

Microsoft®



Step by Step

Using Microsoft® InfoPath® 2010
with Microsoft SharePoint® 2010

Build *exactly* the skills you need.
Learn at the pace *you* want.



Get
practice files and
complete eBook

See back

Darvish Shadravan and Laura Rogers

The smart way to learn how to build InfoPath forms for SharePoint—one step at a time!

Quickly teach yourself how to use Microsoft® InfoPath® 2010 to create electronic business forms for Microsoft SharePoint® 2010. With *Step by Step*, you set the pace—building and practicing the skills you need, just when you need them!

- Design and build InfoPath forms without writing code
- Add approval workflows to your InfoPath forms
- Integrate data from SharePoint and other company systems
- Create forms that offer a rich experience in the browser
- Build views and dashboards to display form information
- Create and use forms in the cloud with SharePoint Online

1 Follow the easy numbered steps

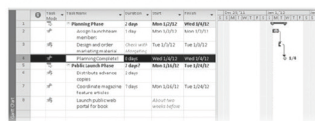
2 Use screenshots to check your work

3 Get helpful tips and pointers

4 Build your skills hands-on using ready-made practice files

40 Chapter 2 Creating a Task List

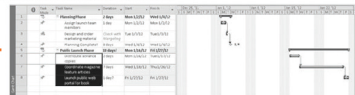
8. Click **OK** to close the **Task Information** dialog box.



Tasks 3 and 4 are linked with a finish-to-start relationship.

Tip Recall that any task can have multiple predecessor tasks. One way you can specify additional predecessor tasks is to add them on the **Predecessors** tab of the **Task Information** dialog box. For finish-to-start relationships (the default link type), the predecessor with the later finish date will determine the start date of the successor task. Next you'll link all the subtasks under **Public Launch Phase** in one action.

9. Select the names of tasks 6 through 8.



There are several ways of linking tasks, and you'll use one more to link the two phases of the new book launch plan.

10. On the **Task** tab, in the **Schedule** group, click **Link Tasks**.

Tasks 6 through 8 are linked.

Tip To select tasks that are not adjacent, select the first task, hold down the **Ctrl** key, and then select the second task.

Practice files Before you can complete the exercises in this chapter, you need to install the practice files specified in "Using the Practice Files" at the beginning of this book to their default location.

Your *Step by Step* digital content includes:

- All the book's **practice files**—ready to download and put to work. See <http://go.microsoft.com/fwlink/?Linkid=230437>.
- Fully searchable **companion eBook**. See the instruction page at the back of the book.

ISBN: 978-0-7356-6206-3



9 780735 662063

U.S.A. \$34.99

Canada \$36.99

[Recommended]

Microsoft InfoPath/
Microsoft SharePoint

Microsoft

Using Microsoft® InfoPath® 2010 with Microsoft® SharePoint® 2010

Step by Step

Darvish Shadravan
Laura Rogers

Copyright © 2011 by Darvish Shadravan and Laura Derbes Rogers

All rights reserved. No part of the contents of this book may be reproduced or transmitted in any form or by any means without the written permission of the publisher.

ISBN: 978-0-7356-6206-3

5 6 7 8 9 10 11 12 13 LSI 8 7 6 5 4 3

Printed and bound in the United States of America.

Microsoft Press books are available through booksellers and distributors worldwide. If you need support related to this book, email Microsoft Press Book Support at mbspinput@microsoft.com. Please tell us what you think of this book at <http://www.microsoft.com/learning/booksurvey>.

Microsoft and the trademarks listed at <http://www.microsoft.com/about/legal/en/us/IntellectualProperty/Trademarks/EN-US.aspx> are trademarks of the Microsoft group of companies. All other marks are property of their respective owners.

The example companies, organizations, products, domain names, email addresses, logos, people, places, and events depicted herein are fictitious. No association with any real company, organization, product, domain name, email address, logo, person, place, or event is intended or should be inferred.

This book expresses the authors' views and opinions. The information contained in this book is provided without any express, statutory, or implied warranties. Neither the authors, Microsoft Corporation, nor its resellers, or distributors will be held liable for any damages caused or alleged to be caused either directly or indirectly by this book.

Acquisitions and Developmental Editor: Kenyon Brown

Production Editor: Adam Zaremba

Editorial Production: Octal Publishing, Inc.

Technical Reviewer: Jonathan Wynn

Copyeditor: Richard Carey

Indexer: Potomac Indexing, LLC

Cover Composition: Karen Montgomery

Illustrator: Robert Romano

*This book is dedicated to my parents and my family.
Thank you for your support, love, and assistance during the past few months;
it was much needed...*

—Darvish Shadravan

*For Charlotte and Kristen: you are the most wonderful daughters in the world,
and you are growing up to be such amazing little ladies.*

—Laura Rogers

Contents

Introducing Microsoft InfoPath 2010	xi
Modifying the Display of the Ribbon	xix
Features and Conventions of This Book	xxiv
Downloading the Practice Files and eBook	xxvi
Getting Support and Giving Feedback	xxviii
1 Introducing Microsoft InfoPath 2010	1
Benefits of Using InfoPath 2010 with SharePoint 2010	2
New Features of InfoPath 2010	4
How InfoPath Works	11
Quick Tour of the Backstage View in InfoPath 2010	13
XML 101	16
Creating the Products.xml File	18
Adding Products.xml to the Form as a Data Connection	18
Using the Template to Create a Form Instance	22
Exporting the Template	23
Key Points	24
2 Form Requirements: Using a Decision Matrix	27
Form Templates	28
Where's the Data?	34
Your SharePoint Version	35

What do you think of this book? We want to hear from you!

Microsoft is interested in hearing your feedback so we can continually improve our books and learning resources for you. To participate in a brief online survey, please visit:

microsoft.com/learning/booksurvey

Factors to Consider	36
Repeating Tables	36
Large Number of Fields	37
User Roles	37
Spelling Checker, AutoComplete, Placeholder Text	38
Submit to a Database	38
Form Parameters	39
Offline Forms	39
Other Controls	40
Administrator-Approved Template	40
The Design Checker	42
Combine Client-Based and Browser-Based Controls	46
Using the Decision Matrix	47
Key Points	48

3 Form Design Basics: Working with InfoPath Layout, Controls, and Views **51**

Form Layout	52
Adding a Layout and Table	54
InfoPath Controls	59
Control Properties Ribbon	64
Understanding the Basics of Data Binding	65
Adding Controls to the Flight Delay Form	66
Adding a Submit Button with a Rule to the Flight Delay Form	74
Views	77
Adding a Second View to the Flight Delay Form	78
Key Points	82

4	Working with SharePoint List Forms	85
	Basics of a SharePoint List	86
	List Form Layout	92
	List Form Fields	97
	Calculated Fields	103
	List Form Pages	109
	Limitations of List Forms	110
	Form Options	112
	Key Points	114
5	Adding Logic and Rules to Forms	117
	Primary Types of Form Logic in InfoPath	118
	Working with Validation and Formatting	121
	Using Functions to Set a Default Value	126
	Adding Action and Formatting Rules	130
	Working with Sections and Conditional Formatting	134
	Using Rules to Create a Wizard-Style Form with Multiple Views	140
	Key Points	150
6	Publishing and Submitting Form Data	153
	Publishing Methods	154
	Promoting Columns	163
	Submitting to SharePoint	168
	Publishing As a Content Type	178
	Administrator-Approved Templates	188
	Key Points	192

What do you think of this book? We want to hear from you!

Microsoft is interested in hearing your feedback so we can continually improve our books and learning resources for you. To participate in a brief online survey, please visit:

microsoft.com/learning/booksurvey

7	Receiving Data from SharePoint Lists and Business Connectivity Services	195
	Receive Data Connections	195
	Adding a SharePoint List Data Connection	196
	Data Connection Libraries	200
	The External Item Picker and Business Connectivity Services	204
	Adding a Filter to a Business Connectivity External Content Type	209
	Key Points	211
8	Using the InfoPath Form Web Part	213
	Web Part Settings	214
	Web Part Connections	224
	Parameters	225
	Other Parameters	231
	Key Points	233
9	Working with the SharePoint User Profile Web Service	235
	Building the Foundation of the Event Registration Form	238
	Creating Form Load Rules on the Event Registration Form	241
	Adding a People Picker and Submit Button to the Event Registration Form	247
	Key Points	251
10	InfoPath Integration with SharePoint Designer Workflows	253
	Introduction to Workflows	253
	Workflow Initiation	254
	Custom Actions	270
	Workflow Task Forms	274
	External List Forms	280
	Key Points	282

11	Building an Approval Process	285
	Gathering Requirements	286
	Contoso Reimbursement Form	287
	Form Views	287
	Approval Fields	288
	The Status Field	293
	Form Load Rules	297
	Approval Sections	301
	Submit Button Actions	306
	Workflow Approvers	318
	Workflow for Emails	325
	Key Points	333
12	Managing and Monitoring InfoPath Forms Services	335
	IPFS Settings in SharePoint Central Administration	336
	IPFS Performance Factors	341
	Installing Fiddler and Monitoring the IPFS Form Load Process	342
	Monitoring the Products Form with a Picture Control	346
	Maximizing Performance by Minimizing Postbacks	349
	Monitoring a Data Connection Postback with Fiddler	351
	Key Points	353
13	SharePoint Views and Dashboards	355
	The Help Desk Request	356
	Views	361
	Ratings	366
	Alerts Based on Views	368
	Library Web Parts	370
	Filter Web Parts	371
	XSLT List View Web Part	376
	The New Form Button	381
	Dashboards Based on Form Libraries	386
	Dashboard Pages and Content Query Web Parts	387
	KPI Web Parts	390
	Key Points	398

14	Advanced Options	401
	The InfoPath Rule Inspector.....	401
	Merging Forms.....	407
	Relinking Forms.....	411
	Browser and Filler Buttons.....	412
	Offline Forms.....	414
	Offline Forms in Outlook.....	416
	Offline SharePoint List Forms.....	416
	Email Attachments.....	417
	Form Preview.....	418
	Default Values.....	419
	Advanced Functions.....	423
	Key Points.....	427
	Index.....	429

Introducing Microsoft InfoPath 2010

Welcome to Microsoft InfoPath 2010, a forms-creation and data-gathering tool that can help you streamline your business processes. InfoPath 2010 is well-suited for almost anyone who needs to design and deploy form solutions—including information workers, IT professionals, and developers. You can use InfoPath 2010 to design sophisticated forms that can quickly and accurately gather information that meet your organizational needs. And its deep integration with the Microsoft SharePoint platform opens up a new world of possibilities for your electronic form requirements.

InfoPath empowers you to design and fill out electronic forms, such as expense reports, event registrations, and customer satisfaction surveys. And you can do this using common form controls that most users are familiar with, such as text boxes, drop-down list boxes, or hyperlinks. When entering data in an InfoPath 2010 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 don't have InfoPath installed on their computer 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.

You can design forms ranging from simple questionnaires to collect data from a small group to complex surveys that are integral components of a much bigger business process. InfoPath form templates can be used as a standalone tool, or you can design them to work with SharePoint lists, applications, databases, or web services. With this flexibility, designers in your organization can easily integrate the form data into existing business processes. If you utilize SharePoint Server 2010 and SharePoint Designer, InfoPath 2010 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. And the data that users enter in your InfoPath forms doesn't have to remain sealed inside that form forever; it can be reused in a variety of ways, especially when coupled with the SharePoint platform.

New Features

Microsoft InfoPath 2010 is a major release and has several new features and capabilities compared with the 2003 and 2007 versions. We don't specifically call out all new features in the book, but you will gain experience with most of the new capabilities as you wind your way through the various chapters and exercises. The list below includes some of the new feature highlights that are most relevant for this book:

- The Microsoft Office Fluent Ribbon relieves you of the burden of hunting through menus, submenus, and dialog boxes. This new interface organizes all of the commands that the majority of people use most often, making them quickly accessible from tabs at the top of the InfoPath window.
- If you create your forms as browser-enabled form templates, users who don't have InfoPath installed on their computer 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. Improved parity between InfoPath Filler 2010 forms and InfoPath browser forms in SharePoint Server 2010 ensures greater consistency across the spectrum of form users.
- SharePoint Server 2010 offers a robust architecture for managing access to data connections and external systems. InfoPath 2010 has a specific form control—the External Item Picker—that works with Business Connectivity Services (BCS).
- InfoPath 2010 includes a new installation option called InfoPath Filler. Filler presents people who are completing forms with a simple and easy-to-use interface. All of the functionality for designing forms is removed for those who just want to open a form and fill it out.
- In SharePoint Server 2010, it's easy to host your InfoPath forms on SharePoint pages by using the new InfoPath Form Web Part. You can simply add the InfoPath Form Web Part to a SharePoint 2010 Web Part page and point it to your form.
- With InfoPath 2010, you can create forms with a click of a button, based on SharePoint lists. If you have data in SharePoint lists, you can automatically generate a form with all of the SharePoint list column fields, and then customize it with the power of InfoPath.

Let's Get Started!

*"When at last we are sure, you've been properly pilled, Then a few paper forms,
Must be properly filled. So that you and your heirs, May be properly billed."*

Dr. Seuss

Tax forms, school forms, business forms, registration forms, order forms, medical forms—forms of all types and for all purposes. Forms, so ubiquitous, and yet so under appreciated. The decision to take on the challenge of authoring this book was driven in part by our passionate belief that InfoPath and SharePoint 2010 together represent a new opportunity to radically transform the experience of using forms from one of dread and tedium, to a much more positive experience. With this new software platform, the untapped potential for improving people's everyday experience of building and using forms is vast. It was this potential for improvement that led us to share with you our knowledge and our passion for the world's best forms creation and editing tool: InfoPath 2010.

Hardware and Software Requirements

To complete the exercises in this book, you will need a Microsoft Windows–based computer with InfoPath 2010 installed on it (either as part of Microsoft Office Professional or standalone InfoPath installation).

The requirements to install InfoPath 2010 are:

- Processor: 500 MHz or faster processor
- Memory: 256 MB RAM or more
- Hard disk: 2.0 GB available disk space
- Display: 1024 x 768 or higher resolution monitor
- Operating system, Windows XP (must have SP3) (32-bit), Windows 7, Windows Vista with SP1, Windows Server 2003 with SP2 and MSXML 6.0 (32-bit Office only), Windows Server 2008, or later, 32 or 64-bit OS.

For many of the exercises in the book, you will also need access to a SharePoint 2010 Server environment. Some exercises might require the Enterprise features of SharePoint such as InfoPath Forms Services. Ideally, you will have a SharePoint site where you have Site Owner permissions in order to effectively work through the exercises in the book. This will be necessary for creating the required forms libraries, workflows, data connections, and other SharePoint objects.

SharePoint Designer 2010 is also required for some exercises; a free download is available at <http://sharepoint.microsoft.com/en-us/product/related-technologies/pages/sharepoint-designer.aspx>.

Office 365: InfoPath and SharePoint in the Cloud

If you do not have your own SharePoint environment, InfoPath 2010 supports the creation of forms in Microsoft Office 365, which is the online SharePoint service in the cloud. All versions of SharePoint Online have support for basic InfoPath integration, although the more advanced capabilities might require specific versions of Office 365. You can find more information on how to sign up for Office 365 at <http://office365.microsoft.com>. Chapter 2 has more information on how to decide which version of SharePoint best suits your needs.

You might notice some user interface differences in SharePoint Online versus an “on premises” installation of SharePoint in your company’s data center. Conceptually, the exercises in this book should work the same with Office 365 in the cloud as they do if you have a SharePoint Server sitting under your desk.

Who This Book Is For

This intended audience for this book is very broad—essentially, it is for any information worker that needs to build and use electronic forms that will be stored in SharePoint. Whether you are an IT professional, an attorney, a sales manager, administrative assistant, or a rocket scientist, this book can teach you the basics of building and using InfoPath 2010 forms in a SharePoint 2010 environment. By the time you finish, you will be fully armed to create a very satisfying form experience for the consumers of your forms.

Because the target audience for InfoPath 2010 (and therefore, this book) is so wide-ranging, we have intentionally set the bar low for required expertise to use this book. If you are a savvy Office and Windows user, that’s a great start! For much of the book,

some existing knowledge of SharePoint Server will definitely be useful. However, even if you're not a SharePoint guru, most topics in this book should be within your grasp. You might need to become good friends with your SharePoint administrator; their help will be invaluable.

A note to IT professionals and software developers: if you don't have much experience using InfoPath with SharePoint, you will likely find this book valuable. However, we want to be clear that you (the technical software professional) are not the primary reader we had in mind when structuring the content in this book. The mission of this book was not to be a comprehensive administrator or developer guide. That undertaking has already been covered by other excellent InfoPath and SharePoint 2010 books on the market.

How This Book is Organized

This book is organized around the idea of using InfoPath 2010 with SharePoint Server. The book does begin with a few chapters that are primarily focused on understanding InfoPath itself; but by Chapter 4, the focus starts to turn to using InfoPath *with* SharePoint. That was our mantra for much of the book—highlight and focus on the areas of InfoPath that have a strong connection and relationship with SharePoint. Throughout the 14 chapters that comprise this book, you will have an opportunity to design forms that integrate tightly with SharePoint in a variety of ways.

Chapter 1, "Introducing Microsoft InfoPath 2010," explores the InfoPath interface, and helps you learn XML basics and to build a simple form.

Chapter 2, "Form Requirements: Using a Decision Matrix," helps you understand which types of InfoPath forms make sense for your requirements.

Chapter 3, "Form Design Basics: Working with InfoPath Layout, Controls, and Views," shows you how to work with sample forms to help you understand different ways to put the basic form components together.

Chapter 4, "Working with SharePoint List Forms," demonstrates how to use InfoPath to customize SharePoint 2010 list forms.

Chapter 5, "Adding Logic and Rules to Forms," explores the capability of InfoPath to add business logic and data validation to forms, without code.

Chapter 6, "Publishing and Submitting Form Data," helps you to experience the various options for publishing your forms to SharePoint.

Chapter 7, "Receiving Data from SharePoint Lists and Business Connectivity Services," presents information on how to retrieve data in to your forms from SharePoint data sources.

Chapter 8, "Using the InfoPath Form Web Part," leads you through the process of displaying your form in a SharePoint Web Part.

Chapter 9, "Working with the SharePoint User Profile Web Service," teaches you how to integrate information about SharePoint users in to your forms by adding web service data connections.

Chapter 10, "InfoPath Integration with SharePoint Designer Workflows," helps you to understand how SharePoint Designer and InfoPath work together to build custom workflow forms.

Chapter 11, "Building an Approval Process," shows you how to add workflows and routing to your forms.

Chapter 12, "Managing and Monitoring InfoPath Forms Services," leads you through working with a variety of administration tools to manage browser-based forms.

Chapter 13, "SharePoint Views and Dashboards," shows you how to take advantage of SharePoint's power to build customized views and dashboards that contain data from your forms.

Chapter 14, "Advanced Options," explores various tips and tricks for integrating advanced form requirements.

Darvish's Acknowledgments

Contrary to popular belief, an author's primary motivation for writing a book such as this is not always career advancement, money, or fame. In my particular case, my four amazing children have been the underlying motivation for most of the good things I do in my life, and this book is no exception. It is of great importance to me that their eyes are wide open to what's possible in life with enough dedication and hard work. It is my hope that in some small way, seeing their Dad's name on a book will help to expand their mind's boundaries as they grow and explore their own paths. Hannah, Sydney, Devin, and Zoe—thank you for your patience and understanding during the several months that it took Dad to work on this project. I love you all very much. Next summer, we'll stay at the lake a few days longer...

Thanks to the InfoPath and SharePoint team members at Microsoft who supported me in various ways through this effort. During the process of writing this book, I emailed, disturbed, and interrogated many of them quite often. I've had the pleasure of getting to know many team members over the last several years and look forward to continuing to work with them. Particular thanks are extended to the following folks whose contributions, example forms, technical guidance, and support I could not have done without:

- Roberto Taboada
- Peter Allenspach
- Laura Harrington
- Daniel Witriol
- Philip Newman
- Keenan Newton
- Nick Dallett (now with Expedia)

To the local team members with whom I work every day at Microsoft in the North Central District, thank you all for your support and understanding while I undertook this authoring challenge.

Thanks to the editorial teams at O'Reilly Media for their guidance and support throughout the development of this book. A special thanks to our editor Kenyon Brown and copyeditor Richard Carey. It's difficult to imagine two more collaborative, professional, and seasoned professionals. They've been there when I needed support—and when I needed a kick in the pants.

Lastly, thank you to my amazing coauthor Laura Rogers. Words can't fully capture what it's like to collaborate so closely with someone like Laura over the course of several months. She's been brilliant, supportive, hard-working, and frankly I just could not have done this project without her. Thank you Laura: you rock!

Darvish Shadravan

Laura's Acknowledgments

For about eight years, InfoPath has been a huge part of my daily work. I thoroughly enjoy working with InfoPath and SharePoint. Thus, writing this book has been an enjoyable and fulfilling experience. It feels great to share the technology with newcomers so that they can create their own custom business solutions, without code.

For my acknowledgments, I'm going all the way back to 1982 in south Louisiana. Thanks to my elementary school teacher, Mrs. Susan Burge. There were seven of us in her gifted class 4 hours of the day, for three years. The class was so special and amazing. That unique learning environment (in a public school) has been a huge advantage. We had to work hard and do spelling and grammar drills every single day, but we also had many frequent field trips to places like nearby New Orleans. It was truly enriching. Now that my children are getting to be that same age, I think about those days, and try to pass some of those learning experiences on to them. I want them to love reading and writing just like their Mommy does.

Charlotte and Kristen, you are the most sweet and beautiful daughters I could ever ask for. Thanks to my husband, Chris, and my girls for being supportive and patient with me when weekend writing was required.

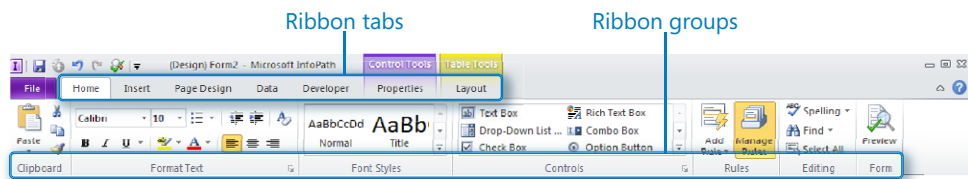
Don't tell him, but I have been a big fan of Darvish Shadravan for several years. I have seen him speak at several conferences, and always took prolific notes in his sessions. When Darvish presented me with this chance to coauthor this book with him, how could I say no? It has been fun and challenging collaborating on this project. We didn't just go off separately and write individual chapters about incongruent topics. A lot of time was spent working on the outline, the order of things, and we made sure to get all of the important points across in the book. We wanted to teach the readers as much as possible.

Also, thank you to Kenyon Brown and the team at O'Reilly Media for all of your hard work and guidance. You have all been extremely knowledgeable and proficient in our collaboration along the way. Thank you for your patience and professionalism.

Laura Rogers

Modifying the Display of the Ribbon

The goal of the Office working environment is to make working with Office documents, including Microsoft Word documents, Microsoft Excel workbooks, Microsoft PowerPoint presentations, Microsoft Outlook email messages, and Microsoft Access database tables, as intuitive as possible. You interact with an Office document and its contents by issuing commands to the program in which the document is open. All Office 2010 programs organize commands on a horizontal bar called the *ribbon*, which appears across the top of each program window, whether or not there is an active document.



Commands are organized on task-specific tabs of the ribbon, and in feature-specific groups on each tab. Commands generally take the form of buttons and lists. Some appear in galleries. Some groups have related dialog boxes or task panes that contain additional commands.

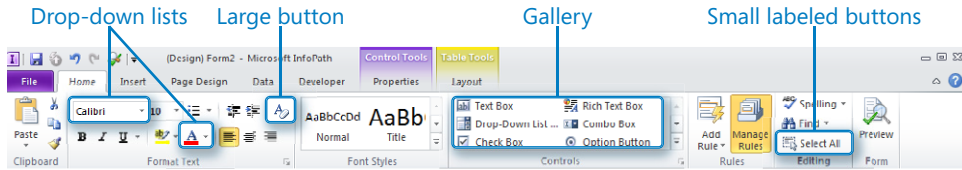
Throughout this book, we discuss the commands and ribbon elements associated with the program feature being discussed. In this topic, we discuss the general appearance of the ribbon, things that affect its appearance, and methods for locating commands that aren't visible on compact views of the ribbon.

Tip Some older commands no longer appear on the ribbon, but they are still available in the program. You can make these commands available by adding them to the Quick Access Toolbar.

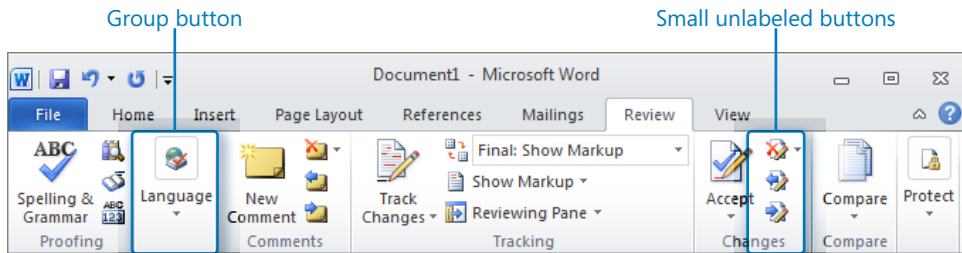
Dynamic Ribbon Elements

The ribbon is dynamic, which means that the appearance of commands on the ribbon changes as the width of the ribbon changes. A command might be displayed on the ribbon in the form of a large button, a small button, a small labeled button, or a list entry. As the width of the ribbon decreases, the size, shape, and presence of buttons on the ribbon adapt to the available space.

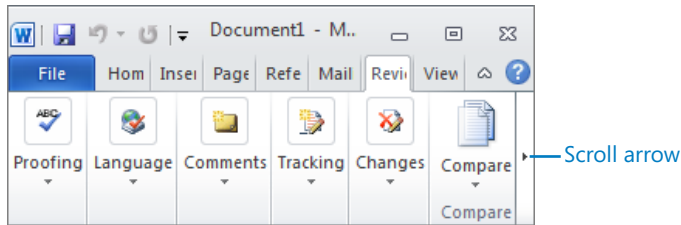
For example, when sufficient horizontal space is available, the buttons on the Review tab of the Word program window are spread out and you're able to see more of the commands available in each group.



If you decrease the width of the ribbon, small button labels disappear and entire groups of buttons hide under one button that represents the group. Click the group button to display a list of the commands available in that group.



When the window becomes too narrow to display all the groups, a scroll arrow appears at its right end. Click the scroll arrow to display hidden groups.



Changing the Width of the Ribbon

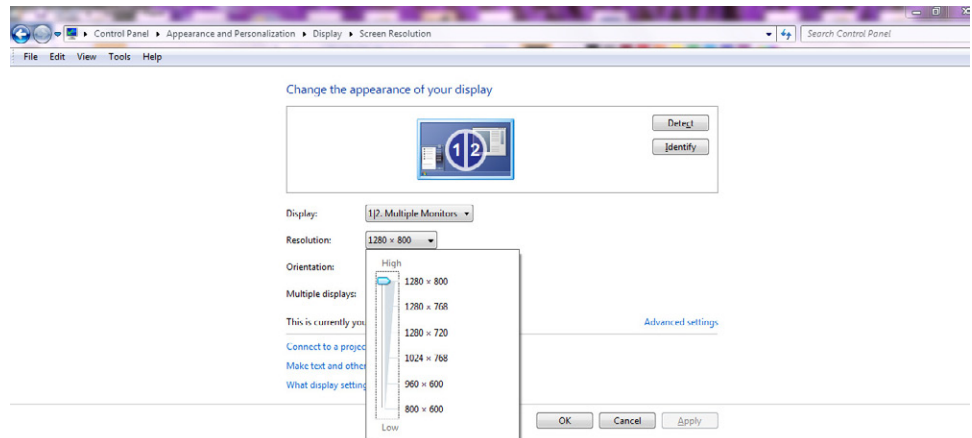
The width of the ribbon is dependent on the available horizontal space, which depends on these three factors:

- **The width of the program window** Maximizing the program window provides the most space for ribbon elements. You can resize the program window by clicking the button in its upper-right corner or by dragging the border of a non-maximized window.

Tip On a computer running Windows 7, you can maximize the program window by dragging its title bar to the top of the screen.

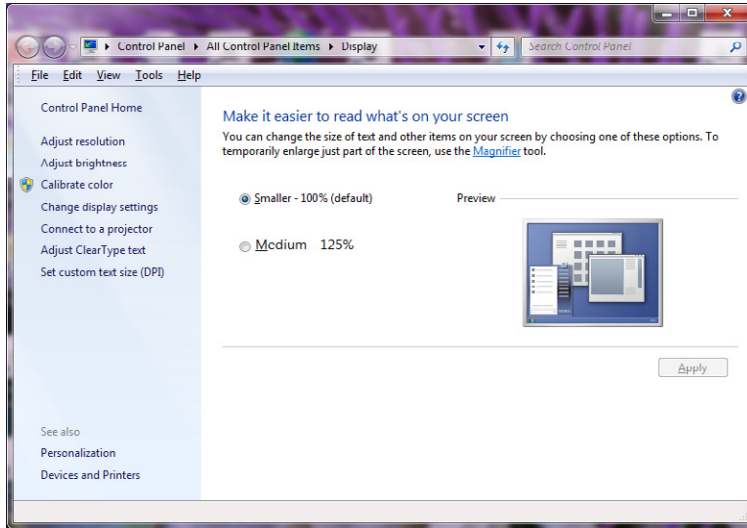
- **Your screen resolution** Screen resolution is the size of your screen display expressed as pixels wide × pixels high. The greater the screen resolution, the greater the amount of information that will fit on one screen. Your screen resolution options are dependent on your monitor. At the time of writing, possible screen resolutions range from 800 × 600 to 2048 × 1152. In the case of the ribbon, the greater the number of pixels wide (the first number), the greater the number of buttons that can be shown on the ribbon, and the larger those buttons can be.

On a computer running Windows 7, you can change your screen resolution in the Screen Resolution window of the Control Panel. You set the resolution by dragging the pointer on the slider.

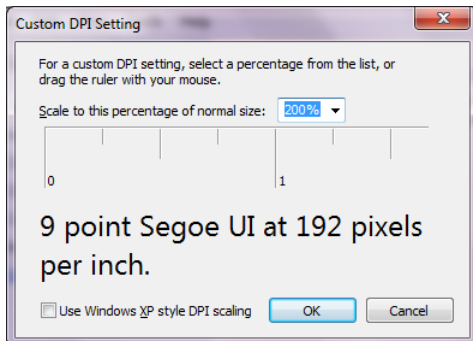


- **The density of your screen display** You might not be aware that you can change the magnification of everything that appears on your screen by changing the screen magnification setting in Windows. Setting your screen magnification to 125% makes text and user interface elements larger on screen. This increases the legibility of information, but it also means that less fits onto each screen.

On a computer running Windows 7, you can change the screen magnification in the Display window of the Control Panel. You can choose one of the standard display magnification options or create another by setting a custom text size.



The screen magnification is directly related to the density of the text elements on screen, which is expressed in dots per inch (dpi) or points per inch (ppi). (The terms are interchangeable, and in fact are both used in the Windows dialog box in which you change the setting.) The greater the dpi, the larger the text and user interface elements appear on screen. By default, Windows displays text and screen elements at 96 dpi. Choosing the Medium - 125% display setting changes the dpi of text and screen elements to 120 dpi. You can choose a custom setting of up to 500% magnification, or 480 dpi, in the Custom DPI Setting dialog box. The list allows you to choose a magnification of up to 200%. You can choose a greater magnification by dragging across the ruler from left to right.



See Also For more information about display settings, refer to *Windows 7 Step by Step* (2009, Microsoft Press), *Windows Vista Step by Step* (2006, Microsoft Press), or *Windows XP Step by Step* (2002, Microsoft Press), by Joan Lambert Preppernau and Joyce Cox.

Adapting Exercise Steps

The screen images shown in the exercises in this book were captured at a screen resolution of 1024 × 768, at 100% magnification, and the default text size (96 dpi). If any of your settings are different, the ribbon on your screen might not look the same as the one depicted in the book. For example, you might see more or fewer buttons in each of the groups, the buttons you see might be represented by larger or smaller icons than those shown, or the group might be represented by a button that you click to display the group's commands.

When we instruct you to give a command from the ribbon in an exercise, we do it in this format:

- On the **Insert** tab, in the **Illustrations** group, click the **Chart** button.
- If the command is in a list, we give the instruction in this format:
- On the **Page Layout** tab, in the **Page Setup** group, click the **Breaks** button, and then in the list, click **Page**.

The first time we instruct you to click a specific button in each exercise, we display an image of the button in the page margin to the left of the exercise step.

If differences between your display settings and ours cause a button on your screen to look different from the one depicted in the book, you can easily adapt the steps to locate the command. First, click the specified tab. Then locate the specified group. If a group has been collapsed into a group list or group button, click the list or button to display the group's commands. Finally, look for a button that features the same icon in a larger or smaller size than that shown in the book. If necessary, point to buttons in the group to display their names in ScreenTips.



If you prefer not to have to adapt the steps, set up your screen to match ours while you read and work through the exercises in the book.

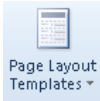
Features and Conventions of This Book

This book has been designed to lead you step by step through all the tasks you're most likely to want to perform in Microsoft InfoPath 2010. If you start at the beginning and work your way through all the exercises, you will gain enough proficiency to be able to create and work with most InfoPath plus SharePoint form scenarios. However, each topic is self-contained. If you have completed all the exercises and later need help remembering how to perform a procedure, the following features of this book will help you locate specific information:

- **Detailed table of contents** Search the listing of the topics and sidebars within each chapter.
- **Chapter thumb tabs** You can use these to easily locate the beginning of the chapter you want.
- **Topic-specific running heads** Within a chapter, quickly locate the topic you want by looking at the running heads at the top of odd-numbered pages.
- **Glossary** Use this to look up the meaning of a word or the definition of a concept.
- **Keyboard Shortcuts** If you prefer to work from the keyboard rather than with a mouse, you can find all the shortcuts in one place.
- **Detailed index** Look up specific tasks and features in the index, which has been carefully crafted with the reader in mind.

You can save time when reading this book by understanding how the *Step by Step* series shows exercise instructions, keys to press, buttons to click, and other information.

Convention	Meaning
 SET UP	This paragraph preceding a step-by-step exercise indicates the practice files that you will use when working through the exercise. It also indicates any requirements you should address or actions you should take before beginning the exercise.
 CLEAN UP	This paragraph following a step-by-step exercise provides instructions for saving and closing open files or programs before moving on to another topic. It also suggests ways to reverse any changes you made to your computer while working through the exercise.

Convention	Meaning
1. 2.	Numbered steps guide you through hands-on exercises in each topic, as well as procedures in sidebars and expository text.
See Also	This paragraph directs you to more information about a topic in this book or elsewhere.
Troubleshooting	This paragraph alerts you to a common problem and provides guidance for fixing it.
Tip	This paragraph provides a helpful hint or shortcut that makes working through a task easier.
Important	This paragraph points out information that you need to know to complete a procedure.
Keyboard Shortcut	This paragraph provides information about an available keyboard shortcut for the preceding task.
Ctrl+B	A plus sign (+) between two keys means that you must press those keys at the same time. For example, “Press Ctrl+B” means that you should hold down the Ctrl key while you press the B key.
	Pictures of buttons appear in the margin the first time the button is used in a chapter.
Bold	In exercises that begin with SET UP information, bold type displays text that you should type; the names of program elements, such as buttons, commands, windows, and dialog boxes; and files, folders, or text that you interact with in the steps.

Downloading the Practice Files and eBook

Before you can complete the exercises in this book, you need to copy the book's practice files to your computer. These practice files, and other information, can be downloaded from here:

<http://www.microsoftpressstore.com/title/9780735662063>

Display the detail page in your web browser and follow the instructions for downloading the files.

Important The Microsoft InfoPath 2010 program is not available from this website. You should purchase and install that program before using this book.

The following table lists the practice files for this book.

Chapter	File
Chapter 3, Form Design Basics: Working with InfoPath Layout, Controls, and Views	Raw Flight Delay Form.xsn Flight Delay Form Post Exercise 1.xsn Flight Delay Form Post Exercise 2.xsn Flight Delay Form Post Exercise 3.xsn Flight Delay Form Post Exercise 4.xsn Blue Yonder Header.bmp
Chapter 5, Adding Logic and Rules to Forms	No rules procurement.xsn Completed Procurement.xsn Blue Yonder Records Management SharePoint Site Request Form.xsn Completed - Blue Yonder Records Management SharePoint Site Request Form.xsn
Chapter 7, Receiving Data from SharePoint Lists and Business Connectivity Services	Flight Delay Form.xsn UDC Form.xsn External Item Picker Example.xsn
Chapter 11, Building an Approval Process	ContosoReimbursementForm.xsn ContosoReimbursementFinal.xsn
Chapter 13, SharePoint Views and Dashboards	Helpdesk Requests.XSN NewFormButton.png
Chapter 14, Advanced Options	Translate example.xsn

Your Companion eBook

The eBook edition of this book allows you to:

- Search the full text
- Print
- Copy and paste

To download your eBook, please see the instruction page at the back of this book.

Getting Support and Giving Feedback

Errata

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://www.microsoftpressstore.com/title/9780735662063>

If you find an error that is not already listed, you can report it to us through the same page.

If you need additional support, email Microsoft Press Book Support at mspinput@microsoft.com.

Please note that product support for Microsoft software is not offered through the addresses above.

Getting Help with Microsoft InfoPath 2010

If your question is about Microsoft InfoPath, and not about the content of this Microsoft Press book, your first recourse is the Microsoft InfoPath Help system. You can find general or specific Help information in a couple of ways:

- In the Microsoft InfoPath window, you can click the Help button (labeled with a question mark) located in the upper-right corner of the window to display the Microsoft InfoPath Help window.
- On the ribbon, you can click the File tab to access the Help button.

If your question is about Microsoft InfoPath or another Microsoft software product and you cannot find the answer in the product's Help system, please search the appropriate product solution center or the Microsoft Knowledge Base at:

<http://support.microsoft.com>

In the United States, Microsoft software product support issues not covered by the Microsoft Knowledge Base are addressed by Microsoft Product Support Services. Location-specific software support options are available from:

<http://support.microsoft.com/gp/selfoverview>

We Want to Hear from You

At Microsoft Press, your satisfaction is our top priority, and your feedback our most valuable asset. Please tell us what you think of this book at:

<http://www.microsoft.com/learning/booksurvey>

The survey is short, and we read *every one* of your comments and ideas. Thanks in advance for your input!

Stay in Touch

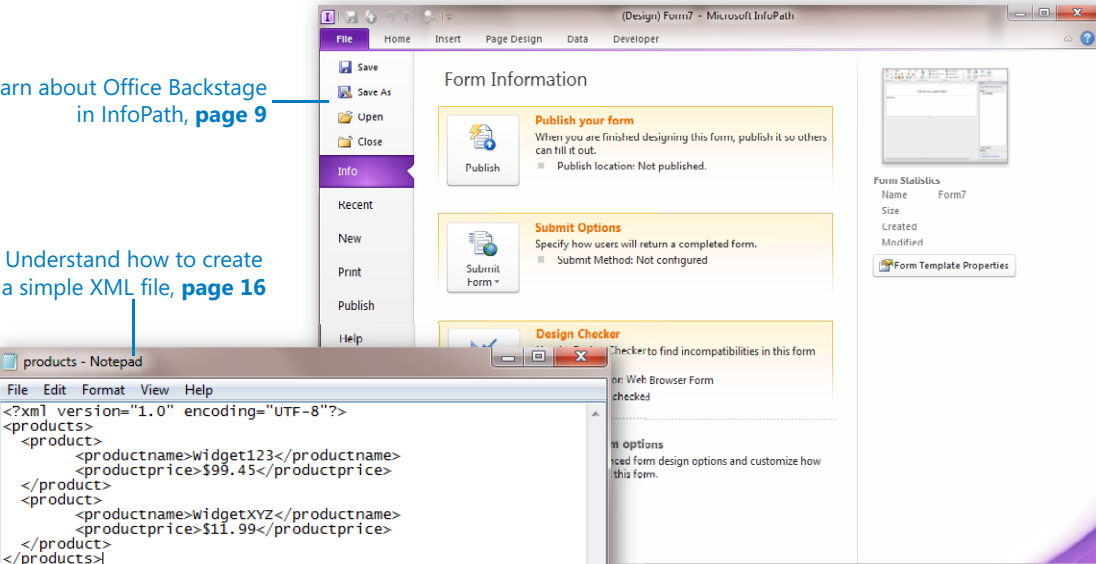
Let's keep the conversation going! We're on Twitter:

<http://twitter.com/MicrosoftPress>

Chapter at a Glance

Learn about Office Backstage in InfoPath, [page 9](#)

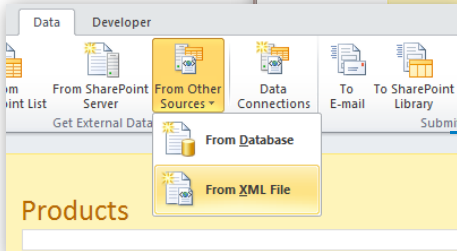
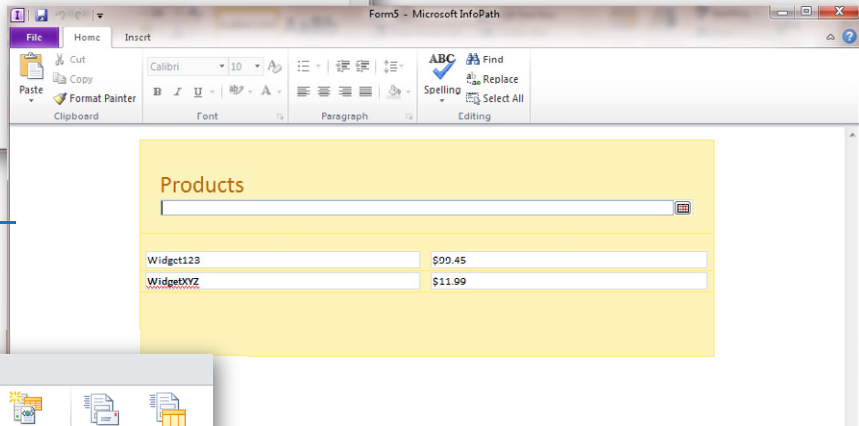
Understand how to create a simple XML file, [page 16](#)



products - Notepad

```
File Edit Format View Help
<?xml version="1.0" encoding="UTF-8"?>
<products>
  <product>
    <productname>widget123</productname>
    <productprice>$99.45</productprice>
  </product>
  <product>
    <productname>widgetXYZ</productname>
    <productprice>$11.99</productprice>
  </product>
</products>
```

Create an InfoPath form, [page 13](#)



Add data connections to a form, [page 19](#)

1 Introducing Microsoft InfoPath 2010

In this chapter, you will learn how to:

- ✓ Enumerate the benefits of using InfoPath 2010 forms with Microsoft SharePoint 2010
 - ✓ Use the Microsoft Office Backstage functions to create a new InfoPath form
 - ✓ Navigate the InfoPath interface
 - ✓ Create a basic XML file and integrate it into an InfoPath form
-

When speaking about Microsoft InfoPath at technology conferences, I often open the discussion by posing the following question to the audience: who or what is it that “runs the show” here on planet Earth? The responses include many entertaining and thoughtful comments, such as “money,” “The Illuminati,” “the military,” and my personal favorite, “Bill Gates.” While I acknowledge all of these as good guesses, the premise I submit to the audience is that *forms* run the world. Imagine modern life without forms, both paper and digital—it’s not possible! Everything that is known and recorded about you, from your birth city to your magazine subscriptions, to your preference of aisle or window seats—yes, all this information was entered in a form at some point in time. Forms of all sizes, shapes, colors, and styles have positively flourished!

We have become so accustomed to consuming information in modern life that the experience of creating and *capturing* that information is often overlooked. Forms now permeate daily life so deeply that we often don’t consciously realize the extent to which they have proliferated, and the extent to which we have come to rely on them. And let’s be honest: most of these forms could be improved to make them more user friendly, more efficient, and more capable of providing long-term business value with all that data that’s being collected.

If you are reading this book, we can safely assume that you have a mission of building, deploying, and using digital forms on the SharePoint 2010 platform. Accordingly, the mission of this book is to help you understand how to create business forms that provide a pleasant, reliable, and intuitive experience for your users and customers.

And just how exactly shall you endeavor to accomplish this lofty objective? This is where Microsoft InfoPath 2010 will assist with your mission. While it is true that e-forms have been around for a couple decades, it is only now that we are seeing a complete platform capable of truly revolutionizing the way data is captured, stored, reported, and utilized for collaboration. Armed with this book, we will take you, the business forms designer, on a journey of understanding so that you can make the most of this amazing set of software tools now at your finger tips.

Practice Files No practice files are required to complete the exercises in this chapter.

Benefits of Using InfoPath 2010 with SharePoint 2010

InfoPath is now in its third major version and has matured into a product capable of designing forms for business, schools, and government agencies of all sizes. It is suitable for scenarios as simple as a small business that needs basic information tracking, all the way up to enterprises with many thousands of users entering data simultaneously worldwide. Many of the core concepts of InfoPath have not changed over the years. It's still a flexible, powerful, easy-to-use, XML-based forms editor. But what *has* changed is the level of integration InfoPath 2010 has with the Microsoft SharePoint 2010 platform.

SharePoint 2010 is a perfect companion application server platform on which to host InfoPath forms because of the complementary set of features SharePoint offers. SharePoint 2010 has a broad set of capabilities for businesses, including collaboration, search, content management, reporting, workflows, and forms. Almost all of the major functionality areas in SharePoint 2010 can be integrated with InfoPath forms and the data contained therein. While you can bring so *many* value-added solutions to your users with InfoPath, it is important to use your imagination and think beyond "just a form." This book will help spur your thinking as you complete the comprehensive exercises and form-building scenarios.

SharePoint *libraries*, specifically *form libraries*, are well suited for storing and managing InfoPath forms. And because form libraries are fundamentally just another type of SharePoint list, you have an abundance of SharePoint capabilities such as workflow,

columns, and user-defined views to enhance the interface and functionality of your form solutions. We will review publishing InfoPath to SharePoint form libraries in depth later in the book.

SharePoint 2010 also offers a very robust workflow platform that your forms can easily use. The possibilities are limited only by your imagination—approvals, routing, and almost every business process require some level of workflow, and fortunately, SharePoint 2010 has a very capable workflow framework. Several of the examples in this book will contain workflow integration. Chapter 11, “Building an Approval Process,” focuses primarily on understanding how to integrate a common business workflow scenario with InfoPath forms.

Reporting and Business Intelligence capabilities in SharePoint 2010 help you extract the data from your forms and present it to business users in a format from which they can immediately derive value. The InfoPath data can be “promoted” to populate SharePoint columns, and thus numerous opportunities exist to reuse the information, including Key Performance Indicators (KPIs), Business Intelligence dashboards/reports, and more. We will take a deeper look at integration of form data into reports and dashboards in Chapter 13, “SharePoint Views and Dashboards.”

Often, forms are not islands of data by themselves; they need integration of data from other systems to be used in drop-down fields, text fields, and other controls. With SharePoint 2010, we have multiple ways to meet this requirement. InfoPath itself supports *data connections* to many data source types, including web services, XML files, and databases. This will be covered in depth in Chapter 7, “Receiving Data from SharePoint Lists and Business Connectivity Services,” and Chapter 9, “Working with the SharePoint User Profile Web Service.” We now also have *Business Connectivity Services* (BCS) in SharePoint 2010 with which you can easily create *External lists* of data in SharePoint that can be used in your forms. These External lists of business data can provide access to a wide variety of information that is stored in your existing systems (for example, CRM, product databases, Human Resources). The underlying concept of the BCS in SharePoint is a powerful one: easily make connections to business data. This will help you build InfoPath forms that do not require the creation of redundant data sets for use in common form controls such as drop-down menus. Imagine a standard form that allows your users to order widgets that they will use during the course of their daily work. Does it make sense to re-key this product data in a drop-down field in the order form, or does it make more sense to connect InfoPath to your existing product/ordering database?

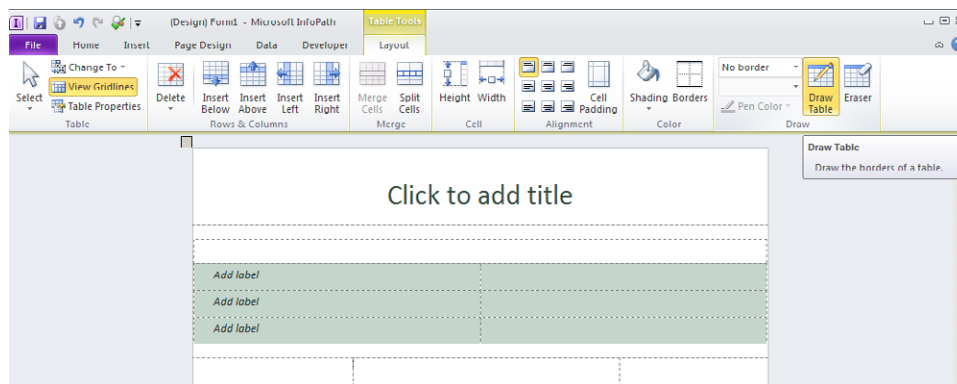
The list of capabilities that your forms can take advantage of in SharePoint 2010 goes on and on: enterprise search, a variety of useful Web Parts, portal pages, extranets, enterprise content management, and much more.

This book is unique in that its focus is the use of InfoPath 2010 in a SharePoint environment. While InfoPath 2010 can be published to a variety of locations, including email, network shares, or your desktop, this book is primarily focused on forms that are designed for use in conjunction with SharePoint 2010.

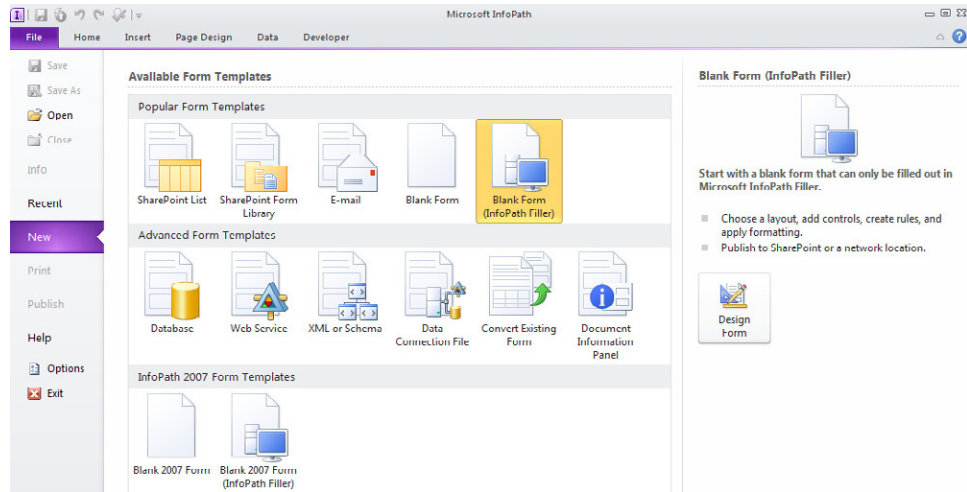
New Features of InfoPath 2010

For those of you upgrading from previous versions of InfoPath, you will immediately notice many significant improvements in this version. The first thing that might strike you is that InfoPath 2010 is the first version of InfoPath to receive the new Microsoft Office Fluent interface. This new user interface includes the ribbon and the Backstage view. These are major advancements toward improving the usability of InfoPath and providing productivity gains for both the designers and the form users.

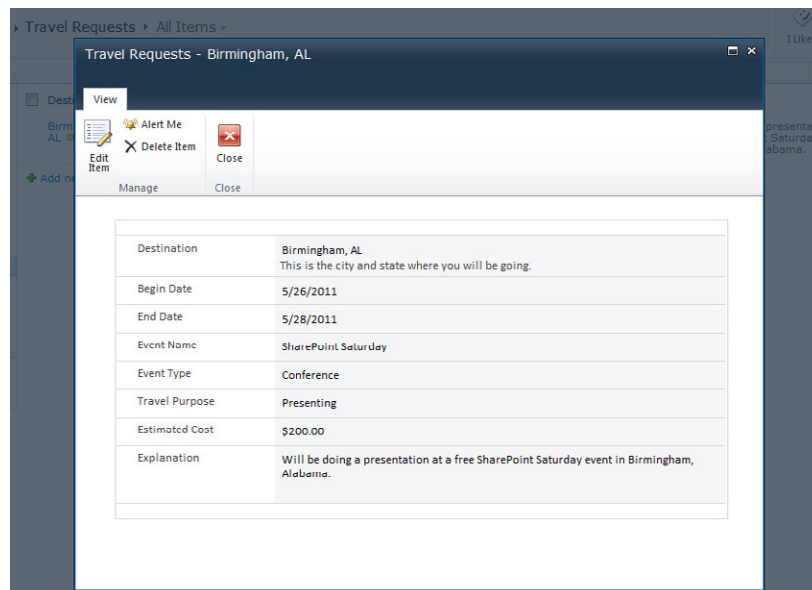
The Office ribbon provides a series of tabs that are “intelligent” in the respect that they are context sensitive. In other words, they present buttons to you organized by activity and particular tasks. For example, when you create a new form, choose the Insert tab on the ribbon, and then click Custom Table, you are automatically taken to the Table Layout tab so that you can refine your table.



In the 2007 version of InfoPath, users would consume forms in two primary ways: either in InfoPath on their desktops or in a browser if the form had been published to SharePoint Form Services. With InfoPath 2010, you have a third option. The InfoPath desktop client now consists of two parts: InfoPath Designer, which provides the full design experience, and InfoPath Filler. Filler is a new InfoPath desktop installation option for users who need to fill in and submit forms but do not need to modify or create new form templates. Chapter 2, “Form Requirements: Using a Decision Matrix,” has in-depth descriptions of the three options and the particular use-cases that are most appropriate for each one.



One very common request in the past from SharePoint customers was for an easier way to customize the default input form for a SharePoint list. In previous versions of SharePoint, customizing a list form required significant expertise and was not a straightforward process. But now, with InfoPath 2010, you can create attractive input forms on SharePoint lists with the click of a button. If you have existing data in SharePoint lists, you can quickly generate a new input form with all of the SharePoint column data. We have exercises that will cover this capability in depth in Chapter 4, “Working with SharePoint List Forms.”



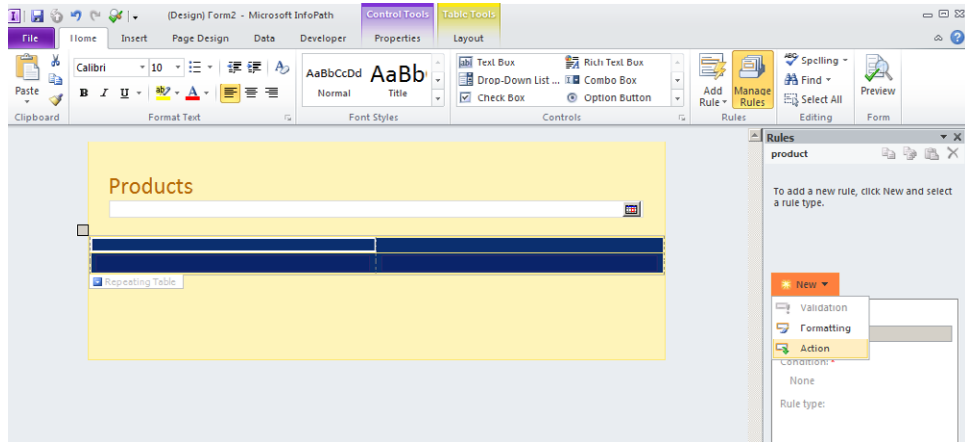
If you decide to utilize SharePoint Form Services to deliver your forms for consumption in web browsers, InfoPath 2010 includes enhanced support for browser-based forms. Web browser forms in 2010 provide a more consistent and richer, user experience, nearly matching the experience of using the InfoPath client application. Controls and functionality now supported in browser forms include the following:

- Date and time controls for adding rich date and time fields
- Bulleted, numbered, and plain lists
- Multiple selection list box, which is a control with which users can select multiple items within a single field
- Combo boxes for when you need to let users either type in their own text or choose from a list of pre-populated items in a drop-down field
- Hyperlink capabilities
- Choice of group and section; users can decide whether or not they need that particular section of the form
- Person/Group pickers for adding a control to your forms with which users can select user names from a SharePoint user list
- Filtering data that is displayed in controls that can now be filtered in web browser forms, limiting the number of items displayed to a user in list boxes, drop-down list boxes, combo boxes, repeating tables, and repeating sections
- Picture buttons for when you prefer a button that is an image of your choice.

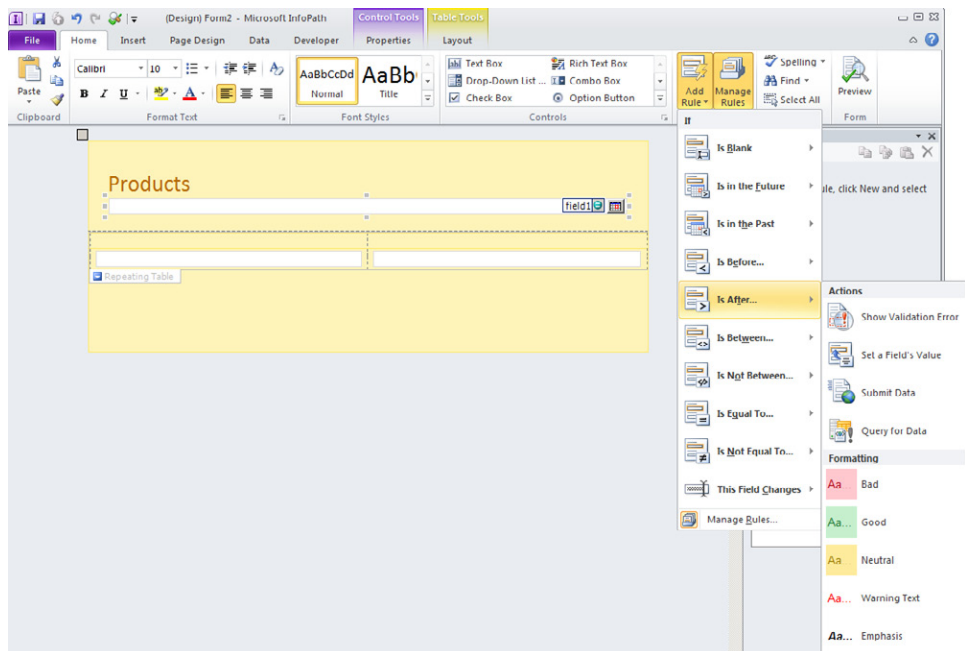
One of the primary tools for adding logic and formatting to a form is via the use of rules. Common examples of the types of things you can use rules for are as follows:

- Automatically updating the contents of a field based on a selection or choice a user made somewhere else in the form
- Hiding controls/fields until a user takes some specific action in the form
- Dynamically changing the formatting of text based on input or selections the user has made in the form
- Showing a pop-up message based on actions the user has taken or in accordance with specific data they have input

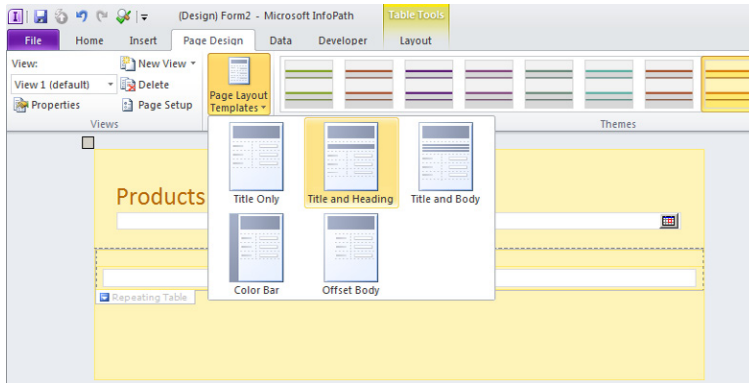
InfoPath 2010 has a much easier way to work with rules, validation, and conditional formatting: it's called the Rules task pane.



Along with the Rules pane, we have the very helpful new Add Rules (also called Quick Rules) button on the ribbon, with which you can very quickly add common, pre-built logic and validation rules to your form without code. The new rules features make it so easy to add data validation and conditional formatting that you will have no problem designing forms that easily guide your users through the process of filling them out! Rules will be covered in depth in Chapter 5, “Adding Logic and Rules to Forms.”

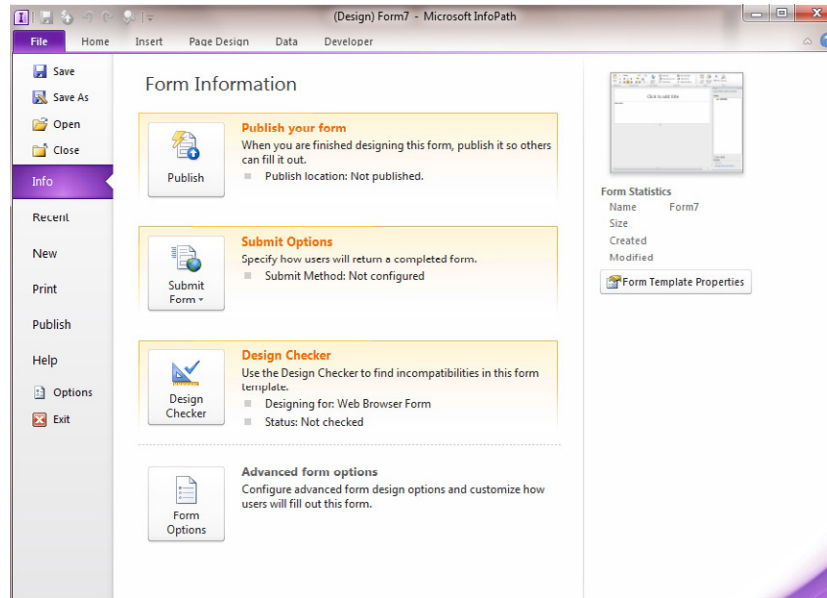


InfoPath 2010 makes laying out an attractive and visually pleasing form easier than ever. You can insert one of the pre-built page layouts from the Page Design tab on the ribbon to give your form structure. And then you can easily apply a theme to provide your form professional-looking colors and styles. With all the new layout tools in InfoPath 2010, even novice InfoPath users can create forms that are highly functional and visually pleasing.

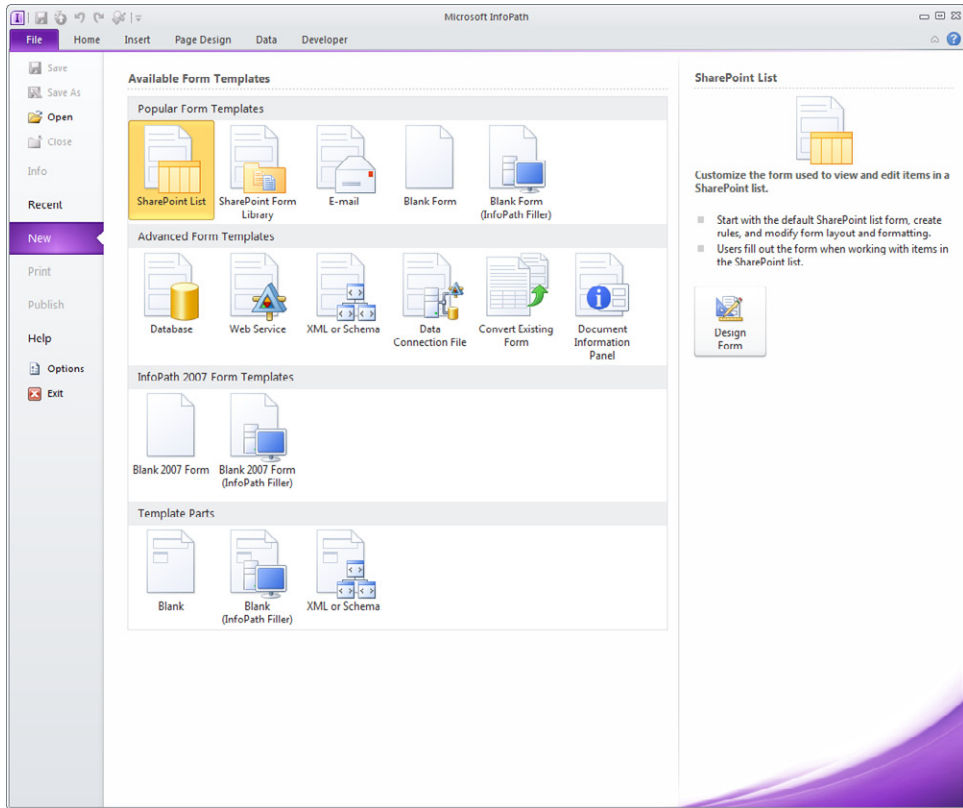


The Backstage view is a major enhancement in the way you perform common tasks with your forms, such as printing, publishing, and setting form options. To access the Backstage view, simply click the File tab on the ribbon. In Backstage view, you will find a variety of very useful features and tools all in one place, including the following:

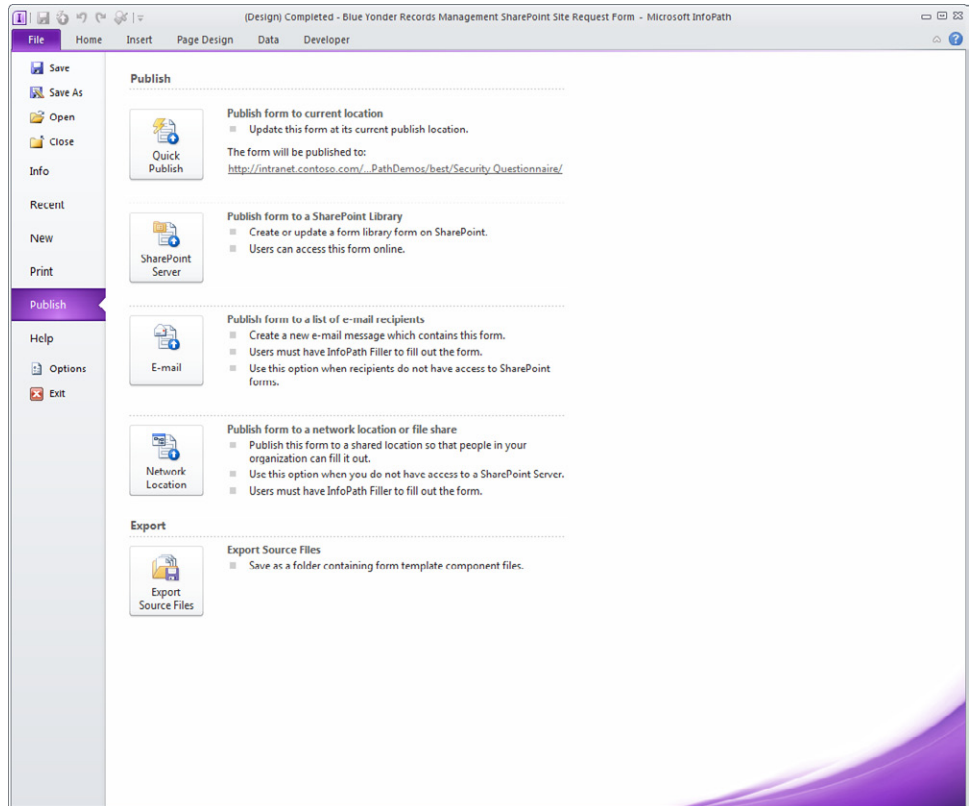
- You can save, open, or close forms all in one convenient place.
- You can use the Info tab to work with a variety of configurable properties of your form. For example, you can use the Info tab to publish your form, define how it will be submitted by your users, and scan for potential problems with the Design Checker.



- You can use the Form Options button to configure a number of important settings for your form, including offline support, compatibility of your form with browsers, and versioning.
- You can use the Recent tab to see a list of forms that you have worked with recently.
- On the New tab, you can initiate the creation of a variety of form templates, including the primary templates we are concerned with in this book—the SharePoint form library and list templates.



- Using the Print tab, you can handle all printing tasks, including the ability to determine which printer you want to print your finished form to. It also provides a very handy print preview feature so that you can see just what your form will look like when it is on paper. With this WYSIWYG (“what you see is what you get”) print preview, there are no more excuses for wasted printer paper.
- The Publish tab is the area in the Backstage view where you decide the location in which to publish your form template. This will determine where your users will access and save their copies of the form later. While you have a variety of options for where to publish your form templates, the primary focus of this book is on SharePoint.



How InfoPath Works

InfoPath is unique in its ability to provide forms design capabilities that include sophisticated logic rules, conditional formatting, and data validation to information workers who might not be programmers. To benefit from these capabilities previously would have required a great deal of technical expertise. A large part of the power of InfoPath is that the file format of the forms is eXtensible Markup Language, or XML, which provides many inherent benefits in terms of flexibility, power, and standardization. However, as the forms designer, you are not required to know *too* much about XML, XSD, XSLT, and all the other technical details behind the scenes. Of course, we'd still encourage you to gain as much knowledge as possible; it will increase your skills and confidence with InfoPath.

The user interface of InfoPath is very similar to the other Microsoft Office 2010 products. If you are familiar with Microsoft Word, Microsoft Excel, or Microsoft Access, you will feel right at home in InfoPath 2010. It is a hybrid tool that combines the best of a traditional document editing experience with the structured data-capture capabilities of a forms package, thus providing end users with the ability to create valid XML documents. Below is a sample InfoPath form that is used for a procurement application. We'll revisit this form later in the book.

The screenshot displays the Microsoft InfoPath 2010 interface. The title bar indicates the document is '(Preview) Procurement [Working Offline] - Microsoft InfoPath'. The ribbon shows 'File', 'Home', and 'Insert' tabs. The 'Home' tab is active, showing options for Clipboard (Paste, Copy, Format Painter), Font (Calibri, size 10, bold, italic, underline, text color, background color), Paragraph (bullet points, numbered list, decrease/increase indent, text alignment, text color, background color), Page Views (Current View: Main View), and Editing (Spelling, Find, Replace, Select All, Close Preview, Preview). The main content area features a header with an airplane icon and the text 'Blue Yonder Airlines'. Below this is a 'New Request' form with the following fields: 'Request Title' (a yellow text box), 'Justification' (a white text box), 'Opened By' (a white text box with a user selection icon), 'Request Date' (a white text box with a calendar icon), 'Request Total Cost (calculated): \$0.00', 'Needed By' (a white text box with a calendar icon), and 'Request Type': Computers. Below the form are five icons: a laptop, a mobile phone, a briefcase, a hat, and a stack of papers. The 'Request Details' section includes a 'Product Search' area with three dropdown menus: 'Product Type:', 'Brand:', and 'Choose Product:'. The status bar at the bottom shows 'Working Offline'.

InfoPath is available either by itself or as part of the Office 2010 suite. The forms can be published to a variety of locations, including email, file shares, and SharePoint. One very powerful InfoPath capability is the ability to publish the forms in such a way that the form consumer can either use InfoPath on her desktop or via her browser, using InfoPath Forms Services. This will enable you to target different types of forms to different types of use-case scenarios based on your specific requirements. We will cover these options in great detail in Chapter 2 and provide all the necessary detail for you to make an informed decision.

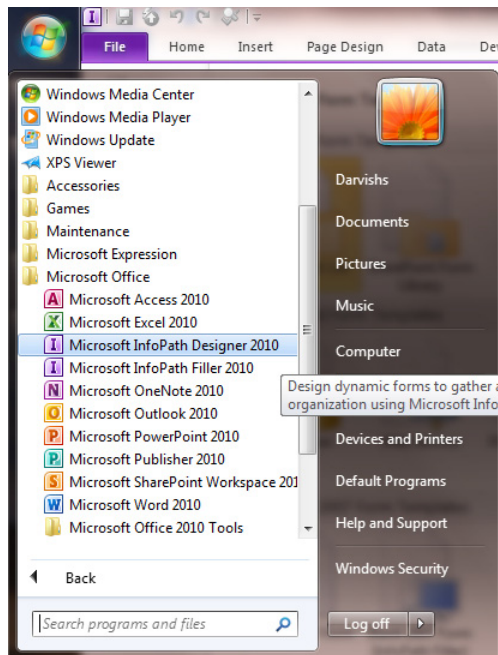
When you create a new form, you are actually creating an InfoPath *template*. The template is saved with the .xsn file extension. After you publish your template to a location that is accessible by your users, they can create forms that are based on your template, but each *instance* they create and 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 locations where your users can generate new form instances (.xml files), based on your template. You will learn more about designing forms in later chapters. For now, it is important you understand a bit about XML and then the difference between a form template and a form instance.

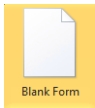
Quick Tour of the Backstage View in InfoPath 2010

In the following exercise, you will work with the InfoPath Designer and become familiar with the ribbon, controls, themes, and the Backstage view.

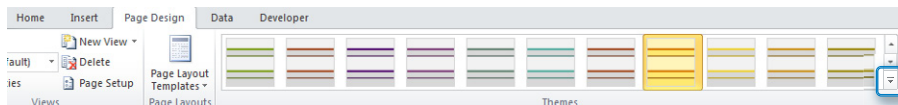
➔ SET UP Open your Windows Start menu.

1. Open the InfoPath Designer.





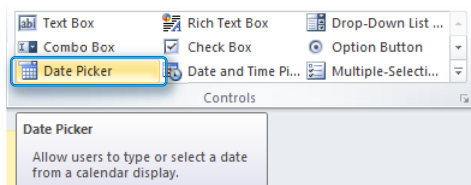
2. In the Backstage view, on the **New** tab, double-click **Blank Form** in the **Popular Templates** section.
3. At the top of the form, click **Click to add title**.
4. Type in **Products**.
5. On the ribbon, click the **Page Design** tab.
6. In the **Themes** area, click the drop-down arrow.



7. Select **Industrial - Graham** from the **Industrial** themes.



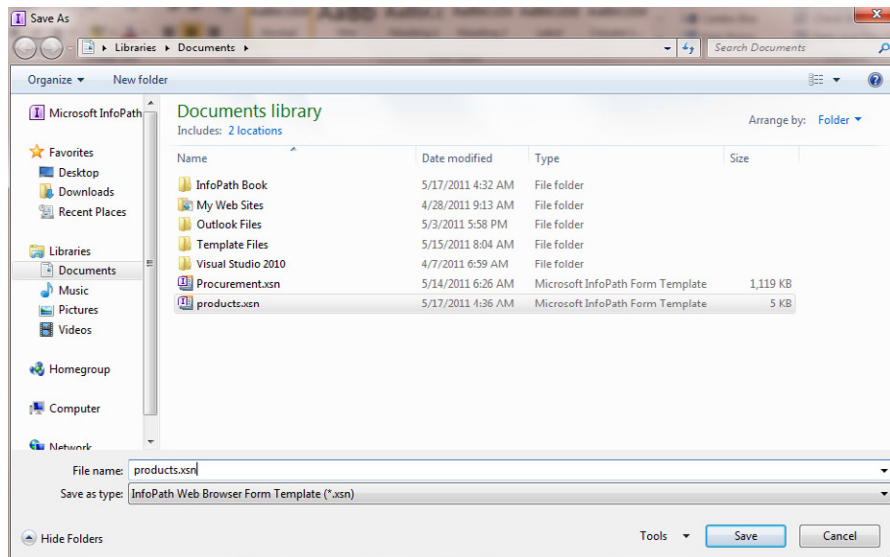
8. On the ribbon, click the **Home** tab.
9. Place your cursor just to the right of the **Products** title, and then press **Enter** so that your cursor is active on the line below the title.
10. From the **Controls** area on the ribbon, select the **Date Picker**. A single click should add it to your form in the location where your cursor was positioned.



11. Still on the **Home** tab of the ribbon, select the **Preview** button on the far right.
12. After your preview opens up, select a date from the date picker so that you can see how this control works.



13. Click **Close Preview**.
14. On the ribbon, click the **File** tab.
15. Click **Save As**, and then name the form **Products**. Save it in your **Documents** folder on your local computer.



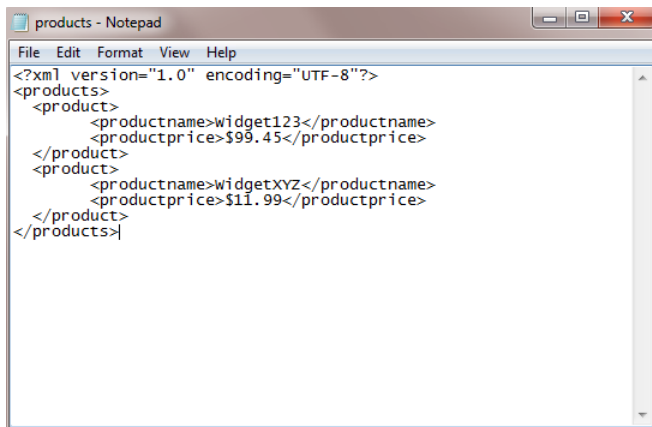
After you've completed the preceding steps, you can leave the form open because you will use it in the next exercise.

✘ CLEAN UP Leave InfoPath Designer open if you are continuing to the next section of this chapter. Otherwise, close it.

XML 101

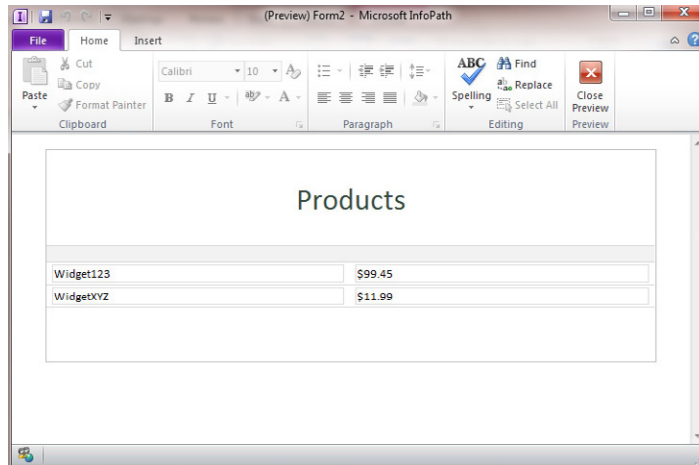
XML is perhaps the single most powerful method of storing and sharing structured data to come along since the advent of digital computing. And fortunately, the native tongue of InfoPath is XML. The fact that the file format InfoPath uses to store and manage data is XML provides an amazing amount of power in an easy-to-use tool. InfoPath does an exceptional job of providing everyday business users of Microsoft Office with the ability to take advantage of the plentiful benefits of XML, while hiding much of the complexity. You do not need to become an expert in XML to create powerful forms, but to have a basic understanding of what XML is and how it works seems a reasonable goal if you want to take full advantage of InfoPath's power.

InfoPath uses XML as its primary file/output format. Behind the scenes, when a user creates an InfoPath form, they are actually creating an XML Document and an associated XML Schema. In addition, InfoPath can use XML data files and XML web services as "data connections" in your forms. So if your business already has other XML data sources, rest assured that you can take advantage of that data in InfoPath. For example, as shown in the following illustration, you could use a simple XML file containing product information to populate a field in your InfoPath form, such as a table or drop-down menu. In fact, you will create this XML file later in this chapter and build a simple form with a table based on the data in it.



```
products - Notepad
File Edit Format View Help
<?xml version="1.0" encoding="UTF-8"?>
<products>
  <product>
    <productname>widget123</productname>
    <productprice>$99.45</productprice>
  </product>
  <product>
    <productname>widgetXYZ</productname>
    <productprice>$11.99</productprice>
  </product>
</products>
```


You'll notice in the preceding screenshot that although the structure might appear strange to you, the data in the XML file is "human readable." This is one of the many great benefits of XML. In this regard, XML is similar to HTML, with a key difference being that XML has a much more defined structure. And as you can see, if you need to open and work with the raw data in the XML file, you can use simple tools such as Microsoft Notepad.



A user who edits an InfoPath form is actually editing an XML document, although the InfoPath interface strips away the complexity. InfoPath also takes advantage of another industry standard technology when editing a form: Extensible Style Sheet Language (XSLT). XSLT style sheets "sit in front of" the underlying XML and transform it into the rich and easy-to-use forms that InfoPath can produce.

InfoPath uses XML standards to provide end users with a flexible yet structured XML editing software tool for data gathering. It provides similar levels of power and flexibility as more traditional forms created by programmers with complex tools, but InfoPath provides the ease of use of the family of Office products.

Creating the Products.xml File

In the following exercise, you will create a small XML data file.



SET UP Open your Windows Start Menu, and then click **Accessories**.

1. From **Accessories**, open Notepad.
2. Type the following code into Notepad *exactly* as it appears here:

Note If you prefer, you can skip this step and download the **Products.xml** file from the book's companion website.

```
<?xml version="1.0" encoding="UTF-8"?>
<products>
  <product>
    <productname>widget123</productname>
    <productprice>$99.45</productprice>
  </product>
  <product>
    <productname>widgetXYZ</productname>
    <productprice>$11.99</productprice>
  </product>
</products>
```

3. Save the file to your **Documents** folder with the file name **Products.xml**. It is important to add the .xml extension; otherwise, Notepad will save it as a .txt file.



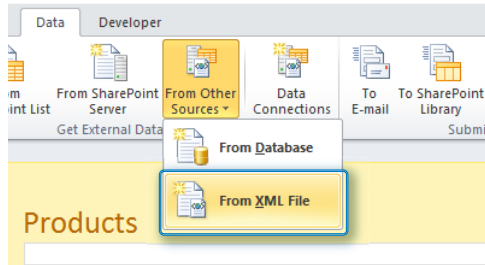
CLEAN UP Close Notepad.

Adding Products.xml to the Form as a Data Connection

In the following exercise, you will add the products.xml file as a resource file data connection to the Products form you created earlier in the chapter.

➔ SET UP Open InfoPath Designer.

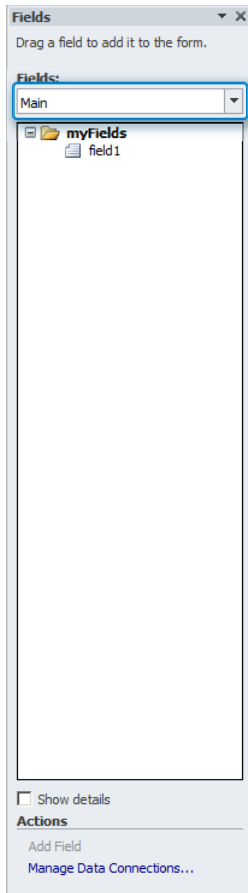
1. In InfoPath Designer, ensure that you still have the **Products** form open that you created earlier in the chapter. (You might need to open it from the location where you saved it on your desktop.)
2. On the ribbon, click the **Data** tab.
3. Select **From Other Sources**, and then select **From XML File**.



4. Browse to your **Documents** folder, and then click the **Products.xml** file you created in the first part of this exercise.
5. Click **Next**, click **Next** again, and then click **Finish**, leaving all pages in the wizard set at their defaults. Nothing obvious will change on your form yet, but you have added the **Products.xml** file as a data connection.
6. From the **Fields task pane** on the right side of your screen, click the drop-down arrow, and then choose **Products (secondary)**.

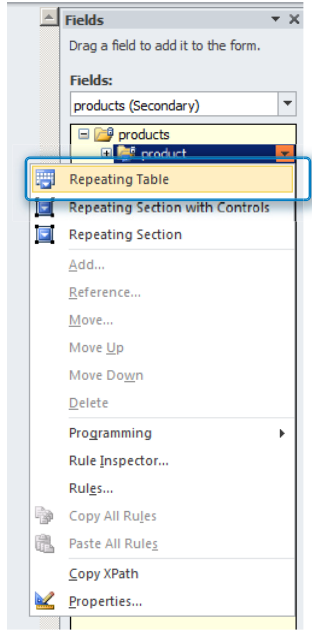
This represents the data connection to the XML file you just added. Your form now has two data connections: the default Main and your products connection.

Tip If you don't see the **Fields task pane**, you can open it by clicking the **Show Fields** button on the **Data** tab on the ribbon.

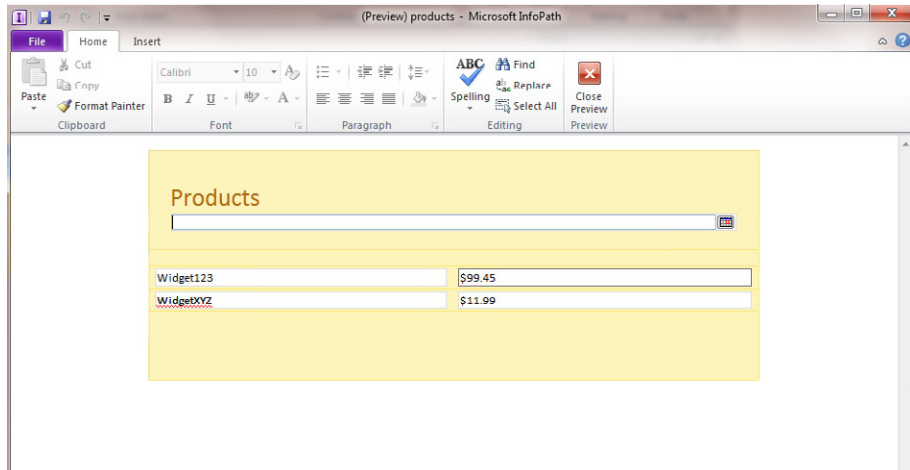


7. Ensure that your cursor is positioned below the dashed line on your form in the design surface.
8. In the **Fields** pane, right-click **product** in the **products** data connection, and then in the shortcut menu that appears, select **Repeating Table**.

This action adds the data from your **Products.xml** file to the form design surface as an **InfoPath Repeating Table** control.



9. On the ribbon, click the **Home**, and then click **Preview**. Voilà! You have a form displaying data from the XML file that you created in the last step.



Keep in mind that it's generally not necessary to create an XML data connection file. InfoPath will do that work for you in most cases. We went through that process simply to give you a taste for what XML really looks like and to illustrate the ability InfoPath has to easily work with external data connection sources.

✖ CLEAN UP Close the preview, and then save your form template.

Using the Template to Create a Form Instance

In the following exercise, you will use the Products form template to create and save an instance of the form. This will help you distinguish the difference between a template and an .xml form instance that is based on the template.

➔ SET UP Ensure that InfoPath Designer is closed. Open your Documents folder where you saved the products.xsn form template.

1. Double-click the **products.xsn** file.

An instance of your form opens, but you're not in design mode. You're in data input Filler mode, using the template you created.

Products	
Widget123	\$99.45
WidgetXYZ	\$11.99

2. Select a date from the date picker, and then click the **Save** button.
3. Save the form to your **Documents** folder with the default file name.

Notice the default file format is .xml. You have now filled out and saved a new form *instance* based on your *template*. Cool!

✖ CLEAN UP Close out of this instance of the form, and then exit InfoPath Filler.

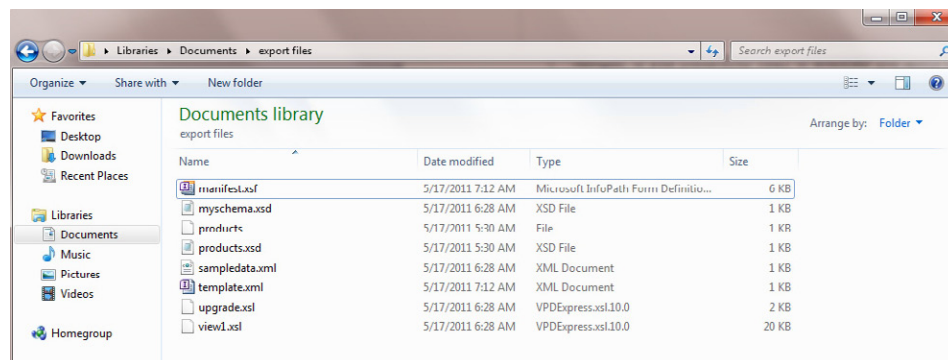
Exporting the Template

In the following exercise, you will export the template into its component files so that you can see what's under the covers of an InfoPath .xsn template.

➔ SET UP Open InfoPath Designer.

1. Find the **products.xsn** template in your **Documents** folder, right-click it, and then in the shortcut menu, choose **Design**.
2. On the ribbon, click the **File** tab, and then click **Publish**.
3. Click **Export Source Files**.
4. Click **Make New Folder**.
5. Create a folder called **export files**, and then click **OK**.
6. Open your **Documents** folder, and navigate to the **export files** folder you just created.

Inside the export files folder you should see several files. Included among them are all the component files that InfoPath uses to give us a form template (.xsn). Notice that our Products.xml file is contained inside the .xsn template along with several critical .xsd and .xsl files that help define the layout and behavior of the actual form. For the purposes of this book, it is *not* important that you understand the details of how these foundational technologies work, but if you're curious, an Internet search for "xsd" or "xsl" will turn up everything you need.

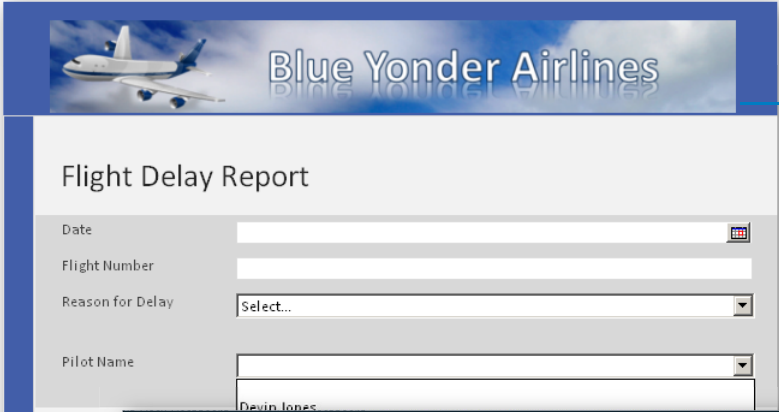


✘ CLEAN UP Close InfoPath Designer.

Key Points

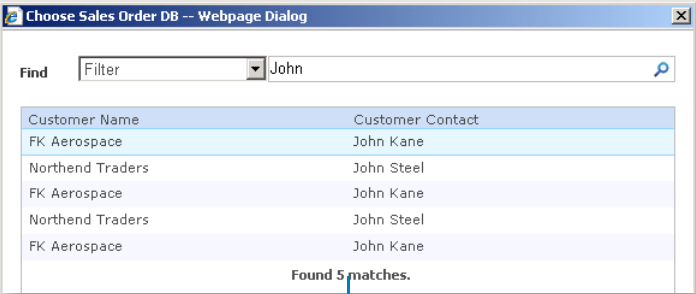
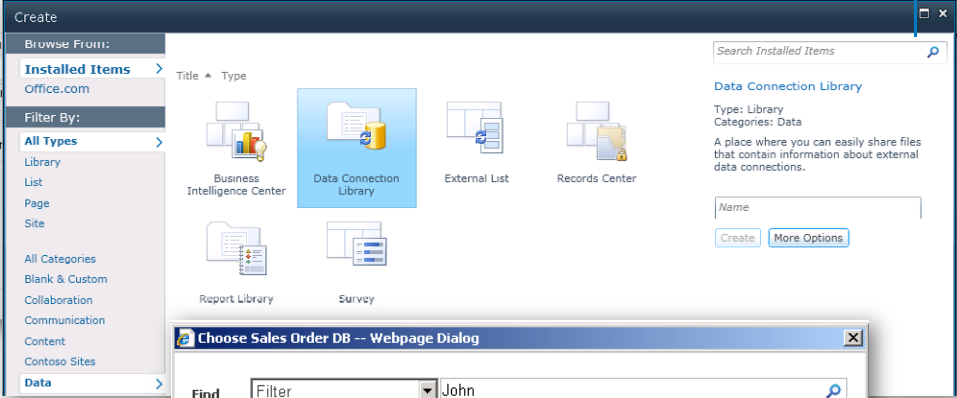
- The InfoPath 2010 user interface received a significant update to put it on par with the other Office applications.
- InfoPath 2010 allows non-programmers to build powerful forms that are based on the XML standard.
- InfoPath 2010 has two desktop components: the Designer and the Filler.
- InfoPath can consume data from external data sources such as XML files.
- InfoPath can take advantage of many of the SharePoint 2010 capabilities, such as workflows, lists, and reporting.
- InfoPath .xsn files are “packages” of individual components that comprise a functional form template.

Chapter at a Glance



Add a SharePoint list data connection to a drop down control, **page 196**

Work with Data Connection Libraries, **page 200**



Use the External Item Picker control, **page 204**

7 Receiving Data from SharePoint Lists and Business Connectivity Services

In this chapter, you will learn how to:

- ✓ Work with Microsoft SharePoint 2010 lists as data sources for your forms
 - ✓ Benefit from maintaining data connections in a centralized Data Connection Library in SharePoint
 - ✓ Configure and use the External Item Picker control and Business Connectivity Services to add information from external systems to your forms
-

Practice Files Before you can complete the exercises in this chapter, you need to copy the book's practice files to your computer. The practice files you'll use to complete the exercises in this chapter are in the Chapter 7 practice file folder. A complete list of practice files is provided in "Downloading the Practice Files and eBook," on page xxvi.

Receive Data Connections

In Chapter 6, "Publishing and Submitting Form Data," you learned about data connections for submitting Microsoft InfoPath forms to SharePoint. In this chapter, you will learn about using data connections for *retrieving* data from SharePoint lists. You will use standard SharePoint lists, and you will also work with the new External Item Picker control in your forms. The External Item Picker is used to select items from SharePoint's Business Connectivity Services (BCS). BCS is used to connect a SharePoint list to an external data source such as a customer or product database.

In this chapter, we will focus primarily on SharePoint list data connections. Chapter 9, “Working with the SharePoint User Profile Web Service,” shows you how to use web service data connections to query data from SharePoint. InfoPath offers more data source options, such as XML files and databases, but those are beyond the scope of this book, because we want to focus primarily on the core SharePoint scenarios.

The deep integration between InfoPath and SharePoint gives InfoPath the ability to use SharePoint 2010 lists as secondary data connections to easily retrieve data into form controls. For many forms, an obvious benefit of using a SharePoint list data connection is that the data already exists and is maintained in a SharePoint list. Therefore, the form can always pull in the most up-to-date information from SharePoint rather than trying to duplicate the same information within your form. Also, if the data is maintained in SharePoint, it will be much easier to allow business users to provide updates to the information that your form consumes, without the need to actually modify the form.

Adding a SharePoint List Data Connection

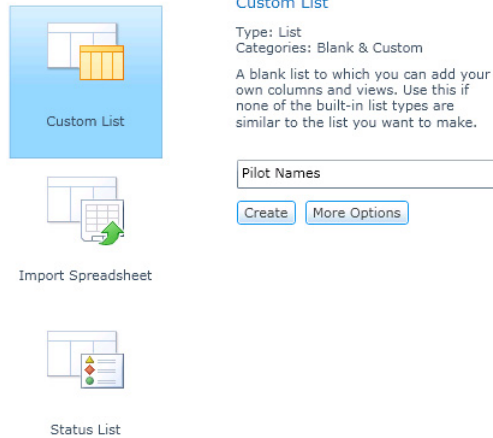
In the following exercise, you will add a control on an existing form so that the form can receive information from a SharePoint list.



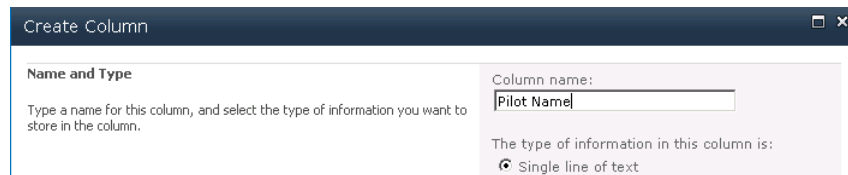
SET UP In InfoPath Designer, in Design mode, open the form **Flight Delay Form Post Exercise 4** from the practice files location. This is the same form you created in the last exercise of Chapter 3, “Form Design Basics: Working with InfoPath Layout, Controls, and Views.”

In the scenario behind this exercise, you have had a request to add another field of information to the Flight Delay form to capture the name of the flight’s captain. One effective way to handle this requirement might be to add a SharePoint receive data connection because you already have a list of pilots’ names in SharePoint.

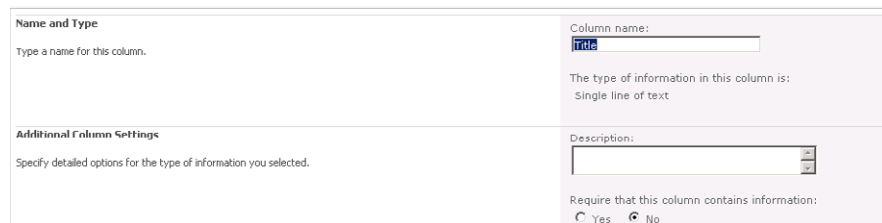
1. Publish the **Flight Delay** form to a form library in SharePoint (if it is not already).
2. Create a new SharePoint custom list in the same site. Call the list **Pilot Names**.



- In the list, create one text column named **Pilot Name**.



- On the ribbon, on the **List** tab, click the **List Settings** button. Set the **Require that this column contains information** option of the **Title** column to **No**.



- Enter the following seven pilot names in your list:

Pilot Name

Jack Smith

Mary Johnson

Doug Black

Hannah Smith

Devin Jones

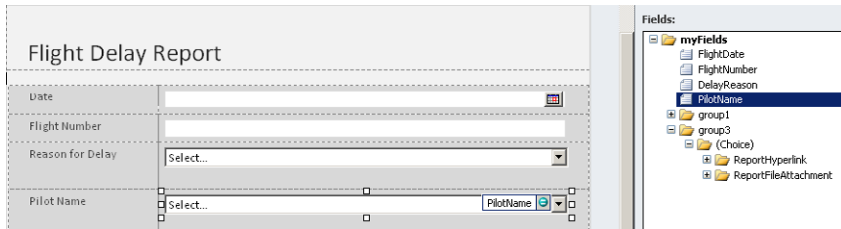
Sydney Johnson

Zoe Anderson

- Switch back to the Flight Delay form in InfoPath Designer. In the table on the top part of the form, right-click in the area below the **Reason for Delay** field.



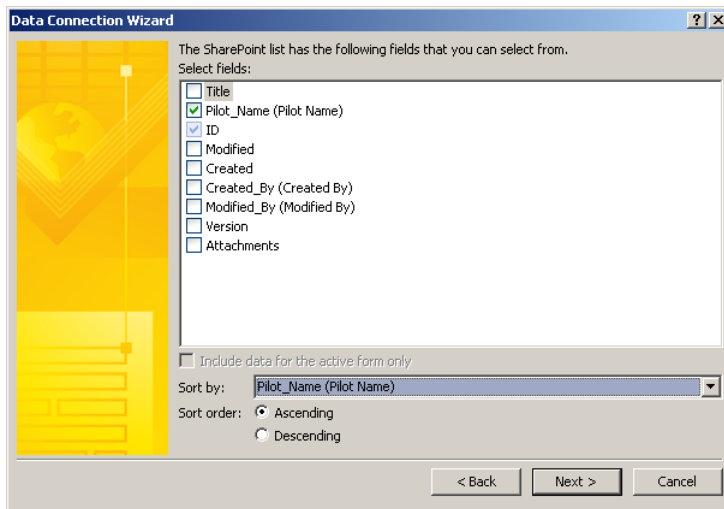
- In the label area, add the text **Pilot Name**, and then insert a **Drop-Down List Box** control. In the control's properties, rename it **PilotName**.



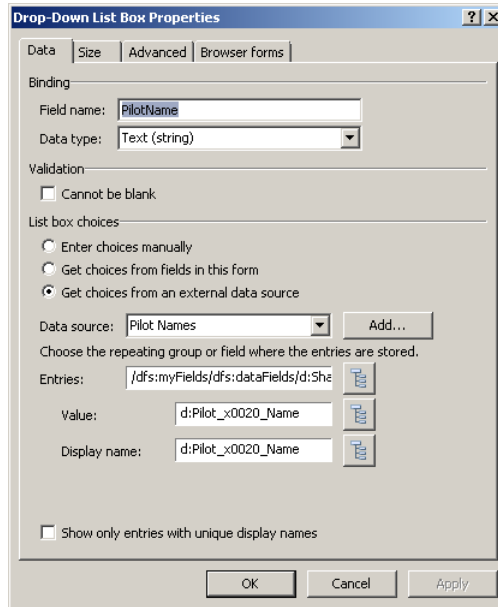
- On the ribbon, on the **Data tab**, click the **From SharePoint List** button to create a receive data connection on your form.

The Data Connection Wizard opens.

- Provide the required information in the wizard to add the **Pilot Names** list you added in step 2. On the third page of the wizard, select the check box to add the **Pilot Name** field.



10. For the remainder of the wizard pages, accept the defaults, and then click **Finish**.
Now you need to connect the SharePoint list receive to the **Drop-Down List Box** control.
11. In the properties for the **Pilot Name Drop-Down List Box** control, select **Get choices from an external data source** and ensure that **Pilot Names** is selected, as shown in the following screenshot.



12. Click **OK**, and then press **F5** to preview the form.
You should now have the information from the SharePoint list available in your **Pilot Name** field.

The screenshot shows a web form titled "Flight Delay Report" for "Blue Yonder Airlines". The form has a blue header with an airplane icon. The main content area is white with a light blue border. It contains several input fields: "Date" (text box with a calendar icon), "Flight Number" (text box), "Reason for Delay" (dropdown menu with "Select..." as the current value), and "Pilot Name" (dropdown menu). The "Pilot Name" dropdown is open, showing a list of names: Devin Jones, Doug Black (highlighted in blue), Hannah Smith, Jack Smith, Mary Johnson, Sydney Johnson, and Zoe Anderson. Below these fields is a "Customer Name" text box and an "Insert item" button. At the bottom of the form is a "Submit Form" button.



- 13.** Use the **Quick Publish** button to update the form library with your new and improved form.

Now, anytime a new pilot name is added in the SharePoint list, your form will automatically display the name in the **Drop-Down List Box** control.



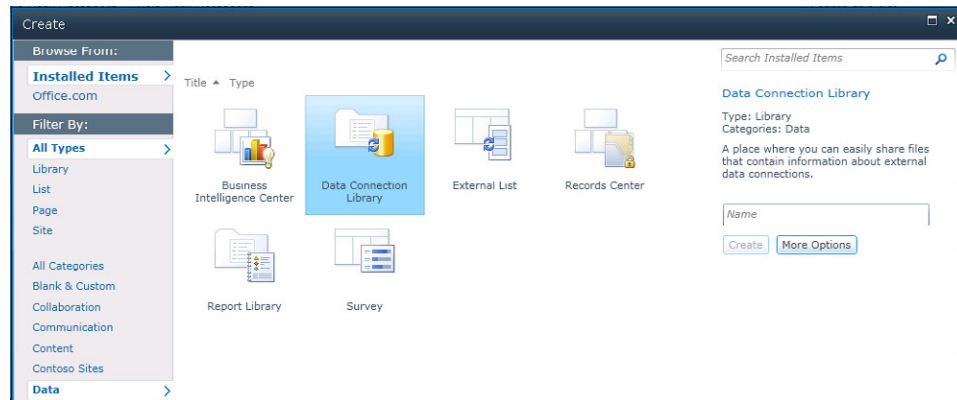
CLEAN UP You can leave InfoPath Designer open if you intend to continue on to the next exercise. Otherwise, save your form and close InfoPath.

Note For a more sophisticated example of consuming SharePoint lists in a form, read the blog article at <http://www.wonderlaura.com/Lists/Posts/Post.aspx?ID=129>, which describes how you can add multiple SharePoint list data connections in your form so that they connect and query one another.

Data Connection Libraries

Data connections from SharePoint lists generally work great in either InfoPath filler or browser forms. However, using data connections in browser-enabled InfoPath form templates introduces some potential management and authentication challenges that can be addressed by simply converting your data connections in InfoPath to Universal

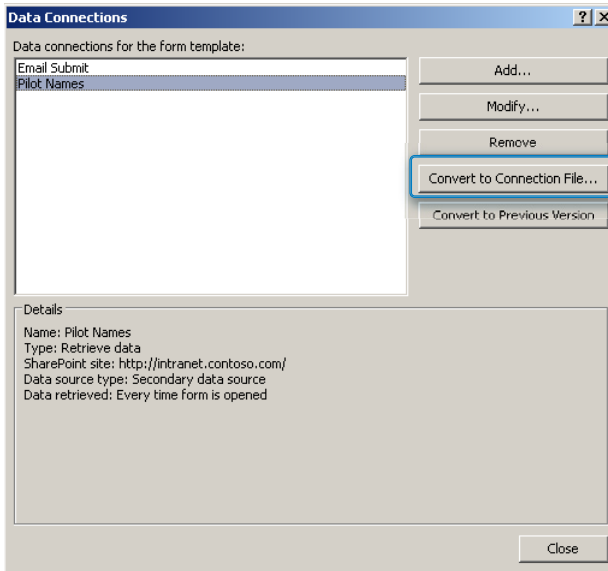
Data Connection (UDC) files. UDC files abstract the data connection information from the form template and place the connection information in a special SharePoint library called a Data Connection Library (DCL), as shown in the following illustration.



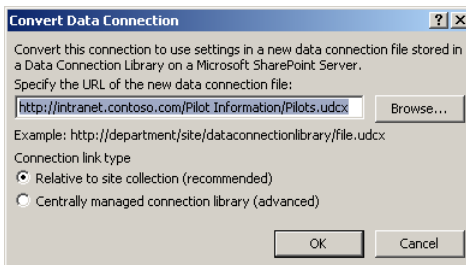
InfoPath 2010 uses data connections that adhere to the UDC file type. They have either a .udcx or a .xml file extension. You can connect to various types of data sources with UDC files, which are stored on the SharePoint server and then used as data connections in your form templates. Using a UDC file in a Data Connection Library offers several potential benefits, including the following:

- You can publish a form template that can access data sources in a different security domain (that is, another server). This is a very useful capability because browser form authentication can be very challenging when crossing security domains.
- It will be easy for you to configure data connections that work in both the InfoPath Filler client and in InfoPath Forms Services.
- You can easily modify the UDC file to redirect data connections to new or updated data sources without modifying all the forms that reference the UDC file. This is much easier than having to go back and update every form template.
- Last but definitely not least, you can have a single place to publish data connections that can be shared across multiple forms and even multiple servers. Think of a common data source you might use in your business that might be useful in many different forms—perhaps a list of department names, job titles, store locations, and so on. It would be much easier to maintain the data connection and security settings in one location for this type of information. All the forms in your business that need that information can reference one UDC. Combining a UDC file and a Data Connection Library is an excellent strategy for simplifying large or complex form environments.

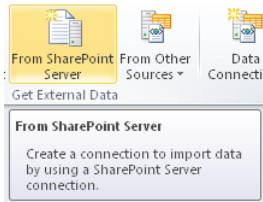
The process for adding a UDC is actually quite simple. First, you need to have a Data Connection Library set up in SharePoint. Assuming one is in place, you add your data connection in InfoPath as usual. In the Manage Data Connection dialog, you simply use the Convert To Connection File button, which will walk you through a wizard to convert and save your connection as a UDC file.



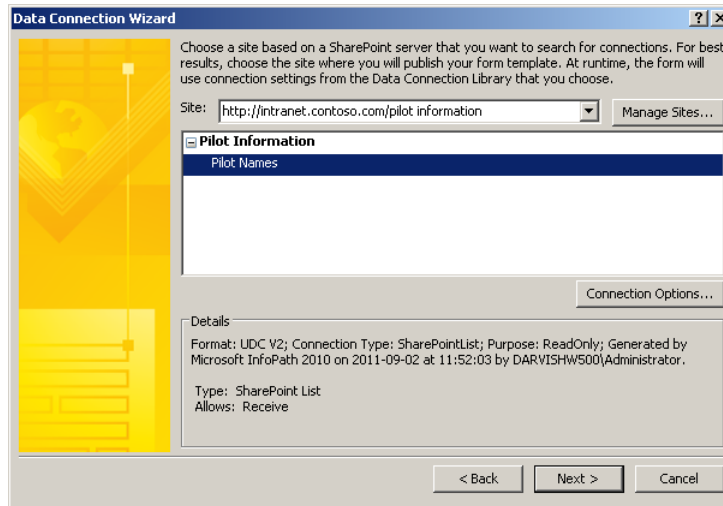
You will need to provide the location of the Data Connection Library in SharePoint. In the following screenshot, we are publishing the data connection as a UDC file named `Pilots.udcx` to a library named `Pilot Information`.



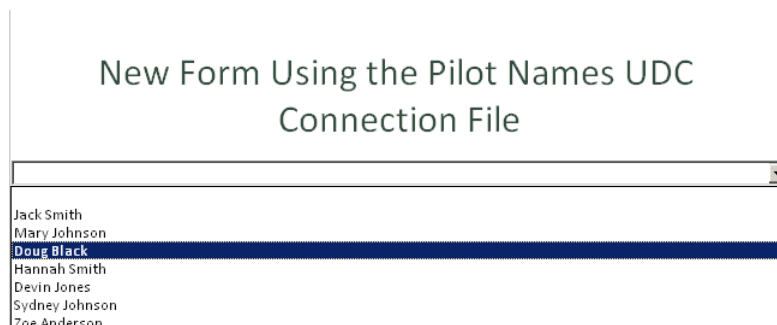
After you have done this, you can reuse the data connections in other new forms, by using the From SharePoint Server button on the ribbon's Data tab.



Next, browse for UDC files in Data Connection Libraries, and then pick the one you need for your new form.



Now your new form can use the data from the Pilots Name SharePoint list data connection that you created in the previous exercise. However, it's now stored in a centrally managed Data Connection Library, and all your forms that require this information can reference a single UDC file for their data.



The External Item Picker and Business Connectivity Services

Many companies use BCS in SharePoint to connect to external systems such as customer or product databases and make that information available in SharePoint. BCS is different from the previous types of data connections we've discussed in one major way: the data resides in its own application rather than in a SharePoint list. BCS gives SharePoint (and thus InfoPath) a "view" into that data, but the data still resides natively in its own application (typically a database).

Fortunately, for situations in which your company is utilizing BCS in SharePoint 2010, InfoPath 2010 has a control called the External Item Picker that exists specifically for consuming data from BCS. When added to a form, this control provides an easy way for users to select items from the data source to which BCS is connecting. For example, perhaps the user is filling out a customer service form, and you'd like her to select the customer name directly from BCS rather than creating a duplicate list of that information in SharePoint and another data connection in your form.

BCS is typically set up by a SharePoint administrator. Assuming that BCS is in place for you to utilize, the External Item Picker has several unique advantages for the InfoPath forms designer, including a pre-built security and data access model.

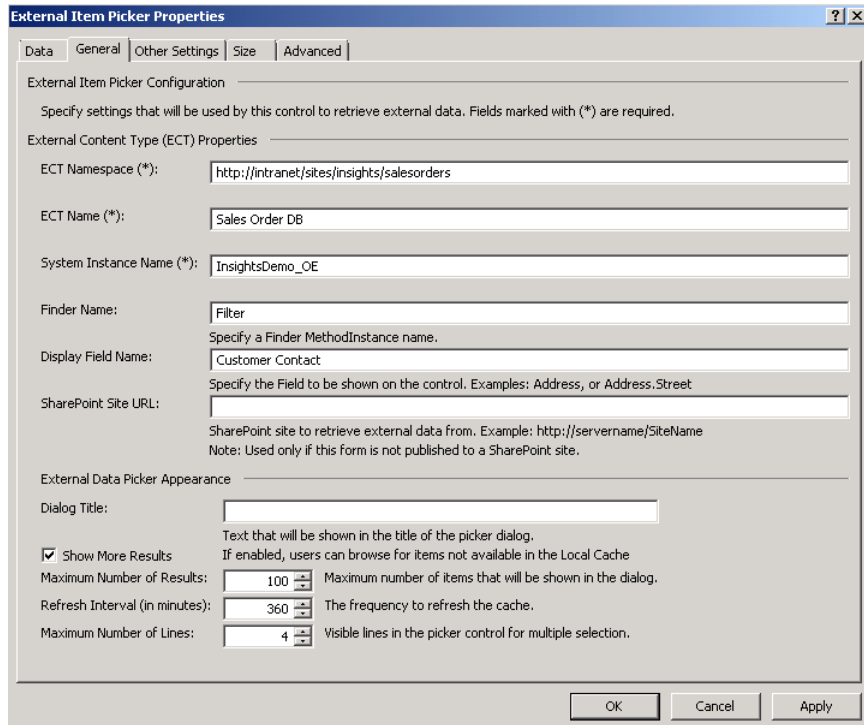
In the following exercise, you will follow the steps to add an External Item Picker control on to a form and set the control properties so that you can select an item from an external data source via the BCS. This exercise makes some assumptions about configuration work that is already done on your system to set up an external content type (ECT) in BCS. The ECT uses XML to define data that is stored in an external system, such as a Microsoft SQL Server database. If you're not the SharePoint administrator, you will need to work with that person to gather some information that is required—and perhaps provide some instructions about how you need the ECT configured to make it work with InfoPath.



SET UP Open InfoPath Designer.

1. Create a new blank form, and then publish it to a form library in SharePoint.
2. Add an **External Item Picker** control to your form.
3. Right-click the control, select the control properties, and then click the **General** tab.





External Item Picker Properties

Data | General | Other Settings | Size | Advanced

External Item Picker Configuration

Specify settings that will be used by this control to retrieve external data. Fields marked with (*) are required.

External Content Type (ECT) Properties

ECT Namespace (*):

ECT Name (*):

System Instance Name (*):

Finder Name:
Specify a Finder MethodInstance name.

Display Field Name:
Specify the Field to be shown on the control. Examples: Address, or Address.Street

SharePoint Site URL:
SharePoint site to retrieve external data from. Example: http://servername/SiteName
Note: Used only if this form is not published to a SharePoint site.

External Data Picker Appearance

Dialog Title:
Text that will be shown in the title of the picker dialog.

Show More Results
If enabled, users can browse for items not available in the Local Cache

Maximum Number of Results: Maximum number of items that will be shown in the dialog.

Refresh Interval (in minutes): The frequency to refresh the cache.

Maximum Number of Lines: Visible lines in the picker control for multiple selection.

OK Cancel Apply

This page includes several properties that you will need to gather from your SharePoint System Administrator. The easiest way to collect these properties is by going to **Manage Service Applications** in **Sharepoint 2010 Central Administration** and choosing **Business Data Connectivity Services**.

[Business Data Connectivity Service](#)

Business Data Connectivity Service Application

4. Click the specific ECT to which you want to connect. The following screenshot, shows an ECT with the name **Sales Order DB**.

External Content Type Information ^

Key information about this external content type.

Name	Sales_Order_DB
Display Name	Sales_Order_DB
Namespace	http://intranet/sites/insights/salesorders
Version	1.7.0.0
Identifiers	Order ID(String)
Office Item Type	Generic List
Offline Sync for external list	Enabled
External System	InsightsDemo_OE

External Content Type Operations ^

Use this part to manage the operations of this external content type.

✔ This external content type has read, write, and search capabilities. You may associate it with other external content types by creating an Association operation from the Operations Design View.

Name	Type	Data Source Object
Create	Create	SalesOrders
Read Item	Read Item	SalesOrders
Update	Update	SalesOrders
Delete	Delete	SalesOrders
Read List	Read List	SalesOrders

5. Gather the following information from the **External Content Type Information** page:
 - **Name**
 - **Namespace**
 - **External System**

6. Switch back to InfoPath, with the properties of the **External Item Picker** control still open. Then do the following:
 - Populate the **ECT Namespace** field with **Namespace**.
 - Populate the **ECT Name** field with **Name**.
 - Populate the **System Instance Name** with **External System**.
 - Skip the **Finder Name** for now; you will add that data in a later step.
 - Populate the **Display Field Name** with the actual database field that you'd like to use in the control. If your administrator used SharePoint Designer to create the ECT, you can easily go to the properties of the ECT in Designer and see all the available fields, as shown in the following screenshot. In this example, it is **Customer Contact**.

Field Name	Type
Order ID	System.String
Customer Name	System.String
Customer Contact	System.String
Billing Address	System.String
Billing Phone	System.String
Billing Email	System.String
Quantity Ordered	System.Nullable< System.Int32>
Quantity Shipped	System.Nullable< System.Int32>
Total Cost	System.Nullable< System.Decimal>
Order Date	System.Nullable< System.DateTime>
Order Status	System.String
Product Detail	System.String
Target Ship Date	System.Nullable< System.DateTime>
Procurement Manager	System.String
Sales Manager	System.String
Shipping Address	System.String
Shipping Vendor	System.String
Shipping Method	System.String

- In the control properties dialog box, switch to the **Other Settings** tab. Ensure that the **Refresh on Open** check box is selected, and then switch the **Picker Mode** drop-down box at the bottom of the page to **Connect to External Data Source through SharePoint**. You need to set it that way because you are using BCS in SharePoint.

The screenshot shows the 'External Item Picker Properties' dialog box with the 'Other Settings' tab selected. The 'Refresh on Open' checkbox is checked, and the 'Picker Mode' dropdown is set to 'Connect to External Data Source through SharePoint'. Other settings include 'Query By Default', 'Allow Multiple Selections', and 'Default Query'.

8. Switch back to the **General** tab.

You are almost finished, but to have your control work properly, one very important field remains to be filled out: the **Finder Name** field. The **Finder Name** is equivalent to a filter on the ECT. This gives the user the ability to search for information in the control. If you do not configure a filter, the user will be presented with a list of all results from the database, and he will have to scroll through them all rather than simply searching.

9. If your administrator has already defined a filter on the **Read List** operation of the ECT, add the filter name to the **Finder Name** field in the **External Item Picker Controls Properties** dialog box. In this example, the filter name is simply **Filter**.

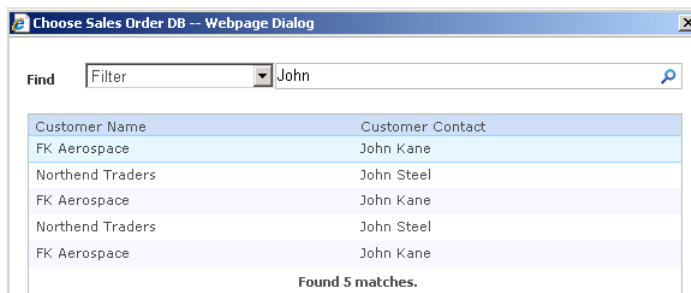
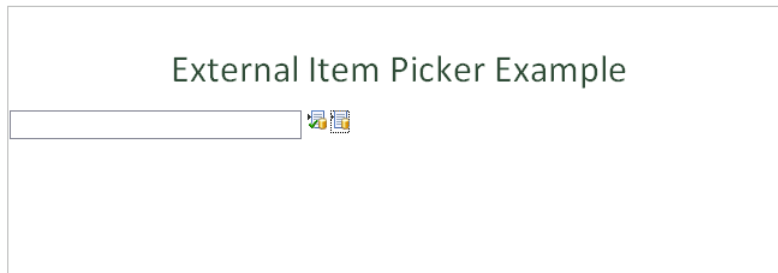
Note If you do not have a filter on the ECT, see the instructions that follow this exercise for instructions on how to add a filter, and then return to step 9.



Finder Name:
Specify a Finder MethodInstance name.

10. Click **Apply**, and then **OK**.

You should be back on your form design surface. Use the **Quick Publish** button to update the form library with your new form. If you go to the form library and create a new form instance, you should be able to use the **External Item Picker** control to browse and search for data from the external system.



Tip Do not be discouraged if this control doesn't work properly on your first, second, third, or even tenth attempt. It is one of the most complex InfoPath controls. Several moving parts need to be set just right in SharePoint and InfoPath to make the External Item Picker work properly. Verify that you have entered everything accurately at every possible point along the way.

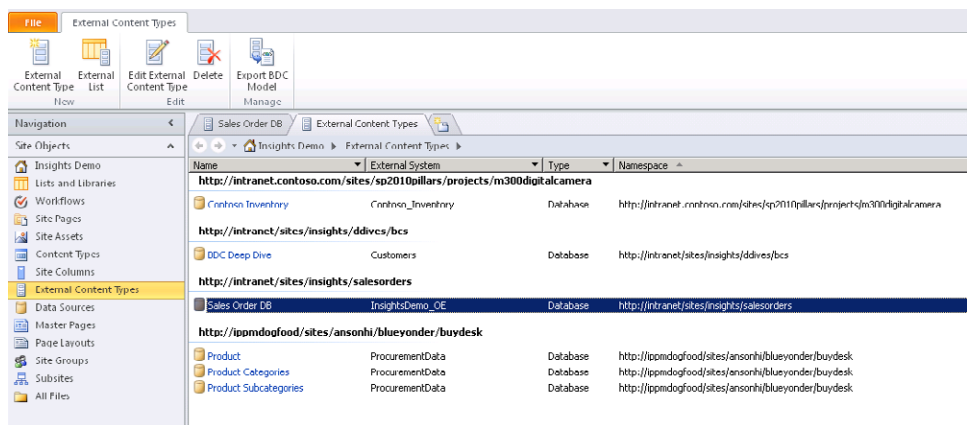
✘ CLEAN UP Save your form, and then close InfoPath Designer.

Adding a Filter to a Business Connectivity External Content Type

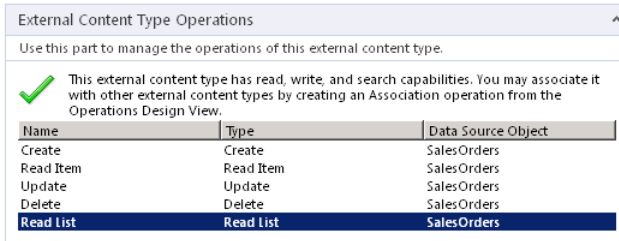
Part of the reason the External Item Picker control is so daunting for new forms designers is that it requires knowing exactly which information from the ECT in SharePoint must be added to the control properties so that everything works correctly. That information was covered in the previous exercise. In most cases, an ECT will be created either in Microsoft Visual Studio or SharePoint Designer 2010. In either case, the developer or administrator should be able to give you the necessary data. However, to make the External Item Picker work as intended, the one extra step that you might need to ask them to take is to add a wildcard filter so that your users can search for the information. The filter must be added in a very specific manner for it to work properly. The screenshots included in the following exercise are from an ECT that has been set up in SharePoint Designer. The instructions will provide the steps necessary for you or your SharePoint administrator to add the filter to new or existing ECTs.

➔ SET UP Open the SharePoint site you want to work with in SharePoint Designer.

1. Select the appropriate ECT; in this case, it is **Sales Order DB**.

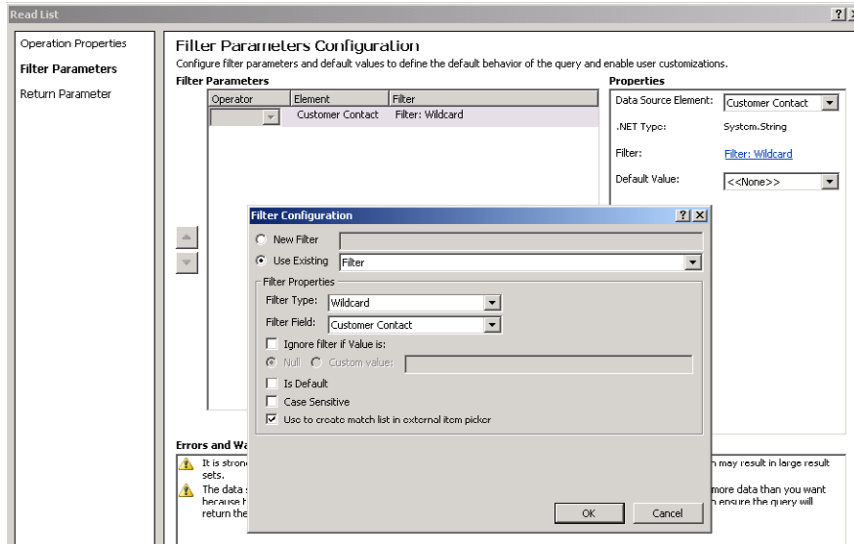


- In the **External Content Type Operations** dialog box, double-click **Read List** to open the **Read List Operation Properties Wizard**.

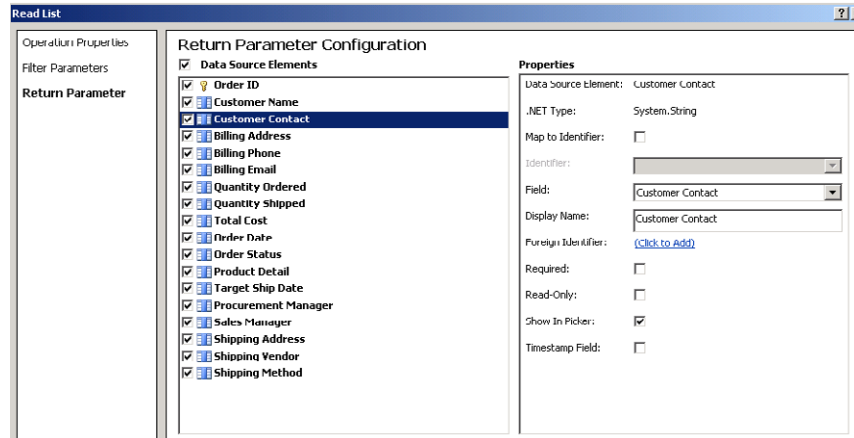


- On the **Filter Parameters** page of the wizard, set your configuration as shown in the following illustration.

The name of the filter will be the same name that you use to populate the **Finder Name** field in the External Item Picker properties in InfoPath. The **Data Source Element** and **Filter** field should be set to the same field from the database as the one you want the picker control in InfoPath to display.



- On the **Return Parameter** page, ensure that you have selected the appropriate **Data Source Element** option and that the **Show In Picker** check box is selected.



5. When you've completed the **Read List Operation Properties** Wizard, save your changes in SharePoint Designer. This will update the ECT properties in BCS and allow your form to filter on the data source.

✘ CLEAN UP Save your form, and then close SharePoint Designer.

Key Points

- InfoPath 2010 provides very tight integration with data in SharePoint lists.
- SharePoint lists are easily maintainable by business users and are thus a great way to ensure that the data in your forms is current.
- Data Connection Libraries make the administration of data sources much easier by centralizing security and management.
- By using the External Item Picker control, InfoPath can consume data from external systems through SharePoint 2010 BCS.

Index

Symbols

- 200 HTTP HTML event 344
- & (ampersand) 381
- * (asterisk) 277
- ? (question mark) 381

A

- Accessibility Properties dialog box** 378
- Action button (ribbon)** 260, 328
- action rules**
 - about 118–119
 - adding to forms 130–133, 141, 143
 - creating on submit buttons 307–311
 - event registration form example 242–246, 248
- actions**
 - adding to forms 130–133
 - custom 270–273
 - postbacks and 349
 - Submit button 306–318
 - task 274–275
 - workflows and 254
- Activate button** 356
- Active Directory users** 37
- Add button** 309
- Add Field dialog box** 267
- Add Field or Group dialog box** 155, 226
- Add or Change Lookup button** 326
- Add Rule button (Control Tools tab)**
 - about 7
 - flight delay form example 75, 80
- administrative tools**
 - Fiddler tool 342–346, 346–349, 350, 351–353
 - monitoring products form 346–349
 - network traffic analysis 341–342
 - performance factors 341–342
 - SharePoint Central Administration 336–340
 - Windows PowerShell scripting 336
- administrator-approved templates**
 - about 40–42
 - activating 338
 - publishing forms as 154
 - submitting forms as 188–191
 - uploading 337
 - Web Part settings 214
- Advanced Mode button (SharePoint Designer)** 376
- Advanced tab (Form Options window)** 113
- Alert Me button (Library tab)** 368
- alerts**
 - based on views 368–369
 - creating 86
 - workflows and 369
- All Documents view** 362
- Allow Overwrite If File Exists setting** 170
- Allow Users To Edit Data In This Field By Using A Datasheet Or Properties Page setting** 164
- Alt+Enter keystroke combination** 105, 313, 404
- ampersand (&)** 381
- approval fields** 288–293
- approval process (forms and workflows)**
 - about 285
 - approval fields 288–293
 - approval sections 301–306
 - custom actions 270–273
 - emails in 261, 325–332
 - form load rules 297–301
 - form views and 287–288
 - gathering requirements for 286–287
 - reimbursement form example 287
 - status fields 293–297
 - Submit button actions 306–318
 - workflow approvers 318–324
 - workflow initiation forms 254–270
 - workflow task forms 274–280
- approval sections**
 - copying 311–317
 - reimbursement form example 301–306
- approval workflow example**
 - adding conditions to 263–266
 - adding parameters to 266–270
 - creating 256–261
 - customizing 262–264
 - editing workflow 276–277
- approvers (workflow)**
 - list of approvers 287
 - reimbursement form example 298–299, 318–324
- ASP.NET Web Forms** 110

[Association Columns button](#) 327
[asterisk \(*\)](#) 277
[authentication, browser-based forms and](#) 340
[AutoComplete feature](#) 38

B

[Backstage view](#)

- accessing 8
- exercise creating forms 13–15
- Form Options button 9
- Info tab 8
- New tab 9
- Print tab 10
- Publish tab 10
- Recent tab 9

[BCS \(Business Connectivity Services\)](#)

- about 3, 195
- adding filters to content types 209–211
- External Item Picker control and 195, 204–209
- receiving data and 204–209

[binding](#)

- controls to sections 312
- design considerations 65–66
- multiple events 350

[Blank Form \(InfoPath Filler\) template](#) 31

[Blank Form template](#) 31

[browser-based forms](#)

- about 29
- adding controls 59–63
- authentication and 340
- AutoComplete settings 38
- browser toolbar buttons 413
- challenges with 340
- choosing 34
- combining controls 46
- compatibility considerations 45
- creating 28–29
- data connection support 200
- embedding pictures in 346–349
- enabling templates 338
- enhanced support for 6
- filler forms versus 28
- IPFS support 335
- monitoring IPFS form load process 342–346
- monitoring postbacks 351–353
- offline forms and 39
- performance factors 341–342
- placeholder text and 38
- postbacks and 338, 349–351
- pre-built templates 30–34
- SharePoint list forms as 30

[browser toolbar buttons](#) 413

[Bulleted List control](#) 61

[Business Connectivity Services \(BCS\)](#)

- about 3, 195
- adding filters to content types 209–211
- External Item Picker control and 195, 204–209
- receiving data and 204–209

[Button control](#)

- about 61, 62
- configuring properties 177
- event registration form example 247–251
- flight delay form example 74–76
- inserting into forms 222
- list form limitations 111
- refreshing connections 248

[Button Properties dialog box](#) 349

C

[Calculated column type](#) 86, 99

[calculated fields](#) 103–108

[Calculated Value control](#)

- about 62
- inserting 78
- mapping column types to 99
- reimbursement form example 291

[Calculated Value Properties dialog box](#) 105, 313

[case sensitivity, conditions](#) 301

[Cell Padding button \(Layout tab\)](#) 58

[Change Binding button \(Properties tab\)](#) 64

[Check Box control](#)

- about 60
- centering 72
- mapping column types to 98

[Choice column type](#) 86, 98

[Choice Group control](#) 63, 73

[Choice Section control](#) 63, 73

[client-based \(filler\) forms](#)

- about 29
- browser-based forms versus 28
- choosing 34
- combining controls 46
- data connection support 200
- design considerations 40
- Forms Option screen and 413
- pre-built templates 30–34
- user roles and 77

[Clip Art button \(Insert tab\)](#) 377

[clip art task pane](#) 379

[Close The Form action](#) 119

[Column Name dialog box](#) 363

[Column Name setting](#) 164

columns. *See also* fields

- defined 86
- Form Status field example 294
- in SharePoint views 361
- promoting fields to 163–168

column types

- commonly used 86
- mapping to controls 98

Combo Box control

- about 60
- mapping column types to 98

Compatibility tab (Form Options window) 113**concatenating fields 173–175****concat function**

- accessing 173
- reimbursement form example 292
- setting default values 126–128

conditional formatting

- about 119
- adding 7
- help desk application example 376–381
- Rules pane and 6
- sections and 134–140

Conditional Formatting button (Options tab) 379**Conditional Formatting pane 379, 380****Condition Criteria dialog box 379–380****Condition dialog box**

- data validation rules and 118
- procurement form example 135, 138
- quotations around text 130
- reimbursement form example 299
- time-off request form example 187

conditions

- adding to workflows 254, 263–266, 285, 327
- case sensitivity 301

Configure Connection screen 229–230**Configure InfoPath Forms Services page 338, 339****Configure InfoPath Forms Services Web Service Proxy link 339****consumer Web Part 371****container controls**

- about 59, 62
- flight delay form example 73–74
- list forms and 99
- types of 62–63

content approval workflow example

- adding conditions to 263–266
- adding parameters to 266–270
- creating 256–261
- customizing 262–264
- editing workflow 276–277

Content Editor Web Part 384**Content Query Web Part**

- dashboards based on 387–390
- publishing feature and 357

content types

- adding filters to 209–211
- associating workflows with 254
- availability of 178
- ECT 204–209
- publishing forms to 154, 178–188
- Web Parts 214

Content Type setting (Web Parts) 214**Contribute permissions 270****Control Properties button (Properties tab) 44, 217, 404****controls. *See also* specific types of controls**

- about 59–63
- accidentally deleting 68
- activating 142
- binding fields to 65–66
- binding to sections 312
- client-based forms and 40
- combining 46
- connecting to web services 242
- copying rules into 305
- dragging into tables 93
- event registration form example 247–251
- flight delay form example 66–74, 74–76
- form design considerations 38
- list supported 97, 101
- mapping column types to 98
- postbacks and 349
- setting properties 64
- types of 59–63

Controls area (ribbon) 67**Controls pane**

- about 59
- opening 67

Control Tools tab (ribbon). *See also* Properties (Control Tools) tab

- Add Rule button 7, 75, 80
- Default Value button 69
- Label box 75
- Manage Rules button 123, 130, 134

Convert Existing Form template 32**Convert To Connection File button 202–203****Create Column button (List tab) 101****Create Column dialog box 197****Create View button (Library tab) 364, 365, 393****Currency column type 86, 98****Current User Filter Web Part 225–231, 374****Current View drop-down box (Library tab) 412****Custom DPI Setting dialog box xxii****Customize Form button (List tab) 92, 101****Customize Tab option (List tab) 101****Customize XSLT button (Design tab) 376****custom lists 86****custom list templates 86**

D

dashboards (SharePoint)

- based on form libraries 386
- Content Query Web Parts and 387–390

databases, submitting forms to 38

Database template 31

data binding

- controls to sections 312
- design considerations 65–66
- multiple events 350

Data Connection File template 32

Data Connection Library (DCL) 201–203

data connections

- about 3, 16, 29, 100
- adding products.xml file to forms 18–22
- adding to User Profile web service 240
- adjusting 297
- adjusting automatically 297
- email considerations 76
- list form limitations 111
- monitoring 351–353
- naming templates after 29
- offline forms and 414
- postbacks and 350, 351–353
- receiving data from 100, 195–196, 196–200
- selecting with GetUserProfileByName method 242
- sending email via 417
- submitting forms to databases 38
- submitting forms to form library 168–178, 184–188
- UDC files and 200
- web proxy service and 340
- website feedback form example 219–223

Data Connections button (Data tab) 172, 358

Data Connections dialog box 359–360, 185, 172

Data Connection Wizard

- adding form load rule 242
- event registration form example 240–241
- flight delay form example 198
- offline forms and 415
- submitting data as default 75

data sources

- adding fields to 65
- administrator-approved templates and 41
- Business Connection Services and 204
- External Item Picker control and 204
- for form requirements 34–35
- generating fields in 66
- removing fields from 66
- views in 77

Data tab (ribbon)

- Data Connections button 172, 358
- Form Data section 420
- Form Load button 242, 298–301, 319
- From Other Sources button 19

- From SharePoint List button 198
- From SharePoint Server button 202
- From SOAP Web Service button 240
- Rule Inspector button 402, 403
- Show Fields button 19, 321
- Submit Options button 186, 220

data validation

- adding 7
- procurement form example 121–126
- Rules pane and 6

Date And Time column type 86, 98

Date and Time Picker control

- about 60
- mapping column types to 98

Date Picker control

- about 60
- inserting 14, 67
- mapping column types to 98
- setting default value 69

DCL (Data Connection Library) 201–203

Decimal Format dialog box 105

decision matrix

- expense report example 47
- new employee example 47
- vacation request example 47

Default Display Form 110

Default Edit Form 110

Default New Form 110

Default Value button (Control Tools tab) 69

default view parameter (forms) 232

Define Workflow Lookup dialog box 267

density, screen display xxi

Design Checker (InfoPath)

- accessing 8
- form requirements and 42–46

designing forms

- adding controls 59–63
- adding layouts and tables 54–58
- basic tasks in 51
- compatibility settings 29
- data binding considerations 65–66
- factors to consider 36–42
- flight delay form example 66–74, 74–76
- form layout 52–54
- postback considerations 349
- security settings 41
- setting control properties 64
- submission considerations 169
- views and 77, 78–81

Design mode (InfoPath) 13

Design permission level 254, 270

design surface, defined 53

Design tab (ribbon) 376

design time, defined 53

disabling Save As button 176–178

disabling Save button 176–178

- DispForm.aspx file 110
- Display A Read-Only Form (Lists Only) setting (Web Parts) 215
- Document Information Panel template 32
- Document Library setting 170
- dots per inch (dpi) xxii
- double-hop problem 340
- dpi (dots per inch) xxii
- dragging
 - controls into tables 93
 - fields into tables 94
- Drop-Down List Box control
 - about 60
 - adding 70
 - connecting list data connection 199
 - event registration form example 239
 - mapping column types to 98
- Drop-Down List Box Properties dialog box 199, 218

E

- ECT (external content type)
 - applying filters 208, 209–211
 - setting up 204–209
- Edit button (ribbon) 396
- Edit Choices button (Properties tab) 70
- Edit Default Values dialog box 420
- EditForm.aspx file 110
- Edit Variable dialog box 267
- Else-If Branch button 328
- email attachments 417
- emails
 - filtering 368
 - notification 369
 - reimbursement form example 325–332
 - setting up in workflow process 261
- E-mail template 31
- event registration form example
 - adding Person/Group Picker control to 247–251
 - adding Submit button to 247–251
 - building foundation of 238–241
 - connecting fields to web services 241–246
 - creating load form rules 241–246
 - monitoring postbacks 351–353
- exporting templates 23
- extensible markup language (XML)
 - about 16–17
 - benefits of 11
 - ECT support 204
 - performance factors 341
 - products.xml file exercise 18–22, 52
 - web services and 235

- external content type (ECT)
 - applying filters 208, 209–211
 - setting up 204–209
- External Content Type Information dialog box 206
- External Content Type Operations dialog box 210
- External Data column type 86, 99
- External Item Picker control
 - about 61, 195
 - adding wildcard filters 209–211
 - Business Connectivity Services and 204–209
 - complexity of 209
- External Item Picker Properties dialog box 204–209
- external list forms 280–281

F

- F5 shortcut key 53, 125, 145
- F12 shortcut key 344–345
- feedback form example
 - capturing feedback 216–223
 - passing parameters 225–231
 - rating items and 366–368
- Fiddler tool
 - about 342
 - details area 343, 345
 - installing 342–346
 - monitoring form load process 350
 - monitoring forms with attachments 346–349
 - monitoring postbacks 351–353
 - Web Sessions pane 343
- Field or Group Properties dialog box 96, 106–107, 157
- field picker button 308
- fields
 - approval 288–293
 - binding to controls 65–66
 - calculated 103–108
 - capitalization in 166
 - changing names of 70
 - columns as 86
 - concatenating 173–175
 - connecting to web services 241–246
 - design considerations 37
 - dragging into tables 94
 - generating in data sources 66
 - hidden 294–297
 - list form limitations 111
 - in list forms 97–102, 196–200
 - moving location of 156
 - naming best practices 99
 - organizing 156
 - promoting to columns 163–168
 - reimbursement form example 319–324
 - removing from data sources 66
 - ScreenTips for 125

Fields pane

- capturing website feedback example 216
- creating fields in 65, 68
- list form fields and 97
- opening 19
- selecting fields from 123
- selecting Rule Inspector 403

Field To Display As Column setting 164**File Attachment control**

- about 62
- adding 73

File Name setting 170**File tab (ribbon)**

- accessing Backstage view 8
- Publish button 358, 330
- Quick Publish button 90, 263

filler (client-based) forms

- about 29
- browser-based forms versus 28
- choosing 34
- combining controls 46
- data connection support 200
- design considerations 40
- Forms Option screen and 413
- pre-built templates 30–34
- user roles and 77

Filler Features tab (Form Options window) 113, 176**Filter Configuration dialog box 210****Filter Data button 249****filters**

- ECT 208, 209–211
- security considerations 286
- SharePoint views 361, 368–369, 372

filter Web Parts 371–375**flight delay form example**

- adding controls to 66–74, 74–76
- adding layout and table 54–58
- adding list data connection 196–200
- adding views 78–81

Fluent interface (Microsoft Office) 4**Font Styles section (Home tab) 262****form approval process**

- about 285
- approval fields 288–293
- approval sections 301–306
- custom actions 270–273
- emails in 261, 325–332
- form load rules 297–301
- form views and 287–288
- gathering requirements for 286–287
- reimbursement form example 287
- status fields 293–297
- Submit button actions 306–318

- workflow approvers 318–324
- workflow initiation forms 254–270
- workflow task forms 274–280

Format Text area (ribbon) 72, 75, 384**formatting. *See also* conditional formatting**

- adding to forms 6, 130–133
- procurement form example 121–126

formatting rules

- adding to forms 130, 135–138
- creating on controls 304
- hiding sections in forms 147

Form Data section (Data tab) 420**form design**

- adding controls 59–63
- adding layouts and tables 54–58
- basic tasks in 51
- compatibility settings 29
- data binding considerations 65–66
- factors to consider 36–42
- flight delay form example 66–74, 74–76
- form layout 52–54
- postback considerations 349
- security settings 41
- setting control properties 64
- submission considerations 169
- views and 77, 78–81

form instances

- creating 22
- maximum size 339

form layouts

- adding 54–58
- design considerations 52–54
- list forms 92–97

form library forms

- capturing website feedback 216–219
- data connections and 111
- field considerations 37
- offline forms 39
- Web Part settings 224

Form Library Settings dialog box 182–183**form library (SharePoint)**

- All Documents view 362
- dashboards based on 386
- Merge Documents view 407
- My Documents view 362
- pre-built templates and 31–33
- publishing to 154
- setting considerations 46
- as SharePoint lists 2
- submitting forms to 168–178, 184–188
- versioning setting 86
- Web Part settings 214, 224

form lifecycle 287, 317**Form Load button (Data tab) 242, 298–301, 319**

form load process 342–346, 350

form load rules

- adding action steps 243–246
- default values and 296
- in approval process 297–301

Form Options button (Backstage) 9

Form Options dialog box

- email attachments and 418
- E-Mail Attachments section 416
- merging forms 411
- modifying button functionality 412–413
- Preview section 418–419

Form Options window

- accessing 112
- Advanced tab 113
- Compatibility tab 113
- Filler Features tab 113, 176
- Offline tab 113
- Property Promotion section 163
- Versioning tab 113
- Web Browser tab 113

form parameters

- about 39
- additional concepts 231–232
- defined 225
- Web Part connection example 225–231
- website feedback form example 225–231
- workflow initiation forms 256, 266–270

form requirements

- data considerations 34–35
- decision-making process for 47–48
- Design Checker and 42–46
- factors to consider 36–42
- receiving forms 35
- SharePoint versions and 35–36
- submitting forms 34
- template considerations 28–34
- view considerations 46

forms. See also browser-based forms; client-based (filler) forms; specific form examples

- adding formatting to 6, 130–133
- adding logic to 6, 285
- adding rules to 130–133, 135–138, 141, 143
- connecting to web services 238–241
- creating 4, 13, 28
- creating load rules 241–246
- customizing default 5
- defined 87
- hiding sections in 146–147
- inserting buttons into 222
- inserting formulas into 120
- inserting pre-built layouts to 8

merging 407–411

- with multiple views 140–150, 287–288
- offline 39, 414–417
- previewing 125, 418–419
- primary types of logic 118–121
- procurement form example 12, 121–126
- products.xml file example 18–22
- relinking 411
- saving 176
- setting default values with functions 126–129
- working with sections and conditional formatting 134–140

Form Status field 293–297

form templates

- about 28–34
- administrator-approved 40–42, 154, 188–191, 214, 337–338
- creating form instance 22
- custom list 86
- editing 183
- exporting 23
- file extension for 13
- IPFS support 335
- naming conventions 29
- pre-built 30–34
- quiescing 338
- Request Title field 122
- SharePoint supported 30
- UDC files and 201

Form Templates document library 179

formulas

- inserting into forms 120
- quotations around text 130

Form Web Parts button (List tab) 110

From Other Sources button (Data tab) 19

From SharePoint List button (Data tab) 198

From SharePoint Server button (Data tab) 202

From SOAP Web Service button (Data tab) 240

Full Control permission level 254, 368

Function button 313, 322

functions. See also specific functions

- advanced 423–426
- components of 121
- defined 95
- postbacks and 350
- return values for 121
- setting default values with 126–129
- types of 120–121

Function setting 164

G

- gathering requirements for approval process 286–287
- Get Data From setting (Web Parts) 224
- Get Form From setting (Web Parts) 224
- GetUserProfileByName data connection
 - modifying 297
 - querying 242
 - refreshing control connection 249
 - selecting 240, 242
- GetUserProfileByName method 236

H

- help desk application example
 - alerts based on views 368–369
 - Content Query Web Parts 387–390
 - creating SharePoint sites 356–360
 - creating SharePoint views 362–366
 - customizing priority column appearance 376–381
 - dashboards based on form libraries 386
 - filter Web Parts 371–375
 - KPI Web Parts 390–397
 - library Web Parts 370–371
 - new form button 381–386
 - publishing forms 357–360
 - rating items 366–368
 - Translate function 425
- hidden fields 294–297
- hierarchical information structure 36
- Home tab (ribbon)
 - Button object 222
 - Controls list 97, 101
 - Font Styles section 262
 - Format Text area 72, 75
 - New Items button 416
 - Preview button 53, 418
- HTML
 - performance factors 341, 346
 - viewing with Fiddler 345
- HTML button (Format Text tab) 384
- HTTP standard
 - Fiddler tool support 342
 - postbacks and 349
 - web services and 235
- Hyperlink control
 - about 61, 62
 - adding 73
 - mapping column types to 99
- Hyperlink Or Picture column type 86, 99

I

- Indicator dialog box 392
- Industrial Vantage theme 56
- InfoPath
 - benefits of using 2–4
 - functionality 11–13
 - new features 4–11
 - XML support 16–17
- InfoPath 2007 - Blank 2007 Form (InfoPath Filler) template 33
- InfoPath 2007 - Blank 2007 Form template 33
- InfoPath Designer. *See also* Field pane; Rules pane
 - about 4, 34
 - adding products.xml file to forms 19–22
 - Controls pane 59, 67
 - exercise creating forms 13–15
 - gridlines in 53
 - opening 13, 155
 - Themes area 56
- InfoPath Filler
 - about 4, 34
 - controls available via 59
 - merging forms 411
 - offline forms and 414
 - postbacks and 349
- InfoPath Filler Form 30
- InfoPath Forms Services (IPFS)
 - about 335–336
 - browser-based forms 29
 - configuration settings 336–340
 - double-hop problem 340
 - minimizing postbacks 349–351
 - monitoring form load process 342–346
 - monitoring forms with attachments 346–349
 - monitoring postbacks 351–353
 - performance factors 341–342
 - publishing forms 12
 - SharePoint Central Administration and 336–340
- InfoPath Form Web Part
 - about 109–110, 213
 - adding connections between Web Parts 224
 - configuring settings 214–223, 224
 - parameters and 39, 225–231
 - testing form 222–223
- InfoPath views
 - about 77, 86
 - adding 78–81
 - common situations for 78–81
 - creating for Web Parts 215
 - form requirements and 46
 - forms with multiple 140–150, 287–288, 350
 - list form limitations 111
 - modifying settings 46
 - postbacks and 350

- read-only 317
- security considerations 286
- switching 142, 350
- Info tab (Backstage view) 8**
- Initiation Form Parameters button 266**
- initiation forms (workflow)**
 - about 254–256
 - adding conditions to 263–266
 - automatic start option 255
 - creating approval workflow 256–261
 - customizing 262–264
 - manual start option 254, 255, 262
 - parameters in 256, 266–270
- input controls, types of 59–61**
- Insert Above button (Layout tab) 226**
- Insert Below button (Layout tab) 94, 101**
- Insert Calculated Value dialog box 107**
- Insert Field or Group button 107, 243**
- Insert Formula dialog box**
 - about 120
 - concat function example 128, 173
 - insert field link 424
 - Insert Function button 95
- Insert Function dialog box**
 - All category 173
 - Date and Time category 95, 128, 157
 - Date category 69
 - userName function 308–309
- Insert Picture Control dialog box 239, 346**
- Insert tab (ribbon)**
 - Clip Art button 377
 - layout tools and 53
 - More button 58
- installing Fiddler tool 342–346**
- instances (form)**
 - creating 22
 - maximum size 339
- IPFS (InfoPath Forms Services)**
 - about 335–336
 - browser-based forms 29
 - configuration settings 336–340
 - double-hop problem 340
 - minimizing postbacks 349–351
 - monitoring form load process 342–346
 - monitoring forms with attachments 346–349
 - performance factors 341–342
 - publishing forms 12
 - SharePoint Central Administration and 336–340
- items**
 - defined 86
 - rating 366–368

K

- KPIs (Key Performance Indicators)**
 - about 386
 - KPI Web Parts 390–397
 - ratings as 368
- KPI Web Parts 390–397**

L

- labels, positioning in controls 93**
- layouts**
 - adding 54–58
 - design considerations 52–54
 - list forms 92–97
- Layout tab (ribbon)**
 - Cell Padding button 58
 - Insert Above button 226
 - Insert Below button 94, 101
 - layout tools and 53
 - Shading button 57–58
 - Width button 217
- library columns 163**
- Library Settings button (Library tab) 367**
- Library tab (ribbon)**
 - Alert Me button 368
 - Create View button 364, 365, 393
 - Current View drop-down box 412
 - Library Settings button 367
 - Workflow Settings button 330
- library Web Parts 370–371**
- List Box control**
 - about 60
 - mapping column types to 98
- list forms (SharePoint)**
 - additional information 200
 - calculated fields in 103–108
 - choosing 34
 - customizing 5, 87–91
 - external 280–281
 - fields in 97–102, 196–200
 - layout of 92–97
 - limitations of 30, 36, 110–112
 - offline 39, 416
 - options screen 112–113
 - parameter considerations 225
 - repeating tables and 36–37
 - travel request example 87–91
 - Web Part pages and 109–110
- List Or Library setting (Web Parts) 214**
- Lists And Libraries section (SharePoint Designer) 281–282**

List Settings button (List tab) 88, 197
lists (SharePoint)

- adding data connections 196–200
- best practice 370
- control support in 97
- creating workflows for 254
- form libraries as 2
- fundamental components 86
- versioning setting 86
- viewing in SharePoint Workspace 417
- Web Part settings 214

List tab (ribbon)

- Create Column button 101
- Customize Form button 92, 101
- Customize Tab option 101
- Form Web Parts button 110
- List Settings button 88, 197
- Sync To SharePoint Workspace button 417

List URL dialog box 394

logic

- adding to forms 6, 285
- examining with Rule Inspector 402–407

Lookup column type 86, 98

Lookup for Person or Group dialog box 260–261

M

magnification, screen display xxii

Main data source 65, 243

Manage Data Connection dialog box 202–203

Manage data connection files setting 339

Managed Metadata column type 86, 99

Manage form templates link 337, 339

Manage Form Templates page 338

Manage List permission 254–255

Manage Rules button (Control Tools tab) 123, 130, 134

Manage User Properties page 237

mapping column types to controls 98

Merge Documents view 407

Merge Settings button 408, 409

Merge Settings dialog box 409

merging forms 407–411

metadata, defined 32

metrics, ratings as 368

Microsoft InfoPath

- benefits of using 2–4
- functionality 11–13
- new features 4–11
- XML support 16–17

Microsoft Office Fluent interface 4

Microsoft Office ribbon. *See also* specific buttons and tab

- about 4
- changing width of xxi
- dynamic elements xix–xx

Microsoft Office SharePoint Server (MOSS) 28

Microsoft SharePoint Foundation

- form requirements and 35
- Sandboxed Code Service 42

modal pop-up boxes 109

monitoring

- form load process 342–346, 350
- forms with attachments 346–349
- postbacks 351–353

More button (Insert tab) 58

MOSS (Microsoft Office SharePoint Server) 28

Multiple Lines Of Text column type 86, 98

Multiple-Selection List Box control 98

multiple views

- about 287–288
- postbacks and 350
- wizard-style forms with 140–150

My Documents view 362

N

naming conventions

- best practices for fields 99
- templates and data connections 29

network traffic analysis 341–342

New button 307

NewForm.aspx file 110

New Form rule 319

New Items button (Home tab) 416

New tab (Backstage view) 9

Notepad (Microsoft) 17

notification emails 369

now function

- about 129
- dateTime field and 157
- setting default values 126
- Translate function and 426

NT login 374

Number column type 86, 98

Numbered List control 61

O

- object controls**
 - about 59, 61
 - list forms and 99
 - types of 61–62
- Office ribbon.** *See also* **specific buttons and tabs**
 - about 4
 - changing width of xxi
 - dynamic elements xix–xx
- offline forms**
 - design considerations 39–40
 - options available for 414–417
 - in Outlook 416
 - SharePoint list forms and 416
- Offline tab (Form Options window) 113**
- OneNote 402**
- Optional Section control 63**
- Option Button Binding dialog box 313**
- Option Button control**
 - about 60
 - mapping column types to 98
- option buttons 111**
- Options tab (ribbon) 379**
- Other category 423**
- Outlook, offline forms in 416**

P

- Page Design tab (ribbon)**
 - about 8
 - layout tools and 53
 - managing views 46, 78
 - Page Layout Templates button 93
 - Properties button 80
 - Themes section , 56, 262
 - View drop-down box 405
 - View Request option 134
- page layouts, inserting pre-built 8**
- Page Layout Templates button (Page Design tab) 93**
- Page tab (ribbon) 375**
- parameters (form)**
 - about 39
 - additional concepts 231–232
 - defined 225
 - Web Part connection example 225–231
 - website feedback form example 225–231
 - workflow initiation forms 256, 266–270
- Paste Rule button 305**
- pending changes to workflows 277**
- performance factors**
 - commonly seen 341–342
 - minimizing postbacks 349–351
 - monitoring IPFS form load process 342–346
 - monitoring products form 346–349
- permission levels**
 - creating custom 255
 - workflows and 287, 270, 254–256
- Person/Group Picker control**
 - about 61
 - event registration form example 247–251
 - mapping column types to 98
- Person Or Group column type 86, 98**
- Picture Button control**
 - about 62
 - in provisioning request example 142–144
 - rules support with 141
- Picture Button Properties dialog box 149**
- Picture control**
 - about 61, 62
 - connecting fields to web services 241
 - event registration form example 239
 - monitoring products form with 346–349
- placeholder text 38**
- Plain List control 61**
- points per inch (ppi) xxii**
- Policies library**
 - about 257
 - accessing workflows 261–262
 - adding custom actions to 271–273
 - security considerations 270
- Policy Approval Workflow button 273**
- policy approval workflow example**
 - adding conditions to 263–266
 - adding parameters to 266–270
 - creating 256–261
 - customizing 262–264
 - editing workflow 276–277
- pop-up boxes, modal 109**
- postbacks**
 - analyzing 338
 - browser-based forms and 338, 349–351
 - defined 349
 - monitoring 351–353
 - performance factors 341
- ppi (points per inch) xxii**
- Preview button (Home tab) 53, 418**
- previewing forms 125, 418–419**
- print preview 10**
- Print tab (Backstage view) 10**
- procurement form example**
 - adding action and formatting rules 130–133
 - creating forms with multiple views 140–150
 - setting default values with functions 126–129
 - working with sections and conditional formatting 134–140
 - working with validation and formatting 121–126

products.xml file

- 200 HTTP HTML event 344
- adding to forms 18–22
- creating 18

program window, resizing xxi**promoting fields to columns 163–168****properties**

- setting for controls 64
- views and 77

Properties button (Page Design tab) 80**Properties (Control Tools) tab**

- about 64
- Change Binding button (Properties tab) 64
- Control Properties button , 217, 44
- Edit Choices button 70
- Shading box 96

Properties dialog boxes

- Accessibility 378
- Button 349
- Calculated Value 105
- Calculated Values 313
- Drop-Down List Box , 199
- External Item Picker 204–209
- Field or Group 96, 106–107, 157
- Picture Button 149
- Repeating Table 408
- Text Box 44, 127, 217–218

Property Promotion screen 219, 225**provider Web Part 371****Publish button (File tab) 358, 330****publishing forms**

- about 12
- as administrator-approved templates 154, 188–191
- to content type 154, 178–188
- to form library 154
- help desk application example 357–360
- IPFS support 335
- methods for 154
- security settings and 41
- time-off request form example 154–162

Publishing Wizard

- help desk application example 358–359
- promoting columns via 163–168
- publishing forms as administrator-approved templates 189–191
- publishing forms to content type 180
- time-off request form example 160–162
- Web Part connection parameters 225, 226–231

Publish tab (Backstage view) 10**Q****queries**

- GetUserProfileByName method 242
- offline forms and 414
- User Profile web service 242

Query For Data action 119**query string parameters 232****Query String (URL) Filter Web Part 230****question mark (?) 381****Quick Publish button (File tab) 90, 263****Quick Rules button. *See* Add Rule button (Control Tools tab)****quotations around text 130, 244****R****rating items 366–368****Read List Operation Properties Wizard 210–211****Read-Only property 127, 159****read-only view 317****Read permissions 270****receiving data**

- adding filters to content types 209–211
- adding list data connection 196–200
- additional information 200
- Business Connectivity Services and 204–209
- Data Connection Libraries and 200–203
- External Item Picker control and 204–209
- form requirements 35
- from data connections 195–196

Recent tab (Backstage view) 9**records, defined 86****reimbursement form example**

- about 287
- approval fields 288–293
- approval sections 301–306
- creating default values for rows 419–423
- emails in approval process 325–332
- examining with Rule Inspector 402–407
- form load rules 297–301
- form views 287–288
- status fields 293–297
- Submit button actions 306–318
- workflow approvers 318–324

relinking forms 411**Repeating Section control**

- about 36, 63
- list form support 97

Repeating Table control

- about 36, 62, 63
- adding 20, 71
- container controls and 59
- design factors to consider 36
- list form support 97

Repeating Table Properties dialog box 408
requirement gathering for approval process 286–287**resizing program window xxi****REST (Representational State Transfer) 235****return values (functions) 121****Reusable Workflow button 325****ribbon. *See also* specific buttons and tabs**

- about 4
- changing width of xxi
- dynamic elements xix–xx

Rich Text Box control

- about 60
- mapping column types to 98

roles (user)

- form design considerations 37
- forms and 419
- views and 77

Rule Details dialog box

- Data Connection field 187
- even registration form example 242–243
- Field button 132
- field picker button 308
- provisioning requests form 144

Rule Inspector button (Data tab) 402, 403**Rule Inspector dialog box 403****Rule Inspector tool 402–407****rules**

- about 6
- action 118–119, 130–133, 141, 143, 242–246, 248, 307–311
- adding to forms 130–133
- adding to workflows 285
- conditional formatting 119
- copying 139, 305
- creating forms with multiple views 140–150
- creating to load forms 241–246
- data validation 118
- formatting 130, 135–138, 147, 304
- form load rules 241–246, 295, 296
- hiding sections of forms 146–147
- reimbursement form example 302–306
- Rule Inspector tool 402–407
- Rules pane and 6
- submitting forms with 75
- switching views with 142
- validation and formatting example 122–126

Rules button 305**Rules pane**

- about 6–7
- Add button 309
- adding action rules via 143
- copying rules 139
- event registration form example 242–246, 247–248
- Hide this control check box 136
- New button 307
- opening 123, 134
- Paste Rule button 305
- reimbursement form example 298
- Shading Color tool 124, 130

run time

- adding controls at 61
- defined 53

S

Save As button, disabling 176–178, 413**Save button**

- disabling 176–178, 413
- removing 413

screen display

- density of xxi
- magnification and xxii
- screen resolution and xxi

screen resolution xxi**ScreenTips**

- Cannot be blank when you hover over the field 125
- in provisioning requests example 149

scripting, Windows PowerShell 336**Scrolling Region control 44****Section Binding dialog box 312****Section control 62, 63****sections**

- approval 301–306, 311–317
- binding controls to 312
- conditional formatting and 134–140
- hiding in forms 146–147

security

- administrator-approved templates and 41
- email attachments and 417
- user roles and 77
- workflows and 254–256, 270, 286

Select a Field or Group dialog box

- event registration form example 243–244, 248–249
- modifying workflows 278
- procurement form example 135
- reimbursement form example 296, 308

Select Picture screen 383**Select The Form View To Display By Default setting (Web Parts) 215**

Select Users dialog box 260

Send Data To Connected Web Parts When Page Loads setting (Web Parts) 215

Send Data To setting (Web Parts) 224

Send Data To Web Part action 119

Set A Field's Value action 119

shading, applying 57–58

Shading button (Layout tab) 57–58

Shading Color tool (Rules pane) 124, 130

SharePoint

BCS support 3

version considerations 35–36

SharePoint Central Administration 336–340

SharePoint dashboards

based on form libraries 386

Content Query Web Parts and 387–390

SharePoint Designer

about 253

Advanced Mode button 376

cautions using 376

custom actions 270–273

external list forms 280–281

Lists And Libraries section 281–282

workflow basics 253–254

workflow initiation forms 254–256

Workflow Settings tab 269

workflow task forms 274–280

SharePoint form library

All Documents view 362

dashboards based on 386

Merge Documents view 407

My Documents view 362

pre-built templates and 31–33

publishing to 154

setting considerations 46

as SharePoint lists 2

submitting forms to 168–178, 184–188

versioning setting 86

Web Part settings 214, 224

SharePoint Form Library template 30

SharePoint Form Services

about 4

enhanced support for 6

SharePoint Foundation

form requirements and 35

Sandboxed Code Service 42

SharePoint Library Submit connection 297

SharePoint list forms

additional information 200

calculated fields in 103–108

choosing 34

customizing 5, 87–91

external 280–281

fields in 97–102, 196–200

layout of 92–97

limitations of 30, 36, 110–112

offline 39, 416

options screen 112–113

parameter considerations 225

repeating tables and 36–37

travel request example 87–91

Web Part pages and 109–110

SharePoint lists

adding data connections 196–200

best practice 370

control support in 97

creating workflows for 254

form libraries as 2

fundamental components 86

versioning setting 86

viewing in SharePoint Workspace 417

Web Part settings 214

SharePoint List template 30

SharePoint Online with Office 365

custom code in 42

form requirements and 35

sandboxed solutions 42

SharePoint program folder 337

SharePoint Server platform

form requirements and 35

IPFS support 336

SharePoint Server Publishing feature 356

SharePoint sites

creating 356–360

wireframes and 386

SharePoint User Profile web service

about 235–237

adding people picker to event registration form 247–251

adding Submit button to event registration form 247–251

building event registration form 238–241

connecting controls to 242

connecting fields to 241–246

connecting forms to 238–241

creating load form rules 241–246

creating rules on event registration form 241–246

querying 242

SharePoint views

about 361–362

additional information 361

alerts based on 368–369

creating 362–366, 370–371

customizing 376–381

filtered 361, 368–369, 372

Merge Documents view 407

SharePoint Workspace 417–418

Show Fields button (Data tab) 19, 321

Show InfoPath Ribbon Or Toolbar setting (Web Parts) 215

- Simple Object Access Protocol (SOAP) 235, 238
- Single Line Of Text column type 86, 98
- Site Assets library 383
- Site Collection Features page 338
- Site Column Group setting 164
- site columns 163
- SOAP (Simple Object Access Protocol) 235, 238
- source parameter (forms) 231
- Specify Filter Conditions dialog box 244
- spell checker 38
- Start Options (workflow settings) 254–256
- stateless protocols 340, 349
- status fields 364, 293–297
- Status List Web Part 396
- Stop Editing button (Page tab) 375
- String Builder dialog box 326
- Submit Behavior setting (Web Parts) 215
- Submit button
 - about 413
 - actions in approval process 306–318
 - event registration form example 247–251
- Submit Data action 119
- Submit Options button (Data tab) 186, 220
- Submit Options dialog box 220–221
- submitting forms
 - to databases 38
 - to form library 168–178, 184–188
 - form requirements 34
 - with rules 75
- Switch Views action 119
- Sync To SharePoint Workspace button (List tab) 417

T

- Table Drawing tool 53
- Table Layout tab 4
- tables
 - adding 54–58
 - deleting 92
 - dragging controls into 93
 - dragging fields into 94
 - laying out 53
 - repeating 36–37, 59
- Table Tools tab. *See* Layout tab (ribbon)
- task actions 274–275
- task forms (workflow)
 - about 274–276
 - modifying 277–280
 - Task Process Designer 260, 276–278
- Task Process Designer 260, 274–276
- Template Part - Blank (InfoPath Filler) template 34
- Template Part - Blank template 34
- Template Part - XML or Schema template 34

- templates
 - about 28–34
 - administrator-approved 40–42, 154, 188–191, 214, 337–338
 - creating form instance 22
 - custom list 86
 - editing 183
 - exporting 23
 - file extension for 13
 - IPFS support 335
 - naming conventions 29
 - pre-built 30–34
 - quiescing 338
 - Request Title field 122
 - SharePoint supported 30
 - UDC files and 201
- testing Web Parts 222–223
- text
 - placeholder 38
 - quotations around 130, 244
- Text Box control
 - about 60
 - form design considerations 38
 - mapping column types to 98
 - positioning labels 93
- Text Box Properties dialog box
 - Data tab 44, 127
 - Display tab 44, 127, 217–218
- themes
 - applying 56–58
 - selecting for list forms 93
- Themes section (Page Design tab) , 56, 262
- time-off request form example
 - creating 154–158
 - promoting fields to columns 165–168
 - publishing as administrator-approved
 - template 189–191
 - publishing to content types 179–188
 - publishing to form library 159–162
- today function 157, 309
- Translate function 423–426
- travel request example
 - adding calculated columns 103–108
 - adding list form fields 101–102
 - creating list forms 87–91
 - customizing list form layouts 92–97
 - list form limitations 111–112
- troubleshooting
 - file location 419
 - tools supporting 402–407

U

[UDC files](#) 200–203, 340

[UDCX files](#) 201

[UDDI \(Universal Description, Discovery and Integration\)](#) 235

[Update Fields message](#) 269

[Upload form template link](#) 339

[URL dissection parameter \(form\)](#) 232

[user interface](#)

about 12

workflow approval process and 287

[userName function](#) 308–309, 332

[User name property](#) 374

[User Profile database \(SharePoint\)](#) 236–237

[User Profile web service](#)

about 235–237

adding data connections to 240

adding people picker to event registration form 247–251

adding Submit button to event registration form 247–251

building event registration form 238–241

connecting controls to 242

connecting fields to 241–246

connecting forms to 238–241

creating load form rules 241–246

creating rules on event registration form 241–246

querying 242

[user roles](#)

form design considerations 37

forms and 419

views and 77

[User Session settings](#) 339

V

[validation](#)

adding 7

procurement form example 121–126

Rules pane and 6

[variables](#)

creating 326

defined 268

[versioning](#) 86

[Versioning tab \(Form Options window\)](#) 113

[View drop-down box \(Page Design tab\)](#) 405

[View Request option \(Page Design tab\)](#) 134

[Views button](#) 413

[views \(InfoPath\)](#)

about 77, 86

adding 78–81

common situations for 77

creating for Web Parts 215

form requirements and 46

forms with multiple 140–150, 287–288, 350

list form limitations 111

modifying settings 46

postbacks and 350

read-only 317

security considerations 286

switching 142, 350

[views \(SharePoint\)](#)

about 361–362

additional information 361

alerts based on 368–369

creating 362–366, 370–371

customizing 376–381

filtered 361, 368–369, 372

Merge Documents view 407

[VSTA \(Visual Studio Tools for Applications\)](#) 42

W

[Web Browser Form](#) 30

[Web Browser tab \(Form Options window\)](#) 113

[Web Parts](#). *See also specific Web Parts*

about 109–110

adding connections between 224

best practice 370

configuring settings 214–223, 224

creating custom 213

creating views for 215

filter 371–375

library 370–371

parameters and 39, 225–231

testing 222–223

[Web Part settings](#)

Content Type option 214

Display A Read-Only Form (Lists Only) option 215

Get Data From option 224

Get Form From option 224

List Or Library option 214

Select The Form View To Display By Default option 215

Send Data To Connected Web Parts When Page Loads option 215

Send Data To option 224

Show InfoPath Ribbon Or Toolbar option 215

Submit Behavior option 215

[web proxy service](#) 340

[Web Service Proxy page](#) 339

[web services](#)

about 235–237

adding people picker to event registration form 247–251

- adding Submit button to event registration form 247–251
 - building event registration form 238–241
 - connecting controls to 242
 - connecting fields to 241–246
 - connecting forms to 238–241
 - creating load form rules 241–246
 - creating rules on event registration form 241–246
 - querying 242
 - Web Services Description Language (WSDL) 235**
 - Web Service template 31**
 - Web Sessions pane (Fiddler) 343**
 - website feedback form example**
 - capturing feedback 216–223
 - passing parameters 225–231
 - Width button (Layout tab) 217**
 - Windows PowerShell**
 - activating templates 338
 - scripting support 336
 - wireframes, defined 386**
 - wizard-style forms 140–150**
 - workflow approval process**
 - about 285
 - approval fields 288–293
 - approval sections 301–306
 - custom actions 270–273
 - emails in 261, 325–332
 - form load rules 297–301
 - form views and 287–288
 - gathering requirements for 286–287
 - reimbursement form example 287
 - status fields 293–297
 - Submit button actions 306–318
 - workflow approvers 318–324
 - workflow initiation forms 254–270
 - workflow task forms 274–280
 - workflow approvers**
 - list of approvers 287
 - reimbursement form example 298–299, 318–324
 - workflow context data source 326**
 - workflow diagrams 286**
 - Workflow Form Update Required message 268–269**
 - workflow initiation forms**
 - about 254–256
 - adding conditions to 263–266
 - automatic start option 255
 - creating approval process 256–261
 - customizing 262–264
 - manual start option 254, 255, 262
 - parameters in 256, 266–270
 - workflows**
 - about 253–254
 - actions and 254
 - adding conditions to 254, 263–266, 285, 327
 - adding rules to 285
 - alerts and 369
 - automatic start option 255
 - conditions and 254, 263–266
 - considerations promoting columns 163
 - custom actions 270–273
 - email settings 261
 - manual start option 254, 255, 262
 - pending changes 277
 - permission levels and 254–256, 270, 287
 - security considerations 254–256, 270, 286
 - sending email via 417
 - Start Options settings 254–256
 - Task Process Designer 260, 274–276
 - usage considerations 3
 - workflow initiation forms 254–270
 - workflow task forms 274–280
 - Workflow Settings button (Library tab) 330**
 - Workflow Settings button (ribbon) 269**
 - Workflow Settings tab (SharePoint Designer) 269**
 - Workflow Status page 261**
 - workflow task forms**
 - about 274–276
 - modifying 277–280
 - Task Process Designer 260, 276–278
 - WSDL (Web Services Description Language) 235**
 - WYSIWYG print preview 10**
- ## X
- XML (extensible markup language)**
 - about 16–17
 - benefits of 11
 - ECT support 204
 - form design considerations 52
 - performance factors 341
 - products.xml file exercise 18, 18–22
 - web services and 235
 - XML files 13, 201, 411**
 - XMLHTTP protocol 340**
 - XML or Schema template 32**
 - XML resource file 345–346**
 - XML web services**
 - about 235–237
 - adding people picker to event registration form 247–251
 - adding Submit button to event registration form 247–251
 - building event registration form 238–241
 - connecting controls to 242
 - connecting fields to 241–246
 - connecting forms to 238–241
 - creating load form rules 241–246
 - creating rules on event registration form 241–246
 - querying 242

[XPath field](#) 313

[XSLT list view Web Part](#) 376–381

[XSN files](#)

about 13, 40, 411

saving 159

Y

[Yes/No Check Box column type](#) 86, 98

About the Authors

Darvish Shadravan is employed at Microsoft where he has spent nearly 15 years in a variety of technical positions. He currently holds the title of Senior Technical Specialist. For the past six years he has been focused on the SharePoint and Office products, helping enterprise customers understand how to most effectively deploy and leverage the Microsoft collaboration platform. Along the way, he has spoken at several SharePoint events worldwide, often representing the InfoPath Product Group. You can contact Darvish via Twitter @dshadravan or find him on LinkedIn.

Laura Rogers is a Senior SharePoint Consultant at SharePoint911, and a Microsoft MVP. She has seven years of experience in SharePoint implementation, training, customization and administration. Her focus is on making the most of SharePoint's out-of-the-box capabilities. She works extensively with SharePoint Designer workflows, InfoPath and Data View Web Parts. Laura's previous books are *Beginning SharePoint 2010: Building Business Solutions with SharePoint*, and *Professional SharePoint 2010 Administration* (both published by Wrox). Her blog is <http://www.sharepoint911.com/blogs/laura>, and she is @WonderLaura on Twitter.

What do you think of this book?

We want to hear from you!

To participate in a brief online survey, please visit:

microsoft.com/learning/booksurvey

Tell us how well this book meets your needs—what works effectively, and what we can do better. Your feedback will help us continually improve our books and learning resources for you.

Thank you in advance for your input!

Microsoft[®]
Press