



Ray Rischpater

Wireless Web Development, Second Edition

Discover wireless HTML, WAP 2.0, XML, Palm's WCA, and i-mode
and how they contribute to the shaping of wireless standards



Discern how to tailor applications that emphasize ease of use, speed of operation,
security, and reliability to meet the high expectations of wireless subscribers



Understand the demands and limitations that technology places
on the wireless market and how it markedly differs from the Web market

Wireless Web Development, Second Edition

RAY RISCHPATER

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*This book is dedicated to the memory of Meredith C. White and Raymond W. White,
who could only imagine the possibilities of a world with the wireless Web, and to
the future of Jarod Raymond Rischpater, who can only imagine the world without
the wireless Web.*

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About the Author

RAY RISCHPATER is a software engineer and writer who has focused on mobile computing since 1995. During that time, he has developed countless applications for Fortune 500 companies using handheld computers and wireless interfaces for enterprise and commercial deployment. He is the author of six books and forty-seven articles on mobile and wireless computing.

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- EmbeddedWeb, the first Web browser for handhelds
- The Atlanta Olympics Traveler's Info system, providing real-time wireless access to navigation and traffic data

Publications of his include

- *Wireless Web Development*, by Ray Rischpater (Apress, ISBN 1-893115-20-8, 5/2000)
- *Wireless Web Development with PHP and WAP*, by Ray Rischpater (Apress, ISBN 1-893115-93-3, 5/2001)
- *Advanced Palm Programming: Developing Real-World Applications*, by Steve Mann and Ray Rischpater (John Wiley & Sons, ISBN 0-471-39089-7, 10/2000)
- *Palm Enterprise Applications: A Wiley Tech Brief*, by Ray Rischpater (John Wiley & Sons, ISBN 0-471-39379-7, 10/2000)
- *Internet Appliances: A Wiley Tech Brief*, by Ray Rischpater (John Wiley & Sons, ISBN 0-471-44111-2, 9/2001)

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About The Technical Reviewer

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Introduction

THE WIRELESS WEB is here to stay. More than a billion people now use wireless devices, up from a paltry 200 million devices when I wrote the first edition of *Wireless Web Development* (Apress, 2000) a mere three years ago. The World Wide Web, and more recently the wireless World Wide Web, has made the dream of handheld devices for information access a reality.

Wireless providers have activated the third-generation cellular systems to bring voice and high-speed data services to subscribers around the world. Data transfer rates for mobile handsets are often better than that of a conventional dialup modem, and in the future with fourth- and fifth-generation systems, wireless networks rival today's Digital Subscriber Loop (DSL) data rates. It's time to stop and ask yourself: What are you doing on the wireless Web, and what can it do for you?

Who Needs to Read This Book

If you're interested in developing a Web site for use with wireless devices in a mobile environment, then this book is definitely for you. If you're a software developer, Webmaster, or intranet administrator, you can use the techniques and tools described in this book to deliver information to your customers, wherever they may be.

This book not only details the use of traditional Web technologies for the wireless market, but it gives you all the knowledge you need to create for emerging environments including Wireless Application Protocol (WAP) 2.0 with XHTML-MP and Compact HTML (the markup language behind i-mode, the world's most popular wireless data service).

I've assumed you have some familiarity with traditional Web development, including knowledge in areas such as the following:

- **Client-server interaction:** Understanding how a Web browser and a server interact will help you understand how technologies such as the WAP can be used with an existing Web server to reach new customers.
- **HyperText Markup Language (HTML):** Familiarity with HTML is a good idea if you're going to be developing pages for wireless Web browsers.
- **Common Gateway Interface (CGI):** As you'll soon find out, Web sites for wireless access are even more likely to be dynamic than their traditional kin. CGIs are an important tool for bringing your information to your viewers.

If, like me, you wondered as a kid how they fed the guy in the radio or you visualized electrons rolling around inside your computer like little peas, never fear. The foundation of this book lies in understanding the development of Web content, not comprehending the mysteries of radio transmissions or how mobile devices actually work.

Moreover, I assume you're relatively new to the subject of wireless Web development. Throughout this book, as you learn how to construct Web sites for wireless users, you'll gain important insights into the differences between wireless and traditional Web content development.

A word of warning: If your intended platforms are high-speed, local-area wireless networks such as the incredibly successful WiFi (802.11b) standard, this book may not apply to you. WiFi coupled with traditional computers in the guise of laptops need little special attention from Web developers. But, if you're working with wireless local-area networks and significantly more constrained devices (say, a Microsoft Windows Powered device or Palm Powered platform device), then this book is for you.

What You Will Find in This Book

This book, like the previous edition, intersperses comments and ruminations about the nature of developing for wireless clients with examples using the latest technologies for the World Wide Web. It's written to be both a sourcebook of general ideas you can call upon when developing your site and a cookbook of techniques and tricks for making the most of wireless presentation.

Chapter 1, "A Wireless Data Primer," provides an introduction for those new to wireless data and mobile devices.

Chapter 2, "The Wireless Landscape," introduces the wireless industry, including some of its key features and pitfalls.

Chapter 3, "The Wireless User Interface," discusses how to produce wireless World Wide Web content for your subscribers.

Chapter 4, "The Wireless World Wide Web," reviews the protocols and standards behind the wireless World Wide Web.

Chapter 5, "Server-Side Content Management," offers server-side techniques for enabling wireless devices, including applications of Apache's server-parsed directives and PHP: Hypertext Processor.

Chapter 6, "Server-Side Content-Management Scripting," provides a brief introduction to server-side scripting using the popular open-source language PHP.

Chapter 7, "eXtensible Markup Language," gives you a succinct overview of XML and how you can use it when working with other wireless markup languages. Understanding XML is key in being able to use many newer markup

languages, such as those defined by the WAP Forum, and critical for content developers to understand when working with engineers.

Chapter 8, “HyperText Markup Language, the Wireless Way,” examines the use of HTML in wireless Web content and shows you a subset of HTML appropriate for marking up wireless content.

Chapter 9, “Palm-Powered Web Clipping Applications,” describes Palm, Inc.’s novel and strikingly successful approach to bringing conventional Web content to its handheld devices, including the Palm Powered i705—connected organizer.

Chapter 10, “i-mode Applications,” discusses i-mode as developed by NTT DoCoMo. As I write this, i-mode is arguably the most successful wireless Web service, available throughout Japan.

Chapter 11, “Wireless Application Protocol,” discusses the work done to date by the WAP Forum, an industry association of hardware and software manufacturers working to provide wireless Web standards, including WAP 2.0’s support for XHTML Mobile Profile.

Chapter 12, “Wireless Markup Language,” takes a step back from WAP and looks at Wireless Markup Language (WML). Widely deployed throughout the United States, WML remains a powerful choice for those developers seeking to tap the market of deployed handsets.

Chapter 13, “Dynamic Content with WMLScript,” shows you how you can add dynamic behavior to your WAP content using WMLScript, a lightweight scripting language for screen phones.

Chapter 14, “Content Delivery,” discusses content delivery for today’s mobile devices. Although most wireless Web applications follow the traditional client-server paradigm in which you request information from a remote position, the wireless Web supports other paradigms as well. Notably, I discuss synchronizing, bringing Web content to the handheld using browsers such as AvantGo, and pushing, where a content server sends content to your handset on your behalf.

Chapter 15, “Custom Applications: When a Browser Won’t Work,” discusses when and why you would choose to write a custom application using the wireless protocols instead of tailoring content for a browser.

Appendix A, “Resources for Wireless Web Developers,” provides you with a list of resources including browsers for testing and software development kits for developing wireless Web content.

Appendix B, “Unified Modeling Language for Web Developers,” reviews the Unified Modeling Language (UML) for those readers new to using it.

Appendix C, “Handheld Device Markup Language,” compares WAP with Handheld Device Markup Language (HDML), the predecessor to WAP. Originally designed for screen phones, HDML remains a powerful alternative to WAP for some applications.

How You Can Use this Book

If you're new to the wireless frontier, you should plan on starting with the first two chapters of this book. (Of course, you're free to dip into this book wherever you want and skip through it as you please.) Chapter 1 provides a brief history of wireless data and wireless technologies as they pertain to the wireless Web, and Chapter 2 looks at the exciting opportunities for wireless development. You're free to read either, both, or neither of these depending on your interests. Those with a technical streak will enjoy Chapter 1; those with an interest in marketing and business may find Chapter 2 a better place to start.

You should definitely read Chapter 3, as in it I introduce many of the constraints on wireless Web content. You'll face these constraints when developing your content, and I refer back to them throughout my discussion of the markup languages that follows.

With an understanding of the capabilities of the wireless Web in hand, you're free to roam through any of the remaining chapters. Readers interested in traditional Web technologies applied to wireless markets will want to focus on Chapters 4, 8, 9, and 10. Readers developing for the wireless phone market will want to read Chapters 10, 11, 12, and 13, which discuss the technologies available for these platforms.

Of course, if you've already spent time working with wireless content or mobile devices, you may want to flip right to any chapter that interests you and dive in. Go right ahead!

A Word on Presentation

As with other technical books, it helps to make a distinction between what's meant for people to read and what's meant for computers to read.

Any text in this book that looks like this is either a tag in one of the Web markup languages or a variable or statement in some computer language being discussed. Whole listings of code or markup languages are set in the same style:

```
<HTML>
<TITLE>Hello world!</TITLE>
  <BODY><P>Hello world!</P></BODY>
</HTML>
```

It is widely held that a picture is worth a thousand words. I've tried to use illustrations throughout for two purposes: to show you the results of marking up content using one of the wireless Web markup languages (HTML, HDML, or WML) or to describe the behavior of a system in some way. To represent a system's operation, I use UML, which provides a powerful way to represent different

aspects of systems in a compact notation that's clear and intuitive. If you're new to UML, you may want to read Appendix B for an introduction.

Getting the Latest Resources

Throughout the book, I'll be using developer tools and resources for HTML, WAP, and HDML authors. For the latest information regarding developer resources and where you can find them, see Appendix A.

Looking Ahead

The development of the wireless Web is in full swing. This is the time for new players and new ideas. I'm pleased to be sharing how to develop for the wireless Web with you and look forward to seeing the content and solutions you develop.

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