

HTML 4 Bible, 2nd Edition

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Bryan Pfaffenberger and Bill Karow



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To Suzanne and Farris

Preface

Remember all that late-1980s talk about the Information Superhighway? You learned you'd get 500 cable channels, not just 50 (or, as comedians put it, 500 terrible channels instead of 50 terrible channels). Like most predictions involving technology, this one was way off the mark. (Add this one to the growing catalog of predictions gone awry, such as the famed remark by a 1950s IBM executive that the world would need, at most, a dozen or so computers.) The Information Superhighway didn't happen at the TV; instead, it happened at the personal computer, connected to the Internet and the World Wide Web.

Far more important, though, the Information Superhighway that has developed isn't like TV at all. TV is a broadcast medium, in which corporate content providers determine what you're going to see. The Web, from the beginning, was designed to transform couch potatoes into content producers. You can do nothing but consume Web content, to be sure, and millions of Web surfers are out there who are happy to flit from site to site without making their own contribution. And WebTV, of course, brings the Web-as-TV to the TV — and in so doing, robs the Web of part of its power.

What makes the Web such a powerful medium is, unlike all other mass media, it's inherently a two-way street, content-wise. Anyone who can consume content on the Web can also produce it, using HTML, the easy-to-learn page definition language that underlies the Web's appearance. It's as if you got a morning paper, but by afternoon, you could publish your own take on the news — and make it available, potentially, to millions of people.

The Web is probably the most important development in support of free speech since the invention of the printing press, in that it enables virtually anyone to originate content cheaply and make this content available to a potentially massive audience.

Unquestionably, the Web is good for the environment: millions of tree-killing publications are moving to the Web. Within corporations, for example, voluminous publications — directories, employee manuals, procedure manuals, agendas, reports, and meeting minutes — appear in Web-based internal networks called intranets; the environmental plusses, coupled with significant cost savings, make this innovation a no-brainer.

For even the smallest business, the Web provides a way to get your message out, stay in touch with customers, and provide needed information, but without running up a huge bill at the printer. And the best part of all is no one can tell how big or

small you are. No reason exists for them ever to know only one little scientist is behind the curtain in the Emerald City.

The list of Web impacts could go on for dozens of pages, but the pattern's clear: the Web is fast becoming an indispensable new way to make information available to others. This doesn't mean the Web is going to replace other media anytime soon. If you're running a retail business, you'd be wise to advertise in the local newspaper as well as set up a Web page, but it does mean the Web is no longer something you can prudently ignore. No matter what your message might be, you want to get it out on the Web.

Who Should Read This Book?

What all this means for you is simple: Whatever your walk of life — whether you're a businessperson, a manager, a student at any level, a retired person, a homemaker, or the vice president of the United States (a confessed Web junkie) — you owe it to yourself to learn how to originate Web content. And this means learning HTML. To do this, you need a book — a comprehensive book, and what's more, a book that teaches you how to take full advantage of this exciting new version of HTML, Version 4.01. Whether you're a complete beginner or someone who's already delved into previous versions of HTML, you'll find this book is absolutely the right one for learning and mastering HTML 4.01 — and in so doing, assure your place in the Web's future.

What's So Special About This Book?

The *HTML 4 Bible, 2nd Edition* is your ticket to mastery of the newest version of HTML, Version 4.01. As you learn in the next section, HTML 4 is the most significant revision of the Web's publishing language to appear since the language's invention. You need a book that recognizes these novel features and takes a novel approach.

For the first time, HTML provides Web publishers with the power and flexibility to create page layouts rivaling those found in professionally designed magazines and newsletters. HTML 4 requires a new approach to HTML, however. If you've learned previous versions of HTML, you need to unlearn some old habits — a lot of old habits. If you're learning HTML for the first time, you need to learn it the *right* way, by reading a book that's not just a quickie rehash of a book on some previous version of HTML.

From the first sentence to the last item in the final appendix, this book was written from scratch to emphasize the HTML 4 Way, the radically new approach to Web publishing made possible by this exciting new version of HTML. Not a single word of this book appeared in any previous edition that focused on an earlier, flawed version of HTML. This book teaches a new approach to learning and using HTML 4, one that fully enables you to realize HTML 4's incredible layout potential. Once you

learn what HTML is and understand the important implications of HTML Version 4, you'll understand why you need a book that's been written from the ground up to emphasize HTML 4's incredible new capabilities.

How This Book Is Organized

This book has seven parts. All of them adhere strictly to the HTML 4 Way.

Part I focuses on getting you up to speed on Web publishing: what's in it for you, and what's involved.

Part II helps you understand HTML — where it is today, and where it's heading in the future with XML and XHTML. Part II includes a review of the latest HTML-editing software on the market with special attention to whether it supports the HTML 4 Way (and all of it is included on the CD-ROM in the back of the book).

Part III teaches document structure with HTML.

Part IV helps you design the look of your site with graphics and cascading style sheets.

Part V teaches advanced page layout and cascading style sheets — something not covered in any other book of this type about HTML 4.

Part VI explains how to add bells and whistles to your site with multimedia and interactivity.

Part VII explains what has become known as *dynamic* HTML and its animation with JavaScript.

Using This Book's Special Features

Because this book can't make use of hypertext, it implements several special conventions to draw your attention to things you might want to know or need to know outside the text.



To help you become familiar with new terms, we introduce new terms and acronyms (and, boy, are a lot of acronyms associated with HTML!) in special vocabulary boxes. You'll know them when you come across them by looking for this Vocabulary icon.



In Depth

This book addresses the needs of a number of audiences, each of which desires a different level of technical detail. To accommodate all levels, the main text covers what you need to know to publish your pages successfully. When there is more you might want to know, the topic is covered in-depth because we set it apart from the text with this icon.

**Tip**

If we suggest a particularly useful way to achieve something, a marvelous shortcut, or a clever alternative, we identify it with this icon to save you both time and frustration . . . at no extra charge!

**Caution**

Many of you are already familiar with HTML 4.0 and earlier versions. For you, knowing both how HTML 4.01 does it and when doing it the pre-HTML 4.01 Way might get you into trouble with subsequent versions of browsers is important. The W3C calls certain uses of elements and attributes deprecated. Rather than ignoring deprecated elements and attributes, in which case you might go ahead and use them, this book flags them with an icon, along with any other special information you should know.

**On the
CD-ROM**

Content you find included on this book's CD-ROM is flagged with a CD icon for your convenience.

**Cross-
Reference**

Sometimes you are directed to other sections of the chapter or other chapters in the book for more information on a topic. In addition, each chapter ends with a section telling you where you go next in the book — a particularly useful feature if you're not following the book sequentially.

We didn't include anything unimportant. If you read a chapter every night, you can be as knowledgeable as the pros in less than two months! In what other career could you know what the experts know this quickly? What are you waiting for? Begin!

Acknowledgments

Writing this book has been a real adventure. So many people have helped us along the way. With the breadth of material this book covers, we occasionally turned to specialists to make sure everything we said was up-to-the-moment correct. Many thanks to Peter Dalianis for his professional and thoughtful comments on defining the message. Thanks also to Rick Provine for his invaluable assistance with digital audio. Michael Tuite provided thoughtful assistance with digital video and a host of other issues, for which we are grateful. We are indebted to Chuck Moran and Debra Weiss, who generously assisted with professional design advice for the section on site design. Thanks also to Tim O'Brien for his help with Java rapid development environments.

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Introduction

Short for HyperText Markup Language, *HTML* is one of many markup languages that have appeared in recent years. In brief, a *markup language* provides guidelines for adding markup — in the form of special symbols — to text documents. These symbols describe the parts of the document. For example, you can use a markup language to identify a portion of the text as an *abstract*, a brief summary of the document's contents. HTML is a markup language designed for Internet documents.

Introducing markup languages

Markup is needed because computers are quite stupid when it comes to understanding text. A computer can't really tell whether a certain portion of a text is an abstract, a title, a heading, or a paragraph. Without some kind of additional coding, the computer doesn't know how to display the text so that it looks like an actual document.

Word processing programs provide the necessary coding by means of proprietary formatting codes, but these have a gigantic downside: They work only if you're looking at the document using the same word processing program and type of computer that created it. If you ever tried to exchange a WordPerfect file with a Macintosh MS Word user, you can understand the difficulties involved.

Markup languages solve the file-compatibility problem by using nothing but *ASCII* (plain text) characters and, what's more, by breaking the connection between structural markup and presentation.

In structural markup, you identify the parts of a document — in effect, you say *this is a title* or *this is a heading* — but you say nothing about how this part of the document should be presented using specific formatting (fonts, alignment, and so on). You mark up the document's structure by identifying the document's parts (title, abstract, headings, paragraphs, lists, and so on).

But there's more. *Presentation* — how the document is formatted for display or printing — is left entirely up to a *browser*, a program designed to read the marked-up document for display on a specific type of computer hardware.

The distinction between structure and presentation is important, for in it lies the key to a markup language's capability to work smoothly in a cross-platform environment (a computer network in which people are using many different types of com-

puters). With a markup language, you can create just one version of a document. People can run browsers designed to function on Macintoshes, UNIX computers, and all the various versions of Windows (3.1, 95, 98, NT, and 2000), and they can display your document with absolutely no trouble. For each of these computers, a browser knows how to display the marked-up document on a given system.

Does a downside exist to markup languages? Yes. If you do pure structural markup, with no presentation at all, you give up control over how your document appears. On one system, it may appear with black Times Roman text — but, on another, some crazy user may have set up his or her browser to display your text in 28-point Demented Bold. And there's nothing you can do to stop this user.

HTML — a hypertext markup language

HTML is a markup language with all the advantages of other markup languages when it comes to separating structure from presentation. But HTML has something more: HTML is a hypertext markup language.

What's hypertext? In brief, *hypertext* is a way of organizing information so readers can choose their own path through the material. Instead of clicking through sequentially organized pages, a hypertext user clicks specially highlighted text, called a *hyperlink* (or just a *link* for short), to go directly to information of interest. There's more to say about hypertext but, for now, the important point is this: HTML is the first markup language to incorporate markup for hyperlinks. When you mark up a document with HTML, you can define some of the text as a link, within which you embed the computer address of another resource on the Internet. This could be a document, a movie, a sound, an animation, or a file to download.

Eroding the structure/presentation distinction

As you just learned, the whole purpose of a markup language lies in separating structure from presentation and, in so doing, enabling content developers to create documents that can be displayed faultlessly on any type of computer. But this distinction hasn't fared well. By the time HTML got to Version 3.2, it had been seriously eroded.

Why did this erosion occur? The reason lies in the Web's rapid commercialization. Actually, HTML was initially designed to enable physics researchers to make their preliminary papers available to other physics researchers, and the humdrum appearance of plain-vanilla HTML wasn't an issue. As the Web migrated to the private sector and became an important way for giant corporations to get their message out, Web developers couldn't ignore presentation anymore. They needed to emulate the page layout designs of professional newsletter and magazine designers. They didn't like the idea of a pure markup language, which would let someone display America, Inc.'s pages using 28-point Demented Bold font.

So what did Web developers do? They learned a whole series of tricks to fake layout. For example, they used tables — initially designed to group data in tabular form — to emulate newspaper columns and magazine layouts. Browser publishers, including both Netscape and Microsoft, tried to expand their market share by creating browsers that support *extensions*, nonstandard additions to HTML that provide presentation capabilities. (The most egregious of these is probably Netscape's notorious blink extension, which enables Web authors to create text that blinks away annoyingly while you're trying to read the page.)

What's the result of HTML's commercialization? In brief, a mess. You can use the tricks and extensions to fake presentation with a Web page, but how it's going to look on a given computer and monitor is anyone's guess. HTML pages are crammed with HTML code that's been elaborated to a ridiculous extent to emulate magazine layouts, but editing and maintaining these pages is a costly nightmare. To correct errors in the text, you have to pick through reams of messy code. And suppose you create a whole series of pages, but later find they look terrible when displayed on a Macintosh. You'd have to go back into each page and change the offending code.

In short, the erosion of the structure versus presentation distinction has seriously damaged HTML's underlying purpose. What's worse, it's slowing down the Web's development. To be sure, creating a simple page is easier. But the cost of creating and maintaining HTML that generates professional-looking results is so prohibitive, many would-be content providers are shying away — a bad scene!

HTML 4 and the HTML 4 Way

Realizing that something drastic had to be done to rescue HTML, the *World Wide Web Consortium* (W3C) — the nonprofit, standards-setting body responsible for HTML — has published a specification for a new version of HTML, Version 4.01. Although HTML 4.01 is downwardly compatible with previous versions of HTML, the new version is designed to restore the lost balance between structure and presentation. What's more, it does so in a way that gives Web-content developers precisely what they want: total control over document layout. The secret? Cascading style sheets (CSS).

Introducing cascading style sheets

The W3C-originated cascading style sheets (CSS) specification is a dream come true for Web-content developers. To understand why it's such a big deal, think about word processing.

The earliest word processors gave you formatting commands, but made you use them over and over. For example, suppose you wanted to format a paragraph with a first-line indent, double line spacing, and Times Roman text. With early programs,

you had to apply three different formatting commands to every paragraph you typed. What a hassle! Then along came Microsoft Word. Word enabled you to define a named style. You could create a style called Body Text, and then define this style with all the formats you want. You then apply this style to any paragraph you type. When you apply the style, Bingo! You get all the formats you assigned to the style. Once you've tried this, you can never go back — and that's one reason Microsoft Word has an overwhelming market share in the word-processing world.

Harnessing the power of styles

Cascading style sheets bring the power of styles to HTML and the Web. Using CSS, you define styles, which tell Web browsers how to display the text you marked up with HTML. Suppose, for example, you marked up some of the text as a heading. With CSS, you can define the heading so it appears with the following formats: centered, 12 points above and below, 14-point Helvetica, and bold. The marked-up text is clean, structure-only HTML — no gobbledygook designed to hassle HTML into a presentation language. And what's more, you get all the benefits of styles. Make one change to the underlying style definition and you change every instance of text to which the style is assigned. Even more powerfully, you can use external style sheets, which define the styles appearing in dozens or even thousands of documents. One little change to the underlying style and all the linked documents are changed, too.

CSS is easy to learn, easy to use, and — once you grasp what CSS can do — totally indispensable. And the benefits are amazing. By removing the presentation from HTML, you let HTML do what it does best — namely, define structure. Your HTML will be cleaner, much more readable, and much easier to edit. What's more, CSS does a far better job of presentation than HTML ever could. For example, the latest version of CSS enables *absolute positioning*, in which you can nail down the precise location of text or graphics on the page. You can create newspaper-column effects, and even superimpose text on graphics.

What about the structure versus presentation distinction?

Wait a minute! Doesn't CSS violate the structure versus presentation distinction? In some ways, yes. Admittedly, it's a compromise, but an elegant compromise. The CSS authors recognized Web developers wanted and needed to control their documents' presentation aspects. But they wanted to give authors presentation control without harming the basic benefit of a markup language, namely, the ability to create documents that function well in a cross-platform environment.

CSS does enable you to define presentation — in fact, that's its point. With CSS, you can, indeed, define presentation aspects such as fonts, and a CSS-compatible

browser respects your choice. The guy who wants to look at your page with 28-point Demented Bold sees your Times Roman instead. Unlike a word processor's formatting codes, though, CSS doesn't lock users into a rigid straightjacket. If Times Roman isn't available, the browser looks for fonts you listed as likely alternates. And, if these aren't available, the browser defaults to a fallback font. All this is totally automatic, so no one is prevented from reading your page. In short, CSS pulls off something word processing programs can't: CSS creates richly formatted documents that are easily exchanged and used in a cross-platform environment.

What's more, CSS enables you to move the presentation out of HTML. To be sure, you can include CSS style specifications within your HTML, but this book doesn't recommend this practice. It's much better to move the style specifications out of the HTML entirely, either in a grouped style specification within the document's header or (better yet) in a separate file. With the presentation code out of the way, you can write pure, structure-only HTML. And this is precisely the controlling theme of the HTML 4 revision.

Back to pure structure with HTML 4

Although HTML 4 supports the various presentation features and extensions shoe-horned into previous versions of HTML, this new version's real significance lies in its reassertion of pure structure. By moving the presentation to CSS, your HTML goes back to what it should be: clean, easy to read, inexpensive to maintain, quick to process and display, and — most of all — ideal for a cross-platform environment.

The HTML 4 Way

This book teaches an entirely new approach to HTML, one you won't find in competing books that explore HTML as extensively as this one. It's called the HTML 4 Way.

The *HTML 4 Way* takes full advantage of the exciting new possibilities of HTML and CSS, and calls for learning both, from the beginning. That's why this book's approach is unique. Almost all HTML books begin with HTML, teach all those horrible presentation tricks that have accumulated over the years, and then throw in a chapter on CSS as an afterthought. Not so with this book. As you'll see, you begin by writing pure structural HTML, with absolutely no presentation included. You then learn how to weave CSS into your documents to obtain total, impressive control over every aspect of your documents' presentation. You produce code that's beautifully simple and clear, easy and inexpensive to maintain, and absolutely stunning onscreen.

