# **Beginning Silverlight 2**

From Novice to Professional

**Robert Lair** 

#### **Beginning Silverlight 2: From Novice to Professional**

#### Copyright © 2009 by Robert Lair

All rights reserved. No part of this work may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or by any information storage or retrieval system, without the prior written permission of the copyright owner and the publisher.

ISBN-13 (pbk): 978-1-59059-952-5 ISBN-10 (pbk): 1-59059-952-7

ISBN-13 (electronic): 978-1-4302-0570-8 ISBN-10 (electronic): 1-4302-0570-9

Printed and bound in the United States of America 9 8 7 6 5 4 3 2 1

Trademarked names may appear in this book. Rather than use a trademark symbol with every occurrence of a trademarked name, we use the names only in an editorial fashion and to the benefit of the trademark owner, with no intention of infringement of the trademark.

Lead Editor: Ewan Buckingham Technical Reviewer: Stefan Turalski

Editorial Board: Clay Andres, Steve Anglin, Mark Beckner, Ewan Buckingham, Tony Campbell, Gary Cornell, Jonathan Gennick, Michelle Lowman, Matthew Moodie, Jeffrey Pepper,

Frank Pohlmann, Ben Renow-Clarke, Dominic Shakeshaft, Matt Wade, Tom Welsh

Project Manager: Tracy Brown Collins

Copy Editor: Marilyn Smith

Associate Production Director: Kari Brooks-Copony

Production Editor: Elizabeth Berry Compositor: Octal Publishing, Inc.

Proofreader: Linda Seifert

Indexer: Broccoli Information Management

Artist: April Milne

Cover Designer: Kurt Krames

Manufacturing Director: Tom Debolski

Distributed to the book trade worldwide by Springer-Verlag New York, Inc., 233 Spring Street, 6th Floor, New York, NY 10013. Phone 1-800-SPRINGER, fax 201-348-4505, e-mail orders-ny@springer-sbm.com, or visit http://www.springeronline.com.

For information on translations, please contact Apress directly at 2855 Telegraph Avenue, Suite 600, Berkeley, CA 94705. Phone 510-549-5930, fax 510-549-5939, e-mail info@apress.com, or visit http://www.apress.com.

Apress and friends of ED books may be purchased in bulk for academic, corporate, or promotional use. eBook versions and licenses are also available for most titles. For more information, reference our Special Bulk Sales–eBook Licensing web page at http://www.apress.com/info/bulksales.

The information in this book is distributed on an "as is" basis, without warranty. Although every precaution has been taken in the preparation of this work, neither the author(s) nor Apress shall have any liability to any person or entity with respect to any loss or damage caused or alleged to be caused directly or indirectly by the information contained in this work.

The source code for this book is available to readers at http://www.apress.com.

This book is dedicated to my mother, Linda, who passed after a long fight with cancer on January 6, 2008. Your courageous battle was and will always be an encouragement to me and all who knew you. I love you and miss you. I also would like to dedicate this book to my dad, Ken, who lost the gift most precious to him.

Your strength has been an inspiration to me. I love you, Dad.

## **Contents at a Glance**

CHAPTER 1	Welcome to Silverlight 2
CHAPTER 2	Introduction to Visual Studio 2008
CHAPTER 3	Layout Management in Silverlight35
CHAPTER 4	Silverlight Form Controls57
CHAPTER 5	Data Binding and Silverlight List Controls85
CHAPTER 6	Data Access and Networking117
CHAPTER 7	Local Storage in Silverlight135
CHAPTER 8	Introduction to Expression Blend
CHAPTER 9	Styling in Silverlight
CHAPTER 10	Transformations and Animation221
CHAPTER 11	Custom Controls245

## **Contents**

Acknowledgmen	ts	xv
Introduction		xvi
CHAPTER 1	Welcome to Silverlight 2	1
	The Evolution of the User Interface	1
	Rich Internet Application Solutions	3
	What Is Silverlight?	3
	Benefits of Silverlight	5
	Cross-Platform/Cross-Browser Support	6
	Cross-Platform Version of the .NET Framework	
	XAML, a Text-Based Markup Language	
	Use of Familiar Technologies	
	Small Runtime and Simple Deployment	
	The Silverlight Development Environment	
	Summary	11
CHAPTER 2	Introduction to Visual Studio 2008	13
	Just What Is Visual Studio?	13
	What's New in Visual Studio 2008?	14
	JavaScript IntelliSense and Debugging	14
	Multi-Targeting Support	26
	Transparent IntelliSense Mode	28
	Building Your First Silverlight Application in Visual Studio	
	Try It Out: Hello World in Silverlight 2	29
	Hosting Your Silverlight Application: Web Site or	
	Web Application?	
	Summary	34

CHAPTER 3	Layout Management in Silverlight	35
	Layout Management	
	The Canvas Panel	
	Try It Out: Using the Canvas Panel	
	Filling the Entire Browser Window with Your Application	
	The StackPanel Control	
	Try It Out: Using the StackPanel Control	
	Try It Out: Nesting StackPanel Controls	
	The Grid Control	
	Try It Out: Using the Grid Control	
	Try It Out: Nesting a Grid and Spanning a Column	
	Summary	55
CHAPTER 4	Silverlight Form Controls	57
	Setting Control Properties	
	Attribute Syntax.	
	Element Syntax	
	Type-Converter–Enabled Attributes	
	Attached Properties	
	Nesting Controls Within Controls	
	Handling Events in Silverlight	
	Try It Out: Declaring an Event in XAML	
	Try It Out: Declaring an Event Handler in Managed Code	
	User Input Controls	
	Try It Out: Working with the Pedia Putter and	/3
	Try It Out: Working with the RadioButton and CheckBox Controls	77
	Extended Controls	
	Try It Out: Using the GridSplitter	
	Summary	
	Summary	04
CHAPTER 5	Data Binding and Silverlight List Controls	85
	Data Binding	85
	The Binding Class	
	Try It Out: Simple Data Binding in Silverlight.	

	The DataGrid Control  Try It Out: Building a Simple DataGrid  The Columns Collection  Try It Out: Building a DataGrid with Custom Columns  The ListBox Control  Default and Custom ListBox Items  Try It Out: Building a ListBox with Custom Content  Summary	96 101 104 110 111
CHAPTER 6	Data Access and Networking	117
	Data Access in Silverlight Applications  Accessing Data Through Web Services  Try It Out: Accessing Data Through a WCF Service  Using a Standard WCF Service with Silverlight  Accessing Services from Other Domains  Accessing Data Through Sockets  Summary	118 118 130 130
CHAPTER 7	Local Storage in Silverlight	135
	Working with Isolated Storage  Using the Isolated Storage API  Try It Out: Creating a File Explorer for Isolated Storage  Managing Isolated Storage  Viewing and Clearing Isolated Storage  Try It Out: Increasing the Isolated Storage Quota  Summary	136 139 162 162
CHAPTER 8	Introduction to Expression Blend	167
	Key Features in Expression Blend 2  Visual XAML Editor  Visual Studio 2008 Integration  Split-View Mode  Visual State Manager and Template Editing Support  World-Class Timeline  Try It Out: Working with Projects in Expression Blend 2	168 168 169 170

	Exploring the Workspace	175
	Toolbox	
	Project Panel	178
	Properties Panel	178
	Objects and Timeline Panel	
	Laying Out an Application with Expression Blend	180
	Working with the Grid Control in Expression Blend	
	Try It Out: Editing a Layout Grid with Expression Blend	180
	Summary	188
CHAPTER 9	Styling in Silverlight	189
	Inline Properties	
	Try It Out: Setting Inline Properties with Visual Studio	
	Try It Out: Setting Inline Properties with Expression Blend	
	Silverlight Styles.	
	Try It Out: Using Styles As Static Resources	
	Defining Styles at the Application Level	
	Summary	
	Summary	219
CHAPTER 10	Transformations and Animation	221
	Introduction to Silverlight 2 Animation	
	Silverlight Storyboards	
	Types of Animation in Silverlight	
	Programmatically Controlling Animations	
	Using Expression Blend to Create Animations	
	Viewing a Storyboard in the Expression Blend Timeline	
	Try It Out: Creating an Animation with Expression Blend	
	Creating Transformations in Silverlight	
	Transformation Types	236
	Try It Out: Using Expression Blend to Transform Silverlight	
	Objects	

CHAPTER 11	Custom Controls	5
	When to Write Custom Controls	5
	Silverlight Control Toolkit	6
	Silverlight Control Model	8
	Parts and States Model24	8
	Dependency Properties24	9
	Creating Custom Controls in Silverlight 2	0
	Implementing Custom Functionality	1
	Try It Out: Building a Custom Control25	1
	Summary	
INDEX		9

### **About the Author**



**ROBERT LAIR** has been working with .NET technologies since before its alpha release, and built the original IBuySpy Store and Portal applications that were used by Microsoft to introduce ASP.NET to the development community. He is the author of *Pure ASP.NET* (Sams, 2002), a reference for web development in the .NET Framework, and portions of *ASP.NET for Developers*, as well as numerous magazine articles on the topic of .NET. Robert has also been a speaker at a number of .NET technical conferences. Technologies in which Robert specializes include Silverlight, CRM–Live

service integration, mainframe modernization to .NET, ASP.NET custom application development, and SharePoint development and integration.

Currently, Robert works as an independent consultant, offering development and architect services to companies worldwide. Follow Robert on Twitter at http://www.twitter.com/robertlair and on the Web at http://www.robertlair.com.

## **Acknowledgments**

here are a number of people to whom I would like to express my appreciation—people who have helped me in many ways. This book proved to be a much greater challenge than I had anticipated, as throughout the course of writing, a number of life events crept in, including the death of my mom. Without these people, this book would never have been possible.

First and foremost, I would like to thank my loving and inspiring wife, Debi. While I spent hours in my office writing, she picked up the slack around the house, and through it all provided me with love, support, and a lighthouse that I could always turn to and refocus on. I cannot thank her enough for the sacrifices she has endured, and for always being there. I would also like to thank my son, Max, who gave up a great deal of time with his dad. I hope this book is proof that you can accomplish anything if you put your mind to it and have the perseverance to see it through. I look forward to once again giving you the time you both deserve and to being a family again.

I would like to thank the many people at Apress who made this book happen. I would especially like to thank Tracy Brown Collins, Ewan Buckingham, Marilyn Smith, Elizabeth Berry, Dominic Shakeshaft, and Stefan Turalski. Without all of your hard work, this book would never have happened. Thank you all.

Through life's many challenges, everyone needs someone to whom they can turn. I would like to thank a great friend of mine, Paul Strozier, for all of his support and encouragement, and especially for his friendship. True friends are priceless. Thank you, Paul, for everything.

And finally, I would like to shout out from Gooblicious to Warclock, Essy, and the members of Slighted and Distant Beliefs, who provided me with friendship and an escape when I needed one.

### Introduction

Welcome to *Beginning Silverlight 2: From Novice to Professional*. This book will provide you with an introduction to Silverlight: what it is, what it means to you as a developer, and how to begin developing Silverlight-enabled applications. You'll not only read about the features of the Silverlight development environment, but also work through many hands-on examples that demonstrate exactly how to use those features to create rich Internet applications (RIAs).

#### Who Should Read This Book

This book is written for application developers who want to get started with Silverlight 2. It assumes that you have some experience developing applications using technologies related to Microsoft's ASP.NET, and have worked with Microsoft Visual Studio. You should be familiar with the JavaScript, C#, and XML languages.

### **How This Book Is Organized**

Each chapter focuses on a particular area of Silverlight and contains one or more "Try It Out" exercises that allow you to apply what you have learned. Here is a summary of what each chapter includes:

- Chapter 1, "Welcome to Silverlight 2," gives you an introduction to RIAs and Silverlight. You will also learn about the tools used in developing Silverlight-enabled applications.
- Chapter 2, "Introduction to Visual Studio 2008," introduces Visual Studio 2008 and the
  important new features offered in this version. In this chapter, you will build your first
  Silverlight application.
- Chapter 3, "Layout Management in Silverlight," discusses Silverlight's flexible layout management system, which lets you specify how controls will appear in your applications. It describes Silverlight 2's layout management controls in depth.
- Chapter 4, "Silverlight Form Controls," introduces the common form controls that are provided with Silverlight 2. You will continue to work with these controls throughout the book.
- Chapter 5, "Data Binding and Silverlight List Controls," looks at the Silverlight 2 controls that display lists of data and how to bind data to these controls. You'll see that these controls are flexible and can show data in unique ways.

- Chapter 6, "Data Access and Networking," describes how data access in Silverlight applications works compared with data access in traditional applications. It then explores mechanisms for accessing data in Silverlight applications, focusing on the use of web services.
- Chapter 7, "Local Storage in Silverlight," covers localized storage in Silverlight 2, which is handled by its *isolated storage* feature. You'll learn how to store user-specific data for your application and have that data persist over browser instances.
- Chapter 8, "Introduction to Expression Blend," gets you started with Microsoft Expression Blend, which lets you edit XAML documents visually.
- Chapter 9, "Styling in Silverlight," describes how you can control the styles of your Silverlight application's user interface elements. You'll learn about defining style properties inline using both Visual Studio and Expression Blend, as well as how to use Silverlight styles.
- Chapter 10, "Transformations and Animation," covers creating animations in Silverlight 2. You'll see how Expression Blend 2 helps you create complex animations and transformations.
- Chapter 11, "Custom Controls," explains the basics of creating custom controls in Silverlight 2. First, it covers when it might be appropriate to write custom controls in Silverlight 2, and then it describes how to build a custom control that has several different states.

By the time you finish this book, you will have a firm foundation in Silverlight 2, and will be able to create your own Silverlight-enabled applications.