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# Microsoft SharePoint 2013

# Microsoft SharePoint 2013

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For Intermediate and  
Advanced Users

### About the Authors

**Darvish Shadravan**, Senior SharePoint Technology Specialist at Microsoft, is the coauthor of *Using Microsoft InfoPath 2010 with Microsoft SharePoint 2010 Step by Step*.

**Penelope Coventry**, Microsoft MVP for SharePoint Server, has written several books on SharePoint, including *Microsoft SharePoint Server 2010 Administrator's Companion*.

**Thomas Resing** is a SharePoint MVP, Microsoft Certified Master (MCM) in SharePoint 2007, and MCTS in SharePoint 2010, Configuration.

**Christina Wheeler**, MCTS, is a SharePoint consultant and trainer. With more than 10 years of experience in the industry, she is a frequent speaker at SharePoint conferences.

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Microsoft SharePoint/Collaboration





# Microsoft SharePoint 2013 Inside Out

Darvish Shadravan  
Penelope Coventry  
Thomas Resing  
Christina Wheeler

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*This book is dedicated to my four amazing children:  
Hannah, Sydney, Devin, and Zoe. Being your daddy is the  
most magnificent opportunity life has presented to me.*

—DARVISH SHADRAVAN

*I dedicate this book to my lifelong friend and sister, Paula,  
together with her husband, Bruce. They may be far away, but  
they are close to my heart.*

—PENNY COVENTRY

*To the love of my life, Kerri, and my daughter, Elise. I love you  
and couldn't have done this without your support.*

—TOM RESING

*I dedicate this book to my wonderful and amazing daughter,  
Kiana. She is such a blessing in my life and I couldn't imagine my  
life without her.*

—CHRISTINA WHEELER





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# Introduction

Welcome to *Microsoft SharePoint 2013 Inside Out*, the definitive guide to working with Microsoft SharePoint 2013. SharePoint has been helping teams stay connected and work smarter for over a decade—and the 2013 version builds on that legacy with a plethora of new capabilities and improvements to many of the existing features. With SharePoint 2013, you have at your fingertips the most powerful web-based platform on the market. The capabilities SharePoint 2013 provides are numerous; some of the areas of functionality you will learn about in this book are:

- Document and web content management
- Designing SharePoint websites
- Enterprise search
- Business intelligence (BI) and reporting
- Workflow
- Business forms
- Enterprise social networking

## Who this book is for

This book offers a comprehensive look at most of the major features contained within SharePoint 2013. The most likely readers of this book go by many names—power user, site owner, business analyst, web designer, and so forth. The book is intended for both business and technical people who need to accomplish meaningful tasks with SharePoint. It will be most useful for readers who have some experience with prior versions of SharePoint, but that is certainly not a prerequisite. Although there is some administration and development content within various chapters, this book is not aimed specifically toward SharePoint farm administration or heavy custom development; Microsoft Press has other SharePoint books that cover those areas in depth.

This book serves both as an introduction to each subject and as a comprehensive reference. It will help you use the features of SharePoint to accomplish business and technical goals. In addition, this book goes a step or two further, providing useful information to advanced users who need to understand technical strategies that work in the real world. In this book, distinctions are not made for different versions of SharePoint; most of what is covered applies to all versions: Foundation, Standard, Enterprise, and SharePoint Online.

**Note**

To get the most out of this book, you will need access to an installation of SharePoint 2013, either in your data center or in the cloud with Microsoft Office 365.

## How this book is organized

This book is designed to provide a comprehensive and practical guide to a majority of the out-of-the-box features in SharePoint 2013. The early chapters in the book are applicable to nearly everyone who is going to use SharePoint 2013 in their organizations. As the book continues, some of the topics become more specialized. However, the book is not structured in a sequential or linear way; in other words, each chapter stands on its own as a general reference when you need to learn about a particular topic. Feel free to read the book cover to cover if that suits your needs, or head straight to a relevant chapter when you need to dive into a particular capability.

Chapter 1, "Introducing SharePoint 2013," provides a high-level overview of the six major workloads of SharePoint: Sites, Communities, Content, Search, Insights, and Composites. It discusses what is new in SharePoint 2013 and how the features and capabilities map to particular business scenarios such as Sharing, Organizing, and Discovering. This chapter also introduces the concept of SharePoint as a cloud-based service.

Chapter 2, "Administration for business users," breaks down the administration of SharePoint into two categories: Business User Administration and Information Technology Professional Administration. The chapter covers a variety of administrative tasks that advanced users or site owners would typically perform. Topics covered include security, the physical and logical architecture of SharePoint, storage, and more.

Chapter 3, "Working with list and library apps," is an entire chapter dedicated to using lists and libraries, which are the primary repositories for documents, tasks, and most other SharePoint artifacts. The chapter covers creating, modifying, securing, and designing List and Library apps so that you can put them to work storing and presenting your content in the most effective manner possible.

Chapter 4, "Working with collaboration sites," delves into the most popular type of site in SharePoint: team sites. In this chapter, you will learn all about the team collaboration capabilities in SharePoint 2013 team sites, including task management, shared Microsoft OneNote notebooks, and SkyDrive Pro.

Chapter 5, "Using Office applications with SharePoint," explores the myriad of ways that the Microsoft Office client products integrate with SharePoint. In this chapter, you will learn about saving documents to libraries from Office applications, coauthoring, Office Web Apps, Access Services, integrating Microsoft Excel data with SharePoint lists, and much more.

Chapter 6, “Sharing information with SharePoint social networking,” tackles the new enterprise social features available in SharePoint 2013. The primary focus of this chapter is on understanding how to create, customize, use, and moderate the new community sites. In addition, this chapter provides an in-depth look at the personal Newsfeed, which provides aggregation of each user’s view of enterprise social data.

Chapter 7, “Using and creating workflows,” delivers a thorough look at many aspects of SharePoint 2013 workflows. You will learn about methods for designing workflows and the primary products for creating workflows, such as SharePoint Designer and Microsoft Visio. The differences between reusable, site, and list workflows are explained so that you will be fully equipped to add workflow automation to your sites.

Chapter 8, “Planning site content,” looks at the important topic of information architecture and the management of all types of SharePoint content. This chapter dives deeply into how to best design your sites for effectively governing and managing large amounts of content. Special attention is given to ensuring that you understand the differences between managing content on Internet-facing sites versus internal sites.

Chapter 9, “Creating and formatting content pages,” helps you understand how to use the various types of content pages in SharePoint: wiki, publishing, web part, and so forth. After working through this comprehensive look into SharePoint content pages, you will be ready to begin designing and building your own content pages with SharePoint Designer.

Chapter 10, “Adding, editing, connecting, and maintaining web parts,” is all about web parts. SharePoint pages are generally comprised of a number of web parts; therefore, it helps to have a solid understanding of the primary web parts you will use. In this chapter, you will learn what each web part does and how to manage it.

Chapter 11, “Managing documents,” provides a thorough reference to one of the most popular SharePoint capabilities: managing documents. Document management is common in almost every business and organization; therefore, an entire chapter is dedicated to understanding all SharePoint has to offer around this workload. Some of the features covered in this chapter are document sets, record centers, document centers, and document metadata.

Chapter 12, “Designing web content management sites,” is the chapter for those who need to build rich websites in SharePoint with highly customized themes and layouts. As SharePoint has become an increasingly popular platform for hosting intranet, extranet, and Internet sites, the capabilities of SharePoint have had to keep up in order to match customer demand for robust websites. Capabilities covered in this chapter include Design Manager, page layouts, the Content Search web part, and managed metadata navigation.

Chapter 13, “Implementing compliance, records management, and eDiscovery,” covers SharePoint features that help with compliance and the legal requirements for storing,

maintaining, and discovering content. Among other things, in this chapter you will learn about defining retention schedules, the new eDiscovery center, and implementing a records management strategy.

Chapter 14, "Planning for business intelligence and key performance indicators," is the first of three chapters related to BI and reporting. In this chapter, you will learn the basics about how Excel Services, Visio Services, and PerformancePoint all play a role in creating BI and key performance indicators within SharePoint sites. As the chapter continues, thorough coverage is given to installing, configuring, and administration for each of these services.

Chapter 15, "Implementing better business intelligence with Excel Services and SQL Server 2012," picks up where the previous chapter left off. This chapter focuses on the actual process of using BI features to build sophisticated analytics solutions with PowerPivot, Power View, and Excel Services.

Chapter 16, "Building powerful dashboards with PerformancePoint Services," again complements the previous two chapters. While Chapter 15 focused on Excel-based technologies, this chapter is all about PerformancePoint. PerformancePoint is the premier set of enterprise BI tools and web parts in SharePoint. The chapter covers how to use the PerformancePoint Dashboard Designer, how to create PerformancePoint items, and building out dashboards for business users to perform deep data analysis.

Chapter 17, "Working with Visio Services," focuses exclusively on Visio integration with SharePoint. Visio Services allows you to share drawings with users who do not have Visio installed on their computers. The chapter covers Visio web parts, security considerations, connecting shapes to external data, and nearly everything else that a SharePoint power user would ever need to know about Visio Services.

Chapter 18, "Discovering information with SharePoint 2013 Search," introduces the reader to the enterprise search capabilities in SharePoint 2013. You will learn about the new search interface, how search is tightly integrated with different types of content, and the new unified search architecture. In this chapter, you will learn the building blocks of search applications: query rules, result sources, and result types.

Chapter 19, "Creating a customized SharePoint 2013 search experience," takes off where the previous chapter ends: building upon your knowledge of Search. In this chapter, you will be exposed to more advanced topics for building customized search experiences. Display templates, web parts, search verticals, search navigation, and many more topics are covered. A full walkthrough of building a search customization is also included.

Chapter 20, "Creating, managing, and designing sites," takes you on a tour of creating and designing SharePoint sites that go beyond the out-of-the-box templates. In this chapter, you will learn about using SharePoint Designer to create and customize sites. Changing the look of your sites is covered, as are CSS and the creation of custom site templates.



Chapter 21, “Creating enterprise forms,” covers the common business requirement of inputting data into forms and having that information stored in SharePoint. This chapter will help you understand the options for creating forms in SharePoint, such as Access Services, Microsoft InfoPath, and HTML5. You will learn about best practices for designing the forms. The chapter includes guided form design walkthroughs, and sample forms are available on the book’s accompanying website.

Chapter 22, “Working with external content,” delivers a comprehensive look at connecting SharePoint to external data and business systems. Primarily working with Business Connectivity Services (BCS), you will learn how to create secure connections to external data so that you can build powerful composite applications. The tools for building the external connections covered in this chapter include SharePoint Designer and Microsoft Visual Studio.

Chapter 23, “Introduction to custom development,” closes out the book with a look at custom development for SharePoint 2013. The chapter will help you understand the major aspects of custom development at a high level. Topics covered include the new cloud app model, client and server application programming interfaces (APIs), and custom workflow development.

## Features and conventions used in this book

This book uses special text and design conventions to make it easier for you to find the information that you need.

### Text conventions

Convention	Meaning
Abbreviated commands for navigating the ribbon	For your convenience, this book uses abbreviated commands. For example, “Click Home   Insert   Insert Cells” means that you should click the Home tab on the ribbon, click the Insert button, and then finally click the Insert Cells command.
<b>Boldface type</b>	<b>Boldface</b> indicates text that you type.
Initial Capital Letters	The first letters of the names of tabs, dialog boxes, dialog box elements, and commands are capitalized. Example: the Save As dialog box.
<i>Italicized type</i>	<i>Italicized type</i> indicates new terms.
Plus sign (+) in text	Keyboard shortcuts are indicated by a plus sign (+) separating key names. For example, Ctrl+Alt+Delete means that you press the Ctrl, Alt, and Delete keys at the same time.

## Design conventions

### INSIDE OUT

This statement illustrates an example of an “Inside Out” heading

These are the book’s signature tips. In these tips, you get the straight scoop on what’s going on with the software—inside information about why a feature works the way it does. You’ll also find handy workarounds to deal with software problems.

### Sidebars

Sidebars provide helpful hints, timesaving tricks, or alternative procedures related to the task being discussed.

### TROUBLESHOOTING

This statement illustrates an example of a “Troubleshooting” problem statement.

Look for these sidebars to find solutions to common problems that you might encounter. Troubleshooting sidebars appear next to related information in the chapters. You can also use “Index to Troubleshooting Topics” at the back of the book to look up problems by topic.

Cross-references point you to locations in the book that offer additional information about the topic being discussed.

### Note

Notes offer additional information related to the task being discussed.

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- Search the full text
- Print
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## About the companion content

We have included companion content to enrich your learning experience. The companion content for this book can be downloaded from the following page:

*<http://aka.ms/SP2013InsideOut/files>*

The companion content includes the following: completed examples of the InfoPath, Microsoft Access, and HTML forms generated in Chapter 21.

## System requirements

To build the sample forms in Chapter 21, you will need a copy of Office 2013 on your system. You must have InfoPath 2013 and Access 2013 installed.

## Acknowledgments

When embarking down the path of creating a large, complex project such as this book, many people necessarily play supporting roles. With their patience and support, we, the four authors, were able to overcome the multitude of challenges along the way. While we can never thank all of them individually in this small space, you know who you are, and this group of authors thanks you sincerely.

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Thanks to you, our readers, for without you, this book would have no purpose. We are pleased to be able to share our combined decades of SharePoint experience with you.

Finally, yet most important, our deepest gratitude to our friends and families for their continued support while working on this book; we love all of you.

*The Authors  
June 2013*

## Support and feedback

The following sections provide information on errata, book support, feedback, and contact information.

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We've made every effort to ensure the accuracy of this book and its companion content. Any errors that have been reported since this book was published are listed on our Microsoft Press site:

*<http://aka.ms/SP2013InsideOut/errata>*

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# Introducing SharePoint 2013

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Built for the cloud .....	19		

**M**ICROSOFT SharePoint 2013 is a software application. In fact, it is just one out of a sea of millions of software applications. However, those of us who know and love SharePoint recognize that it is more than that—something more profound than just another business application. It has a unique appeal to information workers that makes it much more than merely software. SharePoint transforms the way people work. It makes their jobs, and therefore their lives, easier and more productive. It helps people collaborate on tasks and documents, it assists people in finding the information they need to do their jobs, and it enables people to connect with colleagues and share their work. SharePoint is an enormously powerful piece of technology that has a myriad of potential means by which you can improve the way you work every day.

The SharePoint platform has been on the market for more than a decade. Microsoft SharePoint Portal Server 2001 was the first version to use the SharePoint brand name. Now, after more than a decade of investment in research and development, SharePoint 2013 represents the fifth major version of the product. It truly sets the standard for a modern, web-based collaboration tool.

SharePoint's humble beginnings were in web-based document management and collaboration sites. Those popular capabilities certainly have continued to grow and flourish, but the Microsoft SharePoint Server product has now matured into an enterprise-ready, cloud-capable platform that provides many types of capabilities and services.

## The SharePoint wheel

Given the breadth and depth of the SharePoint platform, it can be a challenging task to grasp all of the functionality it is capable of delivering. Therefore, in previous versions, the SharePoint marketing team developed the idea of the SharePoint “wheel” (also known as the “SharePoint pie”). As shown in Figure 1-1, the wheel did an effective job of helping people understand the six primary categories (or “workloads”) of functionality that SharePoint offers: sites, communities, content, search, insights, and composites. Within each of these six areas, there is a massive amount of functional and technical details, but the

wheel makes the challenge of understanding the product's capability at a high level more manageable. So for those of you who may not have experience with prior versions, let's start by taking a look at the SharePoint wheel to ensure that we are all on the same page before we dig in to what's new with SharePoint 2013.



**Figure 1-1** The SharePoint wheel illustrates the six primary categories of functionality offered in SharePoint.

## Sites

SharePoint sites provide a common platform for all your business websites. SharePoint allows a user to easily and quickly provision a new site using the SharePoint browser-based interface to rapidly meet business needs. There are many types of site templates available with SharePoint depending upon the requirements: team sites, document management sites, search sites, wiki sites, and so forth. On these sites, you can accomplish many important tasks, including sharing documents with colleagues, working on team projects, publishing information to customers, and dozens more. Sites are the basic technology engine in SharePoint; they are the place where users go to get things done.

## Communities

SharePoint communities enable social networking and collaboration in the enterprise. SharePoint assists in the process of working with a team of people through blogs, wikis, newsfeeds, tagging, personal sites called My Sites, and many other features. Sharing of ideas, finding and collaborating with the right people, and connecting with subject matter experts are experiences that SharePoint can help with.

## Content

Document management, web content management, records management—these content-related capabilities are required at nearly every business and government organization. SharePoint provides site templates and features for each of these areas of content management. SharePoint has evolved over the years to include support not only for traditional document types such as Microsoft Office, but also for rich media files, photographs, Adobe PDF files, and many more. Close integration of the content management features with desktop productivity products ensures that much of users' interaction with the content can still be performed naturally in the tool that they are already working in every day—Microsoft Office.

## Search

SharePoint has contained search capabilities since the beginnings of the product. In the most recent versions of the product, SharePoint Search has matured into a fully functional enterprise search engine. SharePoint Search helps users discover content, people, and a wide variety of business data. The relevance and accuracy of the information returned to a user when a search query is performed is on par with any of the major Internet search engines; thus, this feature provides a compelling and valuable experience that empowers employees to perform their jobs more efficiently.

## Insights

Insights (also known as *business intelligence*) make it possible to easily access and present data stored in databases, SharePoint lists, and Microsoft Excel spreadsheets. Utilizing features such as Excel Services, PerformancePoint, and SQL Server Reporting integration, SharePoint enables the creation and sharing of dashboards and reports that help workers identify business trends, work together toward shared goals and metrics, and pinpoint exactly the information they need to make better decisions.

## Composites

Composites are SharePoint applications that combine business data with a variety of out-of-the-box tools, web parts, and methods to assemble do-it-yourself solutions. Access Services, Visio Services, workflows, and digital forms are among the abundant features SharePoint delivers for building composite applications. Applications that fit into the SharePoint composite model are often built in days rather than weeks or months, often with no code required. This agility is part of the business value of SharePoint—rapidly designing, building, and deploying business solutions that provide a near-instant return on investment.

## What's new in SharePoint 2013

The evolution of the SharePoint platform continues in bold and exciting new ways in SharePoint 2013. SharePoint 2013 builds and extends upon the SharePoint 2010 product line—the core capabilities of the previous versions continue to evolve with many profound improvements.

In addition to across-the-board improvements in most of the previous version's capabilities, SharePoint 2013 functionality is designed with the notion of ensuring that people are in the center of the SharePoint experience. Putting the user experience first was foremost in the planning and development process. In order to provide an improved user experience, SharePoint 2013 focuses on five key principles:

- Share
- Discover
- Organize
- Build
- Manage

In the remainder of this chapter, you'll be introduced to SharePoint 2013 at a high level. Then, throughout the rest of the book, you will come to understand the improvements to the core capabilities of the SharePoint platform, new concepts, and the innovative new capabilities of SharePoint 2013 in depth.

### Share

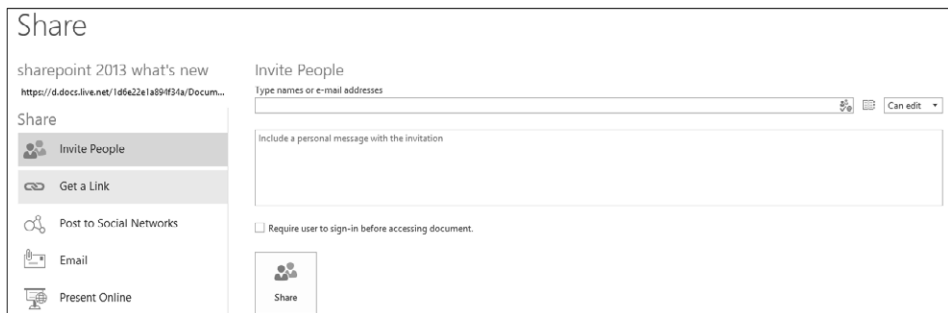
When you boil it down, much of what we define as “collaboration” is really just sharing—sharing ideas, sharing documents, sharing our expertise. Much like previous versions of SharePoint, SharePoint 2013 is a place where people can go to share and collaborate on documents, tasks, projects, and many other types of content. The prolific content creators in your organization will find that their opportunity to share their work has never been easier or faster. This type of collaboration around content is squarely in the traditional core competency of SharePoint sites.

### Sharing content

SharePoint 2013 firmly establishes itself as a platform for document sharing with both internal *and* external users, partners, and customers. You can publish content to SharePoint from Office 2013 desktop applications, as shown in Figure 1-2. You can also share the



content with colleagues inside your organization or external partners and customers in a few simple clicks, as shown in Figure 1-3.



**Figure 1-2** The Share menu, as seen in Microsoft PowerPoint 2013, enables users to select people with whom they want to share content.



**Figure 1-3** From a SharePoint 2013 document library, a user may choose to edit, share, or follow a PowerPoint file.

If your idea of sharing content extends to people outside of your organization, SharePoint 2013 has many incremental improvements in the area of web content management (WCM) that will help you share your sites with the world. SharePoint 2013 has matured into a fully capable, cross-browser WCM platform. A few of the improvements are listed here:

- Search-driven sites with the Content Search Web Part (CSWP)
- Search engine optimization (SEO) site maps

- Device channels
- Managed navigation
- Recommendations
- Design Manager
- Support for standard web design tools such as Adobe Dreamweaver

## Enterprise Social

In SharePoint 2013, significant strides have been made in extending Enterprise Social capabilities. SharePoint 2013 social experience makes the capturing and sharing of ideas and tacit knowledge possible through microblogging and community sites, such as the one shown in Figure 1-4. In a community site, discussions are fundamental, participation is simple and inviting, and expertise may be acknowledged and rewarded.

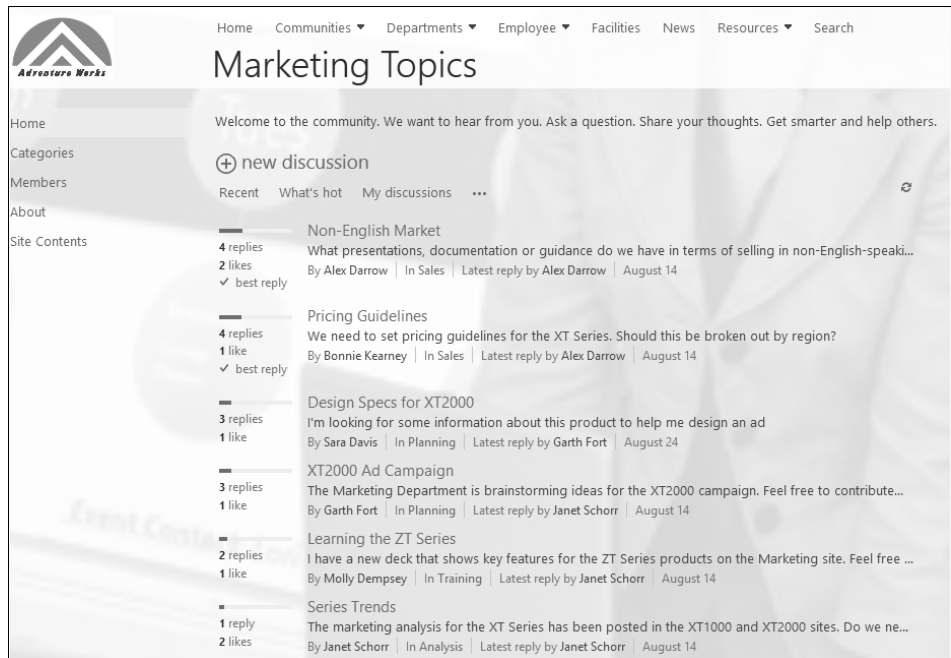


Figure 1-4 A SharePoint 2013 social experience is delivered via a SharePoint 2013 community site.

SharePoint 2013 contains a number of new social features that can assist the users in your organization as they share ideas. Some of the most significant features include:

- Microblogs
- Hash tags and @mentions
- Company, site, and personal newsfeeds
- Yammer integration
- Hash-tag trending and other social analytics via the new search engine
- Community sites
- Richer SharePoint user profiles populated with useful social information

### Yammer integration in SharePoint

**Y**ammer integration in SharePoint 2013 has been set to become a critical piece of the story since Microsoft purchased the social networking software in 2012. Yammer's strength has traditionally been in stand-alone, cloud-based social networking. Now, under the Microsoft umbrella, Yammer is becoming not only a solid choice for stand-alone social, but also an aggregator of all social touch points a user might have in your organization. For example, Yammer has connections to SharePoint and Microsoft Dynamics, and will soon have deep integration into other Microsoft properties, such as Office 365 and Skype. In addition, Yammer excels at integrating feeds of external cloud-based activity along with information from existing business applications, such as enterprise resource planning (ERP), customer relationship management (CRM), and so forth, thereby creating a truly comprehensive social experience in the enterprise.

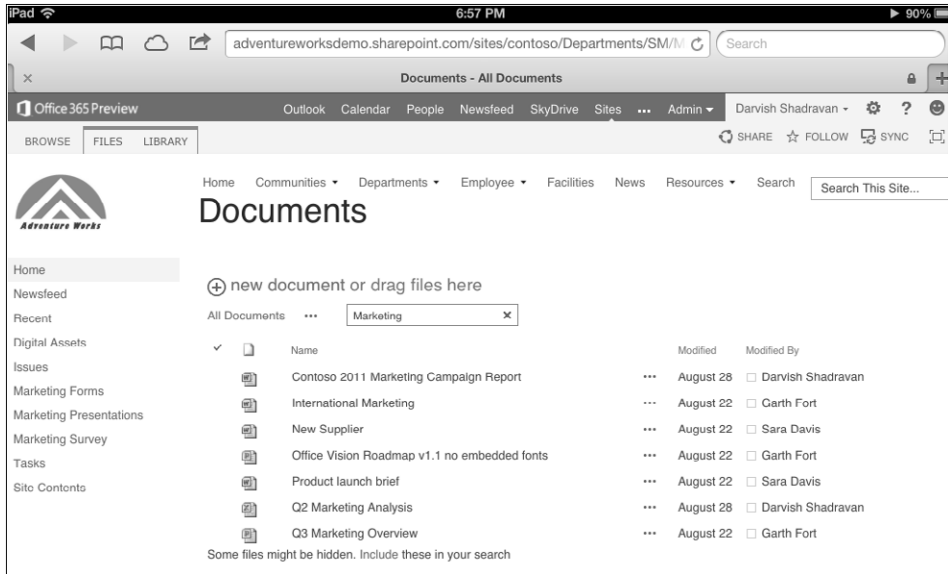
## Mobile

Increasingly, a major component of sharing and collaborating involves mobile access. SharePoint 2013 has several key improvements and architectural changes that improve sharing capabilities for the mobile user. The user interface of SharePoint 2013 was rewritten using HTML5. This inherently means that modern mobile devices that support the HTML5 standard will have a dramatically better SharePoint browsing experience—even if you do nothing else to optimize your site for mobile access.

In addition, there is a new feature called *Channels* that enables a site to serve up the same set of content to mobile devices, but in a mobile-optimized fashion. For example, you may want your site to autodetect when a user is currently browsing with her smartphone so that

you can dynamically tailor your site's visual design appropriately. You can choose to have your mobile device channel deliver alternate *renditions* of images and videos to reduce page size for limited-bandwidth consumption.

Among many other mobile-enabled capabilities, you can share documents, update your activity feed, and participate in community discussions from your mobile phone or tablet. Figure 1-5 shows a team site where a mobile tablet user is searching for marketing documents shared by his colleagues.



**Figure 1-5** A user on a tablet device may access shared documents in a SharePoint document library.

## Discover

The new unified search platform in SharePoint 2013 takes information discovery to another level. The improvements in the search platform help users find more relevant results—and go beyond that by also surfacing knowledge and then sharing relevant insights. The search engine of SharePoint goes further by actually understanding the meaning of a query. It can be integrated with your line-of-business (LoB) applications to help you discover answers from all of the sources of information that are important to you.

## Information

As information, documents, videos, reports, and other types of content continue to proliferate on private networks and in the cloud, having a robust enterprise search platform is more critical than ever. To assist users to search and discover the data they need to perform their jobs, the SharePoint 2013 search engine has received a significant overhaul of features and architecture, including:

- A new and improved HTML5-based search interface
- The addition of *result types*, which are a set of rules that can be used to identify certain items in the search results that match a specific set of predefined criteria
- The addition of a custom *display template* that highlights and promotes items identified by result types in the interface
- Consolidated search architecture that no longer requires a separate install of FAST Search
- Continuous crawling to ensure up-to-the-minute search index freshness
- Re-architected the relevance engine and ranking model

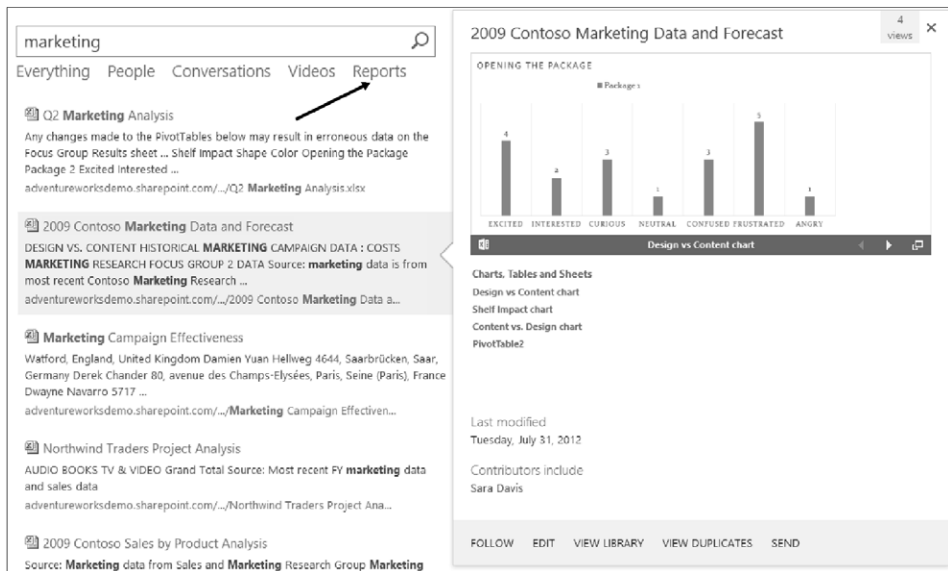
## Insights

Every business has requirements to share analytical information. That information is often lurking in reports and spreadsheets that users may not be aware of or have access to. Business users are clamoring for better ways to visually discover and share insights so that collaborative decision making can be more effective across the organization.

SharePoint 2013 takes its business intelligence capabilities to an entirely new level by offering very close integration with Excel 2013, Power View, PowerPivot, and Microsoft SQL Server 2012. With built-in tools such as Excel Services, Visio Services, and PerformancePoint, building interactive dashboards in a SharePoint site is quick and powerful. Following is a partial list of the types of solutions you can build in SharePoint 2013:

- Connect to data from nearly any source to create fully interactive reports and insights on your site.
- Publish and share reports with your colleagues.
- Combine and analyze large sets of business data with PowerPivot.

- Integrate with SharePoint Search and create a custom “Reports” search vertical, as shown in Figure 1-6.
- Perform interactive data exploration to find answers and make well-informed business decisions.
- Ensure spreadsheet integrity and compliance, and apply information management policies as business requirements dictate.
- Consolidate and simplify the management of data that has traditionally resided in unmanaged Excel spreadsheets and Microsoft Access databases.



**Figure 1-6** Here is an example of using a custom “Reports” search vertical to discover analytical information.

## Experts

SharePoint 2013 provides many intuitive ways to discover, connect, and collaborate with people across your business. You can still search for people in the same way as in previous versions of SharePoint, but now you can also easily discover common interests, projects, and documents they have worked on. Then, as shown in Figure 1-7, you can take actions based on what you find.

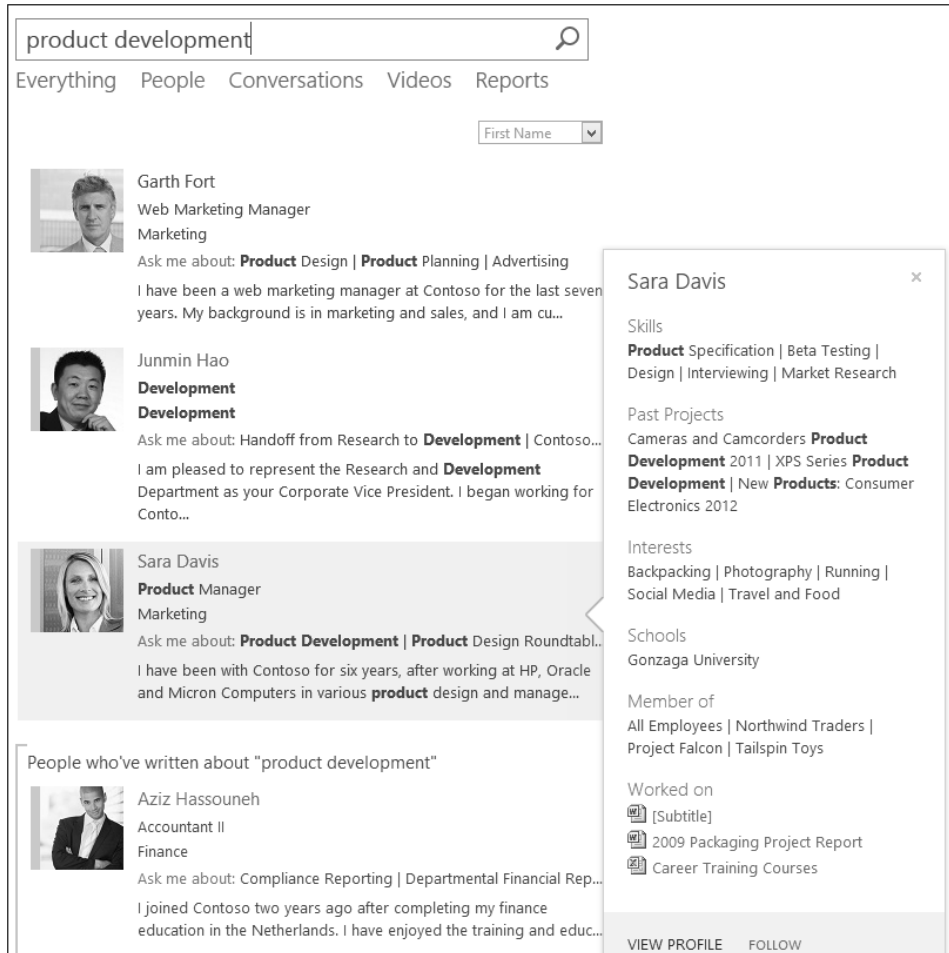


Figure 1-7 Discovering a product development expert in a SharePoint 2013 people search.

## Organize

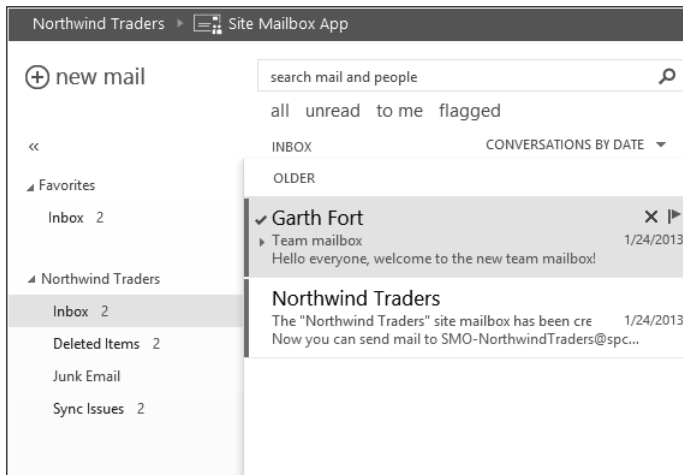
SharePoint 2013 excels at organizing information and teams, running the gamut from personal tasks to team projects to enterprise data. Organizing information and applying a governance strategy to manage enterprise content and records is a core part of the SharePoint platform.

## Team sites

Team sites have long been at the heart of what most people experience when they use SharePoint. In 2013, team sites receive a refreshing update that orients them more toward

groups of people working together on tasks and projects. People working together on projects tend to require the same basic types of tools—document sharing, task sharing, shared note taking, a team newsfeed, and so on. SharePoint 2013 team sites allow a site owner to easily add these common apps, customize the theme of their site, and invite people to participate and follow the site.

One of the most interesting new team site features is the team mailbox. Because most projects involve a lot of email, team sites now have the option to host a team mailbox, as shown in Figure 1-8. The team mailbox is an app that provides a shared Microsoft Exchange inbox that all the members of your site can access. For those users, the site mailbox serves as a central email filing cabinet, which is only accessible for editing by site members. It also enables members of the site to work with files from document libraries directly within Microsoft Outlook 2013.



**Figure 1-8** The SharePoint 2013 team mailbox enables all team members access to team email.

## Store and synchronize your documents

Document collaboration has always been at the heart of what SharePoint provides. Now in 2013, the personal document storage capability of previous SharePoint versions has morphed into an updated feature for document storage and synchronization entitled SkyDrive Pro. This new capability of SharePoint enables organizations to easily provision a personal, secure document space for their users. It is available in the cloud or on-premises.



In addition to providing a place to store and share documents, SkyDrive Pro offers easy synchronization to a user's device with a single click. SkyDrive Pro replaces the Microsoft SharePoint Workspace 2010 product as the new offline client for SharePoint documents. The figures that follow show a 2013 SharePoint SkyDrive Pro site (Figure 1-9), and the synchronized files on the client system (Figure 1-10).

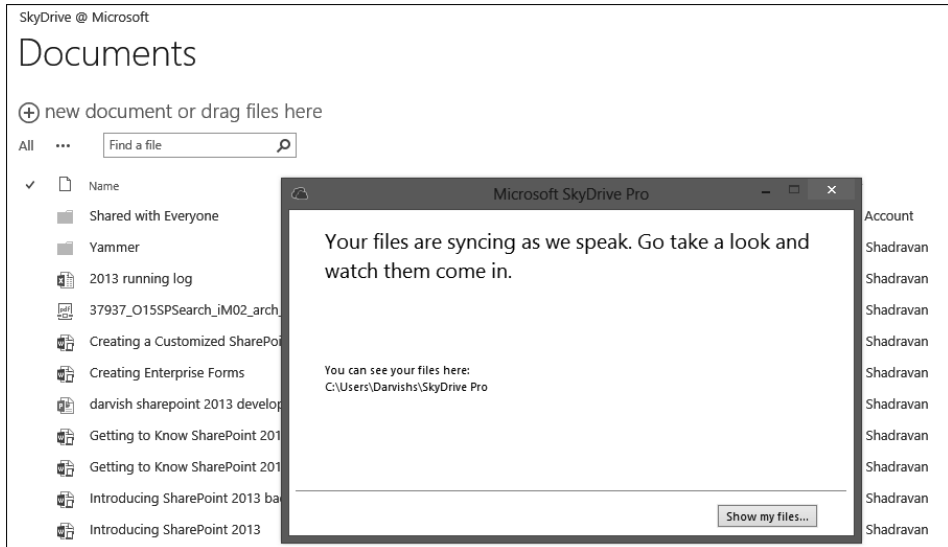


Figure 1-9 SharePoint 2013 SkyDrive Pro performing a synchronization.

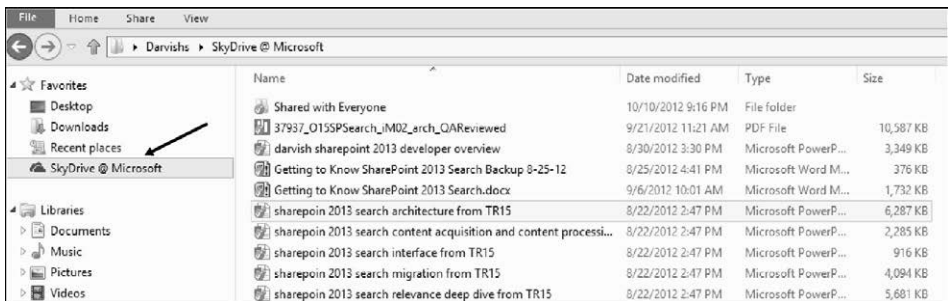
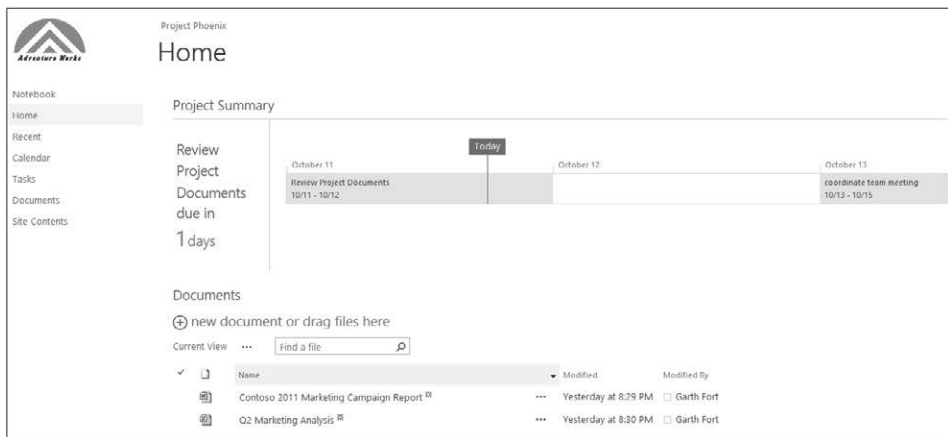


Figure 1-10 The SkyDrive Pro client in Windows Explorer.

## Managing tasks and projects

Keeping in line with the idea that a SharePoint site is an ideal place for a team to manage a project, SharePoint 2013 has a new lightweight task management feature to help coordinate tasks across the entire team. Task management capabilities can be added as a supplemental feature to any team site so that the group can track tasks, stay organized, and communicate deadlines; all in the same site where you store files, team mail, and notes. In addition, the tasks you work with in SharePoint are available to synchronize with Microsoft Project and Exchange as well.

Team sites that use tasks now have a *Project Summary* view on the home page of the site. This makes it easy for members of the site to see how the project is going and easily see the next upcoming milestone. As shown in Figure 1-11, anyone who goes to the site will have a good high-level view of progress on the project—and what items people should be completing next.



**Figure 1-11** The Project Summary view on a team site shows upcoming tasks and project documents.

For individuals to keep track of many tasks across multiple projects, there is now a new feature called *My Tasks* under the Newsfeed Hub. As shown in Figure 1-12, this enables users to see at a glance all of the things they need to accomplish across projects aggregated in one place.

My Tasks can pull together all tasks assigned to you in SharePoint, Project, and Exchange into one interface. Therefore, a user is empowered to organize and manage both personal and assigned tasks from projects from a single location.

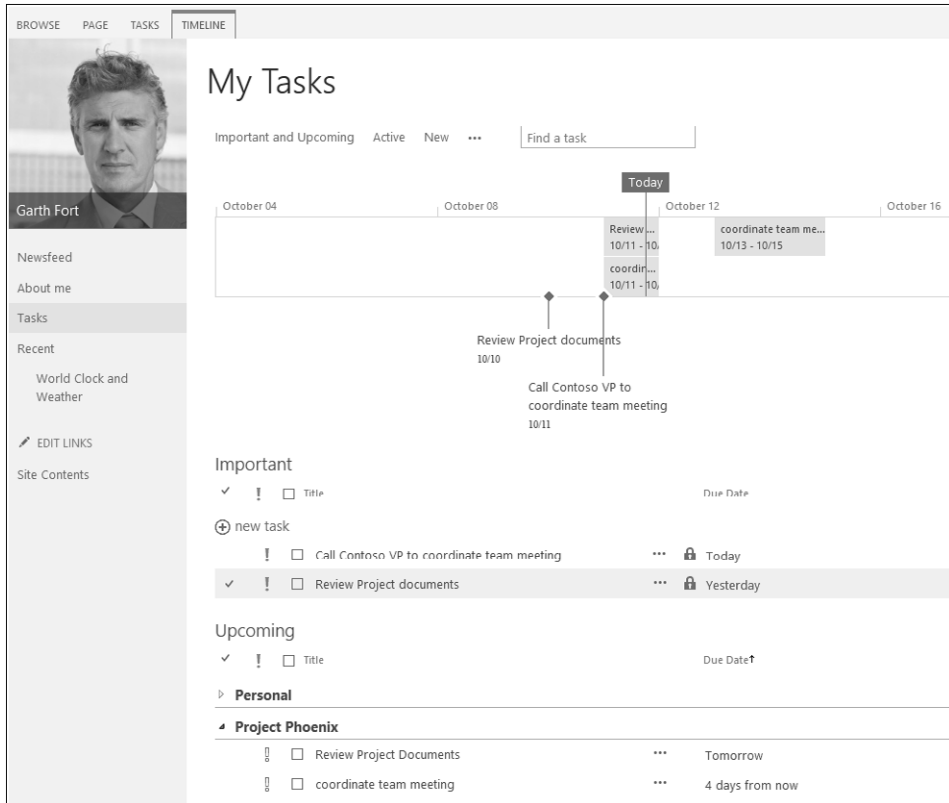


Figure 1-12 My Tasks shows all personal and project tasks in your Newsfeed.

## Build

SharePoint 2013 has more opportunity than ever for building solutions—building sites, building apps, building cloud solutions, and more. The SharePoint UI is updated to HTML5 and JavaScript, and this allows more rapid and more standards-based solution creation. There has never been a greater opportunity for people tasked with building SharePoint-based solutions to create solutions that address business challenges.

## Build apps

SharePoint 2013 introduces an architectural change to support a new *Cloud App Model* that enables you to build a new class of SharePoint apps that extend and personalize the way users interact with SharePoint. The Cloud App Model enables you to create and consume information based on standard web technologies such as JavaScript, REST web services, and HTML5. In the past, SharePoint made the distinction between “lists” and “libraries.”

But now lists and libraries are just a type of app. In fact, most things in SharePoint are now consolidated under the term “app.” There are technical differences between task list and picture libraries and a third-party app built by your developers. However, from an experience perspective, they are all apps.

Apps for SharePoint provide users with a dependable way to discover, obtain, and implement new capabilities. Inherent in this new app model is the capability for SharePoint site owners to easily add an app to their site that provides a specific capability they may need. Apps cover a broad range of functionalities—everything from mapping apps to world clocks to sales reporting.

SharePoint customers can build their own apps using a variety of developer tools and then easily publish them to a special type of new SharePoint site called an *app catalog*. Alternatively, there is also a public SharePoint app catalog (shown in Figure 1-13) that resides on Microsoft’s website. It provides many types of SharePoint apps, many of which are available at no extra cost. Because apps can be hosted in the cloud, they are independent from SharePoint and Office version upgrade cycles.



Figure 1-13 The public SharePoint app store provides many types of SharePoint apps.

## Build great-looking sites

SharePoint 2013 sites have an updated architecture that enables a web designer to build a rich, interactive SharePoint site without the requirement of SharePoint-specific development skills. Tools such as Adobe Dreamweaver and Microsoft Expression Blend are now fully supported for creating SharePoint pages and layouts.

SharePoint 2013 introduces a new tool called *Design Manager* that enables site designers to easily customize SharePoint sites in the browser. The need to edit ASP.NET files to create SharePoint items such as master pages and page layouts goes away. Now designers can edit in HTML and SharePoint Design Manager will convert these files automatically. As shown in Figure 1-14, a site designer is able to edit a master page in Design Manager. Notice that HTML *snippets* can easily be added to a site to quickly provide a modern web experience.

The screenshot displays the SharePoint Design Manager interface for editing a master page. At the top, there are 'BROWSE' and 'DESIGN' tabs. Below them is a ribbon with various web parts categorized into Navigation, Administration, Containers, Web Parts, and Custom ASP.NET Markup. The main workspace is split into a 'Preview' area on the left and a 'Customization' area on the right. The 'Preview' shows a navigation menu with links: Home, Communities, Departments, Employee, Facilities, News, Resources, and Search. The 'Customization' area is titled 'Top Navigation ( AjaxDelta )' and includes an 'About this Component' section with descriptive text and 'Update' and 'Reset' buttons. Below this is a 'Customization - Top Navigation ( AjaxDelta )' table with sections for 'Important', 'Accessibility', 'Appearance', 'Behavior', 'Layout', and 'Misc'. The 'Important' section shows 'CssClass' set to 'ms-displayinline ms-core-navigation ms-dialogHidden'. The 'HTML Snippet' section provides instructions and a code editor with the following ASP.NET markup:

```
<div data-name="TopNavigationNoFlyoutWithStartNode" <!--CS: Start Top Navigation Snippet--> <!--SPM: %%Register Iagrefix="SharePoint" Namespace="Microsoft.SharePoint.Web.Controls" Assembly="Microsoft.SharePoint, Version=15.0.0.0, Culture=neutral, PublicKeyToken=71e9bce111e9429c" %> > <!--MS: <SharePoint:AjaxDelta ID="DeltaTopNavigation" BlockElement="true" CssClass="ms-displayinline ms-core-navigation ms-dialogHidden" runat="server"--> <!--PS: Start of READ-ONLY PREVIEW (do not modify)--> <!--PF: End of READ-ONLY PREVIEW--> <!--MS: <SharePoint:DelegateControl runat="server" ControlId="TopNavigationDataSource" Id="TopNavigationDelegate"--> <!--PS: Start of READ-ONLY PREVIEW (do not modify)--> </span
```

Figure 1-14 A site designer is able to edit a master page easily in SharePoint Design Manager.

## Manage

From a management perspective, SharePoint 2013 is designed to work equally well in the cloud or on-premises. In either case, you can still take advantage of the performance and scalability benefits in the product. Infrastructure and management costs can be reduced across the board. Significant investments in records management and e-discovery have been made in order to help meet the demands of compliance and risk management.

## Manage risk

For organizations that are concerned with managing risks associated with their digital assets, SharePoint 2013 supports several scenarios including e-discovery, disposition, and retention policies for SharePoint, Microsoft Lync, and Exchange data. Along with that, SharePoint 2013 can help you with the challenge of controlling access to company- and customer-sensitive data. Thus, SharePoint 2013 is a robust platform for the storage, management, and consumption of sensitive information.

One key new feature is that it is now possible to define retention policies for sites *and* mailboxes using the SharePoint data protection tools. An administrator can ensure content is preserved in real time, which will ensure the data integrity of the information stored not only in SharePoint, but also in Lync and Exchange. In addition, SharePoint 2013 makes authorization and audit management more centralized and adaptable to customer-specific policies.

## Manage costs

SharePoint 2013 is constructed in such a manner that administrators will find the process of upgrading and managing their infrastructures significantly easier than in past versions. With the new cloud delivery model, adding new features is far more streamlined. In addition, the option now exists for reducing infrastructure costs by hosting SharePoint farms (or a portion of them) in the cloud. This effectively reduces the cost of administration, storage, server hardware, and so on.

SharePoint 2013 has several new tools for administrators to keep things running smoothly. Some of the most notable include:

- Self-service site creation
- Schema vs. site collection upgrade
- Site collection health checks
- Evaluation site collections
- System status notifications
- Usage and health data collection
- App management service
- Request management
- Shredded storage

Perhaps one of the most useful tools is the new *Site Collection Health Check*, shown in Figure 1-15. It allows an administrator to identify common issues such as missing features or templates, and points out any issues with a site collection that might pose a problem if an upgrade is performed.

Site Settings > Site Collection Health Check Results

Clean bill of health Try it again

Your site passed with flying colors, there were no issues detected that should prevent a successful upgrade.

You might want to know about the following check(s) that ran successfully:	
<b>Customized Files</b>	Tell me more
None of your existing files were detected as customized.	
<b>Missing Galleries</b>	Tell me more
No issues were found with any of your galleries.	
<b>Missing Site Templates</b>	Tell me more
No issues were found with any of your sites.	
<b>Unsupported Language Pack References</b>	Tell me more
No issues were found with any of your existing language pack references.	
<b>Unsupported MUI References</b>	Tell me more
No issues were found with any of your existing MUI language references.	

**Figure 1-15** The new Site Collection Health Check tool allows an administrator to easily identify common issues within a site collection.

## Built for the cloud

SharePoint 2013 is the first version of SharePoint developed from the ground up to be fully “cloud ready.” As the development process unfolded, priority was given to ensuring that SharePoint Online features were very near parity with the traditional on-premise versions of SharePoint. It is effectively the first release of SharePoint that is available simultaneously as a service or as a server. Part of making a product like SharePoint cloud enabled is to not only port features to support the cloud, but also to re-architect core aspects of the product in order to better suit the more agile, cloud-based application world in which we live.

As part of the Office 365 offering from Microsoft, SharePoint Online inherently has the same cloud benefits for customers who wish to push a portion (or all) of their SharePoint infrastructure requirements online. Office 365 has a simplified administration and deployment model that enables customers to get their SharePoint 2013 projects up and running quickly. In addition, because SharePoint Online is part of Office 365, it is protected by Microsoft’s geo-redundant data center environments around the world.

Some of the specific features that make SharePoint 2013 more cloud ready than ever before are listed here:

- The Cloud App Model allows for easy publishing and updating of apps in the cloud.
- Common web standards for applications, security, and data access are now supported. Examples include JavaScript, OAuth, OData, and HTML5.
- SharePoint includes a unified search architecture that now has near feature-parity regardless of which version of SharePoint you choose to utilize.
- SharePoint uses common administration tools across the cloud and on-premises. Examples include the new unified admin console and more comprehensive Windows PowerShell support.
- SharePoint Online now has the ability to connect to and integrate with the Windows Azure data and services. This opens the door for SharePoint to use other application models beyond .NET. For example, Windows Azure supports PHP, Node.js, and Java.
- Deep Windows Azure integration also means that SharePoint Online now gets access to Microsoft SQL Azure, Blobs, Tables, AppFabric, and Service Bus. Therefore, the possibilities for cloud-based data hosting and integration have increased geometrically, and this will open the door to an entire new set of applications. Customers with SharePoint sites that require geo-distribution will be able to leverage Windows Azure as a content distribution network (CDN) in order to deploy and globally replicate their SharePoint assets such as videos, images, and documents.
- SharePoint Online updates come on a very regular basis, with new features and capabilities, so your organization will receive the latest technology without the need to upgrade servers.

## Hardware and software requirements

SharePoint Server 2013 requires that a number of specific software components be in place prior to installation. For a complete reference on hardware and software requirements, browser support, and so on, please refer to the Microsoft TechNet site at [technet.microsoft.com/en-us/library/cc262749\(v=office.15\)](http://technet.microsoft.com/en-us/library/cc262749(v=office.15)). On this webpage, you will find several categories of comprehensive information that can assist you in planning an installation of SharePoint 2013.



## Summary

This introductory chapter gives you a small glimpse of the new capabilities in SharePoint 2013. Whether you are already a SharePoint virtuoso, a business user, an IT professional, or just a budding SharePoint prodigy, in the remainder of this book, you will learn about all the major areas of functionality that were introduced in this chapter—and much more.

Along the way, you will learn the “Inside Out” story about these capabilities and best practices for how to use them. This will enable you to harness the power of this new platform for *sharing, discovering, organizing, building, and managing* with SharePoint 2013.





# Creating enterprise forms

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**M**ICROSOFT SharePoint has a long history of being a capable platform for hosting and managing business forms of all types. In the past, these forms fell largely into two categories: declarative (no code) and custom code. Depending on the specific requirements (or skills of the forms designer), SharePoint forms were generally created with Microsoft InfoPath, Microsoft SharePoint Designer, or Microsoft Visual Studio.

These options all still exist in SharePoint 2013, although SharePoint Designer is being deemphasized as a forms tool. InfoPath XML-based forms and Visual Studio 2012 custom forms are still fully supported as form design tools, and the integration they have had with SharePoint in the past is still available. For code-based solutions, your new form projects can piggyback on the support of HTML5 and .NET offered by SharePoint. Visual Studio 2012 is still the flagship tool for creating custom code forms, although with support for HTML5 and JavaScript, several new possibilities exist for responsive design, including TypeScript, jQuery libraries, and so on.

In addition to the aforementioned tools, SharePoint 2013 introduces one compelling, new option for no-code forms: Microsoft Access 2013 form apps. (We'll discuss this more later in this chapter.)

Many factors go into the decision of which tool is best to create your forms with. Some of the factors are technical, some are business-oriented, and some are just pragmatic decisions based on what is possible.

Some of the strengths of InfoPath 2013 forms are:

- Support for offline form-filling scenarios, where users are disconnected from the network
- Deep integration with SharePoint libraries
- Ability to customize SharePoint list forms
- Options for rich-client or browser-based forms
- Support for code-behind solutions using Visual Studio 2012

Some of the strengths of Access 2013 forms are:

- Full support of the new app model
- Integrated with the SharePoint app catalog
- Form data is stored in Microsoft SQL Server
- Inherits SharePoint site permissions and branding
- Cross-browser and mobile support

Some of the advantages of custom code forms are:

- Total control over the UI elements
- Full support of the SharePoint app model
- Ability to connect the form to all the various SharePoint application programming interfaces (APIs) and Web Services
- Allows developers to publish their form to the public SharePoint store for customers to purchase it
- Option to use a variety of industry-standard web-development tools

This chapter primarily focuses on the no-code solutions: InfoPath 2013 and Access 2013. A downloadable custom code example of the sample form written using HTML5 and JavaScript is available for download at [www.muhimbi.com/Products/SharePoint-Forms.aspx](http://www.muhimbi.com/Products/SharePoint-Forms.aspx).

**For more information on building custom code solutions, see Chapter 23, “Introduction to custom development.”**

## Creating InfoPath forms

InfoPath 2013 is a forms-creation and data-gathering tool that can help you streamline your business processes. It is a flexible, powerful, easy-to-use XML forms editor that's part of the Microsoft Office Professional suite. InfoPath 2013 is well suited for almost anyone that needs to design and deploy form solutions—including information workers, IT pros, and developers. You can use InfoPath 2013 to design sophisticated forms that can quickly and accurately gather information that meet your organizational needs. Moreover, its deep integration with the SharePoint platform opens up a new world of possibilities for your electronic form requirements.

## Introduction to InfoPath

InfoPath empowers you to design and fill out electronic forms that are hosted on SharePoint, such as expense reports, event registrations, and other common business forms. When entering data in an InfoPath 2013 form, users are presented with familiar, document-like features. For example, they can change fonts, check spelling, or insert images into certain fields.

If you create your forms as browser-enabled form templates, users who do not have InfoPath installed on their computers can still work with the form in a browser. This lets you share business forms with a variety of users, including employees, customers, and vendors.

The forms that you design can range from simple forms for collecting data from a small group to complex forms that are integral components of a much larger business process. If you use SharePoint Server 2013 and SharePoint Designer, InfoPath 2013 forms can be used as part of a fully automated business process. This can include workflows, such as routing and notification based on information within the form. In addition, the data that users enter in your InfoPath forms does not have to remain sealed inside that form forever; it can be reused in a variety of ways within SharePoint.

InfoPath provides forms design capabilities that include sophisticated logic rules, conditional formatting, and data validation to information workers who may not be programmers. To benefit from these capabilities previously would have required a great deal of technical expertise. A large factor in the power of InfoPath is that the file format of the forms is XML, which provides many inherent benefits in terms of flexibility, power, and standardization. Fortunately, InfoPath forms designers are not required to know much about XML, XML schema definition (XSD) extensible stylesheet language transformations (XSLT), XSLT, and all the other technical details behind the scenes. The UI of InfoPath is essentially the same as the other Office 2013 products. If you are familiar with Microsoft Word, Microsoft Excel, or Access, you probably will feel right at home in InfoPath 2013.

### INSIDE OUT XML 101

XML is perhaps the single most powerful method of storing and sharing structured data to come along since the advent of digital computing. InfoPath uses XML as its primary file/output format. Behind the scenes, when users create an InfoPath form, what they are actually doing is creating an XML document and an associated XML schema. The fact that the file format that InfoPath uses to store and manage data is XML provides you with an amazing amount of power in an easy-to-use tool. InfoPath does an admirable job of allowing everyday business users of Office to take advantage of the plentiful benefits of XML while hiding much of the complexity. We

do not need to become experts in XML to create powerful forms, but having a very basic understanding of what XML is and how it works seems a reasonable goal for someone planning to fully employ InfoPath's power. For more information on XML, see the MSDN article "Understanding XML," at <http://msdn.microsoft.com/en-us/library/aa468558.aspx>.

## Form design basics

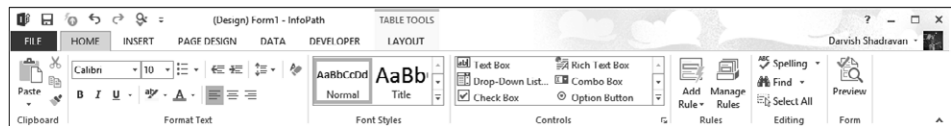
Most InfoPath forms that you create will have several basic design concepts in common. The form design process typically begins with the following two tasks:

1. Building the visual aspects of the form by using tables, themes, and page designs
2. Adding the necessary controls to provide the functionality and data fields that your form requires

Depending on the complexity of the form, you might need to do much more than this, but typically, the creation of most InfoPath forms starts with layout and controls.

As previously mentioned, InfoPath uses XML for storing data and managing the schema of the form for you. Most of the tools that you will use to build the form have a direct correlation to the underlying XML. However, InfoPath removes the need for you to interact with all of the XML "plumbing" behind the scenes. For example, when you add a simple text control, InfoPath automatically generates an XML leaf node (the XML equivalent of an InfoPath field) in the underlying XML schema.

When you open InfoPath on your desktop, the design time visual layout tools that you will use most often can be found on the ribbon, as shown in Figure 21-1.



**Figure 21-1** The InfoPath ribbon includes the visual layout tools that you will use most often.

The following tabs on the ribbon are relevant to form layout:

- **Home** This is where you can find the basic text editing tools that you would find in a word processor. The functionality available on the Home tab is for controlling fonts—size, color, and so forth. These tools are fairly standard and work just as in the other Office products.

- **Insert** This is where you can find the prebuilt table styles. These tables can give your forms a consistent and professional layout.
- **Page Design** This is where you can find InfoPath's predefined page layouts and color themes to quickly give your form a professional look and feel. The color themes are the same ones that are in SharePoint, so it's easy to make your forms blend in nicely on a SharePoint site. Also, on the Page Design tab, you can work with Views and add headers/footers if necessary.
- **Layout** The tools on this tab (also known as the Table Tools tab) are used for modifying properties of the tables in your forms. Tables are the primary structural tool for organizing controls, labels, and images in your forms. This is also the location where you can use the Table Drawing tool if you don't want to use any of the provided table styles.

There are multiple approaches to building InfoPath forms. The one that is most common is to simply begin with one of the built-in page layouts on the Page Design tab of the ribbon, add some tables and a color theme, and then begin adding data controls in order to complete the form's functional requirements.

Along the way of the InfoPath form design process, there are many best practices. A few of the key ones will be highlighted in the next section as we dissect a completed form. If you require a comprehensive tutorial on InfoPath design, Microsoft Press and other publishers have entire books dedicated solely to InfoPath.

## Walkthrough of the sample Site Request form

To illustrate the process of designing an InfoPath form, we will walk through the steps to create a sample Records Management Site Request form. This form uses several common InfoPath capabilities that are used when designing enterprise forms that are hosted on SharePoint. The purpose of this form is for employees of the Blue Yonder Airlines company to be able to submit a form to request that a SharePoint Records Management site be provisioned for them.

### Note

The completed Records Management SharePoint Site Request form sample is available for download at: <http://aka.ms/SP2013InsideOut/files>.

The form itself is not complex; it really is just gathering some basic information via a series of questions. However, the way in which the form is designed takes advantage of InfoPath's ability to provide business logic, rules, and conditional formatting—all without writing any code. The form is built in a wizard-like approach that walks the user through a series



of screens. The functionality in InfoPath that allows this to happen is provided by *views*. After gathering the information from the user, the final screen of the form gives the user a summary of his or her answers.

## INSIDE OUT Views

Your forms often will have too many controls to fit cleanly on a single page. One of the worst mistakes novice forms designers can make is putting everything on one page and forcing the user to scroll through an unnecessarily long and complex form—or even worse, creating multiple forms for users to fill out when having one consolidated form is far more efficient and manageable. InfoPath views can help alleviate these problems and solve a few other challenges as well.

A view in InfoPath is simply another view to display data from the same data source, but in a different way. It is perhaps easiest to think of a view simply as another page in the same form. If you create a second view, additional or different fields may be displayed, or even a completely different visual layout; however, underneath the covers, all the views in a form use the same data source(s) and XML schema.

What follows are some common situations where using InfoPath Views make a lot of sense:

- Taking a lengthy or unwieldy form and breaking it into more manageable pieces.
- Building a wizard-like or survey-like interface. Because you can use buttons with rules to switch views, views provide an easy way to build a form with multiple pages that a user clicks through.
- Presenting different views to different users based on role. InfoPath Roles allow you to define which views a user can see depending on which security groups they are in. For example, your form might need to have an extra page of data that only members of the “Managers in Finance” group can see. (Note that Roles are an InfoPath client-only feature.)
- Adding a view that is read-only for the purpose of confirmation when the user is finished with input. An entire view can be set to read-only, which makes it useful for a confirmation when a user is done filling out the form.
- Providing a summary or roll-up view. Some forms need a dashboard that consolidates data from multiple other views into one place. Also, some forms might need a very different visual layout than the input views of the form.
- Providing a print view. Similar to the summary view, a print view can be useful when you want to give users a page to print out data from your form, consolidated in one special view just for printing.

## Opening the Site Request form in InfoPath

When you download the Site Request form, you'll notice that the file extension is .xsn. This indicates that the file is an InfoPath template. When you have the form downloaded to your system, you will need to find the file in Windows Explorer, then right-click the file and choose Design, as shown in Figure 21-2. This will open the form in InfoPath 2013 in Design mode. If you were to just double-click the file, the file would open in InfoPath in Filler mode, as if you wanted to submit a new form. However, our goal for now is to take a high-level look at how the form is put together.

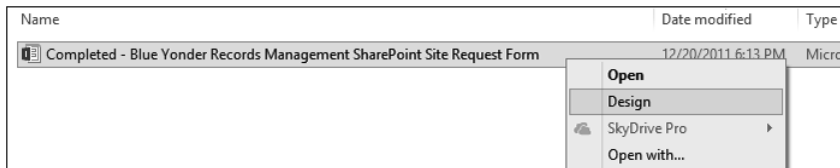


Figure 21-2 The steps to open the Site Request Design form in InfoPath Design mode.

### INSIDE OUT

#### InfoPath templates

When you design a new form, you are actually creating an InfoPath template. The template is saved with an .xsn file extension. After you publish your template to a location that is accessible by your users, that they can create forms that are based on your template, but each instance that they create and save will be saved with an .xml file extension. So to recap, you use InfoPath in Design mode to create .xsn templates, which are published to SharePoint, where your users can go to generate new form instances (.xml files) based on your template.

## Understanding the design of the InfoPath Site Request form

In this section, you will learn about the design techniques used to build the Site Request form. The approach we will use is to look at the form's views one at a time and point out the most important design considerations within each view.

## View 1 (Home)

When you open the form in Design mode, you should be taken to the first view of the form. To confirm this, you can select the Page Design tab on the ribbon. Once there, you will see a drop-down menu, as shown in Figure 21-3, that lets you navigate quickly between views while in Design mode.

```

EditRecord
  ▢ If [HIPPA_Yes_NoCheckBox]<>1 Then
    SetProperty
      Control Name HIPPAInformation
      Property Visible
      Value False
    End If
  ▢ If [Vendors_Yes_NoCheckBox]<>1 Then
    SetProperty
      Control Name Vendors Information
      Property Visible
      Value False
    End If
  ▢ If [Disposition_Policy_Yes_NoCheckBox]<>1 Then
    SetProperty
      Control Name Disposition Information
      Property Visible
      Value False
    End If
  ▢ If [eDiscovery_Yes_NoCheckBox]<>1 Then
    SetProperty
      Control Name eDiscovery Information
      Property Visible
      Value False
  
```

**Figure 21-3** The View drop-down menu on the Page Design tab lets you navigate quickly between views in Design mode.

Once you have confirmed that you are seeing the Home view, notice that this initial page of the form is actually quite simple. We are simply asking users to select what type of records they expect to keep in the new site they are requesting. If you look at the properties for the drop-down menu, as shown in Figure 21-4, you will see that they have six options to choose from.

In addition to a drop-down menu for the record type, the consumer of the form is given a text box in which they can type in some comments about the specifics of their request. After the user has performed these two tasks on the form, the only other item that's of interest is the arrow graphic on the lower-right part of the Home view. This arrow is provided as a way to allow the user to navigate easily to the next screen (view) of the form. This is the first example in the form of using Rules to provide functionality in the form.

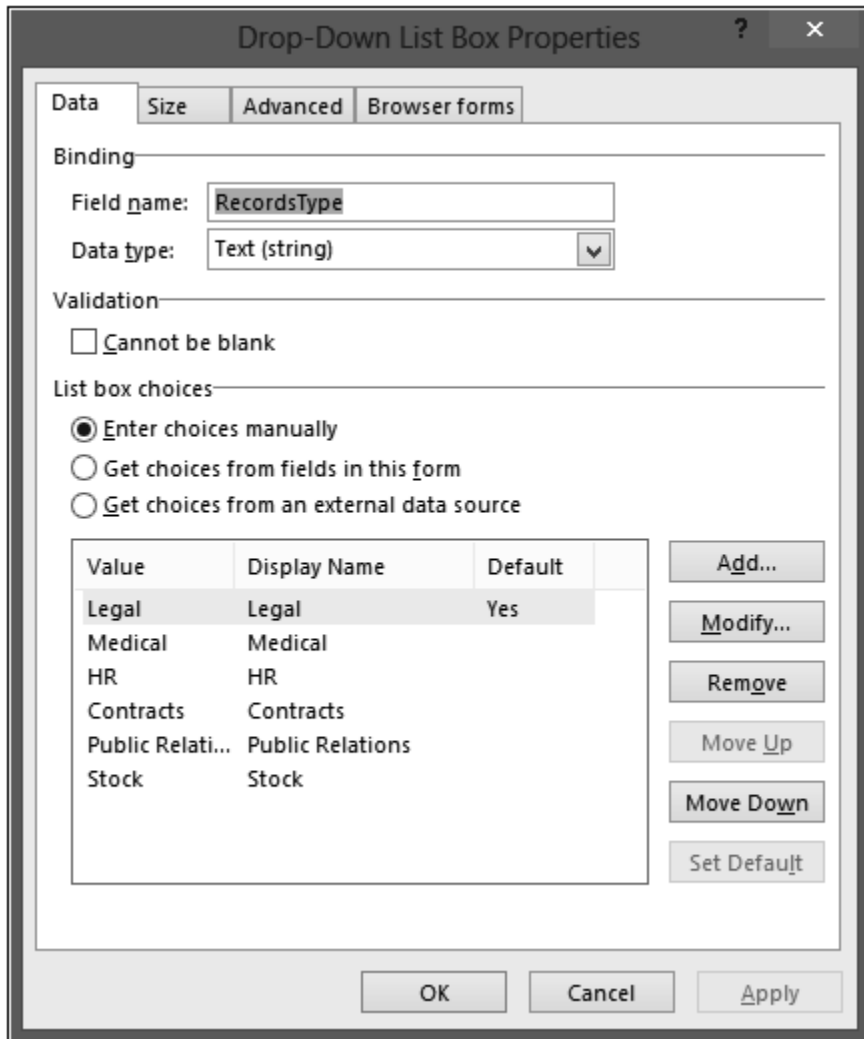
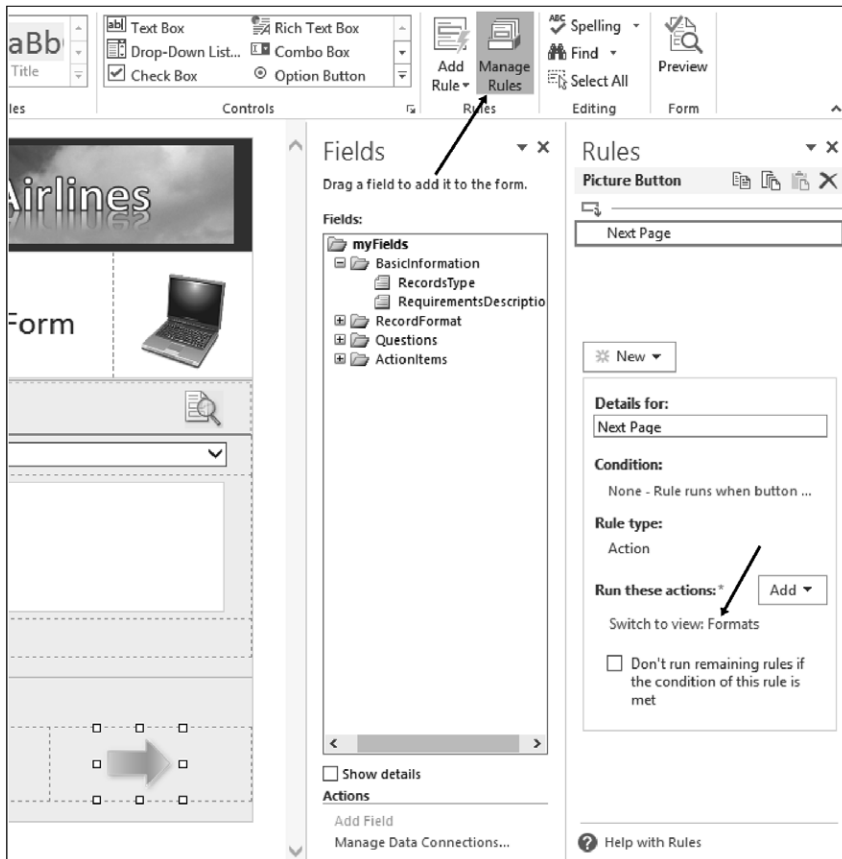


Figure 21-4 The Records Type drop-down has six properties to choose from.

## Note

The arrow graphic is a special type of control in InfoPath called a *Picture button*. Picture buttons allow the designer to associate logic and formatting rules with graphics and icons.

Click the arrow graphic so that it is the active selection on the design surface. Once you have done that, ensure that you choose the Home tab of the ribbon and select the Manage Rules button. As shown in Figure 21-5, this will open the Rules pane on the right side of the InfoPath Designer.



**Figure 21-5** Select the Manage Rules button from the Home tab to open the Rules pane on the right side of the InfoPath Designer.

This particular rule is an Action rule—simple, but useful. The rule simply dictates that when the form user clicks the arrow, InfoPath should take the action of moving them to the next view they will be working with. In this case, clicking the arrow will take the form user to the Formats view.

To see this in action, press the F5 key while inside InfoPath Designer. This will put the form into Preview mode so that you can easily see what the user experience will be at run time. When you have the form opened in Preview mode, click the arrow and notice that you are taken forward to the next view in the form.

## View 2 (Formats)

If you are not already back in the Designer, close out of Preview mode and, using the Page Design tab on the ribbon, navigate to the *Formats* view. One of the first things you'll notice on the Formats view is that we now have two arrow graphics on the form. Each of these Picture buttons has an Action rule associated with it that allows the user to navigate to either the previous view or the next one.

The primary purpose of the Formats view is to have the user choose whether their records are digital, physical, or both. Each of the icons in the middle of the view is associated (via a rule) with a record format. As with the arrow graphic, if you make one of the graphics the active selection in the Designer and then look at the Rules pane, you will see the details of the rule.

As shown in Figure 21-6, you will be able to see the logic assigned to any particular picture button. Notice that the rule sets both the value of the respective format field and the value of the DisplayLabel field at the same time.

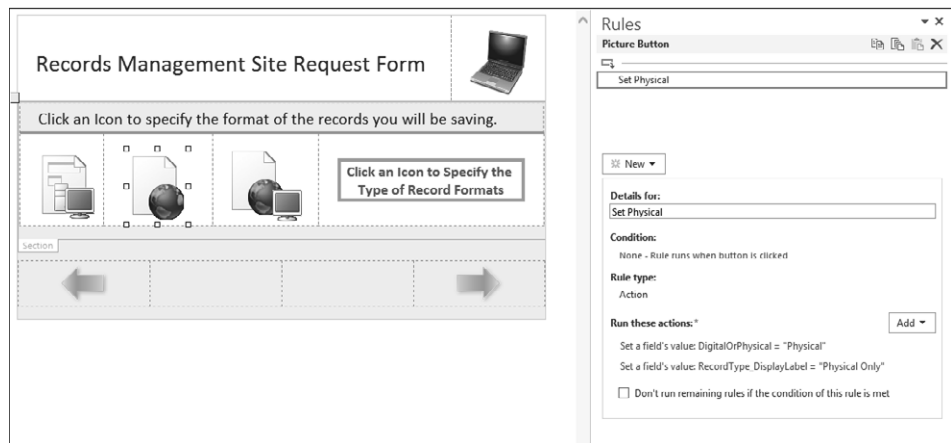


Figure 21-6 In the Rules pane, rules are applied to picture buttons.

Use the F5 shortcut to enter Preview mode while in Formats view. This will allow you to see what this view would do for the form user in Run-time mode.

### View 3 (Questions)

If you are not already back in the Designer, close out of Preview mode and, using the Page Design tab on the ribbon, navigate to the *Questions* view. This view asks the user some questions about the nature of their requirements and then displays appropriate information. The method that the form uses to do this is *Formatting Rules*. The formatting rules in this view are primarily to show or hide information depending on the user's answers. As with the previous two views, the Questions view also makes use of picture buttons tied to Action rules, but in a slightly different and creative manner.

Use F5 to enter Preview mode so that you can understand what this view performs when a user is in Run-time mode. After you have familiarized yourself with the functionality of the Questions view, return to InfoPath Designer.

## INSIDE OUT

### Conditional formatting

A common mistake that forms designers make is to try to display a large amount of information to users, thus overwhelming them and making the form difficult to use. As demonstrated with the Questions view, conditional formatting rules can help overcome this challenge by allowing the interface to dynamically show or hide sections of information, thereby greatly enhancing the form's usability.

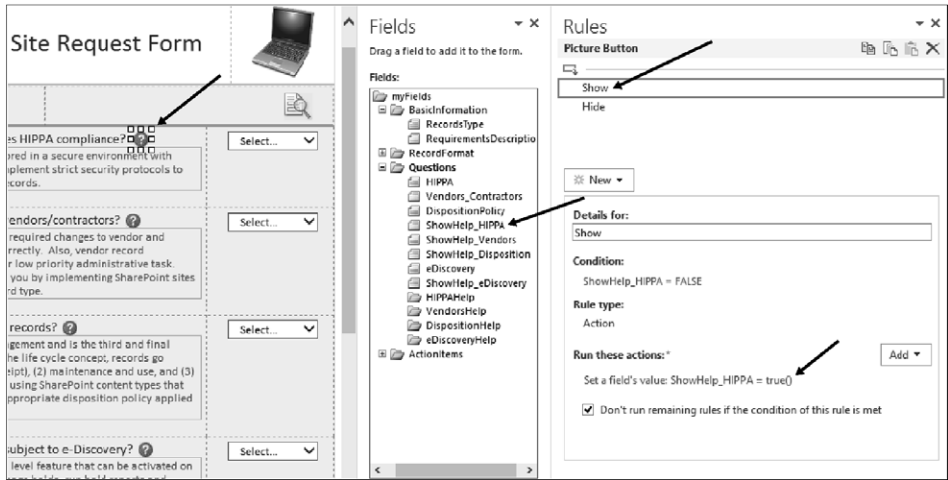
With the Questions view open in InfoPath Designer, click the Question Mark picture button, as shown in Figure 21-7.



**Figure 21-7** When selected, the Question Mark picture button enables further explanatory text to be displayed.

Notice that once you select the Question Mark picture button, you will have a couple of items displayed in the Rules pane. There are two possible rules instantiated when the user

clicks the button: a Show rule and a Hide rule. The purpose of the rules are to either show or hide the Help sections for each question. The Help section contains the actual help text. When the user clicks the question mark, the Show rule sets a Boolean field's value to True. When they click it again, it sets the field's value to False, as shown in Figure 21-8.



**Figure 21-8** The Show Action rule is displayed when the Question Mark picture button is selected.

As you can see in Figure 21-9, each section also has a formatting rule that simply references its respective Boolean field to determine whether it should display the help text on the form.

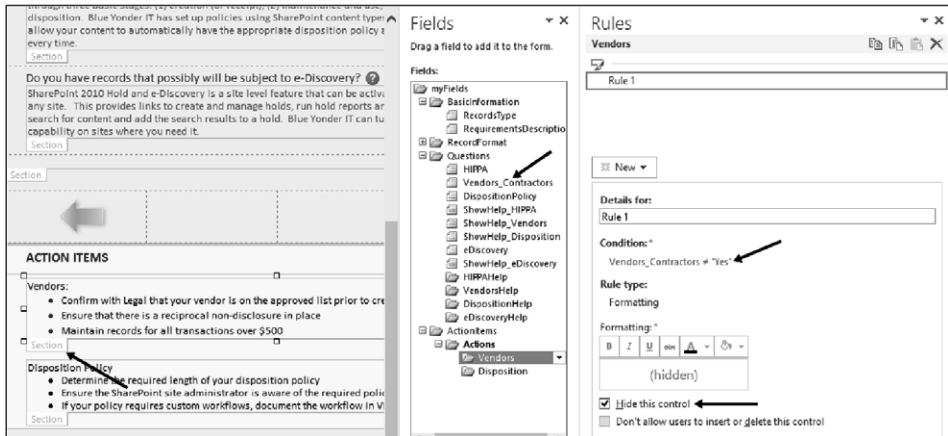


**Figure 21-9** A conditional formatting rule is being applied to a section of text.



To summarize, when clicked, the Question Mark picture button runs an Action rule that sets a Boolean field to True or False. The section containing the actual help text then references the hidden field via a conditional formatting rule to determine whether to show itself or not.

In addition to the Help sections, notice at the bottom of the form that additional Action Item informational sections will be displayed to the user depending upon his or her answers. In Figure 21-10, you can see that these Action Item sections will be shown or hidden using the same type of rules and logic as the above Help sections. Notice that the logic here tells the section that if the hidden Boolean field is *not* equal to True, hide the section.



**Figure 21-10** At the bottom of the form, additional Action Items informational sections are displayed depending upon users' answers.

## View 4 (Summary)

If you are not already back in the Designer, close out of Preview mode and, using the Page Design tab on the ribbon, navigate to the Summary view. This view aggregates and displays information that has already been collected in previous views, as shown in Figure 21-11. It uses the same type of logic as the previous view did to determine whether to display any of the Action Items.

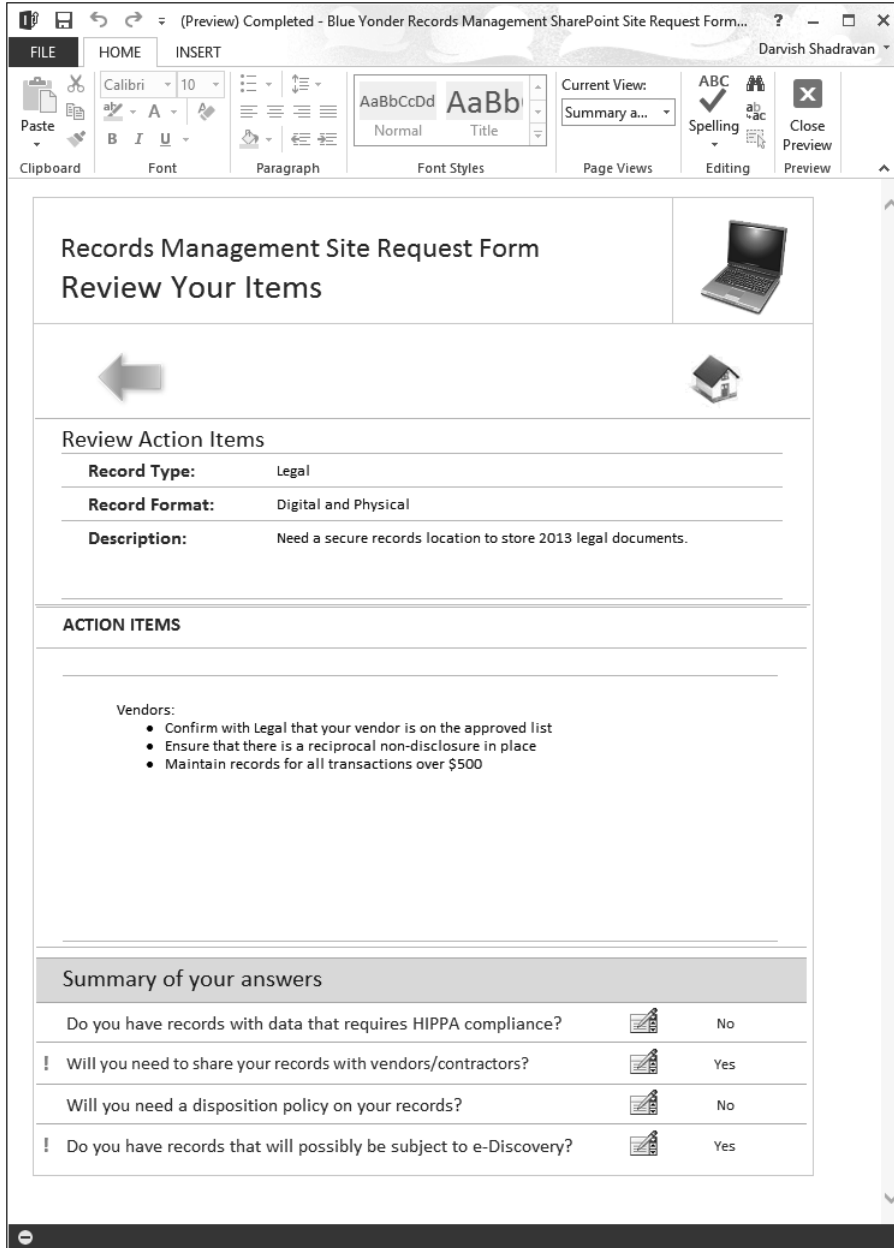


Figure 21-11 The Summary view is shown in Preview (run-time) mode.

In Figure 21-12, you will see that the most interesting use of rules on this view is once again using a picture button with a Switch View Action rule in order to allow users to return to a previous view to edit their answers.

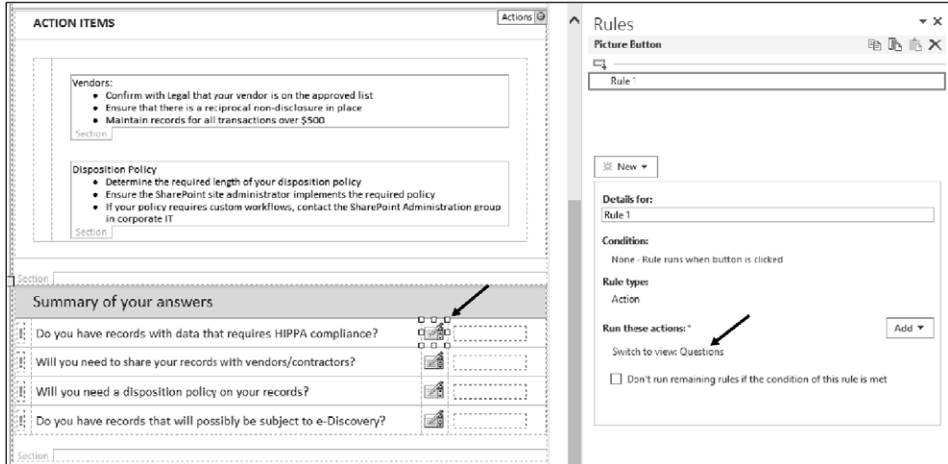


Figure 21-12 A Switch View rule is being applied to a picture button in the Summary view.

## Publishing InfoPath forms to SharePoint libraries

One major component is missing in the Site Request form that you will need to add to a form like this in the real world—a Submit button. If you want to have your users easily submit (save) the form to a SharePoint form library once they are done filling it out, the best practice would be to add a nice large SUBMIT THIS FORM button somewhere on the last view. In order to do this, you or your SharePoint administrator will need to create a SharePoint form library for your forms to be published to. And then you will need to add a button to your form that uses an InfoPath rule to submit to a data connection. In our case, the data connection would be a SharePoint library.

### Note

If creating a SharePoint form library is unfamiliar to you, there is plenty of information online regarding SharePoint form libraries. Also, an entire chapter in *Using InfoPath 2010 with SharePoint 2010 Step by Step* (Microsoft Press; 2011) focuses on publishing and submitting InfoPath forms. The content is still relevant for the 2013 version of InfoPath, which has not changed much since the prior version.

# Creating Access forms

In this section, you will learn about creating SharePoint forms by using Access 2013. You will be given a walkthrough of a Site Request form similar to the previous section, but this time built in Access and using the new SharePoint app model.

## Introduction to Access 2013

Access 2013 features a new application model that enables power users and developers alike to quickly create web-based form applications. Most Access databases need a good form in front of them, and fortunately Access 2013 includes a set of templates that you can use to jump-start creating your application. Taking a look at some of the example templates included with Access is a great way to understand how to build your own form app.

### Note

To use Access 2013 forms, you must have Access Services enabled on your SharePoint farm. Access Services are part of SharePoint's *Enterprise* features.

As mentioned in Chapter 5, "Using Office applications with SharePoint," when SharePoint 2013 hosts an Access app, SQL Server 2012 is used as its data storage technology. Therefore, Access 2013 significantly improves the manageability and scalability of Access form applications. Availability of Access Services with Office 365 and SQL Azure can significantly increase the reach of your Access forms.

## INSIDE OUT

### Using SQL rather than SharePoint lists to store form data

As you saw in the last section, InfoPath forms (along with all their data) can be stored in SharePoint lists. This approach has benefits because of the close coupling with SharePoint list features. Access 2013 forms take a different approach by having deep integration with SQL Server (SQL Azure if you're in the cloud). When you use Access 2013 to create a form app on SharePoint, Access Services generates a SQL Server database that stores all the objects and data in the form. This architecture has certain trade-offs when compared with InfoPath—some of which will be addressed in future updates (such as workflow integration). But on the positive side, storing the forms directly in a SQL database increases performance and scalability. Also, SQL developers can work with the Access form data to build rich, highly scalable form applications.

## Building a simple Access form app

Building an Access form like the InfoPath example shown in the previous section is similar in terms of effort. Replicating the basic functionality of the Site Request form can be accomplished without any code; however, from a design standpoint, Access 2013 is a different tool than InfoPath. Using some basic design tactics in the Access Designer, we can essentially replicate the form, but now you can also gain all the inherent advantages of a forms tool that conforms with the new app model.

Before we deconstruct the Site Request form built in Access, let's cover a few basic Access forms design concepts.

### Views

Access forms also have the concept of views, much as InfoPath does.

For more information, see the MSDN article "What's New for Access 2013 developers," at [http://msdn.microsoft.com/en-us/library/office/jj250134.aspx#ac15\\_WhatsNew\\_Views](http://msdn.microsoft.com/en-us/library/office/jj250134.aspx#ac15_WhatsNew_Views).

Access automatically generates two views—List and Datasheet—for each table in your form. You can also create blank views if you prefer to start from scratch with your form views. Each view in an Access form automatically gets some useful built-in UI elements, such as the Action Bar, which that is common in each view and shown in Figure 21-13. The buttons, from left to right, perform the following actions:

- Add a new record/form
- Delete the current form
- Edit the current form
- Save your changes
- Cancel your changes

If required for your form, you can add buttons that perform custom actions. You can also delete the default buttons, or hide the Action Bar altogether. In many cases, the default buttons provide the basic editing capabilities that Access form apps need.



**Figure 21-13** The default buttons on the Action Bar provide basic editing capabilities.

## Macros

There are two types of macros in Access forms: UI macros and Data macros. UI macros will be used extensively in most Access forms because they provide the intuitive navigation guidance of a well-designed form. UI macros perform actions such as navigating to another view or using logic to show or hide various controls. UI macros can be attached directly to objects, such as command buttons or combo boxes.

When you connect a UI macro to an object in the form, the macro is typically triggered by an event. The types of events supported by UI macros include:

- **On Click** Occurs when a control is selected via a mouse click.
- **On Load** When a view is first opened, On Load macros are instantiated.
- **On Current** When the user moves to a different record in a form view.
- **After Update** After you type data into a control or choose data from a control, this type of macro is triggered.

While UI macros focus on the elements that the form user interacts with, data macros provide the capability for implementing business rules at the data layer. Therefore, data macros can create, edit, and delete records.

## Understanding the design of the Access Site Request form

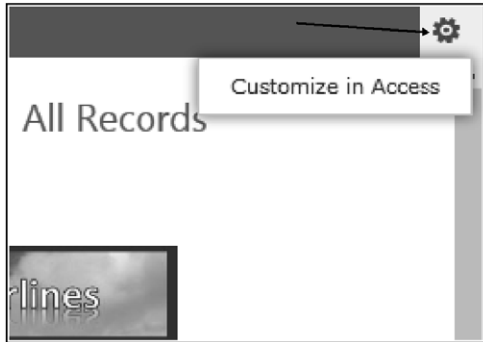
In this section, we will explain the Access version of the Site Request form on a view-by-view basis. This will allow you to fully grasp the design principles at work within each page of the form.

### Note

The completed sample form for the following walkthrough is available for download as an .app package at: [www.microsoft.com/technet/library/fp161234.aspx#AddApps](http://www.microsoft.com/technet/library/fp161234.aspx#AddApps). Before you can use the app, you (or your administrator) will need to add the .app package to your app catalog. Instructions to do that are at <http://technet.microsoft.com/en-us/library/fp161234.aspx#AddApps>. Once the app has been added to your app catalog, you need to then add the Records Management Request app to your site. Instructions on how to add an app to your site are located at <http://technet.microsoft.com/en-us/library/fp161231.aspx>.

## View 1 (Home)

After you have added the Site Request app to a site in which you are an owner, go ahead and use the Add button on the Action Bar of the form to add a few new records. While navigating through the form and its various views, you should begin to get an understanding of the user experience differences between an Access-based form and InfoPath. When you have created and saved a few new records, then use the Settings icon and choose *Customize In Access*, as shown in Figure 21-14. This will open Access 2013 and put you in Edit mode, which is similar to Design mode in InfoPath.



**Figure 21-14** Use the Settings icon to edit the form in Access.

Once Access opens the form, ensure that you are in the Home view, as shown in Figure 21-15, and then click the Edit icon.



**Figure 21-15** The Home view of the Site Request form.

Now that you have entered Edit mode, we'll take a look at a few of the highlights of this view so that you can understand how to design an elegant, easy-to-use form app using Access 2013.

When you previewed the form in your browser, you may have noticed that the Request Name field contained some text to help the form user. This is called an *input hint*. A best practice is not to use input hints on every field in your form, or else the user will learn to ignore them. But in a required field, such as Request Name, it makes sense to alert users to the fact that they must enter a value. As shown in Figure 21-16, you can see that there is a toolbar with three options on many of the controls in Access forms: Data, Formatting, and Actions. These will help you provide the functionality that each of the fields in your form may need. In the case of the Request Name field, we use the input hint under Formatting to provide the hint.

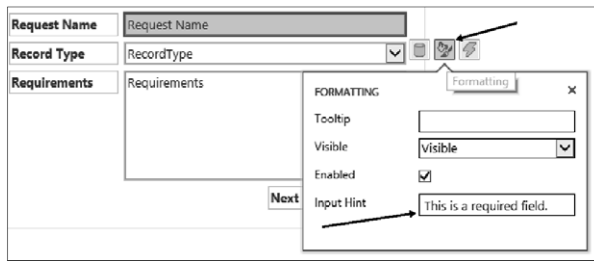


Figure 21-16 An input hint on the Request Name field of the Site Request form.

As users proceed in the Home view of the Site Request form, they are given a drop-down combo box from which to select the desired type of record. The items in the drop-down box can come from either a table in your Access database, or they can be entered manually into the table properties, as shown in Figure 21-17. To access the list of values for a combo box, select the Modify Lookups button on the ribbon.

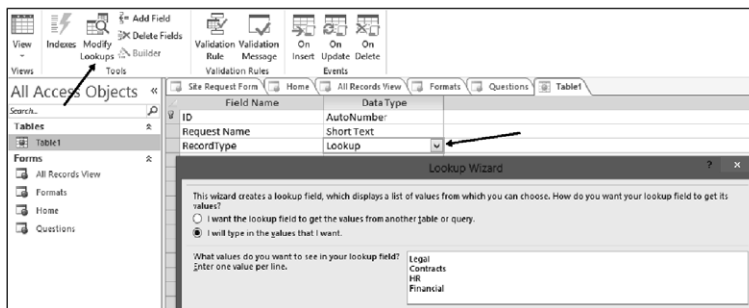
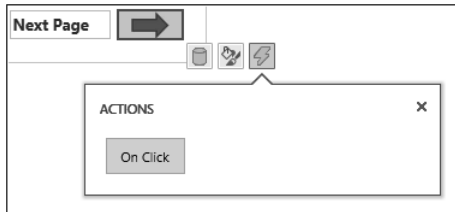


Figure 21-17 The items in the drop-down field can come from a table in your Access database or they can be entered manually into the table properties.

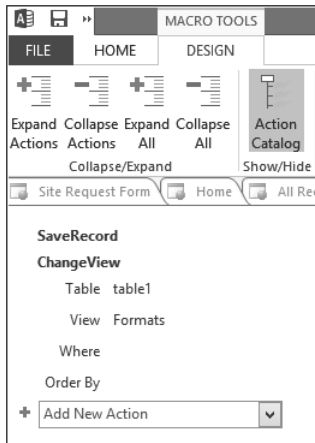


Also on the Home view, there is an arrow graphic similar to the picture button on the InfoPath version of the form. This helps the user easily navigate through the various views of the form in a wizard-like manner, thus eliminating any potential confusion. If you select the Actions property of the arrow graphic, you will notice in Figure 21-18 that the On Click Macro button is green, indicating to the form designer that a macro has been assigned to this particular action.



**Figure 21-18** The Action property of the arrow graphic is selected.

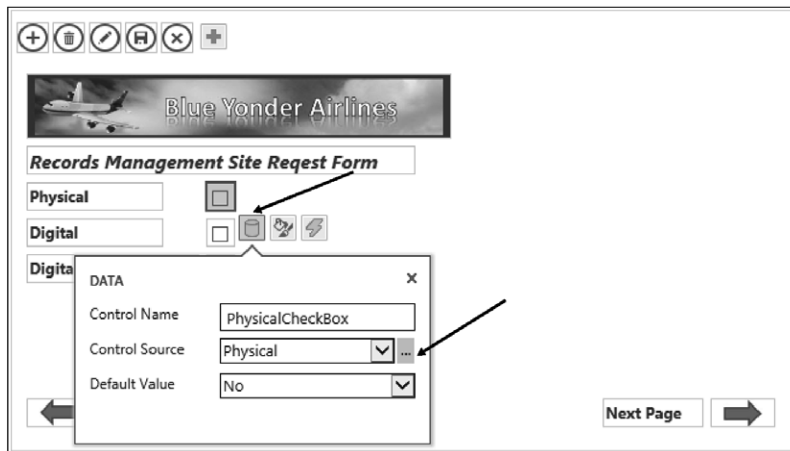
When you select the On Click button, you will be taken into the Macro Designer in Access. As you can see in Figure 21-19, the action macro in this case performs two quite simple tasks. First, it saves the record when the user selects the arrow. This eliminates the need for the form to ask the user to save the changes before moving to the next view. The macro will perform the Save function immediately on behalf of the user when the user clicks the arrow. Second, the macro performs a ChangeView action to take the user to the Formats view when the arrow is clicked.



**Figure 21-19** The macro is instantiated when a user clicks the arrow graphic in the Site Request form.

## View 2 (Formats)

As the user progresses to the second view of the form (Formats), the form design approach selected on this view was to simply present the user a series of check box controls to select one or more record formats that will be stored in their SharePoint site. Each of the check boxes will store a Yes or No value as the user fills out this view. You can see in Figure 21-20 that the check boxes are connected to their respective fields in the database schema via the Data properties for each control.



**Figure 21-20** The check boxes are connected to their respective fields in the database schema via the Data properties for each control.

One other design tactic worth noting on this view is that the entire view itself has a macro that is instantiated immediately when the view is opened by the form user. The purpose of this On Load macro is to ensure that the form is in Edit mode when the user is moved into the view. If we did not add this macro, the user would have to click the Edit button from the Action Bar—an unnecessary step.

In order to see a macro on a view when in Design mode, you need to click anywhere with some empty space (not on a control) in the view. As shown in Figure 21-21, this will enable the properties for the view. The macros again are under the Actions properties.

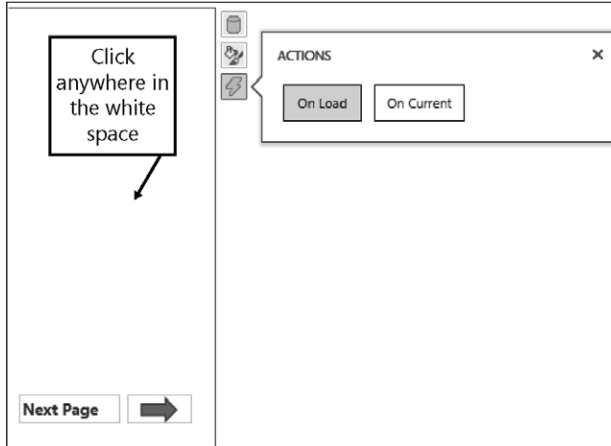


Figure 21-21 An action macro can be applied to the entire view.

### View 3 (Questions)

The Questions view, shown in Figure 21-22, is the third view that the user encounters when filling out our simple Site Request form. The purpose of this view is simply to ask the user four questions about the nature of their records content and display extra information about each selection the user makes.

Figure 21-22 The third view of the Site Request form is the Questions view.

Similar to the Formats view, the Question view of the form has a macro that runs when the form initially loads. The purpose of this macro, as shown in Figure 21-23, is to ensure that the extra information for each question is set to be hidden. So if the respective item's selection is not equal to 1 (true), then hide the detailed information. This helps reduce clutter when the view is initially displayed to the user.

```

EditRecord
  ▢ If [HIPPA_Yes_NoCheckBox]<>1 Then
    ▢ SetProperty
      Control Name HIPPAInformation
      Property Visible
      Value False
    End If
  ▢ If [Vendors_Yes_NoCheckBox]<>1 Then
    SetProperty
      Control Name Vendors Information
      Property Visible
      Value False
    End If
  ▢ If [Disposition_Policy_Yes_NoCheckBox]<>1 Then
    SetProperty
      Control Name Disposition Information
      Property Visible
      Value False
    End If
  ▢ If [eDiscovery_Yes_NoCheckBox]<>1 Then
    SetProperty
      Control Name eDiscovery Information
      Property Visible
      Value False
    End If

```

**Figure 21-23** The Form Load macro for the Questions view ensures that the extra information for each question is set to be hidden.

As you just saw, when the Questions view initially loads on a new record, the extra information about each question is hidden until they select it. Once selected, however, then another set of macros (which are tied to each check box's After Update property) take over. The purpose of these macros (see Figure 21-24) is to toggle the extra detailed information on or off, depending on whether the form user has selected that particular item.

The result is that users get a very clean form that only displays extra detail about each question if they need it. If after reading the details they decide they don't need that item checked, they can simply clear it, and the details disappear because the macro returns the Visible value to False.

```

☐ If [HIPPA_Yes_NoCheckBox]=1 Then
  SetProperty
    Control Name HIPPAInformation
      Property Visible
        Value True
  End If
☐ If [HIPPA_Yes_NoCheckBox]<>1 Then
  SetProperty
    Control Name HIPPAInformation
      Property Visible
        Value False
  End If

```

**Figure 21-24** The After Update macro is connected to the HIPPA check box control in the Questions view of the form.

## View 4 (All Records)

The final view of the form is simply an Access List view that has had the data fields rearranged on it slightly to make it more usable and aesthetically pleasing (see Figure 21-25). From here, the user can easily navigate or search for any of the forms, and then, using the Action Bar, modify the form if necessary. In many form scenarios, this wouldn't be the approach you'd take on the final view, but this is a nice example of using the built-in Access List view to give users a convenient landing spot once they've added a new record.

Home Formats Questions **All Records**

Filter the list... 🔍 (+) (🗑️) (🔍) (🔄) (✕)

Blue Yonder Contracts

Request Name	RecordType
Hello World	Contracts
Legal Docs	
SPCtest	

**Requirements** This provides links to create and manage holds, run hold reports and search for content and add the search results to a hold

**Record Type**

Digital

Physical

**Record Details**

HIPPA Yes\_No

Vendors Yes\_No

Disposition Policy Yes\_No

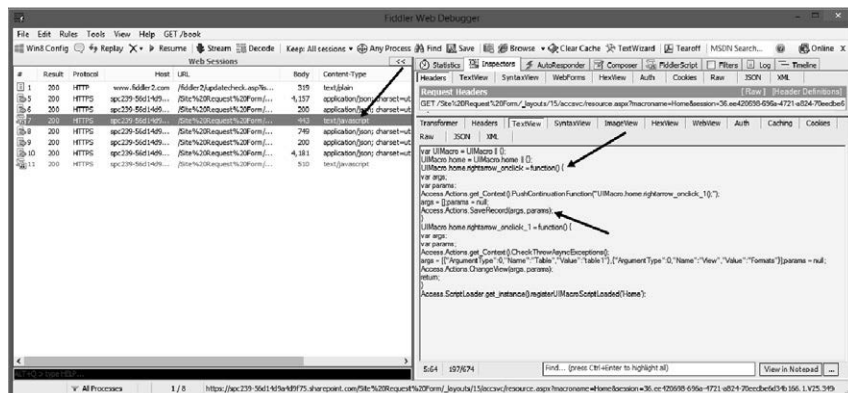
eDiscovery Yes\_No

**Figure 21-25** The All Records view of the form allows the user to select different records and see the details of a particular site request easily.

# INSIDE OUT

## Analyzing the Access and InfoPath forms: Behind the scenes

In some instances, you may desire to gain a deeper understanding of what is happening in the background when a browser interacts with your SharePoint farm during the use of a form. InfoPath browser-based forms and Access 2013 form apps can be monitored, dissected, and understood much more deeply if you use the free tool called Fiddler ([www.fiddler2.com](http://www.fiddler2.com)) to analyze your form. When you have Fiddler installed on your desktop, you can use it to peer inside all communication between the client browser and SharePoint, thus allowing you to find performance issues and other potential issues in your form design. Fiddler captures everything, including the JavaScript, form data, images, and all other types of data that flow between the browser and SharePoint when a form is opened and used. Even the JavaScript for the Access macros can be viewed in raw form, as shown here. The authors have found Fiddler to be an invaluable tool when testing, designing, and troubleshooting enterprise forms; we recommend that you take Fiddler along on your next forms design journey.



## Creating custom forms

If neither InfoPath nor Access 2013 is sufficient to meet the needs of your form, custom development is always an option as well. In Chapter 23, you will learn about SharePoint apps, which are essentially modern web applications. If you know how to build a web application, then you can easily use those skills to build a Form app for SharePoint. And you can use many web-friendly languages such as HTML5, JavaScript, or .NET.

If you are interested in building SharePoint form apps with HTML5 and JavaScript, there are some new options and tools to be aware of, such as Microsoft LightSwitch and TypeScript. For readers of this book, we have provided a sample custom version of the Site Request form that was developed using LightSwitch and JavaScript. It is distributed as an .app package, and you can download the form (including the source code) at <http://aka.ms/SP2013InsideOut/files>.

## Summary

Every business and government entity needs forms that enable its users to input and share information. SharePoint 2013 presents a platform that allows for these forms to be hosted and integrated with many other useful technologies, such as workflows and search.

InfoPath and Access 2013 are the two primary tools for creating SharePoint-based electronic forms of all types, without needing to use code. The types of forms that you can create with these two powerful tools are limited only by your imagination. InfoPath has been a popular forms tool for many years and has excellent integration into SharePoint lists. Access 2013 represents the new era of SharePoint digital forms that are adopting the new SharePoint cloud app model. And custom solution developers have never had so many interesting options for building code-based SharePoint forms—HTML5, Visual Studio 2012, TypeScript, JavaScript, PHP, and so on.





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