Join the discussion @ p2p.wrox.com

SECOND EDITION

Professional SharePoint® 2010 Development

Tom Rizzo, Reza Alirezaei, Paul J. Swider, Kenneth Schaefer, Jeff Fried, Scot Hillier

PROFESSIONAL SHAREPOINT 2010 DEVELOPMENT

INTRODUCTION xxv

CHAPTER 1	Introduction to SharePoint 2010	1
CHAPTER 2	Developer Tools for SharePoint 2010	17
CHAPTER 3	IT Pro Enhancements for the Developer	63
CHAPTER 4	SharePoint Platform	85
CHAPTER 5	Collaboration and Social Computing	207
CHAPTER 6	Search	233
CHAPTER 7	Records Management	303
CHAPTER 8	Web Content Management	327
CHAPTER 9	Electronic Forms	389
CHAPTER 10	ECM: Document Management	459
CHAPTER 11	Introducing Business Connectivity Services	491
CHAPTER 12	Advanced Business Connectivity Services	535
CHAPTER 13	Workflow	577
CHAPTER 14	Business Intelligence	651
CHAPTER 15	SharePoint Online	745
APPENDIX	Additional Help and Resources	771

INDEX 773

PROFESSIONAL

SharePoint 2010 Development

PROFESSIONAL

SharePoint 2010 Development

Second Edition

Tom Rizzo
Reza Alirezaei
Paul J. Swider
Kenneth Schaefer
Jeff Fried
Scot Hillier

John Wiley & Sons, Inc.

Professional SharePoint 2010 Development, Second Edition

Published by
John Wiley & Sons, Inc.
10475 Crosspoint Boulevard
Indianapolis, IN 46256
www.wiley.com

Copyright © 2012 by John Wiley & Sons, Inc., Indianapolis, Indiana

Published simultaneously in Canada

ISBN: 978-1-118-13168-8
ISBN: 978-1-118-22504-2 (ebk)
ISBN: 978-1-118-23868-4 (ebk)
ISBN: 978-1-118-26319-8 (ebk)

Manufactured in the United States of America

10 9 8 7 6 5 4 3 2 1

No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, scanning or otherwise, except as permitted under Sections 107 or 108 of the 1976 United States Copyright Act, without either the prior written permission of the Publisher, or authorization through payment of the appropriate per-copy fee to the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923, (978) 750-8400, fax (978) 646-8600. Requests to the Publisher for permission should be addressed to the Permissions Department, John Wiley & Sons, Inc., 111 River Street, Hoboken, NJ 07030, (201) 748-6011, fax (201) 748-6008, or online at http://www.wiley.com/go/permissions.

Limit of Liability/Disclaimer of Warranty: The publisher and the author make no representations or warranties with respect to the accuracy or completeness of the contents of this work and specifically disclaim all warranties, including without limitation warranties of fitness for a particular purpose. No warranty may be created or extended by sales or promotional materials. The advice and strategies contained herein may not be suitable for every situation. This work is sold with the understanding that the publisher is not engaged in rendering legal, accounting, or other professional services. If professional assistance is required, the services of a competent professional person should be sought. Neither the publisher nor the author shall be liable for damages arising herefrom. The fact that an organization or Web site is referred to in this work as a citation and/or a potential source of further information does not mean that the author or the publisher endorses the information the organization or Web site may provide or recommendations it may make. Further, readers should be aware that Internet Web sites listed in this work may have changed or disappeared between when this work was written and when it is read.

For general information on our other products and services please contact our Customer Care Department within the United States at (877) 762-2974, outside the United States at (317) 572-3993 or fax (317) 572-4002.

Wiley publishes in a variety of print and electronic formats and by print-on-demand. Some material included with standard print versions of this book may not be included in e-books or in print-on-demand. If this book refers to media such as a CD or DVD that is not included in the version you purchased, you may download this material at http://booksupport.wiley.com. For more information about Wiley products, visit www.wiley.com.

Library of Congress Control Number: 2012933263

Trademarks: Wiley, the Wiley logo, Wrox, the Wrox logo, Programmer to Programmer, and related trade dress are trademarks or registered trademarks of John Wiley & Sons, Inc. and/or its affiliates, in the United States and other countries, and may not be used without written permission. All other trademarks are the property of their respective owners. John Wiley & Sons, Inc., is not associated with any product or vendor mentioned in this book.

I would like to dedicate this book to my very dear grandmother, S.Khatoon, who passed away as I was working on the second edition of this book. She will be loved and remembered.

—Reza Alirezaei

ABOUT THE AUTHORS

TOM RIZZO is a Senior Director in the Microsoft Office and Office 365 product management group. Previously, Tom was part of the SharePoint, SQL Server, and Exchange Server product management groups, where he focused on helping shape and grow those businesses and the solutions built on top of them. You can reach Tom at thomriz@microsoft.com.

REZA ALIREZAEI, MVP, MCP, MCPD, MCITP, AND MCTS for SharePoint 2010, is a SharePoint solution architect focused on designing custom applications with SharePoint, Office, and Microsoft Business Intelligence technologies. Reza is the founder and president of Development Horizon where he has helped many clients architect and build large-scale, mission-critical SharePoint applications. Reza also speaks in many local and international conferences. Reza achieved the status of Microsoft Most Valuable Professional (MVP) for SharePoint in 2006, which he still is today. He has also co-authored several books, papers, and articles. Reza can be reached at reza@devhorizon.com.

PAUL J. SWIDER is an international speaker, trainer, and freelance consultant. In addition, he is the founder of the Charleston SharePoint Users Group and an accomplished entrepreneur straight from a barrier island near Charleston, SC where Paul also chases the tides and winds as an avid boater and sailor. Paul is grateful he is able to escape the summer heat in Charleston and consults with some of the most successful companies in the world. Seventeen years of software consulting experience combined with many Microsoft certifications and speaking credentials has made Paul an authority in the SharePoint community. As an MCT, Paul has trained and consulted thousands of SharePoint administrators, developers, and architects.

KEN SCHAEFER is an independent developer and designer focusing on SharePoint and web-based solutions. Ken lives in the Chicago area with his daughter, Alexa. Ken can be reached at ken@kenschafer.name.

JEFF FRIED began writing software at the tender age of 13 and has been hooked ever since. He has worked extensively with Enterprise Search, including roles as SVP Products for the semantic search startup LingoMotors and VP Advanced Solutions for FAST Search and Transfer. FAST's acquisition landed him at Microsoft, where he was a senior technical product manager in the SharePoint group. Jeff is currently the CTO at BA Insight, focused on the development of search-based applications with SharePoint. Jeff is a frequent speaker and writer in the industry, holds 15 patents, has authored more than 50 technical papers, and has led the creation of pioneering offerings in next-generation search engines, networks, and contact centers. He is an amateur musician and lives with his lovely wife and three delicious children in Newton, Massachusetts.

SCOT HILLIER is an independent consultant and Microsoft SharePoint Most Valuable Professional focused on creating solutions for Information Workers with SharePoint, Office, and related .NET technologies. He is the author/coauthor of 15 books and DVDs on Microsoft technologies including Inside SharePoint 2010 and Professional Business Connectivity Services. Scot splits his time between consulting on SharePoint projects, speaking at SharePoint events like Tech Ed, and delivering training for SharePoint Developers. Scot is a former U. S. Navy submarine officer and graduate of the Virginia Military Institute. Scot can be reached at `scot@shillier.com`.

ABOUT THE TECHNICAL EDITORS

RAHUL SONI started his career working with Visual Basic and went on to learn VB.NET after he moved to Bengaluru, India. After two years of being a dedicated software developer, he joined the Microsoft support team for ASP.NET. Later, he worked for the IIS + ASP.NET team as a Technical Lead at Microsoft for almost two years. Currently, he is a Senior Premier Field Engineer for Microsoft, working on multiple technologies including ASP.NET, AJAX, Silverlight, C#, VB.NET, ADO.NET, LINQ, SharePoint 2007 Administration, SharePoint Development, and SharePoint 2010. He blogs at `www.dotnetscraps.com`.

ELI ROBILLARD is an independent consultant specializing in large-scale SharePoint solutions, a Microsoft SharePoint Server MVP, a Wrox author, founder of the Toronto SharePoint Users Group, co-founder of the Toronto SharePoint Camp, and co-founder of the ASPInsiders. His clients have included leading energy companies, financial institutions, HR firms, and consulting companies. Eli lives in Toronto, Canada where he also plays music and goes on adventures with his wife Dawn, daughter Irina, and their dog Nukka.

CREDITS

ACQUISITIONS EDITOR
Paul Reese

PROJECT EDITORS
Adaobi Obi Tulton
Rock Solid Editing

TECHNICAL EDITORS
Rahul Soni
Eli Robillard

PRODUCTION EDITOR
Rebecca Anderson

COPY EDITOR
Kezia Endsley

EDITORIAL MANAGER
Mary Beth Wakefield

FREELANCER EDITORIAL MANAGER
Rosemarie Graham

ASSOCIATE DIRECTOR OF MARKETING
David Mayhew

MARKETING MANAGER
Ashley Zurcher

BUSINESS MANAGER
Amy Knies

PRODUCTION MANAGER
Tim Tate

VICE PRESIDENT AND EXECUTIVE GROUP PUBLISHER
Richard Swadley

VICE PRESIDENT AND EXECUTIVE PUBLISHER
Neil Edde

ASSOCIATE PUBLISHER
Jim Minatel

PROJECT COORDINATOR, COVER
Katie Crocker

PROOFREADER
Jen Larsen, Word One New York

INDEXER
Robert Swanson

COVER DESIGNER
LeAndra Young

COVER IMAGE
© iStock / Stephen Strathdee

CONTENTS

INTRODUCTION *xxv*

CHAPTER 1: INTRODUCTION TO SHAREPOINT 2010 **1**

What's New in the SharePoint Platform and Tools **1**
Language Integrated Query 2
List Enhancements 2
Business Connectivity Services 2
Silverlight Integration 2
Client-Side OM 3
Web 2.0 Protocols and New Standards 3
Sandbox Solutions and Resource Governors 3
SharePoint Designer 4
Visio and Access Services 4
InfoPath (Forms, List Forms, Mobile Forms) 4
Visual Studio 5
Web Solution Packages 5
Developer Dashboard 5
What's New in Collaboration/Social Computing **5**
Enhanced Blogs and Wikis 6
Social Tagging and Ratings 6
Activity Feeds 6
Social Bookmarking 6
Organization Browser 7
Outlook Social Newsfeeds and Expertise 7
Mobile Client 7
Social Search 7
What's New in Search **7**
New Core Search Query Capabilities 8
Enhanced Core Search Results 8
Enhanced People Search: Phonetics 8
Enhanced People Search: Address Book–Style Lookups 8
Enhanced People Search Results 8
New Search Connector Framework 9
FAST Integration 9

What's New in Enterprise Content Management **9**
Document Management 9
Records Management 11
Web Content Management 12
Digital Asset Management 13
Workflow 14
What's New in Forms **15**
What's New in Groove (SharePoint Workspace) **15**
What's New in Cloud Services **15**
Summary **16**

CHAPTER 2: DEVELOPER TOOLS FOR SHAREPOINT 2010 **17**

OOB Developer Experience **18**
Understanding SharePoint Designer 2010 **21**
New User Interface 22
Top Ten New Features in SPD 22
Understanding Visual Studio 2010 Tools **34**
Importing WSPs 34
SharePoint Server Explorer 34
Solution Explorer Integration 35
Feature Designer 35
Package Designer and Explorer 36
Project Type Templates 37
Mapping Folders 39
Setting Up Your Development Environment **40**
System Requirements 40
Troubleshooting with Debugging and Testing **42**
F5 Debugging 42
Debugging Using the Developer Dashboard 44
Debugging Using SharePoint Logs 48
Debugging Silverlight Code 49
Unit, Capacity, and Load Testing 49
Other Useful Tools for Debugging and Testing 52
Deploying and Maintaining Your Code **53**
Customizing Deployment in VS 54
ALM with VS 2010 and SharePoint 54
New in VS 2010 Service Pack 1: IntelliTrace and Unit Testing 54
Moving from Test to Production 59
Upgrading Code from 2007 **59**
Summary **62**

CHAPTER 3: IT PRO ENHANCEMENTS FOR THE DEVELOPER 63

Performance Improvements 63
List Throttling 64
External List Throttling 67
HTTP Request Throttling 69
Remote Blob Storage 71
Streaming Media and Bit Rate Throttling 71
High-Availability Improvements 72
Database Mirroring and Clustering 72
Read-Only Databases 73
Security Improvements in SharePoint 2010 74
Claims-Based Authentication 74
Code Access Security 77
Sandbox Solutions 77
Cross-Site Scripting 79
Management Improvements 79
Health Monitoring and Reports 79
Service Applications 80
PowerShell Support 82
Summary 84

CHAPTER 4: SHAREPOINT PLATFORM 85

Platform Overview 85
New User Interface 86
General Platform Improvements 87
Master Pages and _Layouts 87
The Ribbon 89
Status Bar and Notification Area 110
Working with Dialogs 114
Theming Infrastructure 117
List, View, and Event Enhancements 122
List Enhancements 122
View Enhancements 128
Events Enhancements 130
Overview of Data Technologies 136
SharePoint LINQ Support 136
Managed Client OM 146
jQuery and SharePoint 168
Timer Service Applications 172
Sandbox Solutions 175

Types of Solutions You Can Build 176
Executing Code in the Sandbox 176
Solution Monitoring 179
Managing Solutions 182
Mobile Solutions 188
Writing a SharePoint Mobile Adapter 188
Safe Controls and Editing the Compat.Browser File 193
Creating a Windows Phone 7 Application 195
Summary 206

CHAPTER 5: COLLABORATION AND SOCIAL COMPUTING 207

People-Centricity 208
User Profile Service Application 208
Profile Synchronization 212
Social Networking and My Site 221
Social Tagging and Ratings 223
Blogs and Wiki Site Definitions 228
Summary 231

CHAPTER 6: SEARCH 233

Search Options with SharePoint 2010 234
SharePoint Foundation 236
Search Server 2010 Express 236
Search Server 2010 237
SharePoint Server 2010 237
FAST Search Server 2010 for SharePoint 238
Choosing the Right Search Product 239
Common Platform and APIs 240
Search User Experience 241
Search Center 242
Visual Cues in Search Results 244
"Conversational" Search 246
People Search 248
Search Architecture and Topologies 249
SharePoint Search Key Components 249
FAST Architecture and Topology 253
Scale Out with FAST 254
How Architecture Meets Applications 258

Developing with Enterprise Search **258**
Range of Customization 259
Top Customization Scenarios 260
Search-Driven Applications 260
Customizing the Search User Experience **261**
Example: New Core Results Web Part 262
Example: Adding Sorting to Your New Web Part 264
Web Parts with FAST 266
Search Connectors and Searching LOB Systems **267**
Using Out-of-Box Connectors 267
Creating Indexing Connectors 269
Deploying Connectors 272
Summary — Customizing Connectivity 274
Working with Federation **274**
Customization Examples Using Federation 276
Further Considerations in Federation 277
Working with the Query OM **278**
Query-Side APIs and OMs 278
Query Syntax 281
FAST Query Language (FQL) 282
Examples Using Query Customization 282
Social Search **286**
End-User-Visible Functionality 286
Social Search Architecture 287
Content Enhancement **288**
Metadata, Linguistics, and Search 288
Advanced Content Processing with FAST 290
Multilingual Search 292
Extending Search Using the Administrative OM **292**
Authentication and Security 292
Search Reports 293
Combining Search with Other Workloads **293**
Search and Content 293
Search and Insights 294
Search and Composites 296
Search and Communities 297
Combining Search with Other Features 297
Search and the Cloud **298**
Search Capabilities in Office 365 298
Combining On-premises and In-cloud Content with Search 300
Summary **301**

CHAPTER 7: RECORDS MANAGEMENT 303

SharePoint 2010 Records Management Overview 303
Recordization 304
eDiscovery and Holds 308
Auditing and Reporting 308
Programming RM in SharePoint 309
Declaring and Undeclaring a Record 309
Creating Retention Schedules 311
Creating Organizer Rules 318
Creating Workflows that Use RM 323
Summary 325

CHAPTER 8: WEB CONTENT MANAGEMENT 327

The Content Lifecycle in Web Content Management 327
Separation of Content and Development 329
The Important Role of Information Architecture 329
Foundations of Web Content Management 330
Activating the Publishing Features 330
Publishing Feature Components 330
Page Processing Model 331
Site Variations 332
Preparing for Variations 332
Creating Variations 333
Site Columns 337
Browser-Based Site Column Development 337
Feature-Based Site Column Development 338
Object Model–Based Site Column Development 343
Content Types 345
Understanding Content Type IDs 345
Browser-Based Content Type Development 347
Feature-Based Content Type Development 347
Object Model–Based Content Type Development 350
Client Object Model–Based Content Type Development 352
Page Layouts 354
Developing Page Layouts 355
Creating a Page Layout with SharePoint Designer 355
Create a Page Layout with Visual Studio 357
Master Pages 361
Creating a Master Page with SharePoint Designer 362
Creating a Master Page with Visual Studio 363
Setting the Master Page in Code 365

Navigation **366**
Customizing Navigation with Site Settings 366
Implementing Navigation in the Master Page 369
Customizing Navigation Using the Object Model 370
Customizing Navigation with Web Parts 372
Content by Query Web Part **374**
Using the Content by Query Web Part 375
Customizing Content by Query Web Part in XML 376
Using Custom XSL to Modify the Presentation of Content 379
Redeploying the Content by Query Web Part Using Visual Studio 384
Content Conversion **386**
Setting Up Document Conversion 386
Using Document Conversion 387
Summary **388**

CHAPTER 9: ELECTRONIC FORMS **389**

Introducing the Training Management Application **391**
Customizing SharePoint List Forms **392**
Creating the Trainings List 393
Customizing SharePoint List Forms 394
Adding Intelligence Using Rules and Views 396
Publishing List Forms 398
Distributing the Trainings List 402
Designing InfoPath Form Templates **402**
What Is a Form Library? 403
Designing Your Form Template 404
Querying SharePoint Lists in Forms 409
Querying REST Web Services 411
Submit Behavior 414
Form Programming 416
Publishing an InfoPath Form 424
Publishing to a Form Library vs. Publishing to a Content Type 427
Form Security 429
Sandboxing Your Forms 430
Form Anatomy 431
Extracting the Form's Data 436
Tools for Form Developers **443**
The Rule Inspector 444
The Design Checker 445
IE Developer Tools 446
Fiddler Tool 447
Tiny Inline Tools 448

Building Web Parts Using InfoPath **450**
InfoPath Form Web Part 450
Using InfoPath to Create Connected Web Parts 451
Getting Data from Other Web Parts 455
Empowering Users with Mashups 456
Summary **457**

CHAPTER 10: ECM: DOCUMENT MANAGEMENT **459**

A New Enterprise Content Mindset **460**
New ECM Features 460
Expanded ECM Object Model 461
Getting the Most Out of the Document Center **462**
Visual Studio and the Document Center 464
Content Routing **470**
Managing the Content Organizer 471
Using Document Libraries in the Document Center **473**
Metadata Navigation and Filtering 475
Visual Studio and Document Libraries 476
Managed Metadata **479**
Types of Metadata 479
Managed Metadata Service Application 480
Content Types **483**
Document ID Service **486**
Create a Custom Document ID Provider 486
Summary **489**

CHAPTER 11: INTRODUCING BUSINESS CONNECTIVITY SERVICES **491**

Introducing Business Connectivity Services **492**
Creating Simple BCS Solutions 493
Understanding BCS Architecture **496**
Understanding Connectors 497
Understanding Business Data Connectivity 497
Understanding the Secure Store Service 502
Understanding Package Deployment 505
Working with BDC Metadata Models **505**
Working with External Datasources **507**
Connecting with the SQL Server Connector 508
Connecting with the WCF Service Connector 512

Creating Methods **516**
Implementing Method Stereotypes 516
Creating Methods for Databases 520
Creating Methods for Web Services 526
Defining Associations 527
Working with External Lists **531**
Creating Custom List Actions 531
Creating Custom Forms 532
Summary **533**

CHAPTER 12: ADVANCED BUSINESS CONNECTIVITY SERVICES **535**

Creating .NET Assembly Connectors **535**
Understanding the Project Tooling 536
Walking Through the Development Process 537
Packaging Considerations **554**
Enabling Search Support **556**
Working with the BDC Server Runtime Object Model **559**
Connecting to the Metadata Catalog 561
Retrieving Model Elements 562
Executing Operations 563
Summary **575**

CHAPTER 13: WORKFLOW **577**

Training Approval Workflow **578**
Creating the Training Content Type 579
Workflow Development Lifecycle **579**
Prototyping in Visio 580
Customizing the Workflow in SharePoint Designer 581
Creating Custom Actions with Visual Studio 2010 594
Importing to Visual Studio 2010 604
Building Workflows with Visual Studio 2010 **623**
Site Workflows 623
Pluggable Workflow Services 640
Tapping into Workflow Events 648
Summary **650**

CHAPTER 14: BUSINESS INTELLIGENCE **651**

Challenges with Traditional Business Intelligence **651**
Integration with SharePoint: The History **652**
Highlights of Business Intelligence in SharePoint Server 2010 **654**

Important BI Terms and Concepts **655**
Using the AdventureWorks Sample Databases **656**
The Starting Point: Business Intelligence Center **658**
Excel Services **660**
Excel Services Architecture 662
Office Data Connection 663
Authoring Workbooks in Excel 668
Publishing the Workbook 677
PerformancePoint Services **682**
Dashboard versus Scorecard 683
PerformancePoint Services Architecture 683
Introducing Dashboard Designer 686
Creating Your First Dashboard 687
One-Click Publishing to SharePoint 695
Time Intelligence Filtering 698
Reporting Services 2008 R2 **701**
Integration Modes 701
Local Mode Architecture 702
Connected Mode Architecture 703
Configuring the BI Center 707
BIDS 2008 R2 or Report Builder 3.0? 708
Building and Deploying Reports 709
Caching and Snapshots 725
Reporting on SharePoint Data **733**
Claims and BI Solutions **741**
Summary **743**

CHAPTER 15: SHAREPOINT ONLINE **745**

BPOS: SharePoint Online Overview **745**
Developing in the Cloud **747**
Debugging Your Solutions 747
Example Cloud Scenarios **749**
Office 365 Overview **749**
Differences Between SharePoint On-Premises and Online 750
What's in SharePoint Online in Office 365 751
What About Hybrid Solutions? 752
Azure Overview **752**
Windows Azure 752
SQL Azure 752
SQL Server Management Studio 753
Windows Azure AppFabric 753

Windows Azure Virtual Network **754**
Developer Tools for Windows Azure **754**
SharePoint and Azure Integration Scenarios **754**
Integrating SQL Azure with SharePoint On-Premises 754
Integrating SQL Azure and SharePoint Online 761
Connecting to On-Premises from SharePoint Online 761
Writing SharePoint Online Applications **762**
Identity and Authentication in Office 365 762
Calling the Client Object Model 763
Writing a Sandbox Solution in Office 365 765
Connecting Outside of Office 365 with Silverlight 766
Deploying and Debugging 767
Summary **769**

APPENDIX: ADDITIONAL HELP AND RESOURCES **771**

INDEX ***773***

INTRODUCTION

THIS BOOK IS FOR ANYONE INTERESTED in developing applications on top of SharePoint 2010 or SharePoint Online in Office 365. Although some knowledge is assumed about SharePoint, you will find the examples comprehensive and easy to follow if you have previous knowledge of web development and development tools.

WHAT THIS BOOK COVERS

SharePoint 2010 is a big product and this book is a big, diverse book. So, before you dive into the book, we wanted to give you a little feel for what each chapter entails and what you can expect once you have read the chapter.

Introductory Chapters

The first couple of chapters provide an introduction to SharePoint 2010, since the 2010 release is a large release across all the many SharePoint workloads. In these chapters, you develop an understanding of the features that 2010 provides, from creating collaboration sites to managing your content.

From there, you will explore the new developer tools in Visual Studio 2010 for SharePoint. With the 2010 release of Visual Studio, Microsoft has invested in making Visual Studio a first-class SharePoint development tool with new development, debugging, and testing tools targeted specifically at SharePoint 2010.

Finally, you will see the IT professional improvements for developers. These improvements make deploying and debugging with your IT counterparts faster and easier.

Platform Services

The next section of the book is about the base platform services and APIs provided by SharePoint. This is a big section since SharePoint is a big product with a lot of platform services. This section also serves as a basis for the rest of the book when it comes to the APIs and protocols that you will use to develop with SharePoint.

Workload Chapters

The majority of the book focuses on the workload services and platform provided by SharePoint. This includes social networking, content management, search, forms, and business intelligence. This section of the book is where you can learn to build applications that extend the built-in workloads of SharePoint and shape them to perform the functionality you need to solve your business problems.

Online Services

The last section introduces you to moving your applications to Microsoft's cloud services, called Microsoft Online Services. Through these cloud services, specifically Microsoft SharePoint Online, you can start hosting and sharing your application in the cloud with coworkers or business partners without having to run the IT infrastructure yourself. With Office 365, SharePoint 2010 comes to the cloud and allows you to integrate your SharePoint environment with other environments such as Windows Azure.

HOW THIS BOOK IS STRUCTURED

This book is structured to build logically on the skills you learn as you progress through it. After the initial introduction and base platform chapters, the book moves into the more advanced part of the platform. Each chapter builds on knowledge acquired from earlier in the book, so you will want to read through the chapters in succession or at the very least read the introduction and platform chapters before reading later chapters in the book.

WHAT YOU NEED TO USE THIS BOOK

First, you will need a copy of SharePoint 2010. The book is written to the public beta of SharePoint 2010, so you will want to download the beta. We have done our best to test against the released version of SharePoint, so please check the Wrox site regularly to see if there are updated code samples available.

Besides SharePoint 2010, you will need Visual Studio 2010 and Office 2010. The easiest way to get all these products is to download the pre-build virtual machine, which includes these products that Microsoft will release after the RTM of SharePoint 2010.

CONVENTIONS

To help you get the most from the text and keep track of what's happening, we've used a number of conventions throughout the book.

Boxes like this one hold important, not-to-be forgotten information that is directly relevant to the surrounding text.

Notes, tips, hints, tricks, and asides to the current discussion are offset like this.

As for styles in the text:

- New terms and important words are *italicized* when introduced.
- Keyboard strokes are shown like this: Ctrl+A.
- Filenames, URLs, and code within the text looks like this: `persistence.properties`.
- Code is presented in two different ways:

```
We use a monofont type with no highlighting for most code examples.
We use bold to emphasize code that is particularly important in the present
context or to show changes from a previous code snippet.
```

SOURCE CODE

As you work through the examples in this book, you may choose either to type in all the code manually, or to use the source code files that accompany the book. All the source code used in this book is available for download at `www.wrox.com`. When at the site, simply locate the book's title (use the Search box or one of the title lists) and click the Download Code link on the book's detail page to obtain all the source code for the book. Code that is included on the website is highlighted by the following icon:

Listings include the filename in the title. If it is just a code snippet, you'll find the filename in a code note such as this:

code snippet filename

Because many books have similar titles, you may find it easiest to search by ISBN; this book's ISBN is 978-1-118-13168-8.

Once you download the code, just decompress it with your favorite compression tool. Alternately, you can go to the main Wrox code download page at `www.wrox.com/dynamic/books/download.aspx` to see the code available for this book and all other Wrox books.

ERRATA

Every effort is made to ensure that there are no errors in the text or in the code. However, no one is perfect, and mistakes do occur. If you find an error in one of our books, like a spelling mistake or faulty piece of code, your feedback is welcome. By sending in errata, you may save another

reader hours of frustration and at the same time you will be helping us provide even higher quality information.

To find the errata page for this book, go to www.wrox.com and locate the title using the Search box or one of the title lists. Then, on the book's detail page, click the Book Errata link. On this page, you can view all errata that has been submitted for this book and posted by Wrox editors. A complete book list including links to each book's errata is also available at www.wrox.com/misc-pages/booklist.shtml.

If you don't spot "your" error on the Book Errata page, go to www.wrox.com/contact/techsupport.shtml and complete the form there to send us the error you have found. Once the information is checked, a message is posted to the book's errata page and the problem is fixed in subsequent editions of the book.

P2P.WROX.COM

For author and peer discussion, join the P2P forums at p2p.wrox.com. The forums are a web-based system for you to post messages relating to Wrox books and related technologies, and interact with other readers and technology users. The forums offer a subscription feature to email you topics of interest of your choosing when new posts are made to the forums. Wrox authors, editors, other industry experts, and your fellow readers are present on these forums.

At p2p.wrox.com you will find a number of different forums that will help you not only as you read this book, but also as you develop your own applications. To join the forums, just follow these steps:

1. Go to p2p.wrox.com and click the Register link.
2. Read the terms of use and click Agree.
3. Complete the required information to join, as well as any optional information you want to provide, and click Submit.
4. You will receive an email with information describing how to verify your account and complete the joining process.

You can read messages in the forums without joining P2P, but in order to post your own messages, you must join.

Once you join, you can post new messages and respond to messages other users post. You can read messages at any time on the web. If you would like to have new messages from a particular forum emailed to you, click the Subscribe to This Forum icon by the forum name in the forum listing.

For more information about how to use the Wrox P2P, be sure to read the P2P FAQs for answers to questions about how the forum software works, as well as many common questions specific to P2P and Wrox books. To read the FAQs, click the FAQ link on any P2P page.