

Protect Your Privacy When Browsing the Web

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When you use an Internet browser such as Internet Explorer or Netscape to explore the Web, there is the potential risk that your private information could be captured by websites you visit, or by other ill-intentioned people on the Internet. While many websites collect data that cannot personally identify you, you still may not wish to share it. This information can be captured in a variety of ways, including cookies, your browser's history and cache, and web forms you complete.

HOW WEBSITES OBTAIN YOUR INFORMATION

Certain websites require you to sign up before you can use their services. The online version of *The New York Times* is one example. Before you can read any articles, the website requires that you register by answering a number of questions about yourself. Alternately, sites that offer you free things often require that you fill out a form or complete a survey that can potentially collect personal information. "Personality tests" and other novelty tests and polls are another method. Many websites also collect information based on the choices you make

on a website and store the data in cookies.

Most reputable websites (and some not so reputable) post their privacy policies for the public to view. This type of policy generally outlines what kind of information is collected and how that information is used. It may also state the conditions upon which any service is rendered (terms of service). Some websites will share information they collect from you with other vendors and/or partners who will approach you with related offers. This may increase unwanted commercial offers from third party vendors, who in turn will share your information with yet more partners/vendors. If this is not acceptable, avoid these websites and/or request that they remove all your information.

Following are some things to keep in mind to protect your privacy when browsing the Web.

WEB FORMS

Web forms request information about you in order to provide you a service. In the previous *New York Times* example, the registration process requires you to fill out a web form and submit it before you can gain full access to the site. Internet Explorer (IE), Netscape,

and Safari all offer tools to help save you time with such forms by storing your personal information in the browser settings. If activated, these tools can automatically fill in the information that you have saved (e.g., your first and last name, e-mail address, telephone number, postal address, etc.) when you start filling out a new form. The Netscape tool is called the Forms Manager, IE offers AutoComplete and the Microsoft Profile Assistant, and Safari offers the OS X Address Book and the System Keychain. Because other websites and/or people may be able to gain access to the data, you should consider removing your personal information from these tools.

To delete cookies in IE, Netscape, or Safari, follow the instructions below. For other web browsers, see their help menu or visit their support website.

How to Delete Your Stored Forms Information

Internet Explorer for Windows

In the Tools menu, select "Internet Options." Click on the Content tab, and then click "AutoComplete." Finally, click "Clear Forms" and "Clear Passwords."

Internet Explorer for Macintosh

In the Explorer menu, select “Preferences.” Click on the “Forms AutoFill” category then on the “Forms AutoComplete” subcategory. Click “Delete,” then select the “Disabled” option.

Netscape for Windows and Mac

In the Tools menu, select “Form Manager,” then “Edit Form Info.” Click “Remove all saved data.”

Safari for Mac

In the Safari menu, select “Preferences.” Click the AutoFill tab and uncheck all boxes. Click each “Edit” button, then select “Remove All” where available.

COOKIES

Cookies are pieces of information created in the normal course of browsing the Web that are stored in small files on your computer’s hard disk to facilitate many web functions. For example, if you shop online, the website may create a cookie to keep track of the items that are in your “online shopping cart.” Or, if you enter a website that requires you to log in, a cookie may be used to store information about your current visit to facilitate your future access to the site.

Cookies help websites determine who is logged in, what activities you perform while you are on the site, and when your session is ended. Websites may also use cookies for other purposes, such as targeted online advertisements (showing ads that they think you will be interested in, based on your past online activity), for saving “preferences” you may have set for the appearance, layout, or content of a site, or for “remembering” your name and past activities every time you visit (as seen on <http://www.barnesandnoble.com>, for example).

Although most cookies are intended to facilitate or customize your web browsing experience, they also pose a potential risk. After a cookie is stored on your computer, it could be accessed by remote computers to obtain information about you that you might not want to share, including the websites you visit, how often you visit them, and what ads have been displayed on those sites.

How to Delete Your Cookies

You can prevent this sort of information harvesting by manually deleting cookies from your hard drive on a regular basis. Some cookies may store “expiration” dates, but even after this date passes, the cookie will remain on your hard disk, where it could still be accessed by remote websites until you delete it.

With modern browsers, you can also control which websites can store information in cookies, and you can even specify when to store cookies and when not to. For configuration instructions of this sort, see your browser’s help menu or visit your browser’s support website.

To delete cookies in IE, Netscape, or Safari, follow the instructions below. For other web browsers, see their help menu or visit their support website. A word of caution before you proceed: because cookies save the preferences and other information described above, the next time you visit your favorite websites, the appearance or sign-in process may be different. If you prefer, most browsers will allow you to select specific cookies to delete, allowing you leave other cookies in place.

Internet Explorer for Windows

In the Tools menu, select

Internet Options, then click “Delete cookies.”

Internet Explorer for Macintosh

In the Explorer menu, select “Preferences.” In the window that opens, in the “Receiving Files” category, select the “Cookies” subcategory. On the right, click on the cookie(s) you wish to delete, then click “Delete.”

Netscape for Windows

In the Edit menu, select “Preferences.” In the window that opens, in the “Privacy & Security” category, select the “Cookies” subcategory. Click “Manage Stored Cookies” on the right and then click “Remove All” to delete all cookies.

Netscape for Macintosh

In the Netscape menu, select “Preferences.” In the window that opens, select “Privacy & Security,” then the “Cookies” subcategory. Click “Manage Cookies” on the right and then click “Remove All” to delete all cookies.

Safari for Macintosh

In the Safari menu, select “Preferences.” In the window that opens, select the Security icon, then click “Show Cookies.” Next, either select the specific cookies you would like to delete and click “Remove,” or click “Remove All.”

BROWSER HISTORY

All modern browsers keep a history, or record, of all the websites you have visited in the recent past. By default, Netscape keeps history data for the previous nine days, while IE stores information for the past twenty days. If you can visit several different websites in a few minutes, imagine how many websites you may have visited in the last twenty days!

Deleting this history—which certain websites and anyone who uses your computer can access—will help protect your privacy.

How to Clear the History

To delete the browser history in IE, Netscape, or Safari, follow the instructions below. For other browsers, see their help menu or their support website. A word of caution before you proceed: if you use your history to access websites that you've visited in the past, you should set bookmarks for those sites before clearing your history.

Internet Explorer for Windows

In the Tools menu, select “Internet Options,” then click “Clear History.”

Internet Explorer for Mac OS X

In the Explorer menu, select “Preferences.” In the window that opens, select “Web Browser,” then the “Advanced” subcategory. Then, in the History section on the right, click “Clear History.”

Netscape for Windows

In the Edit menu, select “Preferences.” In the window that opens, in the “Navigator” category, select the “History” subcategory. Then click “Clear History” on the right.

Netscape for Mac

In the Netscape menu, select “Preferences.” In the window that opens, in the “Navigator” category, select the “History” subcategory. Then click “Clear History” on the right.

Safari for Macintosh

Go to the History menu and select “Clear History.”

THE CACHE

A browser cache is a special storage location on your computer for temporary files that can

improve the speed and performance of your web browser. The cache (pronounced *cash*) stores content that does not change often, so that a web page you've visited can load more quickly the next time you return.

For instance, while the headline news on *The New York Times* on the Web changes frequently, their logo does not, so it can be stored in the cache. This way, your web browser does not have to download the logo image every time you visit the site.

Since there is no way to predict what the Web browser will store in the cache, some private information may be stored there. Emptying the cache periodically will help protect your privacy.

How to Empty the Cache

To empty the cache in IE, Netscape, or Safari, follow the instructions below. For other browsers, see their help menu or their support website. A word of caution before you proceed: websites you've visited in the past may take a bit longer to load the next time you go there.

Internet Explorer for Windows

In the Tools menu, select “Internet Options,” then click “Delete Files.” Click “OK” when prompted.

Internet Explorer for Mac OS X

In the Explorer menu, select “Preferences.” In the window that opens, in the “Web Browser” category, select the “Advanced” subcategory. In the Cache section on the right, click “Empty Now.”

Netscape for Windows

In the Edit menu, select “Preferences.” In the window that opens, in the “Advanced” category, select the “Cache”

subcategory. Then click “Clear Cache” on the right.

Netscape for Macintosh

In the Netscape menu, select “Preferences.” In the window that opens, in the “Advanced” category, select the “Cache” subcategory. Then click “Clear Cache” on the right.

Safari for Macintosh

Go to the Safari menu and select “Empty Cache...”

OTHER BROWSER PRIVACY STRATEGIES

Recommended

Set your cache size low.

Setting the space designated for cache files to a low level will help limit the amount of information that is stored on your computer. To do this, adjust the size of the cache to a lower level—an option that is usually available in the cache area described in the previous section (if not, see your browser's help menu or support website for instructions). We recommend setting your cache to no more than 100 MB.

Limit the History.

You can lower the number of websites kept in your history by reducing the number of days worth of history that your web browser keeps. In IE for Windows' Tools menu, select “Internet Options,” and, in the History section, enter the number of days that you want to keep a record of the sites you've visited. In Netscape's Edit menu, select “Preferences,” then, in the “Navigator” category, select the “History” subcategory.

Please note that setting the history to zero days will not keep any websites in the history, and you will not be able to use the history to visit web pages that you have visited previously.

Take control of your cookies.

Browsers like Netscape and Mozilla allow you to manage your cookies with a feature called Cookie Manager. With it, you can set your browser to accept cookies if the server that originated the cookie is the same as the website that you are visiting; to accept session cookies; to reject third-party cookies (cookies that are set by a website other than the one you are visiting); or to prompt (ask) you to accept or deny any cookie before it is saved to your computer. This browser feature also allows you to keep a list of “always-accept” or “always-deny” websites. IE for Windows offers a similar feature; in the Tools menu, select “Internet Options,” and, in the Privacy tab, click “Advanced,” or, to specify a list of sites, click “Edit.”

Use IE's Security Zones.

Internet Explorer's Security Zones allow you to configure different levels of security for websites that you visit. The feature includes five predefined zones: Internet, Local Intranet, Trusted Sites, Restricted Sites, and My Computer. You can set the security options that you want for each zone, and then add or remove websites from the zones, depending on your level of trust in a website. Instructions are available on the Microsoft website: search for “Microsoft Knowledge Base Article—174360” at <http://support.microsoft.com/>.

Review websites' privacy policies.

As stated earlier in this article, most websites have a policy about collecting and sharing your personal information. It is a good idea to read these policies on sites you visit frequently, or before sub-

mitting any personal information to a site.

Use a secure browser when submitting personal/financial info.

Most modern browsers support secure browsing. This means that the information you enter while browsing securely will be encrypted so that only the proper party can read it. The URLs (web addresses) of secure sites begin with <https://> instead of just <http://>. Another sign that the site is secure is if you see a small lock icon in the browser's status bar (usually at the bottom of the window).

Strategies Worth Considering

Use a different browser.

There is a new generation of web browsers available (including Mozilla, Firefox, and Opera) that take privacy concerns more seriously. They can be downloaded from the Internet for free.

Use a third-party program to manage your privacy.

There are literally dozens of programs that can help you protect your privacy while browsing the Web. Some of these programs may be obtained and used at no cost, while others are commercial programs that you have to purchase. A simple search at Download.com or Google will present you with many tools for controlling the privacy of your web browsing, such as Cookie Cutter, Cookie Crusher, Norton Internet Security, Trend Micro's PC-cillin, or McAfee Security Center.

For the Very Cautious

Empty the cache each time you close your browser.

In Internet Explorer for Windows, a setting to automatically delete the

temporary Internet files each time you close your browser is available in the Advanced tab (under the Tools menu, select Internet Options then click the Advanced tab). This option is also available in the Opera web browser.

Use anonymous browsing.

There are websites that provide the ability to browse the Web anonymously. Simply enter the website address that you would like to view, and the site will be accessed for you. Note, however, that this service may not work for all websites. Some sites, such as Anonymizer.com, also provide software that can further protect your privacy.

OTHER BROWSER PRIVACY RESOURCES

The following resources may help you better understand issues of privacy and security when browsing the Web:

More about cookies:

<http://pages.zdnet.com/hampsi/Articles/Cookie2.htm>

Online browser security check:

<http://www.verisign.com/advisor/check.html> or <http://browsercheck.qualys.com/>

Stay Safe Online:

<http://www.staysafeonline.info/>

Sans Top 20 Internet Vulnerabilities:

<http://www.sans.org/top20/>

If you have questions about browser security, please call the ITS Client Services Center at 1-212-998-3333, or send e-mail to its.clientservices@nyu.edu. You can also contact the author directly at: eduardo.deleon@nyu.edu.

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