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Professional ASP.NET MVC 2

Jon Galloway, Phil Haack, Scott Hanselman, Scott Guthrie, Rob Conery

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To my wife Rachel, my daughters Rosemary, Esther, and Ellie, and the rest of my family for their patience and support during the whole "move, change jobs, and write a book in the same year" thing.

—Jon Galloway

My wife, Akumi, deserves to have her name on the cover as much as I do for all her support made this possible. And thanks to Cody for his infectious happiness.

—Phil Haack

ABOUT THE AUTHORS

JON GALLOWAY works at Microsoft as an ASP.NET Community Program Manager. Jon previously worked at Vertigo Software, where he led teams building Microsoft conference websites and worked on some high profile Silverlight projects. Prior to that, he worked in a wide range of web development shops, from scrappy startups to Fortune 500 financial companies, and even spent some time as a submarine lieutenant. He's an ASP.NET and Silverlight Insider, former ASP.NET MVP, and regular contributor to several open source .NET projects. He's part of the Herding Code podcast (`http://herdingcode.com`), blogs at `http://weblogs.asp.net/jgalloway`, and twitters as @jongalloway. He lives in San Diego with his wife, three daughters, and a bunch of avocado trees.

PHIL HAACK is a Senior Program Manager with the ASP.NET team working on the ASP.NET MVC project. Prior to joining Microsoft, Phil worked as a product manager for a code search engine, a dev manager for an online gaming company, and as a senior architect for a popular Spanish language television network, among other crazy pursuits. As a code junkie, Phil Haack loves to craft software. Not only does he enjoy writing software, he enjoys writing about software and software management on his blog, `http://haacked.com/`. In his spare time, Phil contributes to various open source projects and is the founder of the Subtext blog engine project, which is undergoing a re-write, using ASP.NET MVC, of course.

SCOTT HANSELMAN works for Microsoft as a Principal Program Manager Lead in Server and Tools Online, aiming to spread the good word about developing software, most often on the Microsoft stack. Before this, he worked in eFinance for 6+ years and before that he was a Principal Consultant at Microsoft Partner for nearly 7 years. He was also involved in a few things like the MVP and RD programs and will speak about computers (and other passions) whenever someone will listen to him. He blogs at `http://www.hanselman.com` and podcasts at `http://www.hanselminutes.com` and contributes to sites like `http://www.asp.net`, `http://www.windowsclient.net`, and `http://www.silverlight.net`. You can also find him on twitter at @shanselman, far too often.

SCOTT GUTHRIE is corporate vice president of Microsoft's .NET Developer Division, where he runs the development teams responsible for delivering Microsoft Visual Studio developer tools and Microsoft .NET Framework technologies for building client and Web applications. A founding member of the .NET project, Guthrie has played a key role in the design and development of Visual Studio and the .NET Framework since 1999. Guthrie is also responsible for Microsoft's Web server platform and development tools teams. He has also more recently driven the development of Silverlight — a cross browser, cross platform plug-in for delivering next generation media experiences and rich internet applications for the Web. Today, Guthrie directly manages the development teams that build the Common Language Runtime

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ROB CONERY is an expert in ASP.NET. He is the Creator of SubSonic and was the Chief Architect of the Commerce Starter Kit (a free, Open Source eCommerce platform for .NET). He lives in Kauai, HI with his wife and two daughters (Maddy and Ruby).

ABOUT THE TECHNICAL EDITORS

BRAD WILSON has been a professional software developer for nearly 20 years, which includes more than 10 years of web development. He joined Microsoft in 2005, joined the ASP.NET team in 2008, and has worked on the ASP.NET MVC project since 2009.

EILON LIPTON joined the ASP.NET team as a developer at Microsoft in 2002. On this team, he has worked on areas ranging from data source controls to localization to the UpdatePanel control. He now works on the ASP.NET MVC Framework as a senior development lead. Eilon is also a frequent speaker on a variety of ASP.NET-related topics at conferences worldwide. He graduated from Boston University with a dual degree in Math and Computer Science. In his spare time Eilon spends time in his garage workshop building what he considers to be well-designed furniture. If you know anyone who needs a coffee table that's three feet tall and has a slight slope to it, send him an e-mail.

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—Jon Galloway

THANKS GO TO my lovely wife Akumi for her support which went above and beyond all expectations and made this possible. I'd like to also give a shout out to my son Cody for his sage advice, delivered only as a two year old can deliver it. I'm sure he'll be embarrassed ten years from now that I used such an anachronism ("shout out") in my acknowledgment to him. Thanks go to my daughter Mia as her smile lights up the room like unicorns.

—Phil Haack

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FOREWORD

THE ASP.NET WEB DEVELOPMENT PLATFORM continues to grow and is used by millions of developers worldwide. A vibrant community supports the platform, both online and offline; the online forums at `http://www.asp.net` average 2000 questions and answers a day.

ASP.NET and ASP.NET MVC 2 power news sites, online retail stores and, perhaps, your favorite social networking site. Your local sports team, book club or blog uses ASP.NET MVC 2 as well.

When it was introduced, ASP.NET MVC broke a lot of ground. Although the pattern was old, it was new to much of the existing ASP.NET community; it walked a delicate line between productivity and control, power and flexibility. Today, to me, ASP.NET MVC 2 represents choice — your choice of language, your choice of frameworks, your choice of open source libraries, your choice of patterns. Everything is pluggable. It epitomizes absolute control of my environment — if you like something, use it; if you don't like something, change it. I unit test how I want, create components as I want, and use my choice of JavaScript framework.

ASP.NET MVC 2 brings you model validation, strongly typed HTML helpers, client side validation, areas, new action filters, asynchronous controllers, model and editor templates, scaffolding UI based on the T4 code generation engine, and improved Visual Studio tooling support.

Phil, Eilon, and the ASP.NET MVC team have created version 2 of their amazing framework and given us the source. I encourage you to visit `http://ww.asp.net/mvc` for fresh content, new samples, videos and tutorials.

With new chapters, updated prose, and fresh samples from Jon Galloway and Phil Haack, we all hope this book represents the next step for you in your mastery of ASP.NET MVC 2.

Enjoy!

—Scott Hanselman
Principal Program Manager Lead
Server and Tools Online-Community
Microsoft Corporation

INTRODUCTION

WHY DOES THE WORLD NEED yet another web framework?

This is the question that is most likely on your mind-or perhaps it's what you were thinking when you saw this book sitting on the shelf. We each asked ourselves this many times over the last few years.

Indeed there are many frameworks out there today flavored with every buzzword the industry can think of. In short: it's easy to be skeptical. Yet as we, the authors, delve deeper into the latest and greatest web framework, we're each starting to realize just how far the industry has come in the last 10 years.

Rob began programming for the web with Classic ASP in 1997 and was giddy with excitement. When .NET came out he remembers running around his office, stopping everyone from working and explaining that the world just tilted on its axis.

We all feel the same way about ASP.NET MVC 2. Not because it's "something different," but because it offers developers the ultimate chance to "do it their way." You don't like the way the platform renders the View? Change it! Just about every part of the ASP.NET MVC 2 Framework is "swappable" — if the shoes pinch, get different shoes. Don't like ties? Why not a bow-tie? You're totally in control.

ASP.NET MVC 2 is a web framework that comes with a bunch of conventions to make your life easier when you follow them, but if you don't want them, the Framework is quick to step out of your way so you can get your work done in the way you like it done.

This book is going to go into the "out of the box" experience you'll have with ASP.NET MVC 2, but more importantly we'll learn practical ways that you can extend ASP.NET MVC 2 with your own magic — then hopefully share that magic with others.

Because of this extensibility and attention to "doing it your way," we're happy to embrace Yet Another Web Framework and hope you are willing to come along with us for the ride.

WHO THIS BOOK IS FOR

This book is for web developers who are looking to add more complete testing to their web sites, and who are perhaps ready for "something different."

In some places, we assume that you're somewhat familiar with ASP.NET WebForms, at least peripherally. There are a lot of ASP.NET WebForms developers out there who are interested in ASP.NET MVC so there are a number of places in this book where we contrast the two technologies. Even if you're not already an ASP.NET developer, you might still find these sections interesting for context, as well as for your own edification as ASP.NET MVC 2 may not be the web technology that you're looking for.

It's worth noting, yet again, that ASP.NET MVC 2 is not a replacement for ASP.NET Web Forms. Many web developers have been giving a lot of attention to other web frameworks out there (Ruby on Rails, Django) which have embraced the MVC (Model-View-Controller) application pattern, and if you're one of those developers, or even if you're just curious, this book is for you.

MVC allows for (buzzword alert!) a "greater separation of concerns" between components in your application. We'll go into the ramifications of this later on, but if it had to be said it in a quick sentence: *ASP.NET MVC 2 is ASP.NET Unplugged*. ASP.NET MVC 2 is a tinkerer's framework that gives you very fine-grained control over your HTML and Javascript, as well as complete control over the programmatic flow of your application.

There are no declarative server controls in MVC, which some people may like, others may dislike. In the future, the MVC team may add declarative view controls to the mix, but these will be far different from the components that ASP.NET Web Forms developers are used to, in which a control encapsulates both the logic to render the view and the logic for responding to user input, etc… Having all that encapsulated in a single control in the view would violate the "separation of concerns" so central to this framework. The levels of abstraction have been collapsed, with all the doors and windows opened to let the air flow freely.

The final analogy we can throw at you is that ASP.NET MVC 2 is more of a motorcycle, whereas ASP.NET Web Forms might be more like a minivan, complete with airbags and a DVD player in case you have kids and you don't want them to fight while you're driving to the in-laws for Friday dinner. Some people like motorcycles, some people like mini vans. They'll both get you where you need to go, but one isn't technically *better* than the other.

HOW THIS BOOK IS STRUCTURED

This book is divided into two very broad sections, each comprising several chapters.

The first half of the book is concerned with introducing the MVC pattern and how ASP.NET MVC implements that pattern.

Chapter 1 starts off with a description of the Model-View-Controller pattern, explaining the basic concepts of the pattern and providing a bit of its history. The chapter goes on to describe the state of the MVC pattern on the web today as it is implemented by various frameworks, such as ASP.NET MVC 2.

Chapter 2 then covers the ways that ASP.NET MVC is different from ASP.NET Web Forms and how to get ASP.NET MVC 2 up and running.

Chapter 3 explores the structure of a standard MVC application and covers what you get out of the box. It covers some of the conventions and the digs a little under the hood to take a look at the entire request lifecycle for an ASP.NET MVC 2 request.

Chapter 4 digs deep into routing to describe the role that URLs play in your application and how routing figures into that. It also differentiates routing from URL rewriting and covers a bit on extending routing and writing unit tests for routes.