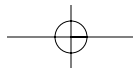
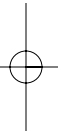
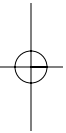
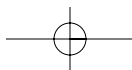
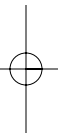
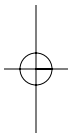
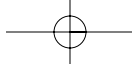
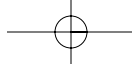


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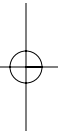
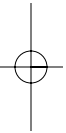






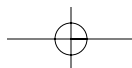
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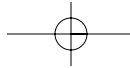
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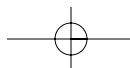
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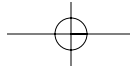
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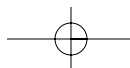
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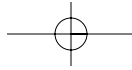
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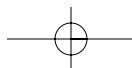
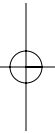
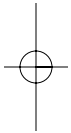


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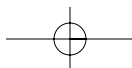
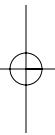
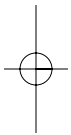
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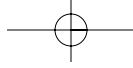
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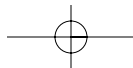
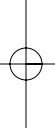
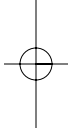
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To the new head coach – my brother, George



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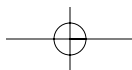
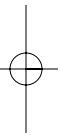
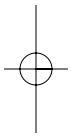
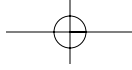
Besides Jim, I worked with the book's development editor, Sydney Jones. Sydney kept the pace going and had a heck of a job bringing together all the people that made this book a reality. Without Sydney's efforts, this book would not have happened. Thanks Sydney for everything!

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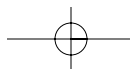
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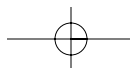
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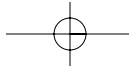
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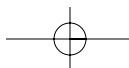
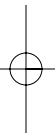
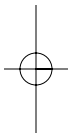
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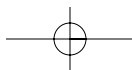
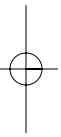
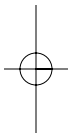
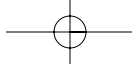
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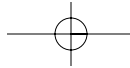


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Introduction

Simply put, ASP.NET 2.0 is an amazing release! When ASP.NET 1.0 was introduced in 2000, many considered it a revolutionary leap forward in the area of Web application development. We believe ASP.NET 2.0 is just as exciting and revolutionary. Although the foundation of ASP.NET was laid with the release of ASP.NET 1.0, ASP.NET 2.0 builds on this foundation by focusing on the area of developer productivity.

ASP.NET 2.0 brings with it a staggering number of new technologies built into the ASP.NET framework. After reading this book, you will see just how busy the ASP.NET team has been in the past few years. The number of classes inside ASP.NET has more than doubled, and this release contains more than 50 new server controls!

This book covers these new built-in technologies. It not only introduces new topics, it also shows you examples of these new technologies in action. So sit back, pull up that keyboard, and let's have some fun!

What You Need for ASP.NET 2.0

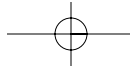
You might find it best to install Visual Studio 2005 to work through the examples in this book; you can, however, just use Microsoft's Notepad and the command-line compilers that come with the .NET Framework 2.0. To work through *every* example in this book, you need the following:

- Windows Server 2003, Windows 2000, or Windows XP
- Visual Studio 2005
- SQL Server 2000 or 2005
- Microsoft Access or SQL Server Express Edition

The nice thing is that you are not required to have Microsoft Internet Information Services (IIS) to work with ASP.NET 2.0 because this release of ASP.NET includes a built-in Web server based on the previously released Microsoft Cassini technology. And if you don't have SQL Server, don't be alarmed. Many examples that use this database can be altered to work with Microsoft Access.

Who Should Read This Book?

This book was written to introduce you to the new features and capabilities that ASP.NET 2.0 offers, as well as to give you an explanation of the foundation that ASP.NET provides. We assume you have a general understanding of Web technologies, such as previous versions of ASP.NET, Active Server Pages 2.0/3.0, or JavaServer Pages. If you understand the basics of Web programming, you shouldn't have much trouble following along with this book's content.



Introduction

If you are brand new to ASP.NET, be sure to check out *Beginning ASP.NET 2.0* by Chris Hart, John Kauffman, Dave Sussman, and Chris Ullman (published by Wrox; with VB code: ISBN: 0-7645-8850-8; or with C# code: 0-470-04258-3) to help you understand the basics.

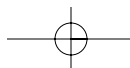
In addition to working with Web technologies, we also assume that you understand basic programming constructs, such as variables, For Each loops, and object-oriented programming.

You may also be wondering whether this book is for the Visual Basic developer or the C# developer. We're happy to say that it's for both! When the code differs substantially, this book provides examples in both VB and C#.

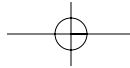
What This Book Covers

This book spends its time reviewing the big changes that have occurred in the 2.0 release of ASP.NET. Each major new feature included in ASP.NET 2.0 is covered in detail. The following list tells you something about the content of each chapter.

- ❑ **Chapter 1, "Hello ASP.NET 2.0."** This first chapter gives a good grounding in the new features of ASP.NET 2.0 by taking a look at some of the major new features and capabilities. It starts by providing you with a little bit of the history of ASP.NET and moves on to some of the exciting new additions that this latest version of the technology offers.
- ❑ **Chapter 2, "Visual Studio 2005."** This chapter introduces the next generation of the major IDE for developing .NET applications: Visual Studio 2005. Previous releases of this IDE included Visual Studio .NET 2003 and Visual Studio .NET 2002. This chapter focuses on the Visual Studio 2005 release and how you can use it to build better ASP.NET applications more quickly.
- ❑ **Chapter 3, "Application and Page Frameworks."** The third chapter covers the frameworks of ASP.NET applications as well as the structure and frameworks provided for single ASP.NET pages. This chapter shows you how to build ASP.NET applications using IIS or the built-in Web server that now comes with Visual Studio 2005. This chapter also shows you the new folders and files that have been added to ASP.NET. It discusses new ways to compile code and shows you how to perform cross-page posting.
- ❑ **Chapters 4, 5, 6, and 7.** These four chapters are grouped here because they all deal with server controls. This batch of chapters starts by examining the idea of the server control and its pivotal role in ASP.NET development. In addition to looking at the server control framework, these chapters delve into the plethora of server controls that are at your disposal for ASP.NET development projects. Chapter 4, "ASP.NET Server Controls and Client-Side Scripts," looks at the basics of working with server controls. Chapter 5, "ASP.NET Web Server Controls," covers the controls that have been part of the ASP.NET technology since its initial release. Chapter 6, "ASP.NET 2.0 Web Server Controls," on the other hand, looks at the new controls that have been added with the 2.0 release. Chapter 7, "Validation Server Controls," describes a special group of server controls: those for validation. You can use these controls to create beginning-to-advanced form validations.
- ❑ **Chapter 8, "Working with Master Pages."** Master pages are a great new addition to the ASP.NET 2.0 technology. They provide a means of creating templated pages that enable you to work with the entire application, as opposed to single pages. This chapter examines the creation of these templates and how to apply them to your content pages throughout an ASP.NET application.



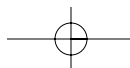
- ❑ **Chapter 9, “Themes and Skins.”** The Cascading Style Sheet files you are allowed to use in ASP.NET 1.0/1.1 are simply not adequate in many regards, especially in the area of server controls. When using these early versions, the developer can never be sure of the HTML output these files might generate. This chapter takes a look at how to deal with the styles that your applications require and shows you how to create a centrally managed look-and-feel for all the pages of your application by using themes and the skin files that are part of a theme.
- ❑ **Chapters 10 and 11.** One of the more important tasks of ASP.NET is presenting data, and these two chapters show you how to do that. ASP.NET provides a number of controls to which you can attach data and present it to the end user. Chapter 10, “Collections and Lists,” shows you how to take data and attach it to various ASP.NET server controls. Chapter 11, “Data Binding in ASP.NET 2.0,” looks at the underlying capabilities that enable you to work with the data programmatically before issuing the data to a control.
- ❑ **Chapter 12, “Data Management with ADO.NET.”** ADO.NET incorporates some radical changes in this release of ASP.NET. This chapter presents the new data model provided by ASP.NET, which allows you to handle the retrieval, updating, and deleting of data quickly and logically. This new data model enables you to use one or two lines of code to get at data stored in everything from SQL Server to XML files.
- ❑ **Chapter 13, “Working with XML.”** Without a doubt, XML has become one of the leading technologies used for data representation. For this reason, the .NET Framework and ASP.NET 2.0 have many capabilities built into their frameworks that enable you to easily extract, create, manipulate, and store XML. This chapter takes a close look at the XML technologies built into ASP.NET and the underlying .NET Framework.
- ❑ **Chapter 14, “Introduction to the Provider Model.”** A number of new systems are built into ASP.NET 2.0 that make the lives of developers so much easier and more productive than ever before. These new systems are built upon an architecture called a *provider model*, which is rather extensible. This chapter gives an overview of this provider model and how it is used throughout ASP.NET 2.0
- ❑ **Chapter 15, “Extending the Provider Model.”** After an introduction of the provider model, this chapter looks at some of the ways to extend the provider model found in ASP.NET 2.0. This chapter also reviews a couple of sample extensions to the provider model.
- ❑ **Chapter 16, “Site Navigation.”** It is quite apparent that many developers do not simply develop single pages—they build applications. Therefore, they need mechanics that deal with functionality throughout the entire application, not just the pages. One of the new application capabilities provided by ASP.NET 2.0 is the site navigation system covered in this chapter. The underlying navigation system enables you to define your application’s navigation structure through an XML file, and it introduces a whole series of new navigation server controls that work with the data from these XML files.
- ❑ **Chapter 17, “Personalization.”** Developers are always looking for ways to store information pertinent to the end user. After it is stored, this personalization data has to be persisted for future visits or for grabbing other pages within the same application. The ASP.NET team developed a way to store this information—the ASP.NET personalization system. The great thing about this system is that you configure the entire behavior of the system from the `web.config` file.
- ❑ **Chapter 18, “Membership and Role Management.”** This chapter covers the new membership and role management system developed to simplify adding authentication and authorization to your ASP.NET applications. These two new systems are extensive; they make some of the more

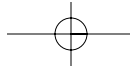


Introduction

complicated authentication and authorization implementations of the past a distant memory. This chapter focuses on using the `web.config` file for controlling how these systems are applied, as well as on the new server controls that work with the underlying systems.

- ❑ **Chapter 19, “Portal Frameworks and Web Parts.”** This chapter explains Web Parts @amd a new way of encapsulating pages into smaller and more manageable objects. The great thing about Web Parts is that they can be made of a larger Portal Framework, which can then enable end users to completely modify how the Web Parts are constructed on the page @amd including their appearance and layout.
- ❑ **Chapter 20, “Security.”** Chapter 18 discusses security beyond the membership and role management features provided by ASP.NET 2.0. This chapter provides an in-depth look at the authentication and authorization mechanics inherent in the ASP.NET technology, as well as HTTP access types and impersonations.
- ❑ **Chapter 21, “State Management.”** Because ASP.NET is a request-response-based technology, state management and the performance of requests and responses take on significant importance. This chapter introduces these two separate but important areas of ASP.NET development.
- ❑ **Chapter 22, “Caching.”** Because of the request-response nature of ASP.NET, caching (storing previous generated results, images, and pages) on the server becomes rather important to the performance of your ASP.NET applications. This chapter takes a look at some of the advanced caching capabilities provided by ASP.NET, including the new SQL cache invalidation feature introduced by ASP.NET 2.0.
- ❑ **Chapter 23, “Debugging and Error Handling Techniques.”** Being able to handle unanticipated errors in your ASP.NET applications is vital for any application that you build. This chapter tells you how to properly structure error handling within your applications. It also shows you how to use various debugging techniques to find errors that your applications might contain.
- ❑ **Chapter 24, “File I/O and Streams.”** More often than not, you want your ASP.NET applications to work with items that are outside the base application. Examples include files and streams. This chapter takes a close look at working with various file types and streams that might come into your ASP.NET applications.
- ❑ **Chapter 25, “User and Server Controls.”** Not only can you use the plethora of server controls that come with ASP.NET 2.0, but you can also utilize the same framework these controls use and build your own. This chapter describes building your own server controls and how to use them within your applications.
- ❑ **Chapter 26, “Modules and Handlers.”** Sometimes, just creating dynamic Web pages with the latest languages and databases does not give you, the developer, enough control over an application. At times, you need to be able to dig deeper and create applications that can interact with the Web server itself. You want to be able to interact with the low-level processes, such as how the Web server processes incoming and outgoing HTTP requests. This chapter looks at two methods of manipulating the way ASP.NET processes HTTP requests: `HttpModule` and `HttpHandler`. Each method provides a unique level of access to the underlying processing of ASP.NET and can be powerful tools for creating web applications.
- ❑ **Chapter 27, “Using Business Objects.”** Invariably, you are going to have components created with previous technologies that you don’t want to rebuild but that you do want to integrate into new ASP.NET applications. If this is the case, the .NET Framework makes it fairly simple and straightforward to incorporate your previous COM components into your applications. Beyond

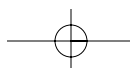


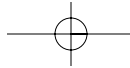


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showing you how to integrate your COM components into your applications, this chapter also shows you how to build newer style .NET components instead of turning to the previous COM component architecture.

- ❑ **Chapter 28, “Mobile Development.”** Many people forget that ASP.NET development is not only about building applications for the browser; it is also a great technology for mobile development. This chapter discusses using ASP.NET 2.0 for your mobile application development projects and how ASP.NET can make this process quite simple.
- ❑ **Chapter 29, “Building and Consuming XML Web Services.”** XML Web services have monopolized all the hype for the past few years, and a major aspect of the Web services model within .NET is part of ASP.NET. This chapter reveals the ease not only of building XML Web services, but consuming them in an ASP.NET application. This chapter then ventures further by describing how to build XML Web services that utilize SOAP headers and how to consume this particular type of service.
- ❑ **Chapter 30, “Localization.”** Developers usually build Web applications in the English language and then, as the audience for the application expands, they then realize the need to globalize the application. Of course, the ideal is to build the Web application to handle an international audience right from the start—but, in many cases, this may not be possible because of the extra work it requires. With the release of ASP.NET 2.0, a considerable effort has been made to address the internationalization of Web applications. You quickly realize that changes to the API, the addition of capabilities to the server controls, and even Visual Studio itself equip you to do the extra work required more easily to bring your application to an international audience. This chapter takes a look at some of the important items to consider when building your Web applications for the world.
- ❑ **Chapter 31, “Configuration.”** Configuration in ASP.NET can be a big topic because the ASP.NET team is not into building black boxes; instead, it is building the underlying capabilities of ASP.NET in a fashion that can easily be expanded on later. This chapter teaches you to modify the capabilities and behaviors of ASP.NET using the various configuration files at your disposal.
- ❑ **Chapter 32, “Instrumentation.”** ASP.NET 2.0 gives you greater capability to apply instrumentation techniques to your applications. This release of the ASP.NET framework includes new performance counters, the capability to work with the Windows Event Tracing system, new possibilities for application tracing (covered in Chapter 23 of this book), and the most exciting part of this discussion—a new health monitoring system that allows you to log a number of different events over an application’s lifetime. This chapter takes an in-depth look at this new health monitoring system.
- ❑ **Chapter 33, “Administration and Management.”** Besides making it easier for the developer to be more productive in building ASP.NET applications, the ASP.NET team also put considerable effort into making it easier to manage applications. In the past, using ASP.NET 1.0/1.1, you managed ASP.NET applications by changing values in an XML configuration file. This chapter provides an overview of the new GUI tools that come with this latest release that enable you to manage your Web applications easily and effectively.
- ❑ **Chapter 34, “Packaging and Deploying ASP.NET Applications.”** So you’ve built an ASP.NET application—now what? This chapter takes the building process one step further and shows you how to package your ASP.NET applications for easy deployment. Many options are avail-





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able for working with the installers and compilation model to change what you are actually giving your customers.

- ❑ **Appendix A, “Visual Basic 8.0 and C# 2.0 Language Enhancements.”** In addition to major changes to ASP.NET, considerable change has occurred in Visual Basic 8.0 and C# 2.0. The changes to these two languages, the primary languages used for ASP.NET development, are discussed in this appendix.
- ❑ **Appendix B, “Migrating ASP.NET 1.x Projects.”** In some cases, you build your ASP.NET 2.0 applications from scratch—starting everything new. In many instances, however, this is not an option. You need to take an ASP.NET application that was previously built on the 1.0 or 1.1 versions of the .NET Framework and migrate the application so that it can run on the .NET Framework 2.0. This appendix focuses on migrating ASP.NET 1.x applications to the 2.0 framework.
- ❑ **Appendix C, “Using Atlas.”** Ajax is a hot buzzword in the Web application world at the moment. Ajax is an acronym for Asynchronous JavaScript and XML and, in Web application development, it signifies the capability to build applications that make use of the `XMLHttpRequest` object. The Atlas toolkit allows you to build Ajax-style applications in ASP.NET. The Atlas toolkit is introduced as an appendix in this book because it is not part of the default .NET Framework 2.0 install. This is an extra component that requires an extra download from the Internet.
- ❑ **Appendix D, “ASP.NET Resources.”** This small appendix points you to some of the more valuable online resources for enhancing your understanding of ASP.NET.

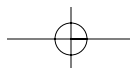
Conventions

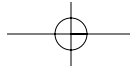
This book uses a number of different styles of text and layout to help differentiate among various types of information. Here are examples of the styles used and an explanation of what they mean:

- ❑ New words being defined are shown in *italics*.
- ❑ Keys that you press on the keyboard, such as Ctrl and Enter, are shown in initial caps and spelled as they appear on the keyboard.
- ❑ File and folder names, file extensions, URLs, and code that appears in regular paragraph text are shown in a monospaced typeface.

When we show a block of code that you can type as a program and run, it’s shown on separate lines, like this:

```
public static void Main()
{
    AFunc(1,2, "abc");
}
```





or like this:

```
public static void Main()
{
    AFunc(1,2, "abc");
}
```

Sometimes you see code in a mixture of styles, like this:

```
// If we haven't reached the end, return true, otherwise
// set the position to invalid, and return false.
pos++;
if (pos < 4)
    return true;
else {
    pos = -1;
    return false;
}
```

When mixed code is shown like this, the code with no background represents code that has been shown previously and that you don't need to examine further. Code with the gray background is what you should focus on in the current example.

We demonstrate the syntactical usage of methods, properties, and so on using the following format:

```
SqlDependency="database:table"
```

Here, the italicized parts indicate *placeholder text*: object references, variables, or parameter values that you need to insert.

Most of the code examples throughout the book are presented as numbered listings that have descriptive titles, like this:

Listing 1-3: Targeting WML devices in your ASP.NET pages

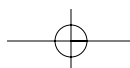
Each listing is numbered (for example: 1-3) where the first number represents the chapter number and the number following the hyphen represents a sequential number that indicates where that listing falls within the chapter. Downloadable code from the Wrox Web site (www.wrox.com) also uses this numbering system so that you can easily locate the examples you are looking for.

All code is shown in both VB and C#, when warranted. The exception is for code in which the only difference is, for example, the value given to the `Language` attribute in the `Page` directive. In such situations, we don't repeat the code for the C# version; the code is shown only once, as in the following example:

```
<%@ Page Language="VB"%>

<html xmlns="http://www.w3.org/1999/xhtml">
<head runat="server">
    <title>DataSetDataSource</title>
</head>
```

(continued)



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Listing 1-3: (continued)

```
<body>
  <form id="form1" runat="server">
    <asp:DropDownList ID="Dropdownlist1" Runat="server" DataTextField="name"
      DataSourceID="XmlDataSource1">
    </asp:DropDownList>

    <asp:XmlDataSource ID="XmlDataSource1" Runat="server"
      DataFile="~/Painters.xml">
    </asp:DataSetDataSource>
  </form>
</body>
</html>
```

Source Code

As you work through the examples in this book, you may choose either to type 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 you get to the site, simply locate the book's title (either by using the Search box or one of the topic lists) and click the Download Code link. You can then choose to download all the code from the book in one large zip file or download just the code you need for a particular chapter.

Because many books have similar titles, you may find it easiest to search by ISBN; this book's ISBN is 0-470-04178-1 (changing to 978-0-470-04178-9 as the new industry-wide 13-digit ISBN numbering system is phased in by January 2007).

After you download the code, just decompress it with your favorite compression tool. Alternatively, 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. Remember, you can easily find the code you are looking for by referencing the listing number of the code example from the book, such as "Listing 1-3." We used these listing numbers when naming the downloadable code files.

Errata

We make every effort 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, such as a spelling mistake or faulty piece of code, we would be very grateful if you'd tell us about it. By sending in errata, you may spare another reader hours of frustration; at the same time, you are helping us provide even higher-quality information.

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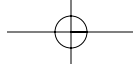
1. Go to p2p.wrox.com and click the Register link.
2. Read the terms of use and click Agree.
3. Supply the information required to join, as well as any optional information you want to provide, and click Submit.

You will receive an e-mail with information describing how to verify your account and complete the joining process.

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