Pro ASP.NET 3.5 Server Controls and AJAX Components

Rob Cameron and
Dale Michalk

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To my beautiful wife, Ally, and daughters Amanda and Anna,
who bring so much happiness to my life
—Rob Cameron

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About the Authors

ROB CAMERON is employed with Microsoft Corporation in Atlanta, GA. He has been with Microsoft since 2001 assisting communications sector and media and entertainment companies build solutions on the Microsoft platform. Prior to employment at Microsoft, he worked as an independent consultant developing software on the Microsoft platform for over five years. He has a master's degree in information technology management and a bachelor's degree in computer science. A former naval officer and United States Naval Academy graduate, he enjoys spending his free time with his wife and two daughters.

DALE MICHALK is employed with Microsoft Corporation in Dallas, Texas. He has been with Microsoft since 2001, where he helps promote .NET as a development platform and assists companies interested in migrating to new technologies such as ASP.NET. He is a former U.S. Army officer and West Point graduate.

About the Technical Reviewer

FABIO CLAUDIO FERRACCHIATI is a senior consultant and a senior analyst/developer using Microsoft technologies. He works for Brain Force (`www.brainforce.com`) in its Italian branch (`www.brainforce.it`). He is a Microsoft Certified Solution Developer for .NET, a Microsoft Certified Application Developer for .NET, a Microsoft Certified Professional, and a prolific author and technical reviewer. Over the past ten years, he's written articles for Italian and international magazines and coauthored more than ten books on a variety of computer topics. You can read his LINQ blog at `www.ferracchiati.com`.

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Rob Cameron

Introduction

With the explosion of the Internet, web development tools evolved as a combination of HTML and a scripting language, such as ASP or Perl, to generate dynamic output. With the advent of Microsoft's .NET Framework, ASP.NET turned web development on its head by combining a design-time interface similar to Visual Basic with an HTML and JavaScript output that requires nothing more than a web browser for rending. With ASP.NET 3.5, HTML and JavaScript are combined in powerful ways via ASP.NET AJAX technology that helps connect client-side and server-side connection without losing point-and-click design-time support. We wrote this book to document the major improvements since ASP.NET 1.1, while also covering the fundamentals for those new to custom server control development.

At the core of ASP.NET is server control technology. From the `Page` class to the `Label` control to web parts, all objects in ASP.NET are server controls. Server controls combine server-side execution in a well defined life cycle with browser-friendly rendering that includes down-level browsers as well as a plethora of mobile clients. Regardless of the target output, all server controls behave in a similar manner. Understanding this technology and how to leverage it in your own development efforts are the subjects of this book.

Who This Book Is For

The target audience for this book consists of developers with an intermediate to advanced experience level looking to deepen their understanding of ASP.NET and its underlying server control architecture. The example code in this book is written in C#. However, if you are a VB. NET developer, the examples translate pretty easily, as ASP.NET development is language agnostic. The .NET Framework and the ASP.NET object model are what's important, not the language.

If you are a developer in need of learning a particular technique, each major facet of control development is presented with simple example code to highlight that particular topic. For example, if you are looking for information on how to add events to your server controls, or how to understand how events work in ASP.NET, you can drill into that chapter to get the details.

If you are a developer looking for full-featured example code, you'll find that here too. One example shows how to implement data binding and templates that can connect to a database backend. The rich example in the last part of the book pulls techniques described throughout this book into a holistic demonstration of how to build a rich, complex server control that is fully localized and includes licensing support.

How This Book Is Structured

This book is about server control technology as the underlying foundation of ASP.NET. It will provide you with a deep understanding of how server control technology works, as well as

explaining how to build your own custom server controls as part of a web development project or for resale in the component marketplace.

The first section of the book provides an introduction to server control technology. We also discuss the different ways to build a server control including inheritance from a base control (such as `Control` or `WebControl`) encapsulation, or composite controls, as well as inheritance from an existing or rich control, like the `TextBox` server control.

The second section of the book dives into deep a discussion on critical topics such as state management, server-side event handling, templates, data binding, and integrating client-side script, as well as considering advanced base classes such as `CompositeControl` and `DataBoundControl`. A common theme for all of these discussions is how the topic relates to the control life cycle. Understanding the control life cycle is critical to server control development as well as to ASP.NET development in general. Of course, there are copious amounts of code to support our discussions as well.

The third section of the book covers advanced development techniques such as building ASP.NET AJAX controls and extenders. We also cover web part development for ASP.NET or SharePoint. We round out the section with a discussion of control adapters for modifying an existing server control's HTML output and device adapters for mobile control development.

The last section of the book covers design-time support in detail. Many of the controls built in earlier chapters include design-time support; however, we centralize discussion of the design-time support capabilities in ASP.NET and server controls to facilitate understanding without cluttering up the earlier chapters. We finish up this last section of the book by walking through how to create a professional-quality server control with a discussion on licensing, globalization, and localization.

Prerequisites

The following applications would be helpful in working through the examples in this book, but access to them isn't required:

- Visual Studio 2008, Express edition
- SQL Server 2005 Express (for a couple of the database samples)
- Internet Information Services (for the mobile web project)

Downloading the Code

The source code for this book is available to readers at `www.apress.com` in the Source Code section of this book's home page. Please feel free to visit the Apress web site and download all the code there. You can also check for errata and find related titles from Apress.

Contacting the Authors

You can contact Rob Cameron via `http://blogs.msdn.com/robcamer`; there is a contact link to send Rob an e-mail there.