

Chapter

1

Getting Started with HTML5 and Web Pages

Are you interested in building your own web pages? This chapter introduces you to HTML5, the newest version of the language used to create web pages. It also explains the basics behind HTML editors and web browsers, which you use to design and view your web content.

With a web browser, you can view HTML code for any page on the web and save the HTML to your computer. This can serve as a starting point for creating your pages.



Internet Basics	4
Introducing HTML5	6
Explore Web Browsers.	8
Explore HTML Editors	9
Understanding HTML5 Syntax	10
New Features in HTML5	12
View HTML5 Code in a Browser	14

Internet Basics

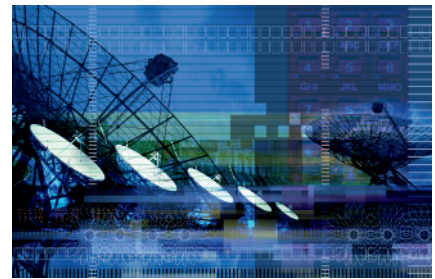
The Internet is a worldwide collection of interconnected computer networks that enables businesses, organizations, governments, and individuals to communicate in a variety of ways. One of the most popular ways users communicate on the Internet is by publishing and interacting with web pages. You can create web pages from scratch using HTML. You can

also use the Internet to send and receive e-mail, chat with other users, and transfer files between computers.

The Internet began as a military research project in the late 1960s. In 2010, the number of Internet users around the globe topped 2 billion.

Types of Connections

Users connect to the Internet through a variety of methods. A relatively inexpensive but slow way to connect is with dial-up service, which involves using a modem and a phone line. Faster ways to connect include DSL (Digital Subscriber Line), cable modem, satellite, and fiber-optic access. Networks include special wireless transmitters that allow computers, mobile phones, and other devices to access the Internet wirelessly. Connection speeds can play an important part in a user's Internet experience because slower connections result in slower file transfers and web page viewing. Companies that help you connect to the Internet are known as *Internet service providers*, or ISPs.

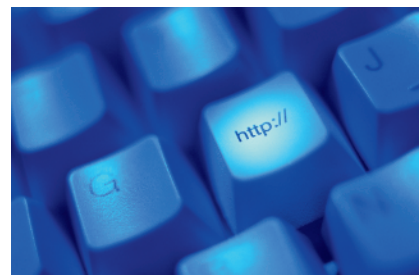


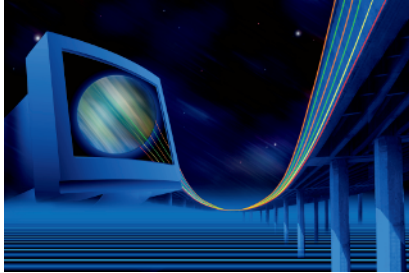
Internet Devices

People have traditionally connected to the Internet through desktop computers. In recent years, more and more users access it through wireless devices such as laptops, mobile phones, and, most recently, tablets such as the iPad. Screen sizes on these devices can vary widely, which can make designing web pages that look good and work well on all screens a challenge. A graphically rich website that looks beautiful on a large desktop monitor might be difficult to use on a mobile phone. Writing correct HTML can help make your online content accessible to everyone no matter what device they view it with.

Communication Standards

The Internet infrastructure relies on a variety of standards that dictate how computers and networks talk to each other. For example, *Transmission Control Protocol/Internet Protocol*, or TCP/IP, is a set of rules that control how Internet messages flow between computers. *Hypertext Transfer Protocol*, or HTTP, is a set of rules that determine how browsers should request web pages and how server computers should deliver them. Having agreed-upon protocols allows seamless communication among the many different types of computers that connect to the Internet.





The World Wide Web

The World Wide Web is a giant collection of documents, or pages, stored on computers around the globe. Commonly called *the web*, this collection of pages represents a wealth of text, images, audio, and video available to anyone with a computer and an Internet connection. Web pages are stored on servers, which are Internet-connected computers running software that allows them to serve up information to other computers. When you place a text file, image, or other document in a special web directory on a server, that information is available for other web users to view. Chapter 15 talks about how to transfer information to a web server.

URLs and Links

Every page on the web has a unique address called a URL, which is short for *Uniform Resource Locator*. A URL looks like this:

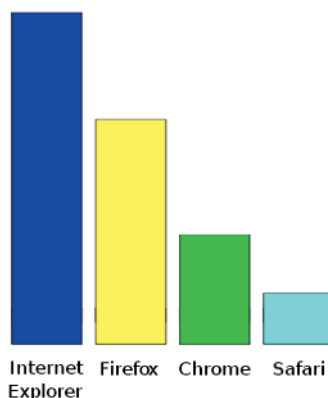
`http://www.example.com/index.html`

If you know a page's URL, you can type it into a web browser to view that page over the Internet. You can also view pages by way of hyperlinks, or *links*, which are clickable words or images on web pages. Every link on a web page is associated with a URL that connects it to another page, media file, or other resource on the Internet. Users can jump from one web page to another by clicking links. Chapter 7 discusses how to create links with HTML5.



Browsers

A *web browser* is software that enables you to view and interact with web pages. When you type a URL or click a link in a web browser, the browser retrieves the appropriate page from a server on the Internet and displays that page. Microsoft Internet Explorer, Mozilla Firefox, Google Chrome, and Apple Safari are the four most popular browsers in use today. Each program has evolved through a number of versions, with newer versions supporting more recent web features. As you build your pages using HTML code, remember that different browsers may display your pages slightly differently depending on the version.



Introducing HTML5

You can build web pages using HTML, which is short for *Hypertext Markup Language*, and HTML5 is the latest version of the language. HTML5 documents are made up of text content and special codes known as *tags* that tell web browsers how to display the content. HTML5 documents are identified by their .html or .htm file extensions. You can edit the code in an

HTML5 document by opening the document in a text editor.

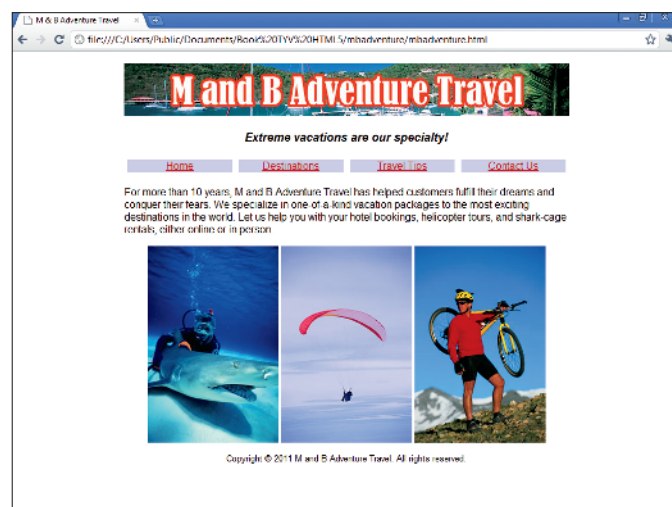
For the most part, HTML5 is platform independent, which means you can view web pages on any computer operating system, including Windows, Mac, and Linux.

HTML Tags

HTML consists of text interspersed with special instructions known as *tags*. Surrounded by brackets, `< >`, HTML tags tell a browser how to organize and present text, images, and other web page content. Many tags are written using an opening tag and a closing tag that surround content that appears on the page. When writing HTML tags, you can use upper- or lowercase letters. To make the coding easier to read and understand, you can add extra white space, which web browsers ignore. For details, see the section "Understanding HTML5 Syntax."

```
Untitled - Notepad
File Edit Format View Help

<nav>
  <ul>
    <li>Home</li>
    <li>Destinations</li>
    <li>Travel Tips</li>
    <li>Contact Us</li>
  </ul>
</nav>
```



Rendering HTML

When a browser displays a web page, it retrieves the HTML file for that page from a server, parses the HTML tags to determine how the content should be formatted, and renders the page. The HTML tags tell the browser what images, video, audio, and other content need to be downloaded and integrated into the page. The HTML may also tell the browser to download style sheets and interactive scripts to further enhance the page. To view the HTML underlying a web page, see the section "View HTML5 Code in a Browser."

HTML Standards

The World Wide Web Consortium, or W3C, is the primary group guiding the evolution of the HTML language. The W3C is made up of hundreds of companies and organizations including web industry leaders such as Microsoft, Apple, and Google. The standards developed by the W3C give developers of web servers and browsers a set of common guidelines with which to develop their products. You can visit the W3C's website at www.w3.org. The HTML5 standard was originally developed by a separate organization called the Web Hypertext Application Technology Working Group (WHATWG). In 2007, the W3C adopted WHATWG's version as the starting point for its version of HTML5.

HTML Versions

The most recent version of HTML is HTML5. As this book is being written, the HTML5 specification is still under development, but many popular web browsers already support much of the HTML5 functionality. Version 5 includes rules for using more than 100 different HTML tags, most of which are covered in this book. HTML5 improves on previous versions by including new tags for defining common types of page content, better support for audio and video, and drawing capability with the new `<canvas>` tag. HTML5 succeeds HTML 4.01, which was released in 1999.

Browser Support

The development of a new HTML5 standard and the appearance of new features in web browsers are both gradual processes. As the specification of new HTML5 features became more complete, browsers began to support the features. Current versions of Google Chrome, Microsoft Internet Explorer, Mozilla Firefox, and Apple Safari support most of the HTML5 features described in this book. Google Chrome, which is used in the book examples, currently provides the widest HTML5 support of the four browsers.



XHTML

XHTML, or *Extensible Hypertext Markup Language*, is an alternative version of HTML that conforms to the stricter standards of XML, or *Extensible Markup Language*. XHTML is tag based and uses many of the same tags as HTML. However, in XHTML, all tags must be closed, tag names and attributes must be coded in lowercase, and attribute values for tags must be surrounded by quotes. For a time, the W3C group was developing a new XHTML 2.0 standard to take the place of HTML 4.01. In 2009, the group switched course to focus instead on HTML5. For more about XHTML, visit the W3C site at www.w3.org.

Explore Web Browsers

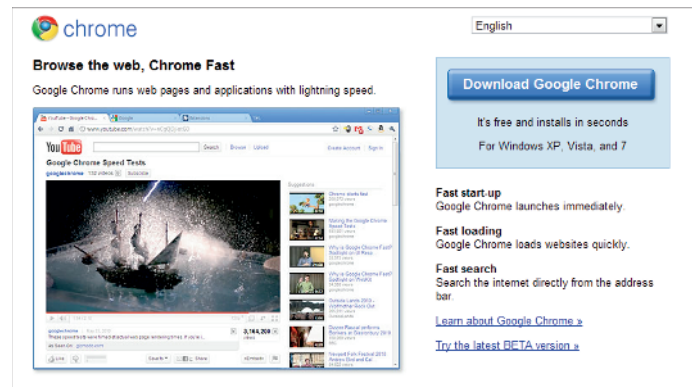
A web browser is software that can retrieve HTML documents from the web, parse the HTML instructions, and display the resulting web pages. In addition to retrieving the HTML, the browser takes care of downloading all the associated images, style sheets, scripts, and

other information needed for the page to appear and function properly.

You can also use a browser to display HTML documents you save locally on your computer. When coding your HTML, you can use a web browser to test your work.

Finding a Browser

Most computer operating systems come with a web browser already installed. Internet-connected mobile phones and tablets also come with web browsers. Microsoft Windows 7 computers include the Internet Explorer browser, whereas Apple Mac computers include the Safari browser. Google Chrome and Mozilla Firefox are other web browsers that have become increasingly popular in recent years. Chrome, which currently includes excellent HTML5 support, is used in the examples in this book. You can learn more about Chrome and download it for free at www.google.com/chrome. For more information about web browsers, see www.wooldridge.net/html5.



Browser Discrepancies

There are many web browsers in use today, and numerous versions of each. Although most of them interpret HTML essentially the same way, differences in interpretation mean that not all of them display web pages in exactly the same manner. These differences are especially apparent with new HTML5 features. The current versions of Google Chrome, Microsoft Internet Explorer, Mozilla Firefox, and Apple Safari support most but not all of the HTML5 features discussed in this book. Given the fact that some HTML5 features are still under development, it will be some time before all of the major browsers support the complete standard. As always, you can avoid surprises by writing clean, well-formed HTML code and testing your pages in different browsers and on different devices as you work.

Explore HTML Editors

Because HTML documents are plain-text documents, you can use any text-editing program to code HTML5 and create a web page. All computer operating systems come with some sort of text editor installed. You can also use a variety of web-specific coding

environments that write your HTML5 code, validate it, and upload it to a web server. Higher-end editing tools help you write style sheets, scripts, and other types of code in addition to HTML5.

Simple Text Editors

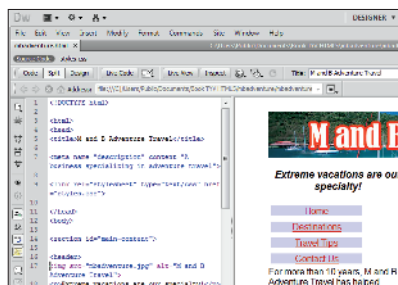
Simple text editors, also called plain-text editors, are easy to find. Microsoft Windows 7 comes with Notepad, whereas Apple Mac computers come with TextEdit. Simple text editors offer no-frills word processing and are often the best choice when you are learning to write HTML5. This book uses the Notepad editor in its examples. For more about text editors, visit www.wooldridge.net/html5.

```

<!DOCTYPE html>
<html>
<head>
<title>M and B Adventure Travel</title>
<meta name="description" content="A business specializing in adventure travel">
<link rel="stylesheet" type="text/css" href="styles.css">
</head>
<body>
<div id="main-content">
<div>

<p>Extreme vacations are our specialty!</p>
</div>
</div>
</body>
</html>

```



HTML Editors

HTML editors, such as Adobe Dreamweaver and Microsoft Expression, are dedicated programs for writing HTML5 code and managing web pages. These programs can shield you from having to write HTML5 code by offering a graphical environment for building web pages as well as a text-based environment. Most HTML editors also color your HTML5 tags for easier viewing, validate your code, and help you upload finished pages to a server.

Word Processing Programs

You can also use word processing programs, such as Microsoft Word, to write HTML5. In Word, you can select **Web Page** as the file type when you save a document, and the program automatically adds the appropriate HTML5 tags and saves the document as a text file. However, commercial word processors tend to store lots of extra information with your HTML5, which can make it a challenge to edit the files in other editors. It is generally better to use a text editor for working with HTML5 if you are going to be directly editing the code.

Understanding HTML5 Syntax

HTML5 is a language for describing web page content. HTML5 rules, or *syntax*, govern the way in which code is written and how web browsers interpret it. HTML5 with incorrect syntax can result in words, images, and other elements on your web page showing up in

unexpected places or not at all. It can also result in your pages appearing differently in different web browsers. Learning the correct way to write your code can save you time and confusion later and ensure that web users see your pages as you intended them to be seen.

Writing HTML5

In HTML5, as in all versions of HTML, tags determine how page content is organized and formatted. Tags consist of words or abbreviations surrounded by angle brackets, `< >`. This HTML code creates a paragraph in your page:

```
<p>Hello, world!</p>
```

Tags can be written using upper- or lowercase letters. The following are all legal versions of the line break tag:

```
<BR> <br> <Br>
```

You can type tag names in uppercase to distinguish the code from other text. Lowercase tag names is the convention used in this book. Because web browsers read the tags as instructions rather than page content, the bracketed information does not appear in the browser window when the page is rendered.

Tag Structure

Certain structural HTML5 tags identify different parts of your document. For example, the `<body>` and `</body>` tags surround the main body content that appears in the browser window. The `<head>` and `</head>` tags surround accessory information, including references to style sheets and metadata, that does not appear directly in the browser window. The `<html>` and `</html>` tags appear at the very beginning and very end of the document, respectively. Many tags, such as the paragraph tags `<p>` and `</p>`, are written using an opening tag and a closing tag, whereas others, such as the image tag (``), stand alone. Closing tags must always include a slash (`/`) before the tag name.

Text Styling

One of the key changes in HTML5 is the removal of many style-related instructions from HTML tags. In HTML5, tags are meant to tell a browser what text on a page *means* rather than how it *looks*. For example, an `<h1>` tag defines text as an important heading but does not specify what color or font it is, or how it is aligned on a page. When using HTML5, you provide style instructions for your text by including Cascading Style Sheets, or CSS. CSS works in concert with HTML to specify colors, alignment information, and other details about how content looks on the page. CSS is introduced in Chapter 4.

Other Tags

Among the central features of web pages are the hyperlinks that enable you to navigate from one page to another and one site to another. The `<a>`, or anchor, tag lets you define text or other page elements as clickable hyperlinks. Links are covered in Chapter 7. You can organize page content into rows and columns using table tags, which include `<table>`, `<tr>`, `<td>`, and others. Tables are covered in Chapter 8.

Attributes and Values

Each HTML tag has specific attributes that you can assign to it to customize its behavior. Most attributes work by setting a numeric or descriptive value. For example, you can apply a CSS style to a paragraph on your page by using the `style` attribute. Some attributes are required for an HTML tag to function properly. The `` tag requires an `src` attribute so that the browser can insert the correct image file on the page. Attributes always go inside the opening HTML tag, and enclosing attribute values in quotation marks is good form.

Entities

You can add special characters to a page, such as a copyright symbol or a fraction, by using special codes called *entities*. Entities represent characters not readily available on the keyboard. All entities are preceded by an ampersand (&) and followed by a semicolon (;). Entities are also useful for displaying characters that have special meaning in HTML. For example, to create a less-than symbol on your web page, you use the following code:

```
&lt;
```

You cannot use a plain less-than symbol (`<`) because in HTML it is used to start a tag. For more about entities and special characters, see Chapter 3.

Avoiding Syntax Errors

To avoid errors in your pages, always take the time to proofread your code. Most HTML editors have features that highlight bad syntax. Make sure your tags have brackets, your closing tags include a slash, and your attribute values are surrounded by quotation marks. Multiple HTML tags should be properly nested, meaning your closing tags should be in the reverse order of the opening tags.

To help make your HTML readable, consider using new lines to type code instead of running everything together on one long line. Doing so does not affect how your page appears because web browsers ignore extra white space. Testing your web pages in multiple web browsers can also be a good way to discover syntax errors because browsers can vary in their leniency to certain types of errors.

New Features in HTML5

HTML5 rolls out many new features that web designers have been requesting for years. New tags in HTML5 enable designers to more accurately describe the content on an average web page. HTML5 tags also add native support

for video and audio — content that has become integral to the typical online experience. The newest versions of web browsers are beginning to support these new HTML5 features, and this book covers these features in detail.

Semantic Tags

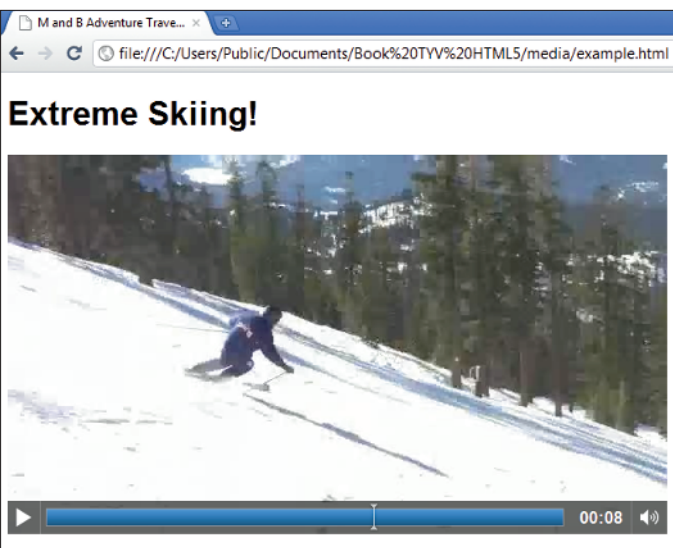
HTML5 introduces a host of new tags that help you define the *semantics*, or meaning, of your web page content. The tags include `<nav>` for defining sections that include site navigation, `<heading>` for defining the titles and tag lines at the beginning of your pages, and `<footer>` for defining the copyright information and boilerplate text at the end. These tags make your pages easier to understand by search engines, enabling them to generate more useful search results. The tags also help web browsers determine what parts of your pages are the most important; if there is limited room on the screen, web browsers will know what content to feature more prominently.

```
<nav class="horiz">
<ul>
<li><a href="index.html">Home</a></li>
<li><a href="adventures.html">Adventures</a></li>
<li><a href="blog.html">Blog</a></li>
<li><a href="contact.html">Contact Us</a></li>
</ul>
</nav>

<aside class="right-side">
<h1>Related Photos</h1>
<br>

</aside>

<article class="sport-feature">
```



Richer Multimedia

HTML5 offers a new `<video>` tag for embedding video clips into your pages and an `<audio>` tag for integrating sound. In the past, developers used the nonstandard `<embed>` tag and the generic `<object>` tag for adding multimedia. The `<embed>` and `<object>` tags passed the duties for playing the video or sound to third-party plug-ins. Web browsers that support the new `<video>` and `<audio>` tags include native support for certain video and audio files, which means the browsers play the content directly. With the tags, web developers can create custom player controls, style the media with CSS, and more. The new multimedia tags are covered in Chapter 14.

Drawing on Canvases

A new `<canvas>` tag enables you to define a rectangular area on your page on which you can draw. You can use scripting commands to create shapes, draw straight and curved lines, apply color gradients, and even add images or parts of images within the area. In the past, designers needed to create such visual content in a separate image editor or drawing program and then embed the result as an image. With HTML5, you can create drawings using the `<canvas>` tag and JavaScript. The drawings can change depending on the data that a user submits or actions performed on the page. The `<canvas>` tag is covered in Chapter 13.

Fancier Forms

HTML5 adds a number of new input elements for web forms. For example, you can create text fields that accept only e-mail addresses or web URLs. If a user submits a form with invalid data entered into such fields, you can highlight the form field using CSS styles. Some web browsers also pop up alert text when you submit wrong data. New time elements in HTML5 display menus for setting a date, month, week, or time in a form. There is also a new slider element that allows users to select a value from within a range of numbers by clicking and dragging a control. These new features mean that developers can provide rich functionality in their web forms with simple HTML5 tags. Previously, developers have had to resort to using complicated, custom scripts to provide such features.

Moving Styles to CSS

In addition to adding new features, the standards groups that designed HTML5 have also taken some features away. Most of these deprecated features are tags and attributes that previously enabled you to apply formatting to content on your page. For example, in HTML 4.01 you could use the following `align` attribute with your `<p>` tag to define a paragraph's alignment:

```
<p align="right">My old aligned paragraph.</p> (Invalid in HTML5!)
```

This `align` attribute has been removed from HTML5. Instead, you can use Cascading Style Sheets, or CSS, to define alignment rules. You can then apply those rules, as CSS classes, in your HTML code:

```
<p class="align-right">My new aligned paragraph.</p> (Valid in HTML5.)
```

Moving style-related commands out of HTML and into CSS reduces repetition in your code and makes it easier to maintain a consistent look and feel across a website. CSS styles are introduced in Chapter 4.


View HTML5 Code in a Browser

You can view the HTML5 code for any web page that you have loaded into your web browser. Viewing HTML5 from different websites is a good way to learn how to write your own code and can spawn new ideas for your own pages. You can also save a web page locally for use as a template or to study later.

In Microsoft Windows 7, Google Chrome opens the HTML5 code in a separate browser tab with the tags highlighted in color. To view an HTML5 page that you have saved locally, see Chapter 2.

View HTML5 Code in a Browser

View the Source Code

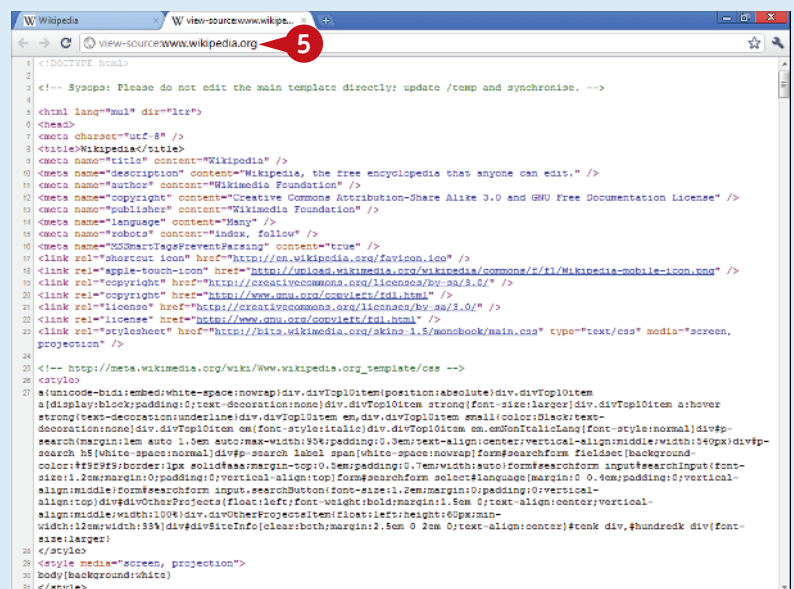
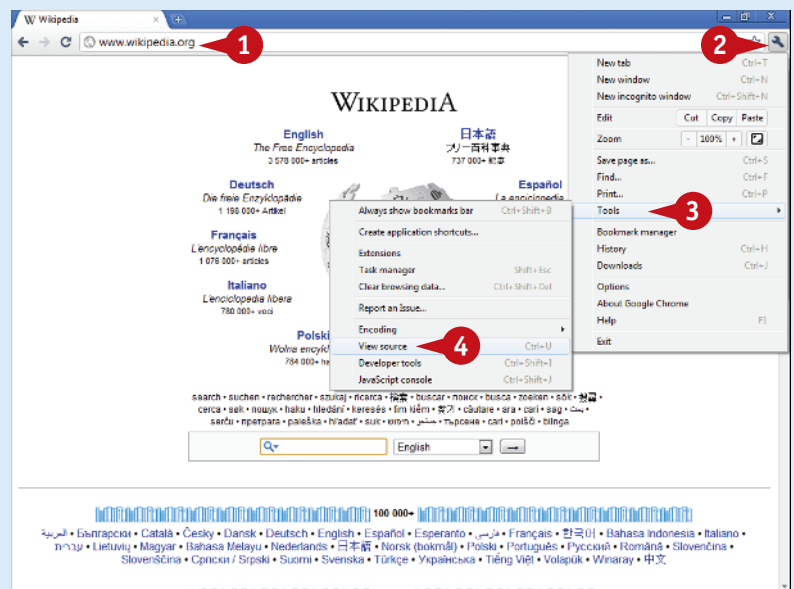
- 1 Open a web page in your browser window.
- 2 Click the **Chrome tools** button .
- 3 Click **Tools**.
- 4 Click **View source**.

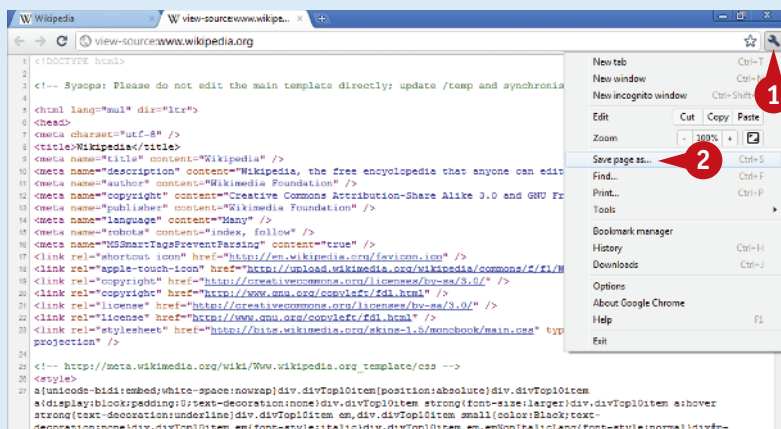
Note: Other web browsers have the View Source command under a View menu. See your browser's documentation for more information.

A new browser tab appears, displaying the HTML source code for the page.


- 5 Click the **Close** button (X) when finished.

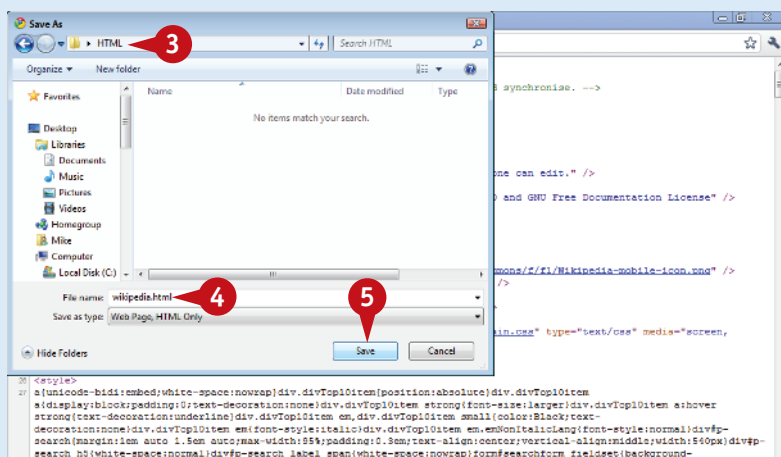
The tab closes.





Save the Source Code

- 1 Click the **Chrome tools** button .
- 2 Click **Save page as**.



The Save As dialog box appears.

- 3 Click here to navigate to the folder where you want to store the page.
- 4 Type a name for the page.
HTML pages should have an .html file extension.
- 5 Click **Save**.


Chrome saves the page.



Will the HTML5 documents that I save to my computer work when I open them in a browser?

Possibly. It depends on how the HTML5 is coded. In addition to the HTML5 instructions, you may have to download images, style sheets, scripts, and other external content separately and then edit the HTML5 so that the page references them correctly. For more about referencing other content from your document, see Chapter 7.

How else can I save a web page in my browser?

In Chrome, you can click the Chrome tools button  and then **Save page as**. Under the Save as type menu, the browser gives you two ways to save your page. **Web Page, HTML Only** is the default type and saves a single HTML page. **Web Page, Complete** saves the HTML and external content to a separate folder on your computer.