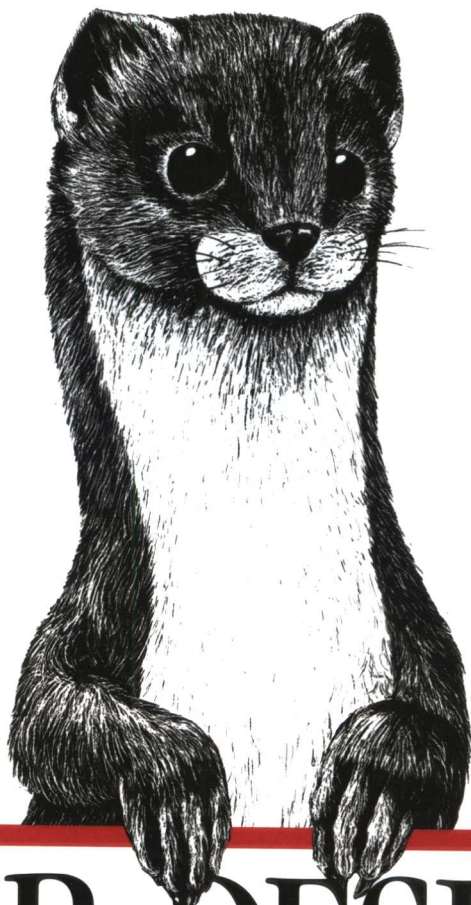


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# WEB DESIGN

## IN A NUTSHELL

*A Desktop Quick Reference*

O'REILLY®

东南大学出版社

Jennifer Niederst Robbins 著

WEB设计技术手册(影印版)

# WEB DESIGN

IN A NUTSHELL

第三版



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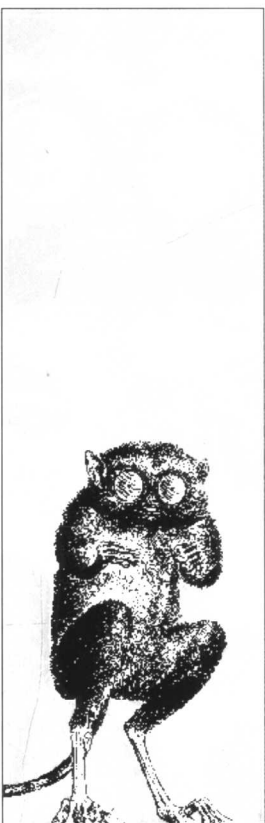
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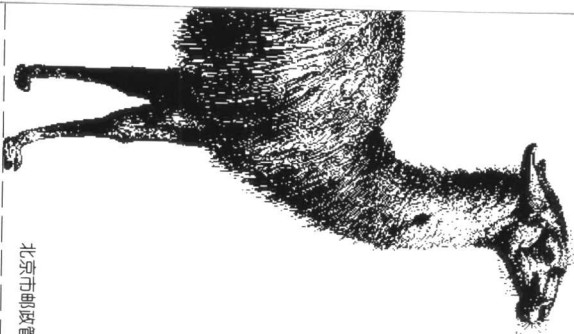
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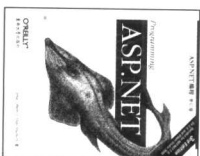
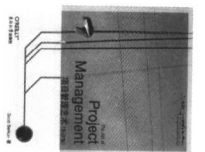
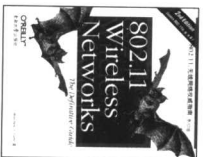


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## Foreword

I recall sitting at my desk many years ago, struggling with a piece of HTML markup, when someone walked by and dropped off a floppy disk. Written in block letters across the label was “Netscape .9b”—a pre-release beta version of what would soon become the most widely used browser of that time. I installed it and clicked around my company’s web site, and I remember thinking to myself, “Huh. My job just completely changed.”

Up to that point in the nascent history of the World Wide Web, there had really been only one browser to worry about. Nearly everyone used Mosaic, and as long as my pages were also functional in a text-only browser like Lynx, I could safely forget about that aspect of web design. But suddenly there was competition. And with competition came new concerns about rendering, feature support, and bugs.

That would prove to be one of innumerable watershed events in more than a decade of growth and evolution of the Web as a world-changing technological platform. Soon after Netscape shipped its browser, my job would completely change over and over again. First came fonts and colors; then frames, JavaScript, database-driven dynamic web applications, XML, Cascading Style Sheets, Flash, semantic markup—and all of those innovations have iterated through countless new versions. If there’s one thing that is certain in the life of a web designer, it’s that every day something you thought you knew will change. And then change again.

Yet in any journey—whether literal or metaphorical—it pays to occasionally find a vantage point and take stock of where you’ve been and how far you have to go. We’ve come a long way on the Web, but we also have so much more to learn.

The earliest days of the Web were the domain of the webmaster. At that time, the Web was viewed as another service provided as technical infrastructure—much like the email server or firewall. The webmaster’s duties included maintaining the HTTP server, keeping things secure, monitoring bandwidth usage, and—oh, yeah—creating the HTML pages for this new service. Web design back then was



simply the output of a web server. And the IT department found itself in the position of building pages and even occasionally using Photoshop. Those were crazy times.

By the mid '90s, the Web had moved from IT to marketing. Every company needed a web site if they expected to survive, and there was a mad scramble to develop an “interactive strategy.” This was the era of the transitional web designer—when people with experience in more traditional media design came to the Web and tried to bend it to fit. No control of typography? Build the whole page as an image. Page layout not up to our standards? We'll hack on tables and invisible GIFs until things look exactly like they should. The Web didn't respond very well to this onslaught. The cornerstones of digital design—usability, content reuse, accessibility—buckled under the hubris of graphic artists.

But today holds both tremendous opportunity and significant trepidation for those who call themselves web designers. The legacy of the so-called “Browser Wars” is behind us; we have a strong and stable platform for building with increasing sophistication. A foundation of accepted and well-implemented industry standards offers a constancy we once could only dream of. But at the same time, the Web has factions of innovation racing off in countless directions. Good designers now worry as much about semantics, device-agnosticism, and Ajax-style interactions as they do about color, typography, and layout. It is an understandably intimidating time.

The weight of this book in your hands is a testimony to that complexity. And if it seems daunting, at least take comfort in the fact that the author could not possibly be a more capable guide. Jennifer Robbins has been designing web sites longer than anyone else I know. For years she has been the one we've all turned to for reassurance and clarity as our industry propels itself into the future.

There is nobody I would trust more than Jennifer to show us where we've been, and where we're heading next. You should, too.

—Jeffrey Veen  
*December 2005, San Francisco*



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## Contributors

### Tantek Çelik

Tantek Çelik contributed Appendix E, *Microformats: Extending (X)HTML*. He is also a Lead Technical Editor for this book. His bio is listed on the Technical Reviewers page.

### Derek Featherstone

Derek is a well-known instructor, speaker, and developer with expertise in web accessibility consulting and training. He advises many government agencies, educational institutions, and private sector companies, providing them with expert accessibility testing, and review and recommendations for improving the accessibility of their web sites to all people. As a member of the Web Standards Project ([webstandards.org](http://webstandards.org)), Derek serves on two task forces: Accessibility/Assistive Devices and DOM Scripting. He is a dedicated advocate for standards that ensure simple, affordable access to web technologies for all. Derek wrote Chapter 5, *Accessibility*.

### Aaron Gustafson

Aaron Gustafson has been working on the Web since 1996, plying his trade for many top companies including Delta Airlines, Gartner, IBM, Konica Minolta, and the U.S. EPA. He is an advocate for web standards and open source languages, often writing on those topics and more for A List Apart, Digital Web Magazine, and on his blog, [easy-reader.net](http://easy-reader.net). When not behind a desk, he can sometimes be found publicly preaching the web standards gospel alongside Molly E. Holzschlag. He and his wife, Kelly, reside in Connecticut, where he works as Sr. Web Designer/Developer for Cronin and Company. Aaron wrote Chapter 25, *Managing Browser Bugs: Workarounds, Hacks, and Filters*, Chapter 26, *Introduction to JavaScript*, and Chapter 27, *DOM Scripting*.

## Todd Marks

Todd Marks is an avid developer, designer, instructor, author, and manager of information display technologies. In 2002, Todd founded MindGrub Technologies, LLC where he created Flash information display systems for clients such as Oracle, Zurich, and ARINC. Todd currently works as a Products Manager for the mediaEdge division of Exceptional Software, where he oversees development of Media Edge's training applications. Todd is a Macromedia Certified Developer, Designer, and Subject Matter Expert and has written and contributed to several books including *Flash MX Video* (Peer Information), *Beginning Dreamweaver MX 2004* (Wrox), *Advanced PHP for Flash MX* (Glasshaus), *Flash MX Most Wanted Components* (Friends of Ed), and other Dreamweaver and Flash-related titles. Todd wrote Chapter 35, *The Flash Platform*.



# Technical Reviewers

## Lead Technical Editors

### Tantek Çelik

Tantek Çelik is Chief Technologist at Technorati ([www.technorati.com](http://www.technorati.com)) where he leads the design and development of new standards and technologies. Prior to Technorati, he was a veteran representative to the World Wide Web Consortium (W3C) for Microsoft, where he also helped lead the development of the award-winning Internet Explorer for Macintosh. As cofounder of the *microformats.org* community and the Global Multimedia Protocols Group (*gmpg.org*), as well as Steering Committee member of the Web Standards Project (WaSP, [www.webstandards.org](http://www.webstandards.org)) and invited expert to the W3C Cascading Style Sheets working group, Tantek is dedicated to advancing open standards and simpler data formats for the Web.

### Molly E. Holzschlag

Molly E. Holzschlag is a well-known web standards advocate, instructor, and author. She is Group Lead for the Web Standards Project (WaSP) and an invited expert to the GEO working group at the World Wide Web Consortium (W3C). Among her thirty-plus books is the recent *The Zen of CSS Design* (PeachPit Press, coauthored with Dave Shea). The book artfully showcases the most progressive *csszengarden.com* designs. A popular and colorful individual, you can catch up with Molly's blog at—where else?—[molly.com](http://molly.com).

## Technical Reviewers

The following people also reviewed chapters and contributed their expertise to the final product: Bill Sanders (Part II and Chapter 35), Aaron Gustafson (Chapters 7 and 24), Jeremy Keith (Chapters 26 and 27), Jason Carlin (Chapters 16 and 24), Jeffrey Robbins (Chapter 33), and Matthew Klauschie (Chapter 34).



---

## Preface

If you think you can take a web design book written in 2001 and “tweak” it for release in 2006, guess again. I know...I tried.

In my first draft of the XHTML chapters, I took the content from the last edition and just added some pointers to Cascading Style Sheet alternatives for font and a few other elements and attributes. After all (I figured), the (X)HTML Recommendations hadn’t changed since 1999, right?

As it turned out, while I was busy doing things like designing corporate identities and having babies (just one baby, actually), a major sea change had taken place in the web design world. My little pointers to CSS alternatives amounted to “band-aids on a gaping wound,” as so aptly noted by Molly Holzschlag in her tech review of those initial chapters. I had fallen out of step with contemporary web design, and I had some catching up to do.

I learned that while it was true that the Recommendation was the same, what *had* changed was how the professional web design community was using it. Designers were actually *complying* with the standards. They were no longer using (X)HTML as a design tool, but as a means of defining the meaning and structure of content. Cascading Style Sheets were no longer just something interesting to tinker with, but rather a reliable method for handling all matters of presentation, from fonts and colors to the layout of the entire page. That ideal notion of “keeping style separate from content” that I had been writing about for years had not only become a possibility, it had become a reality.

I spent the next several months immersing myself in the world of standards-driven web design: reading every book I could get my hands on, exploring oceans of online resources, and of course, poring over the details of the W3C (X)HTML and CSS Recommendations themselves.

As a result, *Web Design in a Nutshell* has not been tweaked; it has been transformed. The book now opens with an overview of web standards and the

measurable advantages of designing standards-compliant sites. The (X)HTML chapters have all been rewritten from scratch, in a way that promotes the proper semantic use of each element and radically downplays presentational HTML and how elements are rendered by default in browsers. There are now 10 chapters on CSS (the prior edition had only one). Two new chapters on JavaScript and the DOM, written by Aaron Gustafson, treat these topics in a more detailed and useful manner than the previous editions ever offered.

All other sections of the book have been brought up to date as well, reflecting some significant advancements (such as approaches to accessibility, support for the PNG graphic format, and print-specific style sheets, to name a few) as well as minor shifts (such as the guidelines on web graphics and multimedia production) that have taken place since the last edition.

The tale of transformation does not end with the book. This author has been transformed as well. Knowing what I know now, I shudder when I look at that first draft of the book. I shudder more when I look at my sites with their layers of nested tables, spacer-GIFs, and meaningless markup. Am I ashamed? Not especially...I was no different from most other web designers in the late '90s. You have to learn sometime, and for me, writing this book was my wake-up call.

I suspect that for every new web designer who comes along who has never used a table for layout, there are many more like me who need to relearn their craft. That's to be expected in a medium as new and quickly evolving as the Web. I've written this book to be the definitive resource for designers who are onboard with standards-driven web design as well as those who are still making the transition.

Now, if you'll excuse me, I have some sites to redesign.

## What's in the Book

This Nutshell book focuses on frontend matters of web design and development: markup, style sheets, image production, multimedia, and so on. Ironically, despite its title, there is little in the way of "design" advice, per se. Rather, it strives to be a thorough reference for all the technical details and requirements that we face in our day-to-day work designing and developing web content.

The book is divided into six parts (plus appendixes), each covering a general subject area.

### *Part I: The Web Environment*

Chapter 1, *Web Standards*, describes the current approach to web design and sets the stage for the entire book. It is essential reading. Chapters on designing for varying browsers and displays provide useful overviews of the unique challenges web developers face. Chapter 5, *Accessibility*, and Chapter 6, *Internationalization*, both serve as introductions to the ways web content may be created to reach all users, regardless of ability, browsing device, or language. Chapter 4, *A Beginner's Guide to the Server*, is a primer on basic server functions, system commands, uploading files, and file types.

## *Part II: The Structural Layer: XML and (X)HTML*

This part of the book is about document markup, commonly referred to as the *structural layer* because it provides the foundation upon which presentation (styles) and behaviors (scripting) are applied. I highly recommend starting with Chapter 7, *Introduction to XML*, as it covers critical concepts that guide the way (X)HTML is handled in contemporary web design. Chapters 8 through 15 focus on HTML and XHTML markup, including detailed descriptions of all the elements and the way they should be used in standards-based web design.

## *Part III: The Presentation Layer: Cascading Style Sheets*

Part III provides a thorough guide to using CSS for controlling the presentation of web content with a focus on visual media. It begins with an overview of the fundamentals (Chapter 16) and an introduction to CSS selectors (Chapter 17). Chapters 18 through 23 provide detailed descriptions of all the visual properties in the CSS 2.1 specification. Finally, examples of how CSS is used in the real world are provided in *CSS Techniques* (Chapter 24) and *Managing Browser Bugs: Workarounds, Hacks, and Filters* (Chapter 25).

## *Part IV: The Behavioral Layer: JavaScript and the DOM*

Part IV is all about adding interactivity to your pages with JavaScript. Chapter 26 is an introduction to JavaScript, covering, syntax, control structures, object-orientation, and the whys and hows of unobtrusive scripting. Chapter 27 introduces the Document Object Model and shows you how to tap into it to manipulate both content and design. As a supplement to Chapter 27, we've included a brief introduction to Ajax techniques that will help you on your way to building rich Internet applications.

## *Part V: Web Graphics*

The chapters in Part V contain essential information on working with RGB color and choosing the appropriate graphic file formats. The chapters dedicated to GIF, JPEG, and PNG graphics offer practical tips for graphic production and optimization based on the compression schemes used by each format. The *Animated GIFs* chapter is a further examination of GIF's animation capabilities.

## *Part VI: Media*

Because the Web is not limited to text and images, Part VI is included to provide a basic introduction to adding audio, video, and Flash movies to web pages. There is also a chapter on printing from web pages using print-specific CSS style sheets as well as an introduction to the PDF format for document distribution.

## *Appendixes*

The Appendixes in this book are sure to get a lot of use. Appendix A is an alphabetical listing of all elements and attributes in the HTML 4.01 Recommendation, as well as a few nonstandard elements that are well supported and in common use. Appendix B is an alphabetical listing of all properties defined in the CSS 2.1 specification. Appendix C lists all the character entities defined in HTML 4.01 and XHTML 1.0 with their numerical references. Appendix D provides a detailed explanation of the color names and RGB color values used both in (X)HTML and CSS. Finally, Appendix E, contributed by Tantek Çelik, describes the future of XHTML and Microformats.

# Using Code Examples

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## Conventions Used in This Book

The following typographical conventions are used in this book:

### Constant width

Used to indicate code examples, code references in text (including tags, elements, variables, and so forth), and keyboard commands.

### Constant width *italic*

Used to indicate replaceable text in code.

### Constant width **bold**

Used to highlight the code that is being discussed.

### *Italic*

Used to indicate filenames, directory names, URLs, and glossary terms.



This icon designates a tip, suggestion, or a general note that is an important aside to its nearby text.



This icon designates a warning relating to the nearby text.

## CSS Property Conventions

The CSS chapters in this book use the same syntax for indicating allowable property values that are used in the W3C CSS 2.1 Recommendation. A few examples are shown here:



Value: [<family-name>,\* <family-name>

Value: <uri> [ mix || repeat ]? | auto | none | inherit

Value: [ <border-style> || <border-width> || <border-color> ] | inherit

Value: [<color>|transparent]{1,4}|inherit

The notation indicates the value options and requirements, but it is not always intuitive. The various conventions are explained briefly here.

- Words that appear on their own (for example, inherit) are keyword values that must appear literally, without quotes.
- When punctuation such as commas and slashes (/) appear in the option, they must be used literally in the value as indicated.
- Words in brackets give a type of value (such as <color> and <uri>) or a reference to another property (as in <border-style>).
- If a vertical bar separates values (for example, X | Y | Z), then any one of them must occur.
- A double vertical bar (X || Y) means that X, Y, or both must occur, but they may appear in any order.
- Brackets ([...]) are for creating groups of values.

Every word or bracketed group may be followed by one of these modifiers:

- An asterisk (\*) indicates the preceding value or group is repeated *zero* or more times.
- A plus (+) sign indicates that the preceding value or group is repeated *one* or more times.
- A question mark (?) indicates that the preceding value or group is optional.
- A pair of numbers in curly braces ({X,Y}) indicates that the preceding value or group is repeated at least X and at most Y times.

Given these syntax rules, the examples above would be interpreted like this:

**Value:** [<family-name>,\* <family-name>

The value may be a font family name, preceded by zero or more additional font family names, each followed by a comma.

**Value:** <uri> [ mix || repeat ]? | auto | none | inherit

The value may be one of the keyword options auto, none, and inherit, or it may be a URI followed (optionally) by the keywords mix, repeat, or both.

**Value:** [ <border-style> || <border-width> || <border-color> ] | inherit

The value may be the keyword inherit, or it may be any combination of values for border-style, border-width, and border-color, in any order.

**Value:** [<color>|transparent]{1,4}|inherit

The value may be the keyword inherit, or it may be one, two, three, or four “color” values. Each “color” value is provided as either the keyword transparent or one of the standard methods for specifying <color> (such as a color name or RGB value).