



## Internet Explorer 6 Technical Overview

*Microsoft Corporation*

*Published: August 2001*

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### **Abstract**

Designed as an overview for IT professionals, this article summarizes what's new in Internet Explorer 6 for general users, developers, and designers. It explains support for the in-development Platform for Privacy Preferences Project (P3P), at the World Wide Web Consortium's (W3C), aimed at providing enhanced privacy protections to Web users. In addition, it introduces ways of managing Internet Explorer in a corporate environment using Group Policy settings and the Internet Explorer Administration Kit (IEAK).

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## **Acknowledgements**

Pablo Ferricola, program manager, Microsoft Corporation.

John Kaiser, technical editor, Microsoft Corporation.

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## **Introduction**

Internet Explorer 6 improves the overall browsing experience and provides new levels of customization for developers and designers. This article summarizes what's new in Microsoft® Internet Explorer 6 for users, developers, and designers. It explains how Internet Explorer 6 provides enhanced privacy protections as part of the World Wide Web Consortium's (W3C) Platform for Privacy Preferences Project (P3P). In addition, it introduces ways of managing Internet Explorer in a corporate environment using Group Policy settings and the Internet Explorer Administrator's Kit (IEAK).

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## What's New for Users

Internet Explorer 6 provides the following enhancements that simplify the browsing experience and enable even novice users to take advantage of the functionality and power of the Microsoft® Windows® platform.

- **Privacy and security enhancements.** Internet Explorer 6 gives you greater control over how cookies can be used in collecting information.
- **Media Bar.** Listening or viewing streaming media is easier and more convenient with the Media Bar which appears in the left pane of the screen.
- **Image Toolbar.** It's easier to process images with the new Image Toolbar. When you move the mouse pointer over an image, Internet Explorer 6 displays a toolbar that enables you to save the image (the default location is the My Pictures folder), print or e-mail the image, or open the My Pictures folder.
- **Automatic image resizing.** If you open a large image, Internet Explorer 6 scales it to fit the size of the browser window and includes a button to expand the image to full size.
- **Print preview.** With greater control over printing of individual frames, it's easier to check pages before you print them. First introduced in version 5.5 of Internet Explorer, print preview has been improved to enable you to verify information for printing. You can zoom in and out of the page being previewed.
- **Improved reliability.** Internet Explorer 6 is more stable than ever before. And, if the browser fails, error reporting lets you report it to Microsoft, including failures on third-party extensions. As part of this process, the error reporting mechanism will inform you if the problem is already known and if there is a fix for it.
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## What's New for Developers

Internet Explorer 6 provides new features and new levels of customization and control for developers:

- **Privacy.** As a Web content developer or site administrator, you should deploy a P3P compact policy if your site uses cookies. A P3P compact policy is a tokenized or compressed form of the site's full XML P3P policy, which states the site's data collection and personal information handling policies. For developers using Internet Explorer as part of their applications, Microsoft will provide APIs to control the privacy settings from applications. For more information, see [Privacy in Internet Explorer 6](http://msdn.microsoft.com/library/en-us/dnie60/html/ie6privacyfeature.asp) at <http://msdn.microsoft.com/library/en-us/dnie60/html/ie6privacyfeature.asp>.
- **Image Toolbar.** As a content developer, you can disable the Image Toolbar, so that it does not appear when users move the pointer over images in your pages. This provides you with more control over the user experience on your site. As with previous versions of Internet Explorer, users can still right-click images to save or print them, as well as send them via e-mail. The Image Toolbar can be disabled either through a meta tag, `<META HTTP-EQUIV="imagetoolbar" CONTENT="no">` or by setting the attribute `GALLERYIMG="no"` to an `IMG` tag element.
- **Windows XP user interface support.** When running on Windows XP, Internet Explorer 6 shares a common user interface with the Windows XP platform. Alternatively, you can choose not to have your HTML content look like the operating system for elements such as buttons and scroll bars. To disable the look of Windows XP in your HTML content, add the following META tag: `<META HTTP-EQUIV="MSThemeCompatible" Content="No">`.
- **Standards support.** As part of rounding off support for the CSS and DOM level 1 standards, Internet Explorer 6 incorporates support for the `optgroup` element and introduces DOM methods such as `getAttributeNode`, `setAttributeNode`, `createAttribute`, and others. For more information, see the [optgroup documentation](http://msdn.microsoft.com/library/default.asp?url=/workshop/author/dhtml/reference/objects/optgroup.asp) at <http://msdn.microsoft.com/library/default.asp?url=/workshop/author/dhtml/reference/objects/optgroup.asp> and [DHTML methods](http://msdn.microsoft.com/library/default.asp?url=/workshop/author/dhtml/reference/methods.asp) at <http://msdn.microsoft.com/library/default.asp?url=/workshop/author/dhtml/reference/methods.asp>.
- **Content restricted IFrames.** Many developers use IFrames to display HTML content—to provide Web-based e-mail applications or build browser applications, for example. This feature enables developers to enhance the security of IFrames by disabling script for their content. Developers can thereby make it more difficult for malicious authors to launch e-mail or content-based attacks. Microsoft recommends that you apply this restriction to IFrames that host arbitrary content. For more information, see the [Iframe documentation](http://msdn.microsoft.com/workshop/author/dhtml/reference/objects/IFRAME.asp) at <http://msdn.microsoft.com/workshop/author/dhtml/reference/objects/IFRAME.asp>.
- **Popup.** First introduced in Internet Explorer 5.5, the popup feature enables you to display HTML content outside the browser area. It is essential for implementing functionality such as ToolTips and menus. For more information, see the [popup documentation](http://msdn.microsoft.com/workshop/author/dhtml/reference/objects/popup.asp) at <http://msdn.microsoft.com/workshop/author/dhtml/reference/objects/popup.asp>.
- **Mouse wheel events.** Internet Explorer 6 introduces a new set of events related to the use of the mouse wheel. These events enable your content or application to better react to user input. For more information,

see the [mouse wheel events documentation](http://msdn.microsoft.com/workshop/author/dhtml/reference/events/onmousewheel.asp) at <http://msdn.microsoft.com/workshop/author/dhtml/reference/events/onmousewheel.asp>.

- **Component model—behaviors.** Internet Explorer 5 introduced attached behaviors (submitted to the W3C in 1999, published as a working draft). Attached behaviors enable you to separate content from script, re-use blocks of functionality, and better manage content. In version 5.5, Microsoft enhanced this model with the introduction of:
  - Element behaviors, which allow synchronous parsing. Viewlinks were introduced as part of element behaviors to enable a higher level of encapsulation, which is very useful when creating UI elements.
  - Layout behaviors, which allow your element to participate and alter the layout of the page.
  - Rendering behaviors, which enable the development of elements with custom rendering integrated with the page's content.
  - In Internet Explorer 6, Microsoft enhanced support for literal content within element behaviors by introducing support for nested literals. Significant performance improvements were achieved for pages using multiple instances of the same behavior. Microsoft strongly encourages that functionality packaged as Microsoft® ActiveX® Controls be migrated to the behavior model. For more information, see [DHTML Behaviors](http://msdn.microsoft.com/library/default.asp?url=/workshop/author/behaviors/overview.asp) at <http://msdn.microsoft.com/library/default.asp?url=/workshop/author/behaviors/overview.asp>.
- **XML.** Internet Explorer 6 includes support for [MSXML 3.0](http://msdn.microsoft.com/library/default.asp?url=/library/en-us/dnmsxml/html/xmlparser.asp), providing better performance and up-to-date XML standards support. For more information, see [What's New in the Microsoft XML Parser Version 3.0 Release](http://msdn.microsoft.com/library/default.asp?url=/library/en-us/dnmsxml/html/xmlparser.asp) at <http://msdn.microsoft.com/library/default.asp?url=/library/en-us/dnmsxml/html/xmlparser.asp>.
- **.NET integration.** WebService behavior makes integration of server and client side code easier, and enables applications to call functions on the server asynchronously. You can use this behavior to avoid page navigations and to retrieve data from the server using XML and SOAP. For more information, see [SOAP: Simple Object Access Protocol](http://msdn.microsoft.com/xml/general/soapspec.asp) at <http://msdn.microsoft.com/xml/general/soapspec.asp>.
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## What's New for Designers

- **CSS standards support.** Building on top of the functionality of previous versions, Internet Explorer 6 now provides full support for CSS Level 1. Designers can adjust margins, borders, and padding on inline elements, modify first-letters and first-lines, and implement dotted and dashed borders. To force Internet Explorer to operate in strict mode, include the !DOCTYPE switch as part of your document, which makes the box model and body layout conform to CSS Level 1. Documents without the !DOCTYPE declaration behave as they did in previous versions, thereby maintaining backward compatibility. For more information, see [DHTML Properties](http://msdn.microsoft.com/library/default.asp?url=/workshop/author/dhtml/reference/properties.asp) at <http://msdn.microsoft.com/library/default.asp?url=/workshop/author/dhtml/reference/properties.asp>.
- **Automatic ellipses for text overflow.** When text content overflows the bounds of its container, Internet Explorer 6 provides support for ellipses. Microsoft is working with the CSS Working Group at the W3C to incorporate this functionality in future enhancements to the CSS specification.
- **Improved print quality.** In version 5.5, Internet Explorer underwent a major overhaul of its print architecture, mainly to introduce the Print Preview capability. In Internet Explorer 6, the printing model has been improved. It avoids clipping lines at page boundaries, and relies on high-definition measurement to improve the text spacing quality and make pages look the same on different printers. For applications that host the Web Browser control, it is now possible to customize printing and print preview templates to a much higher degree than in the previous version (for headers and footers, watermarks, and so on).
- **Multimedia.** Internet Explorer 6 increases support for the W3C Synchronized Multimedia Working Group's SMIL 2.0 recommendation through a new version of HTML+TIME. This technology simplifies the integration of media content—text, images, audio, and video—with the rest of the document's HTML content in a declarative way, without requiring script. HTML+TIME also enables authors to synchronize page elements and animations (including motion paths) with media. For more information about SMIL, see [Synchronized Multimedia Integration Language](http://www.w3.org/TR/smil20/) at <http://www.w3.org/TR/smil20/>. Newly supported in Internet Explorer 6 are declarative transitions.
- **Standards support.** Internet Explorer 6 supports CSS level 1 and DOM level 1, as well as enhances support for HTML 4.0—all recommendations from the W3C.
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## Privacy and Security Enhancements

Internet Explorer provides a number of features that help to protect your privacy and make your computer and your personally identifiable information more secure.

Privacy features allow you to protect your personally identifiable information by helping you to understand how Web sites you view may be using this information and by allowing you to specify privacy settings that determine whether or not you want to allow Web sites to save cookies on your computer.

Privacy features in Internet Explorer include:

- Privacy settings that specify how your computer deals with cookies. Cookies are files created by a Web site that store information on your computer, such as your preferences when visiting that site. Cookies may also store personally identifiable information, such as your name or e-mail address.
- Privacy alerts that let you know when you try to gain access to a site that doesn't meet the criteria in your privacy settings.
- The ability to view a Web site's P3P privacy policy.

Although earlier versions of Internet Explorer provided some cookie management, Internet Explorer 6 provides a much higher level of sophistication in controlling cookies. This feature is based on the work being developed at the W3C by the Platform for Privacy Preferences Project (P3P) Working Group in its P3P specification.

### What is P3P?

The Platform for Privacy Preferences Project (P3P) is a set of technologies that enables Web sites to express their privacy practices in a standardized format that can be automatically retrieved and interpreted by user agents. The goal is to help users be informed about Web site practices by simplifying the process of reading privacy policies. P3P relieves users from having to read the privacy policies at every site they visit. With P3P, key information about the data that is collected by a Web site can be automatically conveyed to users. Any discrepancies between a site's practices and the user's preferences can be automatically flagged.

### Privacy policies

A Web site's privacy policy tells you what kind of information the Web site collects, to whom it gives that information, and how it uses the information. Personally identifiable information is information that can be used to identify or contact you, such as your name, e-mail address, home or work address, or telephone number. However, a Web site only has access to the personally identifiable information that you provide, or to the choices you make while visiting a Web site. For example, a Web site cannot determine your e-mail name unless you provide it. A Web site cannot gain access to other information on your computer. If a Web site collects personally identifiable information, it may store the information in a cookie, a small file that it saves on your computer.

Many Web sites provide privacy statements as written documents that you can view on the Internet. Web sites also might provide a Platform for Privacy Preferences (P3P) privacy policy. If a Web site has a P3P privacy policy, Internet Explorer can display it. Internet Explorer can also compare your privacy settings to a

representation of the P3P privacy policy and determine whether or not to allow the Web site to save cookies on your computer.

### Controlling cookie settings with Internet Explorer

Internet Explorer 6 enables you to control whether cookies are accepted, based on your privacy preferences and the Web server's privacy policy. If cookies are sent by a Web server without a privacy policy, or by a server with a policy that does not match your preferences, those cookies are rejected and you are alerted to this event. You can control what privacy policy is required for cookies to be placed on your computer by changing the settings in the Privacy tab of the Internet Options dialog box as shown in Figure 1 below.



Figure 1. Adjusting cookie settings.

### Using security features

Security features help to prevent people from gaining access to information that you have not given them permission to access, such as credit card information you enter when shopping on the Internet. Security features can also protect your computer from unsafe software.

Security features in Internet Explorer include:

## Certificates

- You can use certificates to protect your personally identifiable information on the Internet, and to protect your computer from unsafe software. A certificate is a statement verifying the identity of a person or the security of a Web site.

Internet Explorer uses two different types of certificates:

- **Personal certificate.** Verifies that you are who you say you are. This information is used when you send personal information over the Internet to a Web site that requires a certificate verifying your identity. You can control the use of your own identity by having a private key that only you know on your own computer. When used with e-mail programs, security certificates with private keys are also known as "digital IDs."
- **Web site certificate.** States that a specific Web site is secure and genuine. It ensures that no other Web site can assume the identity of the original secure site. When you are sending personal information over the Internet, it is a good idea to check the certificate of the Web site you are using to ensure that it will protect your personally identifiable information. When you are downloading software from a Web site, you can use certificates to verify that the software is coming from a known, reliable source.

## How do security certificates work?

A security certificate, whether it is a personal certificate or a Web site certificate, associates an identity with a "public key." Only the owner of the certificate knows the corresponding "private key." The "private key" allows the owner to make a "digital signature" or decrypt information encrypted with the corresponding "public key." When you send your certificate to other people, you are actually giving them your public key, so they can send you encrypted information that only you can decrypt and read with your private key.

The digital signature component of a security certificate is your electronic identity card. The digital signature tells the recipient that the information actually came from you and has not been forged or tampered with.

Before you can start sending encrypted or digitally signed information, you must obtain a certificate and set up Internet Explorer to use it. When you visit a secure Web site (one whose address starts with "https"), the site automatically sends you its certificate. Security certificates are issued by independent certification authorities. There are different classes of security certificates, each one providing a different level of credibility.

## 128-bit secure connection

Internet Explorer supports 128-bit encryption, the highest level of protection possible for all your Internet communications, including credit card use and financial transactions.

## Microsoft Authenticode technology

- Microsoft Authenticode technology verifies the identity of programs you download. Authenticode technology verifies that the program has a valid certificate: that the identity of the software publisher matches the certificate, and that the certificate is still valid. Note that this does not prevent a poorly written program from being downloaded or run on your computer, but it does reduce the chance of someone misrepresenting a program that is intended to be malicious or intentionally harmful. You can specify different settings for the way Internet Explorer handles downloading programs and files, depending on the zone they are coming from. For example, you might be confident that anything you download within your corporate intranet is safe. So,

you might set your security settings for your Local intranet zone to a low level to allow downloading with little or no prompting. If the source is in the Internet zone or the Restricted sites zone, you might want your security levels set to Medium or High. Then, you'd be prompted with information about the program's certificate before it is downloaded, or you might not be able to download it all.

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## Managing Internet Explorer 6 in a Corporate Environment

In a corporate environment, administrators manage Internet Explorer 6 through:

- **Internet Explorer Maintenance Snap-in.** In a Windows 2000 Server Active Directory™ service environment, administrators can use Group Policy to manage Internet Explorer.
- **Internet Explorer Administration Kit (IEAK).** In other environments, administrators can use IEAK to manage and deploy Internet Explorer. IEAK can also be used in conjunction with Group Policy.

### Internet Explorer Maintenance Snap-in

The Internet Explorer Maintenance extension snap-in includes Group Policy settings to manage the following:

- **Browser User Interface.** Administrators use these options to customize the browser's appearance. For example, you can specify settings for the browser title bar, toolbar button options, and so on.
- **Connection Settings.** Administrators can preset and manage the connection settings, such as local area network (LAN) and dial-up options.
- **Custom URLs.** Administrators can specify which URLs are displayed by the browser, for example, for the Home page, those on the Favorites list, and for the Search page.
- **Security.** Administrators can preset security settings such as security zones, content ratings, and Authenticode. (A browser can be configured to allow only signed code to be downloaded. Authenticode is Microsoft's version of object signing; it provides a basis for verifying the origin and integrity of an object, as well as links to policies of a certificate authority).
- **Program Associations.** Administrators can specify which Internet programs to use by default for Internet-related tasks such as reading e-mail or viewing newsgroups.

The Internet Explorer Maintenance snap-in is part of the Group Policy snap-in as shown in Figure 2 below.

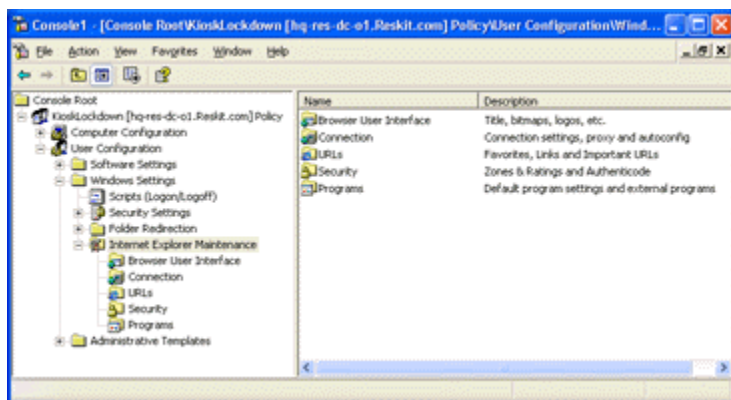


Figure 2. Using the Internet Explorer Maintenance Snap-in.

### **Exporting Internet Explorer Settings for Earlier Clients**

Administrators can export Internet Explorer policy settings into an auto-configuration package (an .ins file and its associated .cab files) to be used to apply these settings to client computers running Windows 95, Windows 98, or Windows NT 4.0. The exported packages are auto-configuration packages.

Before the Windows 2000 Group Policy MMC snap-in extension was created, Internet Explorer settings were applied to Internet Explorer clients using auto-configuration packages after Internet Explorer installation. Using Group Policy Objects (GPOs) is the preferred method of applying Internet Explorer policy settings on clients running Windows 2000 or later, although Windows 2000 does support auto-configuration packages.

For more information, see [Windows 2000 Group Policy](http://www.microsoft.com/windows2000/technologies/management/default.asp#section10) at <http://www.microsoft.com/windows2000/technologies/management/default.asp#section10>.

### **Internet Explorer Administration Kit (IEAK)**

In addition to the Internet Explorer Maintenance Group Policy options mentioned above, it is also possible to customize Internet Explorer before deployment and to manage Internet Explorer on other operating systems by using the [Microsoft Internet Explorer Administration Kit](http://www.microsoft.com/windows/ieak/default.asp) at <http://www.microsoft.com/windows/ieak/default.asp>.

IEAK provides tools for System Policies and restrictions that administrators can use to specify desktop, shell, and security settings. For example, the System Policies and Restrictions folder of the Internet Explorer Profile Manager contains nine default policy template (.adm) files to specify policies and restrictions. These are saved to information (.inf) files, which are packaged into the automatic configuration companion cabinet (.cab) files for download to a user's system. When these .inf files are unpacked, they are used to change policies and restrictions on users' systems.

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## Summary

This article highlights new features in Internet Explorer and explains how they benefit general users, developers, and designers. Internet Explorer 6 provides new privacy and security features that make enable users to better customize the browsing experience and protect their data. Administrators can manage Internet Explorer 6 in a corporate environment by using Internet Explorer Maintenance snap-in as part of Group Policy in a Windows 2000 Server Active Directory environment. Administrators can also use the Internet Explorer Administration Kit (IEAK).



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## Related Links

- [MSDN Internet Explorer Web site](http://msdn.microsoft.com/library/default.asp?url=/nhp/Default.asp?contentid=28000441) at <http://msdn.microsoft.com/library/default.asp?url=/nhp/Default.asp?contentid=28000441>.
- [Microsoft Internet Explorer Web site](http://www.microsoft.com/windows/ie/) at <http://www.microsoft.com/windows/ie/>.
- [Internet Explorer Downloads](http://www.microsoft.com/windows/ie/downloads/) at <http://www.microsoft.com/windows/ie/downloads/>.
- [Microsoft Internet Explorer Administration Kit](http://www.microsoft.com/windows/ieak/default.asp) at <http://www.microsoft.com/windows/ieak/default.asp>.
- [Windows 2000 Group Policy](http://www.microsoft.com/windows2000/technologies/management/default.asp#section10) at <http://www.microsoft.com/windows2000/technologies/management/default.asp#section10>.
- [W3C Platform for Privacy Preferences](http://www.w3.org/P3P/) at <http://www.w3.org/P3P/>.
- [Windows XP Web site](http://www.microsoft.com/windowsxp/) at <http://www.microsoft.com/windowsxp/>.