Lesson 4:
Web Browsing

Objectives

By the end of this lesson, you will be able to:

✧ 1.5.1: Describe a URL/URI, its functions and components, and the different types of URLs (relative and absolute); and identify ways that a URL/URI can specify the type of server/service, including protocol, address, authentication information.

✧ 1.5.2: Navigate between and within Web sites.

✧ 1.5.3: Use multiple browser windows and tabs.

✧ 1.5.4: Identify ways to stop unwanted pop-up and pop-under windows in a browser, ways to avoid activating them, and unintended effects of automatically blocking them.

✧ 1.5.6: Install and use common Web browsers (e.g., Firefox, Chrome, Internet Explorer, Opera, Safari, Lynx).

✧ 1.5.13: Identify benefits and drawbacks of using alternative browsers.

✧ 1.5.15: Explain the purpose and process of anonymous browsing.

✧ 1.5.16: Describe elements found in each browser, including rendering engine, interpreter, sandbox, thread/multi-threading, window, frame, privacy mode, encryption settings, download controls.

✧ 1.9.1: Configure common browser preferences, including fonts, home pages, Bookmarks/Favorites, history, browser cache, image loading, security settings (settings should be common to Mozilla Firefox, Windows Internet Explorer and Google Chrome).

✧ 1.9.3: Describe the concept of caching and its implications, including client caching, cleaning out client-side cache, Web page update settings in browsers.

✧ 1.9.4: Identify issues to consider when configuring the Desktop, including configuring browser (proxy configuration, client-side caching).

✧ 1.9.5: Troubleshoot connectivity issues (e.g., no connection, poor rendering, slow connections) using TCP/IP utilities.

Pre-Assessment Questions

1. If you disable image loading in a browser, then:

    a. Web pages load in text mode only.
    b. Web pages download more slowly.
    c. you can view Web pages without storing them in a disk cache.
    d. it is impossible to accept cookies from a Web site.

2. Which browser folder contains previously viewed Web pages?

    a. Source code
    b. Cookies
    c. Favorites
    d. History

3. How can you ensure that you are viewing the latest information on a Web page?

Introduction to Web Browsing

Web browsing is the process of viewing Web pages over the Internet. Millions of people browse the Web every day for research, shopping, job duties and entertainment, and most take their Web browsers for granted. Just about anybody can open a browser and surf the Web.

On the other hand, an IT professional can evaluate a browsing session and identify the processes, technology and potential risks involved therein. Understanding the process, and the tools that enable it, will help you (or someone who has called for your assistance) use your Web browser to your advantage.

As you learn about the processes involved in browsing, consider that there are always trade-offs. For example, enforcing strong browser security may protect your organization from dangerous content, but also may inhibit the work of employees who need to download content. Balance is usually the key to maintaining employee productivity and preventing frustration in the IT department; however, the way to achieve that balance may not be obvious.

CIW Online Resources – Movie Clips
Visit CIW Online at http://education.Certification-Partners.com/CIW to watch a movie clip about this topic. *Lesson 4: Web Browsing*

Basic Functions of Web Browsers

As you have already learned, the primary function of a Web browser is to retrieve pages from a Web server and display those pages on your screen. Browsers enable users to easily use the World Wide Web by:

- Providing a way for users to access and navigate Web pages.

- Displaying Web pages properly.

- Providing technology to enable multimedia features.

- Providing access to Internet services other than Web pages (such as FTP and e-mail).

- Performing authentication and encryption for the secure exchange of information.

Not all Web browsers are the same. The first Web browsers were text-based; they displayed only text, and not graphics or other multimedia features of a Web page. Lynx is an example of a text-based browser. Graphical browsers, such as Windows Internet Explorer and Mozilla Firefox, display the multimedia features of Web pages, including graphics, animation and video content. Google Chrome for Android provides smartphones and tablets with the same features that the standard Chrome browser provides for PCs.

You will learn about browser choices and guidelines for choosing the best browser for your business later in this lesson.

Installing a Web Browser

Windows 7 comes with the Windows Internet Explorer 9 (IE9) browser, which is automatically installed when you load the operating system. You may have been using IE9 for the labs in this course so far. To install other browsers, you can download them directly from the Web.

To download a free copy of Mozilla Firefox, go to www.mozilla.org.

wizard
A tool that assists users of an application in creating documents and/or databases based on styles and templates. Also a tool that guides users step-by-step through a software installation process.

The process for installing a browser is the same as the process for installing any other software application. Generally, a **wizard** will guide you through the necessary steps. A wizard is a tool that guides users step-by-step through a software installation process, or assists users of an application in creating documents and/or databases based on styles and templates.

In the following lab, you will install Firefox. Suppose you work for your company's IT department, and your manager has instructed you to install new browsers on all employee computers. You can either download the browser installation application onto each computer, or download it once and use the executable installation file on each system (provided that the software license allows use of a single download on multiple systems). Installation is then a simple process that you can complete by following the application's instructions step-by-step.

Lab 4-1: Installing the Mozilla Firefox browser

In this lab, you will install Mozilla Firefox.

NOTE:
To save time, you will install Firefox from the executable file that was copied to the hard drive during setup.

1. Right-click the **Start** button, then click **Open Windows Explorer** to open Windows Explorer. Navigate to the **C:\CIW\Internet\Lab Files\Lesson04** folder, then double-click **Firefox Setup 12.0.exe**. In the Security Warning dialog box that appears, click **Run**. You may also be prompted to allow Firefox to make changes to your computer. Click **Yes**. The Mozilla Firefox Setup Wizard will launch, as shown in Figure 4-1.
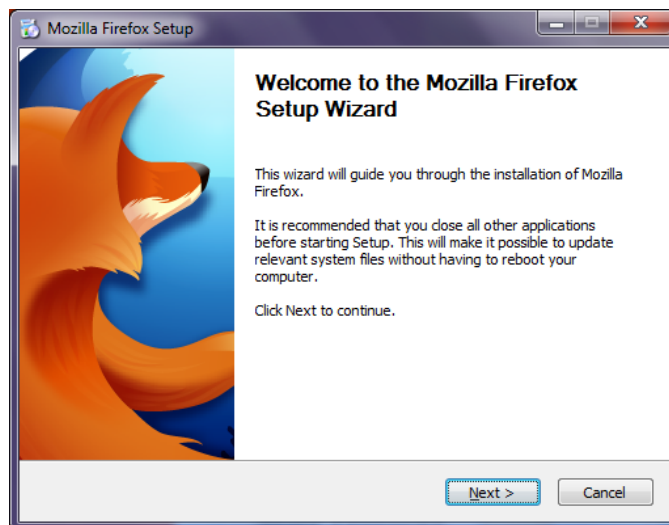
NOTE:
If you prefer to use a more current version of Firefox, feel free to do so.

Figure 4-1: Mozilla Firefox Setup Wizard

2. Click **Next** to display the Setup Type screen, as shown in Figure 4-2.

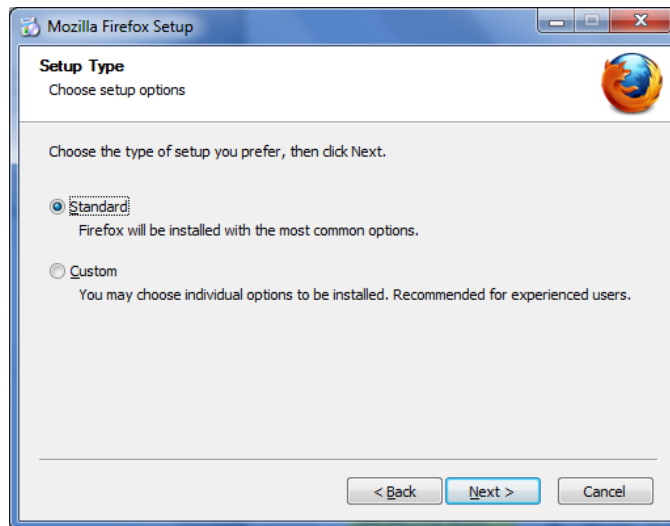*Figure 4-2: Firefox Setup Type screen*

3. Verify that the **Standard** radio button is selected and click **Next**. In the Summary window, use the default location provided for installation. Deselect the **Use Firefox as my default web browser** check box. Click **Install** to install Mozilla Firefox on your computer. If this installation is an upgrade, then click the **Upgrade** button.

4. When the installation is complete, make sure the **Launch Firefox now** check box is selected and click **Finish**. New installations will display the Import Settings and Data screen shown in Figure 4-3.
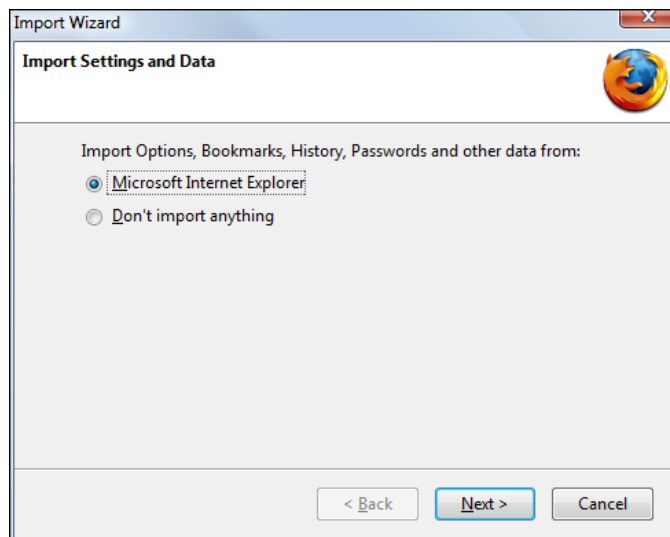

Figure 4-3: Firefox Import Settings and Data screen

5. Click **Don't Import Anything**, then click **Next**. The Mozilla Firefox browser will open.

6. If this is a new installation, the Welcome To Firefox page will display in the browser window, and the Mozilla Firefox Start Page may display on a separate tab.

7. Visit ***www.CIWcertified.com*** and ***http://maps.google.com*** to see how Firefox displays Web sites. Is it any different from IE9?

8. Exit the **Firefox** browser window, then click the **Close Tabs** button to close any open tabs (if necessary).

9. Close **Windows Explorer**. Notice that the installation program created a Desktop shortcut for Mozilla Firefox.

Web Addresses

As you have already learned, every Web page has a unique address. To access a particular Web site, you must know its Web address or click a hyperlink that takes you to that address. Some Web addresses take you to the top level, or domain level (home page) of a Web site, whereas others take you deep into a Web site.

Understanding URIs and URLs

A **Uniform Resource Identifier (URI)** is a way to refer to information or resources, whether they are on the World Wide Web, on a personal computer system or elsewhere. A URI is a text string that can refer to documents, resources or people.

Web addresses are called **Uniform Resource Locators (URLs)**. A URL is a text string that specifies an Internet address and the method by which the address can be accessed. A URL is a specific type of URI.

The components of a typical URL include the protocol, the Internet resource (server or host name) and the domain name, as shown in Figure 4-4.
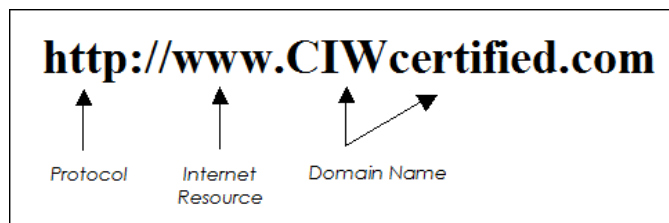

Figure 4-4: Typical Uniform Resource Locator (URL)

In a URL, the protocol component identifies the Internet protocol used to send information from the server to a user's computer, and thus indicates both the type of server and Internet service being used. HTTP is used to transfer Web pages and other information over the World Wide Web. FTP is used to transfer files to and from FTP sites. NNTP is used by news servers and news readers. Note that in a URL, the protocol is indicated in lowercase letters.

The use of a secure protocol, such as HTTPS, indicates that a secure session is in progress and that authentication has occurred. Authentication and secure protocols will be discussed later in this lesson.

The Internet resource is the name of the server on which the page resides. In the example shown in the preceding figure, the Internet resource is a server named *www*. Web servers usually (but not always) have names beginning with *www*.

Tech Note

Remember that a domain name server translates a domain name into an IP address, and that your browser uses the IP address to connect to a host. The network administrator for a given domain is in charge of mapping the names in the domain to specific computers and their IP addresses. In cases in which you can connect to a Web site without typing the "www" prefix, the domain administrator has assigned the IP address of the Web server to names that do not include a prefix.

As you have already learned, the domain name (which includes the top-level domain, such as *.com* or *.org*) identifies the site owner's registered site name and organization type. The *www.CIWcertified.com* Web site is a commercial site that offers information about CIW certification.

home page
The first Web page that displays when you access a domain.

When you enter the URL *www.CIWcertified.com*, you access the *CIWcertified* domain, which is the top level of the CIW Web site. When you access a domain, the first page you see is the Web site's **home page**. Home pages are usually named *home*, *default* or *index*. The specific file name of the CIW home page is *index.php*, but you do not need to specify the name of the home page in order to access it.

The domain (*www.CIWcertified.com*) is the system root on the Web server.

deep URL
A URL that includes a path past the domain into the folder structure of a Web site.

A URL that goes deeper into a Web site than the home page, such as *www.ciwcertified.com/certifications/index.php,* is called a **deep URL** because it includes a path that penetrates the folder structure of the Web site. URLs can go many layers into a Web site's folder structure to point to a specific resource (such as an HTML page, a PDF document or an executable file).

On some servers, the portion of a deep URL that comes after the domain may be case-sensitive. For example, on UNIX systems running Apache Web server, deep URLs are case-sensitive by default. If you do not enter the URL with exact letter case, you will receive some version of a Page Not Found error.

absolute URL
A URL that gives the full path to a resource.

A URL can be absolute or relative. An **absolute URL** includes the full path from the system root (or domain, which includes the server name) to a specific page or resource. Any URL that you type into your Web browser's Address bar will be an absolute URL. Domain-level URLs (e.g. *www.CIWcertified.com*) and deep URLs (e.g. *www.ciwcertified.com/certifications/index.php*) are both absolute.

Tech Tip
Sometimes Web page file names change, or Web site structure changes. If you get an error when specifying a deep URL, try accessing the domain and then following links to get to the deep page you want.

relative URL
A URL that gives an abbreviated path to a resource using the current page as a starting position.

A **relative URL** gives a path to a resource using the current page as an origin. In a relative URL, the system root is implied but not specified. A relative URL is also known as an abbreviated URL, and it is always referenced from within the page currently loaded into the Web browser. The URL */certifications/index.php* (without the preceding domain portion) is an example of a relative URL. The system root is implied by the slash (/) that begins the URL.

NOTE:
Relative URLs offer great flexibility in changing the system root, much as relative cell addressing in a spreadsheet application makes it possible to move or copy and paste formulas.

You would use relative URLs when coding a Web site in HTML. The use of relative URLs in Web site coding makes it possible to move an entire site from one server to another without having to edit the pages, which saves a lot of time. You would not enter a relative URL into your browser's Address bar when browsing the Web.

CIW Online Resources – Online Exercise

Visit CIW Online at *http://education.Certification-Partners.com/CIW* to complete an interactive exercise that will reinforce what you have learned about this topic.

Exercise 4-1: Web addresses

Entering URLs

As you learned earlier, a URL includes a protocol, an Internet resource and a domain name. You can access any Web page by entering its URL in your browser's Address bar. After you launch your browser, click in the Address field, type the URL of the Web site you want to visit, and then press ENTER.

Web browsers assume that HTTP is the protocol being used because you generally use a browser to access Web pages. You can include the *http://* when you enter the URL, or you may omit it. If you want to use your browser to access an FTP site, or any site that uses a protocol other than HTTP, you must include the protocol when you type the URL.

Most users manually enter a URL only when first starting an Internet session or when first accessing a specific Web site. After that, they generally use links or other techniques to navigate Web pages and browse the Web.

Using links

Although you can specify a URL for every page that you want to visit on the Internet, it is easier and faster to click hyperlinks on Web pages to visit other pages, or other areas on the same page. Links can be either text or graphics. It is a standard Internet convention to use underlined text to represent a hypertext link.

Most Web sites include a navigation section that displays across the top or along one side of their Web pages. The options in the navigation section are links to other pages and areas in the site. Each link automatically enters a new URL into the browser's Address bar.

Clicking a hyperlink sends you to a linked page. You can click hyperlinks on successive pages to navigate deeper into a Web site. Clicking your browser's Back button will return you to the previously visited page. You may also find hyperlinks that lead back to a previously viewed page or portion of a page. For example, you may find a link back to the home page or a link that reads "Back To Top" that will return you to the top of the current Web page.

In the following lab, you will browse the Web using Internet Explorer and Firefox. Suppose your project manager has asked you to evaluate the navigation capabilities of these two popular Web browsers. You can experiment with each browser by browsing to various sites in order to assess the browser's features and faults. Then you can help your company choose whether to standardize on one browser or use both because each has relevant strengths.

| **Lab 4-2: Browsing Web pages using Firefox and IE9** |

OBJECTIVE
1.5.2: Navigate Web sites

In this lab, you will access Web pages using Firefox and Internet Explorer 9 (IE9).

1. First, you will use Windows Internet Explorer. From your Desktop, double-click the **Internet Explorer** icon to launch Windows Internet Explorer (IE9). The home page will load.

2. Click in the **Address** bar to select the text. Type *www.CIWcertified.com*, then press **ENTER** to access the CIW home page, as shown in Figure 4-5. Remember that you do not need to enter "*http://*" to specify HTTP as the protocol. Web browsers assume this protocol.

Figure 4-5: CIW home page

3. In the navigation section across the top of the Web page, click **About CIW** to access the About CIW page. Notice that the URL in the browser Address bar now reads *http://www.ciwcertified.com/About_CIW/index.php.*

4. In the navigation section on the left side of the page, click **Why CIW?** to access the Why CIW? page.

5. Scroll down to the bottom of the Web page and click **Privacy Policy** to access the privacy policy.

6. In the top-left corner of the page, click the **CIW Logo** to return to the CIW home page.

7. In the Address bar, click the **Back** button to return to the Privacy Policy page.

8. In the Address bar, click the **Forward** button to return to the CIW home page.

9. In the browser toolbar, click the **Home** button (image of a house) to access the browser's home page, then minimize the **Internet Explorer** window.

10. Next, you will use Mozilla Firefox. On the Desktop, double-click the icon for **Mozilla Firefox** to launch the browser and display the Mozilla Firefox home page.

11. Click in the **Location Bar**, type *www.CIWcertified.com*, then press **ENTER** to display the CIW home page. Notice that the page displays almost exactly as it does in Internet Explorer.

    Note: Some of the graphics may not appear because they require additional plug-ins in order to display. You will download and install plug-ins later in this course.

12. Click in the **Location Bar**, type *www.google.com,* then press **ENTER** to access the Google search engine.

13. In the browser toolbar, click the **Home** button to redisplay the Mozilla Firefox home page.

14. In the browser toolbar, click the **Go Back One Page** button to redisplay the Google page.

15. Click in the **Location Bar**, type *www.java.com*, then press **ENTER** to access the Java home page. Notice that a deep URL that includes "en" for English (*www.java.com/en/*) displays in the Location box.

16. Now you will change the case-sensitive portion of a deep URL. Position the mouse pointer over the Location Bar, select the text *en* in the URL, type *EN* to replace the selected text, then press **ENTER**.

17. Notice that you are redirected to a page that says the Web address you entered cannot be found. As you can see, this particular Web server requires case-sensitive URLs. Other servers, such as the Microsoft server at *www.microsoft.com/en-us/default.aspx*, can be typed with either lowercase or uppercase letters.

18. Click the **Go Back One Page** button to return to the Java home page.

19. In the browser toolbar, click the **Home** button, then minimize the **Firefox** window.

How Browsers Work

In the previous lab, you accessed the CIW Web site. You entered a URL and the browser displayed the Web site home page. How does that happen?

The basic series of steps in the functioning of a Web browser is as follows:

1. You enter the URL *www.CIWcertified.com* in your browser.

2. Your browser divides the URL into three parts: the protocol (*http*), the server and domain name (*www.CIWcertified.com*), and the name of the file you want to view. In this case, the default or home page (*index.php*) is implied because you are visiting the top level of a Web site.

3. Your browser communicates with a domain name server to translate the server name into an IP address (in this case, *72.44.192.233*).

4. Your browser uses the IP address to form a connection with the CIW Web server.

5. Your browser uses HTTP to request the default page from the server.

6. Some level of authentication takes place.

7. The server sends the requested Web page (coded in HTML) to your browser.

8. Your browser reads and interprets the HTML, and displays the Web page.

Authentication and browser security will be discussed in detail later in this course. The rest of this lesson will focus on browser choices and configurations.

Browser Choices

OBJECTIVE
1.5.6: Common Web browser applications

Many different Web browsers are available today. Most are free or relatively inexpensive. Both mainstream and alternative browsers are described in the next sections.

CIW Online Resources – Movie Clips

Visit CIW Online at http://education.Certification-Partners.com/CIW to watch a movie clip about this topic.

Lesson 4: Pick a Browser, any Browser

Widely used browsers

Currently, the most widely used browsers are Windows Internet Explorer, Google Chrome and Mozilla Firefox, which are graphical browsers. All are distributed free over the Internet, and Internet Explorer comes bundled with the Microsoft Windows operating system.

Web browsers for mobile devices, such as smartphones and tablets, also exist. Google Chrome for Android allows any mobile device with the Android operating system to provide the user with the same experience on their mobile phone as they would have on a PC. This is significant because traditional mobile phones (i.e., cell phones that existed before smartphones) could only interpret stripped-down versions of Web sites. These mobile Web sites contained mostly text, with few graphics or video.

Many versions of each browser exist, and older versions do not support some of the Web features considered standard today. For example, Windows Internet Explorer versions prior to IE9 do not support Hypertext Markup Language version 5 (HTML5). HTML5 is quickly becoming the standard for developing Web pages. HTML5 supports mobile and traditional Web site development.

Most Web pages display almost identically in any Web browser. The toolbar features vary between the browsers, but these differences have little effect on your Web-browsing experience.

The reason a Web page may not appear the same in different browsers is because each browser interprets some HTML elements differently. For example, online order forms may not appear or print the same because each browser may use some different default fonts and layouts for forms. Web page tables, which display information in rows and columns, may not appear the same because each browser supports some different table formatting commands.

Also, some browsers support some proprietary HTML tags that are not standard. In this case, only the browsers that understand the proprietary code will display the Web page properly. Web page authors should test their Web pages in as many browsers as possible to make sure the pages display properly.

Alternative browsers

You are not limited to using Windows Internet Explorer or Mozilla Firefox. Additional browsers exist, including the following:

- **Chrome (*www.google.com/chrome*)** — an open-source Web browser developed by Google for most operating systems.

- **Safari (*www.apple.com/safari*)** — a graphical browser developed by Apple for most operating systems.

- **RockMelt (*www.rockmelt.com*)** — a browser designed with social networking in mind. Contains applications and features that allow individuals to access various common services and features that help users share information with each other.

- **Opera (*www.opera.com*)** — a browser developed by Opera software that supports most operating systems.

- **Konqueror (*http://konqueror.kde.org*)** — a browser found in the UNIX KDE desktop environment for UNIX workstations.

- **Lynx (*http://lynx.browser.org*)** — a text-only browser that runs on most operating systems. Lynx supports HTTP, Telnet, Gopher, FTP and NNTP.

Safari

Safari is a free Web browser that was developed by Apple Inc. The OS X-only version shares its open-source foundations with Konqueror, a standalone browser and the file manager for the Linux KDE Desktop Environment. Safari offers most features common to modern Web browsers such as:

- Mobile device support.

- Pop-up ad blocking.

- Tabbed browsing.

- Private mode browsing.

- Built-in password management.

- The ability to archive Web page and send them via e-mail.

- The ability to search bookmarks.

- The ability to subscribe to and read Web feeds (Safari includes a built-in RSS and Atom reader).

Safari is among the fastest browsers to load Web pages from the Internet. Safari also has a very simple interface to promote maximum Web page viewing. A built-in version is provided with the iPhone and iPad that provides complete Web browsing functionality. The Safari Web browser with the Wikipedia site displayed is shown in Figure 4-6.
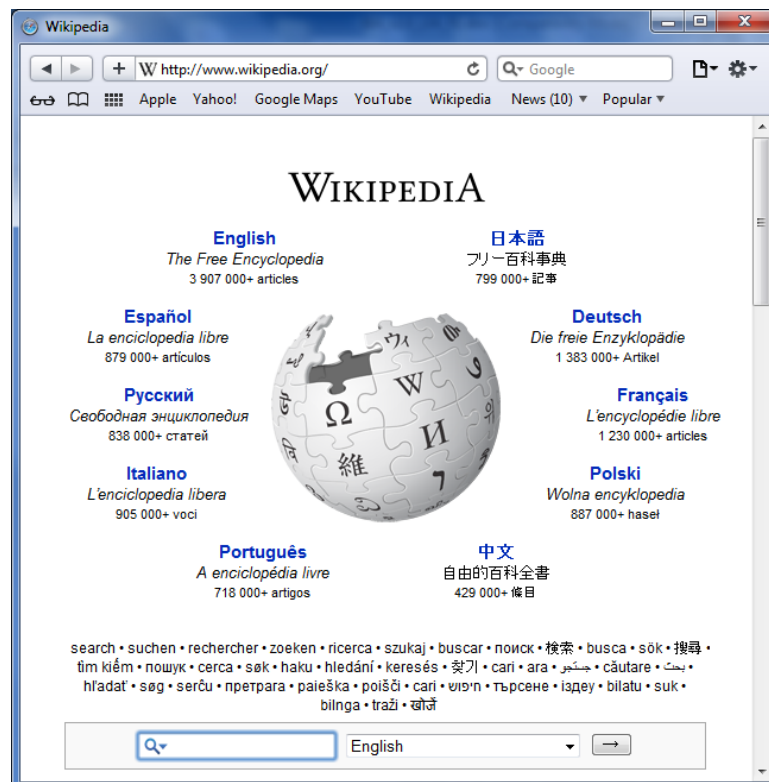

Figure 4-6: Safari Web browser interface

Opera

Opera is a free Web browser developed by the Opera Software company of Norway. Some of Opera's features include:

- Mobile device support.

- Pop-up ad blocking.

- Tabbed browsing.

- Fraud protection.

- A download manager for downloading files other than Web pages from the Internet.

- A BitTorrent client for transferring large files.

- The ability to subscribe to and read Web feeds.

- A built-in e-mail and chat client.

Like Safari, Opera is among the fastest browsers to load Web pages from the Internet. Opera supports themes, which allow users to customize the interface, and change the location and style of toolbars, buttons and menus. Opera also supports Widgets, which are small standalone applications that display on top of the browser. Widgets provide single-purpose services that allow you to view the latest news, current weather, current time, a video viewer, a calendar, desktop notes and so forth.

Opera has had limited success in the PC browser market, but has had more success on smartphones and tablets. Opera has also experienced more success in Europe than in the United States.

The Opera Web browser with its default home page is shown in Figure 4-7.
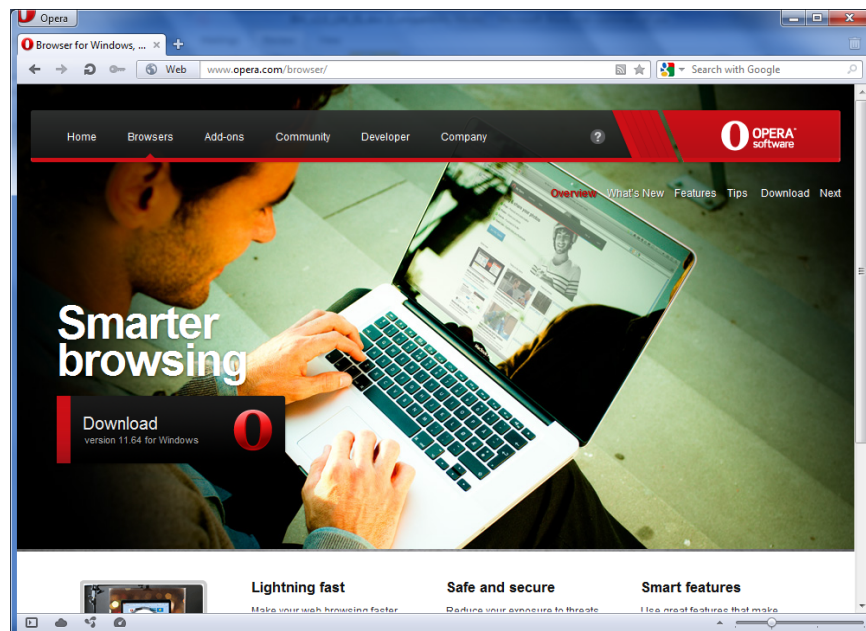

Figure 4-7: Opera Web browser interface

Google Chrome

Google originally created the Chrome browser because it felt that the existing browsers did not serve the needs of the company. The Google Web sites rely upon effective e-commerce and search capabilities, and they felt that existing Web browsers detracted from that experience. Chrome's creators felt that existing browsers were too complex. They wanted a cleaner, simpler interface.

Chrome's rendering engine is based on the one used by Apple's Safari Web browser. Google took the code and created Chrome as an open-source browser that developers could use to create applications for it.

greenfield
An approach in which a project lacks any constraints imposed by prior development.

Google has embraced the **greenfield** approach to software and Web development. Greenfield is used in various disciplines, especially software development, to describe a project that begins with a fresh set of assumptions and no specific limitations caused by previous efforts. The greenfield approach is seen as a desirable method of development because project members experience fewer restraints.

Since Chrome's release, all other browsers have simplified their interfaces. That is the reason browsers now look similar. You can learn more about Chrome at *www.google.com/chrome.*

Chrome features

Google's developers had the following goals in mind when creating Chrome:

- **Clean interface** — As part of Google's greenfield approach, its developers decided that previous Web browsers, including Firefox, had become too feature-laden and cluttered. Google felt that the browser should be as clean and transparent as possible, because the information displayed by the browser is more important than the browser itself.

- **Automatic crash recovery** — Google calls this feature "crash control." Although the ability for applications to autorecover has been available for some time, Chrome represents the first significant effort to implement this in a Web browser.

- **Multi-threading** — This feature enables a Web browser to create new processes and recover from problem threads, thereby avoiding crashes.

- **Improved sandboxing** — Each of the rendering engines in Chrome are sandboxed, which means they are more fully separated from each other as they run in the computer's memory. This feature enhances security.

- **Isolated tabs** — As a result of multi-threading and sandboxing, the tabs that you open in Chrome are protected from each other.

- **Privacy mode** — Also known as anonymous browsing, this feature provides the ability to surf the Web privately, leaving no cached information.

Anonymous browsing

Anonymous browsing allows users to use the browser and leave no cached information, effectively leaving behind no evidence on the hard drive of the sites or content they have browsed. No cookies are downloaded to a user's computer during anonymous browsing.

cookie
A text file that contains information sent between a server and a client to help maintain state and track user activities. Cookies can reside in memory or on a hard drive.

Cookies are small text files placed on Web site visitors' computers. Cookies are sent to the client the moment a visitor accesses a Web site, and are usually used for identification. They gather visitor information that can be used for marketing purposes, such as contact information (phone number, e-mail address, home address or phone number) or the operating system and browser you use. Unless you enter this personal information on a Web site, cookies do not have access to any data about you. However, some people believe cookies invade their privacy. You will learn more about cookies later in this course.

Anonymous browsing has been quite controversial because many companies want to carefully monitor end users, and anonymous browsing thwarts such efforts. However, this feature — first introduced in Google Chrome's privacy mode — has since been imitated by many other browsers.

To learn more about Chrome's privacy mode, called incognito mode, consult *www.google.com/goodtoknow/manage-data/incognito-mode/*.

Chrome's advantages and limitations

Chrome had the advantage of starting new and choosing only the most relevant browser features. Some end users have complained that essential features are missing. However, those who value a cleaner interface appreciate the lack of clutter.

At first, Chrome supported few add-ons and helper applications. But over time, the open-source community has contributed many applications.

In the following lab, you will install and use Google Chrome. Suppose you are a university student and want to use a Web browser that is simple and secure, yet powerful enough to perform the tasks you need it to perform. A friend sent you a link to Google Chrome's comic book and, after reading it, you were intrigued enough to compare Chrome's features with those of the more established browsers. Which browser will work the best for your purposes?

Lab 4-3: Using Google Chrome and Incognito Mode

OBJECTIVE
1.9.1: Browser preference configuration

NOTE:
To save time, you will install Chrome from the executable file that was copied to the hard drive during setup.

In this lab, you will install Google Chrome and explore the interface.

1. Open **Windows Explorer**. Navigate to the **C:\CIW\Internet\Lab Files\Lesson04** folder, then double-click **ChromeSetup.exe**. In the Security Warning dialog box that appears, click **Run** to launch the Google Chrome Installer.

2. When the Welcome To Google Chrome dialog box appears, deselect **Make Google Chrome The Default Browser**, then click **Start Google Chrome**. The Google Chrome home page will appear.

3. Go to **www.google.com/googlebooks/chrome** to display the Google Chrome comic book, shown in Figure 4-8. The comic book describes the key engineering decisions that were made by the Chrome developers as they developed the browser to conform to the goals stated earlier in this lesson.
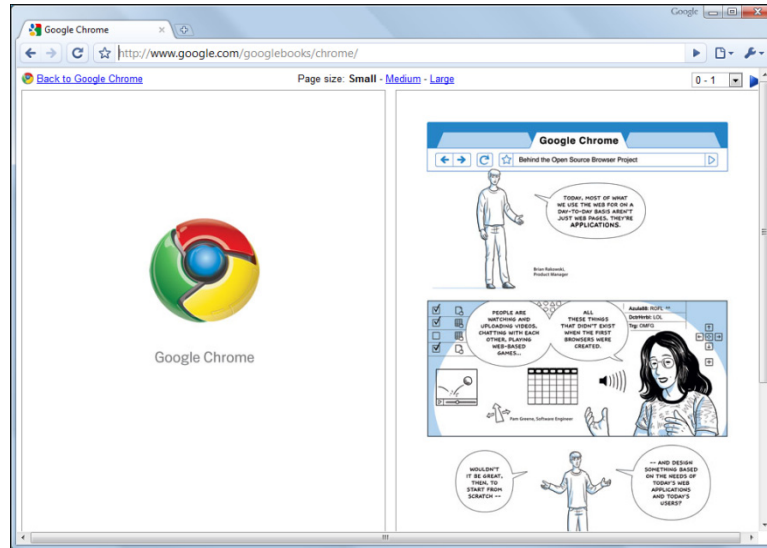
Figure 4-8: Google Chrome comic book

4. Read through the comic book to gain an understanding of the philosophy behind Chrome's development.

5. To the right of the Address box, click the **Customize and Control Google Chrome** button to display a menu of commands that you can use to perform common tasks, such as new tab, find, print, zoom and so forth.

6. From the Customize And Control Google Chrome list, select **New Incognito Window**. This command opens a new window and enables Chrome's privacy mode, which allows you to search the Web privately. Pages you view in this window will not appear in the History folder, and cookies will be deleted after you close the window.

7. In the Incognito window, go to *www.CIWcertified.com* to display the CIW home page.

8. Click the **Customize And Control Google Chrome** button, then click **Settings** to display the Google Chrome Settings window. Scroll down to the bottom of the page and click the **Show Advanced Settings** link. In the Privacy section, click the **Content Settings** button. In the Cookies section, click the **All Cookies And Site Data** button. The Cookies and Site Data window appears, as shown in Figure 4-9. Notice that only a cookie from Google.com appears; no cookies for CIWcertified.com appear because you accessed the CIW site in the incognito mode.
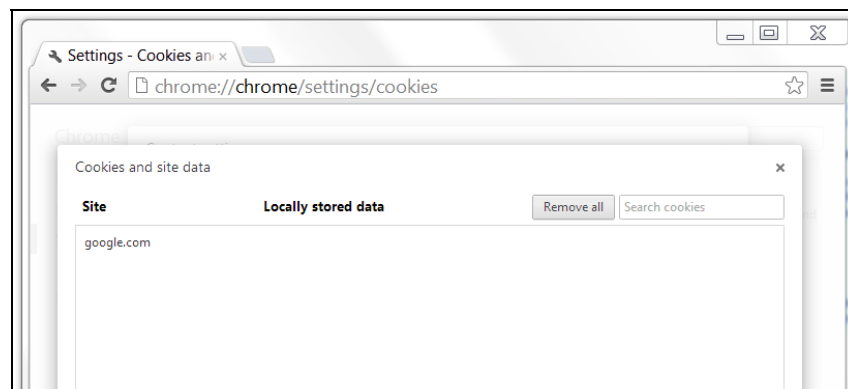

Figure 4-9: Cookies and Site Data window — Google Chrome

9. Close the **Settings** tab, then close the **Incognito** window. In the window that displays the Google Chrome comic book, go to ***www.CIWcertified.com***.

10. Reopen the **Cookies and Site Data** window and notice that a cookie for *www.CIWcertified.com* now appears in the list because you opened the CIW Web page a second time without first enabling incognito mode.

11. Review the links and options in the **Settings** window. There are many similarities between the settings in Chrome and the settings in other browsers.

12. Close the **Settings** tab.

13. **If time permits:** Experiment with the Google Chrome interface. What are the similarities between Chrome, Firefox and Internet Explorer? What are the differences?

14. Close the **Google Chrome** browser.

Selecting a browser for your business

While selecting a browser for use on a home computer may be purely a matter of personal preference, selecting one browser standard to implement across an organization requires careful consideration.

Many businesses prefer one browser to others for standardization and easier upkeep by their IT departments. Therefore, all computers in the company may have the same browser (and perhaps only that browser) installed.

While it may be tempting to use the one browser that the majority of employees already have installed, or to use the browser that the CEO likes best, IT personnel should consider all the ripple effects that implementing a browser standard may produce.

If your company hosts an intranet or extranet, you will want to authenticate the users. To implement authentication, both the server and the client (browser) must be able to handle the authentication type. Your authentication method could affect your browser choice. For example, if your server is running Microsoft Internet Information Services (IIS), your employees should probably use Windows Internet Explorer. Any alternative browser must be researched carefully to ensure that it will authenticate with your server.

IT personnel should consider all potential benefits and drawbacks before making a decision to implement one browser as a company standard. One way you can learn about the current trends in server software is to locate and review technical data on the Web.

Browsing Techniques

Now that you have done some browsing, you will learn about browsing techniques that can make your time on the Internet more efficient.

Using Bookmarks and Favorites

Instead of manually entering a URL each time you visit a Web site, you can create Bookmarks for Web pages you visit often or add links to those pages to your Favorites folder. If you work in Firefox, saved links are called Bookmarks. If you work in Internet Explorer, saved links are entries in your Favorites folder.

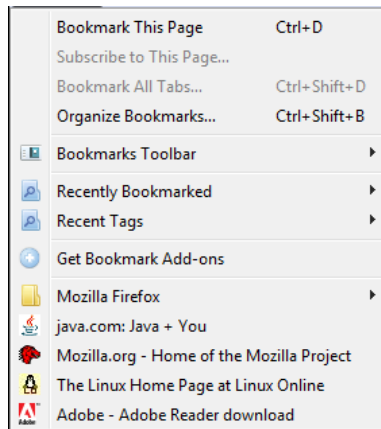Bookmarks display in Mozilla Firefox similar to Figure 4-10.

Figure 4-10: Mozilla Firefox Bookmarks

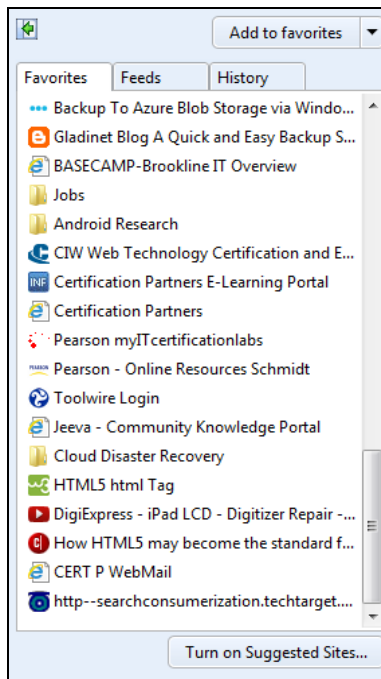Favorites display in Windows Internet Explorer as shown in Figure 4-11.

Figure 4-11: Windows Internet Explorer Favorites

As you add Bookmarks and Favorites, you can rearrange the structure of the folders to quickly and easily find the sites you want.

Google Bookmarks

Another method for managing Bookmarks and Favorites is to use Google Bookmarks, which is available through the Google toolbar that you can download from Google (*www.google.com*). Google Bookmarks is a secure online service that allows you to manage links to sites, categorize links, and create and annotate notes to specific subjects you create. The advantage to using Google Bookmarks is that the links would be available in any browser, and even different computers on which you have installed the Google Toolbar. This eliminates the chore of having to create multiple Bookmarks or Favorites in

the various browsers you may use. This approach makes the sites you use most often very portable, allowing you to access them anywhere.

Using multiple windows and tabs

Sometimes as you follow links throughout the World Wide Web, you may lose track of the path back to a page you want to revisit. Or you may find yourself looking for information on disparate topics at the same time.

You can open multiple browser windows, and then follow one path of hyperlinks in one window and another path of hyperlinks in the other window. By keeping both windows open, you have simultaneous access to two Web pages.

To use multiple browser windows in older browsers, you must launch the application twice. Press ALT+TAB to switch between open browser windows.

Browser versions after Internet Explorer 7.0 and Firefox 3.0 support tabbed browsing, which means you launch the browser once, and then open new tabs for multiple windows. Click a tab to activate the window you want.

In the following lab, you will use various browser features. Suppose your supervisor often calls you for immediate information regarding technical issues. By adding Bookmarks and Favorites to your browser, you can access technical information quickly. You can also use various browser features to help you work efficiently.

Lab 4-4: Using browser features to enhance your browsing experience

In this lab, you will use various browser features to enhance your browsing experience.

1. First, you will add Favorites in Windows Internet Explorer. Start **Internet Explorer** and go to *http://news.netcraft.com*.

2. In the browser Menu bar, select **Favorites | Add To Favorites** to display the Add A Favorite dialog box, shown in Figure 4-12.
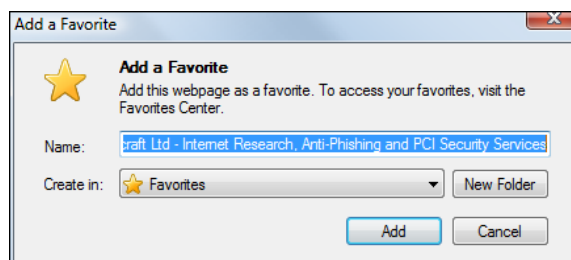

Figure 4-12: Add a Favorite dialog box

3. Click the **Add** button to add the Netcraft site to your Favorites folder.

4. In the toolbar, click the **Favorites** button (the star icon to the right of the Address bar that displays "View favorites, feeds, and history" when you hover the mouse pointer over it), then click the **Favorites** tab to display the Favorites folder in a separate pane along the right side of the browser window, as shown in Figure 4-13. Notice that Netcraft displays at the bottom of your Favorites list.
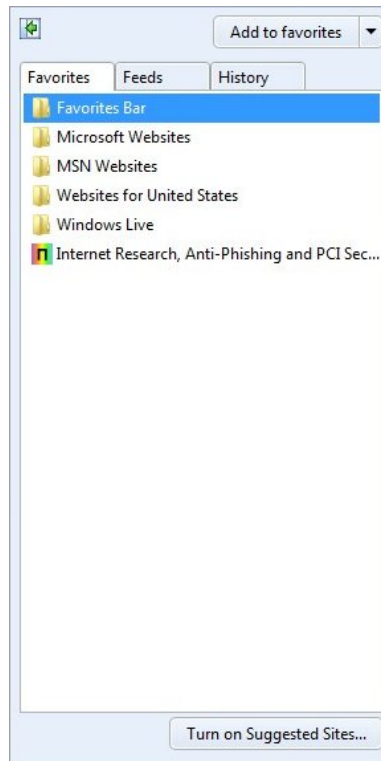
Figure 4-13: Adding to Favorites

5. Go to ***www.howstuffworks.com*** to access the HowStuffWorks Web site.

Tech Note: While you are viewing the HowStuffWorks site, a security warning dialog box may display asking if you want to download and install Adobe Flash. If the dialog box displays, click **No***. You will download Flash later in this course.*

6. In the toolbar, click the **Favorites** button, click the **Add To Favorites** button, and then click the **Add** button to add the HowStuffWorks site to your Favorites folder.

7. Go to ***www.microsoft.com***, then add the Microsoft site to your Favorites folder.

8. Redisplay the Favorites pane, then click **Netcraft** to return to the Netcraft site.

9. Redisplay the Favorites pane, then click **HowStuffWorks** to return to the HowStuffWorks site.

10. Minimize the **Internet Explorer** window.

11. Next, you will create Bookmarks in Mozilla Firefox. Start **Firefox**, and then go to ***www.java.com***.

12. Click the **Display Your Bookmarks** button on the toolbar. Select **Bookmark This Page** to display the Page Bookmarked dialog box. Click **Done** to create a Bookmark for the Java site.

13. Click the **Display Your Bookmarks** button on the toolbar to display the current Bookmarks. Notice that the Bookmark for the Java site displays at the bottom of the Bookmarks list.

14. Click anywhere outside the Bookmarks list, then go to ***www.mozilla.org***.

15. Once again, click the **Display Your Bookmarks** button on the toolbar. Select **Bookmark This Page** to display the Page Bookmarked dialog box. Click **Done** to create a Bookmark for the Web site.

16. Go to *www.linux.org*, and add a Bookmark for the Linux site.

17. Click the **Display Your Bookmarks** button to display the list of Bookmarks you have created, then click the **Mozilla.org** Bookmark to go to the Mozilla Web site.

18. Display your **Bookmarks** list, and then click the **Linux** Bookmark to return to the Linux Web site.

OBJECTIVE
1.5.3: Multiple browser windows

19. Next, you will use tabbed browsing in Firefox. Select **Firefox | New Tab | New Tab** to open a new tab. You can also click the **+** symbol to the right of the current tab.

20. Go to *www.adobe.com* to access the Adobe Web site in a second Firefox tab.

21. Select **Firefox | New Tab | New Tab** to open a new tab, click the **Display Your Bookmarks** button, then click the **Java** Bookmark to access the Java site in a third Firefox tab. All of Firefox's tools are available in all open tabs.

22. In the Java tab, click in the **Location Bar**, type *www.yahoo.com*, and then press **ENTER** to access the Yahoo! Web site in the third tab.

23. In the Yahoo! tab, click the **Jobs** link to display the Monster jobs page.

24. Click the **Adobe** tab, then click the **Adobe Reader** button to display the Adobe Reader download page.

25. Bookmark this page.

26. Right-click the **Linux.org** tab, then click **Close Tab** to close that tab in Firefox. Now two tabs are open.

27. Right-click the **Adobe Reader Download** tab, then click **Close Other Tabs** to close the Monster jobs tab.

28. Close **Firefox**.

OBJECTIVE
1.5.3: Multiple browser windows

29. Finally, you will use tabbed browsing in Windows Internet Explorer. Restore the **Internet Explorer** window.

30. Click the **New Tab** button to the right of the current tab to open another Internet Explorer tab. You can also press **CTRL+T**.

31. Go to *www.msn.com* in the new tab to access the MSN Web site.

32. In the toolbar, click the **New Tab** button to the right of the MSN tab to open a third tab.

33. Go to *www.msn.com* in the third tab to access the MSN Web site again.

34. In the third tab, click the **Money** link in the MSN home page menu.

35. Redisplay the second tab. Click the **News** link to display the MSN news home page. Notice that you can use tabs to browse different areas of the same Web site at the same time.

36. Close **Internet Explorer**. Click the **Close All Tabs** button to close all three tabs.

Browser Elements

It is important that you understand the technical elements that comprise any browser, regardless of vendor. Understanding these elements will allow you to better understand the nature of the Web, e-commerce and cloud computing. Table 4-1 describes each of these technical elements.

Table 4-1: Elements of Web browser

Browser Element	Description
Rendering engine	The part of the browser responsible for reading the Web page and presenting it to an end user. Has the ability to read, parse and represent HTML, images and other tools. Also called the layout engine. Examples include Mozilla's Gecko, Opera Software's Presto and the KDE project's KHTML engine, which is used in Linux systems as well as Apple's Safari Web browser.
Interpreter	The part of the browser responsible for reading and processing programming languages. A browser often has several interpreters installed by default. Common browser interpreters include those for JavaScript and Java.
Sandbox	A programming method that isolates a particular application or process. A sandbox is vital in secure Web browsing because it helps the browser keep information from being exposed or misused. Sandboxing also helps ensure a stable browser; if one sandboxed process or plug-in malfunctions, the browser can still function properly, rather than experience a crash that results in loss of data.
Thread	An instruction from a running application that executes a particular task. When a single-threaded application starts a thread, that application must wait until that thread is finished working. Most Web browsers have traditionally been single-threaded, which can lead to slow performance or browser crashes if a particular thread experiences a problem. Newer browsers engage in a practice called asynchronous threading, which allows a browser to more easily recover from an error in an interpreter or browser supplement.
Window	The screen that contains the Web page you are viewing.
Tab	Another instance of a browser window within a browser.
Cache	Web page cookies and related data stored locally on the hard drive, unless the browser's privacy mode has been invoked.
Supplements	Often called plug-ins, add-ons or helper applications. Includes Adobe Flash, Microsoft Silverlight, and Firefox add-ons.
Network programming	Code that controls how the browser accesses a network. Web browsers usually default to allowing a direct connection to the Internet. However, you can specify proxy server settings that help your browser communicate with proxy-oriented corporate firewalls. Proxy servers will be discussed later in this lesson.
Download controls	Settings that determine how the Web browser will process downloads.
Plug-in	An application that adds extra capabilities to your Web browser, such as the ability to view movies or Flash animations. Plug-ins are easy to install and integrate seamlessly into the main HTML file that you are viewing in your browser window. You will learn more about plug-ins in the next lesson.

Programmers are not the only people who understand the terms in the previous table. Entrepreneurs and market professionals have created entirely new products and have generated intriguing new Web techniques because they understand these elements.

CIW Online Resources – Online Exercise

Visit CIW Online at *http://education.Certification-Partners.com/CIW* to complete an interactive exercise that will reinforce what you have learned about this topic.

Exercise 4-2: Browser elements

Configuring Web Browser Preferences

Browsers in their default configurations are easy to use. But you can configure your browser to accommodate your working style or so it complies with standards implemented by your organization.

Both Firefox and Internet Explorer allow you to customize your browser. Both browsers allow you to configure the same basic preferences, or options, although the methods to set preferences differ.

Browser fonts

Both Internet Explorer and Firefox allow you to set the size of the fonts used within the browser window. This preference is important for users who have higher-resolution monitors, such as 1024 x 768 or larger. Adjusting font size can improve readability on any monitor.

In the following lab, you will configure font size in Firefox. Suppose a new employee who is visually impaired has recently joined your project team. Your supervisor has asked you to configure this employee's browser so she can conduct research on the Web comfortably.

Lab 4-5: Configuring font size in Mozilla Firefox

In this lab, you will manipulate font size settings in Firefox.

1. Open **Firefox**.

2. Go to *www.w3.org*. Note the font sizes used on the W3C site.

3. Select **Firefox | Options | Options** and select the **Content** menu. Click the **Advanced** button in the Fonts & Colors section to display the Fonts dialog box (Figure 4-14).
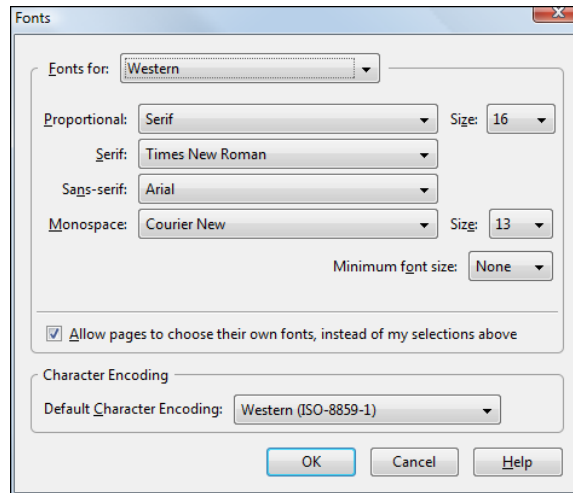
Figure 4-14: Fonts dialog box — Mozilla Firefox

4. Display the **Size** drop-down lists for proportional and monospace fonts, then select the font size you are most comfortable viewing on your screen.

5. Click **OK** twice to save and apply your settings.

6. View the Web page with the new font size. Adjust the font size as needed.

7. Minimize the **Firefox** window.

Browser home page

When you install and open a browser, the first Web page that appears is the default browser home page. In Internet Explorer, the default home page is the MSN page. In Firefox, the default home page is the Mozilla Firefox Start page.

NOTE:
Be sure you understand the difference between a browser home page and a Web site home page.

Many corporations set employees' home pages to the company's Web site, especially if the employees need to access the company's intranet frequently. Many users set their home pages to search engines or favorite Web sites.

In the following lab, you will set the browser home page in Firefox. Suppose the IT supervisor has assigned you the task of setting the home page for all corporate systems to the company intranet. You can change the browsers' default home page to your company's intranet page fairly quickly.

Lab 4-6: Setting a browser home page in Mozilla Firefox

In this lab, you will specify a browser home page in Firefox.

1. Restore the **Firefox** window.

2. Select **Firefox | Options | Options**. Click the **General** menu.

3. Select the text in the **Home Page** text box, then enter your company's URL (or the URL of a search engine, such as ***www.google.com***). Your screen should resemble Figure 4-15.
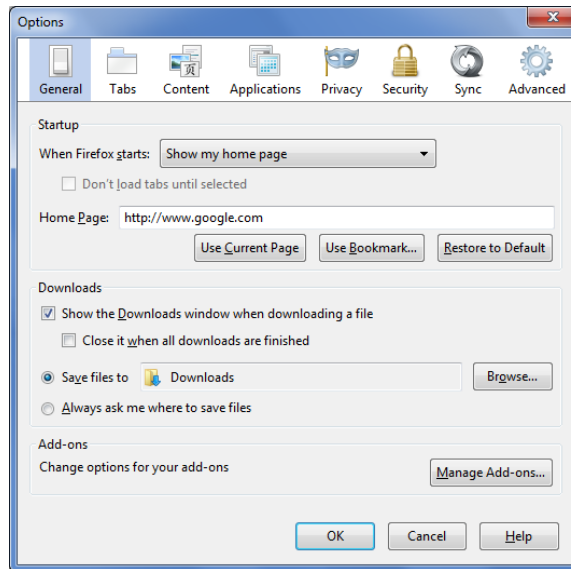
Figure 4-15: Specifying home page in Firefox

4.   Click **OK** to return to your browser screen.

5.   Click the **Home** button on the toolbar to access the page you specified as your browser home page.

Note: You may also restart Firefox to view the home page.

6.   Minimize the **Firefox** window.

History folder

The History folder allows easy access to previously viewed Web pages. It stores the URLs of sites you have accessed within a defined period of time. The History folder is a convenient tool for revisiting Web sites, especially if you cannot remember the exact URL. The History folder can usually be accessed by a History toolbar button or by selecting the Address bar drop-down menu.

Many people view the History folder as "evidence" of sites they have been browsing, and fear that employers may use the History folder to spy on employees. Anyone can view the contents of your History folder.

The default amount of time to keep pages in History for Windows Internet Explorer is 20 days. A History folder can grow very large; sometimes so large it is difficult to use. You can set time limits for files in the History folder, and you can empty the History folder manually.

In the following lab, you will manage the History folder in Firefox. Suppose one of the managers in your company has contacted the IT department because her browser does not seem to work as quickly as it used to. The IT manager has assigned you to check the browser settings and make necessary changes to enable the browser to work as quickly as possible.

Lab 4-7: Managing the History folder in Mozilla Firefox

In this lab, you will set a time limit for pages to be stored in the Firefox History folder, then manually empty the folder.

1. First, you will view the contents of the History folder to check for important pages before deleting. Restore the **Firefox** window.

2. Select **Firefox | History | Show All History** to display the Library window. Double-click **Today** to display links to all Web pages you have visited today. Double-click a link to access that Web page.

3. Close the **Library** window.

4. Next, you will set a time limit for storing History folder content. Select **Firefox | Options | Options** and click the **Privacy** menu.

5. In the History section, click the **Remember History** drop-down menu. Select **Use custom settings for history**. Your screen should resemble Figure 4-16.
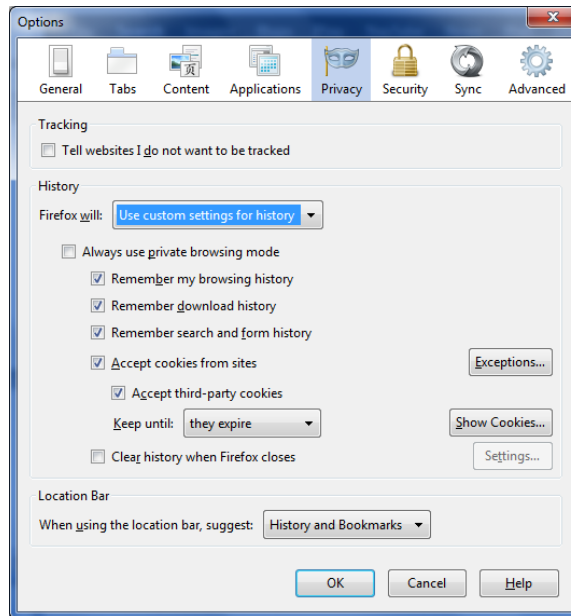
Figure 4-16: History settings in Firefox

6. Click the **Clear history when Firefox closes** check box. In Firefox, the history includes the browser cache, browsing history and cookies. Click the **Setting** button to the right of the check box. Your screen will appear similar to Figure 4-17.
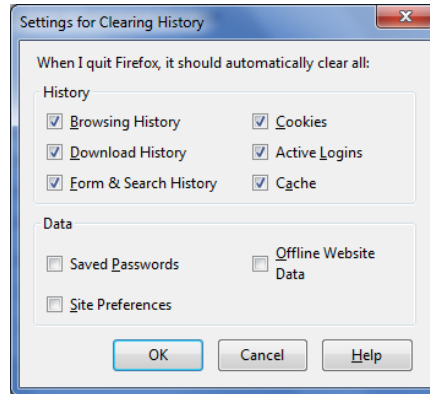
Figure 4-17: Settings for Clearing History dialog box in Firefox

7. Firefox by default erases the browsing history, download history, form and search history, cookies, active logins, and the cache. Click the **OK** button twice to return to your browser.

8. Close **Firefox** and then reopen it.

9. Select **Firefox | History | Show All History** to display the Library window. Double-click **Today** and verify that the only link that appears is your home page.

10. Close the **Library** window, and then minimize the **Firefox** window.

Now that you have completed this lab, how important is it to you that you regularly empty your History folder? You may find that emptying your History folder frequently is worthwhile because it is easy and protects your privacy.

OBJECTIVE
1.5.4: Pop-up and pop-under browser windows

pop-up window
A small browser window that appears in front of the browser window you are viewing.

pop-under window
A small browser window that appears behind the browser window you are viewing.

Controlling pop-up and pop-under windows

As you browse various Web pages, one or more small windows may suddenly open in front of the page you are viewing. These devices are called **pop-up windows**. Pop-up windows have been used in Windows applications for years, offering specialized commands and options that must be selected before a user can continue with the current task. On the Web, pop-ups can be used to remind a visitor to log on or to enter required information. Pop-up windows are also used extensively for advertising on the Web, and many users find them intrusive and annoying.

A **pop-under window** appears behind the browser window of a Web site that a user has visited, and it displays after you close the current browser window. Pop-under windows may be less intrusive than pop-up windows but are still often unwelcome.

Pop-up and pop-under windows display on their own, and remain open until a user clicks an option inside or closes them. Sometimes closing a pop-up or (most often) a pop-under window triggers a chain reaction of numerous additional windows that open automatically and must be closed. You can try to avoid activating pop-ups and pop-unders by not clicking inside any that display, by avoiding sites that contain adult content, and by not clicking on banner ads. However, be aware that it is becoming more difficult to avoid them.

Because pop-up windows can be annoying, pop-up blockers are included in most browsers.

Although blocking pop-up and pop-under windows may seem like a great idea, keep in mind that it may prevent vital features of some Web sites (such as logon windows) from displaying.

Mozilla Firefox allows you to block pop-up windows in the Content panel of the Options dialog box, shown in Figure 4-18. Notice that the pop-up blocker is enabled by default.
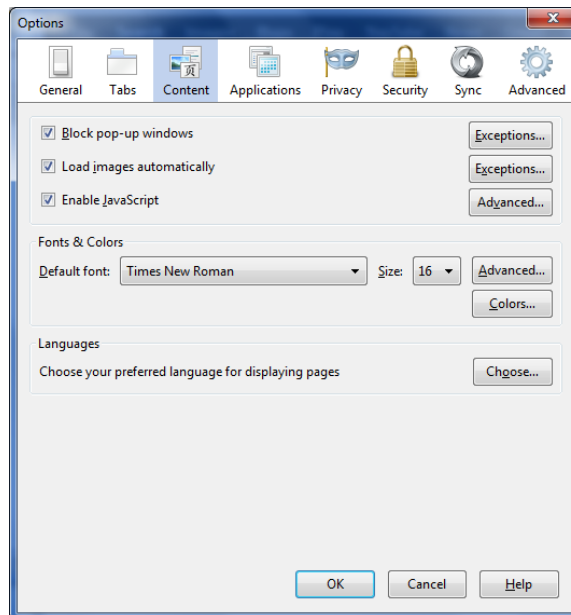

Figure 4-18: Options dialog box — Content panel

Because blocking pop-up windows may prevent logon screens from appearing, you can click the Exceptions button to specify sites from which you will allow pop-up windows.

<table>
<tr><td>OBJECTIVE
1.9.1: Browser
preference
configuration

1.9.3: Browser
caching

1.9.4: Configuring
the Desktop</td></tr>
</table>

Browser cache

The browser cache is a folder on your hard drive that stores downloaded files (such as Web pages, images, fonts, etc.). The cache improves the performance (speed) of your browser because it allows you to view previously accessed Web pages without having to request them from the server again.

When you enter a URL, your browser checks the cache to see if the page is already stored there. If the cache contains a recent version of the page, it will display the cached version instead of downloading the page from the Web again. Loading cached pages is faster than downloading them from a server.

Cached files are stored in several locations on the hard drive. Some are stored in a folder named Cookies, and some are stored in folders named Temp or NS_Temp. In Firefox, most of your cached files are stored in a folder named Cache or "xxxxxxxx.default" (where xxxxxxxx varies from computer to computer, such as *iwfg0vah.default*), depending on the operating system on which Firefox is loaded. In Internet Explorer, most cached files are stored in a folder named Temporary Internet Files.

Locating the browser cache

The location of the browser cache varies among operating systems. In Windows 7, the following default location is used by Firefox to write cached files:

C:\Users\<username>\AppData\Roaming\Mozilla\Firefox\Profiles\xxxxxxxx.default

In Windows 7, the following default location is used by Internet Explorer to write cached files:

> *C:\$WINDOWS.~Q\DATA\Documents and Settings\<username>\Local Settings\Temporary Internet Files*

In Internet Explorer, you can specify a different folder for storing your temporary Internet files.

Setting options for the browser cache

The two most significant settings for browser cache control are the size of the browser cache and frequency with which the browser will compare a cached page to the page on the server. Both of these settings affect performance. In Internet Explorer, you can specify these settings in the Temporary Internet Files section of the Temporary Internet Files and History Settings dialog box, shown in Figure 4-19.
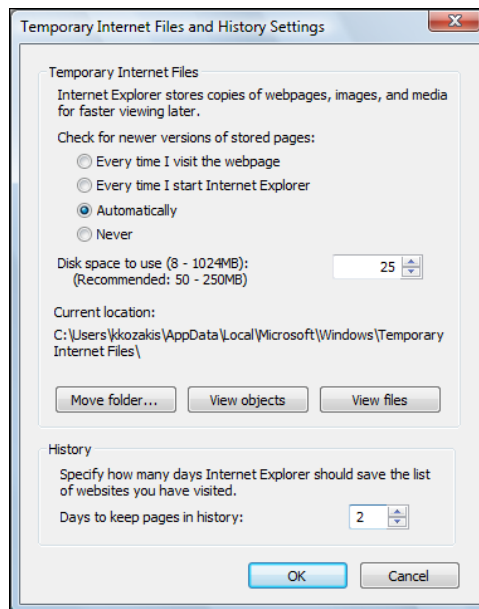

Figure 4-19: Setting cache options — Windows Internet Explorer

Frequency of browser cache checking for newer pages

Generally, the default browser cache setting is the most efficient. Following is a summary of the options in Internet Explorer:

- **Every Time I Visit The Webpage** — This option slows down performance because the browser compares cached pages to pages on the server every time you return to a page.

- **Every Time I Start Internet Explorer** — This option speeds up performance because the browser will compare pages that were viewed in earlier sessions, but not the current session.

- **Automatically** — This option speeds up performance because pages that change infrequently are compared less often. This is the default setting.

- **Never** — This option can speed performance, but you can never be sure that you are viewing current information.

When dealing with cached pages, it is important to remember that you may get outdated information from them. In fact, a cached Web page may display even if the server is not running.

The currentness of a Web page becomes especially important when you view pages that contain dynamically generated content. Consider the following example:

A Web site named uBid.com allows site visitors to place bids on various merchandise. Every couple of seconds, the uBid.com server dynamically calculates the current high bid and the amount of time remaining to place bids on a given product, then places this information into a file named (for example) *latest_bid.html*. Suppose you visit uBid.com and your browser caches *latest_bid.html*. Then you browse the Web for an hour and revisit uBid.com. Your browser will display the cached page, which now contains old information.

Regardless of the setting you have specified for checking for new pages, you can click the Refresh button in Internet Explorer, or the Reload Current Page button in Firefox, to download the latest page from a server anytime.

In older releases of Firefox, clicking the Reload button would cause the browser to refresh the page from the cache. You could force a download of the page from the server by pressing and holding ENTER while clicking the Reload button.

You can also ensure that you always get the most current pages by clearing the cache before you begin browsing. You can disable caching altogether, but that can slow down browsing, especially on a dial-up connection.

Size of the browser cache

Another browser cache setting that affects performance is the cache size. If your cache size is set to a large number and you work extensively on the Web, you may soon have an overwhelming number of files in your browser cache.

It is difficult to determine a universal optimal size for a browser cache. Optimal size will differ among systems. Connection speed, hard disk size and frequency of browsing sessions should be considered. If you have a broadband Internet connection, a fast processor, and ample hard drive space available, the browser cache size will probably have little or no impact on your Web experience.

If you have a slower Internet connection, such as a dial-up connection, you may want to consider other applications on the system. Do they require disk space to run? Do they write temporary files? How much hard disk space do you need to run all your necessary computer processes without affecting performance? Determining the best size for your browser cache may be a matter of trial and error.

If your cache is too small, you will sacrifice performance because you will spend a lot of time waiting while pages download from the server. Increasing the size of your browser cache can improve performance while browsing, but if your cache is too large, it may slow performance because the browser must search through possibly tens of thousands of cached files to locate a specific page. A cache should be large enough to speed your browsing experience, yet not so large that it slows down your computer.

A cache that is too large may also slow other computer processes. For example, virus scans can take a very long time on a large hard disk, especially if the disk is full of cached Internet files. Also, when you quit Firefox, the browser performs cache maintenance. The larger the size of the cache, the longer it takes to complete the maintenance tasks.

Emptying the cache

When your browser cache is full, the browser automatically deletes old cached files as you continue to browse the Web. In theory, it is not necessary to empty the cache.

However, there are certain advantages to emptying the cache:

- Emptying the cache before beginning a browser session will ensure you get the most current pages.

- Emptying the cache before running a virus scan, disk defragmentation or other disk maintenance can speed those processes.

- Emptying the cache can free disk space.

- Emptying the cache can protect your privacy.

In the following lab, you will configure the browser cache in Firefox. Suppose your IT supervisor has assigned you the task of running virus scans on the hard drives on 10 systems in your corporate office. The systems are used for extensive Internet research. To speed the virus-scanning process, you want to empty the browser cache before beginning the process.

	Lab 4-8: Configuring the browser cache in Mozilla Firefox

NOTE:
See **Optional Lab 4-1: Managing the History folder in Windows Internet Explorer.**

In this lab, you will configure the browser cache in Firefox.

1. Restore the **Firefox** window.

2. Select **Firefox | Options | Options** and select the **Advanced** menu. Select the **Network** tab, as shown in Figure 4-20.
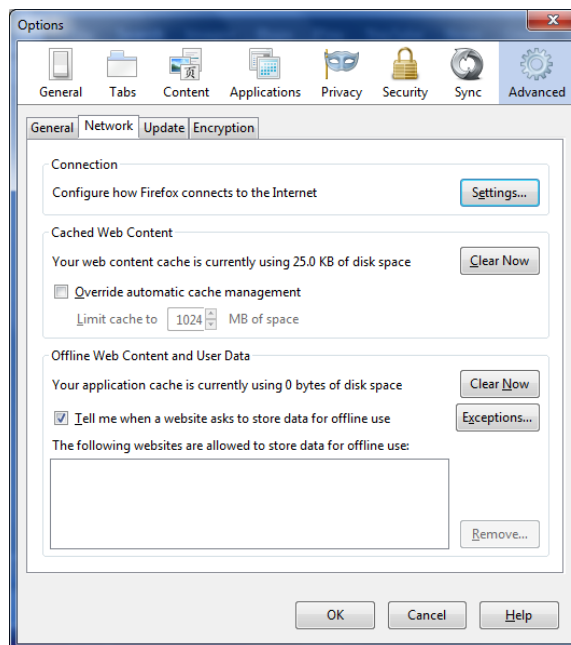

Figure 4-20: Specifying cache settings in Firefox

3. In the Cached Web Content section, click **Override automatic cache management**. Change the cache size limit setting to **25 MB** of space.

4. Next, you will empty the cache. Click the **Clear Now** button.

5. Click **OK** to return to your browser.

6. Close **Firefox**.

Proxy Servers

Many organizations use proxy servers as "middlemen" between their corporate networks and the Internet. The main function of a proxy server is to enhance the corporate network's security and increase its Internet access speed by providing caching server functions for frequently used documents. The caching function is similar to your browser cache, except it caches Web sites for an entire network.

In a network setting, a proxy server replaces the network IP address with another, contingent address. This process effectively hides the actual IP address from the rest of the Internet, thereby protecting the entire network.

Proxy servers can provide the following services:

- **Web document caching** — If corporate users access information from a Web server on the Internet, that information is cached to the local proxy server. This caching allows anyone in the corporate intranet to access the same information from the local system instead of repeatedly downloading the files from the Internet. This feature reduces the amount of network traffic, which leads to improved performance for the corporate intranet and the Internet.

- **Corporate firewall access** — A proxy server can provide safe passage for corporate users through a firewall. You will learn more about firewalls in a later lesson.

Configuring applications to work with a proxy server

NOTE:
The Windows Internet Explorer browser is automatically configured to detect a proxy server on a network. When the browser is used for the first time, it states "Detecting Proxy Settings." If no proxy server is found, it accesses the Internet directly.

If your company network uses a proxy server, all users must be properly configured. For example, to browse the Web, the user (or IT personnel) must configure the browser to address the proxy server. Otherwise, the proxy server will ignore any requests and employees will be unable to access the Internet.

Furthermore, you must configure every application you want to use (such as Telnet and FTP programs) to work with your proxy server. Otherwise, those applications will not be able to access outside networks.

Browsers from both Mozilla and Microsoft provide proxy server configuration, and you can obtain third-party programs that allow almost any application to work properly with a proxy server.

Mozilla Firefox and proxy servers
In Mozilla Firefox, you specify settings for a proxy server in the Connection Settings dialog box, as shown in Figure 4-21. By default, Firefox assumes your computer has a direct connection to the Internet.
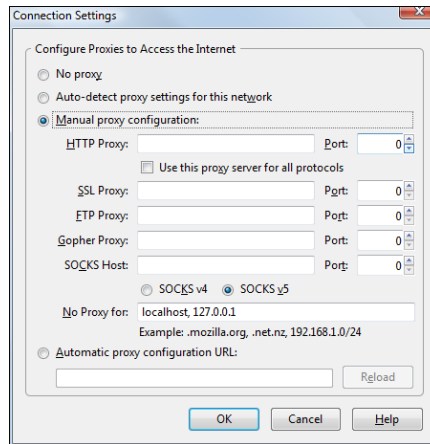
Figure 4-21: Connection Settings dialog box — Firefox

If you need to enter a manual configuration, select Manual Proxy Configuration, and enter the IP address and port number for each service that will use the proxy server.

If the system administrator has set up a proxy configuration file, Firefox can connect to the proxy server's URL automatically. You simply select Automatic Proxy Configuration URL, and enter the URL.

Windows Internet Explorer and proxy servers

Internet Explorer can use a configuration script, or automatically scan, for a proxy server. A configuration script is an executable file (or batch file) written by the server administrator. You run the script, and it will automatically load the necessary settings for the proxy server.

You can also scan for a proxy server when setting up an Internet connection. Click the Setup button on the Connections tab of the Internet Options dialog box, as shown in Figure 4-22.
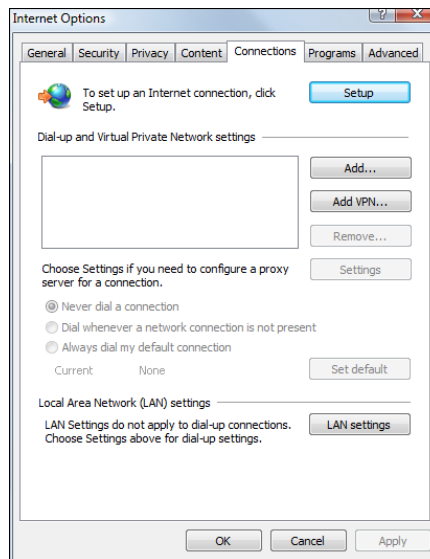

Figure 4-22: Internet Options dialog box, Connections tab — Internet Explorer

Clicking the Setup button will launch the Internet Connection Wizard.

If you already have an Internet connection, you can click the LAN Settings button to display the Local Area Network (LAN) Settings dialog box (Figure 4-23), in which you can manually configure a proxy server.
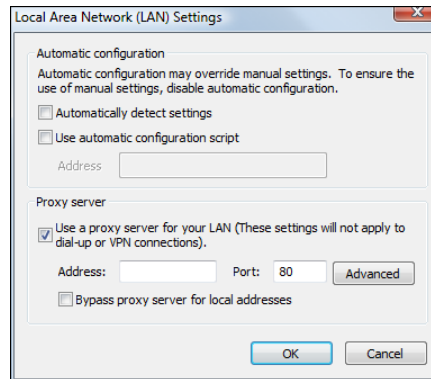

Figure 4-23: Local Area Network (LAN) Settings dialog box — Internet Explorer

Enter the IP address and port number used by the proxy server. By default, Internet Explorer automatically detects your proxy server.

Troubleshooting Internet Client Problems

You are now familiar enough with browser functions and settings to effectively troubleshoot some of the most common Internet client problems, including the following:

- **Poor rendering** — If the text on an older screen is unreadable, you can adjust the font setting to help compensate for lower-resolution monitors.

- **Slow connection** — To improve the performance of computers with slow connections, you can increase the size of the browser cache, change the frequency with which the browser compares cached pages to those on the Web, and disable image loading.

- **No connection** — If your computer is unable to connect to any Web site and your company uses a proxy server, verify that the browser is correctly configured to use the proxy server.

- **Slow browser and other system functions** — Check the size of the browser cache to see whether it is too large. Empty the cache and reset the cache size if necessary to improve system performance.

- **Authentication issues** — Browsers have the ability to store authentication information (e.g., user names and passwords). It is possible that you may need to delete this information or change passwords.

- **Disk space usage** — Temporary files that browsers generate can occupy large amounts of disk space. You may need to adjust the disk space settings or clear the browser cache at times.

CIW Online Resources – Course Mastery

Visit CIW Online at *http://education.Certification-Partners.com/CIW* to take the Course Mastery review of this lesson or lesson segment.

IBA Lesson 4

Case Study

Working the Help Desk

Melissa is the IT person working the help desk, and several employees call her with various issues. Following are some of the complaints she receives:

- Maria says that any and every URL she types in the Address box returns a 404 — Page Not Found error.

- Jake is conducting extensive research on the Web. He says that whenever he visits a new site, it takes "a while" for the pages to load.

- Susan is trying to log on to a partner's extranet. Although she is using the user name and password assigned to her, she cannot log on.

- Ivan is a new employee, and his vision is poor. He needs to work extensively on the Web, but he cannot read most of the text on the Web pages.

Melissa takes the following steps to help these four employees:

- To help Maria, Melissa first verifies that the company network is allowing requests to go out. On another computer, Melissa visits a URL and refreshes the page. Because Maria could not access that same page, Melissa checks her connection settings and discovers that the browser is not configured properly to use the company proxy server.

- To help Jake, Melissa asks if he has cleared his browser cache recently. He does not know, so Melissa locates and discovers that his browser cache is extremely large. She clears the browser history and cache.

- To help Susan, Melissa needs to see whether her system has an authentication problem. Melissa accesses *http://news.netcraft.com* and finds that the server software running on the partner site is IIS version 7. Susan is using an old version of Mozilla Firefox, which is not compatible with IIS 7. Melissa recommends that Susan update her browser to the latest version.

- Melissa demonstrates to Ivan the way to adjust his font settings so that he can comfortably read the pages.

Melissa always remembers that she is part of a team, and that each person on that team is important. She always treats each person with respect, and avoids speaking to anyone in a condescending way. Even though Melissa is the expert, her primary job is to help and support the rest of the company.

*   *   *

As a class, discuss this scenario and answer the following questions:

- What additional steps, if any, could Melissa take to help these employees?

- What other types of calls regarding browsers might be commonly received by a help desk?

Lesson Summary

Application project

Suppose you are the network administrator for a company, and you want to standardize all employee browsers. Each employee computer should use the same browser, default opening page, and links to competitors in the Favorites or Bookmarks menu. Choose a company and configure your browser to meet these standards. For example, suppose your company is Nike. Select your preferred browser and configure it to open by default to *www.nike.com.* Set your competitor links to the Reebok, Adidas and Puma Web sites, for example. In what other ways can you standardize your employees' browsers?

Skills review

In this lesson, you learned about the basic functions of browsers, and you installed a browser and browsed the Web. You looked at the components of Web addresses and identified considerations in selecting a browser. You used various browsing techniques and located resources for technical information on the Web. You learned about the elements that comprise browsers. You also configured browser preferences, reviewed the use of cookies and learned how to block cookies, Lastly, you studied the use of proxy servers, and you learned how to troubleshoot browser issues.

Now that you have completed this lesson, you should be able to:

✓ 1.5.1: Describe a URL/URI, its functions and components, and the different types of URLs (relative and absolute); and identify ways that a URL/URI can specify the type of server/service, including protocol, address, authentication information.

✓ 1.5.2: Navigate between and within Web sites.

✓ 1.5.3: Use multiple browser windows and tabs.

✓ 1.5.4: Identify ways to stop unwanted pop-up and pop-under windows in a browser, ways to avoid activating them, and unintended effects of automatically blocking them.

✓ 1.5.6: Install and use common Web browsers (e.g., Firefox, Chrome, Internet Explorer, Opera, Safari, Lynx).

✓ 1.5.13: Identify benefits and drawbacks of using alternative browsers.

✓ 1.5.15: Explain the purpose and process of anonymous browsing.

✓ 1.5.16: Describe elements found in each browser, including rendering engine, interpreter, sandbox, thread/multi-threading, window, frame, privacy mode, encryption settings, download controls.

✓ 1.9.1: Configure common browser preferences, including fonts, home pages, Bookmarks/Favorites, history, browser cache, image loading, security settings (settings should be common to Mozilla Firefox, Windows Internet Explorer and Google Chrome).

✓ 1.9.3: Describe the concept of caching and its implications, including client caching, cleaning out client-side cache, Web page update settings in browsers.

✓ 1.9.4: Identify issues to consider when configuring the Desktop, including configuring browser (proxy configuration, client-side caching).

✓ 1.9.5: Troubleshoot connectivity issues (e.g., no connection, poor rendering, slow connections) using TCP/IP utilities.

CIW Practice Exams

Visit CIW Online at *http://education.Certification-Partners.com/CIW* to take the Practice Exams assessment covering the objectives in this lesson.

IBA Objective 1.03 Review

IBA Objective 1.05 Review

IBA Objective 1.09 Review

Note that some objectives may be only partially covered in this lesson.

Lesson 4 Review

1. What are four popular browsers used on the World Wide Web today?

    _____

    _____

2. What is the purpose of the History folder?

    _____

    _____

3. What is contained in the browser cache?

    _____

4. What features are the same in various Web browsers? What features are different?

    _____

    _____

5. What is the purpose of anonymous, or incognito, Web browsing? What does it do differently than standard Web browsing?

    _____

    _____