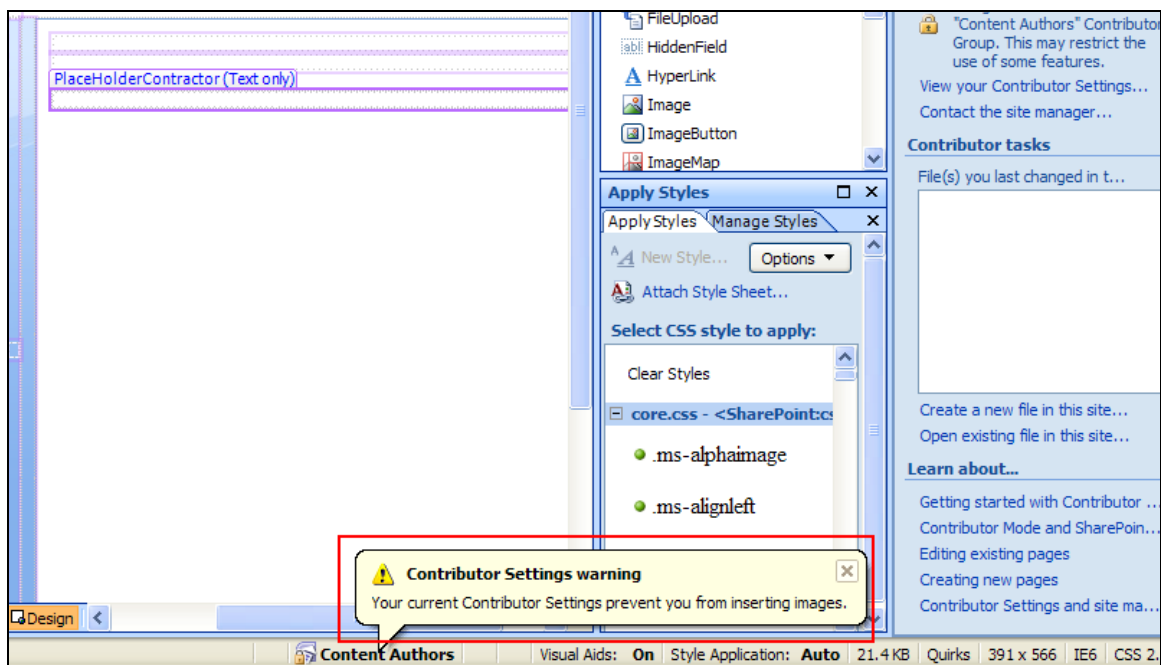


Figure 15.5 A user who is a member of the SharePoint Designer 2007 Content Authors Contributor Group is not able to insert an image into a master page because the administrator has set the section on the page to accept text only and those settings apply to the Content Author Contributor Group.

15.4.2 Safety Net Features

Safety net features in SharePoint Designer 2007 make it possible to restore a page to its original state, or undo undesired changes to page. A typical example is where a site's default page has been customized, or edited and

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saved in SharePoint Designer 2007, which means the page is subsequently stripped from its original site definition on the Web front-end server and saved to the SharePoint content database.

SITE DEFINITIONS

Site definitions are installed at the time of installing MOSS 2007 and form the basis for the templates used to provision sites, such as a Team Site or Collaboration Portal. Each site definition contains instructions for the document libraries and lists, along with navigation and Web Parts, which will be included within a site provisioned from a definition. It also includes the base ASPX pages which host the various functions, such as the views for each document library. When a site definition page is edited in SharePoint Designer 2007 and saved to the content database that page is referred to as a customized page. Pages which remain bound to their original site definition are referred to as uncustomized pages.

In this case, there are two possible degradation scenarios. One, if a default page is customized then that means each time that customized page is accessed via a browser SharePoint will need to fetch that page from its content database, in other words those pages won't be cached on the Web front-end server so will not load as fast. In a situation where there are 100s of customized default pages, this may result in overall server degradation. Secondly, if the original site definition on the Web front-end server is updated either via a Microsoft upgrade or programmatically, then the customized pages throughout SharePoint sites will not be updated. It will be necessary to edit those pages separately in SharePoint Designer 2007 to effect changes to them.

NOTE

Editing pages using the in-browser tools do not cause the pages to become separated from their original templates.

Using SharePoint Designer 2007 you can reset customized pages back to their original site definition. Figure 15.6 represents a site's various document libraries, lists as well as the site's default page, in the Folder List task pane within SharePoint Designer 2007. The round blue circle, with white exclamation mark, to the left of the default.aspx page indicates that that page is customized.

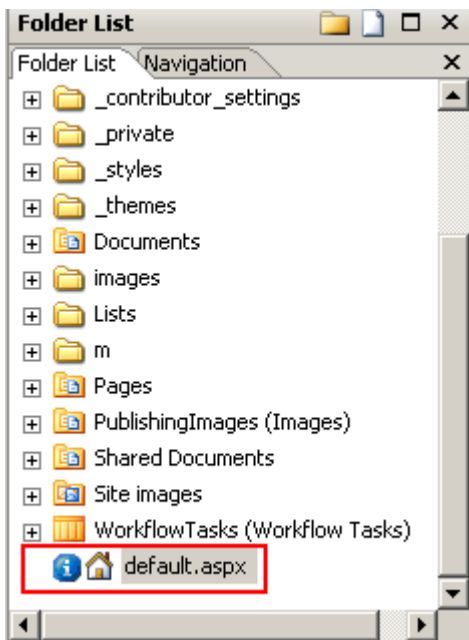


Figure 15.6 Customized page in folder list task pane

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Figure 15.7 demonstrates the procedure for reverting a customized page to its original site definition, which involves right-clicking the customized page and selecting Reset to Site Definition.

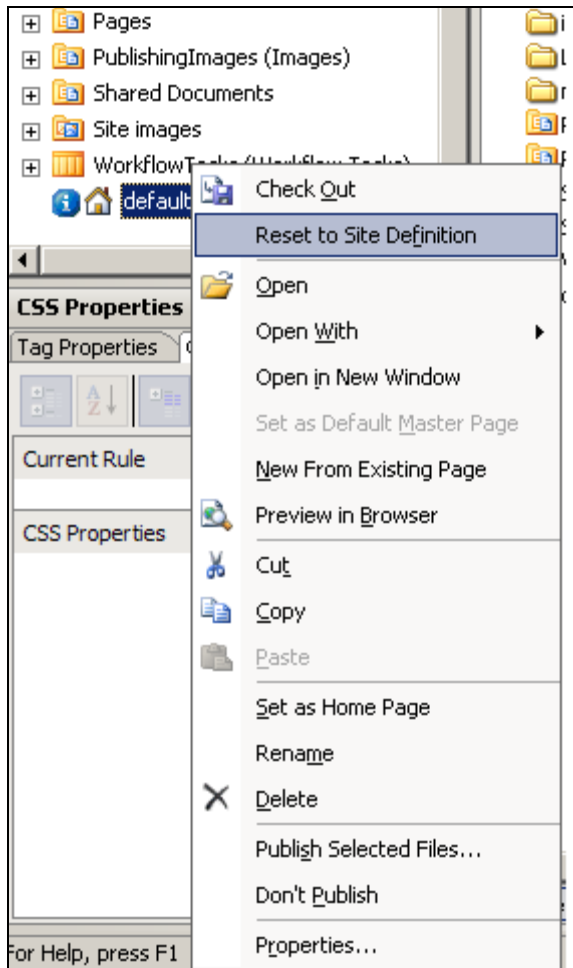


Figure 15.7 Revert a customized page back to original site definition (uncustomized page)

You will also receive a warning dialogue, shown in Figure 15.8, which reminds you of the consequences of resetting a customized page to its site definition.



Figure 15.8 SharePoint Designer 2007 Site Definition Page Warning dialogue when reverting a customized page

Resetting a customized page will remove any changes you've made to the page as a customized page and will cause the page to inherit the default look and feel from the original site definition. However, all will not be lost! When you revert a customized page SharePoint Designer 2007 will create an incremental copy of each page

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reverted. For example, if you've customized the default.aspx page of a site and then choose to revert that same page to its original site definition, SharePoint Designer 2007 will create a copy of the customized page and name it default_copy(1).aspx. The number within the brackets will increment each time the default.aspx page is customized and reverted. At any time, you can choose to change the site's default page back to an earlier version of a customized page. For example, you may have several customized pages where each page might represent a particular layout or formatting for a seasonal company event and you can choose to revive particular versions of the page to suit the event.

15.4.3 Reporting Features

MOSS 2007 by default includes reporting capabilities, such as daily usage statistics and various auditing reports. However, using SharePoint Designer 2007 you can create additional reports, typically related to customizations and administrative functions throughout SharePoint sites. You can also access site usage statistics greater than 31 days old, which is a limitation of viewing site usage statistics via the administrative user interface. Additionally, reports can be displayed in graphic format and saved, for example, for use in auditing reports. Figure 15.9 shows an area chart displaying usage statistics for the period Feb-07 through Apr-07.

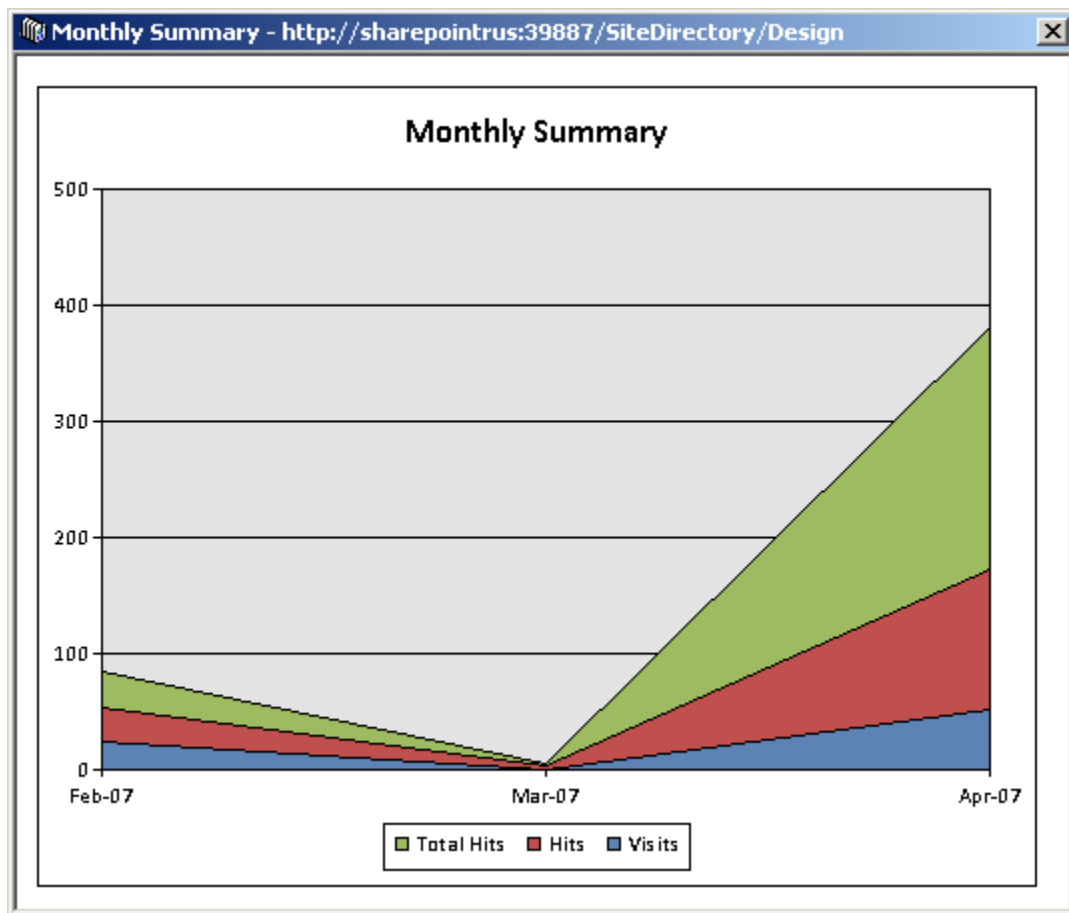


Figure 15.9 Graphical representation of monthly usage statistics generated using the SharePoint Designer 2007 reporting tools

In addition to usage reporting, you can also generate reports to show all customized pages within a site, along with broken hyperlinks, links to CSS files, master page associations throughout the site and unlinked files.

15.4.4 Moving and Copying Sites and Files

There are a number of options available for copying SharePoint sites between SharePoint site collections and/or other SharePoint servers, as well as copying files between SharePoint sites. MOSS 2007 includes the ability to

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move and copy files between sites using the administrative user interface and the SharePoint *stsadm.exe* command line tool includes commands to migrate SharePoint sites. You can also use Windows Network Places to directly access and move files between SharePoint sites, using a protocol named WEBDAV. In this section, we'll focus on the options for moving files and sites using the tools available in SharePoint Designer 2007.

INSTRUCTIONS FOR USING THE SHAREPOINT STSADM.EXE COMMAND LINE TOOL

For information on using the SharePoint *stsadm.exe* command line tool, see the Microsoft TechNet site <http://technet2.microsoft.com/Office/en-us/library/bbe7d4a4-524f-49f2-8264-d83014a062321033.msp?mfr=true>

The SharePoint Designer 2007 user interface includes three options for moving and copying sites, and site files:

- Publishing sites (also referred to as Remote Web Site, files are copied directly to the destination site)
- Personal Web Package (portable, entire sites or specific files can be imported into other site collections)
- SharePoint Site Template (option links directly to the administrative user interface, via the browser)

PUBLISHING SITES COPY METHOD

While the Publish Site option (also referred to as *Remote Web Site*) can be used for copying files between SharePoint sites, it is not recommended for copying SharePoint sites in their entirety. In fact, when you do use the Publish Site option in a SharePoint site you'll see a dialogue, as shown in Figure 15.10, recommending that you use an alternative method for copying SharePoint sites such as the SharePoint Designer 2007 backup and restore feature. This is because the Publish Site command won't copy SharePoint content in its entirety, such as some of the document library and list form and view pages.

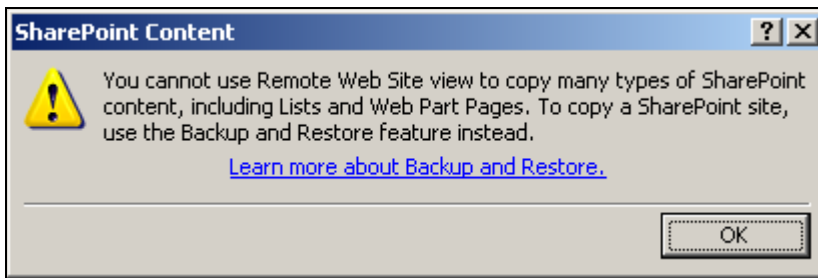


Figure 15.10 Warning prompt about using the Publish Site option for copying SharePoint sites

CLARIFICATION ON THE TERM “PUBLISH” USED WITHIN THE CONTEXT OF SHAREPOINT DESIGNER 2007

The Publish Site option should not be confused with the publishing functionality within SharePoint itself, that is, the ability to publish content between publishing sites. The Publish Site option discussed here specifically relates to one of the available site copy methods within SharePoint Designer 2007.

When you use the Publish Site option, SharePoint Designer 2007 will verify the files being moved, including alerting you to any conflicts between the source and destination sites and show the status between document versions, such as whether an equivalent Word document has changed in between the last synch and the current synch. If a change is made to either the source or destination file, this will be highlighted during subsequent synchs.

DOCUMENT PROPERTIES WHEN COPYING FILES

Just as when copying files using WEBDAV (or using Network Places via Windows Explorer), the original author name against the document is not moved to the new location. Instead, the name of the user account moving the file is added as the creator of the file on the destination site. This also applies to any custom metadata associated

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with the file on the source site. If the destination site does not include matching columns, then the document metadata will not be exposed in SharePoint.

PERSONAL WEB PACKAGES

Personal web package can be used to copy SharePoint lists and document libraries between sites, or copy entire sites. In SharePoint Designer 2007, you have the option to both create and import personal web packages. Personal web packages are saved with an FWP extension.

In Figure 15.11, the Shared Documents document library has been copied from the Design site (left-hand side of screen) to the web package (right-hand side of screen). Web packages also include the advantage of being able to check for any dependencies when copying content. For instance, as shown in Figure 15.11, dependent folders and paths are exposed so you can ensure that you copy the necessary components in order for the copied files to function correctly on the destination.

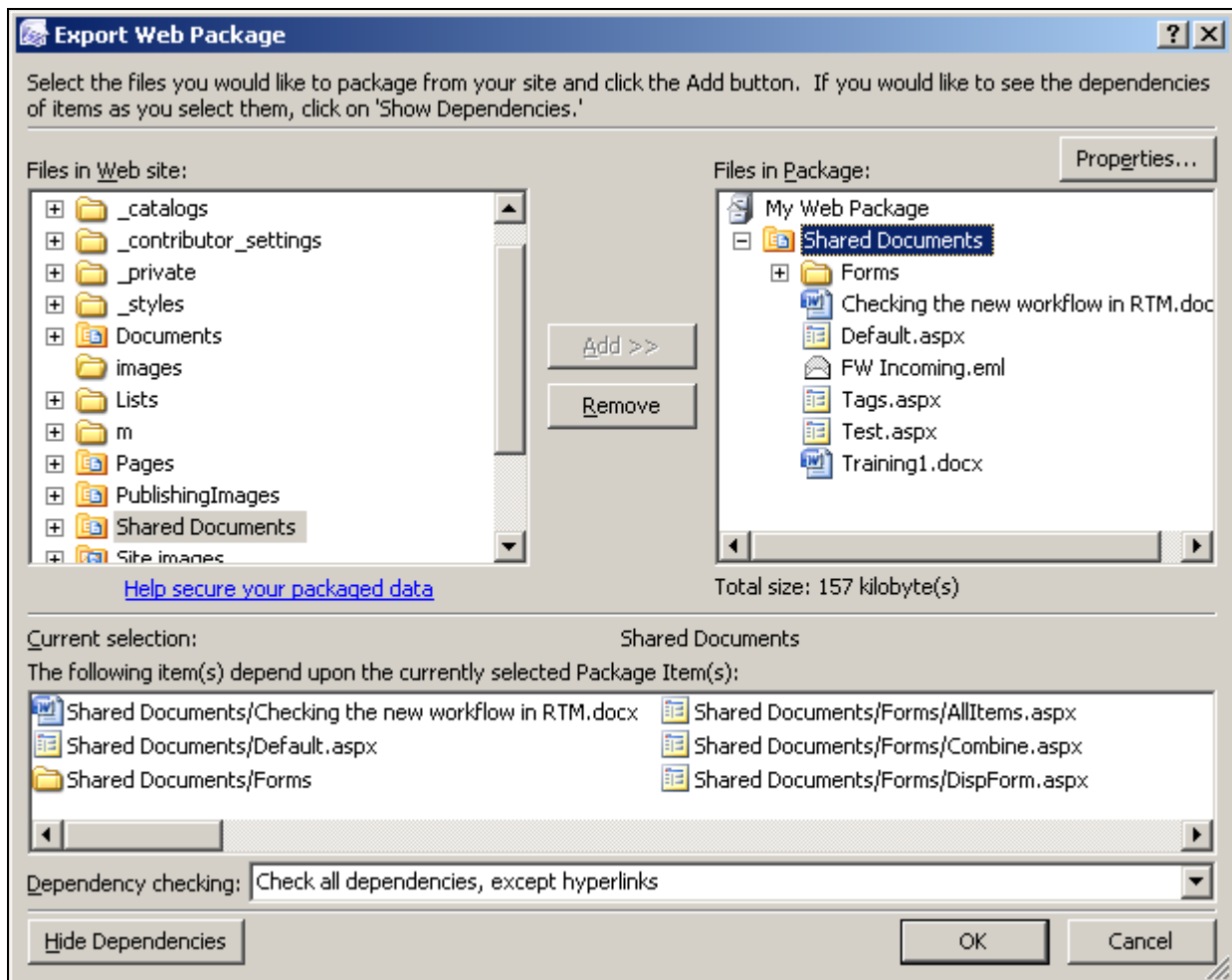


Figure 15.11 Viewing dependencies when creating a web package

When you import the web package to another SharePoint site, you'll be given the option of importing the web package in its entirety or selecting individual files/folders for import.

SHAREPOINT SITE TEMPLATE

The most versatile of all the copying and moving methods, SharePoint site templates can include custom list data, content and custom formatting, such as images and themes. Site templates can be used for provisioning new sites and sites created from a site template inherit any custom content or formatting included in that site template. The

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option to create a site template is included in SharePoint Designer 2007, however selecting this option will launch the administrative user interface in a browser, for example, <http://sharepointrus/sitedirectory/design/layouts/savetmpl.aspx>, which includes the option to save a site as a template with or without content. Site templates are saved with an extension of STP.

MODIFY THE SIZE OF A SITE TEMPLATE

By default, site templates are limited to a file size of 10MB. Using the SharePoint stsadm.exe command line tool, setproperty operation, you can increase the STP file size, for example, `Stsadm.exe -o setproperty -pn max-template-document-size -pv 50000000 [-url <url>]`.

15.4.5 Backing up and Restoring Sites

Using SharePoint Designer 2007, you can backup and restore individual SharePoint sites and site collections. The backup file is formatted as a Content Migration Package (*.cmp), effectively a compressed file format which is understood by SharePoint Designer 2007. Figure 15.12 shows the main backup dialogue, which includes the option to include subsites in archive, that is, as part of the CMP file.

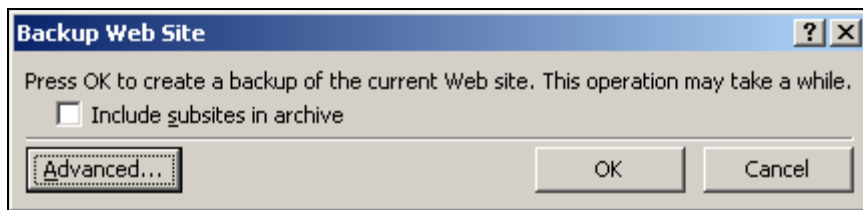


Figure 15.12 SharePoint Designer 2007 Backup Web Site dialogue

There are several rules you should consider in backing up and restoring MOSS 2007 sites:

- If you backup a sub site from a MOSS 2007 server, then you can't restore that site to a server running a standalone Windows SharePoint Services (WSS) 3.0 server. The site must be restored as a subsite on a server running MOSS 2007.
- Do not attempt backup from a subsite in a site collection and then attempt to restore that site to a top level SharePoint site, for example, if you've backed up the Design site, <http://SharePointRus/SiteDirectory/Design/> then attempt to restore that site as a top level site in the SharePointRus Web site, such as <http://SharePointRus/restoredsite/>, it won't work. You must restore that site elsewhere as a subsite, such as <http://SharePointRus/SiteDirectory/restoredsite/>.

BACKUP INCLUSIONS AND BEST PRACTICES

Some items, including a site's Recycle bin, workflows and alerts are not included in a SharePoint Designer 2007 generated backup. You should also ensure that you verify your backups as part of your redundancy strategy by restoring backed up sites to a test server.

When restoring a site, using the SharePoint Designer 2007 restore site option, then you must create blank site to restore to. This is so the originating site's template can be restored and SharePoint will not allow you to restore one site template over an existing site template.

15.5 Branding and Customizing SharePoint Sites

In this section, we'll discuss the main components that determine the overall look and feel, and functionality, of SharePoint sites and pages within sites – master pages, cascading style sheets (CSS) and content pages, referred to as page layouts in MOSS 2007 – and discuss how, using SharePoint Designer 2007, you can easily adapt your own sites to an existing style or create a totally new look and feel.

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SCOPE OF CUSTOMIZATION

In this chapter, we refer to master page application and customizations specific to MOSS 2007 as opposed to a standalone WSS deployment, which does not include the scope of custom options, such as the page layouts and custom master pages available in publishing sites.

15.5.1 Master Pages for a Consistent Look and Feel

Master pages, based on the ASP.NET 2.0 infrastructure, were initially introduced into the Microsoft Visual Studio 2005 environment, where Web designers and developers could centrally define common elements in ASP.NET 2.0 Web site pages, such as banners, logos, navigation and other controls. A master page is just like a regular ASPX page, with the exception that it is named with a .master suffix, for example, sharepointrus.master, and is referenced by the other pages within a Web site which in turn inherit the standard look and feel as dictated by the formatting included on the master page. Master pages can include, for example, formatting and functionality using HTML, XML, CSS, JavaScript and images.

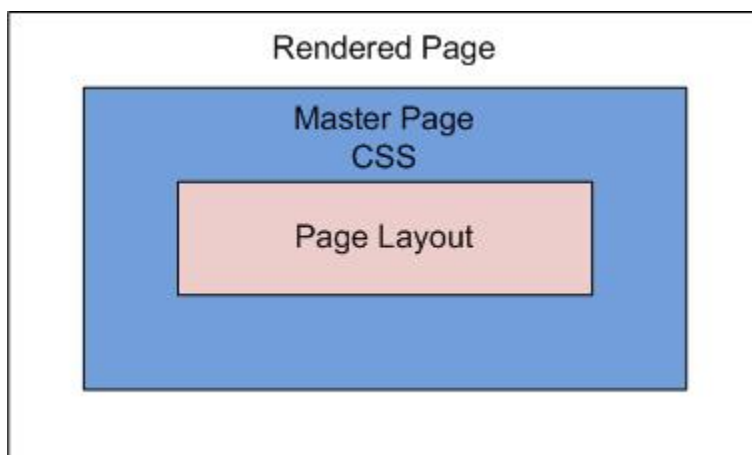
A major advantage of master pages is the fact that they segment and streamline Web site development by removing the need to combine custom code and CSS, and other HTML elements, on a single page, meaning designers and developers can work independently of each other. Master pages also make it easier to update and version the appearance of a Web site. For instance, if you wanted to only update the Web site's banner, there wouldn't be the need to modify multiple ASPX (or other ASP.NET Web pages) pages within the site. SharePoint also supports nested master pages, such as a parent master page which defines certain navigational criteria and a child master page which supports sub-navigational elements or other custom formatting.

Master pages and CSS combine to add both the functional and the style to Web pages throughout a site. For example, a master page will determine what content is included on each page and where that content is positioned, while CSS will determine the appearance of the information. Master pages can reference more than one external CSS file or CSS can be included as part of the ma

Master pages in MOSS 2007 play much the same role as those in ASP.NET 2.0 Web sites, with the ability to centrally update the look and feel of entire SharePoint sites and site collections, with added advantages of support for nested master pages and the ability to migrate existing master pages, created in Visual Studio 2005, to SharePoint sites. SharePoint Designer 2007 compliments the customization effort by including tools to work directly with and deploy SharePoint master pages throughout sites and site collections. Figure 15.13 shows the overall relationship between a master page, CSS and a *page layout* in MOSS 2007 publishing site.

TYPES OF PAGES WITHIN SHAREPOINT SITES

Within a MOSS 2007 deployment, we can also have non-publishing sites, such as a Team Site. In this case, rather than a page layout, the site will comprise ASPX pages known as Web Part pages, and view and form pages for the various document libraries and lists within the site. These pages are handled differently by SharePoint in terms of versioning and editing.



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Figure 15.13 Relationship between a page layout, master page and CSS within a MOSS 2007 publishing site. The page layout is where the actual content is added by the end user, via the browser. The overall look and feel of a page is dictated by the site's master page.

CREATING AND MODIFYING MASTER PAGES

Each SharePoint site is provisioned with a master page, typically a master page named default.master. SharePoint master pages reside in a site's _catalogs\masterpage (Master Page Gallery) folder and are directly accessible from SharePoint Designer 2007.

MOSS 2007 also includes a number of out-of-the-box *custom* master pages, which are stored within the Master Page Gallery of the root site of a site collection. You can easily apply these master pages to new or existing sites using the administrative user interface. For example, Figure 15.14 shows the default master (named default.master) page which is associated by default to a new site collection provisioned using the Collaboration Portal publishing template.

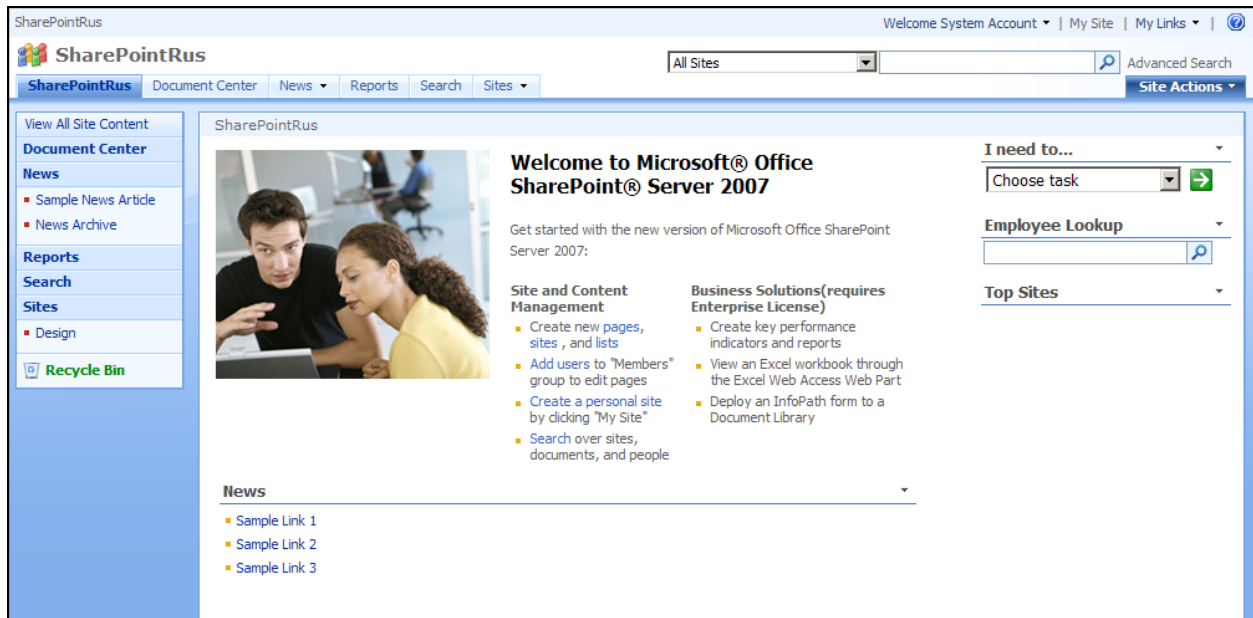


Figure 15.14 A SharePoint site based on the Collaboration Portal publishing template which by default is associated with the SharePoint default.master page

A custom master page, named BlueBand.master, is automatically associated by default to a new site collection provisioned using the Publishing Portal publishing template. However, you're not limited to keeping the site collection, template-associated master page and you can easily change a site, or site collection, master page using the administrative user interface. For example, Figure 15.15 shows the same site shown back in Figure 15.14, originally provisioned with the default.master page but where the BlueTabs.master master page has been associated with the site collection post deployment.

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Figure 15.15 A SharePoint site where the master page has been changed post-deployment using the administrative user interface to change to an alternate out-of-the-box custom master page

Using SharePoint Designer 2007, you can easily create and manipulate master pages to create any look and feel. For example, Figure 15.16 shows a custom master page which has been applied using SharePoint Designer 2007 and adapted to the root site of the SharePointRus site collection.

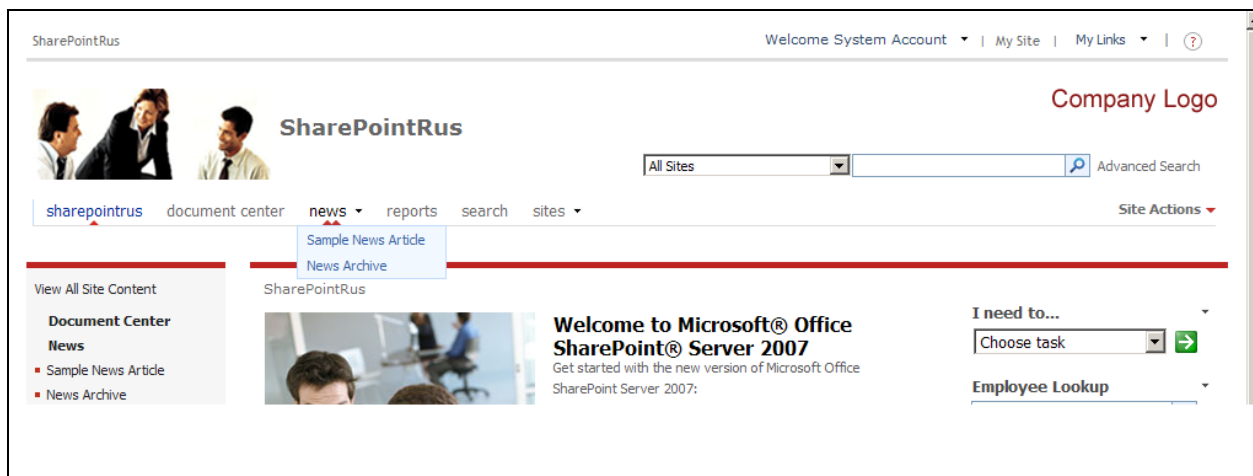


Figure 15.16 Adding custom master pages using SharePoint Designer 2007. Note the master page design shown here is available for download from Microsoft.

In terms of creating your own master page, there are several options:

- Modify one of the out-of-the-box pages
- Copy one of the out-of-the-box-pages and then modify the copy
- Start from a base master page and build from scratch
- Take an existing master page previously created using Visual Studio 2005 and adapt that master page for

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use within SharePoint sites

- Take an existing non-SharePoint Web page template, such as an existing page which includes the basic formatting which you want to maintain within a SharePoint site, and build the master page from that page

Modifying an out-of-the-box master page is not a supported scenario. Copying one of the out-of-the-box master pages and then editing that master page can definitely give you a head start in terms of creating a custom look and feel. However, if you want to achieve a specific design, such as one that matches your existing organizational style and scheme, and you don't have an existing master page, then starting from a minimal SharePoint master page is probably going to give you the greatest flexibility. Microsoft has created just that, a minimal master page which includes the base SharePoint functionality and upon which you can add your own style and page formatting enhancements. This can be found at: - "How to: Create a Minimal Master Page", <http://msdn2.microsoft.com/en-us/library/aa660698.aspx>.

ACCESSING MASTER PAGES

Master pages created using SharePoint Designer 2007 and saved directly to a site are stored in the SharePoint content database and directly accessible via the site's _catalogs\masterpage (Master Page Gallery) folder. However, you can choose to create master pages using SharePoint Designer 2007 independent of any one site and deploy those master pages to other sites and/or other SharePoint servers. Also, to enable a custom master page globally accessible to all sites within a site collection, save the master page and any associated image files, and CSS, to the root site's Master Page Gallery.

TYPES OF MASTER PAGES USED IN SHAREPOINT

There are three main master pages which drive the page functionality and look and feel throughout SharePoint sites, and address both publishing and non-publishing sites and pages, as well as the pages located in the SharePoint _layouts folder, namely the administrative pages. Below, we've highlighted all three types of master pages and we've also distinguished between the naming format for each master page, such as the name seen when editing master pages in SharePoint Designer 2007 (custom.master and default.master) and the equivalent names within the administrative user interface (site master page and system master page):

- **Custom.master** – the custom.master page is referred to as a **Site Master Page** in the SharePoint administrative user interface and is applied to publishing pages, or page layouts, within a MOSS 2007 deployment. This includes publishing pages in Team sites (sub sites) where the Office SharePoint Server Publishing Feature has been enabled and those sites include a Pages document library.
- **Default.master** – the default.master page is referred to as a **System Master Page** in the SharePoint administrative user interface and applied to all forms and view pages within a MOSS 2007 deployment. This also includes the default.aspx page in non-publishing sub sites, such as Team sites.

APPLICATION OF CUSTOM.MASTER AND DEFAULT.MASTER IN PUBLISHING AND NON-PUBLISHING SITES

Even if you have enabled the Office SharePoint Server Publishing Feature on a *non-publishing* site, such as a Team Site, the look and feel of that site's default.aspx page will be dictated by the default.master page assigned to the site, or the System Master Page via the site's administrative user interface.

- **Application.master** – The application.master page handles the administrative pages within SharePoint sites, such as those pages in the _layouts directory, for example, Site Settings and View Lists (viewlists.aspx) pages. The application.master page can be edited separately by directly accessing the page on the Web front-end server, though it is strongly recommended that you do not edit this page. The application.master page is not directly editable when opening a SharePoint site in SharePoint Designer 2007, though you can access the page on the Web front-end server and launch it separately in SharePoint Designer 2007.

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Where there is more than one master page within a site, SharePoint Designer 2007 will automatically offer the ability to set either master page as the default or custom master page for the site, shown in Figure 15.17. So in other words, you could offer the user a different experience in between browsing to publishing and non-publishing pages within a site or between publishing and non-publishing sites, such as a parent publishing portal and a subsite provisioned using the Team Site, site template.

NOTE

Default and custom master pages can be overridden using the site's administrative user interface, so if you are creating separate default and custom master pages within SharePoint Designer 2007, then you need to consider this as part of your overall planning strategy in architecting and designing your SharePoint deployment. For further information on setting a site's default and custom master pages, see <http://mindsharpblogs.com/kathy/archive/2007/02/19/1577.aspx>

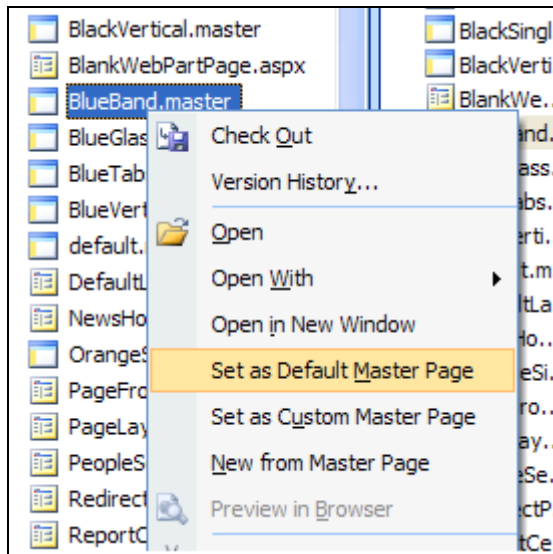


Figure 15.17 Editing a site in SharePoint Designer 2007 where there is more than one master page will include the ability to set either master page as the default or custom master page for the site.

CONTENT PLACEHOLDERS

Master page content placeholders define the type of information that will be included on pages associated with a master page, such as navigation and search. To work correctly with SharePoint sites, master pages must include SharePoint-specific content placeholders. The minimal SharePoint master page published by Microsoft is inclusive of the required placeholders. See <http://msdn2.microsoft.com/en-us/library/aa660698.aspx>

SharePoint Designer 2007 recognizes the default content placeholders and includes tools to work directly with accessing and editing those content placeholders such as shown in Figure 15.18, where the Master Page floating toolbar is enabled during editing a master page and can be used to jump to and edit content placeholders.

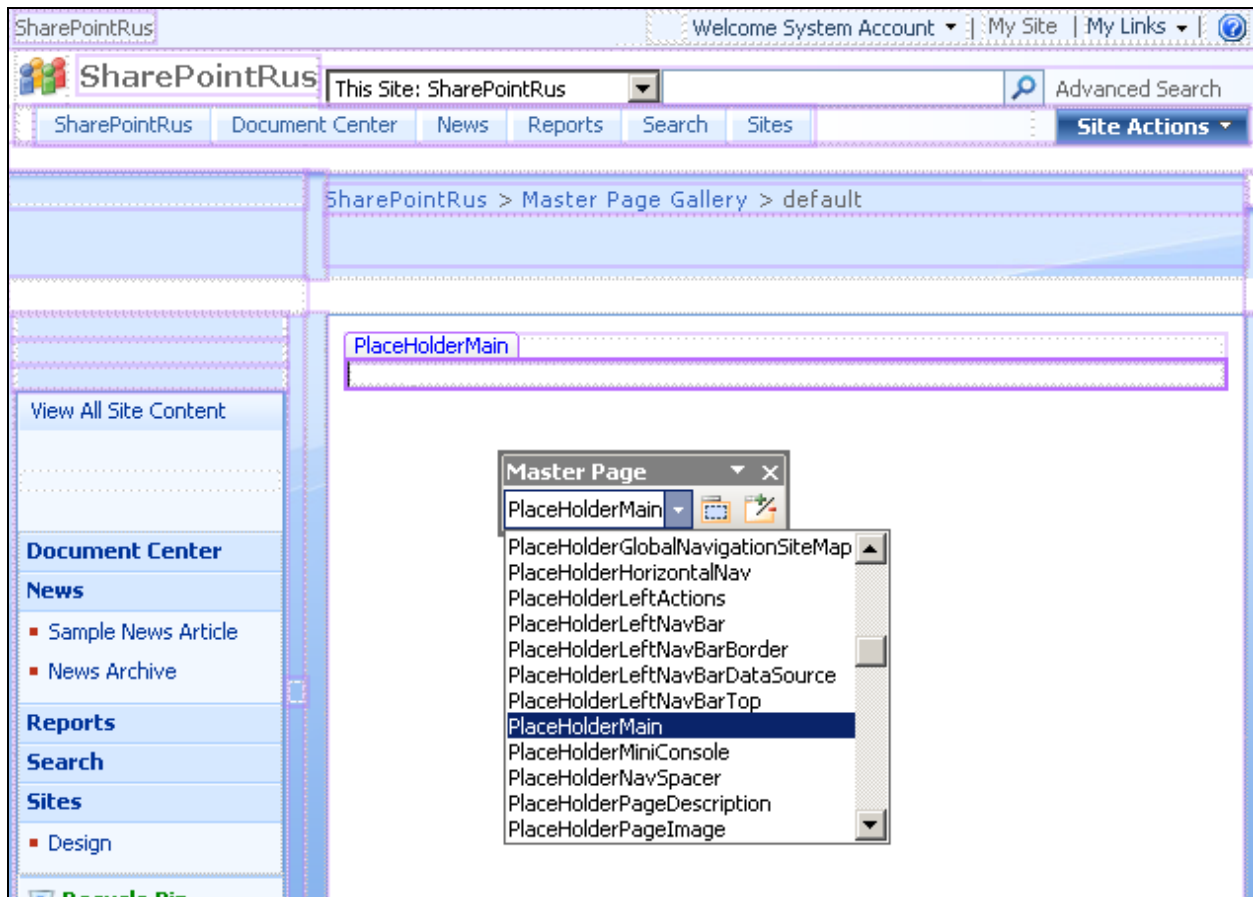


Figure 15.18 SharePoint Designer 2007 Master Page floating toolbar which makes it easy to jump to and edit content placeholders during editing SharePoint master pages

Content added to content placeholders can be controlled by content regions, such as the ability to add text, or text and images. SharePoint Designer 2007 includes built-in menu functionality to directly edit content regions for content placeholders. Figure 15.19 shows the Manage Content Regions dialogue with the dropdown option for setting the type of content allowed for the PlaceholderMain content placeholder. For example, a site administrator can set the PlaceholderMain content placeholder to only allow text. This means that other users, with non-administrative privileges, when editing the same master page will only be able to enter text to that content placeholder.

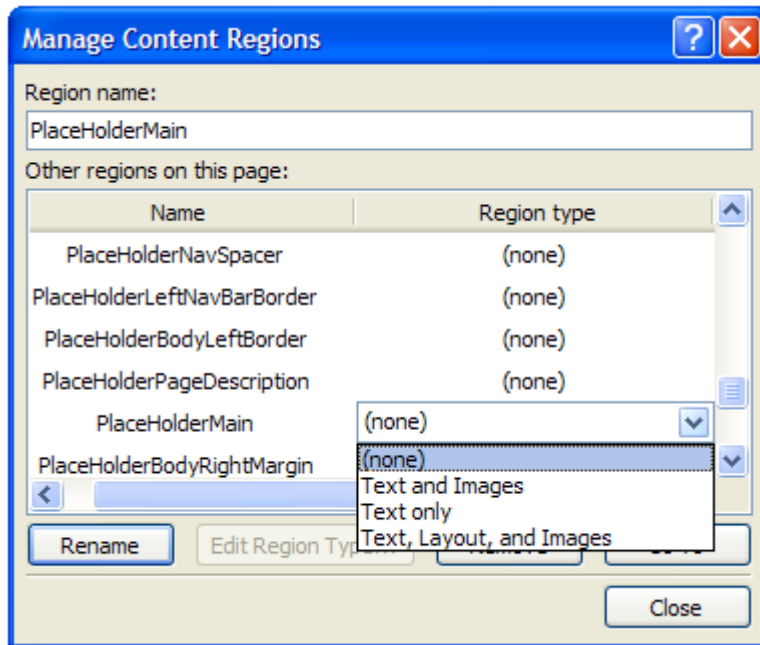


Figure 15.19 Modifying the region type of a content placeholders content regions

To demonstrate the effectiveness of master page content placeholders, the following three figures show the composition of the main content area on a SharePoint page and how the main content placeholder on a SharePoint master page, referred to as PlaceholderMain, interfaces directly with the page layout of a publishing site to create the final rendered default.aspx page.

Figure 15.20 shows the default.master page of a site opened for editing. The PlaceholderMain content placeholder is currently selected in the middle of the page.

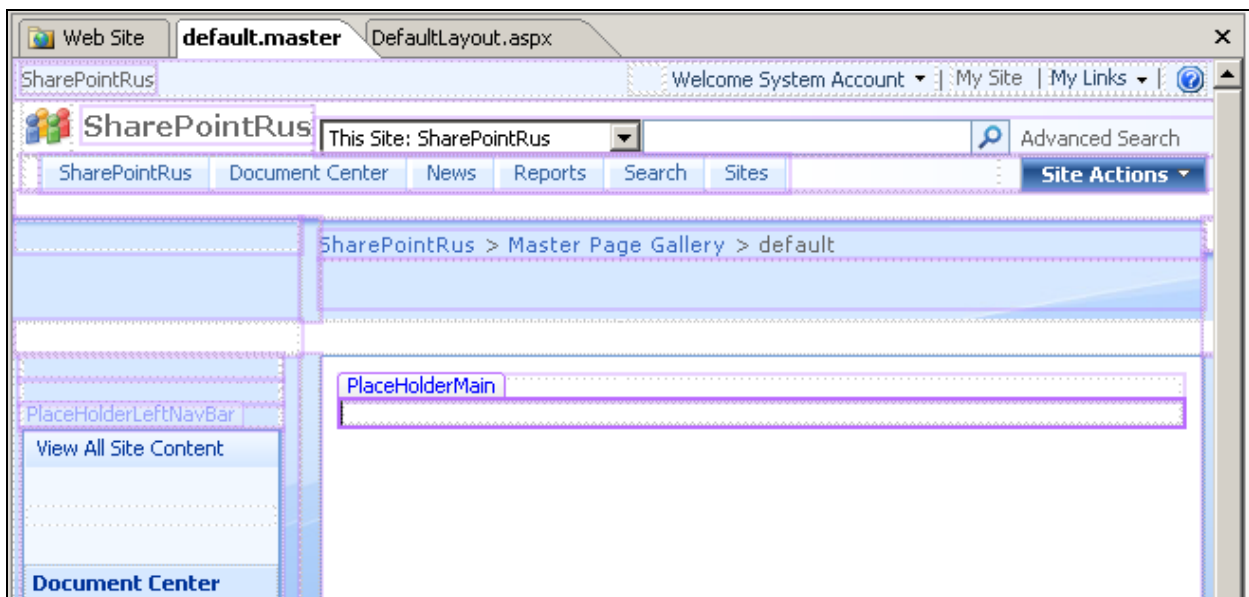


Figure 15.20 The default.master page is open in SharePoint Designer 2007 and the PlaceholderMain content placeholder is highlighted in blue. This is where the various end-user controls, such as Web Parts, will be positioned to enable the end user to add content

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Figure 15.21 shows the page layout, in this case the DefaultLayout.aspx page layout page, which is associated to the default.master page shown back in Figure 15.20. The PlaceholderMain content placeholder is highlighted, but in this instance shows the addition of (Custom) as in PlaceholderMain(Custom). This means that the PlaceholderMain content placeholder now includes custom content which will be exposed in the final rendered page and editable by the end user.

NOTE

Customizing content placeholders on page layouts (or content pages) has no bearing on the original content placeholder on the associated master page, which remains uncustomized. Rather, the page layout is simply consuming the content placeholder from the master page and populating the placeholder with custom content which will become available to the end user via the browser.

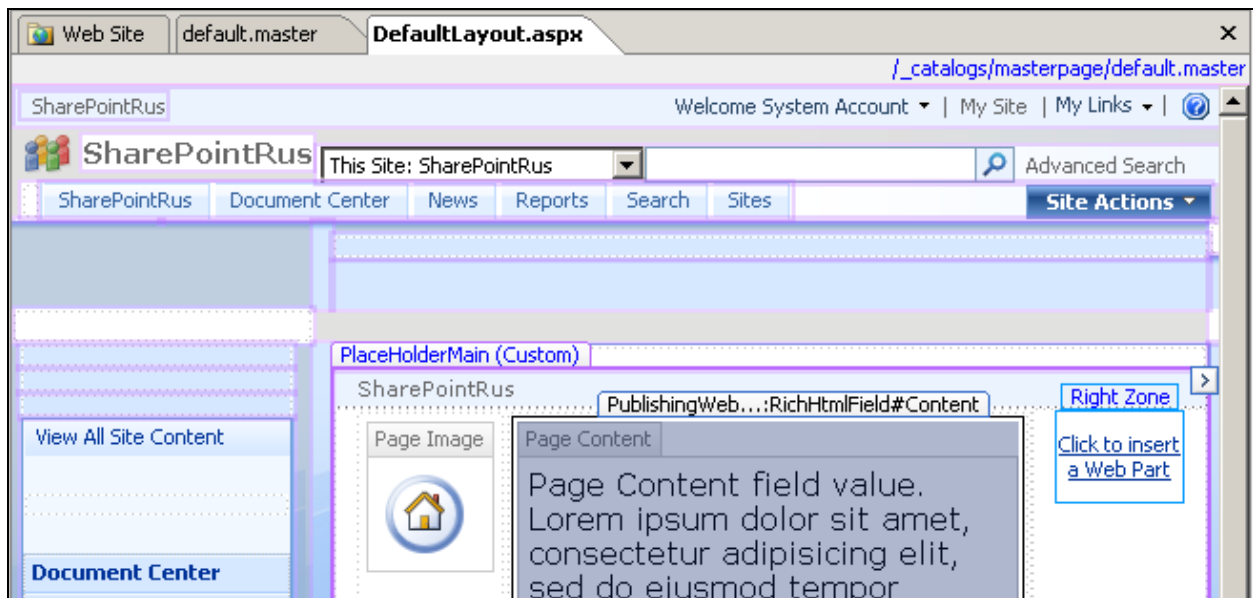


Figure 15.21 The DefaultLayout.aspx page layout page which is associated with the default.master page of the site. The PlaceholderMain content placeholder now displays (custom) because this is where the custom content is added for interaction with the end user.

Figure 15.22 shows the final rendered page within the browser. The content area defined by the PlaceholderMain content placeholder includes content which is editable by the end user, specifically the Page Image and Page Content sections, along with a Web Part zone to the right of the page where users can add new Web Parts.

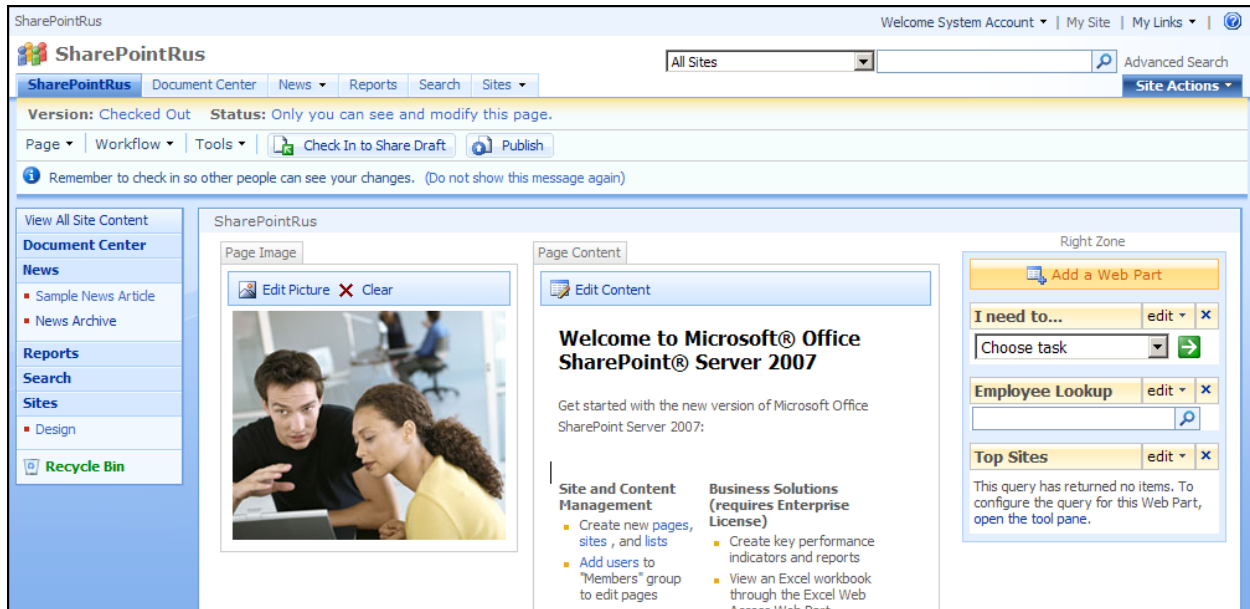


Figure 15.22 Final rendered page showing content editable area as defined by the PlaceholderMain content placeholder

POSITIONING AND EDITING CONTENT PLACEHOLDERS

Including content placeholders on a SharePoint master page defines the type of content which will be included on page layouts and content pages associated with that master page. Positioning the content placeholders will define where on page layouts that content will appear. For example, positioning the site's navigational elements such as the top horizontal and left-hand menu is accomplished using HTML table elements and CSS classes.

Using SharePoint Designer 2007 *visual aids* you can directly manipulate existing table elements and completely reconstruct the design of SharePoint pages. For instance, Figure 15.23 shows the properties for part of the table containing the PlaceholderLeftNavBar content placeholder, which includes the site's left-hand navigation. This enables you to easily resize sections on a page.

TABLES VERSUS DIVS

Here, we refer to using table elements to position content placeholders. For a more standards compliant site, you may also consider using CSS, in particular DIV elements to dynamically position content placeholders on master pages.

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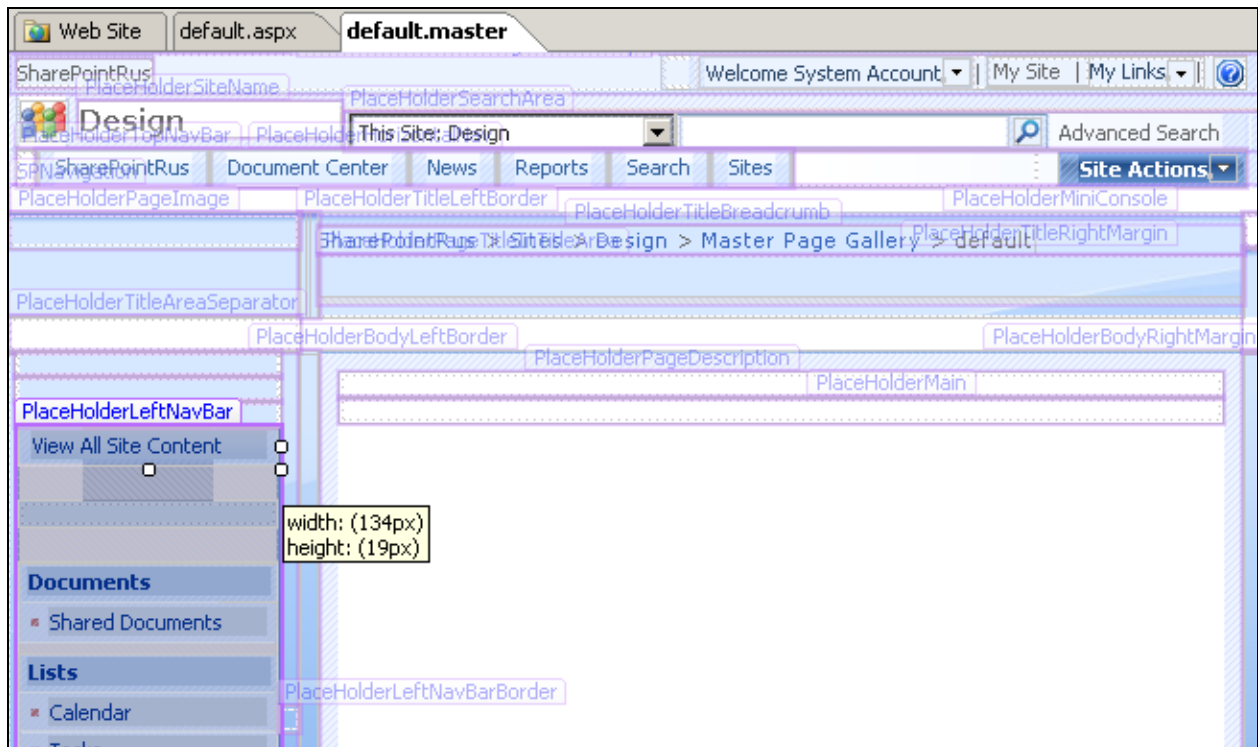


Figure 15.23 Use SharePoint Designer 2007 visual aids to detect the width and height of margins and padding within tables on SharePoint pages and then adjust directly in Design view

Also using Design view, you can simply drag and drop content placeholders to alternate locations on a page. Figure 15.24 shows the PlaceholderSearchArea content placeholder being dragged to the left of the page.

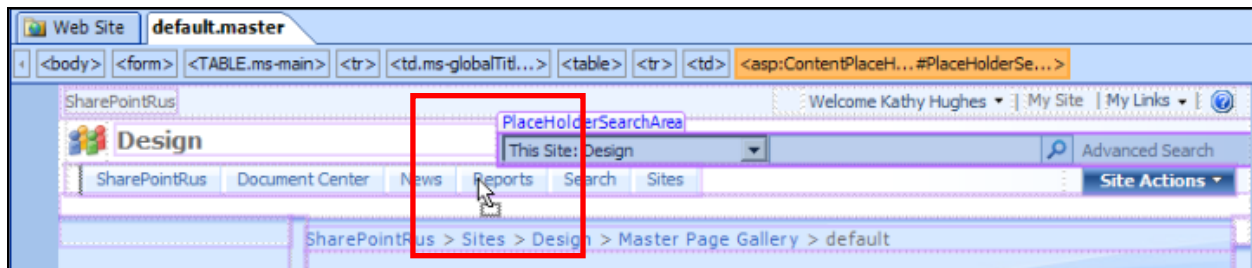


Figure 15.24 Reposition content by dragging and dropping content placeholders in Design view to an alternate location on the page

Existing page layouts and content pages, along with any new pages, attached to a master page will inherit modifications made to that master page, such as the default.aspx page of the Designs site shown in Figure 15.25 where the search area is now relocated to the left of the page.

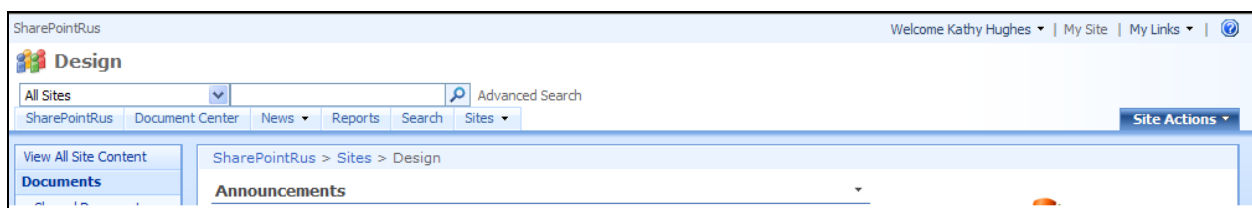


Figure 15.25 Repositioned search and advanced search area on default.aspx page of a SharePoint site shown in browser - a result

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of moving the `PlaceHolderSearchArea` on the site's attached master page

SharePoint Designer 2007 offers a rich coding experience, with built-in IntelliSense support. Figure 15.26 shows a *Split view* where you can select a section within Design view and have the equivalent code for that section highlighted in Code view.

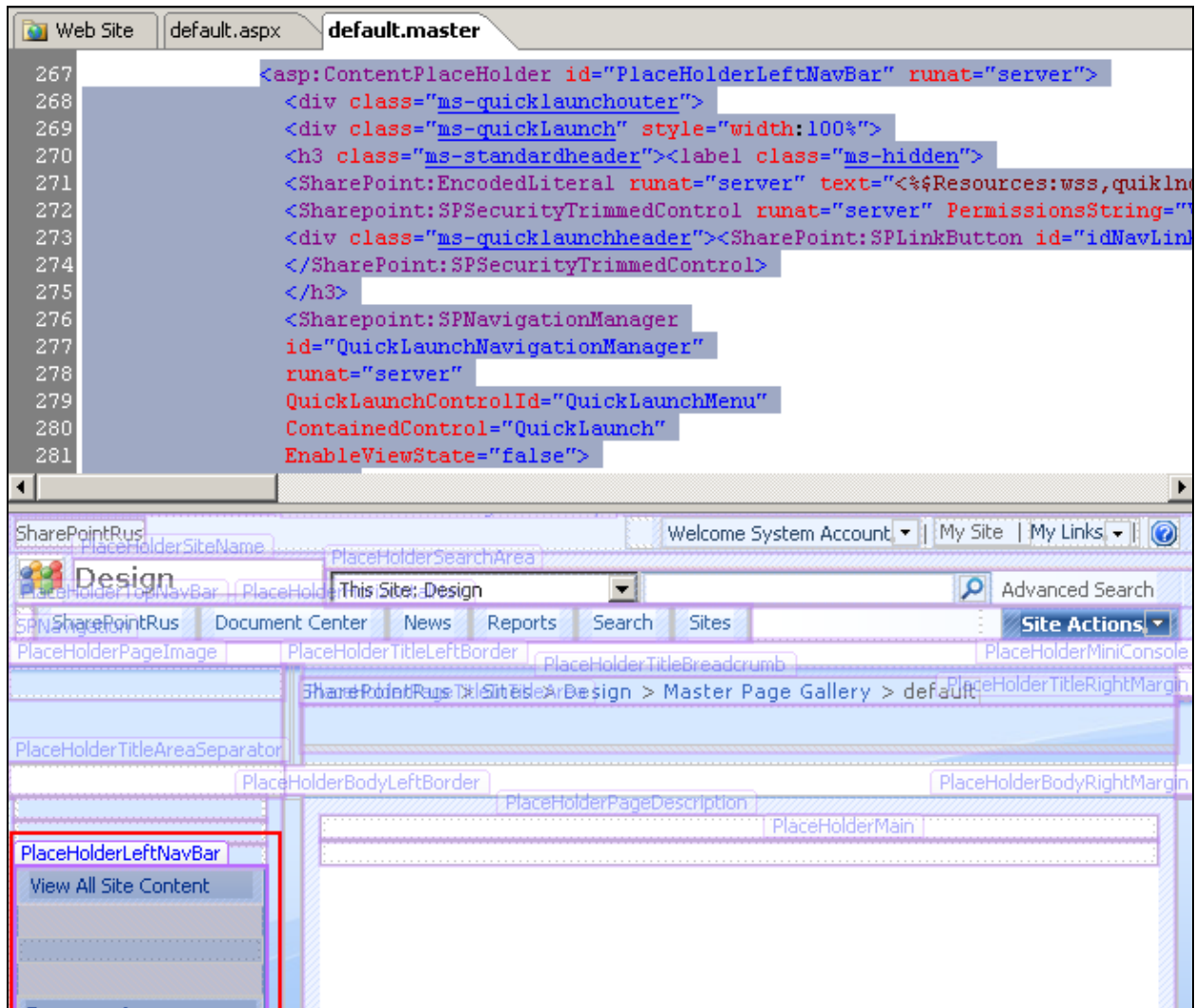


Figure 15.26 Directly edit content placeholder positioning in code view. Selecting a content placeholder in design view will automatically highlight the equivalent code in code view (demonstrated here in Split view)

Finally, using the SharePoint Designer 2007 Tag Properties task pane, you can directly manipulate settings for components and controls on SharePoint pages. Figure 15.27 shows the Tag Properties for the SharePoint Quick Launch Menu, where the menu behavior has been modified to change the menu from static to dynamic display using the `MaximumDynamicDisplayLevels` and `StaticDisplayLevels` property settings.

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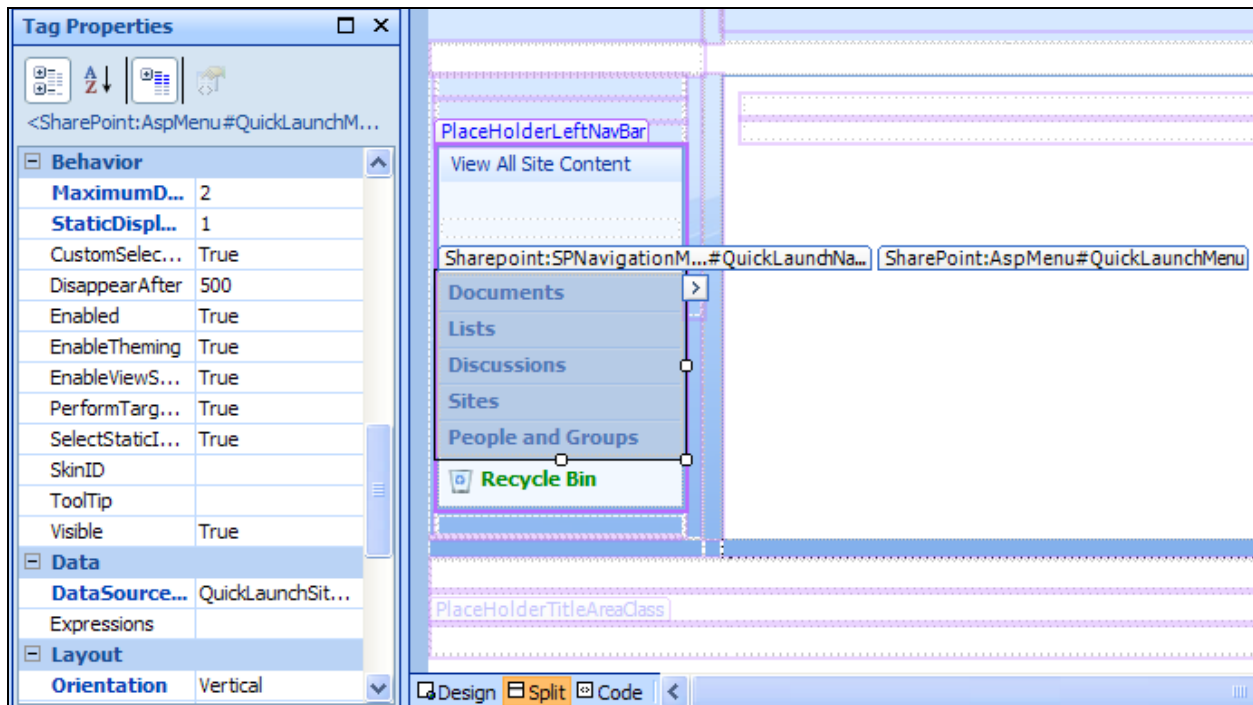


Figure 15.27 Using the SharePoint Tag Properties task pane you can adjust the properties for controls on SharePoint pages, such as the SharePoint quick launch menu on the SharePoint master page. Here, the Maximum Dynamic Display Levels, which cause the fly-out action of submenu items within the quick launch menu, has been changed from 0 to 2 to show two levels of fly-out submenus for each main menu item. The Static Display Levels, which is the menu's default setting, has been adjusted from 2 to 1.

The effect of changing the `MaximumDynamicDisplayLevels` property to '2' is shown in the menu within the browser in Figure 15.28.

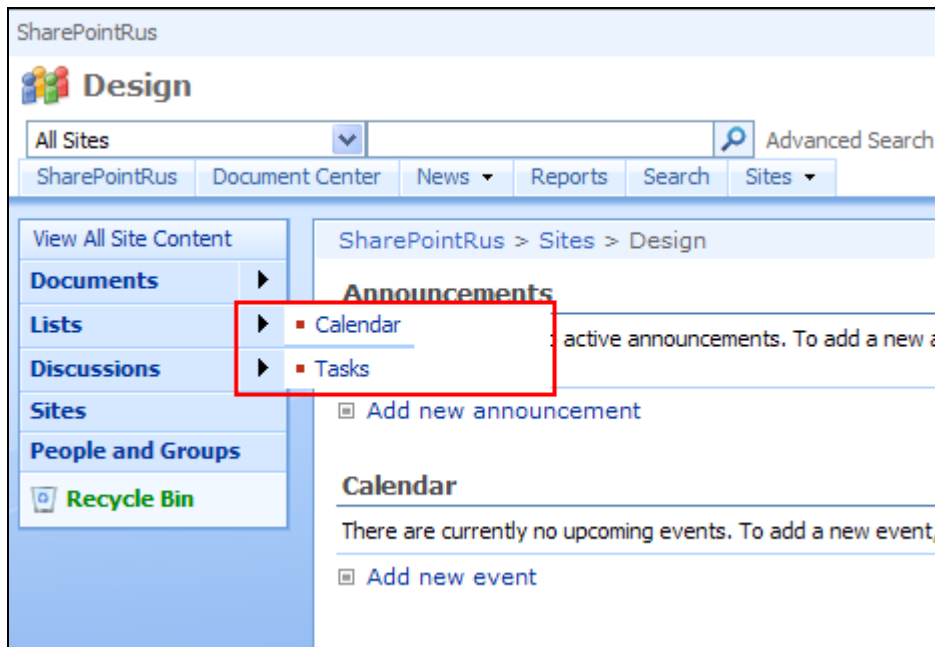


Figure 15.28 The resultant SharePoint quick launch navigation settings shown in the browser. The change to the Maximum Dynamic Display settings is now activated while moving the mouse cursor over each menu item

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NOTE

The SharePoint menu modifications shown above have been tested successfully in Internet Explorer 6 and above. You should consider including any modifications to the dynamic menu actions within your testing strategy for cross browser compatibility.

HOW CONTENT PAGES LINK TO A MASTER PAGE

By default, a master page filename is suffixed with *.master*. Master pages are also recognized as being master pages by a special directive within the header of the code of the master page file, such as:

1.1 `<%@Master language="C#" %>`

Content pages, associated with a master page, also include a special directive within the header of the code of the page, known as a token, such as:

1.2 `<%@ Page language="C#" MasterPageFile="~masterurl/default.master" ... %>`

At runtime, those content pages will be bound to the master page as identified by the page token to create the final rendered page. In SharePoint, there are several tokens which relate to SharePoint master pages, including both static and dynamic tokens:

- Dynamic tokens
 - `~masterurl/default.master`
 - `~masterurl/custom.master`
- Static tokens
 - `~site/default.master`
 - `~sitecollection/default.master`

The `~site` and `~sitecollection` tokens refer to site-relative and sitecollection-relative master pages, whereas the `~masterurl` token refers to those master pages in the `/_catalogs/masterpage/` folder. For further information regarding SharePoint master page tokens, see Customizing Master Pages in Windows SharePoint Services, located at <http://msdn2.microsoft.com/en-us/library/ms476046.aspx>.

SharePoint Designer 2007 includes tools to automatically assign new pages within a site to an existing default or custom master page. For instance, Figure 15.29 shows the New dialogue which is shown when choosing to create a new page from the File menu.

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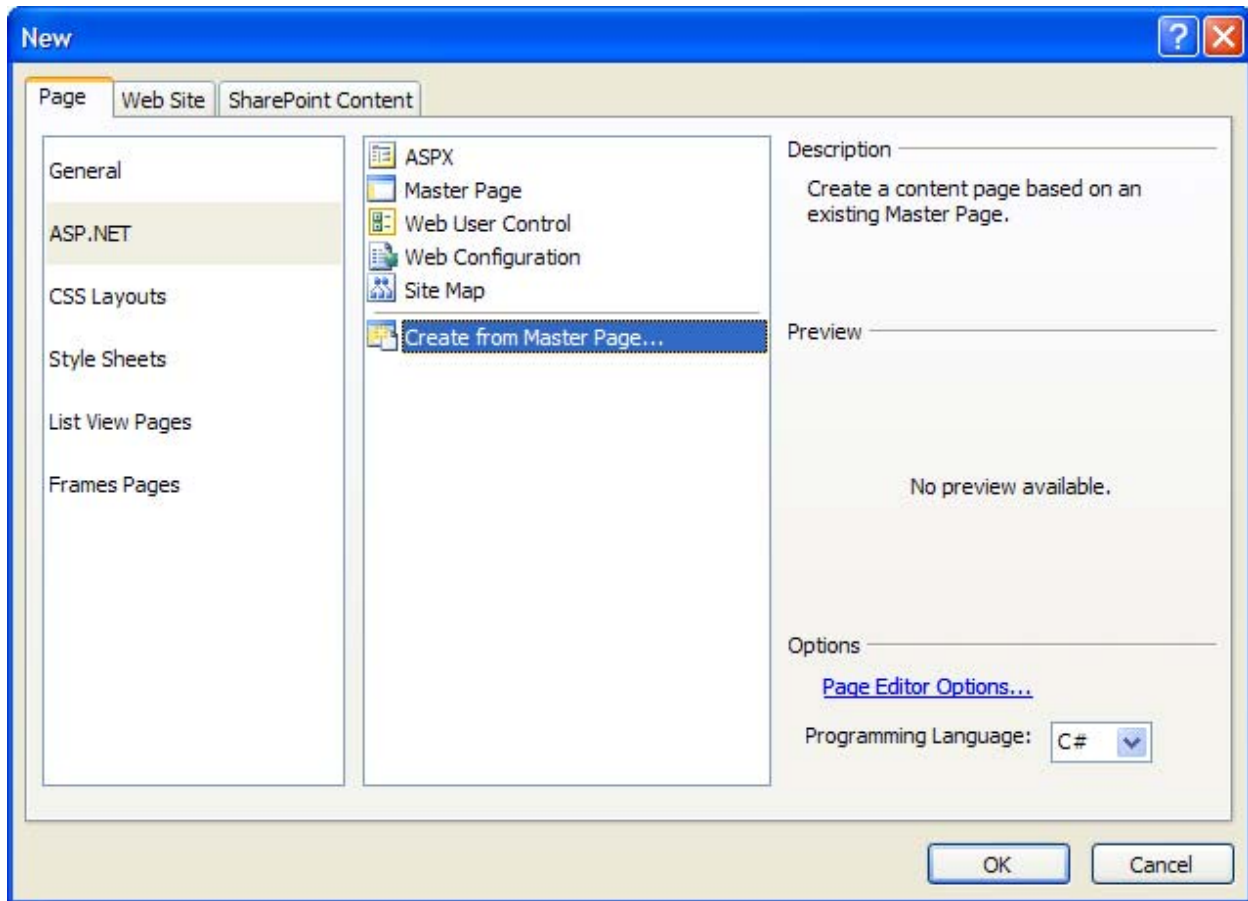


Figure 15.29 The SharePoint Designer 2007 Create New page dialogue where you can choose to create a new page based on an existing master page, such as default.master or custom.master, or other custom master page within the site or site collection.

Figure 15.30 shows the resultant Select a Master Page dialogue, where you can select from one of the existing master pages within a site or choose a specific master page, such as a custom master page you've created within the site or site collection.

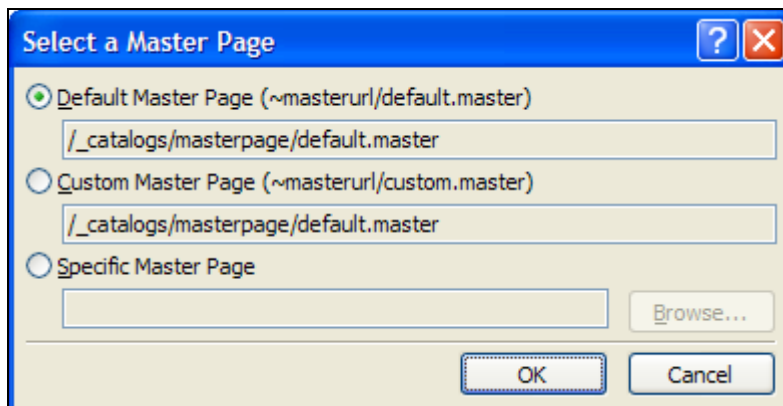


Figure 15.30 Select a Master Page dialogue for selecting which master page to associate the new page to. The new page will automatically inherit the look and feel from the selected master page.

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You can also change a page layout's, or content page, existing master page association by choosing to detach a master page and attach a new master page, using the SharePoint Designer 2007 Format menu and choosing **Master Page > Attach Master Page...** SharePoint Designer 2007 will check both the existing master page and new master page, and will detect any differences between master page content placeholders, such as whether the main content area on a page is associated with the PlaceholderMain content placeholder or a different content placeholder., as shown in Figure 15.31. This avoids any conflicts within the content in the rendered page.

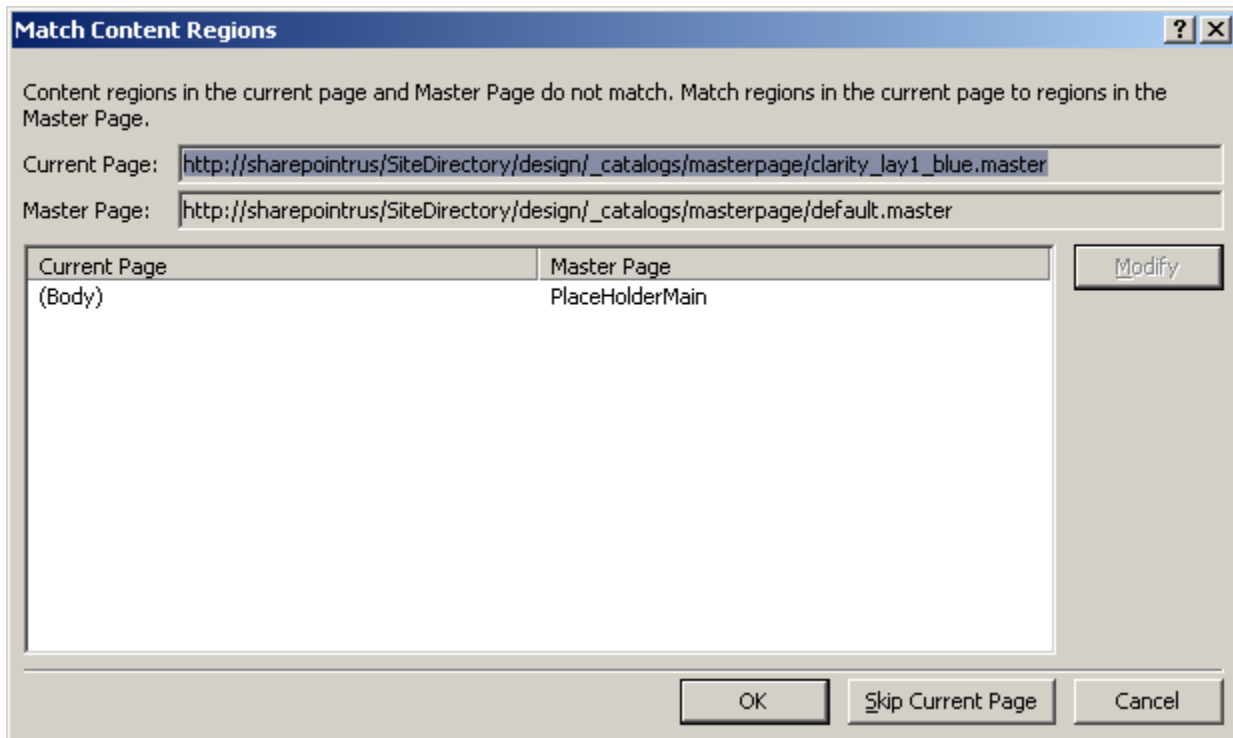


Figure 15.31 SharePoint Designer 2007 will attempt to match content regions on any existing master page content placeholders to content placeholders on a new master page being applied to existing page layouts, or content pages, within a site

15.5.2 Working with Cascading Style Sheets

Cascading style sheets (CSS) compliment SharePoint sites by adding the 'finishing touch' and overall makeup to SharePoint pages, such as the color and font type. There are several options for incorporating CSS throughout SharePoint sites and site collections, such as directly associating one or more CSS files with SharePoint master pages and having all attached page layouts and content pages inherit the CSS and overall look and feel. You can also directly add CSS into SharePoint pages, namely inline CSS, as well as adding CSS to individual pages using the Content Editor Web Part (CEWP). The most effective form of SharePoint CSS application is in integrating CSS files with SharePoint master pages which centralizes the customization effort.

SharePoint Designer 2007 supports direct CSS integration within SharePoint sites, with several task panes, including CSS Properties, Apply Styles and Manage Styles. Using the CSS task panes, you can easily manipulate existing CSS properties or create new CSS properties, with the added advantage of being able to drag and drop CSS properties directly onto a master page. The SharePoint Designer 2007 IntelliSense feature will autocomplete CSS classes and styles when working with CSS files in code view.

INTEGRATING CUSTOM STYLES WITH MASTER PAGES

By default, the out-of-the-box master pages include one or more CSS files. The CSS file named CORE.CSS is the base SharePoint CSS file from which all other CSS files inherit and which includes all the CSS classes and styles used throughout SharePoint sites.

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NOTE

SharePoint centralizes CSS application by using CSS classes. Consider CSS classes as groups of similar or like styles which can be reused multiple times throughout SharePoint pages.

Figure 15.32 shows the CSS formatting options available within the SharePoint Designer 2007 workspace, including the ability to modify the default CSS styles already applied to page items, such as modifying the colors and fonts within the Quick Launch menu. The Apply Styles task pane reveals existing styles associated with the current CSS file, such as CORE.CSS.

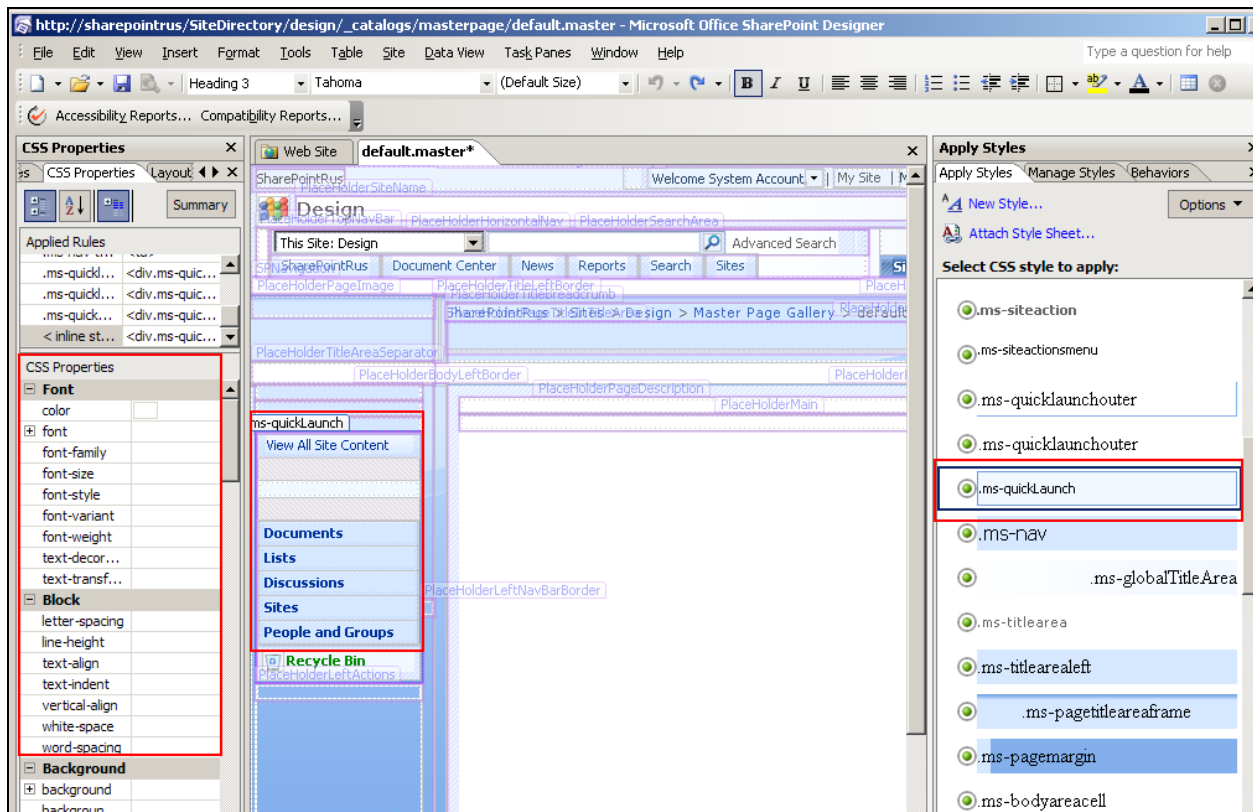


Figure 15.32 CSS options within SharePoint Designer 2007. The CSS Properties task pane to the left is where you can set individual CSS properties such as the font, background and foreground colors. For instance, you could change the color of the hyperlinks within the Quick Launch menu highlighted on the master page. The Apply Styles task pane to the right shows the current selected CSS style, or class, for the Quick Launch menu, specifically ms-quickLaunch.

The Apply Styles and Manage Styles task panes shown in Figure 15.32 allow you to filter on styles, such as display only the existing styles used within the current page. As you move your cursor over styles displayed in the CSS task panes, SharePoint Designer 2007 will preview the properties for each style, as shown in Figure 15.33.

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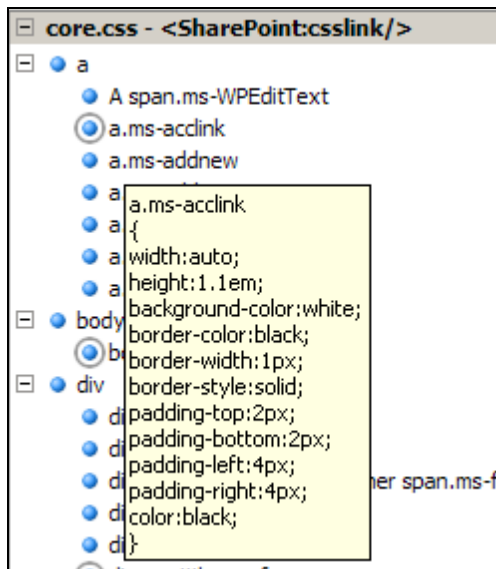


Figure 15.33 Preview of CSS style properties in the CSS Manage Styles task pane

You can modify CSS styles either using the design tools or by manipulating the CSS code directly. Figure 15.34 shows the drop-down menu selection for the .ms-quickLaunch CSS class and the option to **Modify Style...**

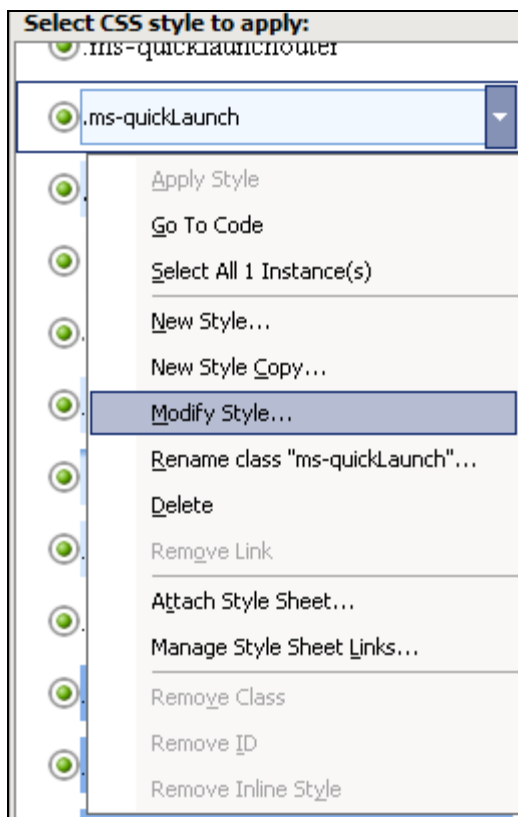


Figure 15.34 Options for modifying the CSS styles and class files

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Choosing the **Modify Style...** option produces a wizard-style driven dialogue, shown in Figure 15.35, which includes pre-defined categories to change the look and feel for a CSS class, such as background, or background image.

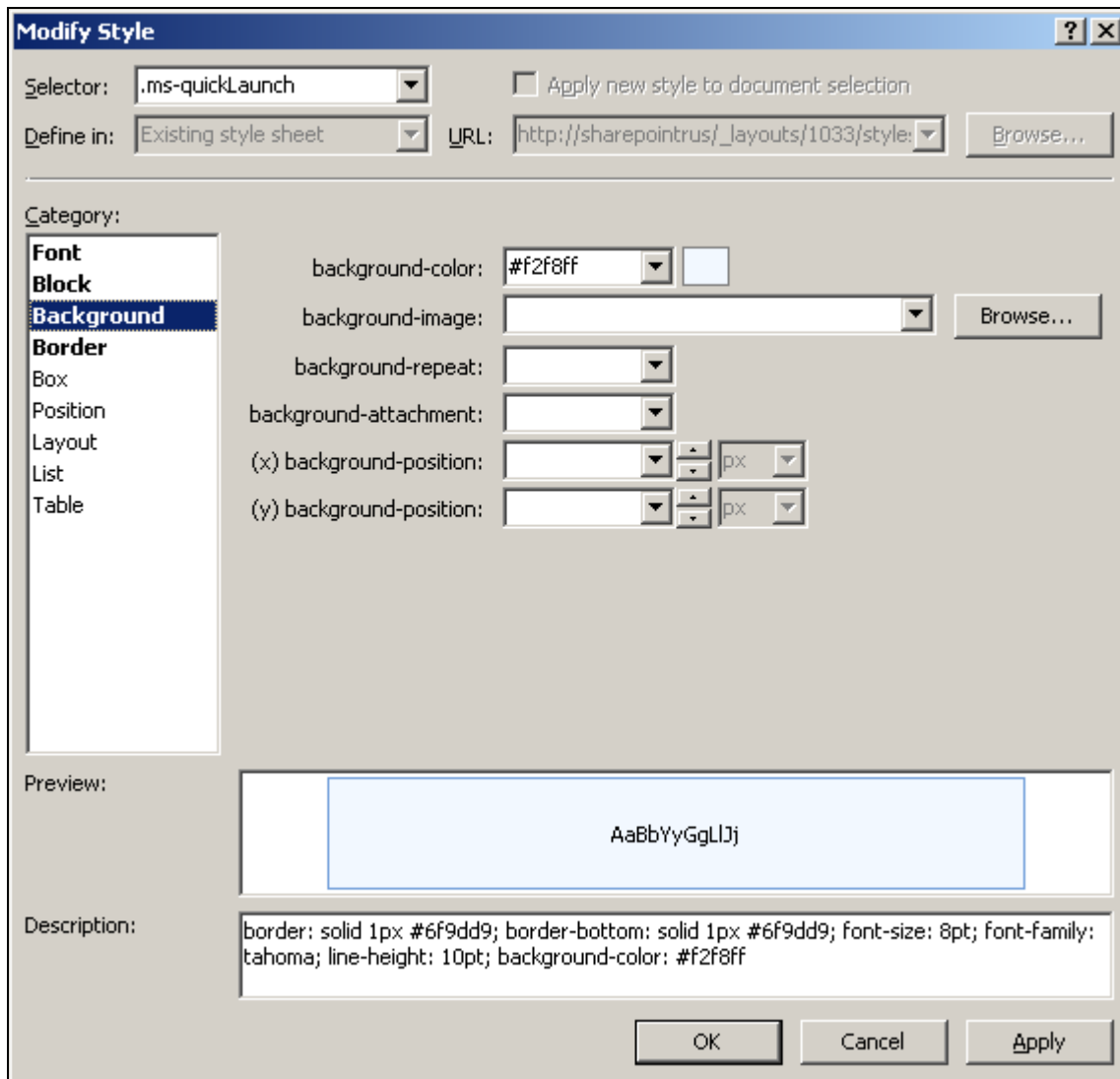


Figure 15.35 Modify Style dialogue for directly editing SharePoint CSS classes, in this example the .ms-quickLaunch class.

CUSTOMIZING THE CORE.CSS FILE

If you modify the existing, or default, styles within a master page, then you will effectively be customizing the *instance* of the CORE.CSS file, that is, the current site will no longer reference the original CORE.CSS file on the Web front-end server. If you customize and save the CORE.CSS file, SharePoint Designer 2007 will display a dialogue alerting you to the fact that the CORE.CSS file will be customized, as shown in Figure 15.36, and will create a new _styles folder for storage of the customized CORE.CSS file. The customized version of CORE.CSS will apply to the *existing* site and will be stored in the SharePoint content database. Just as with the safety net feature referred to earlier in this chapter, you can reset a site to the default CORE.CSS file by deleting the customized version.

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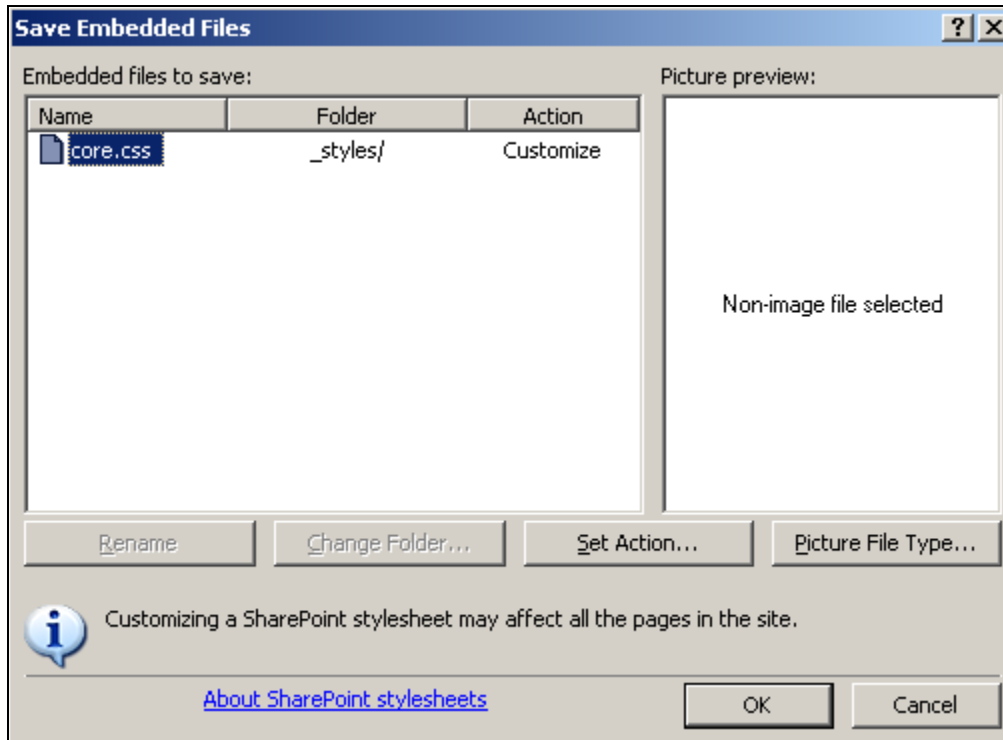


Figure 15.36 Warning dialogue when customizing CORE.CSS

Rather than customizing the CORE.CSS file, you can create a new CSS file by copying CORE.CSS and then modifying the styles within the copy. This means that any updates to the default CORE.CSS file are still inherited by the site and that you can also affect any custom CSS styles to a site. For instance, using a separate CSS file, you can attach that CSS file to a master page and override certain CSS classes and styles within a master page to affect the immediate site. You can also apply a custom CSS file to an entire site collection by using the Alternate CSS URL option via the MOSS 2007 administrative user interface.

15.5.3 Managing Content and Page Layouts

On top of master pages and CSS, page layouts form the final piece of the overall assembly of a MOSS 2007 page. Page layouts are specific to the publishing feature in MOSS 2007 sites and are used as the basis from which to create new publishing pages which are stored in the Pages document library of publishing sites. Page layouts themselves are stored in a site's Master Page Gallery and include special editing and versioning controls.

NOTE

Sites must have the Office SharePoint Server Publishing Feature enabled in order to access and work with page layouts. Non-publishing sites, such as Team Sites, won't have access to page layouts and instead will default to generic ASPX pages, such as Web Part pages.

In MOSS 2007, there are several out-of-the-box page layouts from which you can create new publishing pages via the browser. The home page (default.aspx) page of a site provisioned with a publishing template, such as the Collaboration Portal template, is based on a page layout, and so is the default Site Directory page.

Page layouts are based on special publishing content types and all page layouts inherit from the page content type, which is a special system content type, included in the Site Content Type Gallery's Publishing Content Types group. The typical page layout model comprises:

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Page content type > Page layout content type > page layout > publishing page

There are three out-of-the-box page layout content types:

- Article Page
- Redirect Page
- Welcome Page

CONTENT TYPES

Content types in MOSS 2007 centrally define content, such as the metadata associated with content and other functionality like workflow or information policy. This means that content throughout a site collection can share the same content type, regardless of content location. For instance, you could have a document in document library A in Site A and a document in document library B in site B bound to the same content type. Any changes you make to the content type at the root of the site collection will then be pushed out to all content using that content type – such as adding a column or a workflow. This then removes the need to go and configure each document library separately.

When you create a page layout content type you can associate multiple page layouts to that content type. An example is the out-of-the-box welcome page content type, which includes several page layouts such as a welcome page with summary links. The construct of the default (home) page on a Collaboration Portal is shown below:

Page Content Type	Page Layout Content Type	Page layout	Publishing page
Page	Welcome Page	DefaultLayout.aspx	Default.aspx

New pages created in publishing sites via the browser are created from existing page layouts, shown in Figure 15.37. You can create new page layouts in SharePoint Designer 2007 and have those page layouts available for new publishing page creation throughout SharePoint sites and site collections. For instance you might want to create a specific page layout for an organizational newsletter.

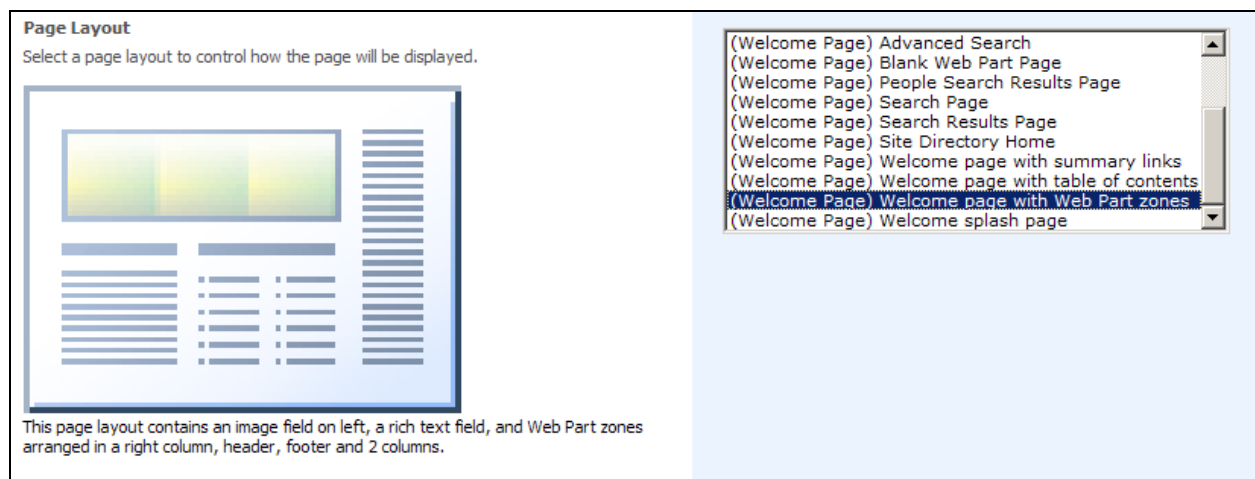


Figure 15.37 Creating new pages via the browser, using default page layouts

CREATING NEW PAGE LAYOUTS

Using SharePoint Designer 2007 you can create new page layouts which can then be distributed and used throughout a SharePoint site collection along with the default page layouts. When creating a new page layout, you

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can choose to use one of the existing page layout content types from a site's Site Content Type Gallery, shown in Figure 15.38, or create a new page layout content type.

Page Layout Content Types		
Article Page	Page	SharePointRus
Redirect Page	Page	SharePointRus
Welcome Page	Page	SharePointRus
Publishing Content Types		
Page	System Page	SharePointRus
Page Layout	System Page Layout	SharePointRus
Publishing Master Page	System Master Page	SharePointRus

Figure 15.38 Page layout content types which are located in a publishing site's Site Content Type Gallery. All page layouts inherit from the Page publishing content type.

Page layout content types include special publishing columns, named field controls. Figure 15.39 shows the field control columns for the Article page content type in the site's Site Content Type Gallery, which includes the Page Content column that allows the end user to enter content directly into a published page. Field controls are developed in Visual Studio 2005 and consist of pre defined formatting and functions, and limit control for end users, including the inability to move a field control around on a page. Page layouts can also include Web Part zones which give the end user greater flexibility in terms of adding Web Parts and the ability to relocate content within a page via the browser.

Columns			
Name	Type	Status	Source
Name	File	Required	Document
Title	Single line of text	Optional	Item
Description	Multiple lines of text	Optional	System Page
Scheduling Start Date	Publishing Schedule Start Date	Optional	System Page
Scheduling End Date	Publishing Schedule End Date	Optional	System Page
Contact	Person or Group	Optional	System Page
Contact E-Mail Address	Single line of text	Optional	System Page
Contact Name	Single line of text	Optional	System Page
Contact Picture	Hyperlink or Picture	Optional	System Page
Rollup Image	Publishing Image	Optional	System Page
Target Audiences	Audience Targeting	Optional	System Page
Page Image	Publishing Image	Optional	
Page Content	Publishing HTML	Optional	
Summary Links	SummaryLinks	Optional	
Byline	Single line of text	Optional	
Article Date	Date and Time	Optional	
Image Caption	Publishing HTML	Optional	

Figure 15.39 Field Controls (columns) for the Article page content type

When you create a new page layout, SharePoint Designer 2007 will automatically synchronize with the existing site's Site Content Type Gallery and check for page layout content types, as shown in Figure 15.40. In this example, the Article page content type is selected and a new page layout named Newsletter is in the process of being created.

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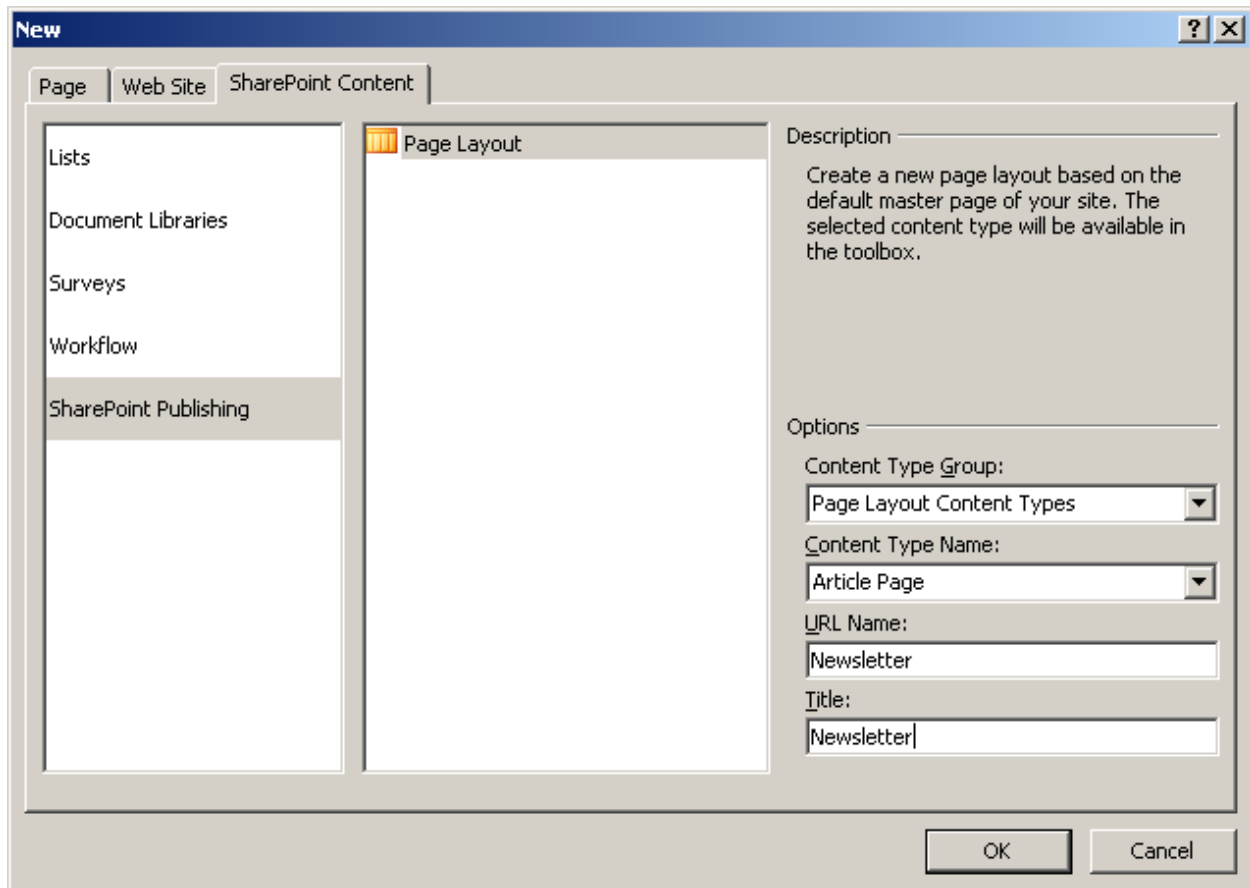


Figure 15.40 SharePoint Designer 2007 dialogue for creating a new page layout. If you created a new page layout content type, then that custom content type would display in the Content Type Name drop-down list along with the Article, Welcome and Redirect content types.

SharePoint Designer 2007 will automatically associate a new page layout with the default.master page of the site. Figure 15.41 shows the Newsletter.aspx page layout open in Design view for editing. The Toolbox task pane to the right of the page includes the field controls, or columns, associated with the Article content type from which the Newsletter.aspx page layout was created. Those field controls directly relate to the Article page content type columns in the site's Content Type Gallery, and as shown back in Figure 15.40.

The new page layout can be constructed by dragging and dropping the field controls from the toolbox into the customized PlaceholderMain content placeholder.

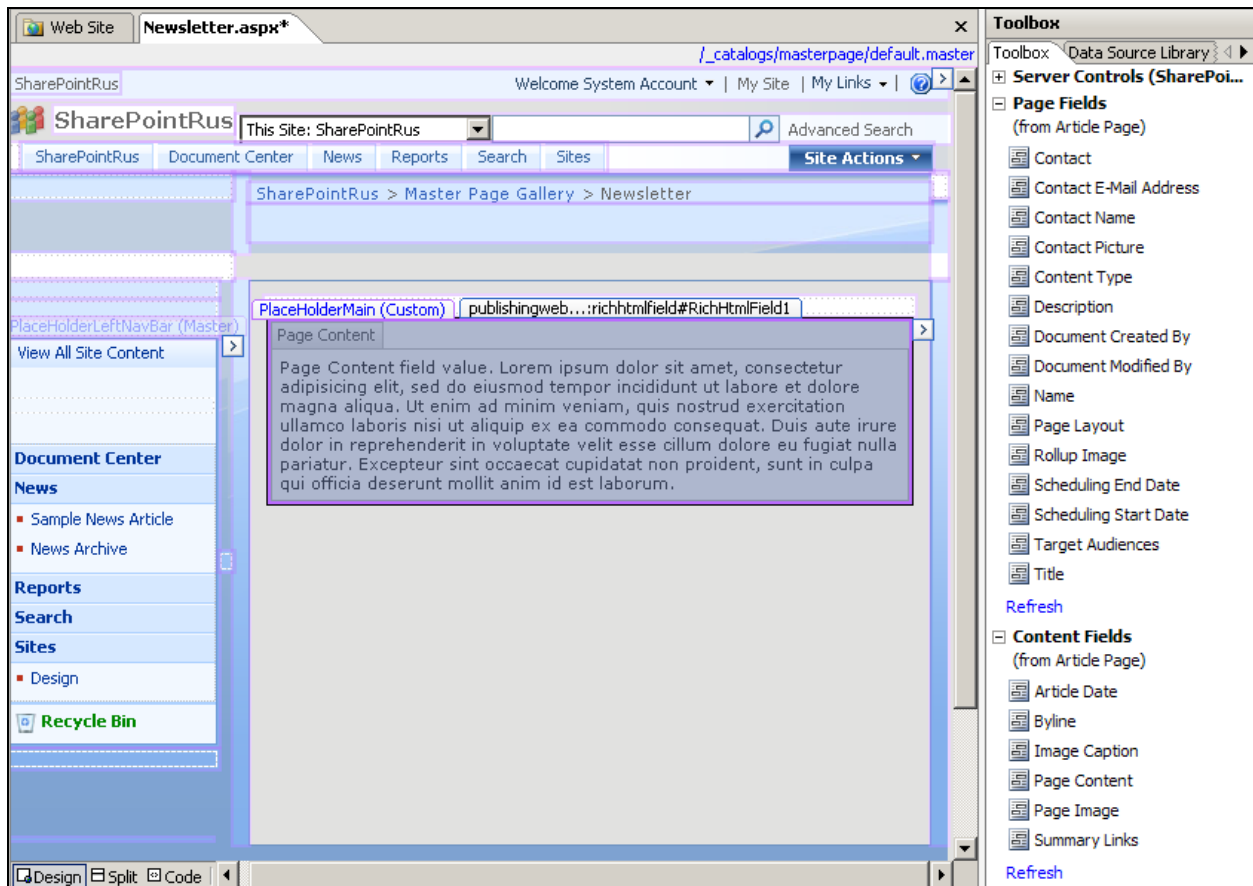


Figure 15.41 A new page layout, named Newsletter.aspx, created in SharePoint Designer 2007. The Toolbox task pane to the right includes the available field controls which can be directly dragged and dropped into the customized PlaceHolderMain content placeholder. In the above example, the Page Content field control has been added.

NOTE

The Page and Content Fields within the SharePoint Designer 2007 Toolbox task pane only become active when editing a page layout.

When you create and save a new page layout in SharePoint Designer 2007, that page layout is saved to the Master Page Gallery in the root site of the site collection in the approval status of draft and must be approved and checked-in before it becomes visible to all entitled end users. Once the new page layout is approved and checked-in it will become available when creating a new publishing page within MOSS 2007, shown in Figure 15.42.

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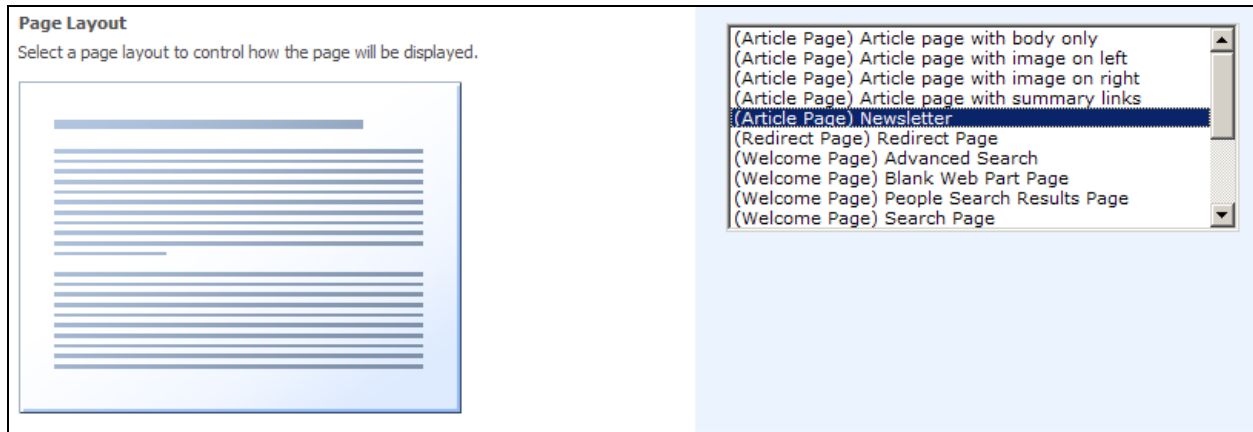


Figure 15.42 The new Newsletter page layout has been created from the Article Page content type (shown in brackets to the left of the Newsletter page layout name) and can be used for creating new publishing pages within publishing sites.

Figure 15.43 shows a new page, named Company Newsletter, which has been created based on the new Newsletter page layout. The Page Content field control added to the page layout during editing in SharePoint Designer 2007 is open in edit mode within the browser and the Page Content toolbar includes editing tools which can be used to style and layout content added to the page.

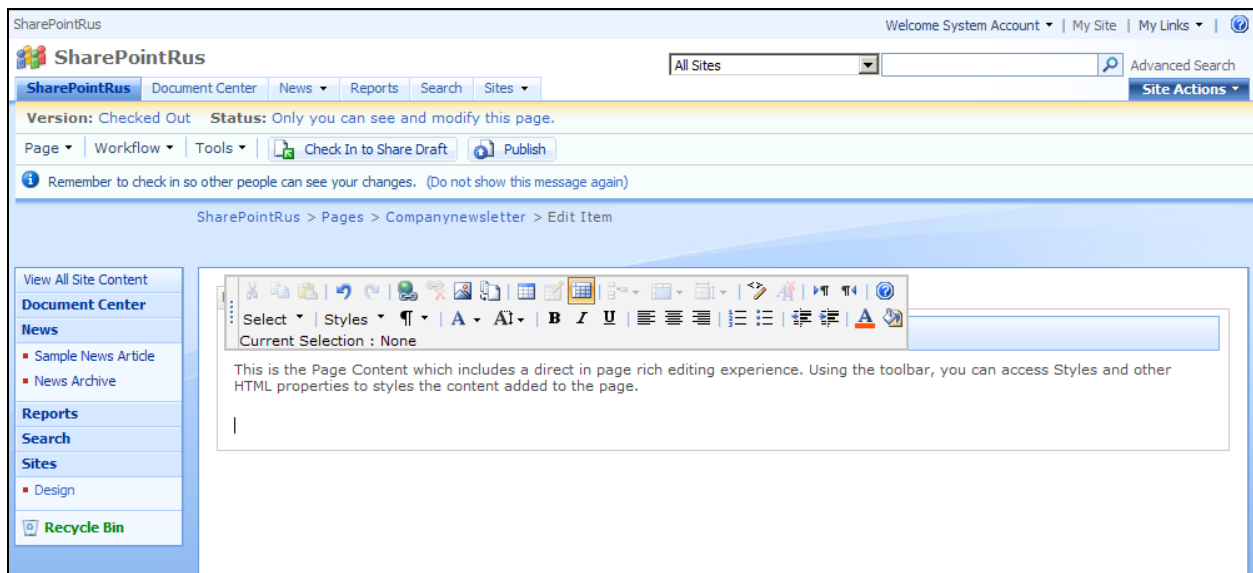


Figure 15.44 A new page named Company Newsletter created from the Newsletter page layout, which shows the Page Content field control in edit mode for creating new content directly in page.

Using the SharePoint Designer 2007 Tag Properties task pane, you can further configure field control instances, when added to page layouts. For example, you can lock down the particular styles available to end users. You may consider doing this to maintain a consistent look and feel within the styles throughout your SharePoint sites.

15.6 Extending Functionality in SharePoint Sites

SharePoint Designer 2007 does a lot more in terms of working with and integrating data into SharePoint sites, including adding in dynamic functionality such as interactive buttons and behaviors, like a popup message when a page is loaded into a browser window or 'onclick'. If you've been accustomed to adding and working with, these

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behaviors (or dynamic HTML) in non-SharePoint sites, then you'll appreciate the built-in tools to add those same behaviors directly into SharePoint sites and pages.

If you're familiar with Visual Studio 2005, then you'll also be familiar with the precompiled controls available within the Visual Studio 2005 development environment, such as the GridView control which allows you to easily integrate and format data from a backend database, and various navigation/menu controls. These controls are specific to ASP.NET 2.0 and are also part of the SharePoint Designer 2007 editing environment.

In this section, we'll look at how you can add additional functionality to SharePoint sites by using the SharePoint Designer 2007 dynamic behaviors and Web components, and integrate and manipulate external data using the ASP.NET 2.0 GridView control.

15.6.1 Working with SharePoint and ASP.NET 2.0 Controls

ASP.NET 2.0 controls are accessed via the SharePoint Designer 2007 Toolbox task pane. Figure 15.45 shows the Toolbox task pane with the 6 ASP.NET 2.0 control categories, Standard, Data, Validation, Navigation, Login and Web Parts. You can drag and drop controls from the Toolbox directly onto SharePoint pages. We've expanded the Data and Navigation categories to further show the controls specific to those two categories and which we'll demonstrate in this section.

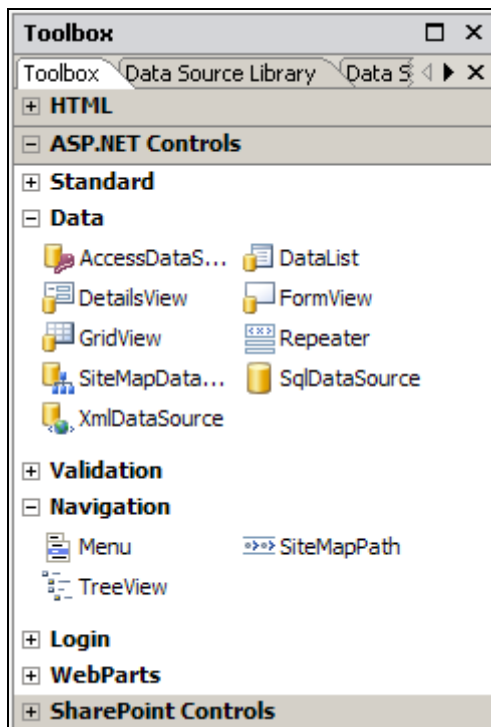


Figure 15.45 ASP.NET 2.0 controls available in SharePoint designer 2007 and accessible from the Toolbox task pane

The Navigation controls will automatically recognize the existing SharePoint navigation, SiteMap provider, so you could use for example the Menu control to change the look and feel of a site's existing navigation, as shown in Figure 15.46. Additionally, each control includes formatting and configuration capabilities, such as the ability to change the style of the control. The SharePoint Designer 2007 Tag Properties task pane also exposes properties for ASP.NET 2.0 controls, where you can further configure controls which have been added to SharePoint pages.

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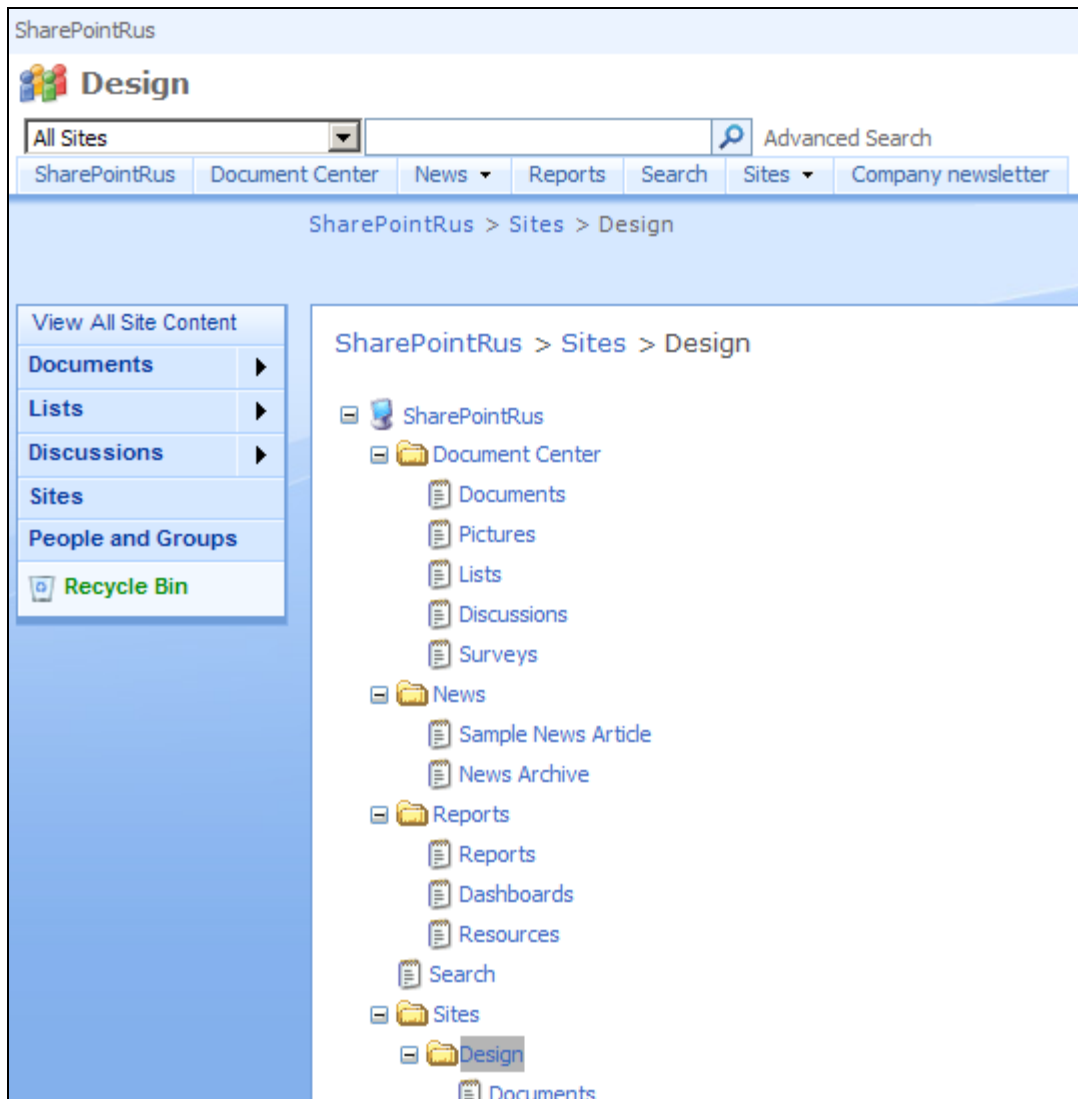


Figure 15.46 Create alternate navigation by using an ASP.NET 2.0 menu control

Using the ASP.NET 2.0 GridView control you can connect to an external MSSQL database and import and configure the data to both display within and update from SharePoint sites. If you've previously used the GridView control in Visual Studio 2005, then you'll be familiar with the features of the control, such as the ability to format data and add pagination, and pass parameters between pages to display subsets of data. In fact, if you've an existing GridView configuration within Visual Studio 2005, you can import that same configuration into the GridView control in SharePoint Designer 2007 and have the same capability built into your SharePoint sites. Figure 15.47 shows a GridView control added to a SharePoint page, with the Common GridView Tasks dialogue open to enable GridView configuration. A data source has also been configured, namely SqlDataSource2, which connects to a database on an external MSSQL server. The SqlDataSource configuration within a GridView can also determine exactly which data from a database you wish to have exposed within the GridView, for example, a query on a particular table or set of tables within the database.

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Common GridView Tasks

AutoFormat...

Choose Data Source: **SqlDataSource2**

Configure Data Source...

Refresh Schema

Edit Columns...

Add New Column...

☒ Enable Paging

☒ Enable Sorting

☐ Enable Selection

Edit Templates

Supplier IDs	ID	Product Code	Product Name	Description	Standard Cost	List Price	Reorder Level	Target Level	Quantity Per Unit	Discontinued
abc	0	abc	abc	abc	\$0.00	\$0.00	0	0	abc	☐
abc	1	abc	abc	abc	\$0.10	\$0.10	1	1	abc	☒
abc	2	abc	abc	abc	\$0.20	\$0.20	2	2	abc	☐
abc	3	abc	abc	abc	\$0.30	\$0.30	3	3	abc	☒
abc	4	abc	abc	abc	\$0.40	\$0.40	4	4	abc	☐
abc	5	abc	abc	abc	\$0.50	\$0.50	5	5	abc	☒
abc	6	abc	abc	abc	\$0.60	\$0.60	6	6	abc	☐
abc	7	abc	abc	abc	\$0.70	\$0.70	7	7	abc	☒

Figure 15.47 ASP.NET 2.0 GridView control added to a SharePoint page. The Common GridView Tasks allow you to configure and format the GridView, such as pagination and format columns.

Figure 15.48 shows the same GridView within the browser, which shows the data specific to the Products table from the Northwind database which resides on an external MSSQL server.

Supplier IDs	ID	Product Code	Product Name	Description	Standard Cost	List Price	Reorder Level	Target Level	Quantity Per Unit	Discontinued	Minimum Reorder Quantity	Category
4	1	NWTB-1	Northwind Traders Chai		\$13.50	\$18.00	10	40	10 boxes x 20 bags	☐	10	Beverages
10	3	NWTCO-3	Northwind Traders Syrup		\$7.50	\$10.00	25	100	12 - 550 ml bottles	☐	25	Condiments
10	4	NWTCO-4	Northwind Traders Cajun Seasoning		\$16.50	\$22.00	10	40	48 - 6 oz jars	☐	10	Condiments
10	5	NWTO-5	Northwind Traders Olive Oil		\$16.01	\$21.35	10	40	36 boxes	☐	10	Oil
2;6	6	NWTJP-6	Northwind Traders Boysenberry Spread		\$18.75	\$25.00	25	100	12 - 8 oz jars	☐	25	Jams, Preserves

1 2 3 4 5 6 7 8 9

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Figure 15.48 The same GridView displayed within the browser. As you can see, the actual data from the MSSQL database is now rendered within the control and the pagination controls are also in effect.

15.6.2 Adding Custom Behaviors

Behaviors enable you to include additional functionality within SharePoint sites and pages, such as popup messages, image swapping, play sound and various other functions such as checking browser and check for plug-in such as the ability to check for Flash reader on the client and redirect the user to an alternate URL if the reader is not installed. Along with behaviors are the associate events, such as including a popup message behavior and then using a onmouseover event to activate the popup message.

Figure 15.49 shows a popup message which is activated on mouseover.

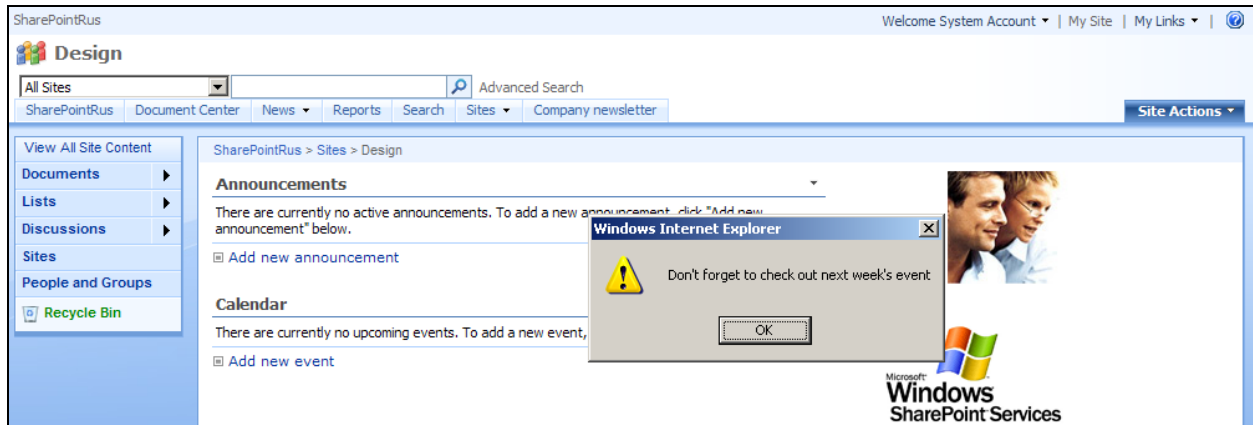


Figure 15.49 Example of using a custom behavior to display a popup message when hovering over an image on the home page of a SharePoint site

NOTES

You cannot insert behaviors on Web Parts or Web Part zones. The behaviors mentioned here include client-side functionality and should be tested in your chosen browsers before deploying throughout an organization.

15.6.3 Web Components

Using Web components, you can add functionality to SharePoint sites such as marquees, hit counters, interactive buttons, custom photo gallery, visually display custom usage statistics on a page, such as the last date the page was edited, and additional navigation styles.

NOTE

Web components are effectively inherited from earlier versions of FrontPage. The Web components included in SharePoint Designer 2007 do not rely on the FrontPage Server Extensions being installed on the SharePoint server.

Figure 15.50 shows a hit counter Web component which has been added to the top right of the default.aspx page of the Design site.

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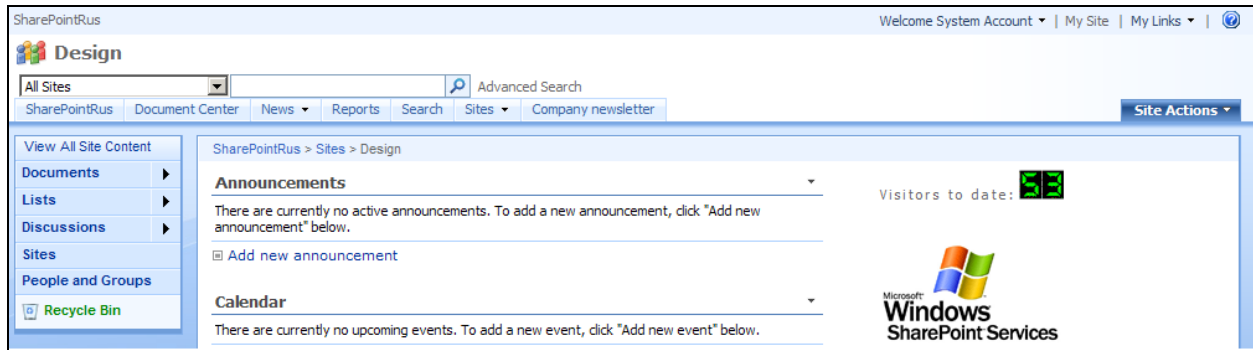


Figure 15.50 An example of using a SharePoint Designer 2007 Web component to add a hit counter to the home page of a SharePoint site.

15.7 Workflows to Manage your Business Processes

SharePoint Designer 2007 extends the out-of-the-box workflow experience by enabling you to construct custom, multi-conditional workflows. Using SharePoint Designer 2007 you can create an entire solution which spans multiple approval routing, e-mail integration, direct integration and update of list data and end user data collection.

In this section, we'll introduce you to the MOSS 2007 Workflow Designer and the types of workflows you can create to enhance your business processes.

NOTE

The ability to create custom workflows in SharePoint Designer 2007 is governed primarily by two options, one, whether you have been given rights to create custom workflows such as via the SharePoint Designer 2007 contributor settings, and, two, whether the SharePoint server administrator has enabled user-defined workflows for the SharePoint site via the SharePoint Central Administration. If you are unable to launch the Workflow Designer wizard in SharePoint Designer 2007, you should contact the site and/or server administrator.

15.7.1 Creating Custom Code-free Workflows Using SharePoint Designer 2007

Using the SharePoint Designer 2007 Workflow Designer wizard, you can quickly create a workflow to automate an existing business process or extend an out-of-the-box approval workflow by integrating additional functionality such as copying documents between lists or updating list items depending on whether a certain workflow condition is met.

NOTE

Workflows created in SharePoint Designer 2007 are bound to a particular list, or document library, within a SharePoint site and they are not portable. In other words you cannot move or copy a SharePoint Designer 2007 workflow to another SharePoint list or site.

Workflows in SharePoint Designer 2007 are created using the Workflow Designer, which is a wizard-based tool including all the necessary steps for creating and modifying custom workflows. For instance, you can determine whether a workflow will automatically start when a new document is added into a document library and also whether the workflow will start on subsequent modifications to the same document. Figure 15.51 shows the initial screen of the Workflow Designer, where the Travel Approval workflow has been attached to the Travel Requests list and is started both manually and when a new item is created.

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Workflow Designer - Travel Approval

Define your new workflow

Choose the type of workflow and the conditions under which this new workflow should run.

Give a name to this workflow:

What SharePoint list should this workflow be attached to?

Select workflow start options for items in Travel Requests:

- ☒ Allow this workflow to be manually started from an item
- ☒ Automatically start this workflow when a new item is created
- ☐ Automatically start this workflow whenever an item is changed

Help

- The workflow name given here will be used to identify the workflow to end users.
- By attaching this workflow to a List, it makes it possible to initiate the workflow for Items in that List.
- The start options reflect when the workflow will be run for Items in the attached List.

[Click here for more help...](#)

Check Workflow Initiation... Variables... Cancel < Back Next > Finish

Figure 15.51 The initial Workflow Designer screen where the Travel Approval workflow is attached to a the Travel Requests SharePoint list and the start options for the workflow are set to allow both manual and automatic.

Note also, in Figure 15.51 above, the Initiation... and Variables... buttons. If you choose to start a workflow manually, SharePoint Designer 2007 will create a user initiation form (an ASPX page). As part of the workflow initiation, you can also collect additional data from users which you can then save as part of the workflow and/or use as additional arguments when establishing workflow conditions and actions – such as take a specific action if user answered yes or no to a question in the workflow initiation. Variables are used to collect and store user data during workflow execution.

The two main components used in configuring custom workflows are conditions and actions:

- Conditions instruct the workflow as to whether it needs to take actions, shown in Figure 15.52

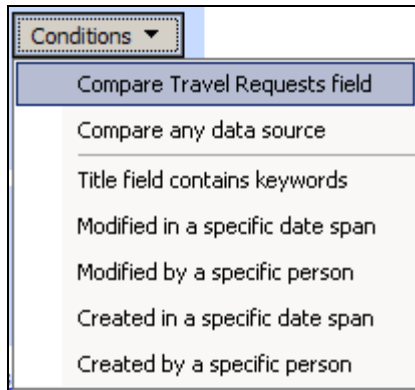


Figure 15.52 The Conditions which can be set within a workflow

- Actions happen if the condition(s) is met. The default actions are shown in Figure 15.53.

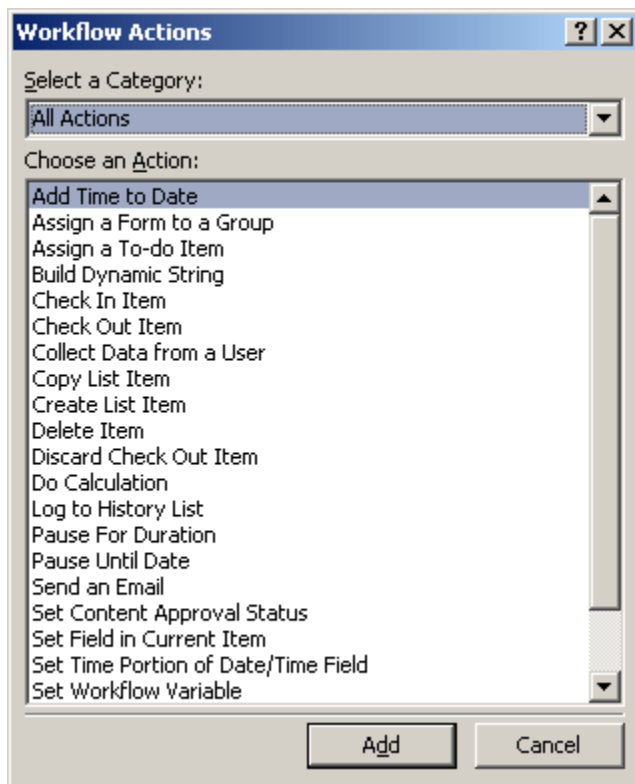


Figure 15.53 The available actions which can be set against conditions within a workflow. Additional actions can be created using Visual Studio 2005 and used by SharePoint Designer 2007 when creating custom workflows

Figure 15.54 shows the second screen of the Workflow Designer which is where the conditions and actions for the workflow are set. Configuration can include multiple conditions and actions, as well as conditional branches. Conditional branches add the logic to determine the next stage of a workflow depending on the outcome of the preceding condition, such as the else if statement, for example, *Else If Travel Requests:Destination not equals Hawaii*, then do the following.

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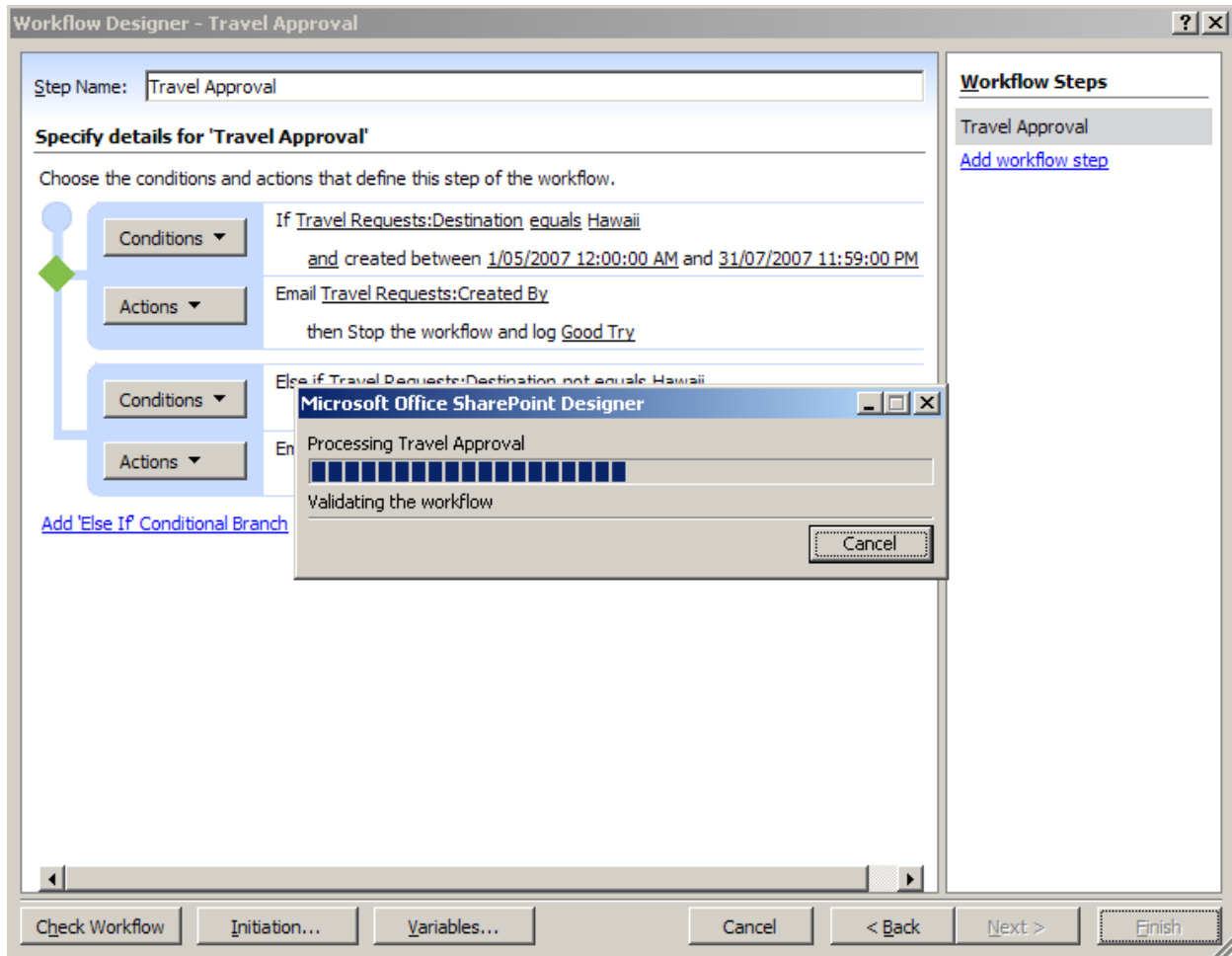


Figure 15.54 Workflow conditions and actions, shown here in during workflow compilation. At this point, the Workflow Designer will deploy the workflow, or any updates to the workflow, to the attached SharePoint list or document library. It will also alert you to any workflow errors.

Figure 15.55 shows a workflow scenario for a travel request workflow, which demonstrates logic based on conditions and integrates email functionality, along with logging workflow history and workflow task assignment. We've added "optional further workflow actions" to the end of the workflow because there are additional actions which could be added, such as emailing the final travel details back to the user or copying the travel request with costs to the Financial Department.

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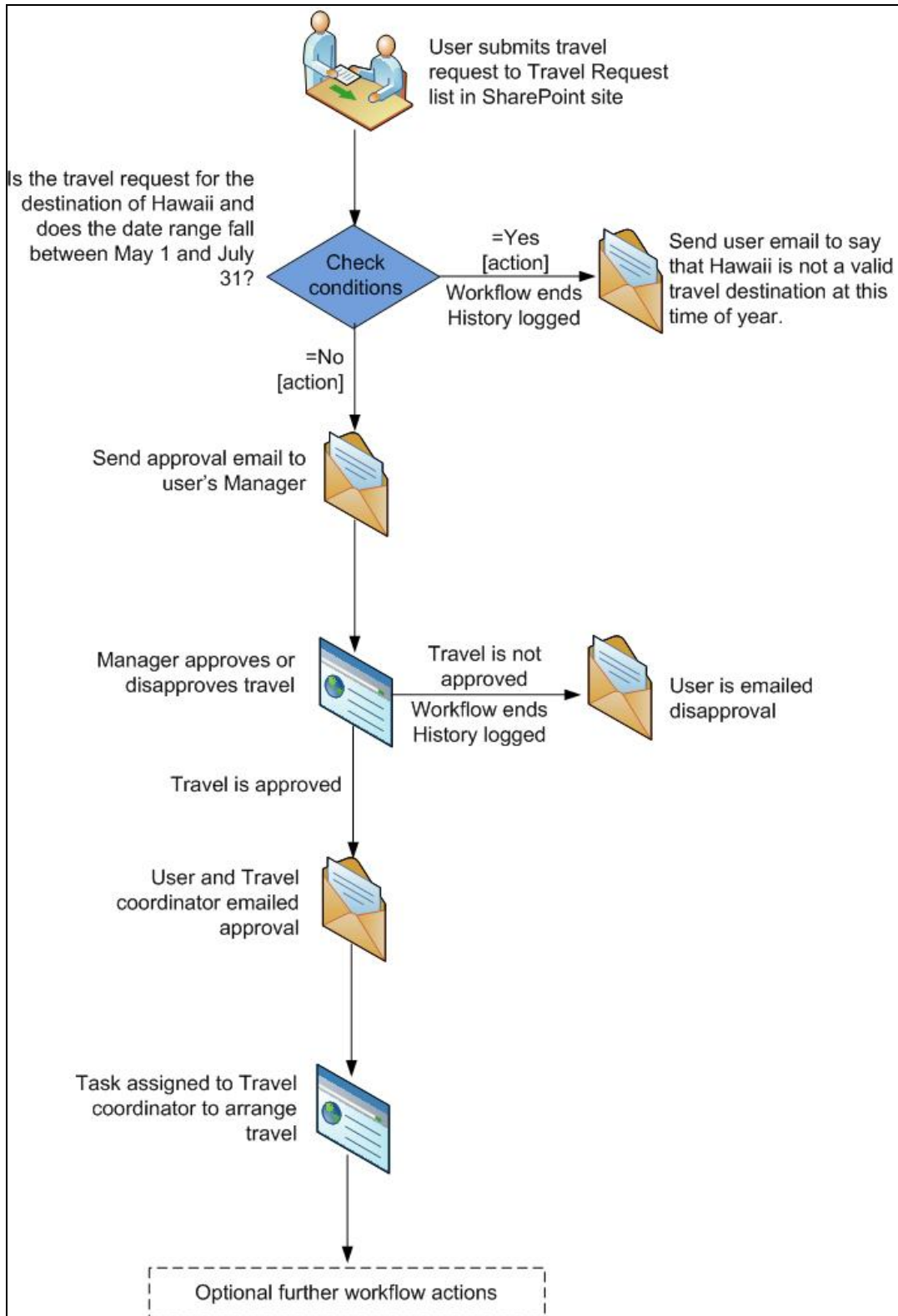


Figure 15.55 Sample workflow flow chart, which shows a typical workflow created using SharePoint Designer 2007

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STORAGE AND EDITING OF SHAREPOINT DESIGNER 2007 WORKFLOWS

Workflows created with SharePoint Designer 2007 cannot be edited via the browser. Instead, the workflow files are accessed in SharePoint Designer 2007 and edited using the Workflow Designer tool. Each time a custom workflow is edited and saved, an updated version of the workflow is deployed to the attached SharePoint list or document library and the previous version is deactivated. SharePoint will retain a copy of each version of a custom workflow within the attached list or library and versions can be activated and deactivated using the browser.

Custom workflows, like the out-of-the-box workflows, generate historical and error reports. These reports are accessed from within the attached workflow list or document library. You can also view completed and running instances of a workflow, shown in Figure 15.56. Tasks associated with workflows are stored within a list or document library's Task list.

SharePointRus > Sites > Design > Travel Requests > Travel > Workflows

Workflows: Travel

Use this page to start a new workflow on the current item or to view the status of a running or completed workflow.

Start a New Workflow

Travel Approval

Workflows

Select a workflow for more details on the current status or history.

Name	Started	Ended	Status
Running Workflows			
There are no currently running workflows on this item.			
Completed Workflows			
Travel Approval (Previous Version: 5/25/2007 6:40:43 PM)	5/25/2007 10:35 PM	5/25/2007 10:35 PM	Completed

Figure 15.56 Custom workflows are versioned and the history for each workflow instance is stored within the attached list or document library in the SharePoint site.

15.8 Summary

This chapter has shown you how you can leverage SharePoint Designer 2007 to customize and extend functionality throughout SharePoint sites. You've learned that how the administrative features can help to automate some of the administrative functions such as generating additional reports and setting contributor settings on SharePoint sites to lock down editing features available to some end users. You've also learned how SharePoint Designer 2007 integrates directly with SharePoint master pages, CSS and page layouts and how you can use the tools to directly manipulate and create a new look and feel throughout SharePoint sites. We've also shown you how you can add additional functionality by using ASP.NET 2.0 controls within SharePoint sites and through using behaviors and Web components.

Finally, we've demonstrated how you can create custom workflows to enhance your business processes and demonstrated a typical workflow for managing travel requests within an organization.

The next chapter, Chapter 16, continues the SharePoint Designer 2007 customization experience by introducing the Data View Web Part, which can be used to integrate and work with external data in SharePoint sites. You'll understand how you can work with the data view Web Part to format imported data and add custom functionality to that data using conditional formatting.

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16

The Data View Web Part

Companies typically use a multitude of repository types to store and manage their data. A company may use SQL Server to store relational data; the Windows file system for storing semi-structured data and eXtensible Markup Language (XML) files to hold hierarchical data. The need to aggregate and manage data in a central location is a very common requirement within portal environments. To cater to this need, you could build custom Web Parts using Visual Studio.NET to incorporate various data sources. Instead, for a range of scenarios that are explored in this chapter, you will want to try to use the **Data View Web Part** first. The Data View Web Part is an advanced tool that allows you to create solutions for viewing and managing data in a fraction of the time it would take you to build a similar solution in Visual Studio.NET. The Data View Web Part lets you view and manage data coming from different data sources, like Web services, SharePoint lists and server-side scripts.

Data View Web Parts are able to retrieve data from various data sources in the form of XML even if the data itself in its original form is not XML, and make it very easy to adjust the appearance of that data by applying eXtensible Stylesheet Language Transformations (XSLT) to it. XSLT is used for transforming the structure of an XML document. The XML data within a Data View Web Part can be formatted using the Microsoft Office SharePoint Designer's Design view. You worked with SharePoint Designer (SPD) in Chapter 15. Follow the next procedure to open a SharePoint page in design view using Microsoft Internet Explorer 7.

1. Open Internet Explorer and navigate to a SharePoint page.
2. Click the Page button at the upper right corner. If SharePoint Designer is installed on your machine, this opens a menu that contains the option `Edit with Microsoft Office SharePoint Designer`. Click `Edit with Microsoft Office SharePoint Designer`, which by default, opens the SharePoint page in the SPD's Design view.
3. If the page is opened in another view, you can switch back to Design view by clicking the Design tab at the bottom.

The Data View Web Part offers many possibilities that are explored in this chapter, such as consuming various data sources, sharing data sources, defining the look and feel of data overviews, and adding editing capabilities to data overviews. In the rest of this chapter, we will take detailed look at the Data View Web Part.

NOTE

The Data View Web Part (DVWP) is also known as the Data Form Web Part (DFWP) or simply the Data View.

The Data View Web Part is all about aggregating and managing data from various data sources. The first thing you need to learn about the Data View Web Part is how to import and display data. To start this discussion, we will take a closer look at data sources, data source libraries, and SharePoint Designer.

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16.1 Importing and displaying Data

From the perspective of the Data View Web Part, a data source is a repository of information or an end point that provides access to an information repository, for example, a database or a Web service. The Data Source Library is the main entry point for accessing and managing data sources within SharePoint sites.

When we teach classes aimed at developers about SharePoint technologies and we start talking about using Microsoft FrontPage with SharePoint technologies, most of the developers laughed because, in their opinion, FrontPage was some sort of toy not to be used for “real development”. After everybody had a good laugh, we asked if any of them had actually used FrontPage recently. Not having the actual experience with the tool did not prevent developers from forming opinions about FrontPage. Be reassured that SharePoint Designer, based on FrontPage technology, is a powerful tool that makes both Windows SharePoint Services (WSS) 3.0 and Microsoft Office SharePoint Server (MOSS) 2007 implementations a lot easier. The reason that we are focusing on SharePoint Designer in this chapter is that SharePoint Designer lets you define new data sources, add Data View Web Parts to SharePoint Web pages that access, and display these data sources in a visual way. Manipulating the Data View Web Part visually might seem to have to do less with software development when compared to typing code yourself, but the fact of the matter is, nowadays creating software becomes more and more abstract and visual.

16.1.1 Using the Data Source Library

In our experience, most developers oversee the Data View Web Part and create a custom solution to access a data source. This often happens because a developer is more familiar with Visual Studio.NET than SharePoint Designer. It is advisable to add the Data View Web part (and SharePoint Designer) to your bag of tricks because it can be a real time saver.

In the past, we have worked for a software company that specialized in outsourcing developers to other companies. At one time, they did a Microsoft SharePoint Portal Server (SPS) 2003 project for a customer that wanted to build a basic portal Web site. They did not want the software company to write a single line of code, but customizations of SharePoint were allowed, as this was not considered custom development. As a result, using Visual Studio.NET was completely out of the question, while using the Data View Web Part was well within the realms of customizations allowed by the customer. The software company did not send them a developer; instead, they send a project manager who did not have a project at the time, but had a good working knowledge of SPS 2003. He succeeded in creating the reports the customer requested and did a reasonably good job. The most amazing part of the story is that the customer never found out the person that the software company outsourced to them wasn't a developer at all.

DEVELOPERS TEND TO UNDERUSE THE DATA VIEW WEB PART

The Data View Web Part allows people who are not developers to manipulate data sources. Although we believe the Data View Web Part is easy enough to use so non-developers can use it to manipulate information, this does not seem to happen a lot at the companies we visit. Creating gateways to data sources is often considered the responsibility of developers, which excludes other types of users from using the Data View Web Part.

To use a Data View Web Part to display data, a reference to that data source must be referenced in the Data Source Library task pane. The Data Source Library offers access to data that is stored within SharePoint Web sites, as well as external data sources. As long as you have access rights to a data source, you can manage it via the Data Source Library task pane, as shown in Figure 16.1. In Data Source Library under the Current Site section, you will see lists and libraries that the site contains, plus any other data sources you have attached. The data sources are grouped under section headers where the data sources are accessed using the same method, with the number of currently added data sources in brackets.

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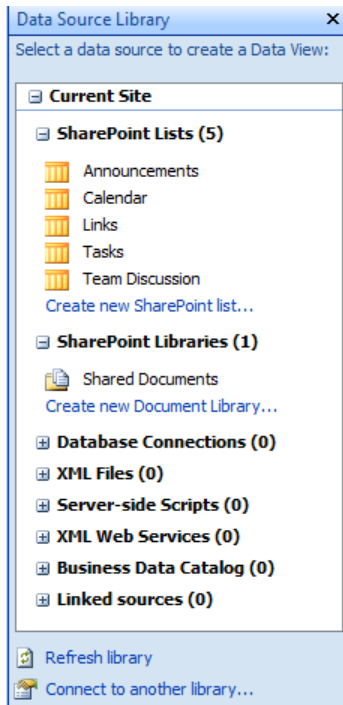


Figure 16.1 The expanded SharePoint Lists node of the Data Source Library task pane in SharePoint Designer shows an overview of the by default available SharePoint lists data sources and also allows you to create a new SharePoint List data source.

DEFAULT DATA SOURCES ARE AVAILABLE IN SHAREPOINT DESIGNER

SharePoint Designer automatically creates data sources for the default lists and libraries that exist within a given SharePoint site. Out of the box, entries for the following lists are created in the Data Source Library and added in the SharePoint Lists section: Announcements, Calendar, Links, Tasks, and Team Discussion, as can be seen in Figure 16.1. There is also an entry for the Shared Documents document library, which is listed under the SharePoint Libraries section.

CREATING A NEW SHAREPOINT LIST OR LIBRARY USING DATA SOURCE LIBRARY

As we saw in Chapter 3, Lists and Libraries, SharePoint lists and libraries are used within SharePoint implementations to not only store information directly targeted at the end user, for instance, documents, tasks, and events. Lists and libraries can also be used to store configuration information or information required to provide a feature. For instance, in Chapter 8, Web Content Management, we saw that the Office SharePoint Server Publishing feature is used by MOSS 2007 to support WCM scenarios creates several lists and libraries needed for the publishing function, such as the Pages, Style Library, Workflow Tasks and Reusable Content libraries and lists. You can also create lists to store your own configuration information and reuse this information as metadata for documents that you add to a document library. As we have already seen, SharePoint Designer automatically adds references to lists and libraries in your current site, so you do not have to add manually references to these lists and libraries yourself. Once you have a reference to a list or library as a data source, the Data View Web Part lets you display the SharePoint list or library in a different way. You can also link the list or library to another data source, thereby allowing you to merge or join data from several data sources; more about this later in this chapter.

However, what the Data Source Library task pane, does allow you to do, is to create new lists and libraries. Follow the next procedure to create a SharePoint list as a data source.

2. Open the Data Source Library task pane, click the Data View menu and then click Manage Data Sources.
3. Click the + sign to the right of SharePoint Lists.
4. Click Create new SharePoint list.

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5. On the SharePoint Content tab in the New dialog box, click Lists. SharePoint Designer contacts the current SharePoint Web site and asks for a list of lists templates that you can use as a basis for your new list. SharePoint Designer then displays these list templates in the New dialog box.
6. Click one of the list templates, enter a name for your new list in the Specify the name for the new list text box and click OK. SharePoint Designer uses the name you enter for the URL and the Title of the list, please refer back to Chapter 3 and Chapter 7 concerning valid characters for the URL and guidelines on naming conventions.

Creating a SharePoint library as a data source is almost the same as creating a SharePoint list. Follow the next procedure to create a SharePoint library from the Data Source Library task pane.

4. An alternative way of opening the Data Source Library task pane is to click the Task Pane menu and click Data Source Library.
5. Expand the SharePoint Libraries section by clicking the + sign.
6. Click Create new SharePoint libraries.
7. On the SharePoint Content tab in the New dialog box, select Document Libraries. Again, SharePoint Designer asks the current SharePoint Web sites for a list of library templates, which will then be displayed in the New dialog box.

DOCUMENT LIBRARIES CAPTION MISNOMER

The previous step describes that you need to select the link caption called Document Libraries. Although the link caption says Document Libraries, all kinds of libraries templates site are listed. For instance, the Document Library section can also contain the form or wiki page library templates.

8. Select the library you want to create. Enter a name for the new list data source in the Specify the name for the new document library text box, again remember that this is the URL and the Title for the Library, and then click OK.

You have now created a new list and library using the Data Source Library task pane, and SharePoint Designer automatically added references to those lists and libraries in the Data Source Library task pane. Next, we will add references to other data sources so that they appear in the Data Source Library task pane.

ADDING A DATABASE AS A DATA SOURCE

It is good practice to store relational data in databases. Most companies that use SharePoint technologies to build portals sometimes need to reuse this data within the portal. For example, we recently had to expose customer information stored in a relational database on a portal Web page. We had to resist our first instinct to grab Visual Studio.NET and create a new SharePoint Web Part, and ended up saving a couple of hours of our time by using the Data View Web Part instead. If you find yourself in a situation where you need to reuse data stored in a relational database, you should start by adding the database as a data source by specifying a database connection for it. After that, you are free to use the data from the database within the Data View Web Part. Follow the next procedure to add a database as a data source.

1. Open the Data Source Library task pane using one of the methods we described in the following section.
2. Expand the Database Connections section, and click Connect to a database, which opens the Data Source Properties dialog box.
3. Select the General tab and enter a descriptive name for the database connection, so you will know when you see the name what database it refers to.
4. Select the Source tab and click Configure Database Connection button. The Configure Database Connection dialog box is displayed.
5. Type the name of the database server in the Server Name text box.
6. Choose the type of authentication you want to use, by selecting one of the following options:

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- Save this username and password in the data connection. Here you can specify a username and password that will be saved in the data connection, as shown in Figure 16.2.

SECURITY RISK

Selecting this option will save the specified username and password as clear text in the data connection, which poses a security risk. A dialog box is displayed warning you of this. If the database server is using Microsoft SQL server, then to use this option, the SQL Server is configured for mixed authentication, that is both Windows authentication and SQL authentication. The user name you specify is an SQL username and not an Active Directory (AD) user name. If you are using this option, you should persuade your IT department to implement some secure method of transferring data between your SharePoint servers and the SQL database, such as IP Sec or VPN.

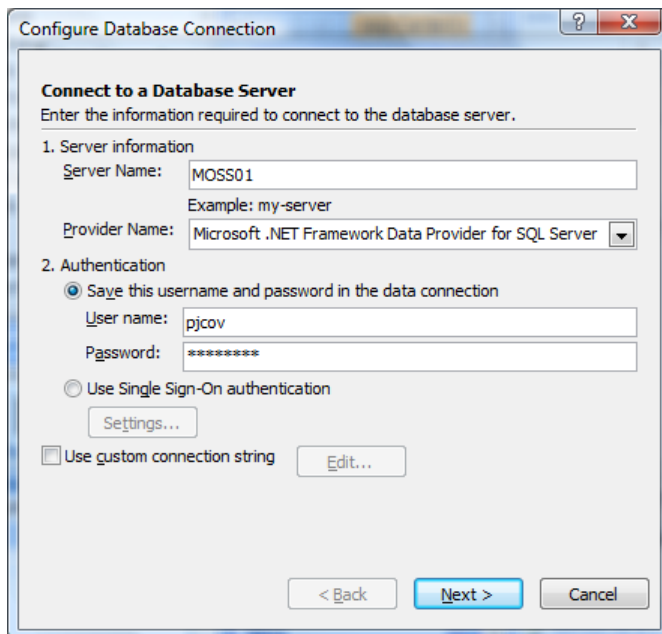


Figure 16.2 Connect to a SQL Server using SQL authentication user name and password.

- Use Single Sign-On authentication. This option is only available when the SharePoint site is using a Shared Services Provider (SSP), which is part of MOSS 2007, and your Shared Services Administrator has enabled and configured single sign-on. When you click the Settings button the Single Sign-On Settings dialog box opens, where you can specify the Application Name, the Application field to use as the username and the Application field to use as the password in the appropriate text boxes.
 - Use custom connection string. Here you can specify an OLEDB connection string to connect to the database. Click the Edit button to open the Edit Connection String dialog box where you can specify the provider name and the connection string. You will probably need the help of your database administrator for this option.
 - Windows Authentication. You will see this option if your organization has installed only WSS 3.0 on a single server, and SQL Server is installed on the same server as WSS 3.0.
7. Click Next when you have configured the authentication method. The Configure Database Connection dialog box is displayed, as shown in Figure 16.3.

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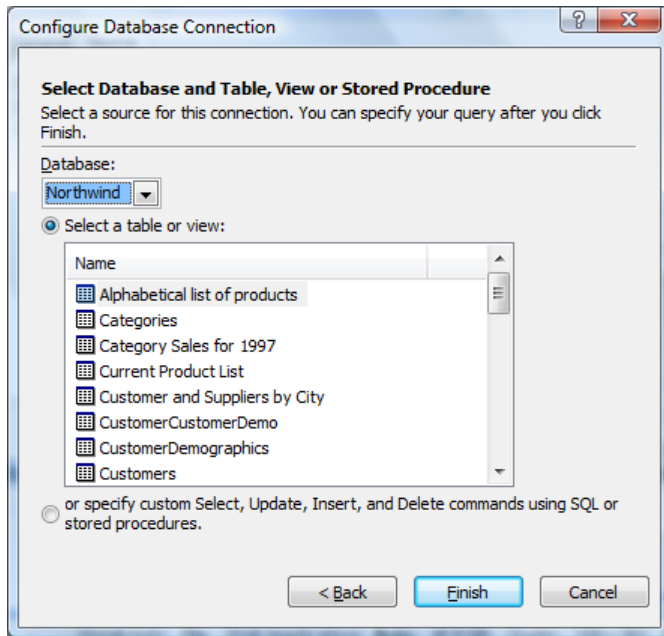


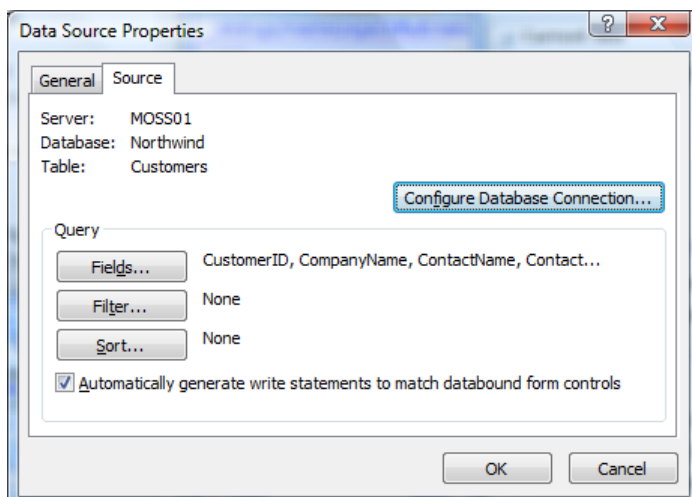
Figure 16.3 Select a Database and table or view.

8. Select a database from the Database dropdown list.
9. If you want to use a table or view, select the Select a table or view radio button and select the table or view from the list box.

CREATE A CUSTOM QUERY

It is also possible to create your own query by checking the or select custom Select, Update, Insert, and Delete commands using SQL or stored procedures radio button.

10. Click Finish. This brings you back the Data Source Properties dialog box. Figure 16.4 shows the Data Source Properties dialog box after clicking the Finish button.
11. Click OK to finish the creation of a database connection data source.



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Figure 16.4 The Data Source Properties dialog box allows you to configure a connection to a database and makes it easy to define a query that extracts information from the database.

Now that you have added a database as a data source, you are ready to use it within the Data View Web Part. We like this option and use it a lot, although maybe not as often as we use a SharePoint list or library as a data source within the Data Source Library task pane.

ADDING AN XML FILE AS A DATA SOURCE

XML files are commonly used in organizations because they are very suitable for storing hierarchical data. We remember a company that hired us to build a Web-based form generator. The company used a relational database model to describe medium-sized (around 100 fields) form definitions. If a visitor came to their Web site and submitted one of those forms, the data was added, again, to a relational database model. It would often take literally hundreds if not thousands of separate SQL queries to build a form based on a definition and add the user data to the database.

We were able to improve the speed of constructing forms and adding data to a repository enormously by switching to an XML repository. Not only did the performance of the Web-based form generator increase several times, reducing the number of required SQL queries to a maximum of two, the upper limit of supported fields in a form increased from around a hundred fields to tens of thousands of fields. Once you reach Web-based forms of that size, limits do not count anymore, since you will not be able to find a user who is prepared to take a week of his or her life to fill-in and submit such a form. By the way, we were not the only ones who has come up with the idea to store form definitions and form data in XML; Microsoft's InfoPath is an excellent example of a tool that does just that.

When SharePoint Designer first opens the Data Source Library task pane it will search your current site for any XML files and will list them under the XML Files section. To add other XML data sources to your SharePoint site follow the next procedure.

1. Open the Data Source Library task pane as described previously, if it is not already open.
2. Expand the XML Files section and click Add an XML file. This opens the Data Source Properties dialog box.
3. Click Browse, to open the File Open dialog box, and select the XML file you want use as a data source. Next, a warning popup window appears asking if you would like to import the specified XML file in order for it to be used as a data source. Click OK.
4. In the Import dialog box click OK. Now you have uploaded an XML file to the root of your SharePoint site and a data source is added to the XML Files section.

NOTE

You can move the XML file to one of your document libraries, and SharePoint Designer will amend the data source accordingly. By moving the XML file into a document libraries, means that you can edit the XML file using the browser, whereas by leaving the XML file in the root of the SharePoint site, then only users who have access to SharePoint Designer can modify it.

XML files are great for solving specific types of problems, as you have seen earlier in this section. It is not hard to add an XML file as a data source, in fact, it is not much different than the types of data sources you have seen earlier in this chapter.

SERVER-SIDE SCRIPT

Using the Data Source Library you can connect to server-side scripts that are written in different programming languages like ASP.NET, and PHP. Server-side scripts have been used for years and play an essential role when it comes to generating dynamic Web sites. There is only one important condition when it comes to consuming server-side scripts: the response of a server-side script needs to be valid XML. If you want, you can use the Internet Explorer Developer Toolbar to determine if a page is valid eXtensible Hypertext Markup Language (XHTML). Any page that is XHTML compliant is valid XML and thus can be used as a data source. You can download the Developer

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Toolbar add-in from Microsoft's download Web site:
<http://www.microsoft.com/downloads/details.aspx?familyid=E59C3964-672D-4511-BB3E-2D5E1DB91038&displaylang=en>.

RSS FALLS UNDER THE SERVER-SIDE SCRIPT UMBRELLA

Really Simple Syndication (RSS) feeds form a very important and popular source of delivering information that fall under the server-side script umbrella. If you have a Web site that does not provide RSS feeds, it will definitely cost you many visitors. On our Web sites, RSS feeds are responsible for about 70% of the traffic. If the extension of an RSS feed ends with .XML, it can be added as a data source in SharePoint Designer, via either the server-side script category or XML file category. Any RSS feed that ends with another extension, for instance, .aspx, you can only add as a data source using the server-side script category.

The following procedure allows you to add a server-side script or RSS feed as a data source.

1. Open the Data Source Library task pane as described previously, if it is not already open.
2. Expand the Server-side Scripts section and click **Connect to a script or RSS feed**. This opens the Data Source Properties dialog box, as shown in Figure 16.5.

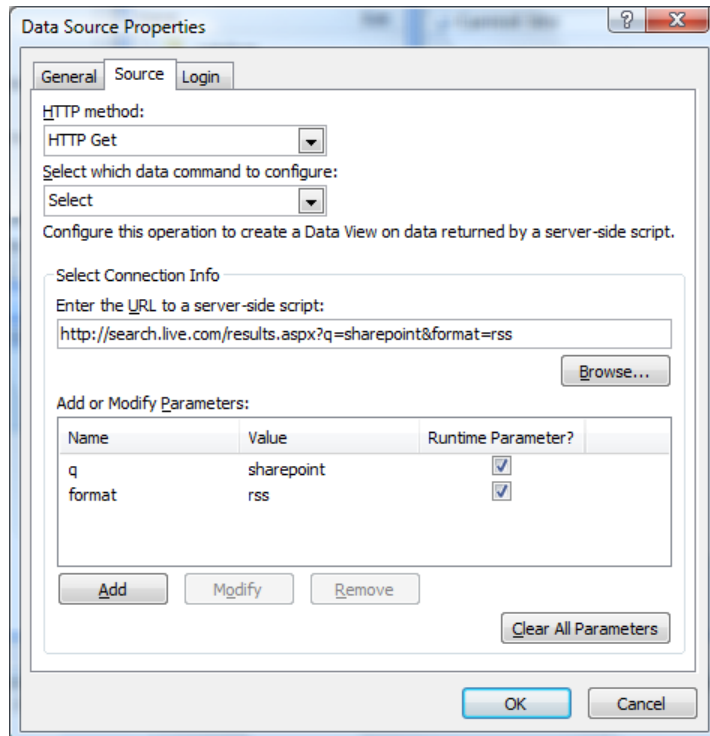


Figure 16.5 The Data Source Properties dialog box allows you to configure a connection to a Server-side script or a RSS feed

3. Click the **General** tab and specify a name for the data source.
4. Click the **Source** tab and select which HTTP method you want to use. You can choose between **HTTP Get** and **HTTP Post**. The drawback of the HTTP Get method is that all parameters are shown in the URL itself. In general, if you are working with a set of parameters of a medium size or larger, choose to use the HTTP Post method.
5. Select which data command you want to configure. You can choose between **Select**, **Insert**, **Update** or **Delete**.

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6. In the Enter the URL to a server-side script text box, enter the URL of the server-side script or RSS feed you want to connect to.
7. In the case where you are using a server-side script, which requires parameters, click the Add button to add a parameter. This opens the Parameter dialog box where you can enter a name and default value. Click OK in the Parameter dialog box.
8. Click OK in the Data Source Properties dialog box to add the server-side script or RSS feed as a data source.

At first sight, you might not look at a server-side script as a potential data source. Nowadays server-side scripts return responses that are better structured than they used to be. Server-side script responses that are well structured are suitable to be consumed as a data source by the Data View Web Part.

XML WEB SERVICE

In the current development landscape, using Web services is, without a doubt, the most popular technique for implementing Service Oriented Architectures (SOA). Web services make it easy to issue Remote Procedure Calls (RPCs) over the Internet or a network using standards such as HTTP and XML. The messages exchanged between a client and a Web service, are encoded in the Simple Object Access Protocol (SOAP), a special XML dialect. The interface of a Web service is described in a language called the Web Service Description Language (WSDL), which, states the names of each Web service method and the parameters it accepts and returns.

SUPPORT FOR WEB SERVICES IN SHAREPOINT DESIGNER IMPROVES INTEROPERABILITY

Because Web services have to adhere to the SOAP and WSDL standards, Web services are very interoperable. SharePoint Designer can consume any Web service built on any platform using any programming language, as long as the Web service complies with the SOAP and WSDL standards.

Because of the enormous popularity, it is good news that you can add a Web service as a data source. If you want to do this, you have to know the URL for the WSDL description of the Web service. This URL ends with either ?WSDL or .wsdl. WSS 3.0 provides an extensive Web services layer that allows you to interact with different aspects of WSS and is the primary means of remote communication with SharePoint. For instance, you can use the SharePoint Web service layer to interact with servers, lists, and sites. SharePoint Server 2007 provided additional Web Services so that you can remotely access information stored in components, such as, user profile and business data catalog. For a full list of the SharePoint Web Services, refer to the WSS 3.0 and SharePoint Server 2007 Software Development Kits (SDKs). In this section, we will use one of those Web services for demonstration purposes.

OTHER REMOTE COMMUNICATION METHODS

There are other ways to communicate with SharePoint remotely as well. You can use Web-based Distributed Authoring and Versioning (WebDAV) to manipulate documents on a SharePoint server. Then, there is FrontPage RPC, a protocol that is powerful when it comes to working with documents on a SharePoint server. Finally, there is SharePoint RPC, a protocol that contains a plethora of functions that fall outside the scope of this chapter. By the way, do not be overjoyed if you start a new project that uses either one of the WebDAV, SharePoint RPC, or FrontPage RPC protocols. Programming in .NET using these protocols is not that well documented and can be quite laborious.

In this example, we are going to demonstrate how to add a web service as a data source. We are going to use the SharePoint Lists Web service, which provides methods for interacting with SharePoint lists and list data. Let's look at how to query the Lists Web service for all the titles of the lists in a SharePoint site.

1. Open the Data Source Library task pane as described previously, if it is not already open.
2. Expand the XML Web Services section and click Connect to a web service. This opens the Data Source Properties dialog box.

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3. Click the General tab and enter a meaningful and descriptive name for the data source.
4. Click the Source tab and enter the URL for the Web service in the Service description location text box. Append to the URL name `_vti_bin/Lists.asmx?WSDL`. Your URL should look something like: `http://[Servername]/_vti_bin/Lists.asmx?WSDL`.
5. Click the Connect Now button to establish a connection with the web service.
6. After the connection is created, the Connect Now button will change into a Disconnect button, as can be seen in Figure 16.6.

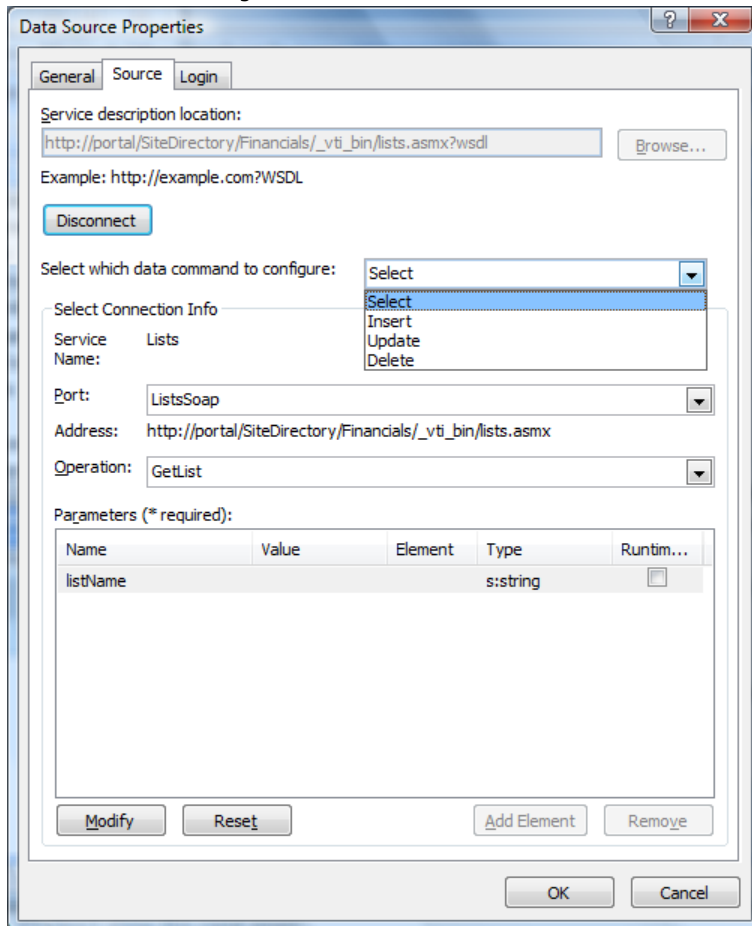


Figure 16.6 The XML Web Service Data Source Properties dialog box allows you to choose which web service you want to consume and then allows you to define how to interact with this web service.

7. Select the Select command in the Select which data command to configure list. The other commands are Insert, Update and Delete.
8. In the Port list select the application protocol you want to use to access the Web service. For .NET Web Services there are two protocols available: one with a SOAP 1.1 binding called [WebServiceName]Soap, and another with a SOAP 1.2 binding called [WebServiceName]Soap12. Those options are only shown if the Web service indicates that it is able to support the multiple versions of the SOAP protocol. If the option is available to choose between multiple versions, we advice you to choose the latest version.
9. In the Operations drop down list, you will find all the methods of the specified Web service. In this example, we select the GetListCollection method, which retrieves the names and Globally Unique Identifiers (GUIDs) for all the lists in the site.

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The Parameters list box can be used to display the names of any parameters that the Web service requires or accepts. After you select the Web service method, SharePoint Designer will fill the Parameters list box with the required parameters and their data values. If there are input parameters in the list you will have to supply these to the Web service. This can be done by hard coding the value of the parameter or by setting a parameter at run time.

10. The Lists Web service does not require any parameters, so you can just click OK. Figure 16.7 shows a Data View Web Part that uses the Lists web service as a data source. Later in this chapter, we will show you how to create Data View Web Parts.

Title	Description
Announcements	Use the Announcements list to post messages on the home page of your site.
Calendar	Use the Calendar list to keep informed of upcoming meetings, deadlines, and other important events.
fpdatasources	
Links	Use the Links list for links to Web pages that your team members will find interesting or useful.
Master Page Gallery	Use the master page gallery to store master pages. The master pages in this gallery are available to this site and any sites underneath it.
RemDemo	
Shared Documents	Share a document with the team by adding it to this document library.
Tasks	Use the Tasks list to keep track of work that you or your team needs to complete.
Team Discussion	Use the Team Discussion list to hold newsgroup-style discussions on topics relevant to your team.
WebPages	

Figure 16.7 This overview is obtained by using the Data View Web Part to interact with the SharePoint Lists web service.

A considerable number of software systems today are built with SOA in mind. Many of those systems will use Web services as the primary way to connect to other systems, and let other systems connect to it. Because of this, the ability to use a Web service as a data source within a Data View Web Part is an important one. More information about SOA can be found in the green book "Application Architecture for .NET: Designing Applications and Services". This freely downloadable book can be found at the following location: <http://www.microsoft.com/downloads/details.aspx?FamilyId=A08E4A09-7AE3-4942-B466-CC778A3BAB34&displaylang=en>.

BUSINESS DATA CATALOG

The Business Data Catalog (BDC) is one of the new features of MOSS 2007. The BDC enables you to display information coming from various types of backend applications. The BDC can act as another type of data source for the Data View Web Part. Configuring a BDC requires some work, which falls outside the scope of this chapter, but is detailed in chapter 14, "The Business Data Catalog".

CREATING A LINKED SOURCE

Organizations often store data in different types of repositories, for example, XML Files and relational databases. With the Linked Source section of the Data Source Library task pane, it is possible to relate different types of data sources to each other. In this way, you can combine several types of data sources into a single data source and then use the Data View Web Part to display that data. We discuss creating linked sources later in this chapter.

CONNECTING TO ANOTHER LIBRARY

You are not limited to using the Data Source Library of the current SharePoint site; you can also use the data sources as defined in the Data Source Libraries from other SharePoint sites. This makes it easier to share data sources between sites without recreating data sources and we expect you will be using this feature all the time. In fact, we like creating SharePoint sites whose single purpose in life it is to act as a central repository for hosting data sources. Of course, this only makes sense if you are planning to use a data source in multiple other sites. Creating a central SharePoint site that acts as a data source host makes it easier to find and manage data sources.

When you connect to another Data Source Library, SharePoint makes all its data sources available in the current SharePoint site. This does not mean that you are moving or copying of data sources to your site, you are simply referencing an external Data Source Library. Any deletions or modifications in the external Data Source Library will also affect the current SharePoint site. Use the following procedure to connect to a Data Source Library in another SharePoint site.

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1. Open the Data Source Library task pane.
2. Click the Connect to another library link at the bottom of the Data Source Library task pane. This opens the Manage Library dialog box.
3. Click the Add button in the Manage Library dialog box; this opens the Collection Properties dialog box.
4. In the Display Name text box enter some text that will help you to recognize the new data source within your Data Source Library.
5. Click Browse to browse for the SharePoint site that contains the Data Source Library you want to use. This opens the Choose a Web Site dialog box.
6. Select a web site or type the URL of the SharePoint site and click Open.
7. In the Collection Properties dialog box, click OK.
8. In the Manage Library dialog box, click OK. Figure 16.8 shows the Data Source Library task pane with the data sources of the Current Site and the data sources of another SharePoint site which we used a display name of In Action SharePoint Site that contains the external Data Source Library.

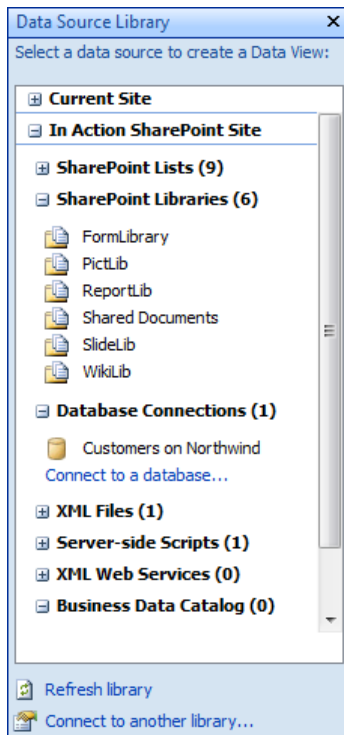


Figure 16.8 You can share data sources located in other SharePoint sites by connecting to another Data Source Library.

Now you have now created a number of datasources, and you know how to define data sources in a central SharePoint Web site location, from where you can share these data sources with other SharePoint sites. However, before going on to use them we need to take some time out to find where all these data sources are physically stored, which is the subject of the next section.

16.1.2 Data Source document library

When you create a data source, SharePoint Designer creates a XML file that describes that data source and then stores the XML file in a document library, named fpdatasources. This is a special document library that you

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can only see when you use SharePoint Designer and the Folder List task pane. You used the Folder List task pane in Chapter 15. To view the fpdatasources document library complete the following steps:

1. Open the Folder List task pane: Task Panes > Folder List.
2. Expand _catalogs and fpdatasources as shown in Figure 16.9. You should now see a list of XML files, which you can open and review the XML if you wish. You could change the XML in these files, but the next time you use the Data Source Library to amend your data sources, you will lose any amendment you enter manually, so we recommend you don't do this.

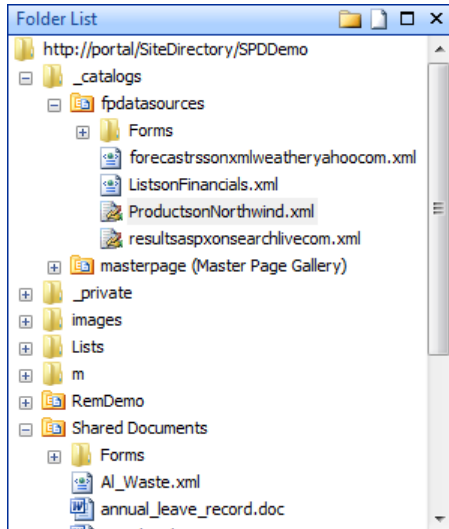


Figure 16.9 All your data sources are stored in a XML file and then stored in fpdatasources

All data sources you create are therefore stored in the SharePoint SQL content database and are therefore available not just to you, but to anyone who has the rights to use SharePoint Designer on your SharePoint Web site. Now we are ready to describe how to expose the data that these data sources contain, that is, in the next section we're going to start to use the Data View Web Part.

16.2 Creating a Data View

Until now, you have learned how to add data source that points to various repositories so that the data in those repositories can be viewed or managed using the Data View Web Part. It is about time that you learn how to use the Data View Web Part, don't you agree? It is only then that you will see the power of making data available as a data source. In this section, you will learn how to create a Data View that displays data coming from a data source.

The first thing you need to do when you start to create a Data View is to make sure you have added the data source to the Data Source Library. Adding data sources to a Data Source Library, we discussed in previous section. After ensuring the data source you need is present, you are ready to create a Data View. There are two ways to create a Data View we'll discuss both of these methods in this section.

The next procedure discusses the first way to insert a Data view. This method uses the Folder List task pane to add a Data View.

1. Open SharePoint Designer and open the SharePoint page where you want to place the Data View Web part.
2. In the Folder List task pane, on the left side of SharePoint Designer, locate your data source. This can be a list, a library, an XML file or one of the XML files in the fpdatasources document library. Select the data source and drag it onto the SharePoint page.
3. Two things will happen: a Data View Web Part containing the selected data source will appear onto the SharePoint page and the Data Source Details task pane opens.

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OPENING THE DATA SOURCE DETAILS TASK PANE

The Data Source Details task pane is responsible for displaying all the elements of the selected data source. You can also open the Data Source Details task pane by going to the Data Source Library and clicking the data source and selecting Show Data from the dropdown list.

The second method for creating a Data View uses the Data Source Details task pane, which we'll explain in the next procedure.

1. Open SharePoint Designer and open the SharePoint page where you want to place the Data View Web Part.
2. On the Data View menu select Insert Data View. This will place a Data View Web Part onto your SharePoint page. Next, we are going to insert the data.
3. In the Data Source Library task pane, select the data source you want to add, click the data source and select Show Data. This opens the Data Source Details task pane.
4. In the Data Source Details task pane, select the fields you want to add. Like other Microsoft products, you hold down the SHIFT or CTRL keys to select multiple fields at the same time.
5. Click the Insert selected fields as dropdown list and select Multiple Item View.

MORE INFORMATION ABOUT ITEM VIEWS AND ITEM FORMS

You can find more information about Item Views and Item Forms in the next section.

If you just want to create a basic Data View Web Part then you are ready. If you want to customize your Data View Web Part there are plenty of options you can choose. In this section, we will discuss these options some more.

If you click the chevron icon to the top right of the Data View Web Part, you open the Common Data View Tasks action panel, as shown in Figure 16.10, where you will notice the following options.

- Filter
- Sort and Group
- Paging
- Edit Columns
- Change Layout
- Data View Preview
- Show with sample data
- Conditional Formatting
- Web Part Connections
- Parameters
- Refresh Data View
- Data View Properties

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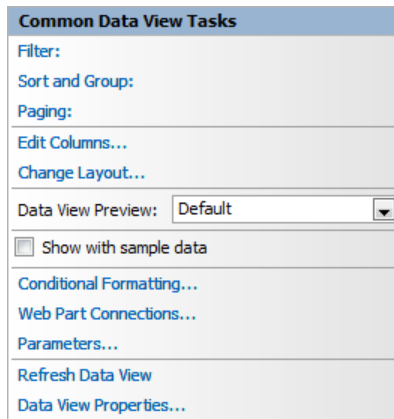


Figure 16.10 The Common Data View Tasks action panel allows you to customize a lot of aspects concerning the content and look and feel of a data view.

Probably the biggest advantage SharePoint has over its IBM and Oracle portal product competitors is its compelling user interface. The Data View Web Part offers advanced capabilities to create a user interface that looks good, and we think your customer expects you to use it.

16.2.1 Filtering Data

In most scenarios, it will not do to show all the data coming from a data source. You will typically want to filter this data. In SharePoint Designer, you can add a filter to the Data View Web Part. A filter allows you to specify a subset of all the data that your data source contains and in this way you also limit the data that are shown in the Data View Web Part.

ADD A FILTER TOOLBAR TO THE DATA VIEW WEB PART

Like the List View Web Part, it is possible to add a filter toolbar to the Data View Web Part so that users themselves can filter the data and determine which subset of the data available via the Data View Web Part they can display.

16.2.2 Sorting and Grouping Data

SharePoint Designer makes it easy to sort and group data in a Data View Web Part. Sorting data in a Data View Web Part modifies the order in which you show the data. For instance, you can sort the data alphabetically to make it look more organized.

MORE INFORMATION ABOUT THE XPATH EXPRESSION BUILDER

You can create complex sort expressions using the XPath Expression Builder. You can find more information about the XPath Expression Builder later in this chapter.

When you group data in a Data View, data within the Data View is grouped by the criteria that you specify. Sorting and grouping are related, and you cannot group data unless you have specified a sort order. Each group in a Data View can be expanded or collapsed by using the group header.

The Data View Web Part displays the data sort or group order that you have specified. You can also add a toolbar to the Data View Web part so that users can sort or group data themselves.

16.2.3 Paging

In a Data View Web Part, you can limit the number of records shown per page this is called paging. SharePoint Designer will add paging navigation to the Data View Web Part for moving backward and forward through all the data. Figure 16.11 shows a Data View Web part with paging. This is one of the most asked features when it comes to displaying data, so we can promise you, you will use the Paging option a lot.

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Name (for use in forms)	File Size	Modified
Caboose car document.doc	28160	7/26/2007 6:39 PM
Cattle car customers.xls	26624	7/26/2007 6:21 PM
Christmas train set.jpg	12097	7/26/2007 6:21 PM
Engine document.doc	32256	7/26/2007 6:21 PM

1 - 4 ▶

Figure 16.11 Enabling the Paging feature of the Data View Web Part allows users to navigate the result set.

16.2.4 Editing Columns

If a customer is happy to use the columns that are shown by default in a Data View Web Part, he or she is probably very easy to deal with. We doubt you are that lucky, so you will be glad to learn that you can influence which fields are displayed by the Data View Web Part. You can add, move or remove the columns or rows that are shown using the option **Edit Columns**. This option is only present when you are working with a Data View Web Part that displays the data in an HTML table.

16.2.5 Changing Layout

The data of a Data View Web Part is by default displayed in a basic table layout. This layout can be changed quickly and easily by making use of the built-in Data View layouts, of which there are 13 available, each with a preview of the layout and a description of the style.

IMPACT OF CHANGING THE STYLE OF A DATA VIEW WEB PART

Changing the style of a Data View Web Part will remove any custom formatting that you have done previously, so we recommend you do this first before applying any custom formatting.

16.2.6 Data View Preview

The Data View Preview option allows you to preview the data and offers you the possibility to show a limited the amount of data in the preview. The following options are available:

- Default. Matches the view that is shown at runtime.
- Hide all filters. Shows all available data.
- Limit to 1 item. Shows a single item.
- Limit to 5 items. Shows up to 5 items.
- Limit to 10 items. Shows up to 10 items.
- 'No Matching Items' Template. Shows what happens if no matching items are found and allows you to specify text for this situation.

16.2.7 Show with sample data

Under the Data View Preview option there is a checkbox **Show with sample data**, which if selected, the Data View Web Part will fill with sample data instead of real data. This option proves to be very useful when a data source contains much data or when it takes a lot of time to retrieve data from a data source. The **Show with sample data** option is also convenient when the data source itself does not contain any data yet.

16.2.8 Conditional Formatting

With the Conditional Formatting option, it is easy to create a Data View Web Part that applies a style to a selected HTML tag or data value when the data meets specified criteria. It is possible to set conditions that change the visibility of an HTML tag or data value.

16.2.9 Web Part Connections

With the Web Part Connections option, you can create a connection between two Data View Web Parts and in this way, when you perform an action in one Data View Web Part, it will change the contents of another Data View Web Part. We discussed Web Part connections in Chapter 5, "Web Parts".

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CROSS-PAGE CONNECTIONS

The only way to create a connection between two web parts on different pages in the same SharePoint site (cross-page connection) is using SharePoint Designer.

16.2.10 Parameters

You can specify parameters coming from different sources such as cookies, form values and query string variables. Any parameter you specify can be used when creating Web Part connections. The discussion of this falls outside the scope of this chapter.

16.2.11 Refresh Data View

With the Refresh Data View option, you can refresh the content shown in the preview. After a refresh, the latest data from a data source is shown.

16.2.12 Data View Properties

When you choose the Data View Properties option, the Data View Properties dialog box opens. Many of the other options described above open this dialog box, from which you to specify the look and feel, Paging and other options, which you can see in Figure 16.12.

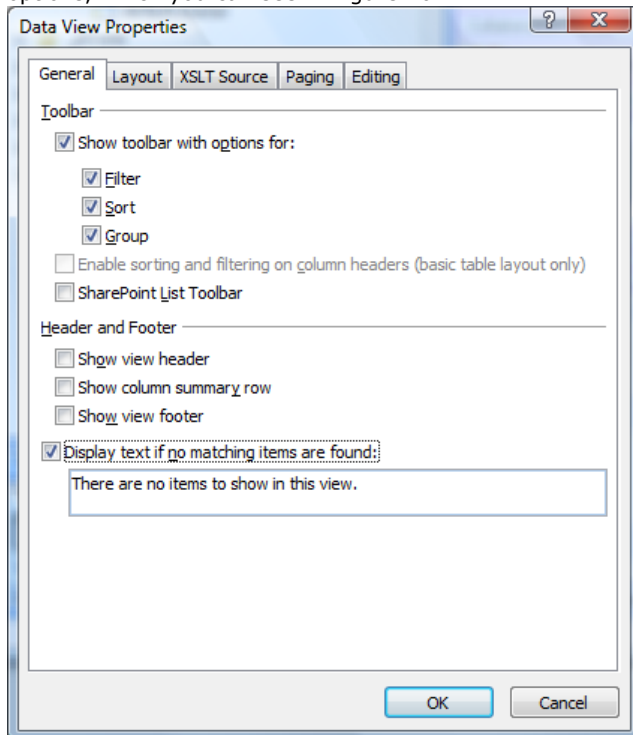


Figure 16.12 You can define the look and feel by editing the Data View Properties of a Data View Web Part.

16.3 Creating a Read/Write Data View

You can add Data Views to a SharePoint page as either a view or a form. Forms allow you to edit the data at run time and the changes are written back to the data source. Views are great for providing overviews of data, but you can also add links to a view so that users can edit the data when they display the data in a Web page, also known as “at run time”. The first thing you will learn in this section is how to create a view that displays single or multiple records. After that, you will see how to collect data from users using item forms. If you are unclear about all the differences between data views and data forms, we have provided table 16.1 as an overview of the differences between Data Views that are added to SharePoint pages as views and Data Forms where you can manage the data.

Table 16.1 Differences between view and form.

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Actions	View	Form
View style	Data is displayed in view mode and by clicking the Edit link it will be displayed in Edit mode.	Data will always be displayed in Edit mode.
Insert	X	X
Edit	X	X
Delete	X	
Data Sources		
Lists and libraries	X	X
Database connections	X	X
XML files	X	Only local XML files
Server-side scripts	X	
XML Web Service	X	
Business Data Catalog	X	
Linked source	X	

COMPARING DATA VIEWS TO GRIDVIEWS

Views are similar to the ASP.NET GridViews component. They are great for providing dense overviews of multiple rows of information. Forms are similar to the ADO.NET FormViews component. They show one or more rows of data, records, at a time, are always shown in edit mode, and are very customizable thus providing optimal flexibility.

16.3.1 Creating Item Views

SharePoint Designer provides two options for inserting a data view as a view.

- Single Item View. This view displays a single record as a view. Optionally, you can provide navigation links that allow you to view the next or previous record.
- Multiple Item View. This view displays multiple records as a view.

It is possible to create read-only views or you can add editing links that allow you to edit, insert or delete records from the data view. Multiple Item Views are less suitable for implementing advanced editing scenarios. Displaying and editing multiple items at a time tends to confuse users. In general, this is solved using master-detail views, which you can achieve by connecting two Data View Web Parts, as discussed briefly previously in this chapter. Unfortunately, we do not have room in this book to detail how to create master-detail views.

TRANSFORMING A FORM TO A VIEW

Adding a data view as a form is described in the next section. You can also add editing links to a form by replacing the existing form buttons. This effectively transforms a form to a view.

In the next example, we are going to use the SharePoint Announcements list as a data source for our Data View Web Part. We will also add editing links to the Data View Web Part. Follow the next procedure to add a Data View, as a multiple item view with editing links, to a SharePoint page.

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1. In SharePoint Designer, go to a page and place the cursor on the page where you want to place your Data View. In this example, we will use the default.aspx page of a test SharePoint site.
2. Click Data View on the menu bar and select Insert Data View. This adds an empty Data View Web Part on the page and opens the Data Source Library task pane, if it is not already open.
3. In the Data Source Library task pane, expand the SharePoint Lists section.
4. Click the Announcements data source and select Show Data. This opens the Data Source Details task pane.
5. Hold the CTRL key down and select the Title and Expires fields. From the Insert Selected Fields as drop-down list, click Multiple Item View as shown in Figure 16.13. Note that the order you click the fields is the order the fields will appear in the page.

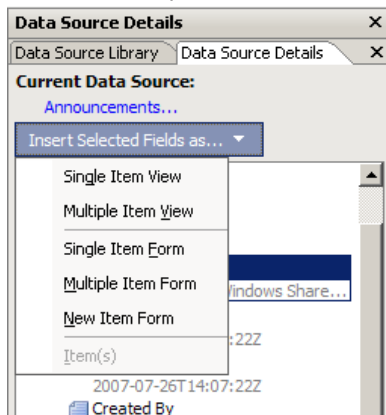


Figure 16.13 Use the Insert Selected Fields as drop-down list to insert a Data View Web Part or a Data Form Web Part

6. The Data View Web Part is added to the page and the Common Data View Tasks action panel opens.
7. Click Data View Properties to open the Data View Properties dialog box.
8. Select the Editing tab and select the following checkboxes.
 - Show edit item links
 - Show delete item links
 - Show insert item link
9. Click OK.
10. Save the SharePoint page in SharePoint Designer. If this is the first time you have saved default.aspx, a Warning message is displayed, stating that saving your changes will result in customizing the page. Click Yes. We discussed customizing Web pages in Chapter 15.
11. Open it in a browser. Figure 16.14 shows a Data View Web Part with editing links, after clicking the edit link of the first record.

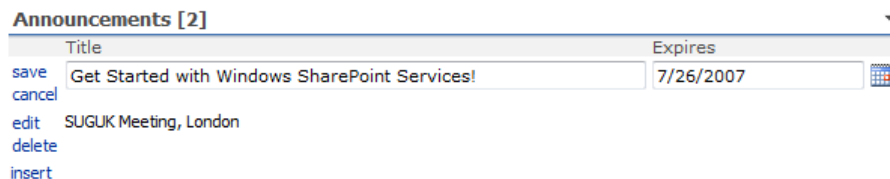


Figure 16.14 This Data View displays multiple items at once and allows users to insert, update or delete items as well.

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As Figure 16.14 shows, you not only can use the Data View Web Part to create data overviews, as its name implies, you can also add create, update, and delete functionality.

16.3.2 Creating Item Forms

Using the Item forms option of a Data View, are ideal for collecting data from users. Using SharePoint Designer, you can insert a Data View as a form so that users can make and save changes to the data source. Not all data sources can use a Item Form to insert data, the following types of data sources are supported.

- Lists and libraries.
- Database connections.
- Local XML files.

When inserting a data view as an Item Form you can choose between three different types of forms.

- Single Item Form. This form displays a single record as a form, each field will have its own row and the field name will be the heading for that row. This way it is easy to edit the data for on that record. SharePoint Designer provides navigational links, which you can use to move on to the next or previous record.
- Multiple Item Form. This form displays multiple records as a form. Here you can edit the data for multiple records and save all changes at the same time.
- New Item Form. This form displays blank fields for a single new record. This way you can add one new record to the data source.

In the next example, we are going to use the SharePoint Announcements list as a data source for our Data View Web Part. We will add the fields as a single item form to the Data View Web Part. Follow the next procedure to add a data view as a single item form to a SharePoint page.

1. In SharePoint Designer, go to a page where you want to place your Data View. In this example, we will use the default.aspx page of a test SharePoint site.
2. Click Data View on the menu bar and select Insert Data View. The Data Source Library task pane opens, if it is not already open
3. In the Data Source Library task pane, expand the SharePoint Lists section. Here you will find the Announcements data source.
4. Click Announcements and select Show Data. This opens the Data Source Details task pane.
5. Hold down the CTRL key, and select the Title, Created and Expires fields and then from the Insert Selected Fields as drop-down list select, Single Item Form.
6. Save the SharePoint page in SharePoint Designer and then open the SharePoint page in a browser. Click the record arrow to navigate to the data you wish to amend and then click Save. Figure 16.15 shows a Data View Web Part inserted as a single item form with record 2 displayed.

The screenshot shows a web form for editing a record. At the top, there's a label 'Title *:' followed by a text input field containing 'SUGUK Meeting, London'. Below that, 'Created:' is followed by a date/time field showing '7/26/2007 6:56 PM'. Then, 'Expires:' is followed by an empty date/time field and a small calendar icon. At the bottom left, there are two buttons: 'Save' and 'Cancel'. At the bottom right, there is a link that says 'Start 2 - 2'.

Figure 16.15 This Data View allows users to manipulate a single item form. It allows users to change properties of a given item, persist those changes, and navigate to other items.

Forms allow fine-grained control over the look and feel of each field, as shown in Figure 16.16.

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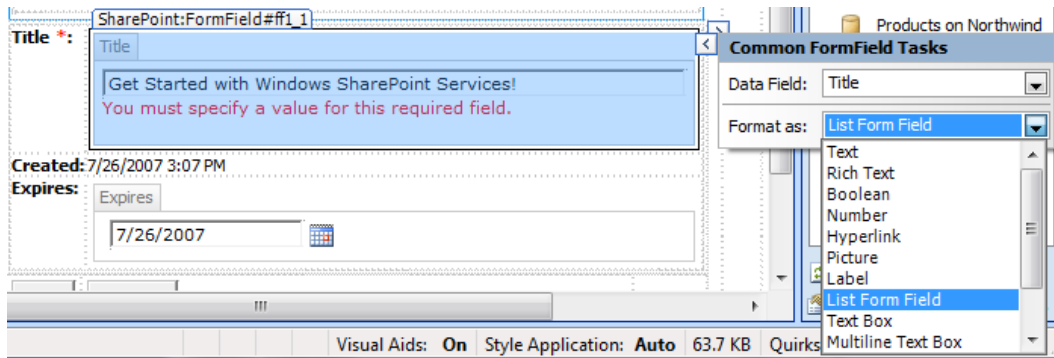


Figure 16.16 The Common FormField Tasks action pane is used to define the data type of the Title field. The Format as section lets you choose between different data types such as text boxes, hyperlinks or lists.

You can add create, read, update, and delete functionality for multiple items at a time. To enhance the user interaction experience, it is often preferable to create a form that can manipulate a single item at a time. Providing such functionality, is well within the reach of the Data View web part, as can be seen in Figure 16.16.

16.4 Working with Related/Linked Data Sources

Organizations often store data in different types of repositories, for instance, XML Files and relational databases. With the Linked Source data source, it is possible to relate different types of data sources to each other. This way, you can combine several types of data sources into a single data source that can be used by the Data View Web Part. In this section, you will learn how to create new types of data sources that combine the information stored in other data sources. Such data sources are also known as linked data sources, during the course of this chapter you will find out that working with a linked data sources is identical to working with any other data source.

16.4.1 Merging data sources

By creating a linked data source, you can merge together data from separate data sources. Such data sources need to be of the same type and they need to have a field in common that you can use to merge the information together. The WSS SDK mentions that the set of fields in both data sources have to match exactly, but this is not entirely true, as you will see later in this section.

MERGE DATA SOURCE RESTRICTIONS

You can only merge data sources if they are of the same type. For instance, you can merge two XML file data sources, but you cannot merge an XML file data source with a SharePoint list data source. However, you can join data sources of different types together. We discuss joining data sources in the next section.

Merging data sources allows you to create a single data source that consists of several other data sources. This single data source is a union of the other data sources.

The next example was created with one of our customers in mind, a telecom company. They knew we were working on this book and during our consulting work; they repeatedly tried to come up with cool ideas to write about. So, guys, thanks for working together, the next example is for you. In this example, we are going to create a linked data source that consists of two data sources that we will merge. The first data source is a SharePoint list called Clients. An imaginary phone company maintains this list, which contains two columns: ClientName and Minutes. The ClientName column contains the name of the customer, the Minutes column relates to the number of mobile minutes bought by the customer. The second data source is also a SharePoint list (remember, when merging data sources they have to be of the same type) called Customer. The Customer list has two columns, CustomerName and MobileMinutes. The customerName column contains the name of the customer and is really the same as the ClientName column of the first list.

Now our customer wanted a page that displayed a list of both it's clients and customer. Follow the next procedure to link these two data sources together in one data source and show them in a Data View Web Part.

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1. Open SharePoint Designer and open the SharePoint page where you want to place the Data View Web Part.
2. On the Data View menu select Insert Data View.
3. Go to the Data Source Library task pane and expand the Linked Sources section and click Create a new Linked Source. This opens the Data Source Properties dialog box.
4. Click the General tab and enter a name for the data source, for example, Customer Data.
5. Click the Source tab and click Configure Linked Source. This opens the Link Data Sources Wizard window.
6. On the left, under Available Data Sources, all available data sources are listed. Expand SharePoint Lists, select Customer and click Add. Select Clients and click Add. Figure 16.17 shows the Link Data Sources Wizard with the two lists as Selected Data Sources.

REFRESH DATA SOURCE LIBRARY DISPLAY

If the Data Source Library does not display a list that was made recently, you may have to click the Refresh Library link in the Data Source Library task pane.

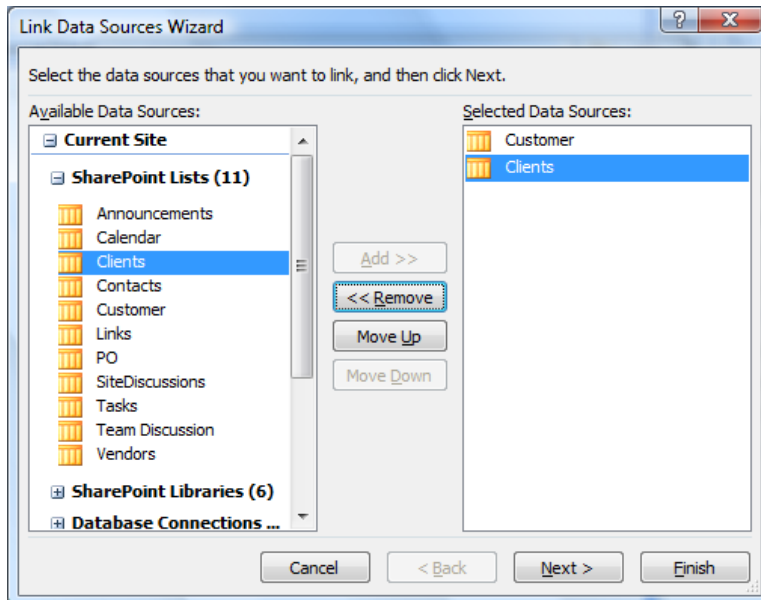


Figure 16.17 The Link Data Sources Wizard is used to combine two different data sources into a single, merged data source.

7. Click Next. The second page of the Link Data Sources Wizard is displayed
8. Select the radio button, Merge the contents of the data sources, which is the default and click Finish.
9. Click OK to close the Data Source Properties dialog box.
10. In the Data Source Library task pane, you will see a new data source under the section Linked Sources.

Figure 16.18 shows a visual impression of merging data in multiple data sources. As you can see, the linked data source contains the union of multiple other data sources.

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CustomerName	MobileMinutes
A NEW	15,400
B NEW	6,500
C NEW	13,500

ClientName	Minutes
D NEW	4,000
E NEW	3,500

CustomerName	MobileMinutes	Minutes
A	15,400.00	
B	6,500.00	
C	13,500.00	
D		4,000.00
E		3,500.00

Figure 16.18 Visual impression of the Clients data source and Customer data source being merged together into a single, merged data source.

16.4.2 Joining data sources

It is possible to create a joined data source that consists of multiple separate data sources, which do not have to be of the same type. The data sources that you join must have at least one field in common. Since we absolutely love to watch movies, we will show how to join data sources using some data about movies we have just created. In the example discussed in this section, we created an XML file called Genres.xml, which contains movie genres and looks as in listing 16.1.

Listing 16.1 Genres.xml

```

1.3  <?xml version="1.0" encoding="utf-8" ?>
1.4  <Genres>
1.5      <Genre>
1.6          <Id>1</Id>
1.7          <Name>Romance</Name>
1.8          <Description>Romantic feel good movies.</Description>
1.9      </Genre>
1.10     <Genre>
1.11         <Id>2</Id>
1.12         <Name>Horror</Name>
1.13         <Description>Scary stuff.</Description>
1.14     </Genre>
1.15     <Genre>
1.16         <Id>3</Id>
1.17         <Name>Science Fiction</Name>
1.18         <Description>Futuristic adventures in space.</Description>
1.19     </Genre>
1.20 </Genres>

```

We called the second XML file, Movies.xml, which contains a list of movies and a genre id that matches the id of the genres listed in Genres.xml. Movies.xml looks as in listing 16.2.

Listing 16.2 Movies.xml

```

1.21 <?xml version="1.0" encoding="utf-8" ?>
1.22 <Movies>
1.23     <Movie>
1.24         <Name>Fallen</Name>
1.25         <GenreId>2</GenreId>
1.26         <LeadingActors>

```

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```

1.27             Denzel Washington, John Goodman
1.28         </LeadingActors>
1.29     </Movie>
1.30     <Movie>
1.31         <Name>Music and Lyrics</Name>
1.32         <GenreId>1</GenreId>
1.33         <LeadingActors>
1.34             Hugh Grant, Drew Barrymore
1.35         </LeadingActors>
1.36     </Movie>
1.37     <Movie>
1.38         <Name>Intolerable Cruelty</Name>
1.39         <GenreId>1</GenreId>
1.40         <LeadingActors>
1.41             George Clooney, Catherine Zeta-Jones
1.42         </LeadingActors>
1.43     </Movie>
1.44 </Movies>

```

Create the two XML files with the content detailed above and store them in a document library, or use the procedure explained earlier in this chapter, "Adding an XML File as a data source". We will use the <Id> element of the Genres.xml file to join it with the <GenreId> column of the Movies.xml file and thereby link both data sources together. Follow the next procedure to create a joined linked source.

1. Open SharePoint Designer and open the SharePoint page where you want to place the Data View Web Part.
2. In the Data Source Library task pane, click Refresh Library and check that the two XML files appear in the XML Files section.
3. On the Data View menu select Insert Data View.
4. In the Data Source Library task pane expand the Linked Sources section and click Create a new Linked Source. This opens the Data Source Properties dialog box.
5. Click the General tab and specify a name for the data source, for example, Movie Data.
6. Click the Source tab and click Configure Linked Source. This opens the Link Data Sources Wizard window.
7. Under Available Data Sources., select Genres.xml file from the XML Files section and click Add. Select Movies.xml file and click Add.
8. Click Finish and then click OK.

In the next procedure, we show you how to add the linked data source to a SharePoint page and how to make a subview within a data view.

1. In the Data Source Library task pane, click the data source you just created, Movie Data, and then click Show Data.
2. First, we are going to create a Data View of the Genres data source. In the Data Source Details task pane, under Genre, hold down the CTRL key, click Name and Description and then click Multiple Item View from the Insert Selected Fields as menu to insert the selected data into the Data View.
3. The next thing we are going to do is to create a new column to show our subset of data. Right-click in the cell with the name Description, select Insert and then select Columns to the Right.

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4. Place your cursor in a cell of the new column. Do not place the cursor in the heading cell, that is do not place the cursor in the same row as the word Description.
5. Then in the Data Source Details task pane, hold down the CTRL key and select Name and LeadingActors fields from the Movie folder. Click Insert selected fields as > Joined Subview. This opens the Join Subview dialog box.

NOTE

In this example, we are creating a subview of the movies.xml data source that is joined to the Genres.xml data source by the field genre id, which both data sources have in common. This is called a joined subview.

6. In the Join Subview dialog box, select the genre id fields of both data sources. In the Genres.xml file select the field called Id, and in the Movies.xml file select GenreId.
7. Click OK. Figure 16.14 shows the Data View Web Part showing the end result.

Name	Description	Name	LeadingActors
Romance	Romantic feel good movies.	Music and Lyrics	Hugh Grant, Drew Barrymore
		Intolerable Cruelty	George Clooney, Catherine Zeta-Jones
Horror	Scary stuff.	Fallen	Denzel Washington, John Goodman
Science Fiction	Futuristic adventures in space.	There are no items to show in this view.	

Figure 16.19 The Data View Web Part is used to show a union between the Genres data source and Moves data source. The union of two data sources is also called joining data sources.

16.5 Using XPath queries within the Data View

One of the new features of SharePoint Designer 2007 is called the XPath Expression Builder, which makes is easy to use the XML Path Language (XPath) . XPath is a querying language for XML and is designed to be used in combination with the Extensible Stylesheet Language Transformations (XSLT) . XSLT is designed to transform XML documents into other documents.

You can use the XPath Expression Builder in SharePoint Designer to create a formula column. A formula column displays the results of a calculation that was performed on other data in a data source. The XPath Expression Builder can be used to help build expressions, or calculations that other options of the Data View Web Part can use, for example using our previous example, you may wish to conditionally format the data in the Minutes column if the number of minutes a customer uses goes above 10,000. This is a very simple example, and you could use the default Condition Criteria dialog box to create this, however under the covers this dialog box is creating XPath expressions. The XPath Expression Builder allows you to build complex expression, that the default dialog boxes cannot create for you and offers easy access to the names of the fields in the data source, as well as to many of the built-in functions that are available when writing XPath expressions.

16.5.1 Using the XPath Expression Builder

The XPath Expression Builder makes it very easy to create XPath expressions and even provides built-in IntelliSense for XPath. You can use the XPath Expression Builder to create the following.

- Complex sort expressions
- Complex filters
- Conditional expressions
- Formula columns

In the rest of this section we will describe how to build the first three types, and then the next section we will detail how to use the XPath Expression Builder with formula columns.

You can use the XPath Expression Builder to create XPath expressions that perform complex sort orders on data, as we show in the next procedure.

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1. Click on the chevron arrow in the upper right corner of the Data View to open the Common Data View Tasks action panel.
2. Click on the Sort and Group option to open the Sort and Group dialog box.
3. Select Add Sort Expression, which is the last field in the Available fields list box and click Add. This opens the Advanced Sort dialog box where you can create XPath expressions. When you are finished using the Advanced Sort dialog box, click OK twice.

Next we will use the XPath Expression builder to create advanced filters as follows.

1. Click on the chevron arrow in the upper right corner of the Data View to open the Common Data View Tasks action panel.
2. Click Filter, this will open the Filter Criteria dialog box.
3. Select the checkbox Add XSLT Filtering; this enables the Edit button.
4. Click Edit to open the Advanced Condition dialog box where you can create XPath expressions. When you are finished using the Advanced Condition dialog box, click OK twice.

NOTE

You can perform XPath queries on all types of data sources, even when the data in a data source is not natively stored as XML, for example, the data in a SharePoint list or SQL database. This is possible because such data is first rendered as XML by the Data View infrastructure, before the XPath expressions are applied to the data. You should also take note that XPath sorting and filtering is performed on the entire data set that has been retrieved from the data source and loaded into memory. Therefore, for performance reasons, it may be best to define your sorting and filtering criteria on the data source than defining it on the Data View.

You can use the XPath Expression Builder to build expressions that specify conditions for when applying conditional formatting as follows.

1. Click on the chevron arrow in the upper right corner of the Data View to open the Common Data View Tasks action panel.
2. Click Conditional Formatting; this opens the Conditional Formatting task pane. The Conditional Formatting task pane shows all the existing conditions in the selected Data View.
3. Click on the arrow next to an existing condition and choose Edit condition, this opens the Condition Criteria dialog box.
4. Click the Advanced button to open the Advanced Condition dialog box that lets you create XPath expressions.

Figure 16.20 shows the XPath Expression Builder, in this particular instance the Advance Condition dialog box. The text field on the left, right below the caption Select a field to insert, shows a hierarchical representation of the data structure of the selected data source.

These so-called fields can be used within an XPath expression. If you double-click a field it is added to the upper right text box just below the Edit the XPath expression caption. Alternatively, you can drag and drop field to the Edit the XPath expression text field.

The Edit the XPath expression text field is intended to create the XPath expression you need and to make this as easy as possible. The Preview section of the screen, at the bottom, provides an up-to-date representation of live data after applying an XPath expression to that data. If you change something in the Edit the XPath expression text field this change is reflected immediately in the Preview section.

Another really nice feature of the XPath Expression Builder is that the Edit the XPath expression text field displays an IntelliSense list that contains all available XPath operators as well as the fields that are available within a given context.

The Select a function category drop down list offers the choice between different types of categories of XPath functions, like Most Recently Used, All, and Math/Number. If you select a category, the list box

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below the Select a function to insert caption is updated so that it contains all XPath functions that belong to the selected category. The XPath functions can also be used within XPath expressions.

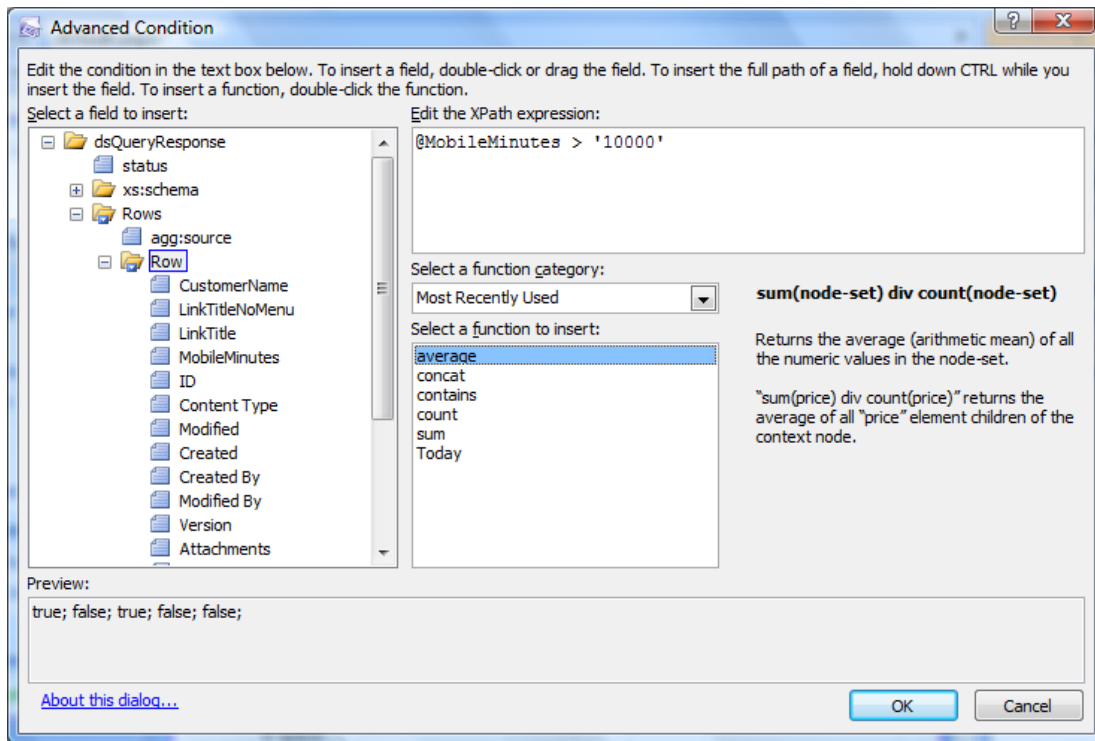


Figure 16.20 The XPath Expression Builder is an advanced expression builder that makes creating XPath queries considerably easier

We discussed how using the XPath Expression Builder we can create complex sort expressions, complex filters and conditional expressions. Next, we detail how to create formula columns.

16.5.2 Creating a formula column

In this section, we will demonstrate how to create a formula column based on information found in different elements in an XML data source. Imagine, if you will, a mobile phone company that keeps track of the mobile minutes a customer uses and the price of one mobile minute. This information is stored in an XML file. The company knows how many mobile minutes are used, and the price of a mobile minute, but they want to create a Data View to display the total price of all mobile minutes used by customer.

In this example, you will create a formula column that displays the result of multiplying the mobile minutes by the price. When the formula column is created the mobile phone company can quickly and easily access the total amount of money they get from their customers.

We have created a sample XML file containing the mobile minutes and the price per minute per customer. If you want to follow this example, you should create this file yourself. The contents of the XML file called customers.xml are as follows.

Listing 16.3 Customers.xml.

```
<?xml version="1.0" encoding="utf-8"?>
<Customers>
  <Customer Name="A">
    <MobileMinute>5000</MobileMinute>
```

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```

        <PricePerMinute>0.25</PricePerMinute>
    </Customer>
    <Customer Name="B">
        <MobileMinute>10000</MobileMinute>
        <PricePerMinute>0.20</PricePerMinute>
    </Customer>
    <Customer Name="C">
        <MobileMinute>15000</MobileMinute>
        <PricePerMinute>0.15</PricePerMinute>
    </Customer>
</Customers>

```

First, you have to add the customers.xml file as a data source.

INFORMATION ABOUT IMPORTING XML FILES AS A DATA SOURCE

In section "Adding an XML File as a data source", we have explained the steps you have to follow to import an XML file data source.

Follow the next procedure to create a Data View and add a formula column.

1. In SharePoint Designer, go to a page where you want to add your Data View. In this example, this will be the default.aspx page of a test SharePoint site.
2. Click Data View on the menu bar and select Insert Data View.
3. Click customers.xml in the XML Files section of the Data Source Library task pane and select Show Data. This opens the Data Source Details task pane.
4. Hold the CTRL key down, select Name, MobileMinute and PricePerMinute fields and then select Insert Selected Fields as > Multiple Item View.
5. On the Data View Web Part, click the chevron in the upper right corner of the Data View to open the Common Data View Tasks action panel.
6. Click Edit Columns. This opens the Edit Columns dialog box.
7. Select Add Formula Column in the Available Fields list and click Add. This opens the XPath Expression Builder dialog box. This looks very similar to the Add Condition dialog box you saw in the previous section.
8. In the Select a field to insert box, double-click the MobileMinute field to place it in the Edit the XPath expression box.

INSERT THE FULL PATH OF THE FIELD

If you want to insert the full path of the field, hold down the CTRL key while you double-click or drag the field.

9. Place your cursor in the Edit the XPath expression box directly after the MobileMinute field and press the SpaceBar. This displays an IntelliSense list containing all available XPath operators. IntelliSense for XPath helps creating XPath expressions by providing a list of available fields or functions that are valid in the context of the expression. Double click the * operator and then double click PricePerMinute. The expression you have build will multiply the value contained in the MobileMinute field with the value in the PricePerMinute field. Figure 16.21 shows the IntelliSense list with all fields that are available in a given context.

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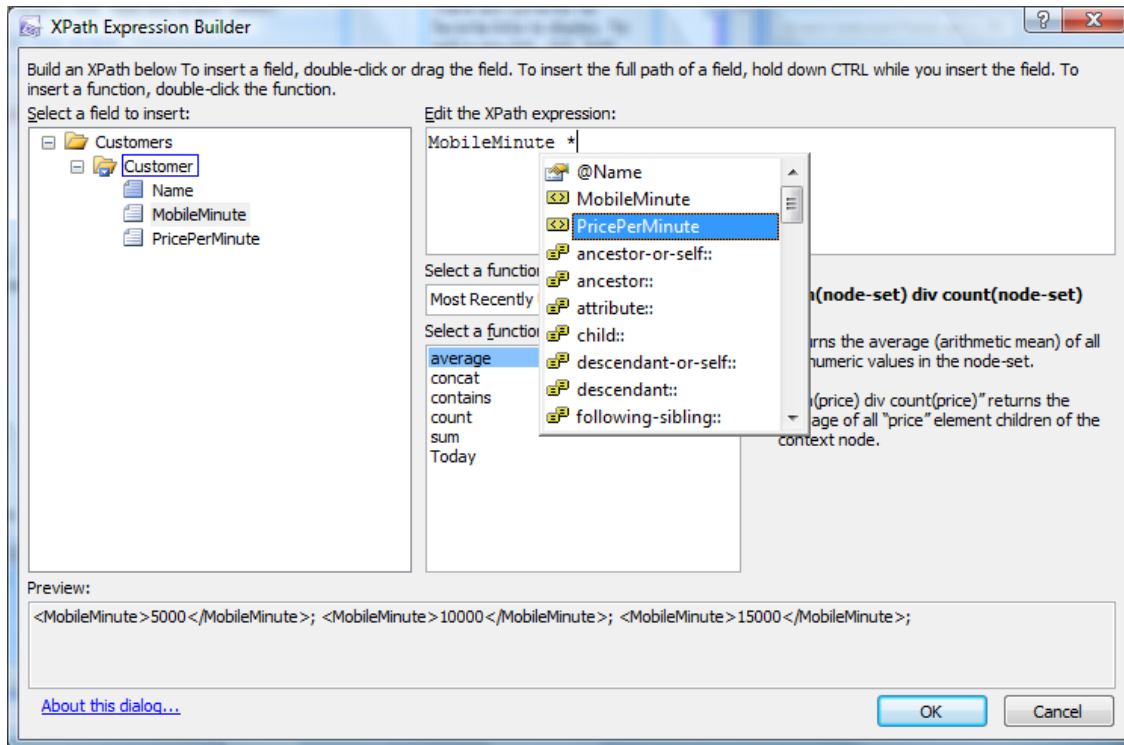


Figure 16.21 The XPath Expression Builder offers IntelliSense support. Depending on the current context, IntelliSense provides a list containing all available fields.

10. The final XPath expression looks like this: `MobileMinute * PricePerMinute`. In the Preview box you can see a preview of the results of the data in the formula column based on real data in the specified data source. Click OK in the XPath Expression Builder dialog box and click OK to close the Edit Columns dialog box.
11. The middle of the SharePoint Designer screen shows a preview of the Data View Web Part. Here you will see a new column called `MobileMinute * PricePerMinute`. To change the name of column, you can select the name of the column header and type a new name, such as, `Payment Due`. You can alter the other column headings in a similar way, and by entering `Customer` to the right of `A`, SharePoint Designer will prefix the values in the `Name` field with `Customer` too.
12. Save the page and browse to the `default.aspx` page of your SharePoint site that contains the Data View Web Part. Figure 16.22 shows a Data View Web Part with a formula column.

Name	Mobile Minute	Price per Minute	Payment Due
Customer A	5000	0.25	1250
Customer B	10000	0.20	2000
Customer C	15000	0.15	2250

Figure 16.22 Adding a formula column helps to determine the Payment that is due based on the price of a mobile minute and the total number of mobile minutes consumed.

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You may be saying to yourself that you can do these sorts of calculation using the calculated column in a list or a library, which is true, but remember by using the Data Source Library, you can access more data than that which is stored in SharePoint lists and library. If you have used the XPath query language in the past, you probably agree that it can be tricky to use. As a general trend, we notice that all sorts of commercial tools try to abstract the complexity of using XPath away by providing visual aids. A good example of such a tool created by Microsoft is the BizTalk mapper. You can now add the Data View Web Part and SharePoint Designer to the list of tools that make it easier to work with XPath.

16.6 Summary

The power of the Data View Web Part tends to be underestimated. We are sure you will not make the same mistake now you have read this chapter. It has been quite a journey and we hope you have tried out the various techniques we described. If you have not, remember that it is not too late! If you find it difficult at first, remember that Pablo Picasso once said, "I am always doing what I can not do, in order that I may learn how to do it".

The chapter started with an introduction of the Data View Web Part and SharePoint Designer. Both tools might be new to you, and it typically takes some time getting used to the idea that you can use the Data View Web Part to aggregate and manage data.

In order to be able to aggregate and manage data, you will first need to define which data sources you want to use and how you can access these data sources. Therefore, we looked at importing and displaying data with the Data View Web Part. You saw that the Data Source Library plays a vital role in accessing data sources and you learned the kind of data sources accessible to the Data View Web Part, such as SharePoint lists, relational databases and XML files.

After demonstrating the basics of consuming data sources, you learned about more advanced topics. You saw that it is possible to connect to data sources located in other SharePoint sites. You also learned how to filter, sort, and group information displayed in the Data View Web Part. If you are interested in building sophisticated user interfaces, you were probably happy to learn about the possibilities of changing the Data View layout, generating test data, and previewing the result.

Sometimes you will be interested in creating read-only reports, so in this chapter you have learned how to create a data source as a view to accomplish this. At other times, you will also be interested in editing the data displayed by the Data View Web Part and you saw how to create a form to cater for this need. The chapter also provided you with a nice overview of the exact differences between Views and Forms.

It was interesting to explore the possibility of how to combine separate data sources using Linked data sources. We showed examples of a merged data view, an intersection of data, and a joined data view, a union of data.

The final part of the chapter was dedicated to the XPath Expression Builder. The XPath query language is a great language for retrieving data from XML files. In the past, the downside of using this language has been its complexity and its syntax that is rather difficult to read. The XPath Expression Builder offers a development environment that includes IntelliSense support, making development efforts using the XPath language easier.

When all is said and done, the most amazing thing about the Data View Web Part is its capability to build advanced user interfaces in a short amount of time. We would not want to go on record, stating that building Web Parts that aggregate and manage data within a SharePoint environment is a complex mission to undertake, but the boost of productivity that is offered by the Data View Web Part is a force to be reckoned with.

17

SharePoint Site Definitions

Windows SharePoint Services (WSS) 3.0 and on top of that Microsoft Office SharePoint Server 2007 (MOSS) provide substantial out-of-the-box business value. However, like any other business tool, MOSS may not be the precise solution you need. Perhaps you'd like to change a few things and add functionality of your own. This chapter will focus on how you can leverage the WSS 3.0 platform and extend the out of the box functionality to work the way you want it to work. We'll be delving more deeply in to the product, than other chapters. You'll be seeing SharePoint more from the developers perspective, but you are nearing the end of the book and we hope you'll like the extra details.

If you have experience extending SharePoint Team Services (STS), WSS2.0, SharePoint Portal Server 2001 (SPS 2001), and/or SharePoint Portal Server 2003 (SPS 2003) you will feel somewhat comfortable with the first half of this chapter. While the organization and technical layout of a Site Definition has changed, the way MOSS leverages each Site Definition is much the same as it was in all previous versions of SharePoint. If you are new to MOSS, Site Definitions provide the foundation upon which everything else is built. We call it the "plumbing" and "custom chrome" of your MOSS application. Site Definitions are the blue prints from which you create a particular instance of a Web site (AKA a Site, Workspace, or Web). Web Parts typically provide specific functionality to instance pages in any Web site including the creation, review, and modification of data within that same context.

Master Pages in WSS 3.0 replace the old Direct-Mode Page paradigm from WSS 2.0. Each Web page in SharePoint references a Master Page, using a Page directive, @Page, or in code rather than as a property of the page stored in the SharePoint content database. Therefore, Master Pages will always be referenced, even if a page is customized. This is a huge improvement over the approached used in previous versions of SharePoint because global change can always be achieved, by changing the Master Page, regardless of how much the pages of any Web site are customized.

There are also some very new and exciting Site Definition components called Features. Naming a feature of a software product a Feature may be confusing; so, we will attempt use the word Feature as a proper noun when we am referring to the ability to define, install, and activate a specific set of functionality in MOSS and use the word feature (lowercase) or avoid the word altogether when we am referring to capabilities generally available in MOSS. Regardless of the term used, by allowing the growth in functionality of all existing and future sites, Features help overcome many of the shortcomings in previous versions of SharePoint.

TIP

Using Features, you can start with a Team Site and over time install and activate all the Features that enables that same Web site to function as if you had started with a Web Content Management (WCM) Site, also known

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as a publishing site. We saw in Chapter 8, “Web Content Management”, that you could achieve this by activating the Office SharePoint Server Publishing Feature. This feature is activated at the site level, known as a Web scope. It depends on the Office SharePoint Server Publishing Infrastructure Feature, which is a Feature that is activated at the site collection level, known as a Site Feature.

17.1 Site Definitions

MOSS is different than most traditional Web applications in the way it creates, stores, and renders page instances. Some traditional Web applications store an instance of each page, whether they are HTM, ASP, or even ASPX pages, on file system. Other Web applications use code within various file system-based pages to dynamically render multiple page instances based on some state-based property like an ID, found in something like the QueryString, view state, or a cookie. We explained what we meant by a QueryString in Chapter 5, “Web Parts”. Instead, MOSS out-of-the-box, does not have an instance of each page until you implicitly creates a page as part of a Web site. MOSS then records their existence as an instance of a page, using metadata in a database table row. If you’re interested, the table name is AllDocs. This allows you to create a nearly unlimited number of instance pages that they can customize in numerous contexts.

Like an ASP.NET application, each Site Definition represents a custom set of pages that can have unique plumbing (page directives, register tags, CSS, and JS files and overrides) and custom chrome (page layout, navigation, and containers such as Web Part zones). So when we visit a client, and they describe a solution that has a style or behavior that doesn't closely match one of the existing Site Definitions, we consider creating a custom Site Definition to specifically meet their needs.

TIP

This is a paradigm shifting architecture that will likely influence Web user interfaces (UIs) as much as the introduction of Visual Basic influenced fat-client UIs back in the 1990s. Web sites will never be the same again, when non-developers using WSS 3.0 or MOSS learn how to construct their own applications using off the shelf Web Parts, or customized Web Parts blessed and deployed by Operations. They’ll be able to choose Web Parts, from security trimmed galleries and assemble them the way they want on an instance of a page that itself is based on a set of available Master Page templates;. Page creation will be the domain of the Information Worker and developers will turn their attention toward context independent Web Part development rather than building one-off page oriented solutions for specific business needs.

The mechanism that MOSS uses to determine what page instances to initially create can be found in the Site Definitions found in a location commonly referred to as the 12 Hive, which we’ll describe next.

17.1.1 The 12 Hive

The 12 Hive can be found on each MOSS Web front-end server at the following location:

`%CommonProgramFiles%\Microsoft Shared\web server extensions\12`

Like the 60 Hive in WSS 2.0, the 12 Hive is the starting place for everything SharePoint. Inside this directory you will find the file system-based out-of-the-box functionality like: Site Definitions, Features, Web Services, and admin pages. To get swift, direct access to the files within the 12 Hive, create a new Toolbar on the Start bar of each SharePoint Web server using the following steps:

1. Right-click on the Start bar and click New Toolbar... from the Toolbars option, as shown in figure 17.1.

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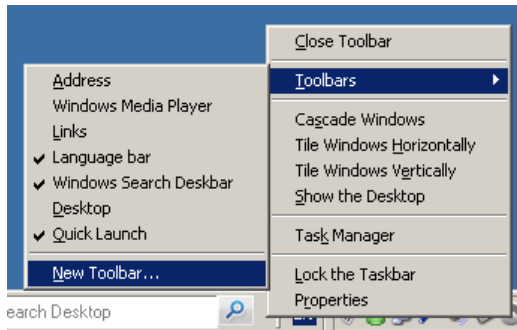


Figure 17.1 Create a new Toolbar on each SharePoint Web server.

2. Click the + character to the right of My Computer to expand it, then using the same technique > Local Disk (C:) > Program Files > Common Files > Microsoft Shared > web server extensions and then click 12, see figure 17.2.

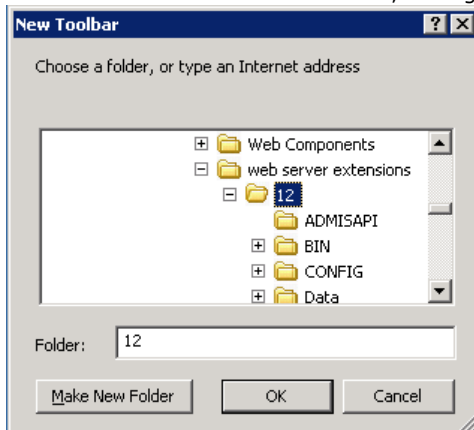


Figure 17.2: New Toolbar dialog creating a 12 Hive Toolbar on the Start bar

3. Click OK.

A toolbar to the 12 Hive appears on the right side of the Start bar shown in figure 17.3.

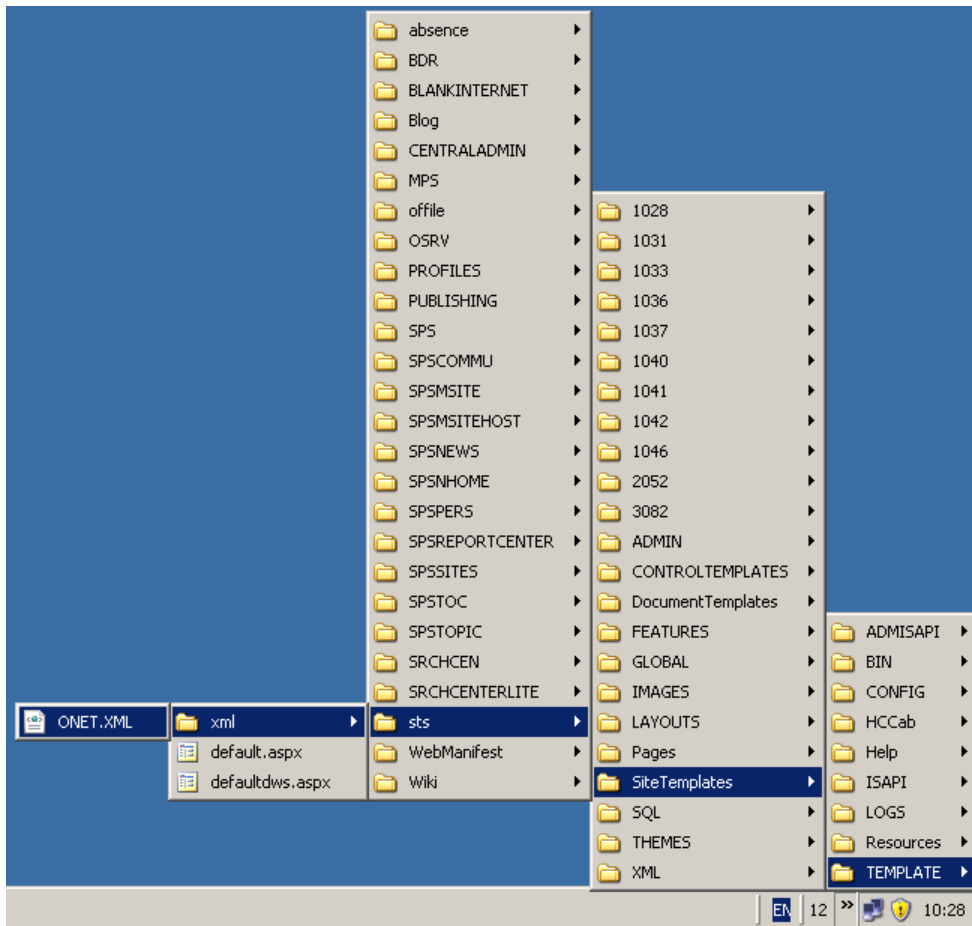


Figure 17.3: To open the STS Team Site's ONET.XML file, click on it by navigating to it from the 12 Hive Toolbar. The STS folder contains the site definitions for all WSS 3.0 collaboration sites, for example, a team site.

Now you have created this toolbar, you can be used to gain direct access to all the files in the 12 Hive. There are numerous Site Definitions installed with MOSS, some of which are highlighted in figure 17.4. To open up a similar Windows Explorer window of the 12 Hive, right click the 12 toolbar you just created and click Open Folder.

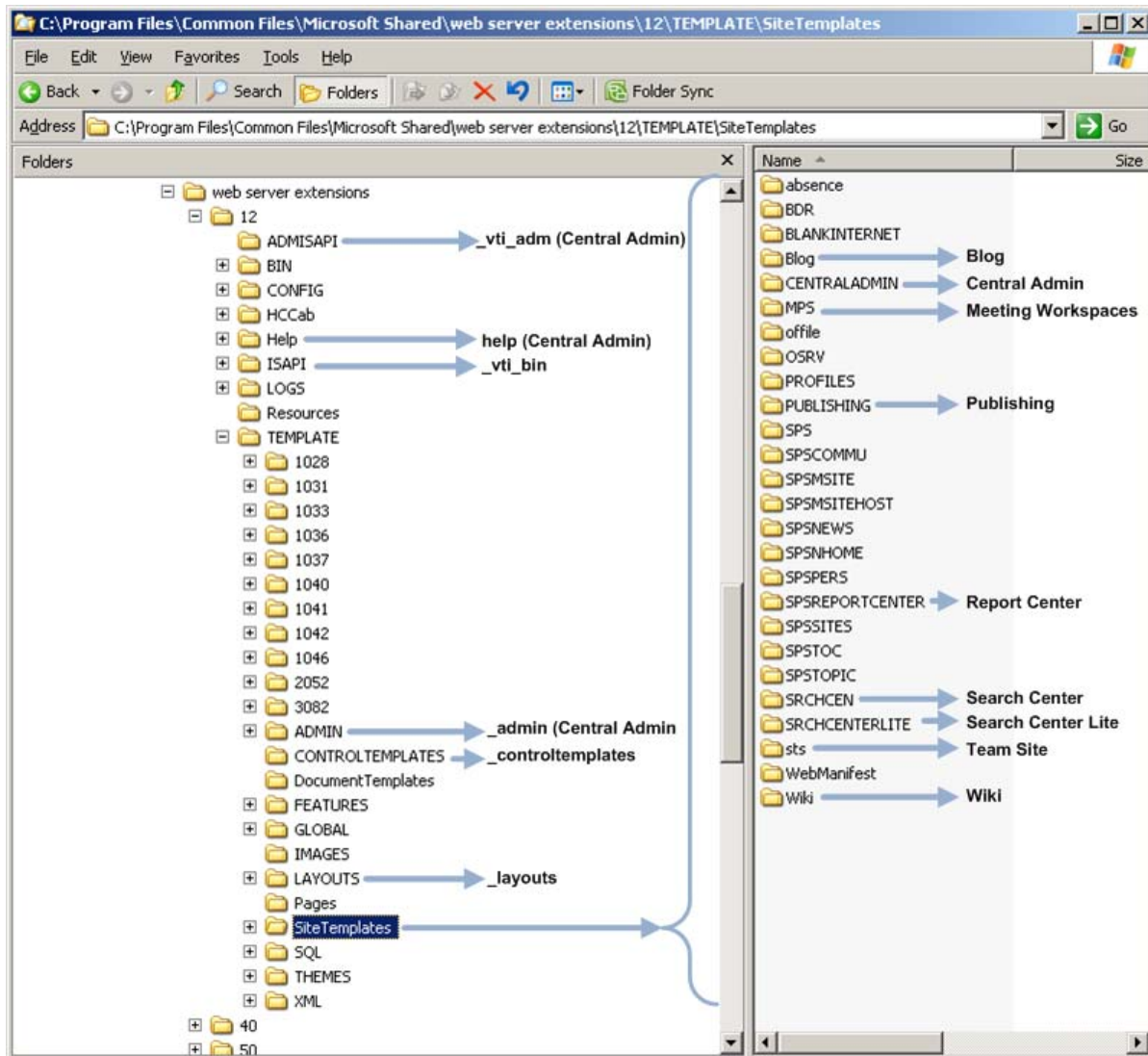


Figure 17.4: out of the box Site Definitions installed with MOSS

Figure 17.4 also indicates some of the key folders that are accessible via virtual directories of a SharePoint Web Application, that is, those folders that map to words prefixed with the underscore character, such as `_layouts` or `_vti_bin`. If you look carefully at the URL of the Site Settings page for any Web site you will notice that it is pointing to a file `_layouts/settings.aspx`, which maps to the physical folder `LAYOUTS` in the 12 Hive. Also, in Chapter 16, “The Data View Web Part”, we used a file in the `_vti_bin` folder, when we created a Data View Web Part (DVWP) that used the SharePoint Lists XML Web Service. Also, notice that each Site Definition has its own folder under the `SiteTemplates` folder.

TIP

Microsoft's choice of names can be somewhat confusing here. The `..12\TEMPLATE\SiteTemplates` folder is where Site Definitions are always kept. Site Templates, discussed later in this chapter, are effectively customizations of a specific Site Definition and they are always stored in an STP file kept in a gallery in the top-level Web site of a site collection. Therefore, Site Templates are never kept in the `SiteTemplates` folder, only Site Definitions are.

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So, how does SharePoint know which Site Definitions to use when we ask it to create a Web site? Does it go to the 12 Hive and look in the SiteTemplater folder as we have just done? Well, no. SharePoint navigates to the ..12/TEMPLATES/[LCID]/XML folder and looks in XML files prefixed with webtemp. The Locale ID ([LCID] for US English is 1033 but there are many other LCIDs for SharePoint, see the SharePoint LCIDs sidebar for more details. The webtemp files point to the folders where the Site Definitions live. Then each Site Definition folder contains a number of files, that SharePoint uses to create a Web site, these include:

- ONET.XML: This file, found in the XML folder, contains the core definition of a Site Definition. We will look at this file in more detail in the next section.
- SCHEMA.XML: This file typically found in a named list folder, such as Posts, within the Lists folder. This is the core definition of a list. It is not common for a MOSS Site Definition to have a Lists subfolder as most lists are implemented as Features, but there are still a few, for example, look at the Blog Site Definition.
- ASPX pages: Typically referred to in ONET.XML for the Web site or SCHEMA.XML for the list.

A Site Definition, as the name implies, defines a SharePoint Web site and primarily consisting of files that use proprietary XML elements and attributes collectively known as Microsoft Collaborative Application Markup Language (CAML), which is the subject of the next section.

17.1.2 CAML

The CAML is housed in a file called ONET.XML (ONET, pronounced Ōh-nĕt, is rumored to stand for Office.NET) in a Site Definition's XML folder, that is, each Site Definition has its own ONET.XML file. The ONET.XML describes the key components of a Site Definition and can use the following XML elements:

- Project: The root XML element of a Site Definition that defines some global attributes and contains all the other XML elements.
- NavBars: A container for navigational controls that can be placed on a page to render static links or dynamically links of a specific type within a given context. Out-of-the-box, these are used for the top links of all pages within a site and for the Quick Launch area of the home page.
- BaseTypes: You can liken Base Types to data types, which you used when you created a column in a list or library. In the ONET.XML file these XML elements define the default columns (fields), forms, toolbars, and views that all lists and libraries are derived from. These typically define the elements that must be present for SharePoint to properly interact with a list so every list in a MOSS Web site must inherit what it should consist of (its schema) from a base type. Fields defined in a base type may not be deleted from a derived list.
- ListTemplates: Defines the lists that will be available on the Create Page for sites created from this Site Definition. Each ListTemplate defines items like content types, columns, views, work flows, and policies, in a given list definition.
- DocumentTemplates: Defines the binary documents that will be used as templates when you create new documents in a document library. This collection of document templates is listed in the Document Template drop-down list box when creating a new document library.
- Configurations: Defines which list instances will be created and files (modules) to be uploaded when a new Web site is created. In MOSS, site collection Features (SiteFeatures) and Features that you can activate at the site level (WebFeatures) can also be defined in a Configuration XML element.
- Modules: Defines a collection of one or more files, their file system location and the document library or URL where the file can be found after a Web site is created. If the file is a Web Part Page, the module definition can specify which Web Parts should be included in which zones on the page.
- Components: Out of the box, this element is only used in Meeting Workspaces, which are defined in the MPS Site Definition folder. The components XML element is used to specify view in dialog boxes and list views stored in the Forms folder and/or interfaces, so that a site can obtain custom information concerning security used in WSS search.
- ServerEmailFooter: Used to specify the footer that will appear at the bottom of alerts sent from Web sites

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that are based upon this Site Definition.

Instead of hard-coding strings of words that are to be displayed on the User Interface, developers now store all SharePoint strings in RESX resource files, which we'll describe next.

17.1.3 \$Resources in MOSS

In MOSS, all the language and locale-specific elements such as titles, captions, and messages, are embedded as resources in resource files with an RESX extension. These files are found in the 12 Hive under the \TEMPLATE\Resources directory. A separate resource file is available for each spoken language supported. The resource files for MOSS use the following syntax to define the name/value pairs, where in the following example, the name is `toddList` and the value is `Todd`:

```
<Data Name="toddList">
  <Value>Todd</Value>
</Data>
```

All the Data XML elements in a resource file must be in a single root XML element. References to strings in these resource files can be made using aliases of the following syntax:

```
$Resources:fileNameNoExtension, dataName
```

So, if the name/value pair defined above was in a file called `custom.resx` stored in the Resources directory of the 12 Hive on every Web server, you could reference the value using this code:

```
$Resources:custom, toddList
```

As a result, the end user in the UI would see the value: `Todd`. These name/value pairs make it easy to change the language displayed in the MOSS UI based on the end user's locale.

We've now seen what files live in the 12 Hive, in particular those files that are stored in the SiteTemplates folder. In the next section, we will learn the dependencies between these folders.

17.2 Site Definition Dependencies

MOSS Site Definitions are much leaner than they were in previous versions of SharePoint. This is because Microsoft has made a concerted effort to componentize and properly scope various aspects of the declarative CAML markup. Each Site Definition defined has dependencies on the files defined in the GLOBAL folder, the Configuration XML elements found in the webtemp prefixed XML files we mentioned earlier, files in the Features folder, Field types and of course, we need to consider what has happened to WSS 2.0 Site Definitions. We'll detail these aspects in the rest of this section.

17.2.1 GLOBAL Site Definition Dependency

As Microsoft reorganized Site Definitions, they defined a single place where everything is stored for MOSS to work properly. When you choose to create a Web Site the GLOBAL Site Definition, found in the ..\12\TEMPLATE\GLOBAL directory of the 12 Hive, is used in conjunction with the Site Definition you selected. SharePoint uses the settings found in the Global Site Definition first followed by the settings in the selected Site Definition to create your Web site. The GLOBAL directory contains the definition for galleries, List Base Types, Master Pages and a set of files in the XML directory, including ONET.XML. We will look at each of these components.

GALLERIES

Within the Lists subfolder of the GLOBAL directory, define the list templates for five galleries:

- `mplib`: A Master Page Gallery is established for every Web Created. The other four galleries are only established on top-level Web sites in a Site Collection.
- `users`: The User Info Gallery, is hidden and managed separately from the Site Settings Gallery list.
- `webtemp`: The Site Template Gallery is initially empty but is used to keep STP files that represent customized Site Definitions.
- `wplib`: As with the other galleries, the SCHEMA.XML defines the structure of the gallery, which in this case is the Web Part Gallery. The BasicWebPart Feature then populates it with non List View Web Parts (LVWP), such as, the Content Editor Web Part (CEWP), which we described in Chapter 5.
- `listtemp`: The List Template Gallery, like the Site Template Gallery, is initially empty but is used to keep STP files that represent a customized List Definition available within this Site Definition.

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LIST BASE TYPES

All List Base Types are established in one central location for every list in the farm. All lists are based upon one of these five base types:

- Base Type 0: Generic List
- Base Type 1: Document Library
- Base Type 3: Discussion Forum
- Base Type 4: Vote or Survey
- Base Type 5: Issues List

NOTE

These are the same Base Types that we had in WSS 2.0. However, they are now centralized in the GLOBAL Site Definition rather than identically replicated in every Site Definition. Also note, there is not a Base Type 2. It is not implemented. Again, this is the same as previous versions of SharePoint. If you pay attention, you will notice that 2 is mysteriously missing from several places in CAML. Could it be some kind of conspiracy?

MASTER PAGES

The GLOBAL Site Definition is also where two Master Pages are stored, default.master and mwsdefault.master. Master Pages define the plumbing and custom chrome for SharePoint pages. When you first install MOSS 2007 all team sites use the default.master as there Master Page, and all Meeting Workspaces use mwsdefault.master. Both Master Pages are added, as an uncustomized page, GhostableInLibrary, to the Master Page gallery of all Web sites when they are created using the Module XML element with a Name of DefaultMasterPage, which you can find at the bottom of the GLOBAL Site Definition's ONET.XML.

CAUTION

If you edit the default.master page in SharePoint Designer (SPD), you create a customized copy in the Master Page gallery. You can always use Revert to Template but subsequent changes to the file on the file system will have no effect. See Chapter 15, "Using SharePoint Designer".

ONET.XML

There is only one Configuration XML element in the GLOBAL Site Definition's ONET.XML file, which defines two site collection Features to ensure that all the Site Columns (Field) and Content Types are defined on every top-level Web site provisioned in any Site Collection.

STDVIEW.XML

The STDVIEW.XML file defines the base view used in a site definition when creating new views. This file is used when you create new views for lists and libraries, such as the Standard View, Calendar View and DataSheet View.

CAUTION

MOSS is heavily dependent on many of the structures defined in the STDVIEW.XML file so the WSS 3.0 Software Development Kit (SDK) warns us not modify the contents of this file. Making changes to an originally installed ONET.XML file on a server running WSS can break existing sites. In addition, Microsoft reserve the right to overwrite their files when you install updates or service packs for WSS, or when you upgrade an installation to the next version of SharePoint. Whenever possible, create a new site or list definition as opposed to modifying original Site Definition files. For more information on the best practice to follow, see "How to: Create a Site Definition from an Existing Site Definition", <http://msdn2.microsoft.com/en-us/library/ms454677.aspx>, in the WSS 3.0 SDK.

VWSTYLES.XML

The VWSTYLES.XML file defines the styles for viewing list data, as shown in figure 17.5.

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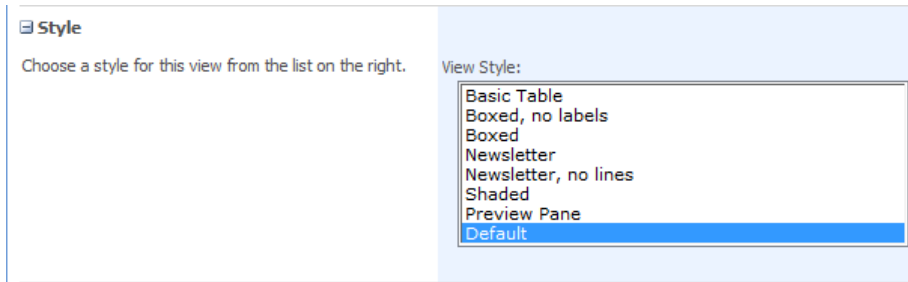


Figure 17.5: List View Style section showing styles defined in VWSTYLES.XML

In previous versions of SharePoint, both the STDVIEW.XML and the VWSTYLES.XML were identical and redundant across all Site Definitions, so it is very nice that Microsoft have centralized these files. However, it is still possible to supplement or override these global files in your own Site Definition.

17.2.2 Configuration Dependencies

Site Definition and Site Templates appear as options in the Template Selection section of the New SharePoint Site page. When you first install MOSS, the Site Definitions are grouped under the tabs Collaboration, Meeting, Enterprise and Publishing, as shown in figures 17.6 to 17.9. When you create site templates, another tab appears named custom. If you have installed the Site Definitions that are part of Microsoft's Fabulous 40, see <http://www.microsoft.com/technet/windowsserver/sharepoint/wssapps/templates/default.msp,> you will see a tab named Applications Templates.

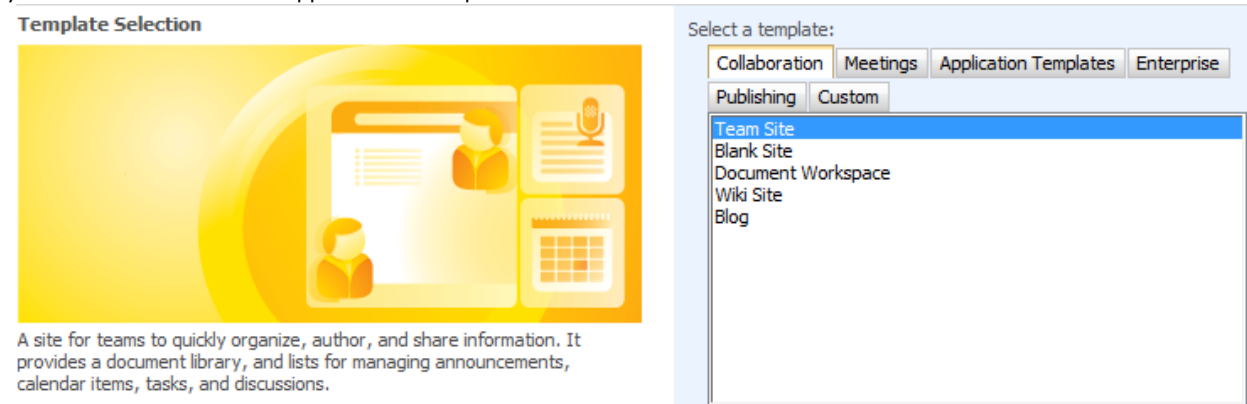


Figure 17.6: Collaboration tab: Template Selection section of the New SharePoint Site page

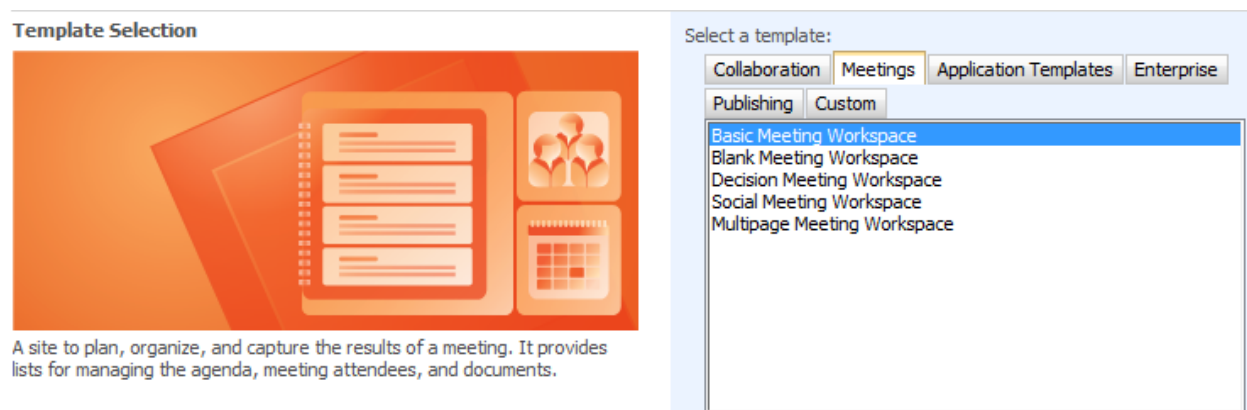


Figure 17.7: Meetings tab: Template Selection section of the New SharePoint Site page

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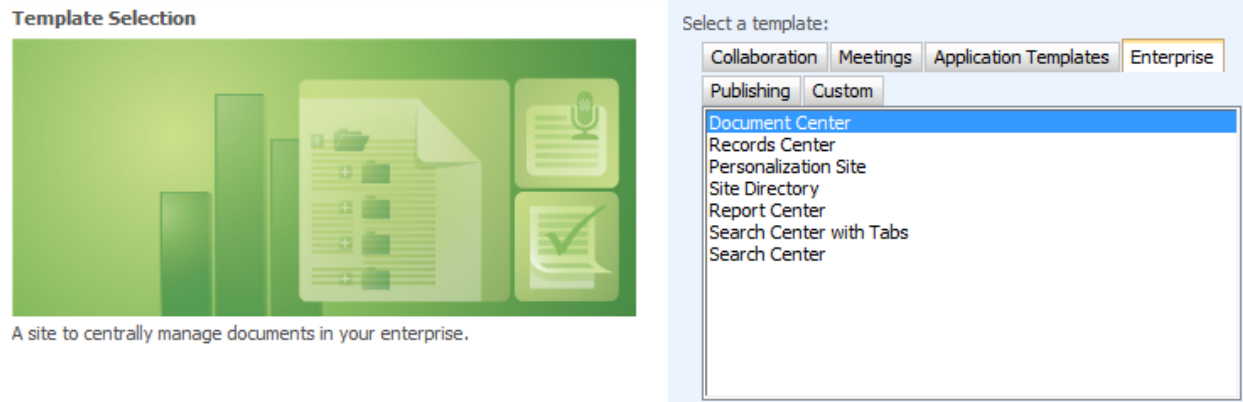


Figure 17.8: Enterprise tab: Template Selection section of the New SharePoint Site page

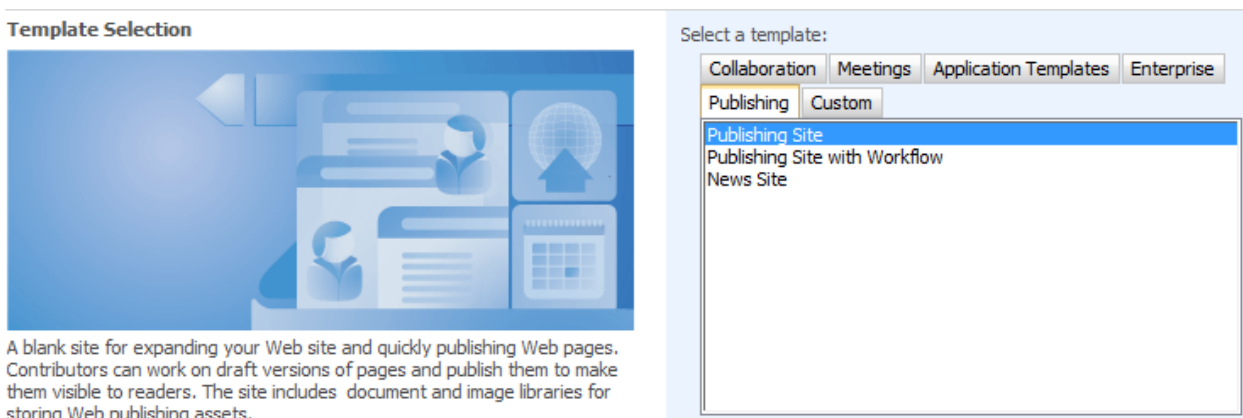


Figure 17.9: Publishing tab: Template Selection section of the New SharePoint Site page

When you click one of the tabs, a preview image is displayed together with a short description of the type of site you can create.

NOTE

Why doesn't Microsoft just show screen shots of the home page? In a word, internationalization. If they showed the home page of a Site Definition, the language used would be visible, so they would have to have an image for every locale that they support. With the abstract images they can get across the concept of what the choice will generate without the language issues. The home page doesn't always convey the contents of the entire site.

There are three ways, to create new tab on the Template Selection section of the New SharePoint Site page:

1. Create or amend an webtemp prefixed XML file to include a Configuration XML element for a local Site Definition. Remember, we talked about files prefixed with the letters "webtemp". They are located in the `..\12\TEMPLATE\[LCID]\XML` directory of the 12 Hive. It is the Configuration XML element that defines whether the Site Definition should appear in the Template Selection section and if so, which tab should they be listed beneath. The settings on the XML Configurations elements are used to define Site Definition availability anywhere in the entire farm.
2. Create a snapshot of an existing Web site as a Site Template (STP file). Site Actions > Site Settings > Save site as template. This saves the STP file in the Site Template Gallery in the top-level Web site of a given site collection. Site Templates are available from any child Web site in the site collection. Site Templates can also be saved to the local file system and subsequently uploaded to the Site Template Gallery in the top-level Web site of other site collections, as long as the site definitions they are based on, are also available on the MOSS farm that hosts that site collection.
3. Make a Site Template available globally using the AddTemplate option of the command-line stsadm tool.

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NOTE

Microsoft does not support sites based on site templates created from WCM (publishing) Site Definitions.

The first option is specific to the current Site Definition topic. There are half a dozen webtemp*.xml files installed with MOSS 2007 that define the out of the box appearance of the Site Definitions within the Site Template section. An example of the contents of one of these files is shown in figure 17.10.

```
<?xml version="1.0" encoding="utf-8" ?>
<!-- _lcid="1033" _version="12.0.4518" _dal="1" -->
<!-- _LocalBinding -->
- <Templates xmlns:ows="Microsoft SharePoint">
- <Template Name="GLOBAL" SetupPath="global" ID="0">
  <Configuration ID="0" Title="Global template" Hidden="TRUE" ImageUrl="" Description="This template is used
    for initializing a new site." />
</Template>
- <Template Name="STS" ID="1">
  <Configuration ID="0" Title="Team Site" Hidden="FALSE" ImageUrl="/_layouts/images/stsprev.png"
    Description="A site for teams to quickly organize, author, and share information. It provides a document
    library, and lists for managing announcements, calendar items, tasks, and discussions."
    DisplayCategory="Collaboration" />
  <Configuration ID="1" Title="Blank Site" Hidden="FALSE" ImageUrl="/_layouts/images/blankprev.png"
    Description="A blank site for you to customize based on your requirements."
    DisplayCategory="Collaboration" AllowGlobalFeatureAssociations="False" />
  <Configuration ID="2" Title="Document Workspace" Hidden="FALSE"
    ImageUrl="/_layouts/images/dwsprev.png" Description="A site for colleagues to work together on a
    document. It provides a document library for storing the primary document and supporting files, a
    tasks list for assigning to-do items, and a links list for resources related to the document."
    DisplayCategory="Collaboration" />
</Template>
- <Template Name="MPS" ID="2">
  <Configuration ID="0" Title="Basic Meeting Workspace" Hidden="FALSE"
    ImageUrl="/_layouts/images/mwsprev.png" Description="A site to plan, organize, and capture the
```

Figure 17.10 The contents of webtemp.xml

As you can see, it contains a number of XML elements. The Name attribute of the Template element, must be the same name as the folder name under ..12/TEMPLATE/SiteTemplates. The Title attribute of the Configuration element is the name that appears in the Site Template section of the New SharePoint Site page, the Hidden attribute states whether it appears on a tab and the DisplayCategory attribute states which tab. You may have expected that each name listed in the Site Template section would map to a folder under ..12/TEMPLATE/SiteTemplates, and therefore would be a Site Definition. Technically speaking each name listed in the Site Template section is a Site Definition Configuration, and now you know why, because it's the Title attribute of the Configuration element that SharePoint uses. Therefore, the Site Template section of the New SharePoint Site page lists Site Definition Configurations and Site Templates (.stp). Table 17.1 lists the Site Definitions Configuration you find in which webtemp*.xml file name, and the tab they appear under if they are not hidden.

Table 17.1 Knowing which webtemp defines which Site Definition Configuration is important to understanding how to create and modify portal components.

Webtemp File name	Site Definition Template		Configuration Title	Hidden
	Name	Tab		
Webtemp.xml	GLOBAL		Global template	Yes
		Collaboration	Team Site	No
			Blank Site	No
	STS		Document Workspace	No

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		Meetings	Basic Meeting Workspace	No
			Blank Meeting Workspace	No
			Decision Meeting Workspace	No
			Social Meeting Workspace	No
	MPS		Multipage Meeting Workspace	No
	CENTRALADMIN		Central Admin Site	Yes
	WIKI	Collaboration	Wiki Site	No
	BLOG	Collaboration	Blog	No
webtempbdr.en-US.xml	BDR	Enterprise	Document Center	No
webtempoffile.xml	OFFILE		Records Center	Yes
	OFFILE	Enterprise	Records Center	No
webtemposrv.xml	OSRV		Shared Services Administration Site	Yes
webtempmps.xml	SPS		SharePoint Portal Server Site	Yes
	SPSPERS		SharePoint Portal Server Personal Space	Yes
	SPSMSITE		Personalization Site	Yes
	SPSTOC		Contents area Template	Yes
	SPSTOPIC		Topic area template	Yes
	SPSNEWS		News Site	Yes
	SPSNHOME	Publishing	News Site	No
	SPSSITES	Enterprise	Site Directory	Yes
	SPSCOMMU		Community area template	Yes
	SPSREPORTCENTER	Enterprise	Report Center	No
	CMSPUBLISHING	Publishing	Publishing Site	No
	SPSPORTAL	Publishing	Collaboration Portal	No
	SRHCEN	Enterprise	Search Center with Tabs	No
	PROFILES		Profiles	Yes
	BLANKINTERNETCONTAINER	Publishing	Publishing Portal	No
	BLANKINTERNET		Publishing Site	Yes
			Press Releases Site	Yes
		Publishing	Publishing Site with Workflow	No
	SPSMSITEHOST	Enterprise	My Site Host	No
webtempmrch.xml		Enterprise	Search Center	No
	SRHCENTERLITE		Search Center	Yes

NEW FEATURE:

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Microsoft now uses Site Definitions to provision Web sites for farm Administration. The CENTRALADMIN Site Definition is used to provision MOSS's Central Administration Web site. Later in this list you will see that the OSRV Site Definition is used to provision MOSS's Shared Services Administration Web site.

The only officially supported alterations to built-in webtemp*.xml files is to set the Hidden attribute to true. Later in this chapter, you will create a webtemp file that you will own.

SharePoint LCIDs

A locale or Language Country/Region ID (LCID) is the primary way that SharePoint, that is, whether you are using WSS 3.0 or MOSS 2007, determines what language to display in the user interface. For a list of LCID values as assigned by Microsoft refer to <http://www.microsoft.com/globaldev/reference/lcid-all.msp>. Based on the options in the Regional Settings page, MOSS is capable of displaying 134 difference locales. However, note that the appearance of an LCID on this list does not indicate Microsoft will offer support for it in the future.

Of course, this book is focused on English (United States) and uses LCID 1033. We're fond of saying, "1032 is Greek to me!"

17.2.3 Feature Dependencies

The 12 Hive's ..12\TEMPLATE\Features directory is chock full of out of the box functionality that Site Definitions are dependent on. For instance, you will find a folder for various list definitions:

- AnnouncementsList
- ContactsList
- CustomList
- DiscussionsList
- EventsList
- IssuesList
- LinksList
- SurveysList
- TasksList
- DocumentLibrary
- PictureLibrary
- SlideLibrary
- XmlFormLibrary

Features provide four levels of scoping semantics for determining where their code is allowed to be activated. Once installed they can be activated or subsequently deactivated at a given scope and can ultimately be uninstalled too. A property bag for storing data required by a Feature within its scope is also available.

17.2.4 FieldType Dependencies

Like the webtemp*.xml files, SharePoint looks for fldtypes*.xml files in the ..12\TEMPLATE\XML directory of the 12 Hive. Each file contains the definition for rendering field types that is used, when you view and edit list data as well as identifying which data type will be used in the database for storing values you place into columns of that field type. The FLDTYPES.XML file defines the base field types used by MOSS:

Table 17.2 Field Types in FLDTYPES.XML file

AllDayEvent	File	PageSeparator
Attachments	GridChoice	Recurrence
Boolean	Guid	Text
Calculated	Integer	ThreadIndex

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Choice	Lookup	Threading
Computed	LookupMulti	URL
ContentTypeId	ModStat	User
Counter	MultiChoice	UserMulti
CrossProjectLink	MultiColumn	WorkflowEventType
Currency	Note	WorkflowStatus
DateTime	Number	

Other fldtype*.xml files installed out of the box include:

- fldtypes_hold.xml: Defines field types: HoldsField, ExemptField, and HoldStatusField
- fldtypes_publishing.xml: Defines field types: HTML, Image, Link, SummaryLinks, LayoutVariationsField, ContentTypeIdFieldType, PublishingScheduleStartDateFieldType, and PublishingScheduleEndDateFieldType
- fldtypes_spsbizdata.xml: Defines field type BusinessData.
- fldtypes_TargetTo.xml: Defines field type TargetTo.

Field types, like many elements and attributes in a Site Definition, uses resources files to define the value of fixed strings.

17.2.5 WSS v2 Site Definitions Dependencies

While MOSS Site Definitions do not depend on WSS 2.0 Site Definitions, custom WSS 2.0 Site Definitions are still allowed. These older custom Site Definitions can be found in the ..\12\TEMPLATE\[LCID] directory of the 12 Hive where [LCID] is the Site Definition locale.

NOTE

For backward compatibility, files from the DocumentTemplates section of old Site Definition can still be found on the file system in the 12 Hive.

17.3 Creating a Custom Site Definition

Enhancing the default SharePoint Team Site (STS) Site Definition that WSS 3.0 installs can result in a compelling site customization strategy. But who owns the files in the STS Site Definition? Microsoft does. Changing the files associated with any out of the box Site Definition is not recommended. You should instead, extend SharePoint to include your own custom Site Definition; often to replace the out of the box Site Definition provided by Microsoft.

NOTE

You should think of adding a new Site Definition less often, than you think of creating a new Web application, which probably isn't very frequently. If the look-and-feel is distinct enough, if the navigational needs are unique enough, if the scope of provisioning is unrestricted enough, you may want your own custom Site Definition. But, unlike the previous version of SharePoint, Features, which we discuss later in this chapter, allow generic Web sites to gain new functionality even after they have been provisioned. So, new Site Definitions are needed less often than they used to be.

The following sections will help you create your own custom replacement for the STS Site Definition. You complete the following exercises you will need to be a server administrator on computer where either MOSS 2007 or WSS 3.0 is installed.

17.3.1 Installing Site Definition Sample from CD-ROM

Instead of walking through all the steps described here, you can copy the STS2 Site Definition with all the recommended customizations from the Manning Web site to your Web server(s). Details of Manning Web site are found at the beginning of the book

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1. Extract STS2.zip into a new \STS2 directory in the ..12\TEMPLATE\SiteTemplates directory of the 12 Hive. The files and folders you'll extract into this new directory will be your new Site Definition.
2. Extract WEBTEMP_STS2.zip into the ..12\TEMPLATE\1033\XML directory of the 12 Hive. The WEBTEMP_STS2.XML file defines Configurations on the new Site Definition extracted in step 1.
3. Open a command prompt and enter iisreset. This resets Internet Information Services (IIS) and results in one new Team Site 2 choice in the Template Selection section of the New SharePoint Site page whenever you attempt to create a new site. Deleting the WEBTEMP_STS2.XML file subsequently removes this new choices from the Template Selection section.
4. Extract Custom.zip into a new \Custom\STS2 directory in the ..12\TEMPLATE\Layouts directory of the 12 Hive. Four files will be extracted into this new directory representing the override files defined in this chapter.
5. Reset IIS by running iisreset in a command prompt or stop and start the Application Pool associated with your MOSS Web Application.
6. Create a new Site, choose Team Site2 from the Custom tab of the Template Selection section of the New SharePoint Site page and check out the alterations.

17.3.2 Cloning a copy that you own

To clone your own copy of the STS site definition complete the following steps:

1. Make a copy of the 12 Hive's ..12\TEMPLATE\SiteTemplates\sts directory and paste it to the ..12\TEMPLATE\SiteTemplates directory creating a Copy of sts folder.
2. Rename the new Copy of sts folder with a name that will represent your custom Site Definition.

TIP

You will want to choose a name that is short yet descriptive. It shouldn't have any spaces and the old SDK used to say that capital letters were required. While that isn't a requirement anymore, we still recommend using all caps. We will use STS2 for this example.

Who owns the files in the STS2 Site Definition? You do. That may not seem important yet but over time when you want to make sweeping changes confined to all the Web sites of this type it will. Adding a cloned folder to the SiteTemplates directory is only the first step, next you want to make MOSS aware of your new Site Definition.

17.3.3 webtemp*.xml

From the first part of this chapter you may remember that Site Definition configurations that are defined in a webtemp*.xml file will show on the New SharePoint Site page. So, we need to add or edit one of the webtemp files in the ..12\TEMPLATE\LCID\XML directory of the 12 Hive where the [LCID] represents your locale. For English (United States) the LCID is 1033 (see the MOSS LCIDs sidebar for details).

You could add a Configuration to one of the existing webtemp*.xml files or create an XML file from scratch but we feel it is easiest to copy one of the existing files and then modify it.

1. Copy the webtempbdr.en-US.xml and paste it to the same folder.
2. Rename Copy of webtempbdr.en-US.xml to a name that begins with webtemp and has an XML extension.

TIP

The name you use will not make any technical difference. However, we find that support of a webtemp file that is singular in purpose and includes the name of the Site Definition is the easiest to support. It is somewhat self documenting. So, we will call our copy webtemp_STS2.xml. It also isn't necessary to include the locale in the name but again we think that lends toward a more supportable solution.

3. Open the new webtemp file and make the following edits:
4. Change the Name attribute of the Template element from BDR to the name of the folder you created in the last section. We are using STS2 in this example.
5. Change the ID attribute of the Template element from 7 to something greater than 10000 and unique on your MOSS farm. Microsoft has reserved the first 9999 Site Definition IDs for Microsoft.
6. Change the Title attribute of the Configuration element from Document Center to the name that you want to appear in the Template Selection section of the New SharePoint Site page. We will use Team Site 2.

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7. Change the ImageUrl to `/_layouts/images/CPVW.GIF`. This is the lorem ipsum image and will remind you that later you will want to put a screen shot of the home page or some meaningful image here for your users to see what they will get if they choose this configuration.
8. Change the Description so, once again, the end user will understand what they will get if they choose this configuration.
9. Finally, either choose one of the existing DisplayCategory tabs: Collaboration, Meetings, and Enterprise, see figures 17.6 to 17.9 or choose some other text to create a new tab. If the tabs get too wide to easily fit in the screen new rows will be created for the tabs. We will use Custom for the DisplayCategory.

17.3.4 Clearing the cache

When the MOSS Web Application first parses the `webtemp*.xml` files in the `..\12\TEMPLATE\LCID\XML` directory of the 12 Hive it caches the results. So, subsequent modification of those files is not reflected in the user interface until the cache is cleared. The easiest way to clear the cache is to run an `iisreset` from the IIS user interface or from a command prompt. Then wait 15 to 45 seconds.

However, recycling the application pool is all that is required to clear the cache and it takes far less time. You can do this by right clicking on the Application Pool in IIS and choosing Stop and subsequently choosing Start. Or, presuming that you have Windows Server 2003 Service Pack 1, you can run the following command from a shortcut:

```
%systemroot%\system32\iisapp.vbs /a SharePointAppPool /r
```

Assuming that SharePointAppPool is the Application Pool that your MOSS IIS Web site is using, IIS will stop and start the pool effectively clearing the cache in less than one second.

17.3.5 Viewing your custom Site Definition in the user interface

Now we have created our custom site definition, let's check that it is installed.

1. Open the browser to any SharePoint Web site. Choose Create from the Site Actions menu and choose Sites and Workspaces from the Web Pages section on the far right of the Create Page.
2. Scroll down to the Template Selection section and choose the Custom tab, see figure 17.11.

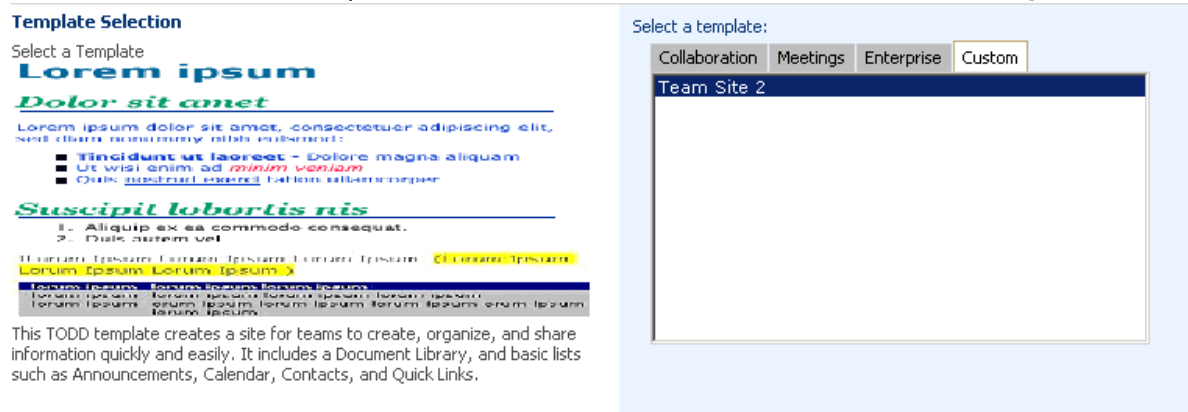


Figure 17.11: Custom tab: Template Selection section of the New SharePoint Site page

17.3.6 Customizing your custom Site Definition

If we created a new Web site right now we would essentially have a Team Site. That is because we copied the sts Site Definition but haven't made any modifications to it yet. So, Navigate to the 12 Hive's `..\12\TEMPLATE\SiteTemplates\[YourSiteDefinition]\XML` where `[YourSiteDefinition]` is the name that you gave to the new folder in the first step (we used STS2). Edit the `ONET.XML` file in your text editor of preference. If using VS.NET, press F4 and associate the file with the `..\12\TEMPLATE\XML\wss.xsd` and you will get Intellisense for the CAML elements and attributes. This can be very helpful.

NOTE

The `ONET.XML` file is primarily used when a new site is being provisioned. So changes made to the `ONET.XML` file typically won't be applied after a Site is provisioned. Therefore, we recommend implementing these changes as

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early in your MOSS deployment as possible. Remember, alterations to the Microsoft installed Site Definitions are not recommended.

Since you own the STS2 ONET.XML file, you can edit it at will. As we saw earlier in this chapter, there are several sections that you can modify. Let's start with the Project element.

In our opinion, the following enhancements to the Project element of the ONET.XML file should have been included in the Site Definitions installed by Microsoft, but alas, they are not. The consequence of this omission is only far reaching (farm wide) alterations to Microsoft owned SharePoint system files such as core.css and core.js (which isn't recommended), Master Pages are the only way to alter the appearance and behavior of WSS Sites using CSS and JavaScript. We think that the following alterations should be implemented on every custom Site Definition, even if you don't intend to override anything right away. Having the option to add overrides may be priceless. Consequently, we recommend alternate .CSS and .JS files should usually be specified, even if nothing is initially overridden in the alternate custom files. Specifying these alternates on a Site Definition by Site Definition basis provides the most flexible future option for both anticipated and unanticipated local customizations of MOSS Web sites. However, it's important to establish these overrides before these Web sites are templated.

17.3.7 Defining an AlternateCSS file to override default, farm-level styles

The look and feel of the built-in user interface is primarily managed using cascading style sheets (CSS). One concept of cascading styles is that the last style defined on a page will be the one used. So having the ability to override the CSS styles at the Site Definition level presents a wonderful way to customize the default look and feel of a given subset of your sites. In short, your SharePoint sites doesn't have to look "SharePointy" nor do they all have to share a common, farm-specified look and feel.

Steps to implement an AlternateCSS file:

1. Open the ONET.XML file found in your new STS2 Site Definition: 12 Hive's ..\12\TEMPLATE\SiteTemplates\STS2\XML\ONET.XML. If you don't find an STS2 directory, you have to complete the steps in the previous section.
2. Add a root relative AlternateCSS attribute to the Project element in the STS2's ONET.XML file like this:

```
<Project
  AlternateCSS="/_layouts/Custom/STS2/core.css"
```

This element indicates that MOSS is to use an alternate .CSS file found in an STS2 subdirectory, same name as your Site Definition, in a subdirectory called Custom in the _layouts virtual directory. The home directory defined for _layouts in IIS as the 12 Hive's ..\12\TEMPLATE\LAYOUTS directory.

By creating a subdirectory called Custom in the _layouts virtual directory, you establish one centralized location where you can store all your custom files. This is far greater manageable than placing your custom files alongside the ~500 Microsoft-owned files in the LAYOUTS directory as is frequently suggested. This single subdirectory called Custom can contain all common and Site Definition-specific files that can be accessed from every MOSS Web site. By creating a subdirectory called STS2 in the subdirectory called Custom, you can isolate those files that are specific to the STS2 Site Definition.

NOTE

We recommend you implement separate override files for each new Site Definition, even if they're initially the same as other override files. Any override redundancy is typically worth the cost of maintaining multiple copies because it enables Site Definitions that are coincidentally common today to be divergent in the future.

3. Create a subdirectory called Custom in 12 Hive's ..\12\TEMPLATE\LAYOUTS directory and within that a subdirectory called STS2. This centralizes all files you add outside your Site Definition into a common URL accessible location. You can store global files in the root of the Custom subdirectory, while you can store Site Definition-specific files in the STS2 subdirectory. We typically put most files into the Site Definition subdirectory even if they could theoretically be considered common so we have the option of altering them on a Site Definition-by-Site Definition basis should the need arise.
4. Add a text file to the new STS2 directory and call it core.css. We like to give the override file the same name as the file it will most likely be overriding, but you can give this file any name as long as it's properly referenced by the AlternateCSS element and ends with a .CSS extension.
5. Unfortunately, the built-in ASPX pages will render each page using either the default, farm-level core.css file located in the /_layouts/1033/styles directory OR, if defined, the custom .CSS file called core.css now

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in the `/_layouts/Custom/STS2` directory. We would have preferred for them to let them cascade, but they don't. So alter the contents of the new `core.css` file to include the following import of the farm-level styles:

```
@import URL("/_layouts/1033/styles/core.css");
```

NOTE

We're currently unaware of a way to localize this use of 1033.

Using this import approach, the default, farm-level styles will always be used before any styles you define in the custom `.CSS` file. This step enhances all Sites provisioned using this `ONET.XML` with an override file for CSS styles at the STS2 Site Definition level. You can do this by putting style code after the import code directly into the custom `core.css` file found in the 12 Hive's `..\12\TEMPLATE\LAYOUTS\Custom\STS2` directory. Also, because you now own all the files in the STS2 Site Definition, you can alter the Master Page at will. This includes placing in-line style overrides on any ASPX Page you wish.

17.3.8 Defining a custom JavaScript file to override client-side script

The behavior of the built-in user interface is frequently initiated using client-side JavaScript. Like CSS, the last JavaScript function defined on a page will be the one used. So having the ability to override the JavaScript at the Site Definition level gives you a great way to customize the default behavior for all Sites provisioned using that custom Site Definition.

For example, you may want to use this capacity to override some default platform behavior or just include JavaScript that your solution needs. Steps to implement a `CustomJSUrl`:

1. Again, open the `ONET.XML` file in your new STS2 Site Definition: 12 Hive's `..\12\TEMPLATE\SiteTemplates\STS2\XML\ONET.XML`. If you don't find an STS2 directory, you have to complete the steps in the previous section.
2. Add a root relative `CustomJSUrl` attribute to the `Project` element in the STS2's `ONET.XML` file like this:

```
<Project
  CustomJSUrl="/_layouts/Custom/STS2/core.js"
```

Similar to the `AlternateCSS`, this element indicates that MOSS is to use an alternate JavaScript file found in an STS2 subdirectory (same name as your Site Definition) in a subdirectory called `Custom` in the `_layouts` virtual directory.

1. Using the subdirectory called STS2 in the 12 Hive's `..\12\TEMPLATE\LAYOUTS\Custom` directory created in the `AlternateCSS` step, add a text file to the new STS2 directory and call it `core.js`. Again, we like to give the override file the same name as the file it will most likely file be overriding but you can give it any name you want as long as it's properly referenced by the `CustomJSUrl` element and ends with a `.JS` extension. This file will initially be empty.
2. Fortunately, nearly every page in the entire Site Definition already references this file so you can now choose to implement JavaScript that will be available ubiquitously.

NOTE

In a world where client-side, AJAX-style behavior are becoming more and more commonplace, having a common JavaScript file that is included on every instance page created from your Site Definition will potentially be very helpful. But only Web sites that are provisioned after this element is in place will use the file. So we recommend implementing this change as early in your MOSS deployment as possible.

This step enhances the Web sites provisioned using this `ONET.XML` with an override file for JavaScript styles at the STS2 Site Definition level. You can do this by putting script code directly into the custom `core.js` file found in the 12 Hive's `..\12\TEMPLATE\LAYOUTS\Custom\STS2` directory. Also, because you now own all the files in the STS2 Site Definition, you can also place in-line script overrides on any ASPX Page you wish.

17.3.9 Defining the default Title for provisioned Sites

Of course, you may want to choose a Title value that suits your purposes. The Title is a static value that will be consistently applied to every Site created using this Site Definition.

Steps to specify a custom Title:

1. Again, open the `ONET.XML` file in your STS2 Site Definition: 12 Hive's `..\12\TEMPLATE\SiteTemplates\STS2\XML\ONET.XML`. If you don't find an STS2 directory, you have to complete the steps in the previous section.

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2. Alter the Title attribute to STS2's ONET.XML file to reflect the value you want to see when a new Site is provisioned:

```
<Project
  Title="STS2 Web Site"
```

I usually use the default values for the ListDir because they're intuitive and embedded throughout WSS.

With these changes to the Project element in place, your ability to alter your site's style and behavior is significantly enhanced.

17.3.10 Modifying the Web site's navigation

There are now lots of ways to modify the navigation of your MOSS Web site. Adding a NavBar element to the NavBars section of the ONET.XML will make that link container available for placement on ASPX pages. However, Navigation can now be modified through the user interface, through markup on .aspx pages, or using types and members of the Microsoft.SharePoint.Navigation namespace.

The following list describes several ways that you can improve site navigation:

- Security trimmed links: Link trimming makes specific links available only to user's in certain roles.
- Breadcrumbs: Give users additional information about their location within a hierarchy of Web sites.
- Top/Left navigation bar customization: Add and remove static links to the existing navigation bars thru the browser, add JavaScript drop-down menus and fly-outs menus via Master Pages.

NOTE

Non-static options like flyout menus can only be enabled by modifying a Master Page; there is no browser-based or out-of-box support for enabling these type of menu options.

- Common navigation bars: New in MOSS, navigational controls such as the SiteMapPath, Menu, and TreeView controls can all be managed on Master Pages.

17.3.11 Modifying the ListTemplates and DocumentTemplates elements

You will probably notice that the ListTemplates section of the ONET.XML file is empty. In the past, this would have contained all of the lists and libraries that would show on the Create Page. We learned earlier that the GLOBAL Site Definition is only defining hidden galleries. So, where are all the lists that show on the Create Page being defined? The answer will come in the Configurations section.

The DocumentTemplates section is pretty much the same as it was in the previous release of SharePoint. It defines the metadata regarding the binary documents that can be used as the basis for a new document in a document library. If you have special documents that you would like end users to be able to create new document from, you'll want to add a DocumentTemplate element.

17.3.12 Modifying the Configurations elements

The Configuration element is the crux of the custom Site Definition. It determines which lists will be provisioned, which modules will run, and which features will be activated. There are four Configuration elements defined in the ONET.XML that we copied. They represent the four original Configurations in the sts Site Definition. Their original IDs and purposes follow:

- -1: This Configuration represents Web sites for which no Configuration has been chosen.
- 0: This Configuration represents the STS Team Site
- 1: This Configuration represents the Blank Site
- 2: This Configuration represents the Document Workspace

Since the webtemp_STS2.xml file that we create only had a entry for a Configuration with an ID="0", we don't need configurations 1 and 2; they can be deleted. We will focus on configuration with an ID="0":

- SiteFeatures element: Skip past the List elements and the Module element to the SiteFeatures element first. The only Feature activated when the Web site being provisioned is a new top-level Web site is Feature 00BFEA71-1C5E-4A24-B310-BA51C3EB7A57. Fortunately, Microsoft left us a comment that identifies this as the BasicWebParts Feature. In essence, this is a Module encapsulated in a Feature.

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You can find the BasicWebParts Feature in the 12 Hive's ..12\TEMPLATE\Features\BasicWebParts directory of the 12 Hive. This feature is used to load the non-list Dashboard Web Parts (dwp) files into the Web Part Gallery of every top-level Web site.

TIP

To find a Feature when all you know is the Feature ID, search the contents of all the files in the ..12\TEMPLATE\Features directory of the 12 Hive. This should help find the XML file that defines the feature you are looking for.

- **WebFeatures:** The TeamCollab Feature will be activated on every Web created from this Configuration. This feature is found in the ..12\TEMPLATE\Features\TeamCollab directory of the 12 Hive. It is used to define all the lists that will be on the Create Page of a Web site that users can collaborate on. This Feature will be explained in the final section of this chapter.
- **List elements:** Back up to top of the Configuration element. By default, there are six list instances that will be created when this Configuration is chosen: Shared Documents library, Discussion Board list, Announcements list, Links list, Events list, and Tasks list. Only the Feature ID and Type are provided for these lists. The TeamCollab Feature will define the lists so that an instance of each list identified can be created here.

NEW FEATURE

There is a default data row for the Announcements list that will be provisioned. While the previous version of SharePoint also generated a data row for an Announcements list provisioned with a Web site. It was defined in the SCHEMA.XML file in the Announcements list definition. This scope of this definition has been changed to where the list is provisioned rather than where it is defined. This makes it possible to have more than one set of default data for each list provisioned. A huge improvement.

By default, every Team Site provisioned contains a Shared Document Library. At first this seems helpful. However, it doesn't take too many Sites that all have a Library with the same name before users begin to see just how confusing this can be. Browsing My Network Places in Windows Explorer can be daunting when there are dozens of shortcuts to all those "Shared Documents" Libraries. Or say you ask someone where they uploaded a given document and they retort that they put it into the Shared Document Library of some site but they don't remember which one. Something like SharePoint Portal Server had better be crawling the Site or you may be searching for some time.

For years now we've been creating subdirectories for users to store documents on network file shares. We name these file shares based on the type of information that will be kept in the store. The same should be true of a SharePoint Document Library. Wouldn't it be better if you put requirements into a Document Library called "Requirements" or procedures in a Document Library called "Procedures"?

With that in mind, we typically recommend you remove the Shared Documents Library from being automatically created. Then the user can create a Document Library when he needs one and he can decide what to call it based on what he intends to store in it.

There's another problem with the Shared Documents Library as well as the General Discussion List. Both lists contain a space in the Url and QuickLaunchUrl fields (see the No Spaces in URLs Please sidebar). These names are now defined and editable in the core.en-US.resx file found in the ..12\Resources directory of the 12 Hive.

If you also wanted to create an Issues list you would look in the TeamCollab Feature to see what the Feature ID would be for an Issues list. You would have to determine that Feature ID 00BFEA71-5932-4F9C-AD71-1557E5751100 is defined in the issueList folder. You would look in the XML files that define the Issues list to determine that the Type is 1100. You would have to look in the ..12\Resources\core.en-US.resx file to determine which string to use for the Issues list Title, Url, and QuickLaunchUrl (see the No Spaces in URLs Please sidebar). Then you could add a new list element that looks something like the following code:

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```
<List FeatureId="00BFEA71-5932-4F9C-AD71-1557E5751100"
Type="1100"
Title="$Resources:core,issuesList;"
Url="$Resources:core,lists_Folder;/$Resources:core,issues_Folder;"
QuickLaunchUrl="$Resources:core,lists_Folder;
/$Resources:core,issues_Folder;/AllItems.aspx" />
```

This will create an instance of the Issues list in our custom Site Definition's Configuration.

- Module element: The only module called by this configuration is the Default module. It is defined in the next section.

17.3.13 Modifying the Modules elements

Modules are used to do one of two things:

1. Define ASPX pages in the newly provisioned Web site and the Web Parts that will initially be in their Web Part Zones.
2. Virtually copy physical files into document libraries (typically galleries) so that the file system version of the file appears to be in the library (GhostableInLibrary). If the end user customizes the virtual file it becomes a physical blob in the content database.

There are three Module elements defined in the ONET.XML that we copied. They represent the original Modules in the sts Site Definition. Their original purposes follow:

- Default: This Module defines the home page of the Web site and all the Web Parts that will be on it. It also defines that it will be the Home link on two Nav bars.
- DefaultBlank: This Module defines the home page for the Blank Site Configuration.
- DWS: This Module defines the home page for the Document Workspace Site.

Those last two modules were called by the Configurations that we deleted, so the modules can be deleted too.

To add a List View Web Part for the Issues List that we added to Configuration ID = "0", you add the following View element just above the AllUsersWebPart:

```
<View
List="$Resources:core,lists_Folder;
/$Resources:core,issues_Folder;" BaseViewID="0"
WebPartZoneID="Left" WebPartOrder="3" />
```

Save all the files, exit all the editors, stop and start the Application Pool, we're finally ready to try out our new Site Definition.

TIP

Since there are limited debugging tools, we suggest taking a Pac Man approach to Site Definition development. Bite off small bits of the development work and test each bit as you go along. Otherwise, you could get to the end of the work and the entire Site Definition could fail. The error handling doesn't provide very good descriptions about what went wrong so you end up removing little bits until you discover the bad one. Better to test often while you are building rather than testing over and over again by tearing down.

17.3.14 Creating a new Web site from our custom Site Definition

Time to test out the new custom Site Definition:

1. Open the browser to any SharePoint Web site. Choose Create from the Site Actions menu and choose Sites and Workspaces from the Web Pages section on the far right of the Create Page.
2. Type a name for the Title, Description, and URL (see the No Spaces in URLs Please sidebar for details on some simple rules to follow).
3. Scroll down to the Template Selection section and choose Team Site 2 from the Custom tab.
4. Click the Create button and MOSS will proceed to provision an instance of the Web site you defined in your custom Site Definition (see Figure 17.12 and 17.13).

Please post comments or corrections to the Author Online forum:

<http://www.manning-sandbox.com/forum.jspa?forumID=459>

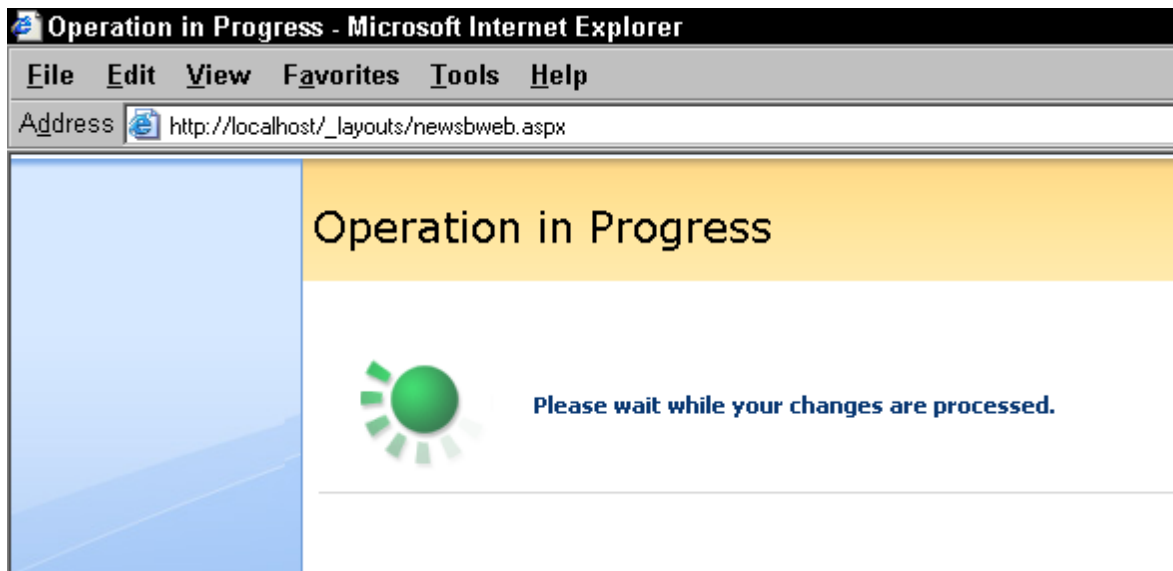


Figure 17.12: Long running process in MOSS

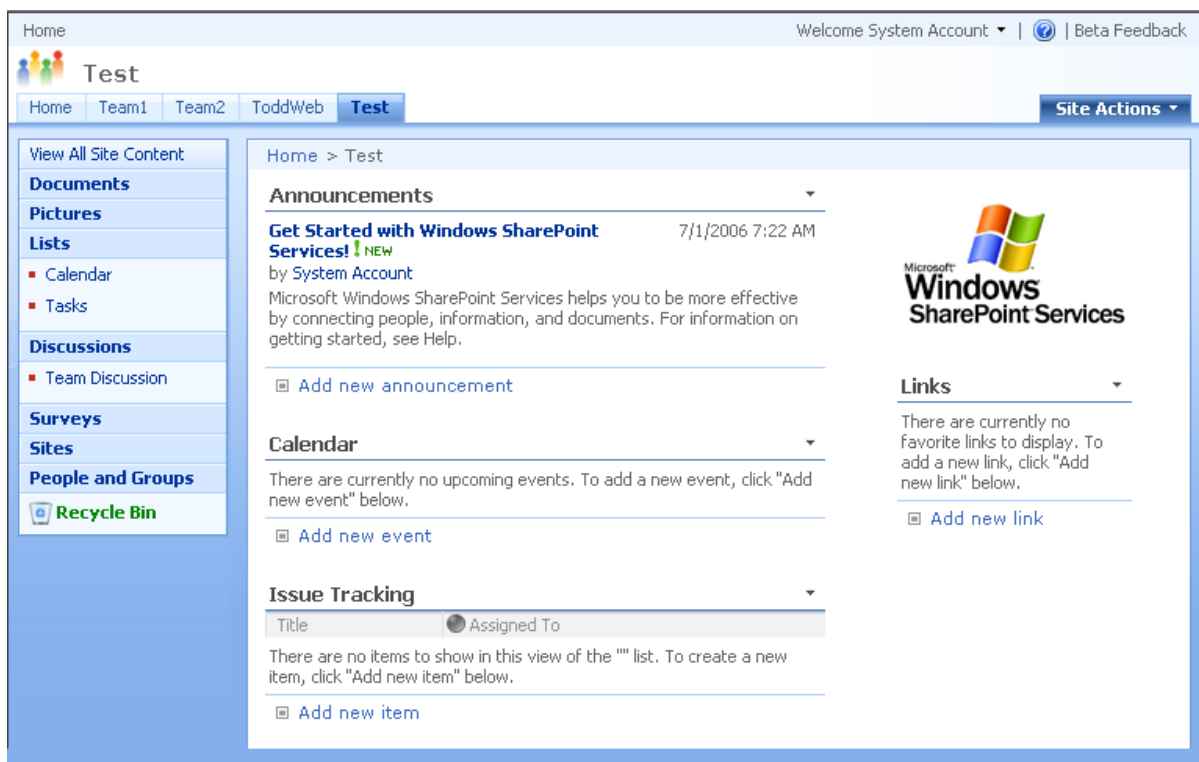


Figure 17.13: Home page of Test Web site based on custom Site Definition

Notice the absence of a Shared Documents link under the Documents section of the Quick Launch. Also notice the presence of the Issue Tracking Web Part at the bottom of the Web Part page. Those are some of the changes that we wanted to see happen in our custom Site Definition.

Please post comments or corrections to the Author Online forum:

<http://www.manning-sandbox.com/forum.jspa?forumID=459>

17.4 Custom Templates

Custom templates are used in WSS v2 as a simple way to take a snapshot of a list or Web site and store the metadata and data alterations to a Site Definition in a CAB file with an STP extension. The captured, customized Site Definition will contain all the Web Part Pages, Web Parts on those pages, lists, and document libraries and optionally data based upon the way the instance Web site that was used to create it the moment it was created. This is accomplished by the end user using a browser. They simply browse to a MOSS Web site (obviously based on an existing Site Definition with a specific LCID and ID) that does what they want it to do and save it as a Site Template. This can be done for a list too.

These snapshots of metadata and data can be shared with other Site Collections or even other SharePoint farms as long as the underlying Site Definition with the same LCID and ID is present on the farm.

17.4.1 Saving and using a site template

After working with a MOSS Web site for a while you may want to save it just the way it is so that it can be recreated over and over again. MOSS facilitates this business need by letting the people designated as Owners save a Web site as a custom template. Custom site templates are a way of packaging up a set of changes to an existing Site Definition and making that package available as a template for new sites and lists. These custom templates behave in much the same way that the built-in Site Definition Configurations do in that they show up in the Template Selection section of the New SharePoint Site page and they provision Web Part Pages, Web Parts, lists, and document libraries best suited for the purpose of the template. In fact, everything in a Web site, except security related information is saved in a custom site template, including its theme and navigation. You can even optionally retain the data in all the Web site's lists and document libraries.

NOTE

By default, there is still a 10 MB limit on the total size of any custom template. It is configurable up to 500 MB. This is far greater than the absolute 10 MB limit imposed on previous custom template files.

Every custom template is based on an underlying Site Definition and saved as a file in the site collection site gallery document library in the root of the site collection.

On the CD-ROM: The STP files on this book's CD-ROM were created from the built-in sts Site Definition so that they will work in your environment.

Once saved, a custom site template is made immediately available throughout the entire site collection in which it was saved. When creating a new child site, any user that is associated with one of the default site groups (excluding the Guest site group) in the top-level site will see the saved custom site template as an option on the Template Selection page. To use a custom site template when creating a new top-level site from SharePoint Central Administration it must be placed into the central template gallery using a command line tool on the Web server rather than just in the site collection site gallery.

To save a Web site as a custom Site Template in the top-level Web's Site Template Gallery:

1. Choose Site Settings from the Site Action menu.
2. Choose Save site as template from the Look and Feel section of the Site Settings page.
3. Click Save site as template in the Management and Statistics section to display the Save Site as Template page, see figure 17.14.

Please post comments or corrections to the Author Online forum:

<http://www.manning-sandbox.com/forum.jspa?forumID=459>

Home > Site Settings > Save as Template

Save Site as Template

Use this page to save your Web site as a site template. Users can create new Web sites from this template.

File Name Enter the name for this template file.	File name: .stp
Name and Description The name and description of this template will be displayed on the Web site template picker page when users create new Web sites.	Template name: Template description:
Include Content Include content in your template if you want new Web sites created from this template to include the contents of all lists and document libraries in this Web site. Including content can increase the size of your template. Caution: Item security is not maintained in a template. If you have private content in this Web site, enabling this option is not recommended.	☐ Include Content

OK Cancel

Figure 17.14: Save Site as Template page

4. Type a file name like ModifiedTeamSite in the File name textbox to establish a name for the STP file.
5. Type a template name like "Modified Team Site Template" in the Template name textbox to establish the name that will show in the list of templates to choose from on the Template Selection section of the New SharePoint Site page.
6. Type a description like: "Cool blue site for team meetings" in the Description textbox to help Web site creators understand the intended purpose of the custom site template.
7. Optionally choose to Include Content or not by checking the checkbox or not.
8. Click the OK button to save the custom site template into the site collection site template gallery and display the Operation Completed Successfully page, see figure 17.15.

Please post comments or corrections to the Author Online forum:

<http://www.manning-sandbox.com/forum.jspa?forumID=459>

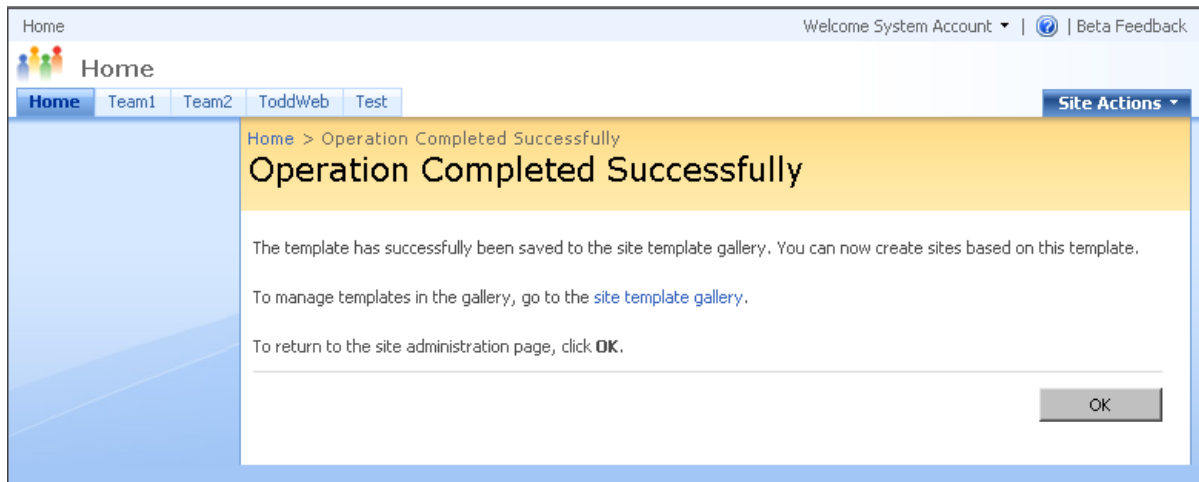


Figure 17.15: Operation Completed Successfully

TIP

If you want to see where the custom site template was placed you can click on the site template gallery link on the Operation Completed Successfully page.

9. Click the OK button to acknowledge the page and redisplay the Site Settings page.
- To create a Web site from this newly saved custom site template:
1. Choose Site Settings from the Site Actions menu to display the Site Settings page.
 2. Choose Sites and workspaces in the Site Administration section to display the Sites and Workspaces page.
 3. Click Create on the toolbar to display the New SharePoint Site page.
 4. Type a title like: "Important Meeting" in the Title textbox to establish a display name for the new site.
 5. Type a description like: "Web site for that important meeting" in the Description textbox to help users understand the purpose for the new site.
 6. Type a URL name like: ImportantMeeting for a Web Site Address into the URL name textbox (see No Spaces in URLs Please sidebar).
 7. Keep the default permissions; Use same permissions as parent site.
 8. Keep the defaults for all the Navigation options.
 9. Under the Collaboration tab of the Template Selection section you should see a new option called Modified Team Site, see figure 17.16. Also notice that the description we gave to the custom site template is displayed below the image.

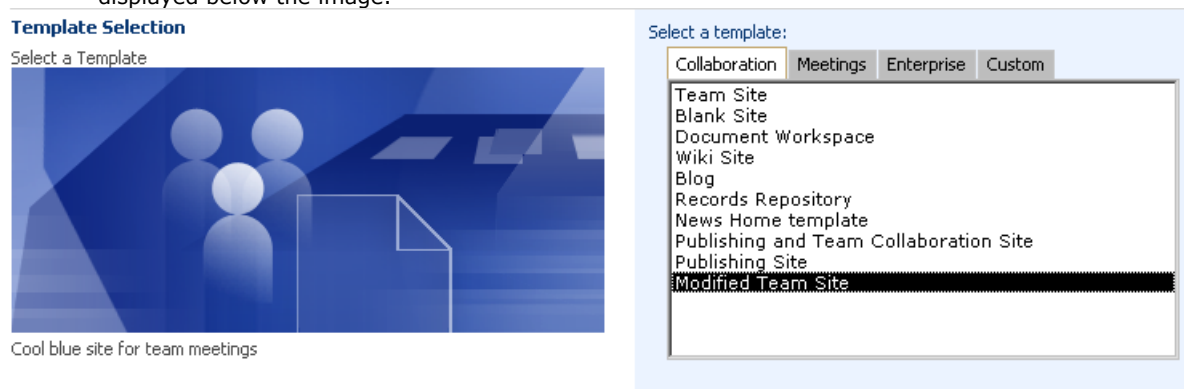


Figure 17.16: Modified Team Site

TIP

It is displayed under the Collaboration tab because that is where the Site Definition Configuration that it was based upon was displayed.

Please post comments or corrections to the Author Online forum:

<http://www.manning-sandbox.com/forum.jspa?forumID=459>

10. Click the Create button to provision the new Web site.

The new Important Meeting Web site will be identical to the original Modified Team Site Web site.

17.4.2 Saving and using a list template

After you have placed a lot of effort into customizing a list so that it meets your specific needs, you may want to save that effort in a way that it can be used just like one of the built-in MOSS list templates. Fortunately, this is very easy to do.

You can optionally include content in the list template if you want new lists created from to include the list items. Of course, including content can increase the size of the template.

NOTE

Again, there is a 100 MB limit on the total size of any custom template. It is configurable up to 255 MB. This is far greater than the 10 MB limit imposed on previous custom template files. Also remember, list item security is not maintained in a custom list template.

Assume that we've made changes to the Tasks list that we would like to be made available on the list Create page. We would use the custom list template to create a new list whenever we needed our special changes to be available. The custom list template will be a snapshot of our current list with the same content types, site columns, list columns, list views, and optionally the same data.

To create the custom list template:

1. Navigate your browser to the list that you would like to save (in this example we will just use the existing Task list so we clicked on Tasks in the left nav of an out of the box Team Site).
2. Choose List Settings from the Settings drop-down menu in the toolbar.
3. Choose Save list as template in the General Settings section to display the Save as Template: Tasks page.
4. Type a file name like: ModifiedTasksList in the File name textbox. This is the name of the STP file that will be saved into the List Template Gallery for the entire site collection.
5. Type a template name like "Modified Tasks List Template" in the Template title textbox. This is the name that will be displayed on the list Create page.
6. Type a description like: "Create a modified tasks list when you launch any campaign." in the Template description textbox. This is the description that will show below the name on the list Create page.
7. Optionally choose to Include Content or not by checking the checkbox or not.
8. Click the OK button to save the custom site template into the site collection site template gallery and display the Operation Completed Successfully page, very similar to Figure 17.17.
9. Tip: If you want to see where the custom list template was placed you can click on the list template gallery link on the Operation Completed Successfully page.
10. Click the OK button to acknowledge the page and redisplay the original list Customization page.

To create a new list based upon the saved list template:

1. Choose Create from the Site Actions menu to display the Create page, see Figure 17.17.

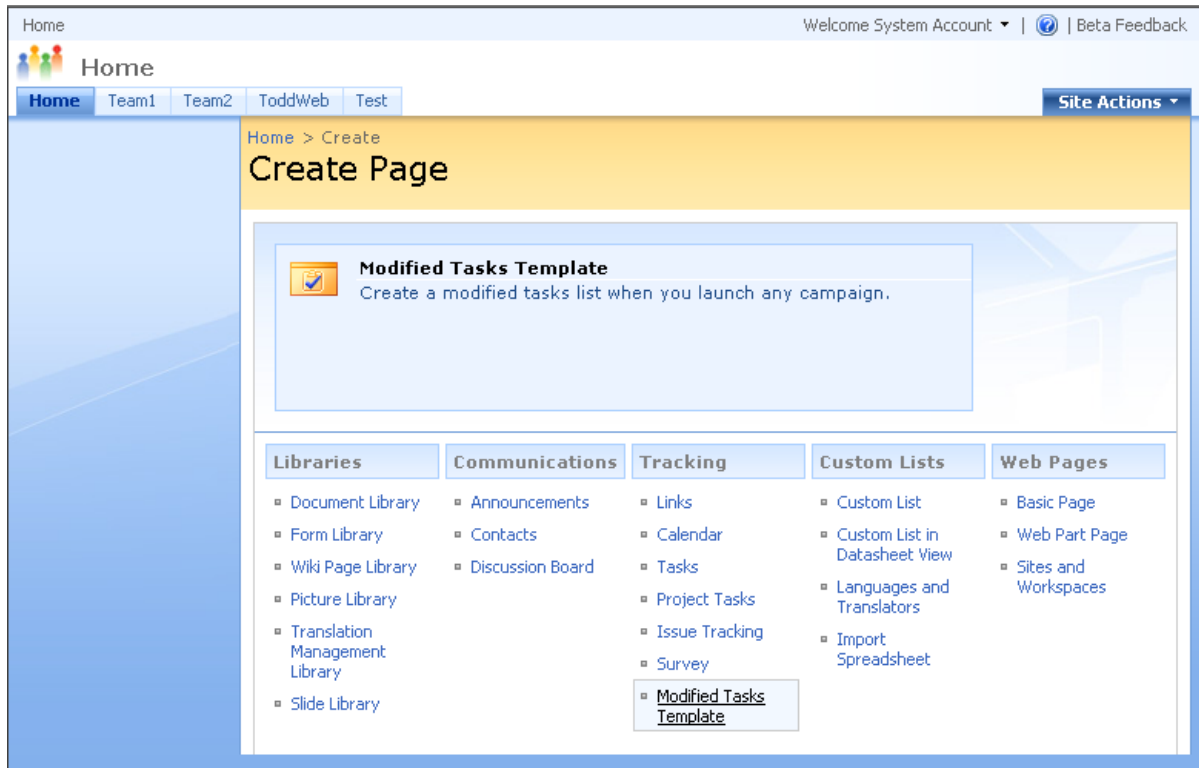


Figure 17.17: Modified Create Page

NOTE

The Modified Tasks Template was placed into the same section on the Create Page as the Tasks list from which the snapshot was taken. Also, the name and description we gave the custom list template are shown at the top of the page as we mouse-over the new option.

2. Choose Modified Tasks Template to create a new list based upon the custom list template that we saved and display the New List page.
3. Type a name like: 2006Tasks in the Name textbox.
4. Type a description like: "Fall campaign tasks." in the Description textbox.
5. Optionally, leave Yes selected for Quick Launch display.

Please post comments or corrections to the Author Online forum:

<http://www.manning-sandbox.com/forum.jspa?forumID=459>

Home

Welcome System Account | Beta Feedback

Home Team1 Team2 ToddWeb Test Site Actions

Home > Create > New

New

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 list.

Name:

Description:

Navigation

Specify whether a link to this list appears in the Quick Launch.

Display this list on the Quick Launch?

☒ Yes ☐ No

Create Cancel

Figure 17.18: New List Page

6. Click Create to provision the new list and display the 2006Tasks default list view page.
7. Optionally, rename the list by choosing List Settings from the Settings drop-down menu in the toolbar to display the Customize 2006Tasks page.
8. Choose General settings at the top of the General Setting section to display the List General Settings: 2006Tasks page.
9. Replace 2006Tasks (no space between the words) by typing 2006 Tasks (see the space) in the Name textbox.
10. Click Save to commit the name change and display the Customize 2006 Tasks page.
11. Choose "2006 Tasks" from the breadcrumb at the top of the page to redisplay the 2006 Tasks default list view page, see figure 17.19.

Please post comments or corrections to the Author Online forum:

<http://www.manning-sandbox.com/forum.jspa?forumID=459>

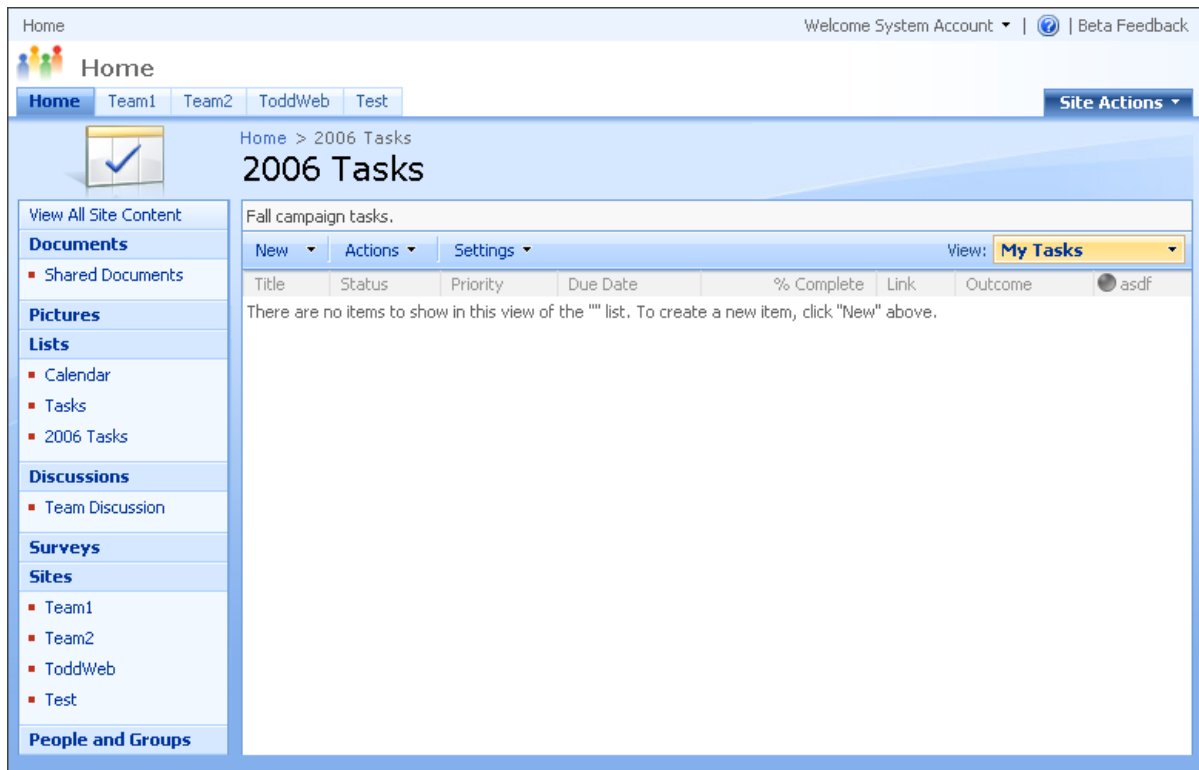


Figure 17.19: New 2006 Tasks List

NOTE

Changes made to the original Tasks list will not affect this new 2006 Tasks list and vice versa. You would use Content Types to keep metadata changes consistent across these lists. Changes also do not affect the custom list template stored in the gallery. It is possible to resave the list over the existing list template effectively updating it.

17.5 Summary

MOSS is quite extensible. In this chapter, we covered the underlying foundation upon which all Web sites rest, the Site Definition. We explored creating your own custom site definition and the incredible opportunity that opens the doors to creating your own custom applications. Subsequently we discussed how you can take snapshots of your Web sites and lists so that others can benefit from the way that you have customized them.