Session 2.2 Quick Check | Review

1. Specify the code for marking the text "CAMshots FAQ" as an h2 heading with the id "faq."
2. Specify the code for marking the text "Read our FAQ" as hypertext linked to an element in the current document with the id "faq."
3. Specify the code for marking the text "Read our FAQ" as a hypertext link, pointing to an element with the id "faq" in the help.htm file. Assume that help.htm lies in the same folder as the current document.
4. Specify the code for placing an anchor with the name "faq" within the h2 heading "CAMshots FAQ."
5. For marking locations within a Web page, what is one advantage of using anchors rather than the id attribute? What is one disadvantage?
6. The CAMmap image map has a circular hotspot centered at the point (50, 75) with a radius of 40 pixels pointing to the faq.htm file. Specify the code to create this map element with that circular hotspot.
7. An inline image based on the logo.jpg file with the alternative text "CAMshots" needs to use the CAMmap image map. Specify the code to apply the image map to the image.
8. What attribute do you add to the inline image from the previous question to remove its border?

Session 2.3

Linking to Resources on the Internet

Gerry has a final set of tasks for you. In the tips.htm file, he has listed some of the Web sites he finds useful in his study of photography. He would like to change the entries in this list to hypertext links that his readers can click to quickly access the sites.

Introducing URLs

To create a link to a resource on the Internet, you need to know its URL. A **URL**, or **Uniform Resource Locator**, specifies the precise location of a resource on the Internet. Examples of URLs include *www.whitehouse.gov*, the home page of the President of the United States, and *www.w3.org*, the home page of the World Wide Web consortium. All URLs share the common form

Tip

Because URLs cannot contain blank spaces, avoid blank spaces in Web site file and folder names.

```
scheme:location
```

where *scheme* indicates the type of resource referenced by the URL and *location* is the location of that resource. For Web pages, the location refers to the location of the HTML file; but for other resources, the location might simply be the name of the resource. For example, a link to an e-mail account has the e-mail address as the resource.

The name of the scheme is taken from the protocol used to access the resource. A **protocol** is a set of rules defining how information is passed between two devices. Your Web browser communicates with Web servers using the **Hypertext Transfer Protocol** or **HTTP**. Therefore, the URLs for all Web pages must start with the http scheme. This tells the browser to use http when it tries to access the Web page. Other Internet resources, described in Figure 2-31, use different communication protocols and have different scheme names.

Figure 2-31 Internet protocols

Protocol	Used To
file	access documents stored locally on a user's computer
ftp	access documents stored on an FTP server
gopher	access documents stored on a gopher server
http	access Web pages stored on the World Wide Web
https	access Web pages over a secure encrypted connection
mailto	open a user's e-mail client and address a new message
news	connect to a Usenet newsgroup
telnet	open a telnet connection to a specific server
wais	connect to a Wide Area Information Server database

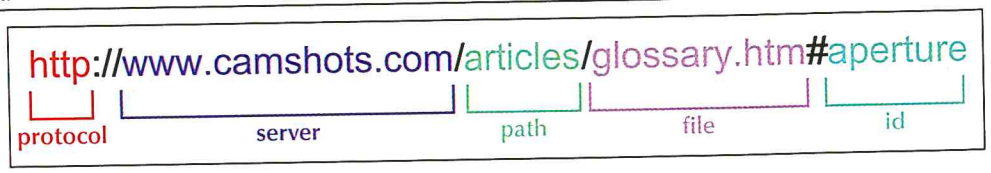
Linking to a Web Site

The URL for a Web page has the general form

`http://server/path/filename#id`

where *server* is the name of the Web server, *path* is the path to the file on that server, *filename* is the name of the file, and if necessary, *id* is the name of an id or anchor within the file. A Web page URL can also contain specific programming instructions for a browser to send to the Web server (a topic beyond the scope of this tutorial). Figure 2-32 shows the URL for a sample Web page with all of the parts identified.

Figure 2-32 Parts of a URL



You might have noticed that a URL like *http://www.camshots.com* doesn't include any pathname or filename. If a URL doesn't specify a path, then it indicates the topmost folder in the server's directory tree. If a URL doesn't specify a filename, the server will return to the default home page. Many servers use index.html as the filename for the default home page, so a URL like *http://www.camshots.com/index.html* would be equivalent to *http://www.camshots.com*.

Understanding Domain Names | InSight

The server name portion of the URL is also called the **domain name**. By studying the domain name you learn about the server hosting the Web site. Each domain name contains a hierarchy of names separated by periods (.), with the topmost level appearing at the end. The top level, called an **extension**, indicates the general audience supported by the Web server. For example, .edu is the extension reserved for educational institutions, .gov is used for agencies of the United States government, and .com is used for commercial sites or general-use sites.

The next lower level appearing before the extension displays the name of the individual or organization hosting the site. A domain name like camshots.com indicates a commercial or general use site owned by CAMshots. To avoid duplicating domain names, the two top-most levels of the domain have to be registered with the IANA (Internet Assigned Numbers Authority) before they can be used. You can usually register your domain name through your Internet Service Provider. Be aware that you will have to pay an annual fee to keep the domain name.

The lowest levels of the domain, which appear farthest to the left in the domain name, are assigned by the individual or company hosting the site. Large Web sites involving hundreds of pages typically divide their domain names into several levels. For example, a large company like Microsoft might have one domain name for file downloads—*downloads.microsoft.com*—and another for customer service—*service.microsoft.com*. Finally, the lowest level of the domain, the first part of the domain name, displays the name of the hard drive or resource storing the Web site files. Many companies have standardized on using "www" as the name of the lowest level in their domain.

Gerry has listed four Web pages that he wants his readers to be able to access. He's provided you with the URLs for these pages, which are shown in Figure 2-33.

Web site URLs Figure 2-33

Web Site	URL
Apogee Photo	http://www.apogeephoto.com
Outdoor Photographer	http://www.outdoorphotographer.com
PCPhoto	http://www.pcphotomag.com
Popular Photography and Imaging	http://www.popphoto.com

To create a link to these Web sites from your document, you need to mark some text as a hypertext link, using the URL of the Web site as the value of the href attribute. So to link the text "Apogee Photo" to the Apogee Photo Web site, you would enter the following code:

```
<a href="http://www.apogeephoto.com">Apogee Photo</a>
```

Use the information that Gerry has given you to create links to all four of the Web sites listed on his tips page.

To create links to sites on the Web:

1. Return to the **tips.htm** file in your text editor.
2. Scroll to the bottom of the file and locate the definition list containing the list of Web sites.

3. Mark the entry for Apogee Photo as a hypertext link using the following code:

```
<a href="http://www.apogeephoto.com">Apogee Photo</a>
```

4. Mark the remaining three entries in the list as hypertext links pointing to each company's Web site. Figure 2-34 highlights the revised code in the file.

Figure 2-34 Linking to sites on the Web

```
<h2 style="color: blue">Photography Sites on the Web</h2>
<p>The Web is an excellent resource for articles on photography and digital cameras.
   Here are a few of my favorites.</p>
<dl>
   <dt>&#9758; <a href="http://www.apogeephoto.com">Apogee Photo</a></dt>
   <dd>An established online photography magazine with articles by top pros,
       discussion forums, workshops, and more.</dd>
   <dt>&#9758; <a href="http://www.outdoorphotographer.com">Outdoor Photographer</a></dt>
   <dd>The premier magazine for outdoor photography. The site includes extensive tips
       on photographing wildlife, action sports,
       scenic vistas, and travel sites.</dd>
   <dt>&#9758; <a href="http://www.pcphotomag.com">PCPhoto</a></dt>
   <dd>An excellent site for novices and professionals with informative reviews and
       buying guides for the latest equipment and software.</dd>
   <dt>&#9758; <a href="http://www.popphoto.com">Popular Photography and Imaging</a></dt>
   <dd>A useful and informative site with articles from the long-established
       magazine of professional and amateur photographers.</dd>
</dl>
```

5. Save your changes to the file.
6. Reload or refresh the **tips.htm** file in your Web browser. Figure 2-35 shows the revised list with each entry appearing as a hypertext link.

Figure 2-35 Links on the tips page

Photography Sites on the Web

The Web is an excellent resource for articles on photography and digital cameras. Here are a few of my favorites.

☞ Apogee Photo
An established online photography magazine with articles by top pros, discussion forums, workshops, and more.

☞ Outdoor Photographer
The premier magazine for outdoor photography. The site includes extensive tips on photographing wildlife, action sports, scenic vistas, and travel sites.

☞ PCPhoto
An excellent site for novices and professionals with informative reviews and buying guides for the latest equipment and software.

☞ Popular Photography and Imaging
A useful and informative site with articles from the long-established magazine of professional and amateur photographers.

7. Click each of the links on the page and verify that the appropriate Web site opens.

Trouble? To open these sites, you must be connected to the Internet. If you are still having problems, compare your code to the URLs listed in Figure 2-34 to confirm that you have not made a typing error. Also keep in mind that because the Web is constantly changing, the Web sites for some of these links might have changed, or a site might have been removed since this book was published.

Web pages are only one type of resource that you can link to. Before continuing work on the CAMshots Web site, you should explore how to access some of these other resources.

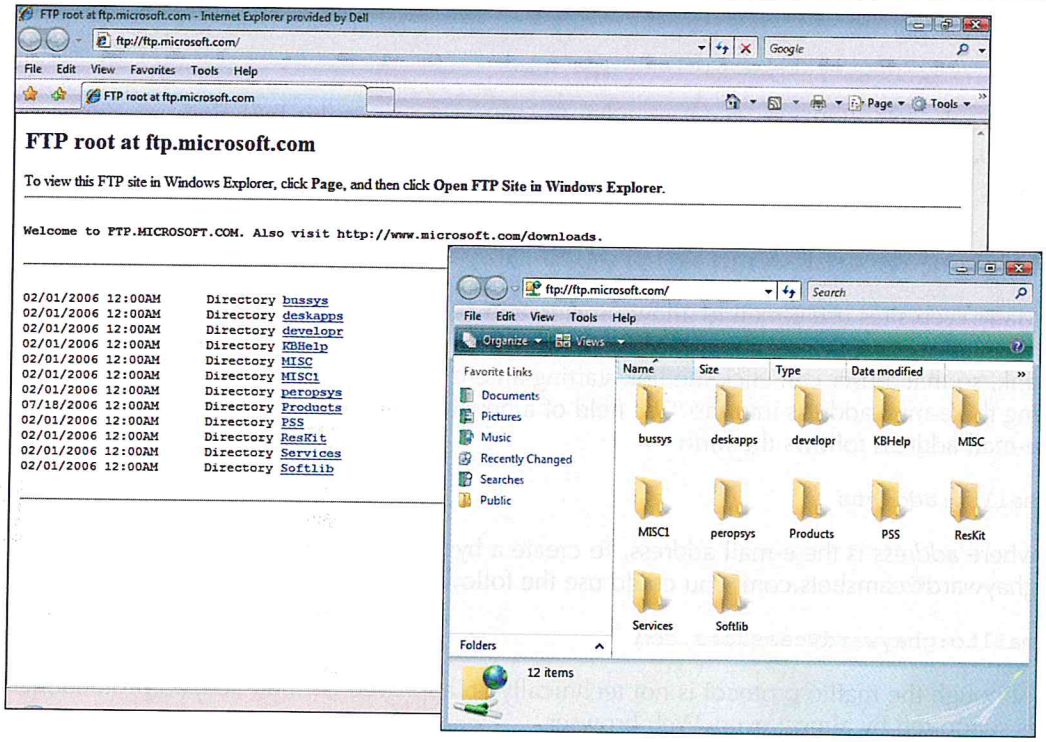
Linking to FTP Servers

Another method of storing and sharing files on the Internet is through FTP servers. **FTP servers** are file servers that act like file cabinets in which users can store and retrieve data files, much as they store and retrieve files from their own computer. FTP servers transfer information using a communications protocol called **File Transfer Protocol**, or **FTP** for short. The URL to access an FTP server follows the general format

`ftp://server/path/`

where *server* is the name of the FTP server and *path* is the folder path on the server that contains the files you want to access. When you access the FTP site, you can navigate through its folder tree as you would navigate the folders on your own hard disk. Figure 2-36 shows how someone can use Internet Explorer to view the FTP site and how the site appears as a collection of folders that can be opened and viewed.

FTP site appearing in the browser and in Windows Explorer Figure 2-36



FTP servers require each user to enter a password and a username to gain access to the server's files. The standard username is anonymous and requires no password. Your browser supplies this information automatically, so in most situations you don't have to worry about passwords and usernames. However, some FTP servers do not allow anonymous access. In these cases, either your browser prompts you for the username and the password, or you can supply a username and password within the URL using the format

`ftp://username:password@server/path`

where *username* and *password* are a username and password that the FTP server recognizes. It is generally *not* a good idea, however, to include usernames and passwords in URLs, as it can allow others to view your sensitive login information. It's better to let the browser send this information or to use a special program called an **FTP client**, which can encrypt or hide this information during transmission.

Linking to a Local File

HTML is a very useful language for creating collections of linked documents. Many software developers have chosen to distribute their online help in the form of HTML files. The Web site for their help files then exist locally on the user's computer or network. If the Web site needs to reference local files (as opposed to files on the Internet or another wide area network), the URL needs to reflect this fact. The URL for a local file has the general form

`file://server/path/filename`

where *server* is the name of the local network server, *path* is the path on that server to the file, and *filename* is the name of the file. If you're accessing a file from your own computer, the server name can be omitted and replaced by an extra slash (/). So, a file from the documents/articles folder might have the URL:

```
file:///documents/articles/tips.htm
```

If the file is on a different disk within your computer, the hard drive letter would be included in the URL as follows:

```
file://D:/documents/articles/tips.htm
```

Unlike the other URLs you've examined, the "file" scheme in this URL does not imply any particular communication protocol; instead, the browser retrieves the document using whatever method is the local standard for the type of file specified in the URL.

Linking to an E-Mail Address

Many Web sites use e-mail to allow users to communicate with a site's owner, sales representative, or technical support staff. You can turn an e-mail address into a hypertext link, so that a user can click the link starting an e-mail program and automatically inserting the e-mail address into the "To" field of a new outgoing message. The URL for an e-mail address follows the form

```
mailto:address
```

where *address* is the e-mail address. To create a hypertext link to the e-mail address ghayward@camshots.com, you could use the following URL:

```
mailto:ghayward@camshots.com
```

Tip

To link to more than one e-mail address, add the addresses to the mailto link in a comma-separated list.

Although the mailto protocol is not technically an approved communication protocol, it is supported by almost every Web browser.

The mailto protocol also allows you to add information to the e-mail, including the subject line and the text of the message body. To add this information to the link, you use the form

```
mailto:address?header1=value1&header2=value2& ...
```

where *header1*, *header2*, etc. are different e-mail headers and *value1*, *value2*, and so on are the values of the headers. So to create the e-mail message

```
TO: ghayward@camshots.com
SUBJECT: Test
BODY: This is a test message
```

you would use the following URL:

```
mailto:ghayward@camshots.com?Subject=Test&Body=This%20is%20a%20test%20message
```

Notice that the spaces in the message body "This is a test message" have been replaced with %20 characters. This is necessary because URLs cannot contain blank spaces. To preserve information about blank spaces, URLs use **escape characters**, which are symbols that represent characters including nonprintable characters such as spaces, tabs, and line feeds. Escape characters use many of the same values as HTML character codes,

though the syntax of escape characters is different. So, when the browser receives the following character string in a URL such as

```
This%20is%20a%20test%20message
```

it interprets the %20 escape character as a blank space and resolves the string as

```
This is a test message
```

Figure 2-37 lists some of the escape characters that can be used in any URL in place of printable or nonprintable characters.

Escape character codes Figure 2-37

Escape Character Code	Character	Escape Character Code	Character
%20	space	%5B	[
%0D%0A	new line	%5D	]
%3C	<	%60	`
%3E	>	%3B	;
%23	#	%2F	/
%25	%	%3F	?
%7B	{	%3A	:
%7D	}	%40	@
%7C	|	%3D	=
%5C	\	%26	&
%5E	^	%24	$
%7E	~		

To further explore how to convert an e-mail message into a URL, you can experiment with a demo page.

To view the e-mail demo:

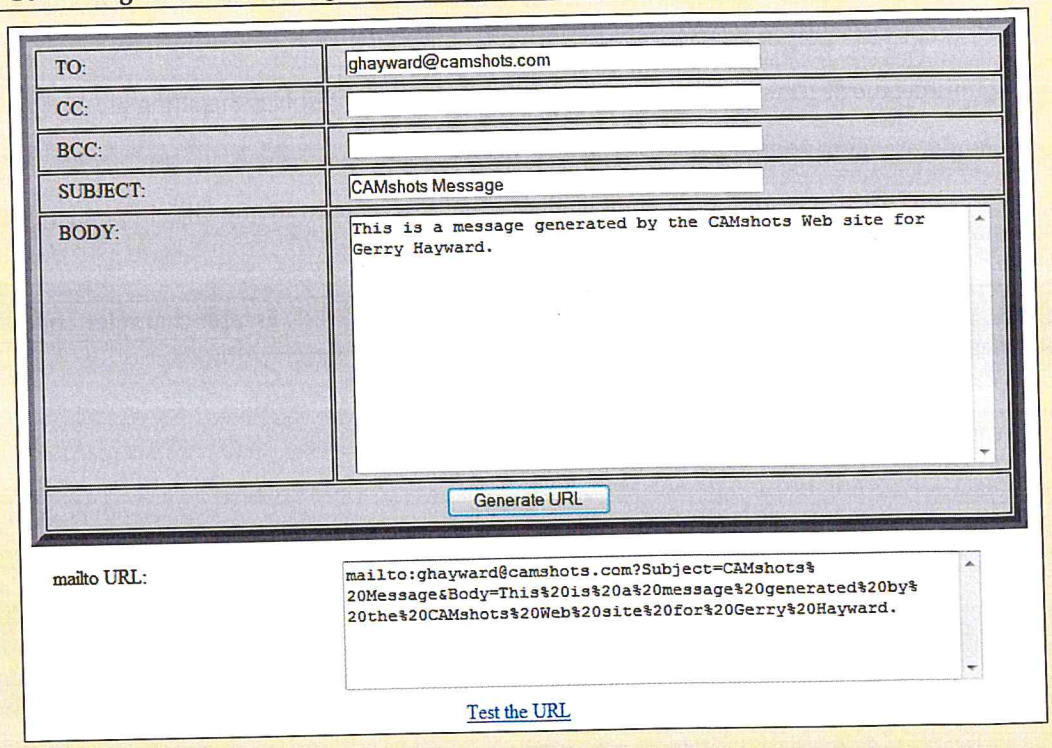
1. Use your Web browser to open the **demo_mailto.htm** file from the tutorial.02\demo folder included with your Data Files.
2. Scroll down the page, and in the TO: input box, enter the e-mail address **ghayward@camshots.com**.
3. Type **CAMshots Message** in the SUBJECT input box.
4. Type the following in the BODY input box:

   ```
   This is a message generated by the CAMshots Web site for
   Gerry Hayward.
   ```

5. Click the **Generate URL** button to create the URL for this e-mail message.

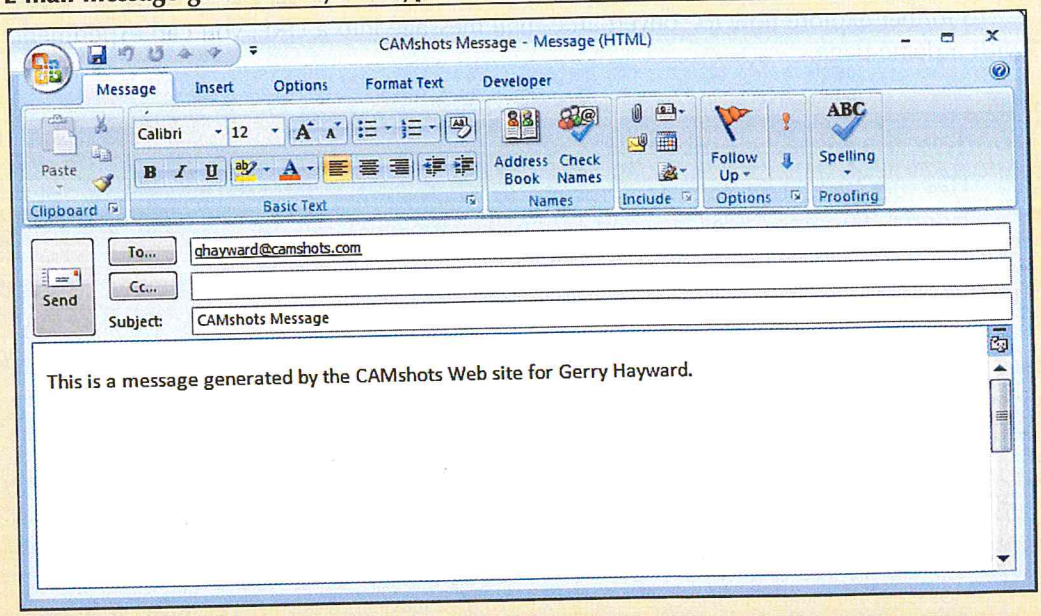
   As shown in Figure 2-38, the demo page generates the URL for the e-mail message. All of the blank spaces in the mail message have been replaced with the %20 escape character.

Figure 2-38 Converting an e-mail message to a URL



6. Click the **Test the URL** button at the bottom of the page. As shown in Figure 2-39, the browser opens the user's e-mail program, with the e-mail fields already filled in, based on the text of the URL.

Figure 2-39 E-mail message generated by the hypertext link



Trouble? Your e-mail window might look different depending on the e-mail program installed on your computer. If you do not have access to an e-mail program, you might not see any result or you might receive an error message after clicking the Test the URL button.

7. Close the message window without saving the message.
8. Continue experimenting with the demo page, exploring the effects of different e-mail messages on the URL text. Close the demo page when you are finished.

Gerry wants you to add to a link to his e-mail address on the CAMshots home page. This gives people who read his site the ability to contact him with additional questions or ideas.

To link to an e-mail address on Gerry's home page:

1. Return to the **home.htm** file in your text editor.
2. Go to the first paragraph and locate the text "contact me."
3. Mark "contact me" as a hypertext link using the following code, as shown in Figure 2-40:

```
<a href="mailto:ghayward@camshots.com?subject=CAMshots%20Message">
   contact me
</a>
```

Adding an e-mail link to the CAMshots home page Figure 2-40

```
<p>Welcome to <span style="color: blue">CAMshots</span>, a site for people passionate about
   digital photography. This site has grown out of decades of photographic experience.
   I offer advice for both beginners and advanced users. I hope you enjoy what you find,
   but please be considerate of the work it took to do all this.
   The entire site contents including all images and articles are copyrighted.
   Please honor my work and do not copy anything without permission. If you are
   interested in publishing any of my images or articles or using them in other ways,
   please <a href="mailto:ghayward@camshots.com?subject=CAMshots%20Message">contact me</a>
   and we can discuss your needs. Happy Shooting!</p>
<p>&mdash; Gerry</p>
```

4. Save your changes to the file.
5. Refresh the **home.htm** file in your browser. Verify that the text "contact me" in the opening paragraph now appears as a hypertext link.
6. Click **contact me** and verify that your e-mail program displays a message with ghayward@camshots.com as the recipient and CAMshots Message as the subject.
7. Close your message window without saving the message.

InSight | E-Mail Links and Spam

Use caution when adding e-mail links to your Web site. While it may make it more convenient for users to contact you, it also might make you more vulnerable to spam. **Spam** is unsolicited e-mail sent to large numbers of people, promoting products, services, and in some cases inappropriate Web sites. Spammers create their e-mail lists by scanning discussion groups, stealing Internet mailing lists, and using programs called **e-mail harvesters** to scan HTML code for the e-mail addresses contained in mailto URLs. Many Web developers have removed e-mail links from their Web sites in order to foil these harvesters, replacing the links with Web forms that submit e-mail requests to a secure server. If you need to include an e-mail address on your Web page, you can take a few steps to reduce your exposure to spammers:

- Replace the text of the e-mail addresses with inline images that are more difficult for e-mail harvesters to read.
- Write a program to scramble any e-mail addresses in the HTML code, unscrambling the e-mail address only when it is clicked by the user.
- Replace the characters of the e-mail address with escape characters. For example, you can replace the "@" symbol with the escape sequence %40.

There is no quick and easy solution to this problem. Fighting spammers is an ongoing battle, and they have proved very resourceful in overcoming some of the defenses people have created. As you develop your Web site, you should carefully consider how to handle e-mail addresses and review the most current methods for safeguarding that information.

Reference Window | Linking to Various Interent Resources

- The URL for a Web page has the form
  `http://server/path/filename#id`
  where *server* is the name of the Web server, *path* is the path to a file on that server, *filename* is the name of the file, and if necessary *id* is the name of an id or anchor within the file.
- The URL for an FTP site has the form
  `ftp://server/path/filename`
  where *server* is the name of the FTP server, *path* is the folder path, and *filename* is the name of the file.
- The URL for an e-mail address has the form
  `mailto:address?header1=value1&header2=value2& ...`
  where *address* is the e-mail address; *header1*, *header2*, etc. are different e-mail headers; and *value1*, *value2*, and so on are the values of the headers.
- The URL to reference a local file has the form
  `file://server/path/filename`
  where *server* is the name of the local server or computer, *path* is the path to the file on that server, and *filename* is the name of the file. If you are accessing a file on your own computer, the server name is replaced by a third slash (/).

Tip

All of the hypertext attributes applied to the <a> tag can also be applied to the <area> tags within your image maps.

Working with Hypertext Attributes

HTML provides several attributes to control the behavior and appearance of your links. Gerry suggests that you study a few of these to see whether they would be effective in his Web site.

Opening a Secondary Window or Tab

By default, each page you open replaces the contents of the current page in the browser window. This means that when Gerry's readers click on one of the four external links listed on the tips page, they leave the CAMshots Web site. To return to the Web site, users would have to click their browser's Back button.

Gerry wants his Web site to stay open when a user clicks one of the links to the external Web sites. Most browsers allow users to open multiple browser windows or multiple tabs within the same browser window. Gerry suggests that links to external sites be opened in a second browser window or tab. He wants these external sites to be displayed in a second browser window or tab. This arrangement allows continual access to his Web site, even as users are browsing other sites.

To force a document to appear in a new window or tab, add the target attribute to the <a> tag. The general syntax is

```
<a href="url" target="window">content</a>
```

where *window* is a name assigned to the new browser window or browser tab. The value you use for the target attribute doesn't affect the appearance or content of the page being opened; the target simply identifies the different windows or tabs that are currently open. You can choose any name you wish for the target. If several links have the same target name, they all open in the same location, replacing the previous content. HTML also supports several special target names, described in Figure 2-41.

Target names for browser windows and tabs Figure 2-41

Target Name	Description
target	Opens the link in a new window or tab named *target*
_blank	Opens the link in a new, unnamed window or tab
_self	Opens the link in the current browser window or tab

Whether the new page is opened in a tab or in a browser window is determined by the browser settings. It cannot be set by the HTML code.

Opening a Link in a New Window or Tab | Reference Window

- To open a link in a new browser window or browser tab, add the attribute
  `target="window"`
  to the <a> tag, where *window* is a name assigned to the new browser window or tab.

Gerry suggests that all of the external links from his page be opened in a browser window or tab identified with the target name "new."

To specify a link target:

1. Return to the **tips.htm** file in your text editor.
2. Scroll to the bottom of the file and locate the four links to the external Web sites.
3. Within each of the opening <a> tags, insert the following attribute, as shown in Figure 2-42.

```
target="new"
```

Figure 2-42 Setting a target for a hyperlink

```
<h2 style="color: blue">Photography Sites on the Web</h2>
<p>The Web is an excellent resource for articles on photography and digital cameras.
   Here are a few of my favorites.</p>
<dl>
   <dt>&#9758; <a href="http://www.apogeephoto.com" target="new">Apogee Photo</a></dt>
   <dd>An established online photography magazine with articles by top pros,
       discussion forums, workshops, and more.</dd>
   <dt>&#9758; <a href="http://www.outdoorphotographer.com" target="new">Outdoor Photographer</a></dt>
   <dd>The premier magazine for outdoor photography. The site includes extensive tips
       on photographing wildlife, action sports,
       scenic vistas, and travel sites.</dd>
   <dt>&#9758; <a href="http://www.pcphotomag.com" target="new">PCPhoto</a></dt>
   <dd>An excellent site for novices and professionals with informative reviews and
       buying guides for the latest equipment and software.</dd>
   <dt>&#9758; <a href="http://www.popphoto.com" target="new">Popular Photography and Imaging</a></dt>
   <dd>A useful and informative site with articles from the long-established
       magazine of professional and amateur photographers.</dd>
</dl>
```

4. Save your changes to the file.
5. Refresh the **tips.htm** file in your browser. Click each of the four links to external Web sites and verify that each opens in the same new browser window or tab.
6. Close the secondary browser window or tab.

Tip

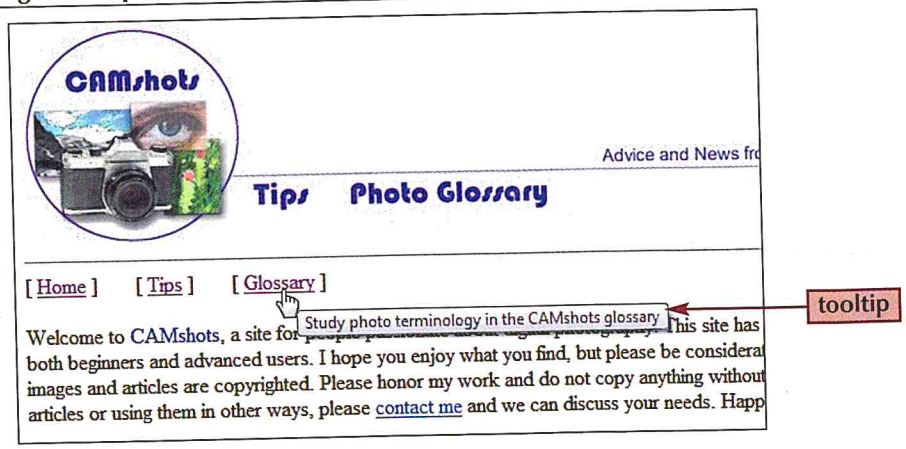
To force all hypertext links in your page to open in the same target, add the target attribute to a base element located in the document's header.

You should use the target attribute sparingly in your Web site. Creating secondary windows can clutter up the user's desktop. Also, because the page is placed in a new window, users cannot use the Back button to return to the previous page in that window; they must click the browser's program button or the tab for the original Web site. This confuses some users and annoys others. Many Web designers now advocate not using the target attribute at all, leaving the choice of opening a link in a new tab or window to the user. Note that the target attribute is not supported in strict XHTML-compliant code.

Creating a Tooltip

If you want to provide additional information about a link on your Web page, you can add a tooltip to the link. A **tooltip** is descriptive text that appears when a user positions the mouse pointer over a link. Figure 2-43 shows an example of a tooltip applied to one of Gerry's links.

Figure 2-43 Viewing a tooltip



To create the tooltip, add the title attribute to the opening <a> tag in the form

```
<a href="url" title="text">content</a>
```

where *text* is the text that appears in the tooltip. To create the tooltip shown in Figure 2-43, you would enter the following HTML code:

```
<a href="glossary.htm"
   title="Study photo terminology in the CAMshots glossary">
   Glossary
</a>
```

Note that because some browsers do not support this feature, you should not place crucial information in a tooltip.

Creating a Semantic Link

The text of a hypertext link should always describe the type of document that will be called up by the link. You can also use the rel and rev attributes to add information about the link. The rel attribute describes the relation of the current document to the linked document. For example, in the link to the Glossary page, Gerry could insert the following rel attribute:

```
<a href="glossary.htm" rel="glossary">Glossary</a>
```

The rev attribute describes the reverse relationship: how the linked document views the current document. For example, if you're linking to the Glossary page from the home page, the reverse relation is "home" (because that is how the Glossary page views the home page). The HTML code would be:

```
<a href="glossary.htm" rel="glossary" rev="home">Glossary</a>
```

Links containing the rel and rev attributes are called **semantic links** because the tag contains information about the relationship between the link and its destination. This information is not designed for the user, but for the browser. A browser could display all hypertext links marked having a rel value of glossary with a special icon. The browser could also collect all of the hypertext links within the Web page and place them within a customized toolbar. Few browsers currently take advantage of these attributes, but future browsers may do so.

Although rel and rev are not limited to a fixed set of attribute values, the specifications for HTML and XHTML include a proposed list of rel and rev names. Figure 2-44 shows some of these proposed relationship values.

Figure 2-44 Link relations for the rel and rev attributes

Link Relation	Description
alternate	A substitute version of the current document, perhaps in a different language or in a different medium
appendix	An appendix
bookmark	A bookmark in a collection of documents
chapter	A document serving as a chapter in a collection of documents
contents	A table of contents
copyright	A copyright statement
glossary	A glossary
help	A help document
index	An index
next	The next document in a linear sequence of documents
prev	The previous document in a linear sequence of documents
section	A document serving as a section in a collection of documents
start	The first document in a collection of documents
top	The Web site's home page
stylesheet	An external style sheet
subsection	A document serving as a subsection in a collection of documents

At this point, Gerry decides against using the rel and rev attributes on his Web site. However, he'll keep them in mind as an option as his Web site expands in size and complexity.

Using the Link Element

Another way to add a hypertext link to your document is to add a link element to the document's head. Link elements are created using the one-sided tag

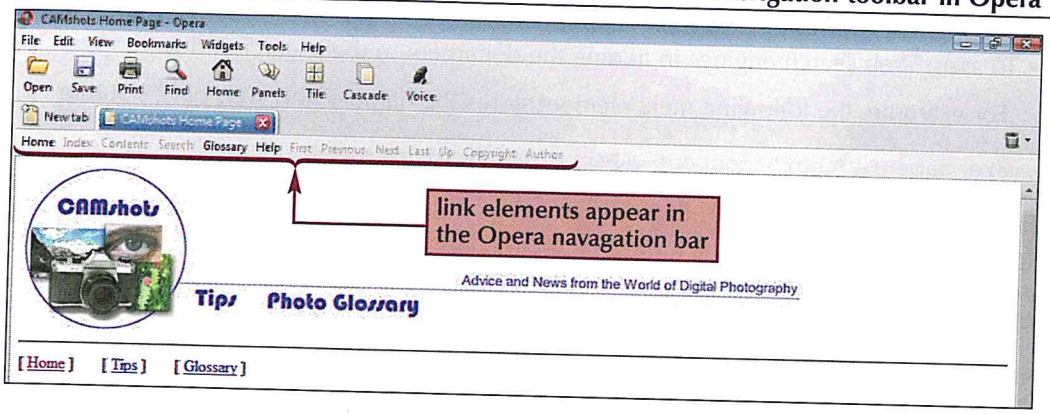
```
<link href="url" rel="text" rev="text" target="window" />
```

where the *href*, *rel*, *rev*, and *target* attributes serve the same purpose as in the <a> tag. For example, to use the link element to create semantic links to the three pages of Gerry's Web site, you could add the following link elements to the heading of each document:

```
<link rel="top" href="home.htm" />
<link rel="help" href="tips.htm" />
<link rel="glossary" href="glossary.htm" />
```

Because they are placed within a document's head, link elements do not appear as part of the Web page. Instead, if the browser supports them, link elements are displayed in a browser toolbar. Figure 2-45 shows how the three link elements described above would appear in the Opera's Navigation toolbar. If you click an entry on the toolbar, the browser loads the referenced page.

Navigation toolbar in Opera Figure 2-45



The advantage of the link element is that it places the list of links outside of the Web page, freeing up page space for other content. Also, because the links appear in a browser toolbar, they are always easily accessible to users. Currently, Opera is one of the few browsers with built-in support for the link element. Third party software exists to provide this support for Internet Explorer and Firefox. Because no single list of relationship names is widely accepted, you must check with each browser's documentation to find out what relationship names it supports. Until link elements are embraced by more browsers, you should use them only if you duplicate that information elsewhere on the page.

Working with Metadata

Gerry is happy with the work you've done on the design for his CAMshots Web site. Now he wants to start working on getting the site noticed. When someone searches for "digital photography tips" or "camera buying guide," will they find Gerry's Web site? There are thousands of photography sites on the Web. Gerry knows he needs to add a few extra touches to his home page to make it more likely that the site will be picked up by major search engines such as Yahoo! and Google.

Optimizing a Web site for search engines can be a long and involved process. For the best results, Web authors often turn to companies that specialize in making sites appear more prominently in search engines. CAMshots is a hobby site and Gerry does not want to invest any money in improving the site's visibility, but he would like to do a few simple things that would help.

Using the Meta Element

To be noticed on the Web, a site needs to include information about itself so the search engines can read it and add the site to their search indices. Information about the site is called **metadata**. You can add metadata to your Web pages by adding a meta element to the head section of the document. The syntax of the meta element is

```
<meta name="text" content="text" scheme="text" http-equiv="text" />
```

where the name attribute specifies the type of metadata, the content attribute stores the metadata value, the scheme attribute defines the metadata format, and the http-equiv attribute is used to attach metadata or commands to the communication stream between the Web server and the browser. There are three uses of the meta element:

To store information about the document that can be read by the author, other users, or the Web server.

- To control how the browser handles the document, including forcing the browser to automatically refresh the page at timed intervals.
- To assist Web search engines in adding the document to their search index.

For example, the following meta element stores the name of the Web page's author:

```
<meta name="author" content="Gerry Hayward" />
```

Tip

Avoid generic and vague descriptions of your Web site. Instead, to attract a specific target audience to your site, use descriptions and keywords that will show how your Web site is different from others.

For search engines, you should include metadata describing the site and the topics it covers. This is done by adding a meta element containing the site description and another meta element with a list of keywords. The following two elements would summarize the CAMshots Web site for any search engines running on the Web:

```
<meta name="description" content="CAMshots provides advice on digital
cameras and photography" />
<meta name="keywords" content="photography, cameras, digital imaging" />
```

Figure 2-46 lists some other examples of metadata that you can use to describe your document.

Figure 2-46 Metadata

Meta Name	Example	Description
author	`<meta name="author" content="Gerry Hayward" />`	Supplies the name of the document author
classification	`<meta name="classification" content="photography" />`	Classifies the document
copyright	`<meta name="copyright" content="© 2011 CAMshots" />`	Provides a copyright statement
description	`<meta name="description" content="Digital photography and advice" />`	Provides a description of the document
generator	`<meta name="generator" content="Dreamweaver" />`	Indicates the name of the program that created the HTML code for the document
keywords	`<meta name="keywords" content="photography,cameras, digital" />`	Provides a list of keywords describing the document
owner	`<meta name="owner" content="CAMshots" />`	Indicates the owner of the document
rating	`<meta name="rating" content="general" />`	Provides a rating of the document in terms of its suitability for minors
reply-to	`<meta name="reply-to" content="ghayward@camshots.com (G. Hayward)" />`	Supplies a contact e-mail address and name for the document

In recent years, search engines have become more sophisticated in evaluating Web sites. In the process, the meta element has decreased in importance. However, it is still used by search engines when adding a site to their indexes. Because adding metadata requires very little effort, you should still include meta elements in your Web documents.

Working with Metadata

Reference Window

- To document the contents of your Web page, use the meta element
  `<meta name="text" content="text" />`
  where the name attribute specifies the type of metadata and the content attribute stores the metadata value.
- To add metadata or a command to the communication stream between the Web server and Web browser, use
  `<meta http-equiv="text" content="text" />`
  where the http-equiv attribute specifies the type of data or command attached to the communication stream and the content attribute specifies the data value or command.

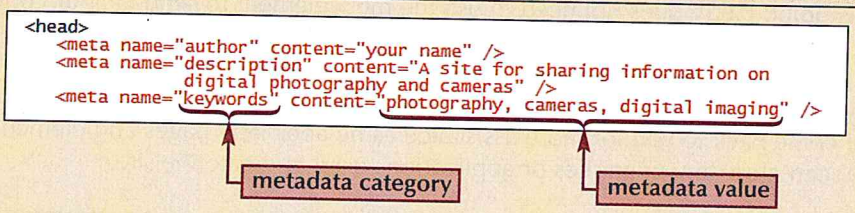
Having discussed metadata issues with Gerry, he asks that you include a few meta elements to describe his new site.

To add metadata to Gerry's document:

1. Return to the **home.htm** file in your text editor.
2. Directly below the opening <head> tag, insert the following meta elements, as shown in Figure 2-47:

```
<meta name="author" content="your name" />
<meta name="description" content="A site for sharing information on
      digital photography and cameras" />
<meta name="keywords" content="photography, cameras, digital
imaging" />
```

Adding meta elements to the CAMshots home page — Figure 2-47



3. Close the file, saving your changes.

Applying Metadata to the Communication Stream

Describing your document is not the only use of the meta element. As you learned earlier, servers transmit Web pages using a communication protocol called HTTP. You can add information and commands to this communication stream with the meta element's http-equiv attribute. One common use of the http-equiv attribute is to force the browser to refresh the Web page at timed intervals, which is useful for Web sites that publish scoreboards or stock tickers. For example, to automatically refresh the Web page every 60 seconds, you would apply the following meta element:

```
meta http-equiv="refresh" content="60" />
```

Another use of the meta element is to redirect the browser from the current document to a new document. This might prove useful to Gerry someday if he changes the URL of his

site's home page. As his readers get accustomed to the new Web address, he can keep the old address online, automatically redirecting readers to the new site. The meta element to perform an automatic redirect has the general form

```
<meta http-equiv="refresh" content="sec;url=url" />
```

where *sec* is the time in seconds before the browser redirects the user and *url* is the URL of the new site. To redirect users after five seconds to the Web page at *http://www.camshots.com*, you could enter the following meta element:

```
<meta http-equiv="refresh" content="5;url=www.camshots.com" />
```

Tip

When redirecting a Web site to a new URL, always include text notifying the user that the page is being redirected. This avoids confusion and provides users several seconds to read the text.

Another use of the http-equiv attribute is to specify the character set used by the document. (For a discussion of character sets, see Tutorial 1.) This is particularly useful for international documents in which the browser might need to know the character set being used to correctly interpret the document. The syntax to specify the character set for an HTML document is

```
<meta http-equiv="Content-Type" content="text/html;charset=char-set" />
```

where *char-set* is the character set used by the document. So to indicate that the browser uses the ISO-8859-1 character set, you would include the following meta element in the document's header:

```
<meta http-equiv="Content-Type" content="text/html;charset=ISO-
8859-1" />
```

With the Web expanding its international presence, many Web developers advocate always including metadata about the character set so there is no ambiguity in the interpretation of the character encoding used in the document.

At this point, Gerry does not need to use the meta element to send data or commands through the HTTP communication protocol. However, he will keep this option in mind if moves the site to a new address.

Gerry is happy with the Web site you've started. He'll continue to work on the site and will come back to you for more assistance as he adds new pages and elements. For now you can close any open files or applications used to create the site.

Review | Session 2.3 Quick Check

1. What are the five parts of a URL?
2. Specify the code to link the text "White House" to the URL *http://www.whitehouse.gov*, with the destination document displayed in a new unnamed browser window.
3. Specify the code to link the text "Washington" to the FTP server at *ftp.uwash.edu*.
4. Specify the code to link the text "President" to the e-mail address *president@whitehouse.gov*.
5. What attribute would you add to a hypertext link to display the popup title "Tour the White House"?
6. What attribute would you add to a link specifying that the destination is the next page in a linear sequence of documents?
7. Specify the code to add the description "United States Office of the President" as metadata to a document.
8. Specify the code to automatically refresh the document every 5 minutes.