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Firefox VS Windows Internet Explorer

GSEC Gold Certification

Author: Robert Comella, gremlinscs@aol.com

Adviser: Richard (Rick) Wanner B.Sc., I.S.P.

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1. Introduction

In my years as an IT professional I can not tell you the number of times I have had a client ask, "When you go online, do you use Internet explorer? Are there any other choices? Are they better?" In the world of computers, indeed in most professions, it is rare that you can give a straight short answer to any question. Eagerly I answer the first two questions with "No" and "ABSOLUTELY!" Unfortunately the last is a little harder to answer and its best short answer is, "it depends." That, of course, begs the question, "On what does it depend?" and that is what this paper examines.

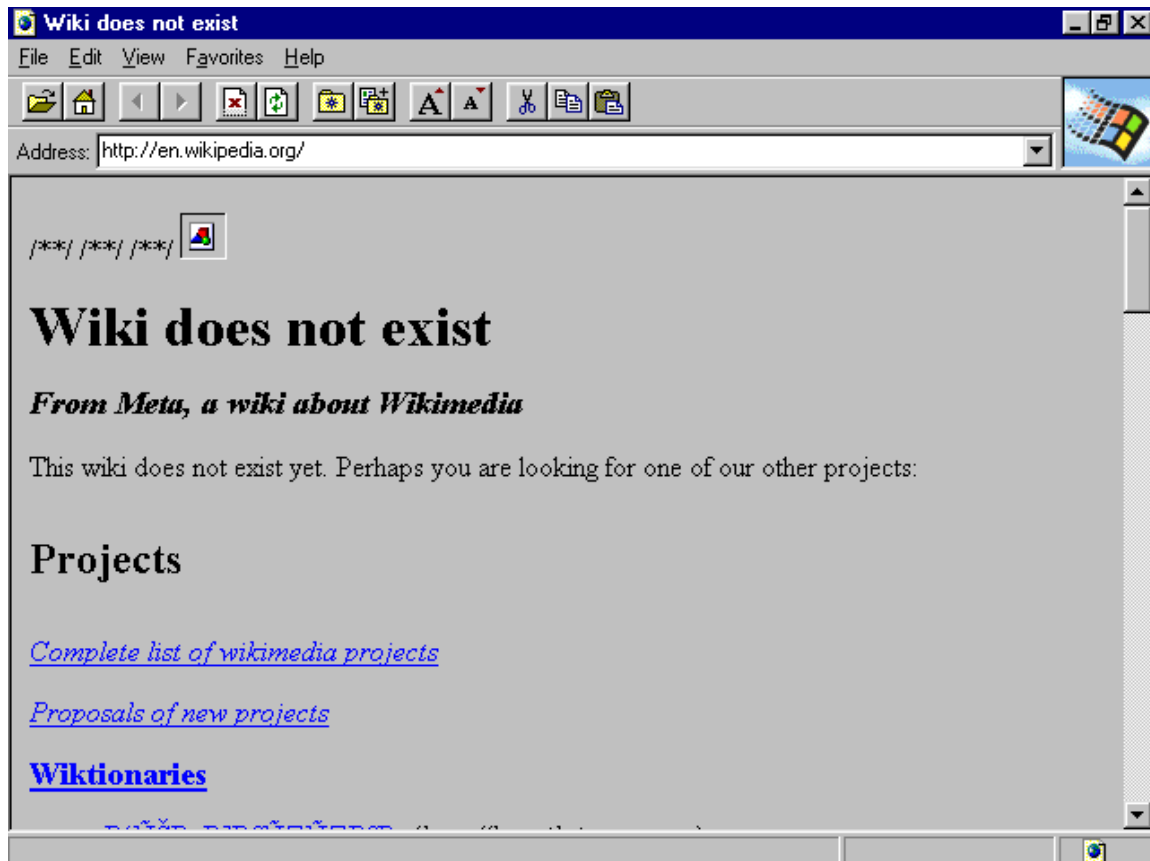
There is a plethora of browsers available, and I have played with many of them. For the sake of brevity, I will focus on the two main competitors in the market at this time, Mozilla's Firefox 2.0.0.6 and Microsoft's Windows Internet Explorer 7.x. I am sure someone out there will stomp their feet because they happen to love e-links or some other piece of software. Sadly for them though, I am afraid most people do not even know that choices outside of Microsoft exist and I would hardly recommend them to my octogenarian clients.

I plan on following a simple format. First I will introduce the two programs and tell you a little about their history. Then I will compare several aspects of the two, including user experience, features, security, and corporate integration. Finally at the end of the paper I will give my opinions as to which browser outperforms the other in varying situations.

1.1. Internet Explorer From the Beginning

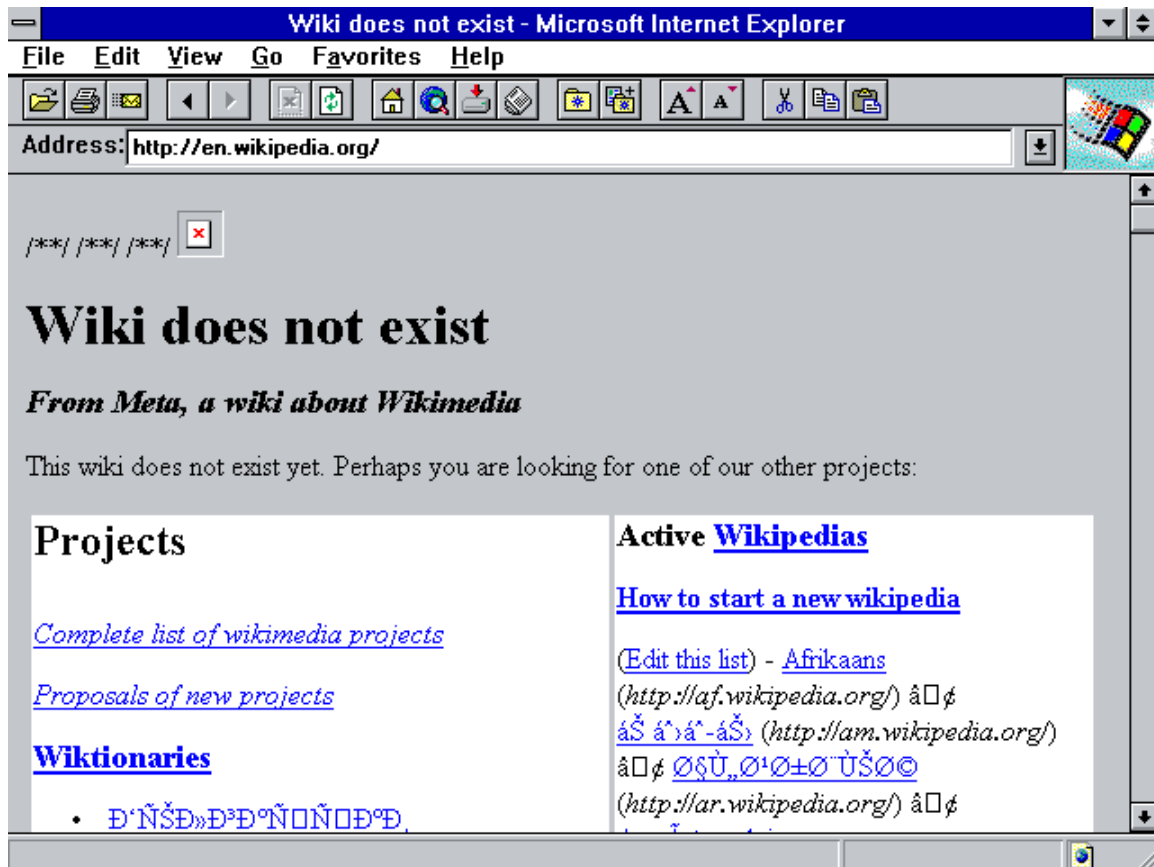
Windows Internet Explorer v7.0, commonly abbreviated IE7, is Microsoft's entry. Even though we were all told it would not happen, Microsoft has reworked its venerable browser from the ground up and released it as a separate program on Windows XP.

Internet Explorer has been around the block a few times already and has the battle scars to prove it. In 1995 Microsoft purchased the code to Mosaic's Spyglass software. (Wikipedia 2007) In July of 1995 Internet Explorer was born but it was not widely used. (Hardmeier, 2005) IE1 was included in the Internet Jumpstart kit for Windows 95. (Hardmeier, 2005) Microsoft released it because of "public interest" in the Internet. (Hardmeier, 2005) While it got you to the Internet, Netscape, who had been around longer, was still better. What it did do was make installation of the browser easier as there were no longer complicated manual steps required. (Hardmeier, 2005)



Internet Explorer 1.0
(Screen Shot from www.wikipedia.org)

Version 2 came out shortly after version 1 in November of 1995, also to little fanfare. (Hardmeier, 2005) It was their first cross platform version as it supported Macintosh as well as Windows. (Hardmeier, 2005) Released with Windows NT 4.0, IE2 introduced SSL, the dreaded cookie, as well as Virtual Reality Modeling Language and Newsgroups. (Hardmeier, 2005)

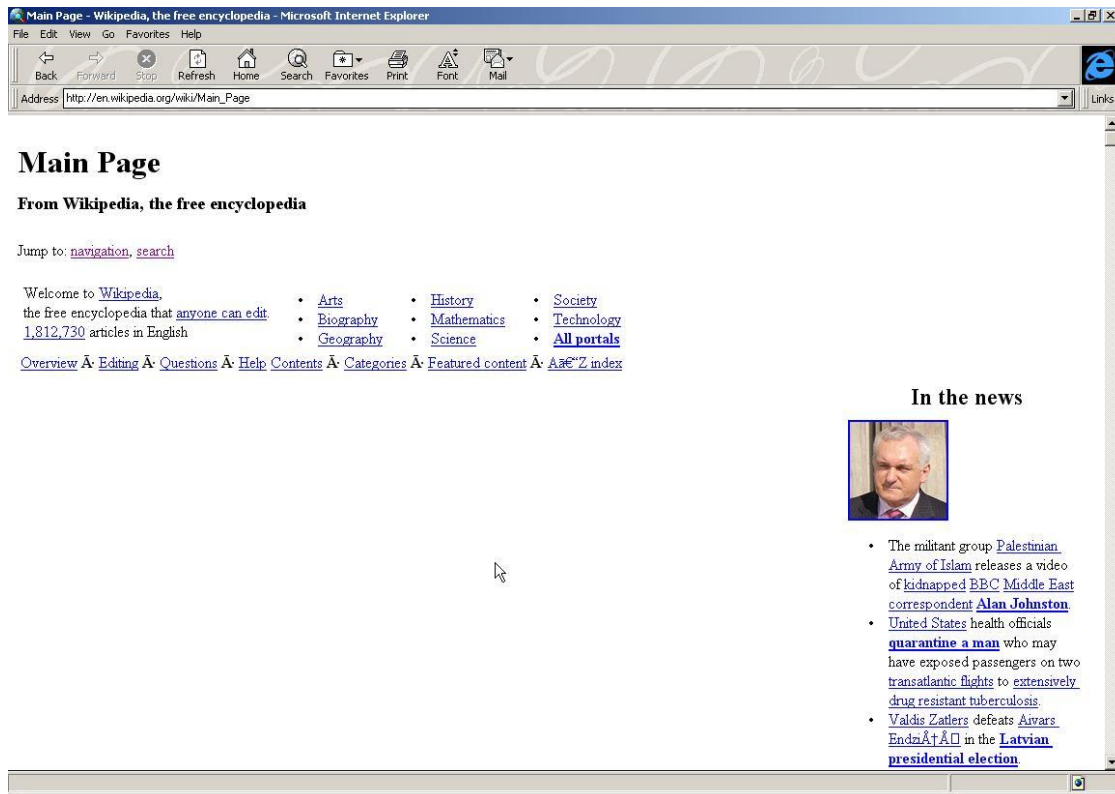


Internet Explorer 2.0

(Screen Shot from www.wikipedia.org)

By 1996 Microsoft had completely rewritten the software getting rid of all the Spyglass code (though still utilizing their ideas). (Wikipdeia 2007) Version 3 hit the market as part of Windows 95 OSR2 and started to take off. (Hardmeier, 2005) This version included Internet e-mail, address books, Netmeeting, and Windows Media Player. (Hardmeier, 2005) With the additional programs, it allowed users to open pictures and movies within the browser. It integrated tightly with Windows 95 and NT 4.0 making for a convenient user experience that was generally accepted as better than its rival at the time, Netscape. (Hardmeier, 2005) This version added support for CSS, Java apps, and ActiveX. (Hardmeier, 2005)

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Internet Explorer 3.0

(Screen shot from www.wikipedia.org)

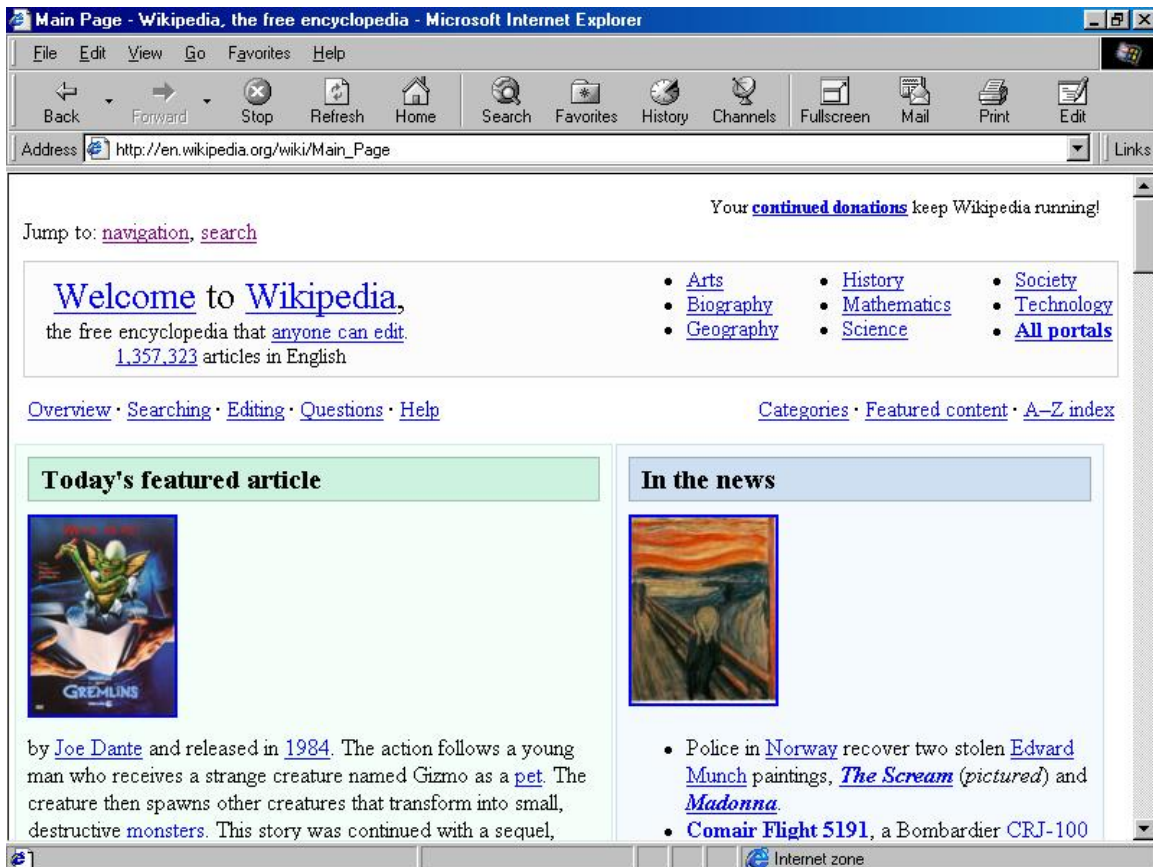
With the success came a new problem – hacker attention. Microsoft, focused on making for a user friendly experience, sacrificed some security and it proved to be problematic. The tight integration of the browser with the OS made life relatively easy for hackers. By finding a hole in the notoriously insecure ActiveX, they could get root access to a box without much difficulty

Firefox Vs Windows Internet Explorer

Version 4 was released in 1997. (Hardmeier, 2005) It was included with Windows 98 and designed to run on 95, 98 and Windows NT 4.0. (Hardmeier, 2005) In many ways this version was an even more integral part of the OS than its predecessors with its active desktop feature. In my experience to keep Windows running well it was best to install all the updates of operating system as well as the browser. Version 4 introduces Outlook Express, Microsoft Chat and Active Desktop.(Hardmeier, 2005)

The Active Desktop did not always get installed when you installed IE4. If you installed service pack 4 for NT 4.0 you got the new browser but no active desktop. In order to get it, you needed to install IE4 first then do the service pack, otherwise you lost the opportunity to install active desktop. Web designers began taking advantage of some of the advanced features available to them like DHTML and web sites became much more interesting.

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Internet Explorer 4.0
(Screen Shot from www.wikipedia.org)

In 1999 version 5 came out bundled with Windows 98 se and Office 2000. (Hardmeier, 2005) While the interface itself did not change much from v4 there were significant changes behind the scenes. It had support for bi directional text, Ruby Characters, XML, XSL and MHTML format. (Hardmeier, 2005) Microsoft was doing their best to increase security but vulnerabilities were many and it was tough to keep up. ActiveX continued to be a security nightmare and 98 was rather unstable. Version 5.5 was released with the introduction of Windows ME. (Hardmeier, 2005) Again no changes to the look and only few new features. (Hardmeier, 2005)



Internet Explorer 5.0
using several different character sets
(Screen Shot from www.alanwood.net)

Version 6 came out just before XP in 2001. (Hardmeier, 2005) It included DHTML enhancements, content restricted inline frames, partial support of CSS level 1, DOM level 1, DMIL 2.0, New IEAK, Media bar, fault collection, automatic image resizing, P3P, and a new look. (Hardmeier, 2005) Microsoft disabled Gopher because of its security holes (They removed it entirely from v7). (Hardmeier, 2005) Microsoft continued in this release to improve security. (Hardmeier, 2005) They claimed at the time that this would be the last version of IE and the future versions will be totally integrated into the

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Microsoft Windows Product. (Hardmeier, 2005) Apparently plans changed as this, of course, did not turn out to be the case.



Internet Explorer 6.0

(Screen Shot from www.wikipedia.org)

Microsoft's most current version of the browser is version 7.0. IE 7.0 is available in two different forms. A stand alone program for Windows XP sp2 and Windows 2003 server or a built in version for Vista. In response to user need Microsoft has reworked much of this browser. The biggest change we find is that it is no longer an integral part of the operating system. The downside to this is that it can no longer act as a file browser as well as an Internet

Firefox Vs Windows Internet Explorer

browser. The big positive is that it is run as a separate process which is more secure. This concept is really shown in Vista where IE can be run in a special mode called "Secure Mode" which increases security. We will look more at that in the security section of the paper. Large sections of the code have been rebuilt including parts of the rendering engine and other underlying architecture.

(Microsoft 2007)



**Windows Internet Explorer 7.0
Running in Windows XP Professional with sp2 on my desktop
Windows installed as VMware client.**

IE7 was unveiled at the RSA conference in 2006. (Wikipedia 2007) Microsoft has now changed the name of their browser from Microsoft's Internet Explorer to Windows Internet Explorer. (Wikipedia 2007) IE7 was released in direct response to Firefox. (Wikipedia 2007) In

months prior, Firefox had been eating into Microsoft's market share. (Wikipedia 2007) Consequently, IE7 includes many features that Firefox pioneered. --I am sure if you ask Microsoft, they will tell you that they had always planned on including these features in this version, but the cynic in me thinks that they took note of popular features of other browsers and included them.-- Microsoft massively revamped the UI. They called it the "new, cleaner less cluttered UI" on the download site. They have increased the size of the part of the window that displays the site by decreasing the size of the menu items and removing several tool bars. It takes a little getting used to but it is an improvement. IE7 was released as both a download and an high-priority update on www.Windowsupdate.com on September, 28 2006.

Microsoft, for a short time, had releases of IE compatible with Mac and UNIX (HP-UX and Solaris) but they no longer support those versions. (Wikipedia 2007) There is also a version for hand held devices that runs Windows CE. (Wikipedia 2007) The Windows CE version is quite different from the PC version. (Wikipedia 2007) It has almost an entirely different code base and only really shares some visual elements. (Wikipedia 2007)

As of 1998, according to a market study, Microsoft's IE officially overtook Netscape in market share. (Wikipedia 2007) They maxed out in the early 2000's at somewhere close to 90% but have been falling as other companies bring strong products to market. (Wikipedia 2007) Despite this, they still enjoy a very high percentage of the market. (Wikipedia 2007) Since IE is distributed as part of the operating system anyone who has a computer with Microsoft Windows 95 installed has a version IE. Most users are too

lazy or not knowledgeable enough to change.

The ubiquitous nature of Microsoft has gotten them into some legal trouble over the years. (Wikipedia 2007) When Windows 95 came out, Microsoft demanded that all other Internet browser choices were to be removed from the desktops of any computer sold by many manufacturers. (Wikipedia 2007) If manufacturers refused Microsoft would not grant the manufacturer a Windows 95 license. (Wikipedia 2007) This move angered IE competitors and they got states to file suit against Microsoft. (Wikipedia 2007) Microsoft maintained that the close relationship between the browser and the operating system meant that IE must be installed at all times for the computer to function. (Wikipedia 2007) Therefore, their request was not unjust, it was necessary. (Wikipedia 2007) The prosecution argued that since you can uninstall the browser it was not necessary. (Wikipedia 2007) They even went so far as to bring a computer into the court room and show the judge that they could uninstall IE. (Wikipedia 2007) Despite the theatrics my experience shows that Microsoft, at least about the uninstall claim, is correct. Even though you could go into the control panel and "uninstall" the browser, it does not really go away. All uninstalling really did was remove the icon from the desktop and the entry from the add remove programs list. Most of the browser was still there. That meant that all the security bugs were still there as well. And continued patching of the OS and the browser were mandatory. I don't understand how having other choices on the desktop affected that though. Fortunately neither did the courts and Microsoft lost the case. (Wikipedia 2007)

Love them or hate them right now Microsoft is the champion of the market. When they came out with IE6 it looked as though they had

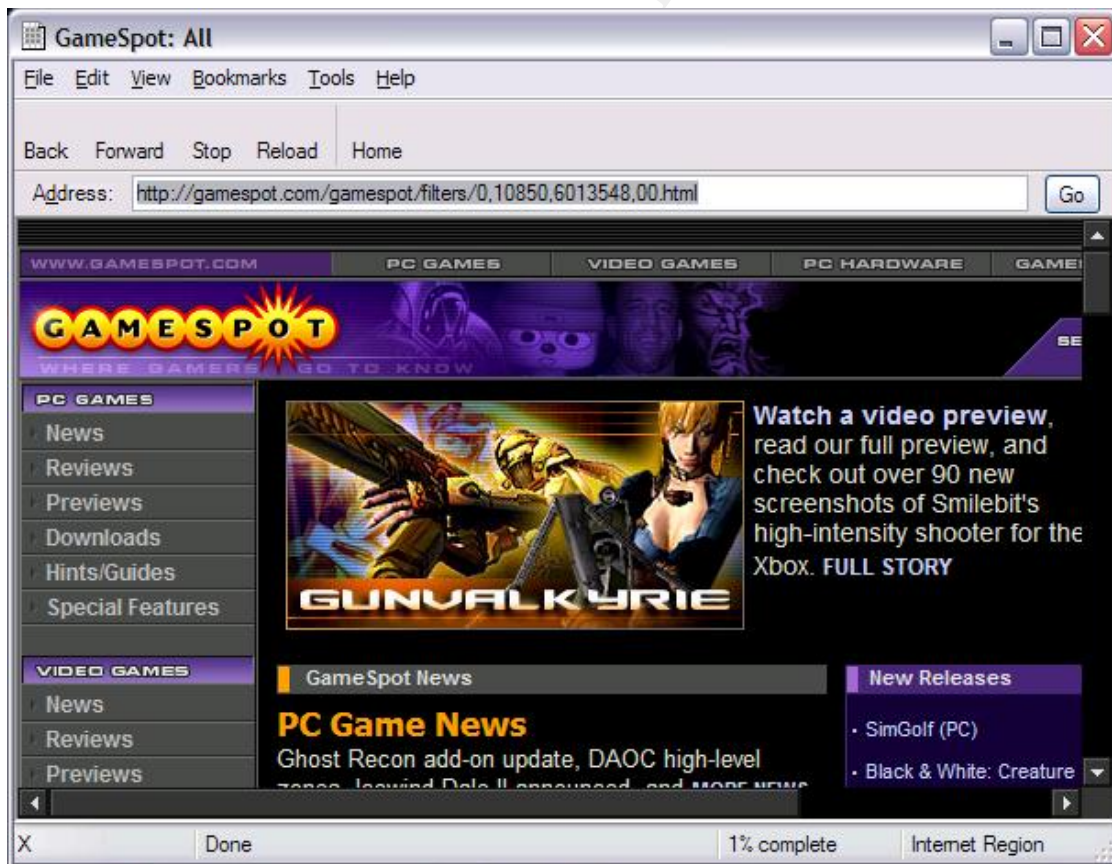
Firefox Vs Windows Internet Explorer

finally won the browser war that had been raging between them and at that time Netscape. (Wikipedia 2007) Without serious competition their product stagnated until a few years ago when they had to get their game back on in order to catch up with their new challenger Firefox.

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1.2. The Challenger Firefox 2.0.0.x

Firefox started as a conversation between David Hyatt and several friends on a summer evening at Denny's in 2001. (Goodger, 2006) All of them worked with Netscape and Mozilla and were at the time complaining about the relationship between the two. (Goodger, 2006) They decided to start over and create a new browser written in C# and .net. (Goodger, 2006) The group's first creation, Manticore, only lasted a few weeks before dying. (Goodger, 2006) You can still download the source code if you want to play with it. Though you will need to compile it yourself.

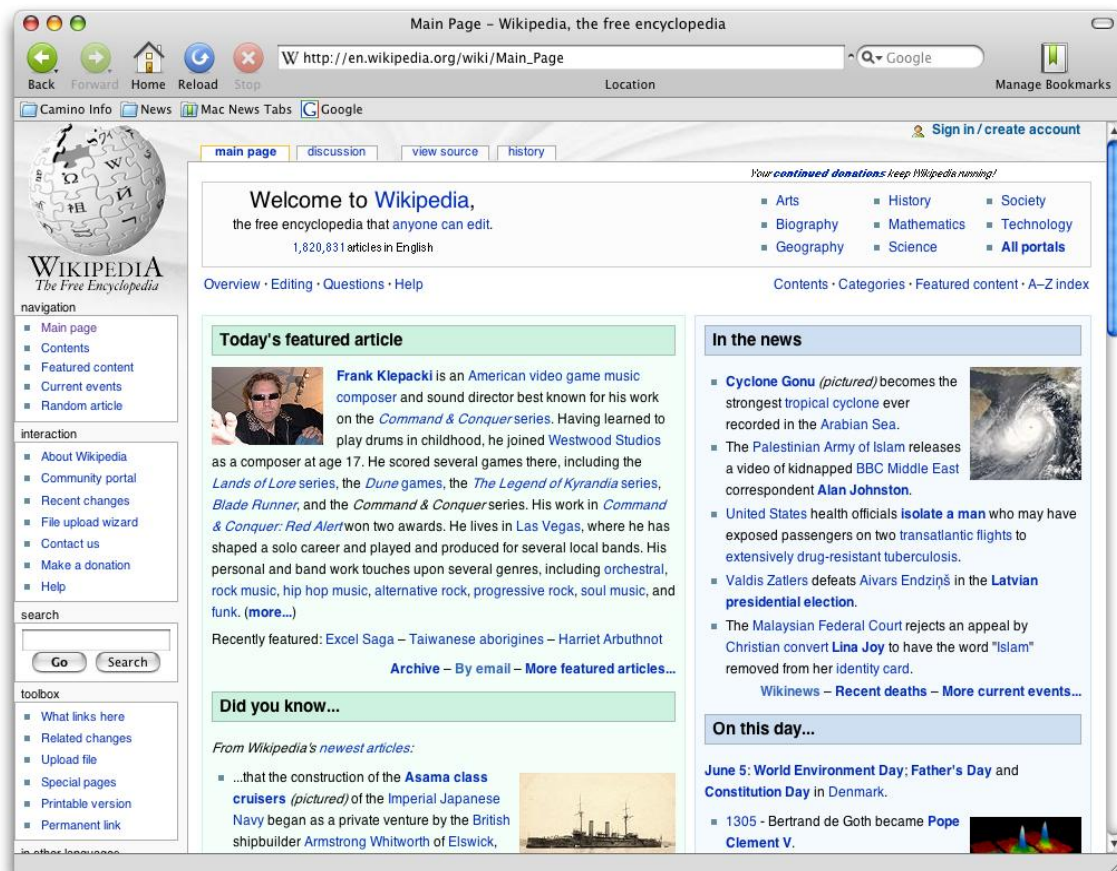


Manticore

(Screen shot from www.mantic0re.com)

Firefox Vs Windows Internet Explorer

On their second attempt the group created Camino. (Goodger, 2006) Camino was more successful and is still an active project today. It runs on Intel based Macs and power PC's. (Camino, 2007) Camino is currently at revision 1.5 and it offers itself as an alternative to Firefox in the Mac world. (Camino, 2007) They share many features. (Camino, 2007)



Camino 1.5

(Screen shot from www.wikipedia.org)

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The third time was the charm for them. Originally Named Phoenix, Mozilla's new browser released version 0.1 on September 23 of 2002. (Gsurface, 2005) It was to be a leaner faster version of Mozilla. (Gsurface, 2005) It did not do much at the time but it did already have the download manager which Microsoft did not have. (Gsurface, 2005)



Mozilla's Phoenix
(Picture from <http://www.flexbeta.net>)

Mozilla's new browser was just being created so the next several months saw massive changes. (Gsurface, 2005) A few days after the

Firefox Vs Windows Internet Explorer

first version was out 0.2 came out and included the now common sidebar for history and bookmarks. (Gsurface, 2005) During the next few months versions .3 .4 and .5 added new features such as: The ability to block images from certain web sites, pop up blocker, tabbed browsing, various shortcut keys, creation, movement, and modification of tool bar buttons. (Gsurface, 2005) There were also of course many, many bug fixes. (Gsurface, 2005)

Version 0.6 saw a name change to Firebird in order to avoid trademark infringement issues with a company called Phoenix Technologies who had a browser of their own. (Gsurface, 2005) Version 0.6 was also the first version to include the privacy feature which allows the user to clear form data, history, cache, and cookies with a single click. (Gsurface, 2005) It introduced an error submission mechanism to send the reason for an error to the developers in case of a crash. (Gsurface, 2005) Finally it was the first version to support Mac OSX, although poorly at the time. (Gsurface, 2005) Version 0.7 added more features dealing with the options of the browser. (Gsurface, 2005)

Version 0.8 saw another name change, this time due to a conflict with an open source database project also called Firebird. (Gsurface, 2005) The software was now officially called Firefox and development continued quickly. (Gsurface, 2005)

Firefox Vs Windows Internet Explorer

In November of 2004 version 1.0 was released. (Gsurface, 2005) It was downloaded over a million times on the first day. (Gsurface, 2005) It continued at this rate for the next 9 days. (Gsurface, 2005) The software was downloaded a total of 10 million times in the first 10 days. (Gsurface, 2005) By the time the next major release came out nearly a year later they had seen over 100 million downloads. (Gsurface, 2005) It had also been translated into 31 languages. (Gsurface, 2005) By November of 2005 Firefox was the second most used browser on the market. With over 11% of the browser market, experts were surprised at how fast Firefox had grown. (Gsurface, 2005)



Firefox 1.0

(Screenshot from <http://www.5star-shareware.com>)

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Today Firefox's current release is 2.0.0.6. It looks much the same as it did in version 1. Many enhancements were made, such as better tabbed browsing, auto search features, and in page spell check. They now sit at around 8-15% of the market share depending on what poll you see. (Wikipedia 2007) They are in a solid second but of late lost a little ground to IE7. IE7 use has spiked after the release of Vista. Firefox and Vista did not play well at first and Firefox had to make some changes to be compatible with the new OS. While Microsoft's top people say that they do not see Firefox as a threat, their actions speak differently. I don't believe that IE7 would be anywhere near as good if Firefox had not thrown down the gauntlet. Firefox's goal is to be the the best of breed for Windows, Linux and Mac. Many believe they are.

Unlike IE, the latest version of Firefox supports alternate platforms. Those include Mac and most Linux distributions. Although some Linux distros changed its name to Ice Weasel to avoid using the copy written Firefox logo.

2 Feature Comparison

Now that the competitors have been introduced, let's start by comparing features of each browser. First we will look at features the browsers share then features unique to each browser.

2.1 Tabs

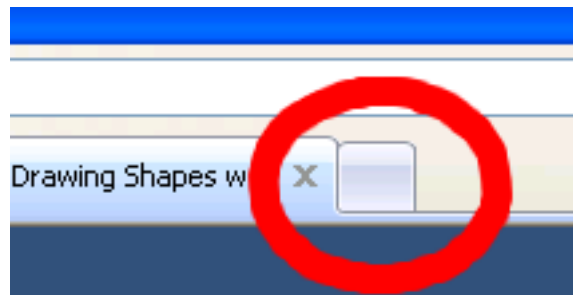
Both browsers now have the ability to show many tabs in the same window. Some people like them and others never touch them preferring many instances of the browser in their tool bar. I have found tabs to be addicting. I commonly find myself with 7-10 tabs open at any given time.



Firefox Tabs on top and IE tabs on the bottom

Firefox Vs Windows Internet Explorer

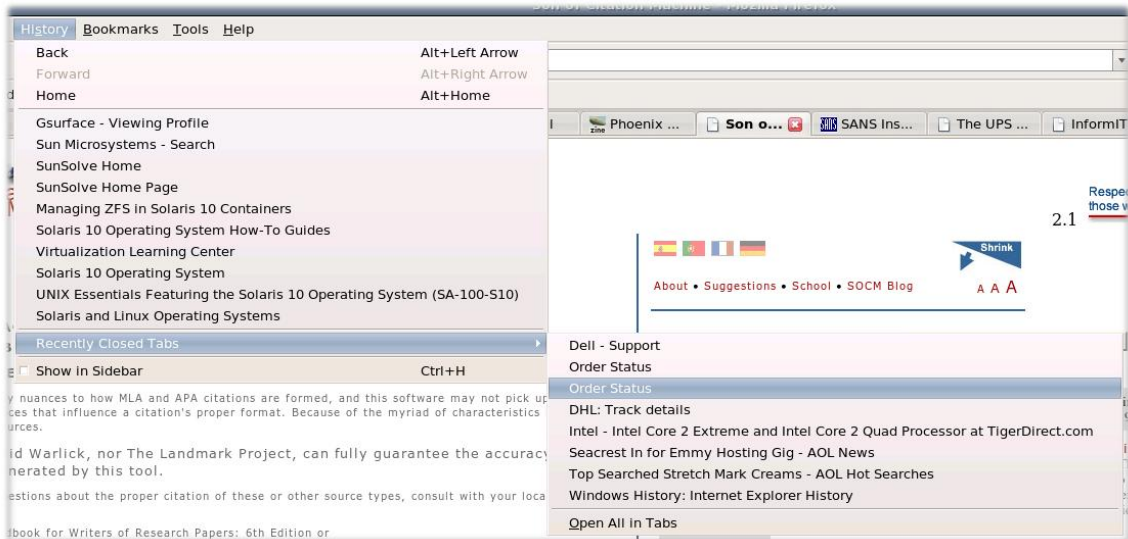
New tabs can be opened in a variety of ways which are, not surprisingly, the same in both browsers. Middle clicking on links, pressing ctrl+t, or dragging a link up to the tab bar will all create a new tab. In addition to those methods Microsoft sports what I call the gimpy tab on the extreme right of the tab list. It allows a user to create a new tab by clicking. (A nice feature) Tabs can be closed individually.



IE7's Gimpy Tab

Firefox Vs Windows Internet Explorer

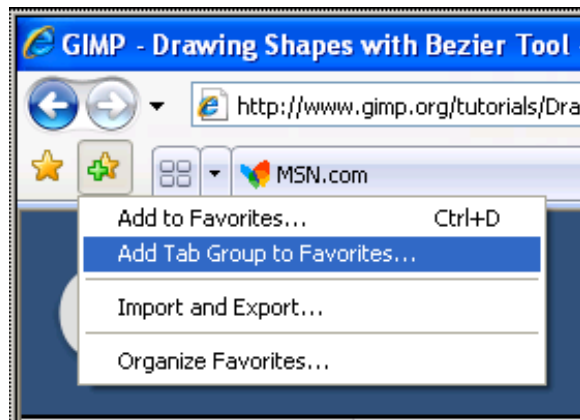
Firefox keeps a log of the tabs you had open while you browsed. If you closed a tab that you did not want to close you can click on "History" at the top of the screen and scroll down to "Recently Closed Tabs" a list of the tabs you had open will appear and you can choose to reopen any of them. This list is cleared when you close the browser. (A really useful feature)



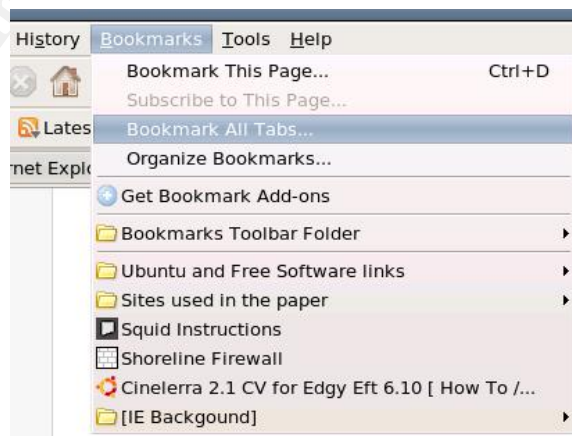
Closed tabs that can be re-opened

Firefox Vs Windows Internet Explorer

Groups of tabs can be saved into your favorites. The next time you open your browser those groups can be retrieved by going to your favorites and opening the entire group. Each browser does it in a similar fashion. In Firefox you click on the "Bookmarks" item in the menu at the top of the screen and select save all tabs. In IE7 click on the little star with a green plus sign on it (The second one from the right in the picture) then select "Add Tab Group to Favorites" from the drop down menu. You will be given the chance to name your tab group and it will be placed into the bookmark or favorites list for the next time you want to open it.



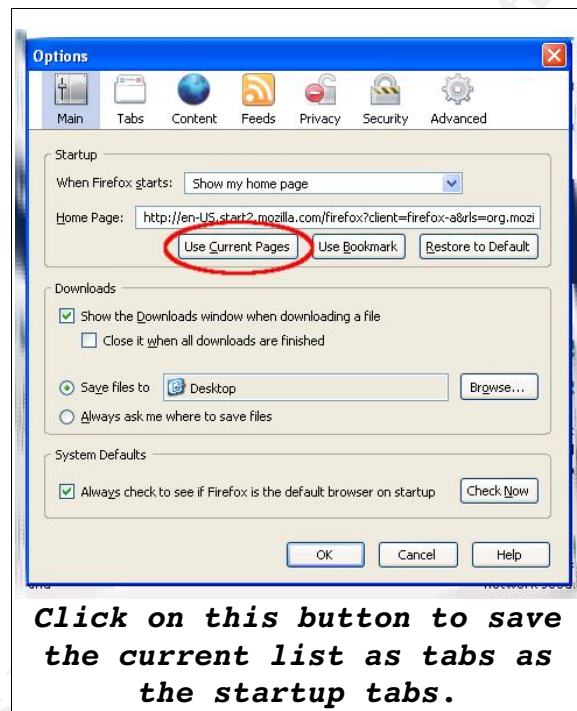
Saving Tab Groups in IE7



Saving Tab Groups in Firefox

Firefox Vs Windows Internet Explorer

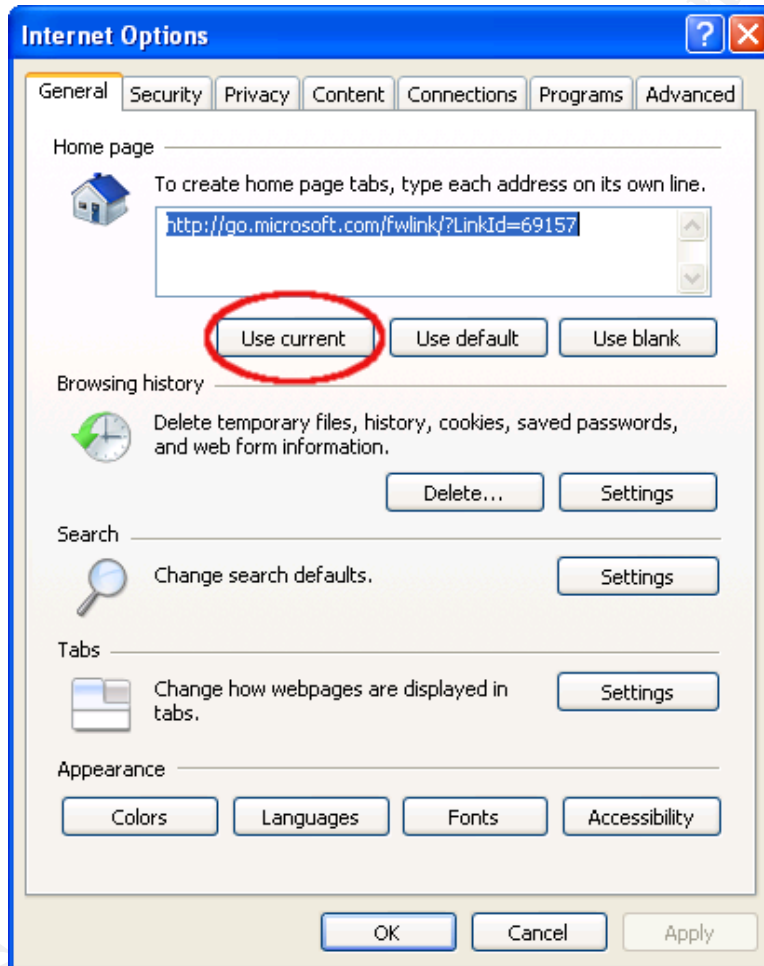
Both browsers give you the ability to customize the tabs that open when you start the browser. Effectively you can have as many home pages as you wish. You can automatically have all your common haunts open as soon as the browser starts. Firefox sets this in the options/preferences dialog when you highlight "Main".¹



¹ How you open and whether this dialog is called "options" or "preferences" depends on the OS you are using. In Windows if you click on tools then options the options dialog appears. On most Linux variants you click on edit then Preferences the Firefox Preferences" Dialog appears. They are the same dialog.

Firefox Vs Windows Internet Explorer

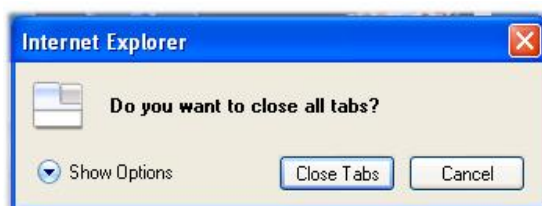
IE7, on the other hand, there are two ways to save your tabs depending on what you want. You can, just as in Firefox, open the Internet options dialog box and click on "Use current". If you do so then all the tabs you currently have open will be saved as the ones that open all the time.



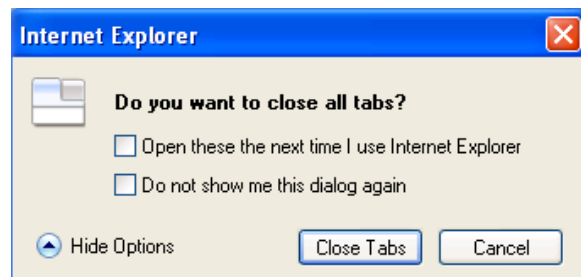
Click the circled button to save your current tabs as defaults.

Firefox Vs Windows Internet Explorer

IE7 has another option. Microsoft's browser allows you to save your place if you are forced to close your browser before you are finished with the tabs you have displayed. When you click on the red X in the corner of IE7 you are presented with a dialog asking if you really want to close all of the tabs you have open. If you click on circle next to "Show Options" it will give you two options. The first allows you to save the current session for the next time you open the browser. The next time you open your browser the default tabs will not be shown but you will get the same session you are leaving. This is only occurs the next time you open the browser. If you choose not to save the tabs you will get the default pages. This is a great feature. I commonly find my self having to quit what I was doing at the end of the work day only to have to find the sites I need again later that evening or the next morning.



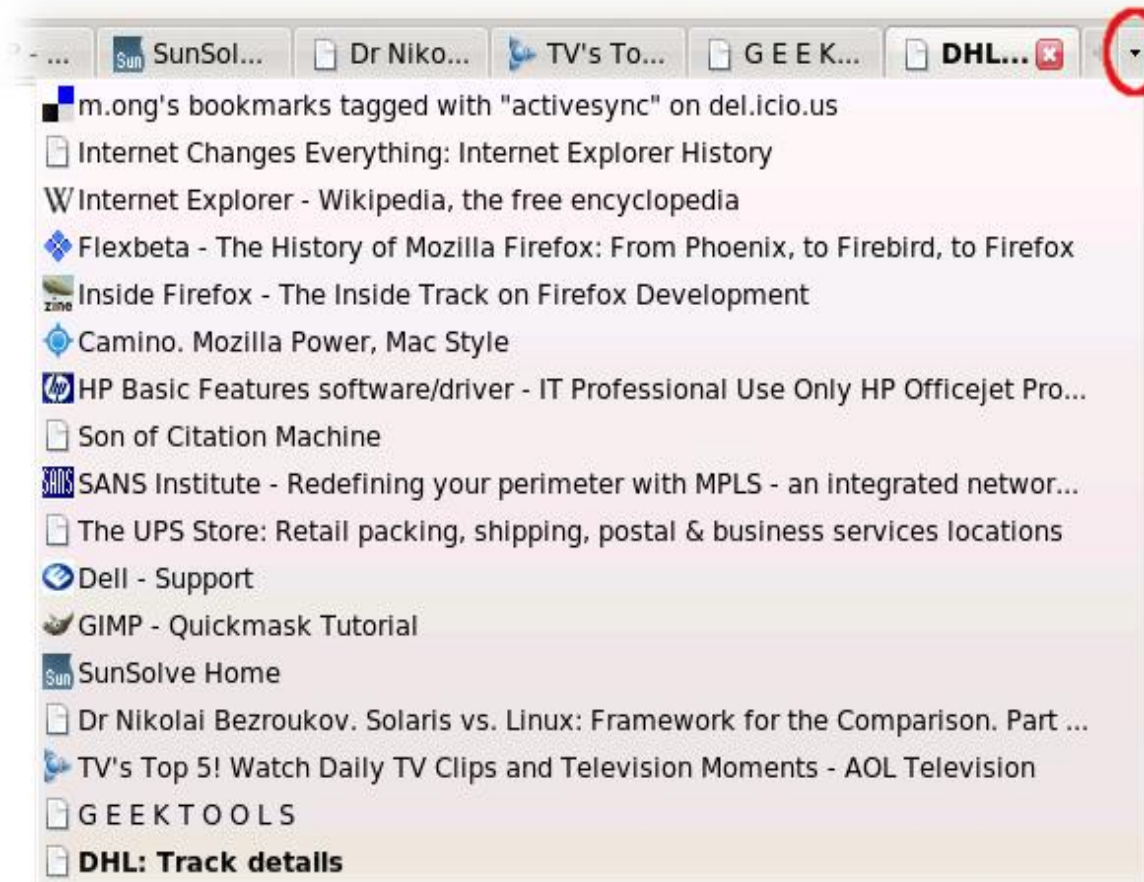
When you click X you see this.



When you show the options

Firefox Vs Windows Internet Explorer

When you have lots of tabs open, there is also a button on the tab bar that will list all the tabs for you. In Firefox this is just a simple list.

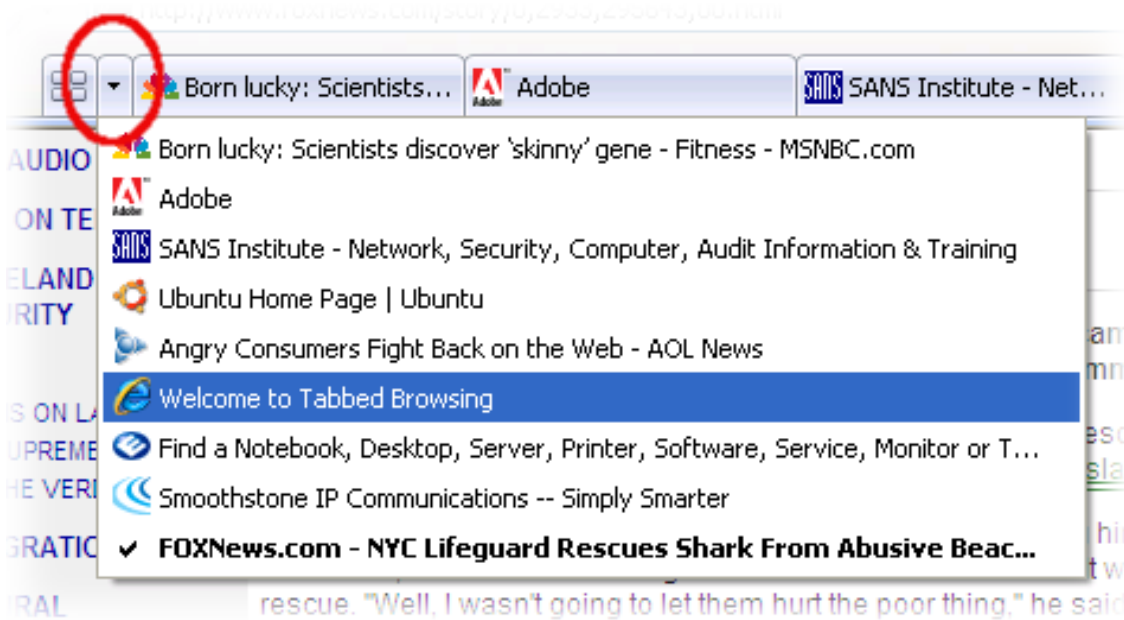


Firefox Tab list

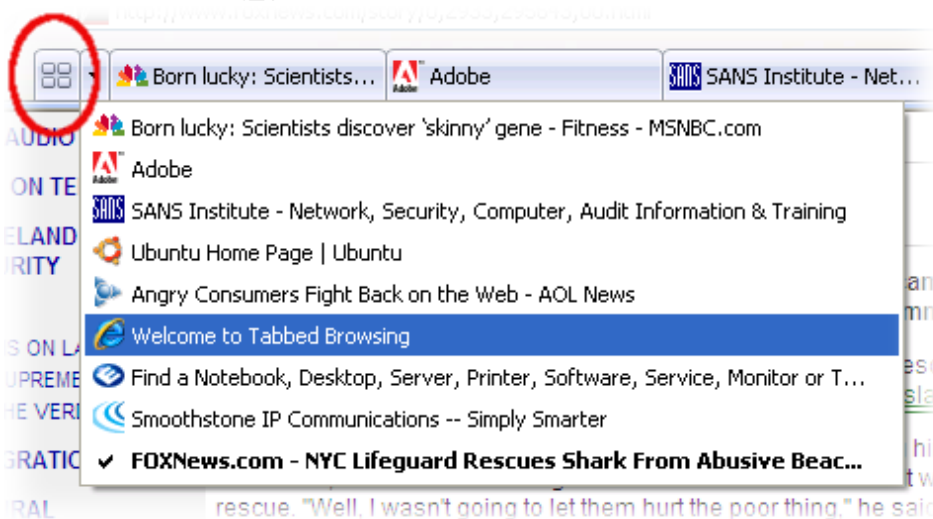
Click the little circled down arrow next to the tabs to open

Firefox Vs Windows Internet Explorer

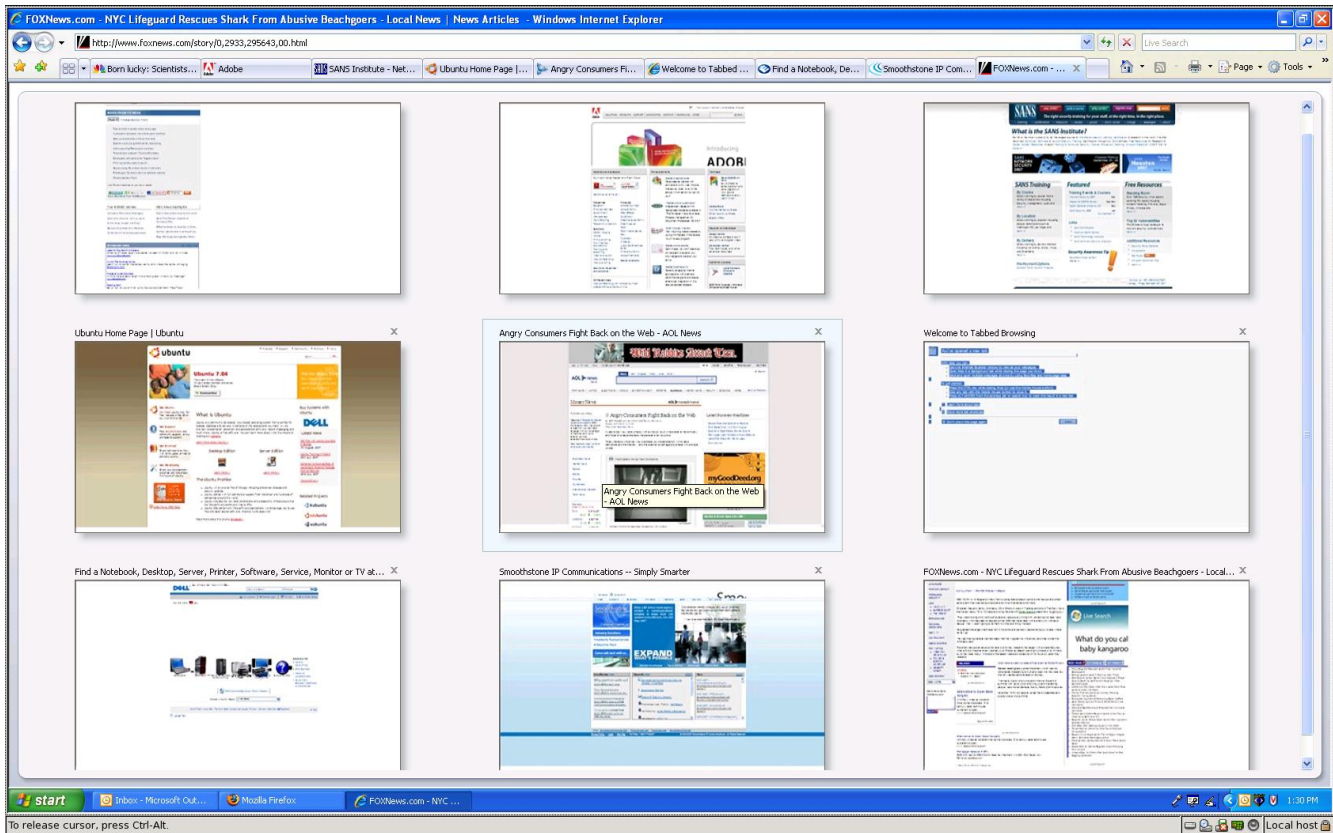
In IE7 you have the list option by clicking on the triangle pointing down as you see here.



In addition to the above option you have the ability, by clicking on the circled button below, to view the list of tabs as little Windows that actually show miniatures of all the sites you have open. You can then more easily see which tab you want.



Firefox Vs Windows Internet Explorer



IE7's Pictorial Tab display

2.2 RSS Feeds

Both browsers support RSS feeds. RSS feeds allow users to subscribe to sites who update frequently. The updates are sent to your feed. This is good for news sites and other sites that are updated regularly. Even though each supports RSS Feeds they each do it differently.

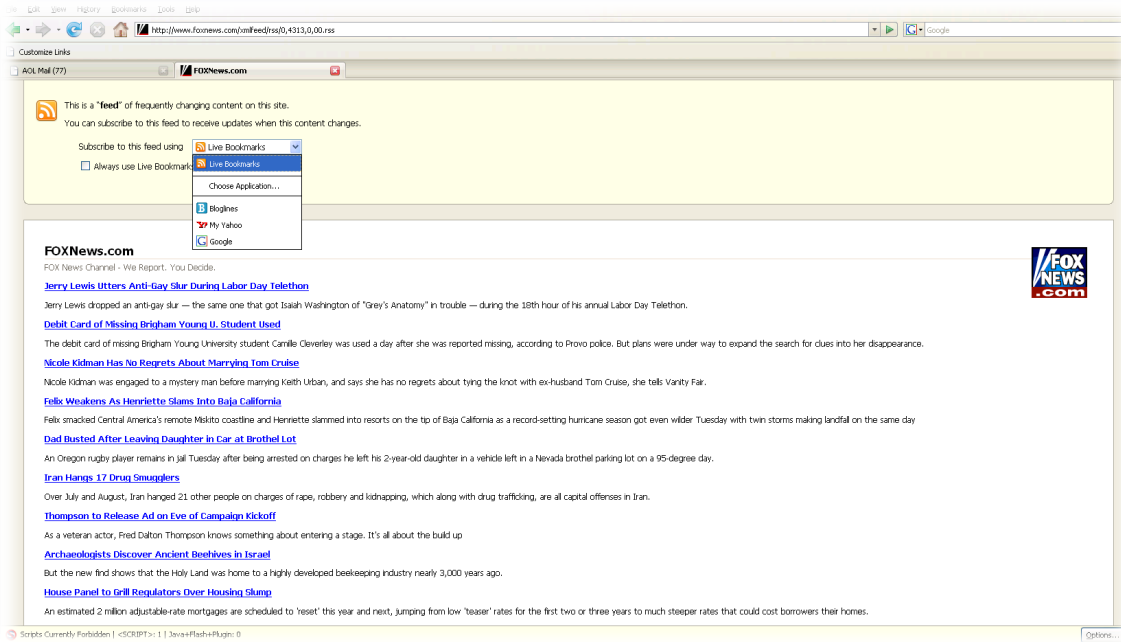
In Firefox when you navigate to a page that has an RSS feed available, and you have not already subscribed to it, the little gold icon appears in the address bar. If you click on the little



Firefox's RSS Feed Indicator

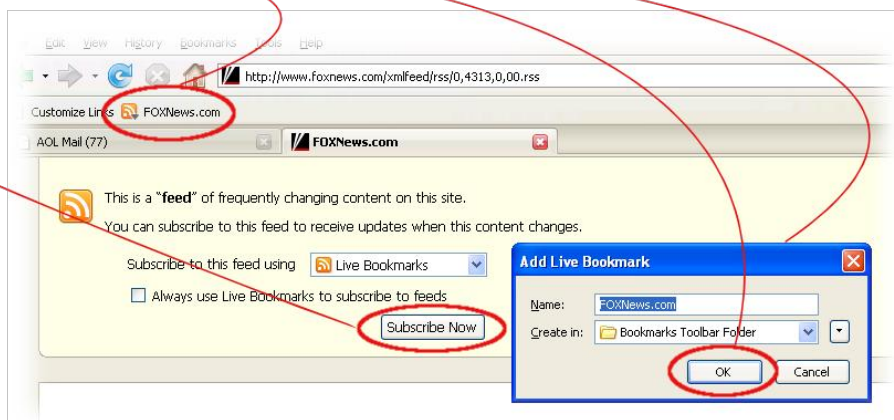
gold icon Firefox then takes you to a site which shows the feed's contents (i.e. a list of headlines on the fox news website) As you can see on the picture on the next page there is a gold box on the top of the page asking if you would like to subscribe to the feed and which program you would like to use to view the content. The default is a Firefox creation called the Live Bookmark. The Live Bookmark shows itself on a bar above the tab bar. When you click on it the list of current content appears. You can then select what you want and you will be directed there.

Firefox Vs Windows Internet Explorer



Firefox Asks how you would like to display your feed. Click on your choice but I usually use "Active Bookmark".

- 1... Click on "Subscribe Now"
- 2... The "Add Live Bookmark" dialog box appears
- 3... Click on "OK" in the dialog box
- 4... The new live bookmark will appear just below that address bar.



Quick instructions on how to create an active bookmark

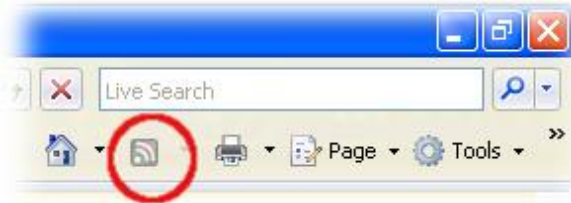
Firefox Vs Windows Internet Explorer



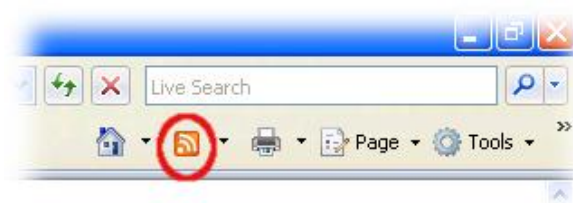
This is a working RSS feed in a Firefox Active bookmark. The feed will automatically update as new data is posted.

Firefox Vs Windows Internet Explorer

Microsoft has a universal indicator on a tool bar on the upper right side of the screen. While it is gray there is no RSS feed. If it is orange there is a feed available.



No feed is available.

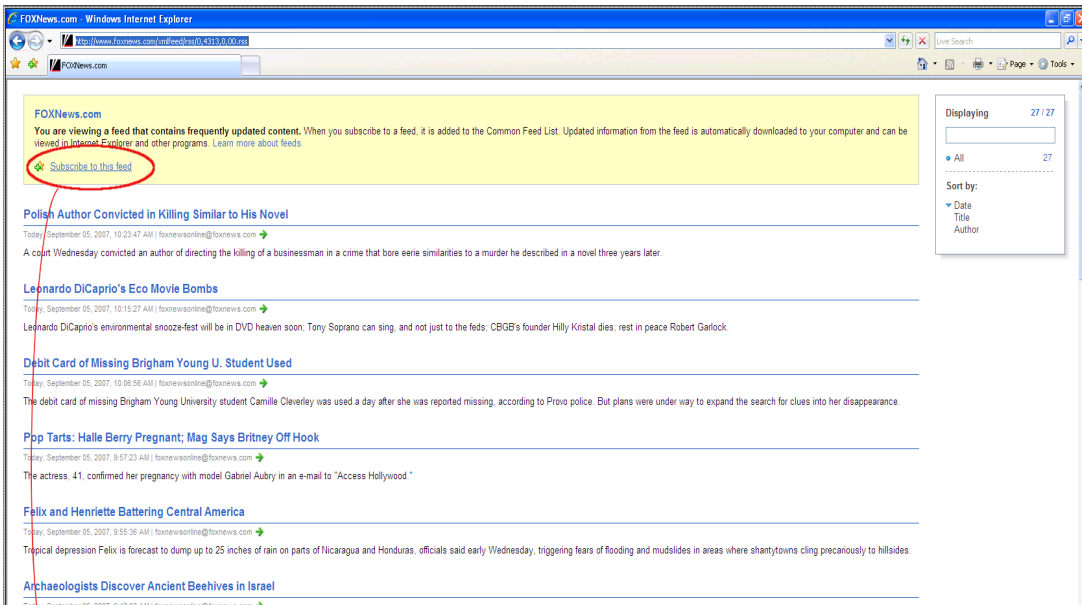


A feed is available.

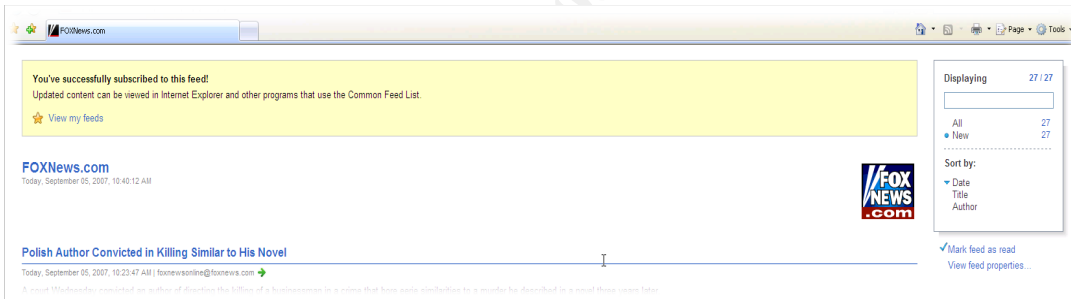
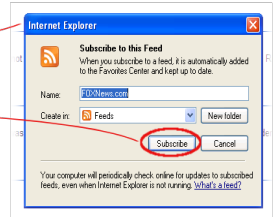
When a feed is available, click on the little orange icon and it will show you a preview of what the feed will look like in IE7. Follow the instructions below to complete the process.

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Firefox Vs Windows Internet Explorer



- After you click on the orange icon in IE7 you will be directed to a page similar to above which shows a sample of what the feed will look like.
- 1.. Click on "Subscribe to this feed"
- This Dialog box will appear
- 2. Click on subscribe
- You will receive the message below



Firefox Vs Windows Internet Explorer

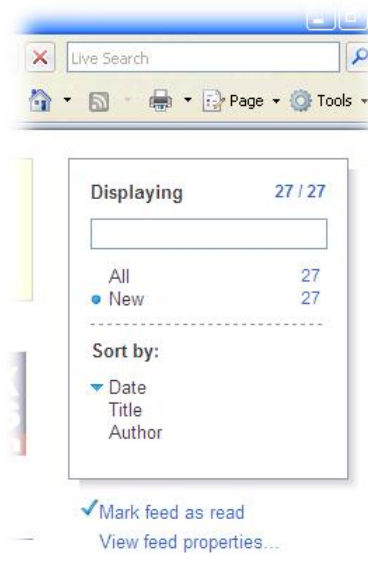
When you choose to subscribe to a feed it will be added to your favorites. When you click on the star (favorites) and select feeds, a list of all your feeds will be shown. If you click on the feed it will take you to the site you saw in the preview.



**Feeds in the favorites area
(click on the star to get
here)**

Firefox Vs Windows Internet Explorer

In IE7 feeds look much like a web page, but I believe that was by design. You can make changes by using the control box on the right. While the RSS feeds in IE7 offer you far more control, they are not quite as convenient as the live bookmarks in Firefox. The user must decide which is better; more control or more convenience.

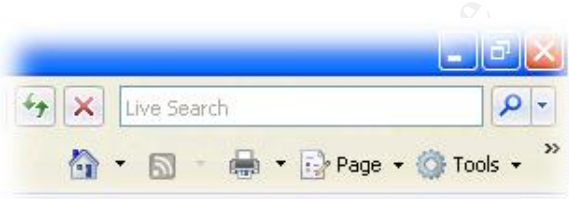


**IE7 Feeds Control
Panel**

2.3 Integrated Search

Both browsers have an integrated search field in the upper right hand side of the screen. You can type your query into this field at any time no matter which site you currently have displayed. The field is linked to a site of your choice (they can include search engines, shopping sites, travel sites, whether, or job searches). This is a nice feature that reduces the amount of time it takes to look for things. You do not have to go to Google or MSN first and type your query. Just enter your question in the box at the top. The results will appear in the tab you currently have open.

****Warning**** The results will replace what you have in the current open tab, navigating away from any page you had there. In most cases it is OK but if you are in the middle of an e-mail to be sent via AOL, it can be frustrating because clicking back does not always replace all the data you typed. I usually hit ctrl-t just before searching so the results end up in a new tab.



***IE7's Integrated Search
(Comes just after address bar)***

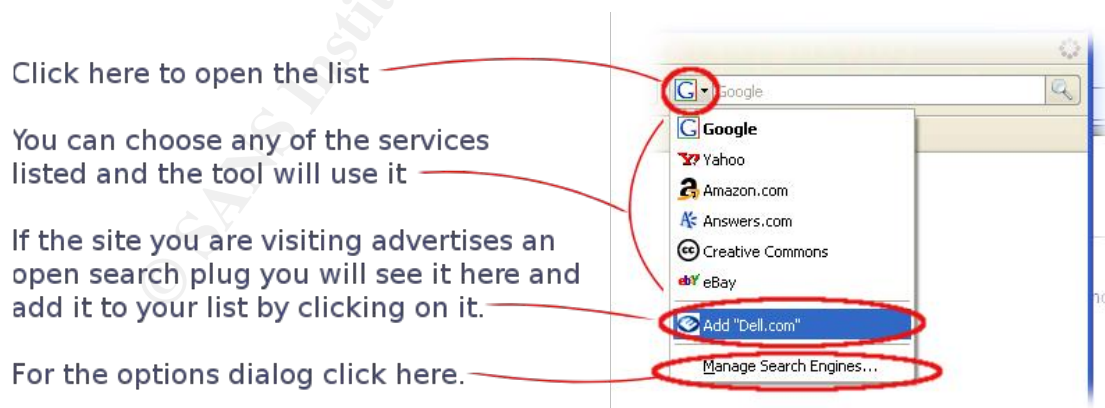


***Firefox's integrated search
(Comes just after address bar)***

Firefox Vs Windows Internet Explorer

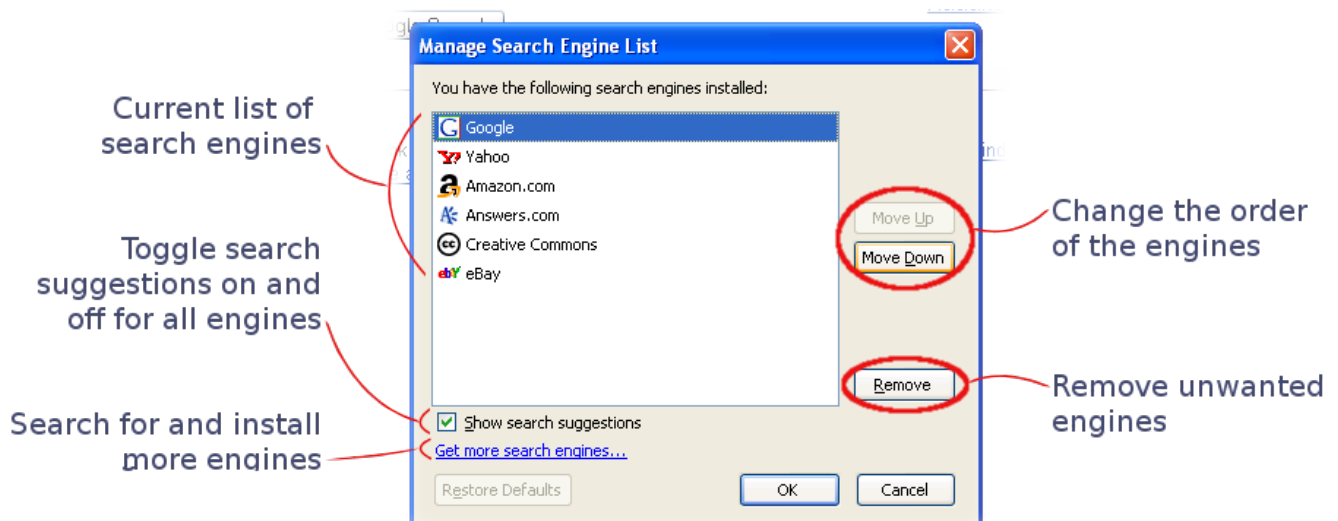
Firefox's Integrated search defaults to Google and IE7 defaults to Live Search. If you would rather the tool use a different search engine then you can change it. Changing the default search engine or even the list of possibilities is relatively easy and can be done in both browsers with a few clicks.

In Firefox to change which engine you want to use just click on the icon on the right side of the search field. A list opens and you can choose which service you would like to use. If you have anything entered in the search field it is not removed and you can just click on the hour glass to search using the new service. Sometimes a web site you visit will include the appropriate code to add another choice to your list. If that occurs the option will be advertised here. If you choose this option the new choice will be immediately added to the bottom of the list. If you select "Manage Search Engines" you will be taken to a dialog with more options.



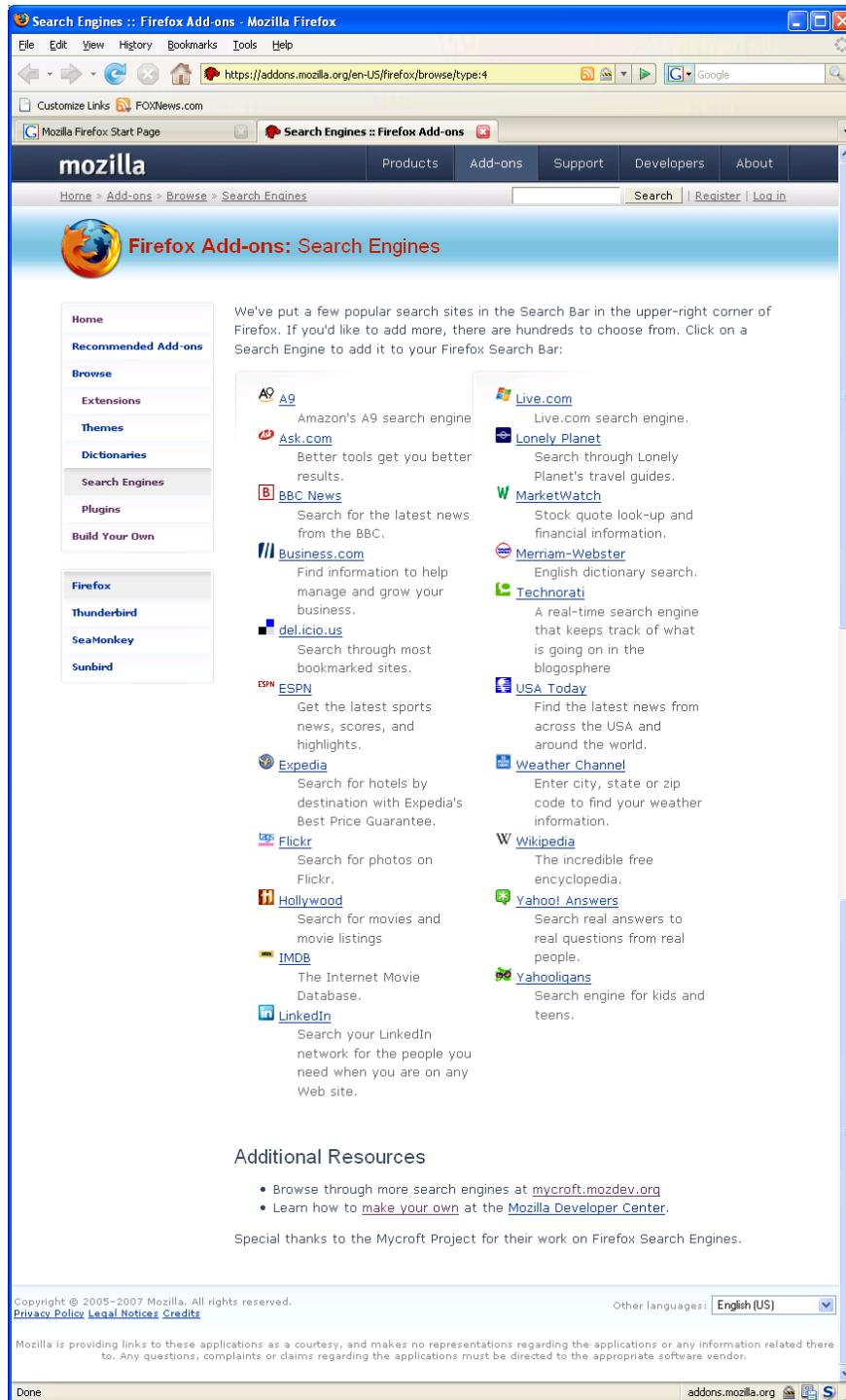
Firefox Vs Windows Internet Explorer

If you chose to manage your search engines, you will be shown a dialog box where you can remove unwanted engines or change the order. From here you can also toggle on and off the search suggestions which is discussed later. Finally if you click on "Get more search engines", you will be directed to a site where there are 12,000+ choices. Search engines are built like XML plug ins so when you choose one, it just gets added like other plug ins. The list is not directly viewable. A list with 12,000 entries would not be of much use anyway. On the site there is a search field where you can enter the URL of a website. If someone has built a search engine for it, will be displayed and you can install it. If not, you can try to build it. There are instructions and I have attempted to follow them but have never been able to create the plug in. I am obviously missing something. If I am having a tough time, the average user will surly not get it. (Here is a case where Firefox could learn something from Microsoft. Microsoft has made it extremely simple to add new ones).



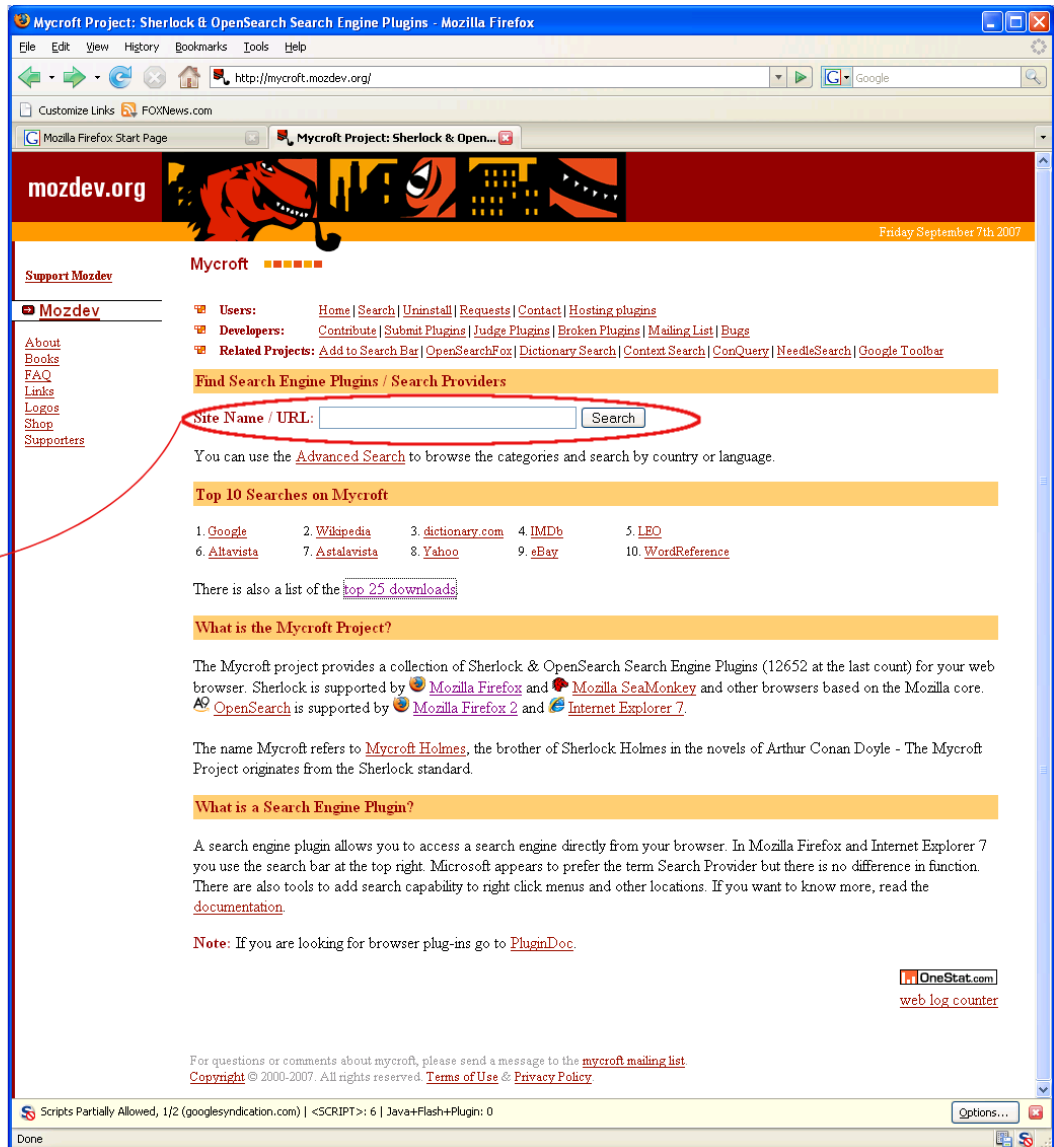
Search Engine Dialog Box

Firefox Vs Windows Internet Explorer



***Website for common new search engines.
This is where the "Get more search engines"
link takes you.***

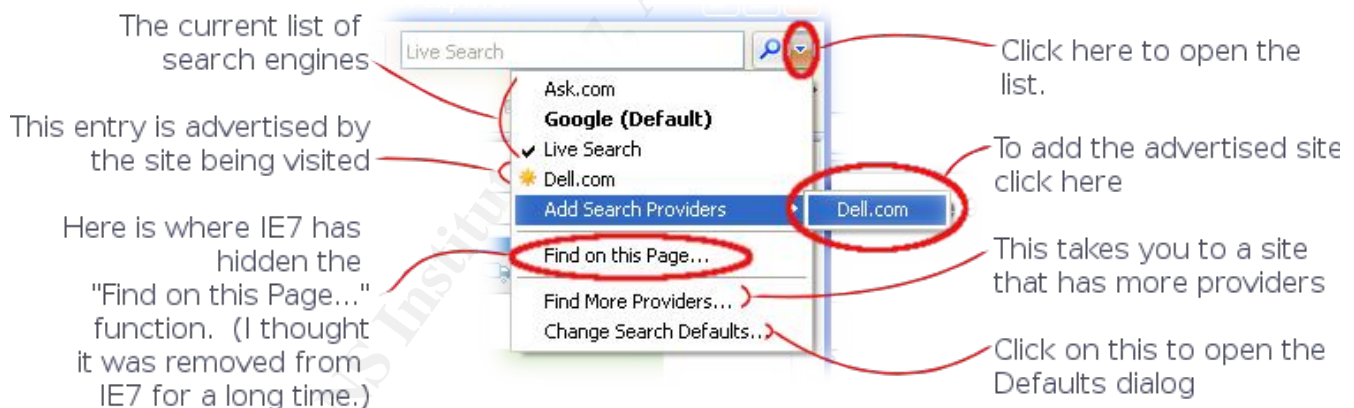
Firefox Vs Windows Internet Explorer



Enter the URL for which you hope a search engine is available here.

Results will appear on the next page click the link to add the engine

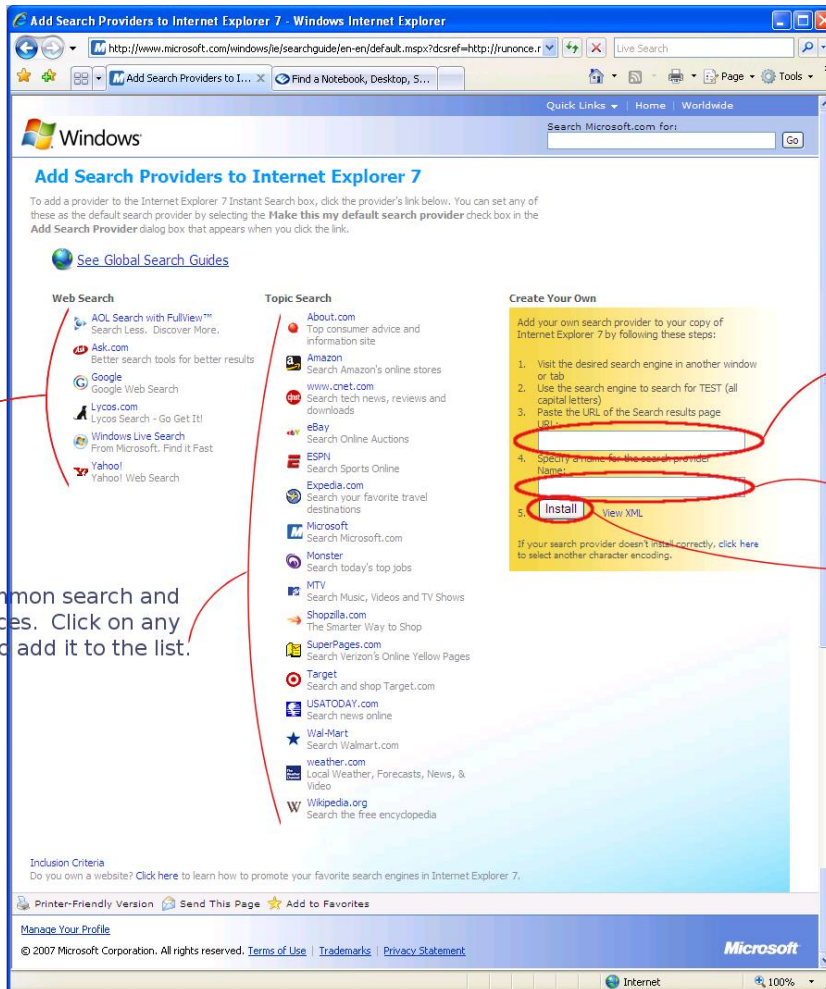
Changing Search engines in Microsoft is a little different. Just click on the down arrow to the right of the magnifying glass to open the current list of search engines. If you are currently visiting a site that is advertising a new search engine, it will appear on the list with a sun next to it. If you choose to use the advertised engine it will be available in other tabs as long as the tab that advertised it is still open. It will disappear when you close the tab. If you want to keep the engine forever you need to place your mouse over the "Add Search Providers" text and then click on the link that appears. Unrelated, but in my thinking important information, is the fact that here is where IE7 has placed the "Find on this Page..." function. I use this all the time when searching blogs and forums. I thought that it had disappeared from IE7 and I was very sad.



Clicking on the "Find More Providers" link will take you to a site where you can do two things. First there is a short list of common providers and you can add them to the list by clicking on them. Second is a little tool that allows you to create custom search providers. Microsoft asks you to go to the site you would

Firefox Vs Windows Internet Explorer

like to use to search. Then do a search for "TEST" (** All Caps or it will not work**) and cut and past the URL that is generated into the first box. Next enter the name you want to give the engine in the second box IE7 will create the provider and add it to your list. (Very nice and far simpler than the Firefox method)



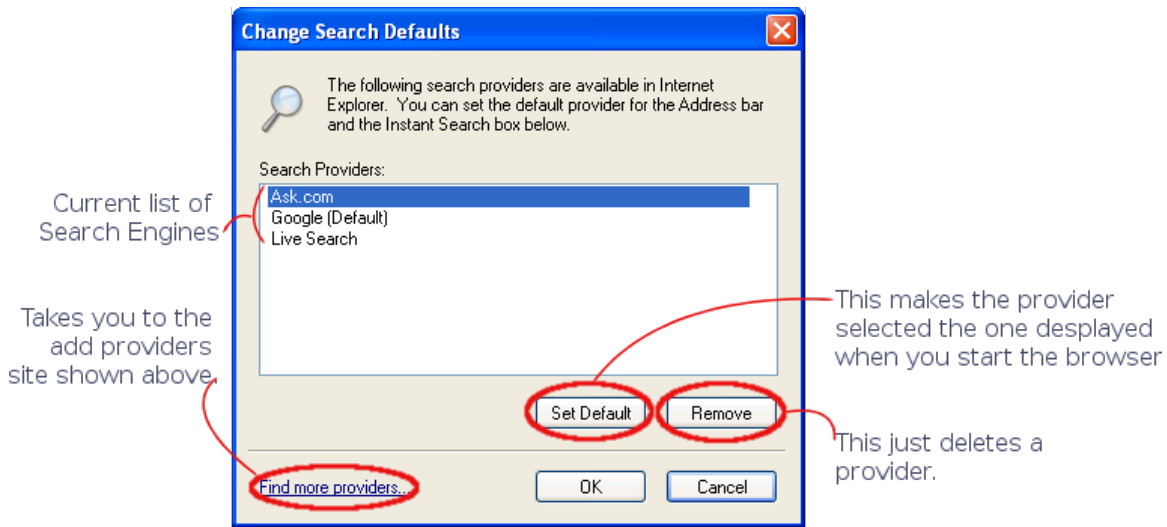
List of common search and topic choices. Click on any blue link to add it to the list.

Do just as the instructions state Place the URL generated when you search for "TEST" here.

Type a name for your new search engine here

Click install and it will be automatically added to your list.

Microsoft's add a search provider site



IE7's search defaults dialog

2.4 Search Suggestions

Firefox has another feature here called the Search Suggestions. As you begin to type into this field it will start giving you suggestions for your search. It is not solely completing your words, it actually will give suggestions of things related to what you have typed. As you can see in the picture "Star Tre" gives you several suggestions.



2.5 Improved Printing

Microsoft speaks on their website about their improved printing capabilities. Firefox does not specifically state that their's have improved, but when printing from each browser the interface is very similar. Both browsers seem to reduce and rearrange the page a little to fit it on a default 8.5 x 11 page. You have the ability to adjust the margins and the header and footer before you print. Printing from the Internet in the past has been a pain and it would seem that both browsers have made it much easier. Every once in a while certain pages will not display correctly in the print preview but they usually print correctly.

2.6 Streamlined Interface

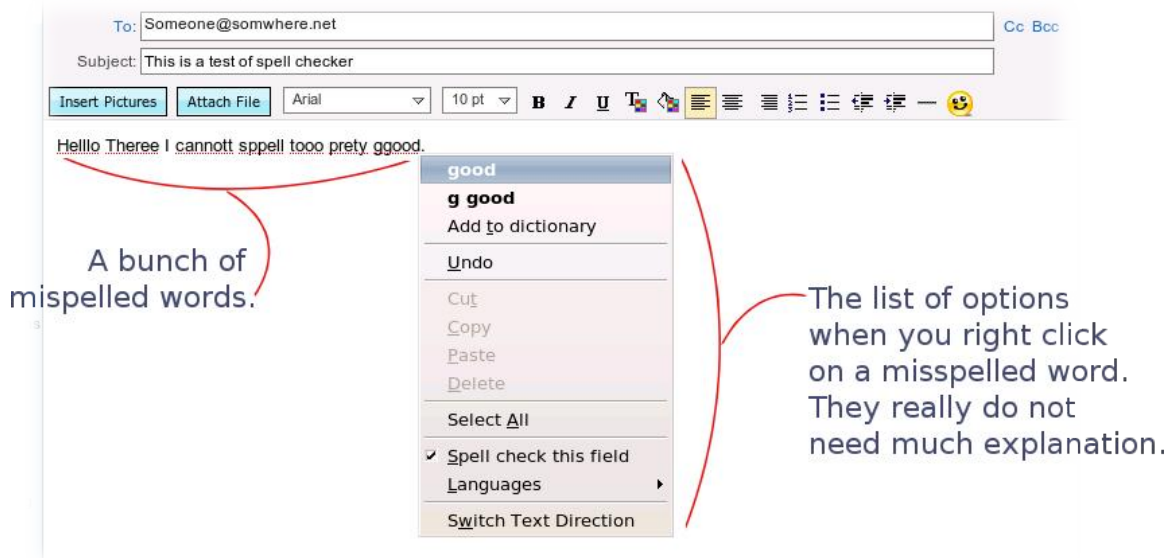
Both browsers tout their new streamlined interfaces. Firefox has a little more on the screen by default than IE7. IE7 gives you a little more screen to see what is on the page. If you run high resolutions, like I do, then the difference in screen size means little. If, however, your eye site is not what it once was and you don't think 640x480 is big enough then the expanded viewing area is attractive. The interface is very customizable though. You can make Firefox look exactly like IE7 if you like.

2.7 Spell Checking

This is by far the most useful browser feature I have ever had. Exclusive to Firefox, the browser actually provides live spell check as you type. It works just like the live spell checker in Word or Writer. If you misspell a word you get a little wavy red line under

Firefox Vs Windows Internet Explorer

it. If you right click on the word you are presented with a list of possible spellings.



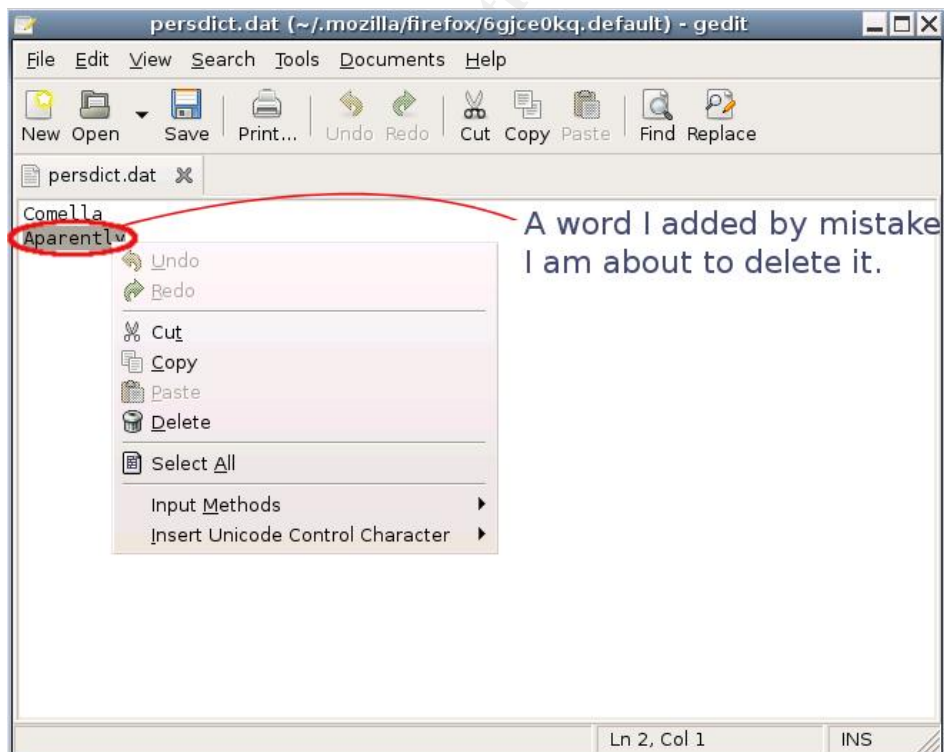
Firefox's spell check

If you know the word is correct you can add the word to your personal dictionary. Adding the word is rather straight forward. When you right click on the word, one of the options is to add this word to dictionary. Now the word is kept in memory until you close the browser. This means that if you open another instance of the Firefox browser it will not recognize the new word you just entered (other tabs get it though). Once you close the browser it saves your additional words to a file called persdict.dat. After that every instance of the Firefox browser will recognize the new word.

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Removing words is a little more tricky. You must manually open the persdict.dat using your favorite text editor and delete the words from the list. The file can be found on Windows machines in the [Drive letter]:\Documents and settings\[profile name]\application data\mozilla\Firefox\profiles\[profile name in the form of XXXXXXXXXX.default]\ directory. If you are a Linux user you will probably find the file in the ~/.mozilla/Firefox/[Profile name - XXXXXXXXXX.default]/ directory. The persdict.dat file is nothing more than a text file where you can list your words. Anything you add to this file will be in your personal dictionary. So if you already have a list going in another program find it and cut and paste that list into Firefox.

Path to the file (Linux)



Since I installed the browser on a machine with the locals set to English it installed the English dictionary. Other dictionaries

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are available via the Firefox add ons site. Go to <http://addons.mozilla.org>. and click on dictionaries on the left to see the rather extensive list of options.

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mozilla Firefox Add-ons: Dictionaries

These dictionaries work with the spell-checking feature in Firefox.

Install dictionary (242 KB)
English

All dictionaries

Afrikaans	Afrikaans (af-za)	Install (593 KB)
Arabic	عربي	Install (3510 KB)
Belarusian	Беларуская (be-classic)	Install (3860 KB)
Belarusian	Беларуская	Install (3843 KB)
Bulgarian	Български (bg-bg)	Install (258 KB)
Catalan	català-valencià	Install (556 KB)
Czech	Čeština	Install (1175 KB)
Welsh	Cymraeg	Install (675 KB)
Danish	Dansk	Install (479 KB)
German	Deutsch (de-et)	Install (2535 KB)
German	Deutsch (de-ch)	Install (347 KB)
German	Deutsch (de-de-alt)	Install (330 KB)
German	Deutsch (de-de)	Install (2534 KB)
Greek	Ελληνικά (el-en)	Install (3109 KB)
Greek	Ελληνικά (el-gr)	Install (1546 KB)
English (Australian)	English (Australian)	Install (193 KB)
English (Canadian)	English (Canadian)	Install (242 KB)
English (British)	English (British)	Install (245 KB)
English	English	Install (242 KB)
Esperanto	Esperanto (eo-eo)	Install (90 KB)
Spanish (Argentina)	Español (Argentina)	Install (195 KB)
Spanish (Spain)	Español (de España)	Install (290 KB)
et-ee	et-ee	Install (844 KB)
Basque	Euskara	Install (431 KB)
Finnish	suomi	Install (2427 KB)
French	Français (fr-fr)	Install (278 KB)
French	Français	Install (298 KB)
Irish	Gaeilge	Install (287 KB)
Hebrew	עברית	Install (802 KB)
Croatian	Hrvatski	Install (724 KB)
hsb	hsb	Install (160 KB)
Hungarian	Magyar	Install (494 KB)
Icelandic	Íslenska	Install (654 KB)
Italian	Italiano (it-it)	Install (384 KB)
la	la	Install (86 KB)
Lithuanian	lietuviškai	Install (354 KB)
Latvian	Latviešu (lv-lv)	Install (825 KB)
Norwegian (Bokmål)	Norsk bokmål	Install (1061 KB)
Norwegian (Nynorsk)	Norsk nynorsk	Install (1061 KB)
Dutch	Nederlands (nl-nl)	Install (954 KB)
Dutch	Nederlands	Install (952 KB)
Dutch	Nederlands	Install (952 KB)
Polish	polSKI	Install (1004 KB)
Portuguese (Brazilian)	Português (do Brasil)	Install (121 KB)
Portuguese (Portugal)	Português (Europeu)	Install (136 KB)
Romanian	română (ro-ro)	Install (994 KB)
Romanian	română	Install (212 KB)
Russian	Русский	Install (459 KB)
Slovak	slovenčina	Install (2566 KB)
Slovenian	Slovensko	Install (1151 KB)
srpski	srpski	Install (510 KB)
Iatinnica	latinnica	Install (510 KB)
Swedish	Svenska (sv)	Install (266 KB)
Ukrainian	Українська мова (uk-ua)	Install (358 KB)

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Firefox Policy Legal Notice Credits

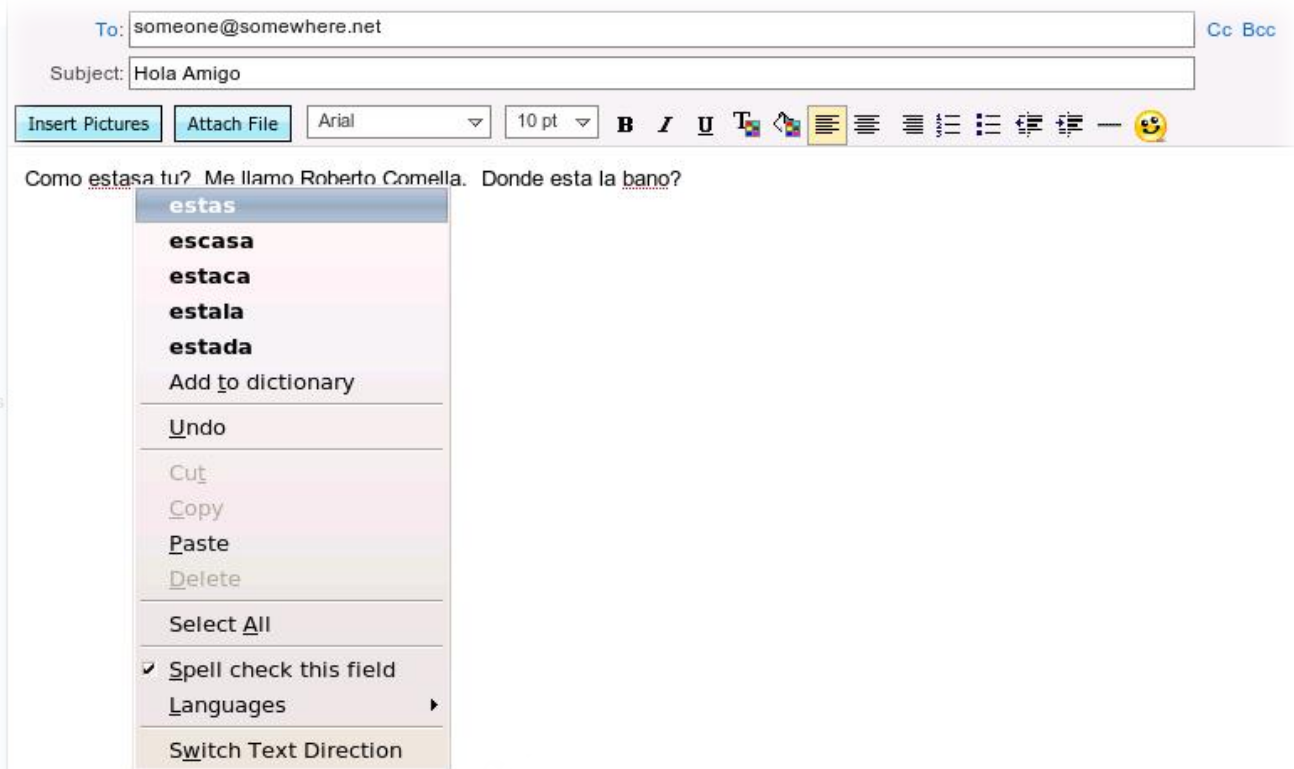
Mozilla is providing links to these applications as a courtesy, and makes no representations regarding the applications or any information related thereto. Any questions, complaints or claims regarding the applications must be directed to the appropriate software vendor.

Done addons.mozilla.org

The Dictionary list

Firefox Vs Windows Internet Explorer

When you install another dictionary it is available in the right click menu when you start to do spell checking. Once you select it, it will use it instead of English. I demonstrate below.



I read somewhere once that very intelligent people are usually not good spellers. Whether that is true or not I keep repeating it to myself as I make heavy use of this feature.

2.8 Session Restore

Another feature that is exclusive to Firefox is Session Restore. My wife loves this feature. She, like me, normally keeps many tabs open. She has several shopping carts open and products ready to purchase in each. Suddenly Windows crashes. She is forced to reboot the computer to get things working again. When she clicks on the Firefox icon upon reboot it asks here if she would like to restore her session or start a new one. When she answers yes her previous session is restored exactly as she left it including her shopping carts with the items in them.



Session restore

2.9 Add Ons

Both browsers have extensive lists of add ons. These little programs add different features to the browser. There are so many for each that this topic alone could fill many pages. There are add ons that increase security, play certain media (most of us are familiar with flash player), or change the look of the browser. Microsoft and Firefox once used compatible plug ins but Microsoft is deliberately moving away from that. To find plug ins for Microsoft you can go to the site:

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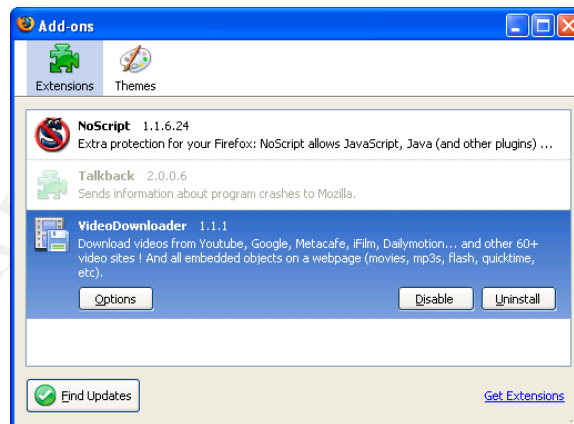
<http://www.Windowsmarketplace.com/category.aspx?bccatid=834&tabid=1/default.aspx>

Firefox plug ins can be found at:

<https://addons.mozilla.org/en-US/Firefox/>

A word of warning though; just because you see a cool add on does not mean you should install it. Be very careful that the add on is written by a reputable source as some can damage the computer or compromise your security. I would assume though that most of the ones advertised on the above sites are OK to install. Even so, verify the source of the plug in before you install it.

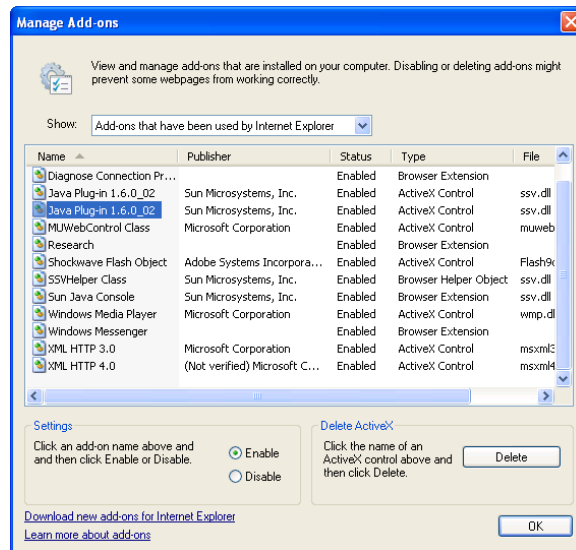
Firefox has a nice little add on manager. You can find it under tools --> add ons. It allows you to look for updates for your installed add ons. You can activate them, deactivate them, and most importantly uninstall them.



Firefox Plug In manager

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Microsoft also has a similar dialog it is below.



IE7 Plug in manager

3.0 Security

When the Internet started and scientists were lucky to get several packets in a row from one computer to another no one really worried about security. Things were open for anyone to play with. Unfortunately, as we all know, this is no longer the case. We need to be concerned with a seemingly endless list of exploits, phishing attempts, viruses, trojans, and add ware.

Had I written this document even last year at this time there would have been no comparison. Just because Firefox was not part of the operation system made it a far superior choice over IE6. Microsoft rewrote much the browser and corrected not only that issue but many others. The comparison is now much closer

Microsoft had, earlier in its development, made a decision to stress user friendliness over security. It worked for them because their market share soared. Today though, customers are beginning to understand the need for security as well as convenience. Microsoft has responded by making enormous improvements in their browser's security. It is more difficult for them because of the enormous amount of software already out there with which they must remain compatible. Firefox, on the other hand, came out much later in the game. They had the advantage of writing their software with many of today's threats in mind. Both companies are doing the best to keep up as new threats emerge.

3.1 General Outlook

Each company has taken a different approach to security.

Firefox Vs Windows Internet Explorer

Microsoft has given the user lots of choices about how security can be set up on the browser while Firefox has made most of the decisions for the user already.

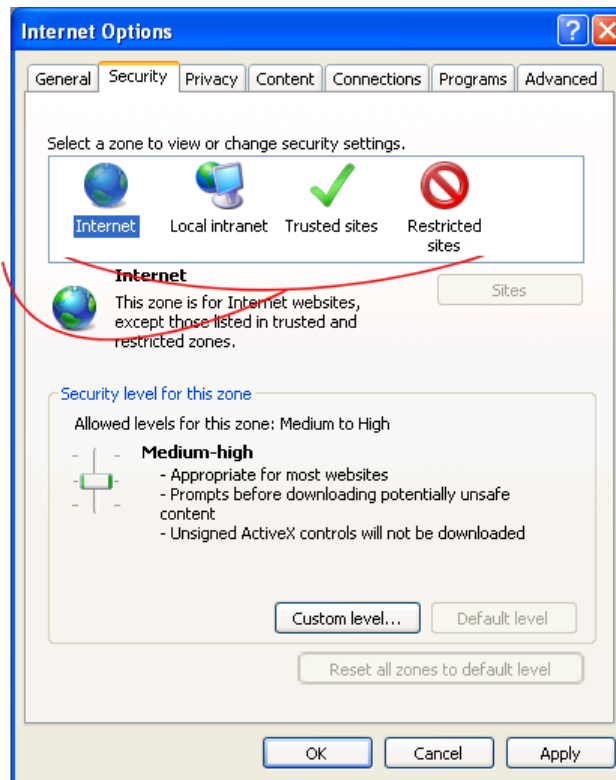
To quote the Mozilla website directly.

“Firefox will not allow a Web site to download, install, or run programs on your computer without your explicit agreement. Period. You will be notified whenever downloading or installing software, and Firefox will always tell you what’s happening so that you can stay in control of your computer.”

We will see that there is not really much to adjust when it comes to security in Firefox.

Microsoft on the other hand has all sorts of things we can do. They have based their security on what they call zones. There are 4 major zones by default. You can add zones too. When you click on “Tools” --> “Internet Options” then click on the “Security” tab. At the top you can see the 4 main zones. They are Internet, local Intranet (notice the A), trusted, and Restricted sites.

These are the four main internet zones



The Internet zone is the zone into which most sites default. It becomes the standard security level of the computer. Local Intranet is the zone for sites that are maintained by your company or within your network. IE7 assumes that it can be more permissive here. IE7 can sometimes identify local Intranet sites and is able to reassign them to the local Intranet zone. Trusted sites are external web sites that you believe are not out to harm you and you can set the security level a little lower to allow them to operate properly. Restricted sites are those sites that you consider to be dangerous. Unfortunately, there is no totally automatic way for IE7 to identify trusted sites and restricted sites apart from normal Internet sites. There are 3 choices. The first and best choice is to obtain a service that assigns sites to the appropriate zones for you. It

would then update your lists on a regular basis. There is a program called Spybot that will do this for you. It is free (but they ask for donations). When you install it and tell it to "immunize" your computer, one of the things it will do is populate the restricted sites zone for you with many thousand of sites. The second choice (But only for cooperate users) is to keep the lists going with AD. The first and second choices are usually combined. The final choice is to manually assign sites yourself. Doing it yourself though, is really not reasonable.

A different level of security can be set for each zone. Once you choose the zone you wish to change you have two options. You can go in and individually set the various options (there are about 70 or so) or you can choose one of the defaults. The defaults are just presets for all the different options. The options are as follows.

- **Low:** There are really no safeguards in place. Content will be downloaded and run without a prompt. This level is very dangerous and should only be used for sites you totally trust.
- **Medium low:** This will prevent unsigned ActiveX controls from being downloaded and installed but for the most part everything else is allowed. It is the default level for local Intranet sites.
- **Medium:** At this level you will be prompted for everything. If you do not want it to be installed you will at least have a choice. Unsigned ActiveX controls are blocked. This is the absolute minimum you should use for surfing the Internet but even this is dangerous. This is the default setting of trusted

sites.

- **Medium High:** Microsoft states that this is appropriate for most web sites. This is also the default level for the Internet zone. This level blocks downloads and such of certain things.
- **High:** This is the most secure level. This is the default level of the Restricted sites. Everything here is blocked with no choice to download it. While this is the best security setting you will find that many sites do not work with this setting.

The ideal situation would be if you could set the Internet zone to high and then add the sites you trust to the trusted zone list. That way your default is to deny all sites from running anything that may harm your computer. Then explicitly allow sites you work with all the time to do what they need. In practice though it does not work out that way. Adding sites to the trusted zone is not as straight forward as it would seem. Take AOL for example. To add AOL as a trusted site you will need to add more than just www.aol.com to the trusted sites zone. I have never actually gotten it to work. I have tried to adding <http://my.screenname.aol.com>, <http://webmail.aol.com>, and <http://www.aol.com>. to the trusted sites lists but, unfortunately it still hangs up on the log on screen when you move security up to the high level.

3.2 Protected Mode

Clearly the most important feature that Microsoft has put into their new browser is their idea of "Protected Mode". Protected mode makes use of three new features available in the new Vista line of operating systems.(Microsoft 2007) The first is User Account Control.(Microsoft 2007) UAC makes it easier to run programs without administrative rights (Microsoft 2007)(a problem Microsoft has had for a long time). The second is a method of restricting write access to objects of higher security level by objects of a lower security level. (Microsoft 2007) Finally something called User Interface Privilege Isolation prevents certain messages from being sent to processes of higher security levels. (Microsoft 2007) Since these three features are only available in the Vista line of operating systems Protected mode only works in Vista. The goal of protected mode is to run the browser in a process that has very low security privilege. (Microsoft 2007) These settings do not directly prevent malware from invading the system or keep a hacker from exploiting some flaw in the code. What they attempt to do, is prevent the attacker from being able to access any area of the operation system where he can do damage. Linux has been doing something similar for many years. It is called a chroot environment. From what I can tell a chroot environment is slightly stronger but it was not long before hackers found ways out of those too. Protected mode is better than nothing though and any defense in depth is a step in the correct direction.

Whether or not protected mode applies depends on the zone with which you are dealing. By Default it is on for Internet and

restricted zones but trusted sites and local computer zones do not use it. You can modify the zone to which different sites belong. You can also change to which zones protected mode applies. Finally you can also run IE7 as administrator (It is an option when you right click on the icon). Administrative mode effectively turns protected mode off. When you do this (I can't even fathom a reason for wanting to do this) all sites have full access to your system.

3.3 Phishing Protection

It would seem that there is a gaggle of rich oil barons who desperately need to put \$100,000,000 into my bank account for some reason or another. All I need to do is send them my bank account information and my SS number. I keep telling them I have a pay pal account they could wire the money to but they never respond...

Phishing is big business on the Internet. Both browsers are doing their best to help curtail this activity by maintaining a list of known phishing sites. When you attempt to visit one of these sites the browser automatically informs you of this sites status as a known phishing site before you go.

Firefox has a list inside the browser. It is downloaded automatically with updates. The sites you are visiting get checked against this list. While they do their best to maintain this list, phishing sites come and go very rapidly, so that list may not always be the most up to date. You can choose to subscribe to the Google list which is updated more frequently. This is a free service. Firefox will send the URL of each site you visit to the Google site. The URL is checked against Google's list. If the site is bad you will be notified. If not the only thing you may notice is a slight delay before you reach the new site. You can change whether the check is done locally or by Google on the security tab of the options dialog.



Firefox: Changing between local and remote phishing lists

Microsoft does not give you the choice of local vs external. They maintain their own list of known phishing sites. IE7 checks with with that list before you visit the site. Due to privacy concerns users must be given the opportunity to agree to this data being sent to Microsoft. Therefore, during the installation of IE7 you are asked if you would like to use this service. If you do not like the idea of all our URL's going to Microsoft then you are out of luck and this protection is not enabled.

Neither browser can prevent you from doing something stupid. Users still need to be vigilant and make sure they are where they think they are when they start entering personal information. Always type the URL of any site where you plan on entering personal information –never just click on a link-- (e.g. banking sites, Paypal site, Ebay and so on). Look for the “s” in https. Then at least you know your data in transit is secured. Never enter information on a site where the URL is made up of an IP address. Verify strange requests from vendors by calling them.

3.4 ActiveX VS Java

ActiveX and Java have the same basic purpose. They allow scripts to be run on the clients' computer. Without these programs the web would be a very boring place. With these scripts however come some security issues. Any time you allow a site to run code on your machine, you are giving up a little control.

ActiveX relies on the user for security via digital signatures. A digital signature is sort of like a real signature. It is to prove that this item (in this case a program) is written and distributed by the person who signed it. The user has to make the decision of whether or not to accept the program based on this information. If the signature is from a company that the user trusts then the program is OK, otherwise you should just say no. ActiveX controls that are not run in protected mode have the same rights to your computer that you do, which in the case of Microsoft products is usually administrative rites. When you are in protected mode then its rights are only at the level of the IE7 process (A significant improvement).



IE7 asks if it is OK to install an ActiveX control.

Java on the other hand relies on software security. Java creates a sandbox for programs to use. The sandbox has limited access to the rest of the machine and so therefore does not have the ability to affect things outside of its box. Crackers have been able to break out of this sandbox though so use caution in choosing which Java scripts to run.

IE7 will run both types of programs while Firefox will only run JAVA. This is a strength and a weakness for Firefox. While Java scripts can be dangerous, the total lack of programmatic security on ActiveX controls along with the fact that most of them are run at the administrative level makes them extremely dangerous. Not being able to run them makes Firefox more secure. Unfortunately though Firefox users sometimes find that certain sites were written in Microsoft's format. You will be unable to use these sites with Firefox. The two

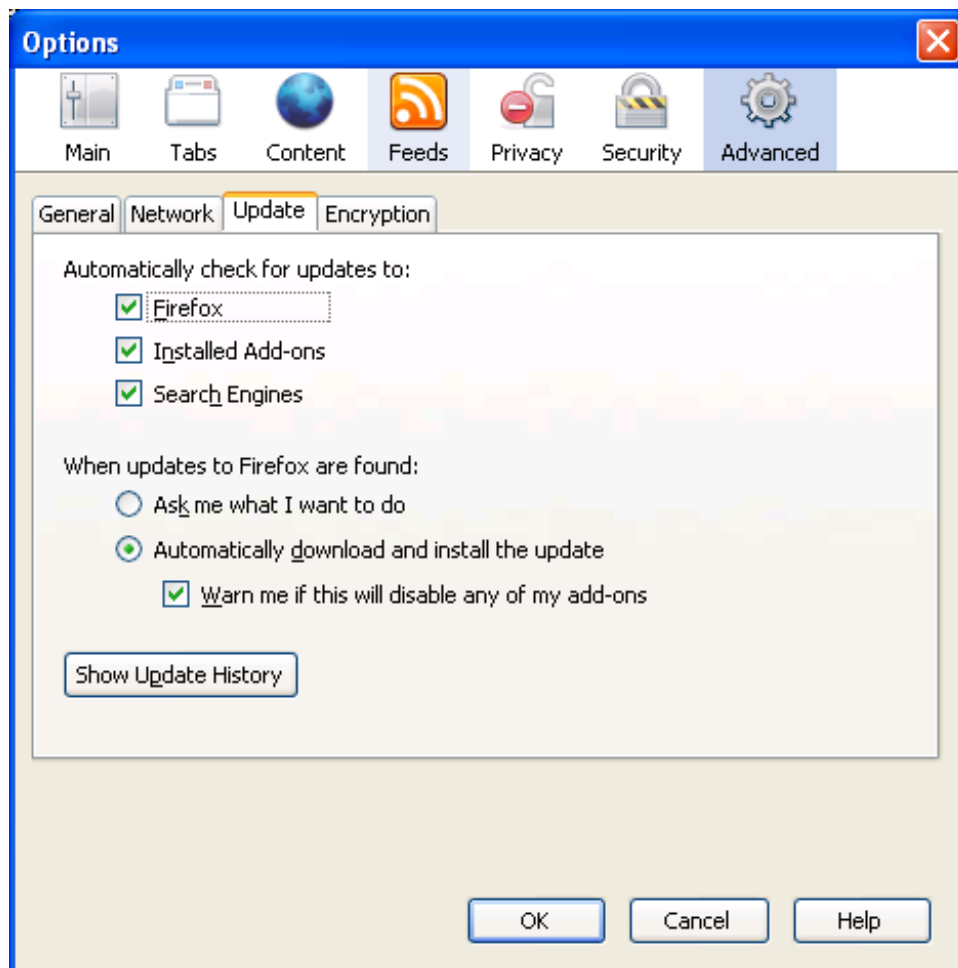
that I can think of immediately are Yahoo radio and Windows update sites. The more important of these is of course the Windows update site. If you are a home user this is where you will get all your updates. You will therefore need to have IE7 installed on your computer to be able to easily access all the updates that come out for Windows. Speaking of updates let's cover them next.

3.5 Updates

A browser is a very complex piece of software. Both IE7 and Firefox were created by many smart and motivated people. Unfortunately, they are still only people, and people make mistakes. When mistakes are found, the team responsible for the browser works to find and correct the problem. When the corrections are finished they publish a patch. Keeping up with the latest patches is extremely important. Both systems have a mechanism for downloading and installing patches.

Firefox Vs Windows Internet Explorer

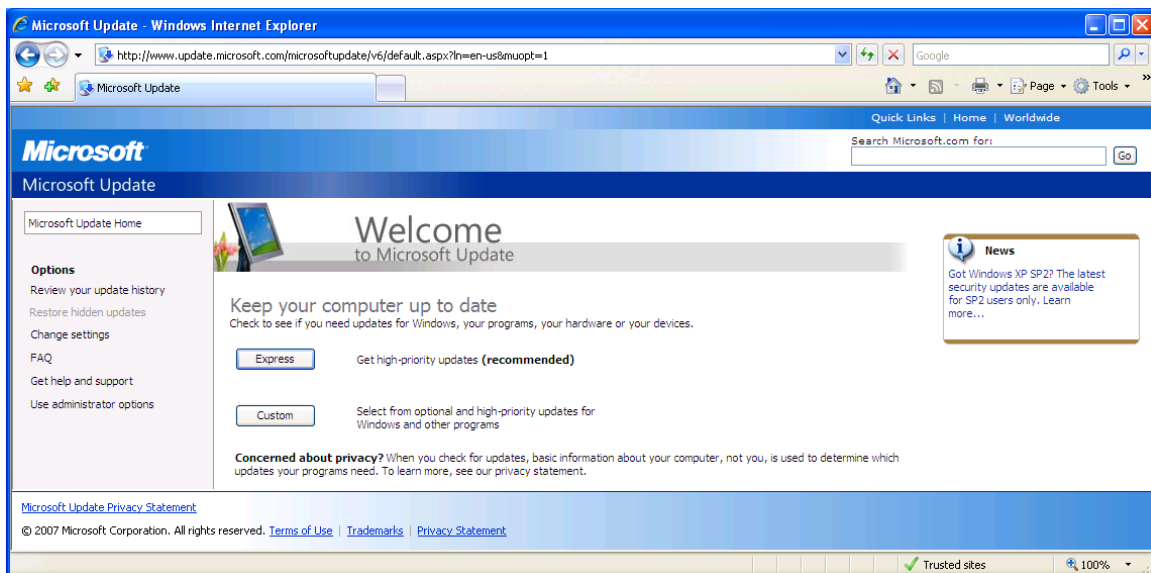
Firefox includes this as part of the package. You can turn it off if you want but the default is for the browser to check for updates any time it is on line. It will then automatically download and install the update for you. As long as the update does not require a restart of the software you will probably never notice that it happens. Every once in a while a new update will require you to stop the browser and restart it. The browser usually works fine until you restart it but these patches are generally very important so it is a good idea to restart as soon as possible.



The update options for Firefox

Firefox Vs Windows Internet Explorer

Microsoft included their browser's updates with all their OS updates. There are several ways to go about installing patches. For the average user they will either have automatic updates enabled and set to install at a certain time or they need to go to www.MicrosoftUpdates.com and have that site check your computer to see which downloads you need. It will then assist you in downloading and installing the updates. For corporate users, you can use one of many different pieces of software. WSUS is a free piece of software for this purpose. Microsoft patches patch many places in the OS and can sometimes cause issues with other pieces of software but this is largely not the case. You may want to test patches on a test machine before installing them on a critical machine.



Windows Update website

3.6 Open Source Vs Closed Source

This is a very touchy subject and feelings run deep on both sides of this issue. The question is whether or not Open source coding is more or less secure than closed source. Open source advocates will say that because the code is open for everyone to see, there are more people working on any problems that come up. For this reason open source code is quicker at finding and patching vulnerabilities. Those that think that closed source is the way to go counter by saying that because the code is open, crackers are able to identify vulnerabilities more easily. If we kept the source out of their hands they would never find the bugs and therefore not exploit them.

I tend to agree more with the open source crowd but I believe that bugs should be reported in a very discrete way. Not allowing anyone to see the code you have written makes several assumptions. First, you have thought of all the possible ways a person can try to break your program. Second, that you will be able to catch all the errors and fix them before anyone else does. It is all up to you because the crackers certainly are not going to tell you there is a problem. While crackers are still trying to break open source code, there are others beside yourself looking at ways to prevent it. Of course you are relying on the kindness of strangers.

A powerful example of this principle is the movie industry. They wanted a way to secure their DVD media so that only licensed people could play them. Rather than using a public encryption method that had been hammered for a while, they thought they could create a

new one that was better. They spent years and millions of dollars developing a new encryption. When they introduced it though it only took a few days to crack. It was too late to change however and now DVD's are essentially without encryption.

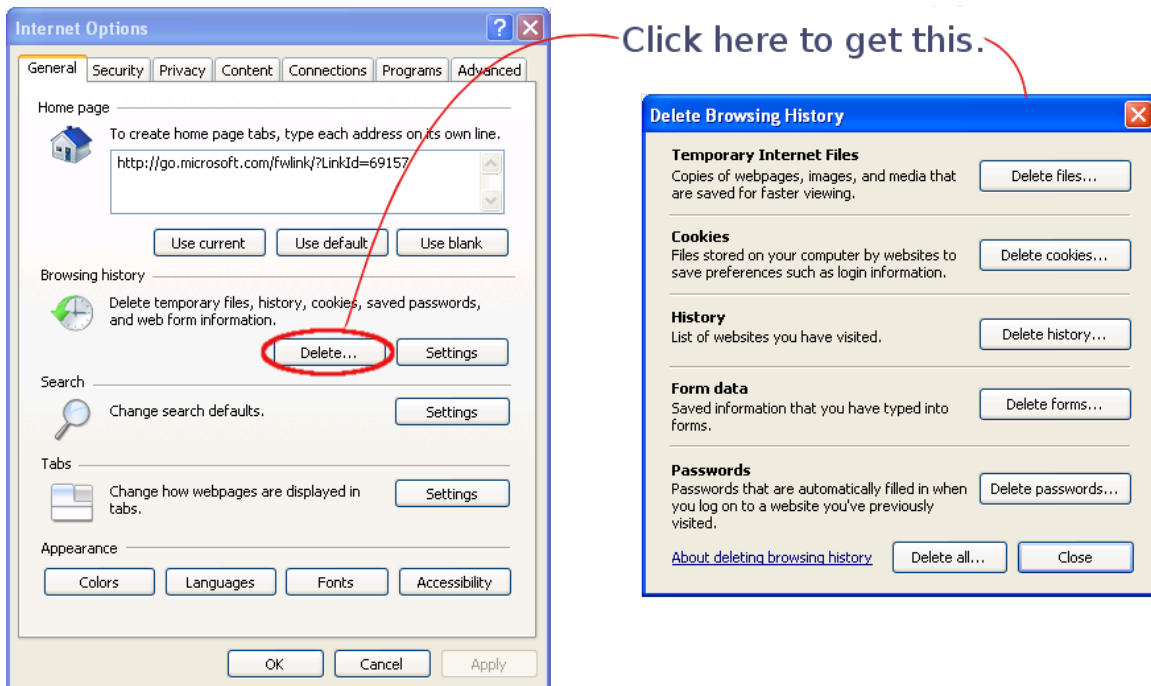
Mozilla's open model has been very effective in correcting issues as they come up. Their response time is generally very quick. Microsoft is only a little slower.

3.7 Privacy

Both browsers allow for cleaning up the temporary Internet files, browsing history, and cookies. This is a rather important step for two reasons. The first is speed. IE loads the temporary Internet files into memory. The more you have in there, the less memory you have to run applications. It also takes longer to sort through them when you want to find one. These directories can contain thousands of files. The second big reason is privacy. It is possible to see where you have been on the Internet by examining these files. I only know it can be done by an administrator on the machine but my knowledge is limited here. Cookies can also leave a trail of your comings and goings on the Internet. This can be more diabolical. While cookies themselves pose no threat to you, some web sites (like doubleclick.com) take a look at them to see where you have been. They send the information back to their database and create a profile of your surfing habits. Then they tailor ads and pop ups to your tastes. Each browser has a similar way of getting rid of these files. You go into the options screen and delete them. Firefox has the added ability to delete them every time the browser exits.

Firefox Vs Windows Internet Explorer

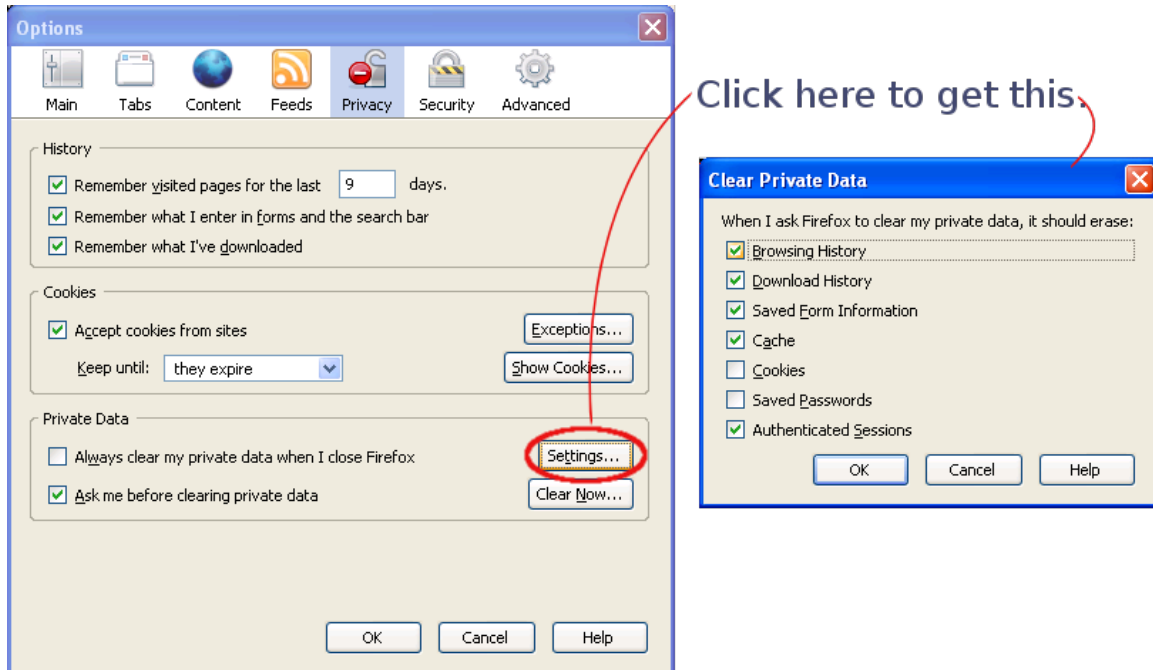
Below is a screen shot of the Microsoft's deletion procedure. Once you get the screen on the right you can delete things individually or all at one with "Delete all" I recommend doing this on a regular basis.



***Here is where you delete the temp files in IE7.
You can also delete your saved password here which we will
cover in a minute.***

Firefox Vs Windows Internet Explorer

This is how Firefox looks. The most notable thing here is the check box on the screen on the right labeled "Always clear my private data when I close Firefox." I recommended checking it. (unlike you see here)

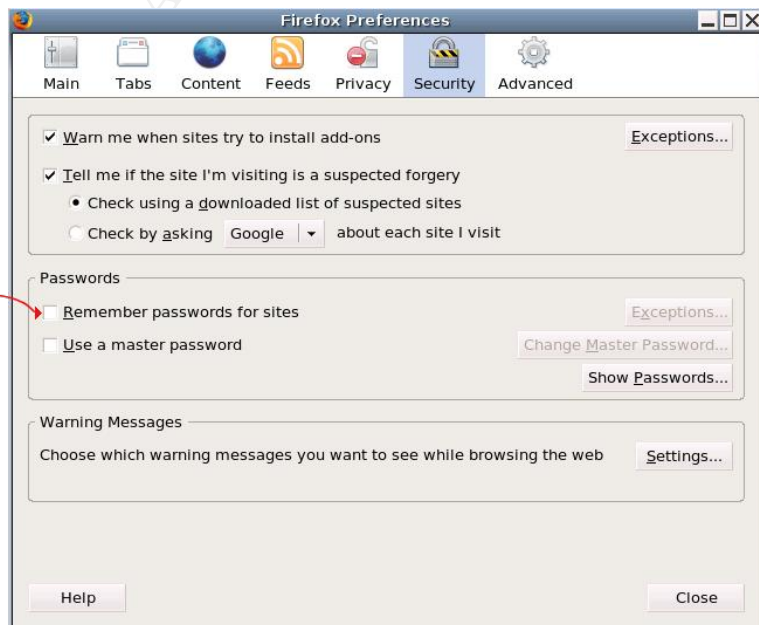


Delete the files using Firefox

3.8 Passwords (a bad idea?!)

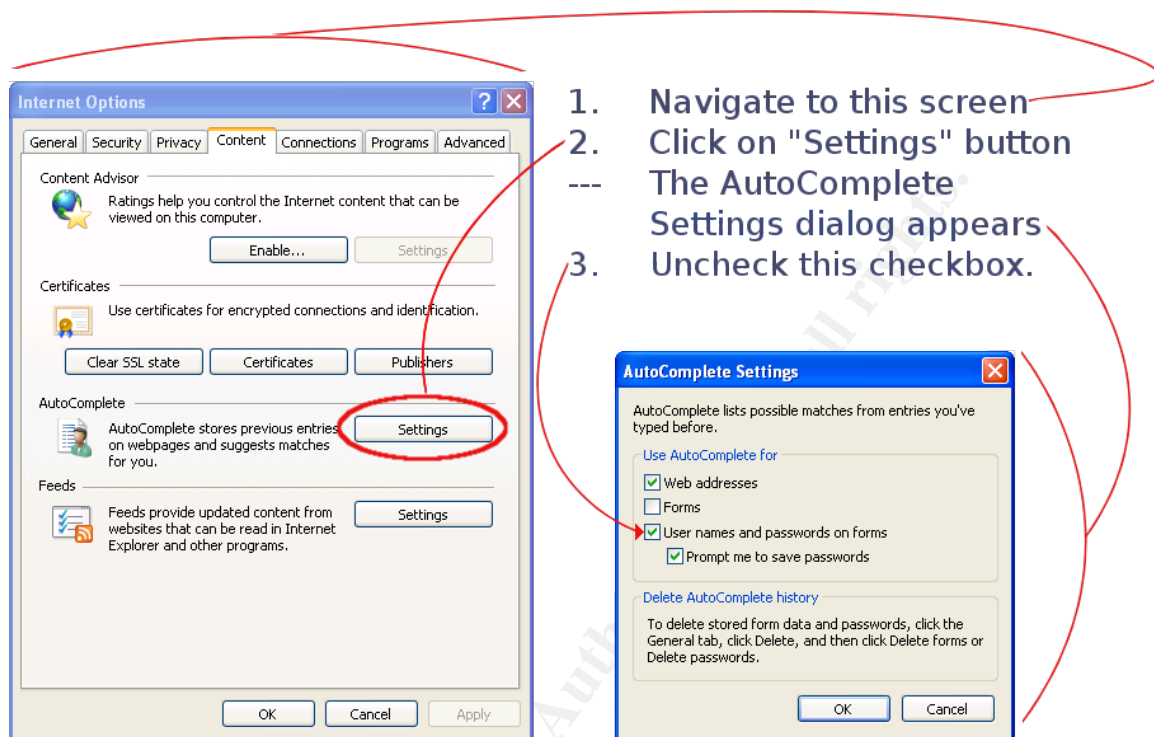
Well passwords are not a bad idea storing them anywhere but in your head is. Despite this many people make heavy use of this feature in both browsers. Each browser stores these passwords in an encrypted form. There are, however, several different pieces of software that will crack passwords stored by IE7 in the registry. Firefox stores them in a file. The contents of the file are open to be viewed by any user through the browser. Each user can set up a master password that prevents others from accessing the file directly. If the file can be copied there are several programs available to try to brute force the password. The best method for avoiding problems here is not to use the password managers. If that is your goal you can turn off the service.

Uncheck this box to disable the remember passwords tool.



Turn off the password tool in Firefox

Here is the Microsoft method.



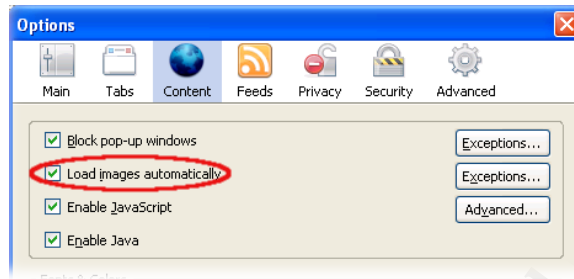
If however you have not turned it off and you mistakenly tell the computer to remember a password you can delete them. If you are using Firefox go to: Tools --> Options --> Security --> Show Passwords (See photo above for deleting files). You can use this screen to delete the passwords you have stored. AS for IE7 you need to go to: Tools --> Internet Options --> [Under the browsing history label] Delete. Then you can click on "Delete passwords" or just click on delete all (Again see the photo above).

3.9 Other Security related topics

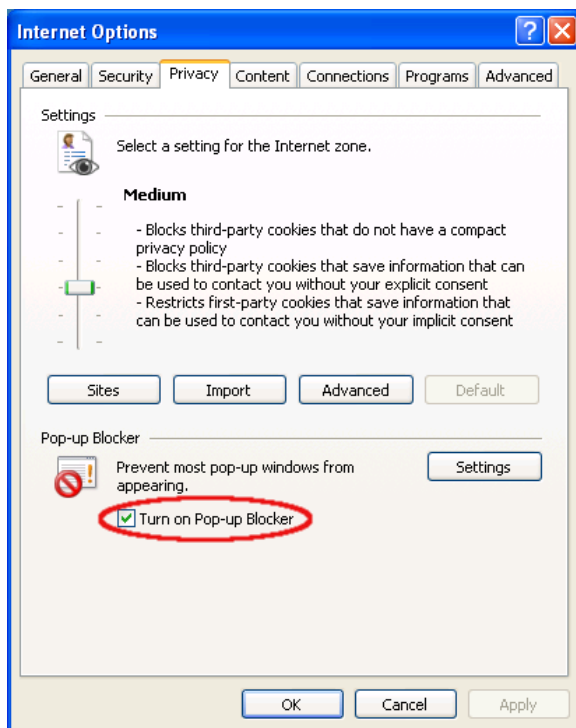
There are a few other things that one of or both browsers do but do not warrant an entire section.

Firefox Vs Windows Internet Explorer

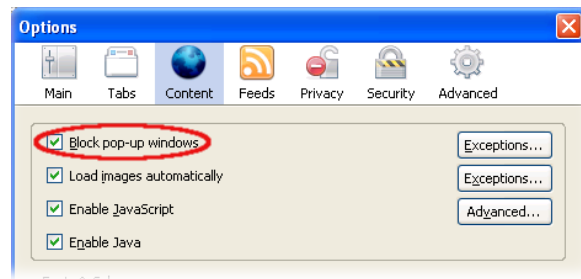
- Firefox allows you to block pictures from certain sites. This allows for quicker browsing and a slight increase in security.



- Both browsers have the ability to block pop-up windows. You can adjust site by site whether or not you want to flat out refuse pop-ups, accept them or have the browser ask you each time.



IE7 pop-up blocker



Firefox pop-up blocker

3.10 Secure Settings

Both browsers can be made to run relatively securely if the user sets the settings correctly. I will start with Firefox as there is little to do here.

Firefox is pretty good right out of the box. You will actually find that there is relatively little that you can even change. I'll run through them.

- Under tools, options, on the general tab have Firefox make sure that it is the default browser.
- Click on the content tab. Here you can disable Java and Java script. It is more secure to browse with both off but you will find that many pages will not work correctly. In this case I recommend a plug in (many others do as well) called NoScript. NoScript allows you to choose which sites you will allow Java script to work. That way you can have it off most of the time but then only turn it on when you can trust it. Another plug in called QuickJava allows you to turn Java on and off via buttons on the command bar.
- On the privacy tab you can make the choice of whether or not to accept cookies. Cookies have a bad rap. There really is nothing wrong with them. About the worst thing that they can do is allow sites like doubleclick.com to make a list of where you have been by reading the cookies on your system. I generally keep them enabled and delete them when I close the browser.

- Now move to the Security Tab. Here be sure that you tell Firefox to warn you if someone tries to install an add on.
 - Check "Tell me if the site I am visiting is suspected of forgery?" The option below is up to you. The first option checks the internal list while the second on will send all your URL's to Google.
 - Under passwords the best policy is not to use it. Just uncheck the box. If you really have to use it, at least set the master password to something long and complex that you can remember. (I like to use pass phrases like "Computers are fun!" or "I hate changing my stupid password!" They are easy to remember and complex)
- Finally on the advanced tab, click on the update tab on the screen below. Tell the browser to check for updates for everything and it will do so automatically.

The rest of security on Firefox is really up to you. Don't install anything except those things that you know you need. Keep off of questionable sites. Don't send any personal information to a site unless you are positive they are who they say they are. I highly recommend installing the NoScript plug in. It makes browsing a little more difficult at first. (You need to keep allowing scrips on your common websites to work) After a few days, all your sites will be working. I have found it cuts down on the number of adds that run.

In the Microsoft world there is a lot more with which you can play. The problem of course is that the normal user will probably

not fiddle around with the settings preferring convenience over security. Despite this though here are the recommended settings for IE7

- If you plan on using IE then uninstall Firefox altogether. There are a few reasons for this. First Firefox needs to run in order to look for and install updates. If you never run it then it will never update. Second, why have software on your computer that is not being utilized? It is just another security risk waiting for an exploit.
- When you install Vista, protected mode is automatically turned on so be sure not to bypass it, turn it off, or run in administrative mode.
- Set the security level of the Internet zone to high. If you are lucky all of your sites will work with this setup. If, however, you find that some will not work, then you will have to manually change the Internet zone to medium high each time you visit that site. You can change it back when you are done. You can just downgrade to medium high all the time but it is not recommended.
- Add the sites you frequent to the list of trusted zones. The easiest way to do this is to set the Internet zone to medium high, navigate to the site, then open the Internet Options dialog and click on the trusted sites. Then click on add.
- Finally if you have chosen to use Firefox as your main browser you should do some things to make your life easier. Open IE7 and set the Internet zone to high. Navigate to the Windows Update website and add it to the trusted sites list. Finally set

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it as your home page. That way when you open IE7 it takes you directly to the Windows update site. (since that is all you will do)

Finally, if you are able, install Spybot (or something like it) which will populate the restricted zone. You will be much better off. Even if you are unable to work with your browser's Internet zone on high, you will have some line of defense against evil sites

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4.0 Corporate Integration

Many of those reading this paper will be working for some corporation. They will have the responsibility of maintaining hundreds even thousands of computers. With the ever dwindling staff and budgets, IT departments need to be able to do a little and get a lot. Centralization is the key. From one place an administrator needs to be able to distribute software, patch it, and maintain its settings. They also need to receive feedback as to whether or not their software distributions and patching worked.

Most organizations utilize Microsoft AD for their networks with a few Linux member servers thrown in for specific applications. Someone can build an entire network on Linux alone but that is rather rare. I do not specifically know how to centralize management of software distribution in Linux (it is on my list of things to figure out) but I have learned not to underestimate those that truly understand that OS. They can work what looks like magic. I will stick with what I know for now and focus on the mixed network based on AD in this paper.

Microsoft's current server product will allow you to create what is called an Active Directory domain. Active Directory (AD) is basically a database of objects in the network. You create an object for each piece of the network (i.e. users, groups, computers, servers, policies). Microsoft then gives us an interface with which we can manipulate the relationships of these objects. It all sounds confusing and it can be. Networks, especially large ones, if not well planned can get unruly and difficult to maintain and manage. AD

does give us some tools we need though to manage our browser installation.

4.1 Distribution

The first step is getting the browser out there. Microsoft certainly has the advantage here. Since most companies utilize Windows XP on the desktop IE6 is already out there by default. IE7 as stated earlier was released as a high priority patch for XP so any computer that has been kept up to date will most likely have IE7 already.

Firefox, not being directly linked to the OS requires, a little more work. AD does have the ability to distribute software using group policy. While an in depth discussion of Group Policy would make a good topic for another paper I will keep it brief here. Group policy is a tool admins can use for pushing down settings to all or some of the machines or users on a network. I can create a policy that tells all the computers on the network to install a specific package. GP only will distribute a package with a .msi extension. This is a proprietary file format that only works with Microsoft products. An MSI file can be created for any piece of software by using tools provided by Microsoft, but it can be tricky. Much testing and trial and error is the norm. Luckily though many before me have done the work and posted many different Firefox.msi files. I usually create a group and a policy at the same time. I apply the policy first then a group. I place the computer objects into the group to which I want the policy applied.

4.2 Patching

Once the browser is out there we need to be able to patch it. Microsoft has a product that can be downloaded for free called WSUS. WSUS is a tool used to patch computers on a network. It downloads and stores all the patches for the programs you assign it. It then uses AD to tell the computers in your network to contact it for updates every so often. It then tells the computers which patches they need and goes about installing them. Finally it gives you a report as to which patches were installed and which ones were not. Over all it is a rather nice system and works for patching IE7 (since it is part of the Microsoft OS). Technically this is how most people distribute IE7. It was a patch for IE6.

Firefox largely tries to take care of itself. It can be set to automatically download and install patches. Unfortunately there is no way to monitor that it is doing so from a centralized location. This means that every computer needs to head out to the Internet and download the patch. What if the user on that machine does not have appropriate access to get to the Internet? (One may then point out "Why do they even need an Internet browser?"). Even if they have the right to access the Internet do we want that user to have the ability to install new software on their desktop? Finally since every computer will download its own copy (unless your caching server has a large limit) it will take a significant amount of bandwidth. Clearly there are some wrinkles to work out here.

4.3 Settings

The last part of making this work is controlling the settings on

everyone's browser. A company should have some sort of policy when it comes to browser settings and it should be enforced uniformly. For IE7 users the Active Directory comes to the rescue again here. You can control most all of the settings in the IE7 browser using AD. The browser has its own node in the policy tree with all the things you can do under it. You can bend IE7 to your will easily.

Firefox on the other hand does not have a native centralization tool. Several third parties have created things that will expand the AD to include Firefox setting. Once the AD has been expanded then the process is the same as it is for IE7.

5. Conclusion

All in all, both browsers are good pieces of software. They each have their strength and weaknesses so you must fit the browser into your needs. Here is how I see it:

Lets get the obvious stuff out of the way. If your network does not run Windows XP or Vista then the choice is simple. You can't use IE7 as it is only supported by those two operating systems. Firefox, in my opinion, is better than IE6 when it comes to usability and security. If you are running an older version of Windows or you are running Linux, I would recommend Firefox. Mac's have a few more choices as well but I am not familiar with them.

If you are a home user running Windows XP, Firefox edges IE7 out by a little. It has the spell check, crash recovery, and I like the active bookmarks. More importantly when you install the add on Noscript you can browse in a rather secure fashion somewhat more

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conveniently than you can with IE7 with its Internet zone set to high security. That said though you will still come across sites that follow the Microsoft standards. In those cases you will be forced to use IE7. Having to use two different browsers is inconvenient and if you visit lots of sites that are IE7 only you may just choose to stick with it.

If you are a home user running Vista, it is kind of a toss up when it comes to security. The protected mode does offer rather good security. It is, however, only a matter of time before crackers find a way to elevate their privileges. When that day comes I would go with Firefox as you can prevent most scripts from running much more conveniently with the Noscript add on. I would rather prevent an attacker from attacking my computer altogether than allowing him to attack and just mitigating the damage. In an ideal world you could have both Noscript and protected mode but that is not available yet.

The final situation is the cooperate environment. Even though I like the Firefox product better from a user perspective it does come up lacking when it comes to centralization options. There are many people working on this issue at this time and I imagine that we will eventually see some sort of standard emerge for the distribution of Firefox in an enterprise. People have done it. Surprisingly though they are reluctant to talk about it. Perhaps they are frightened of Microsoft's response. In smaller companies, where it is feasible to look at all the desktops in a reasonable amount of time, Firefox with its issues may still work. The biggest obstacle is its lack of reporting. The permissions issue may not be a big deal depending on your policy. Unfortunately, as an organization grows, the problems begin outweigh the benefits. In the end unless there is some

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pressing reason not to use IE7 I would use it. You can use group policy to keep the restricted zones up to date.

With that, I have said just about all I can. The browser battle is still on even though Microsoft has the lion's share of the market. They have shown that if they are not challenged, their product will stagnate as it did with IE6.

Each could make some improvements. Microsoft needs some sort of script manager like Noscript to make secure browsing more convenient. Firefox needs to work on its enterprise integration to become a serious threat to Microsoft's market share. I hope that this article answered more questions than it raises. This topic is never really settled because each continuously outdoes the other.

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