[Template:Distinguish](/wiki/Template:Distinguish" \o "Template:Distinguish) [Template:About](/wiki/Template:About) [Template:Use mdy dates](/wiki/Template:Use_mdy_dates) [Template:Infobox web browser](/wiki/Template:Infobox_web_browser)

[Template:Firefox TOC](/wiki/Template:Firefox_TOC)

**Mozilla Firefox** (or simply **Firefox**) is a [free and open-source](/wiki/Free_and_open-source)[[1]](#cite_note-1) [web browser](/wiki/Web_browser) developed by the [Mozilla Foundation](/wiki/Mozilla_Foundation) and its subsidiary, the [Mozilla Corporation](/wiki/Mozilla_Corporation). Firefox is available for [Windows](/wiki/Microsoft_Windows), [OS X](/wiki/OS X) and [Linux](/wiki/Linux) [operating systems](/wiki/Operating_system), with its [mobile versions](/wiki/Firefox_for_mobile) available for [Android](/wiki/Android_(operating_system)), and [Firefox OS](/wiki/Firefox_OS); where all of these versions use the [Gecko](/wiki/Gecko_(layout_engine)) [layout engine](/wiki/Layout_engine) to render web pages, which implements current and anticipated [web standards](/wiki/Web_standards),[[2]](#cite_note-2) but an additional version released in late 2015 – [Firefox for iOS](/wiki/Firefox_for_iOS) has also been made available – that doesn't use Gecko.

Firefox was created in 2002, under the name "Phoenix" by the [Mozilla community](/wiki/Mozilla) members who wanted a standalone browser rather than the [Mozilla Application Suite](/wiki/Mozilla_Application_Suite) bundle. Even during its [beta](/wiki/Beta_software) phase, Firefox proved to be popular by its testers and was praised for its speed, security and add-ons compared to Microsoft's then-dominant [Internet Explorer 6](/wiki/Internet_Explorer 6). Firefox was released in November 2004,[[3]](#cite_note-3) and was highly successful with 60 million downloads within nine months, which was the first time that Internet Explorer's dominance was challenged.[[4]](#cite_note-4) Firefox is considered the [spiritual successor](/wiki/Spiritual_successor) of [Netscape Navigator](/wiki/Netscape_Navigator),[[5]](#cite_note-5) as the Mozilla community was created by [Netscape](/wiki/Netscape) in 1998 before their acquisition by [AOL](/wiki/AOL).[[6]](#cite_note-6) [Template:As of](/wiki/Template:As_of), Firefox has between 9% and 16% of worldwide [usage](/wiki/Usage_share_of_web_browsers) as a "desktop" browser, making it the second most popular web browser.[[7]](#cite_note-7)[[8]](#cite_note-8)[[9]](#cite_note-9)[[10]](#cite_note-10)[[11]](#cite_note-11) Firefox is the most popular browser in [Samoa](/wiki/Samoa), [Germany](/wiki/Internet_in_Germany), [Eritrea](/wiki/Eritrea) and [Cuba](/wiki/Internet_in_Cuba), with 61.05%,[[12]](#cite_note-12)[[13]](#cite_note-13) 38.36%,[[14]](#cite_note-14)[[15]](#cite_note-15) 79.39%[[16]](#cite_note-16)[[17]](#cite_note-17) and 85.93%[[18]](#cite_note-18) of the market share, respectively. It is also the most popular desktop browser in many other African,[[19]](#cite_note-19) and a few Asian countries.[[20]](#cite_note-20) According to Mozilla, [Template:As of](/wiki/Template:As_of) there were half a billion Firefox users around the world.[[21]](#cite_note-21) With [Internet Explorer](/wiki/Internet_Explorer) declining, Firefox reached second place in February 2016, as a desktop browser.[[22]](#cite_note-22)

## Contents

* 1 History[[edit](/index.php?title=(none)&action=edit&section=1)]
* 2 Features[[edit](/index.php?title=(none)&action=edit&section=2)]
  + 2.1 Standards[[edit](/index.php?title=(none)&action=edit&section=3)]
  + 2.2 Security[[edit](/index.php?title=(none)&action=edit&section=4)]
  + 2.3 Telemetry[[edit](/index.php?title=(none)&action=edit&section=5)]
  + 2.4 Localizations[[edit](/index.php?title=(none)&action=edit&section=6)]
  + 2.5 Platform availability[[edit](/index.php?title=(none)&action=edit&section=7)]
    - 2.5.1 Unofficial ports[[edit](/index.php?title=(none)&action=edit&section=8)]
    - 2.5.2 Firefox on Unix[[edit](/index.php?title=(none)&action=edit&section=9)]
    - 2.5.3 OS support history[[edit](/index.php?title=(none)&action=edit&section=10)]
    - 2.5.4 CPU architectures[[edit](/index.php?title=(none)&action=edit&section=11)]
    - 2.5.5 x86 family[[edit](/index.php?title=(none)&action=edit&section=12)]
    - 2.5.6 Other CPU architectures[[edit](/index.php?title=(none)&action=edit&section=13)]
    - 2.5.7 System requirements[[edit](/index.php?title=(none)&action=edit&section=14)]
    - 2.5.8 Firefox for mobile[[edit](/index.php?title=(none)&action=edit&section=15)]
    - 2.5.9 Firefox for iOS[[edit](/index.php?title=(none)&action=edit&section=16)]
* 3 Release history[[edit](/index.php?title=(none)&action=edit&section=17)]
  + 3.1 Extended Support Release[[edit](/index.php?title=(none)&action=edit&section=18)]
* 4 Licensing[[edit](/index.php?title=(none)&action=edit&section=19)]
* 5 Trademark and logo[[edit](/index.php?title=(none)&action=edit&section=20)]
  + 5.1 Branding and visual identity[[edit](/index.php?title=(none)&action=edit&section=21)]
* 6 Promotion[[edit](/index.php?title=(none)&action=edit&section=22)]
* 7 Performance[[edit](/index.php?title=(none)&action=edit&section=23)]
* 8 Market adoption[[edit](/index.php?title=(none)&action=edit&section=24)]
* 9 See also[[edit](/index.php?title=(none)&action=edit&section=25)]
* 10 References[[edit](/index.php?title=(none)&action=edit&section=26)]
* 11 Further reading[[edit](/index.php?title=(none)&action=edit&section=27)]
* 12 External links[[edit](/index.php?title=(none)&action=edit&section=28)]

## History[[edit](/index.php?title=(none)&action=edit&section=1)]

[Template:Main](/wiki/Template:Main)

The Firefox project began as an experimental branch of the [Mozilla project](/wiki/Mozilla#Mozilla_Project) by [Dave Hyatt](/wiki/Dave_Hyatt), [Joe Hewitt](/wiki/Joe_Hewitt_(programmer)) and [Blake Ross](/wiki/Blake_Ross). They believed the commercial requirements of [Netscape's](/wiki/Netscape) sponsorship and developer-driven [feature creep](/wiki/Feature_creep) compromised the utility of the Mozilla browser.[[23]](#cite_note-23) To combat what they saw as the [Mozilla Suite's](/wiki/Mozilla_Application_Suite) [software bloat](/wiki/Software_bloat), they created a stand-alone browser, with which they intended to replace the Mozilla Suite.[[24]](#cite_note-24) On April 3, 2003, the [Mozilla Organization](/wiki/Mozilla_Foundation) announced that they planned to change their focus from the Mozilla [Suite](/wiki/Software_suite) to Firefox and [Thunderbird](/wiki/Mozilla_Thunderbird).[[25]](#cite_note-25) The community-driven [SeaMonkey](/wiki/SeaMonkey) was formed and eventually replaced the Mozilla Application Suite in 2005.

[180px|thumb|left|Phoenix 0.1 screenshot on](/wiki/File:Phoenix_0.1.png) [Windows XP](/wiki/Windows_XP)

The Firefox project has undergone several name changes. It was originally titled Phoenix, which carried the implication of the [mythical firebird](/wiki/Phoenix_(mythology)) that rose triumphantly from the ashes of its dead predecessor, in this case from the "ashes" of Netscape Navigator after it had been killed off by [Microsoft's](/wiki/Microsoft's) [Internet Explorer](/wiki/Internet_Explorer) in the "[First browser war](/wiki/First_browser_war)". Phoenix was renamed due to trademark issues with [Phoenix Technologies](/wiki/Phoenix_Technologies); the replacement name, Firebird, provoked an intense response from the [Firebird](/wiki/Firebird_(database_server)) database software project.[[26]](#cite_note-26)[[27]](#cite_note-27) In response, the Mozilla Foundation stated that the browser would always bear the name Mozilla Firebird to avoid confusion. After further pressure, on February 9, 2004, Mozilla Firebird became Mozilla Firefox.[[28]](#cite_note-28) The name Firefox was said to be derived from a nickname of the [red panda](/wiki/Red_panda),[[29]](#cite_note-29)[[30]](#cite_note-30) which became the mascot for the newly named project. For the abbreviation of Firefox, Mozilla prefers *Fx* or *fx,* though it is often abbreviated as *FF*.[[31]](#cite_note-31) The Firefox project went through many versions before the version 1.0 was released on November 9, 2004.

## Features[[edit](/index.php?title=(none)&action=edit&section=2)]

[Template:Main](/wiki/Template:Main)

Features include [tabbed browsing](/wiki/Tab_(GUI)), [spell checking](/wiki/Spell_checker), [incremental find](/wiki/Incremental_find), [live bookmarking](/wiki/Live_bookmarks), [Smart Bookmarks](/wiki/Smart_Bookmarks), a [download manager](/wiki/Download_manager), [private browsing](/wiki/Privacy_mode), location-aware browsing (also known as "[geolocation](/wiki/Geolocation)") based on a [Google](/wiki/Google) service[[32]](#cite_note-32) and an integrated search system that uses [Yahoo! Search](/wiki/Yahoo!_Search), which is a front end of [Microsoft](/wiki/Microsoft) search engine [Bing](/wiki/Bing), by default in most localizations.<ref name=techcrunch-firefoxyahoo>[Template:Cite web](/wiki/Template:Cite_web)</ref> Additionally, Firefox provides an environment for web developers in which they can use built-in tools, such as the Error Console or the [DOM Inspector](/wiki/DOM_Inspector), or extensions, such as [Firebug](/wiki/Firebug_(software)) and more recently there has been an integration feature with [Pocket](/wiki/Pocket_(application)). Firefox Hello was an implementation, added in October 2014, allowing 2 users of Firefox to have a video call, with the extra feature of screen and file sharing by sending a link to each other.

Functions can be added through [add-ons](/wiki/List_of_Firefox_extensions) created by [third-party developers](/wiki/Third-party_developer). Add-ons are primarily implemented by means of the [XUL](/wiki/XUL) and [XPCOM](/wiki/XPCOM) [APIs](/wiki/API), which allow them to directly access and manipulate much of the browser's internal functionality. On August 21, 2015, Firefox developers announced that due to planned changes to Firefox's internal operations, including the planned implementation of a new multi-process architecture codenamed "Electrolysis", Firefox will adopt a new extension architecture known as WebExtensions. WebExtensions uses HTML and JavaScript APIs and is designed to be similar to the [Google Chrome](/wiki/Google_Chrome) and [Microsoft Edge](/wiki/Microsoft_Edge) extension systems, and run within a multi-process environment, but does not enable the same level of access to the browser. Solutions will be available to allow older add-ons to operate within the new architecture, but by 2017, XPCOM and XUL add-ons will no longer be supported.<ref name=ars-webextensions>[Template:Cite web](/wiki/Template:Cite_web)</ref>

Firefox can have themes added to it, so users can experience Firefox in a more personal way. There are websites where users can create and download personalized themes, with their choice of colors and images. This can make the experience of using Firefox more unique and fun compared to other web browsers that do not offer custom-built themes. The Firefox add-on website also gives users the ability to add other applications such as games, ad-blockers, screenshot apps and many other useful apps.[[33]](#cite_note-33)[Template:Better source](/wiki/Template:Better_source)

### Standards[[edit](/index.php?title=(none)&action=edit&section=3)]

[thumb|The result of the](/wiki/File:Acid3_Mozilla_Firefox_test.png) [Acid3](/wiki/Acid3) test on Firefox 17

Firefox implements many [web standards](/wiki/Web_standards), including [HTML4](/wiki/HTML4) (partial [HTML5](/wiki/HTML5)), [XML](/wiki/XML), [XHTML](/wiki/XHTML), [MathML](/wiki/MathML), [SVG](/wiki/Scalable_Vector_Graphics) 1.1 (partial),[[34]](#cite_note-34) [CSS](/wiki/Cascading_Style_Sheets) (with extensions),[[35]](#cite_note-35) ECMAScript ([JavaScript](/wiki/JavaScript)), [DOM](/wiki/Document_Object_Model), [XSLT](/wiki/XSLT), [XPath](/wiki/XPath), and [APNG](/wiki/APNG) (Animated [PNG](/wiki/Portable_Network_Graphics)) images with [alpha transparency](/wiki/Alpha_compositing).[[36]](#cite_note-36) Firefox also implements standards proposals created by the [WHATWG](/wiki/WHATWG) such as client-side storage,[[37]](#cite_note-37)[[38]](#cite_note-38) and [canvas element](/wiki/Canvas_element).[[39]](#cite_note-39) These standards are implemented through the Gecko Layout Engine, and Spidermonkey Javascript Engine.

Firefox has passed the [Acid2](/wiki/Acid2) standards-compliance test since version 3.0.[[40]](#cite_note-40) Mozilla had originally stated that they did not intend for Firefox to pass the [Acid3](/wiki/Acid3) test fully because they believed that the SVG fonts part of the test had become outdated and irrelevant, due to [WOFF](/wiki/WOFF) being agreed upon as a standard by all major browser makers.[[41]](#cite_note-41) Because the SVG font tests were removed from the Acid3 test in September 2011, Firefox 4 and greater scored 100/100.[[42]](#cite_note-42)<ref name=acid3updated>[Template:Citation](/wiki/Template:Citation)</ref>

Firefox also implements[[43]](#cite_note-43) a [proprietary protocol](/wiki/Proprietary_format)[[44]](#cite_note-44) from [Google](/wiki/Google) called "Safe Browsing", used to exchange data related with phishing and malware protection.

Since version 38 on [Windows Vista](/wiki/Windows_Vista) and newer, Firefox supports the playback of video content protected by HTML5 [Encrypted Media Extensions](/wiki/Encrypted_Media_Extensions) (EME). For security and privacy reasons, EME is implemented within a wrapper of open source code that allows execution of a [proprietary](/wiki/Proprietary_software) [digital rights management](/wiki/Digital_rights_management) module by [Adobe Systems](/wiki/Adobe_Systems) – Adobe Primetime Content Decryption Module (CDM). CDM runs within a "[sandbox](/wiki/Sandbox_(computer_security))" environment to limit its access to the system, and provide it a randomized device ID to prevent services from [uniquely identifying the device](/wiki/Device_fingerprint) for tracking purposes. The DRM module, once it has been downloaded, is enabled and disabled in the same manner as other [plug-ins](/wiki/Browser_plug-in). Upon the introduction of EME support, builds of Firefox on Windows were also introduced that exclude support for EME.[[45]](#cite_note-45)<ref name=pcw-f38drm>[Template:Cite web](/wiki/Template:Cite_web)</ref>

### Security[[edit](/index.php?title=(none)&action=edit&section=4)]

[Template:See also](/wiki/Template:See_also)

Firefox uses a [sandbox security model](/wiki/Sandbox_(computer_security)),[[46]](#cite_note-46) and limits scripts from accessing data from other websites based on the [same-origin policy](/wiki/Same-origin_policy).[[47]](#cite_note-47) It also provides support for [smart cards](/wiki/Smart_card) to web applications, for authentication purposes.[[48]](#cite_note-48) It uses [SSL/TLS](/wiki/Transport_Layer_Security) to protect communications with web servers using strong [cryptography](/wiki/Cryptography) when using the [HTTPS](/wiki/HTTP_Secure) protocol.[[49]](#cite_note-49) The freely available [HTTPS Everywhere](/wiki/HTTPS_Everywhere) add-on enforces HTTPS, even if a regular HTTP [URL](/wiki/Uniform_resource_locator) is entered. Firefox now supports HTTP/2.[[50]](#cite_note-50) The Mozilla Foundation offers a "bug bounty" (up to US$3000 cash reward and a Mozilla T-shirt) to researchers who discover severe security holes in Firefox.[[51]](#cite_note-51) Official guidelines for handling security vulnerabilities discourage early [disclosure of vulnerabilities](/wiki/Full_disclosure_(computer_security)) so as not to give potential attackers an advantage in creating exploits.[[52]](#cite_note-52) Because Firefox generally has fewer publicly known security [vulnerabilities](/wiki/Vulnerability_(computing)) than [Internet Explorer](/wiki/Internet_Explorer) (see [*Comparison of web browsers*](/wiki/Comparison_of_web_browsers)), improved security is often cited as a reason to switch from Internet Explorer to Firefox.[[53]](#cite_note-53)[[54]](#cite_note-54)[[55]](#cite_note-55)[[56]](#cite_note-56) [*The Washington Post*](/wiki/The_Washington_Post) reported that exploit code for known critical security vulnerabilities in Internet Explorer was available for 284 days in 2006. In comparison, exploit code for known, critical security vulnerabilities in Firefox was available for nine days before Mozilla issued a patch to remedy the problem.[[57]](#cite_note-57) A 2006 [Symantec](/wiki/Symantec) study showed that, although Firefox had surpassed other browsers in the number of vendor-confirmed vulnerabilities that year through September, these vulnerabilities were patched far more quickly than those found in other browsers[Template:Snd](/wiki/Template:Snd) Firefox's vulnerabilities were fixed on average one day after the exploit code was made available, as compared to nine days for Internet Explorer.[[58]](#cite_note-58) Symantec later clarified their statement, saying that Firefox still had fewer security vulnerabilities than Internet Explorer, as counted by security researchers.[[59]](#cite_note-59) In 2010 a study of the [National Institute of Standards and Technology](/wiki/National_Institute_of_Standards_and_Technology) (NIST), based on data compiled from the [National Vulnerability Database](/wiki/National_Vulnerability_Database) (NVD), Firefox was listed as the fifth most vulnerable desktop software, with Internet Explorer as the eighth, and [Google Chrome](/wiki/Google_Chrome) as the first.[[60]](#cite_note-60) [InfoWorld](/wiki/InfoWorld) has cited security experts saying that, as Firefox becomes more popular, more vulnerabilities will be found,[[61]](#cite_note-61) a claim that [Mitchell Baker](/wiki/Mitchell_Baker), president of the Mozilla Foundation, has denied. "There is this idea that market share alone will make you have more vulnerabilities. It is not relational at all," she said.[[62]](#cite_note-62) In October 2009, Microsoft's security engineers acknowledged that Firefox was vulnerable to a security issue found in the 'Windows Presentation Foundation' browser plug-in since February of that year. A [.NET Framework](/wiki/.NET_Framework) 3.5 SP1 [Windows Update](/wiki/Windows_Update) had silently installed the vulnerable plug-in into Firefox.[[63]](#cite_note-63) This vulnerability has since been patched by Microsoft.[[64]](#cite_note-64) As of February 11, 2011, Firefox 3.6 had no known unpatched security [vulnerabilities](/wiki/Vulnerability_(computing)) according to Secunia.[[65]](#cite_note-65) Internet Explorer 8 had five unpatched security vulnerabilities, the worst being rated "Less Critical" by Secunia.[[66]](#cite_note-66) Mozilla claims that all patched [vulnerabilities](/wiki/Vulnerability_(computing)) of Mozilla products are publicly listed.[[67]](#cite_note-67) On January 28, 2013, Mozilla was recognized as the most trusted internet company for privacy in 2012.[[68]](#cite_note-68) This study was performed by the Ponemon Institute and was a result of a survey from more than 100,000 consumers in the United States.

In February 2013, plans were announced for Firefox 22 to disable [third-party cookies](/wiki/Third-party_cookie) by default. However, the introduction of the feature was then delayed so Mozilla developers could "collect and analyze data on the effect of blocking some third-party cookies." Mozilla also collaborated with [Stanford University's](/wiki/Stanford_University) "Cookie Clearinghouse" project to develop a [blacklist](/wiki/Blacklist) and [whitelist](/wiki/Whitelist) of sites that will be used in the filter.[[69]](#cite_note-69)[[70]](#cite_note-70) Version 23, released in August 2013, followed the lead of its competitors by blocking [iframe](/wiki/Iframe), stylesheet, and script resources served from non-HTTPS servers embedded on HTTPS pages by default. Additionally, [JavaScript](/wiki/JavaScript) could also no longer be disabled through Firefox's preferences, and JavaScript was automatically re-enabled for users who upgraded to 23 or higher with it disabled. The change was made due to its use across the majority of websites, the potential repercussions on non-experienced users who are unaware of its impact, along with the availability of extensions such as [NoScript](/wiki/NoScript), which can disable JavaScript in a more controlled fashion. The following release added the ability to disable JavaScript through the developer tools for testing purposes.[[71]](#cite_note-71)[[72]](#cite_note-72)[[73]](#cite_note-73) In January 2015, [TorrentFreak](/wiki/TorrentFreak) reported that using Firefox when connected to the internet using a VPN can be a serious security issue due to the browser's support for [WebRTC](/wiki/WebRTC#Concerns).[[74]](#cite_note-74) Beginning with Firefox 44, all extensions had to be signed by Mozilla to be used in release and beta versions of Firefox. Firefox 43 blocked unsigned extensions, but allowed enforcement of extension signing to be disabled. All extensions would be submitted to [Mozilla Add-ons](/wiki/Mozilla_Add-ons) and be subject to code analysis in order to be signed, although extensions would not have to be listed on the service in order to be signed.[[75]](#cite_note-75)[[76]](#cite_note-76)

### Telemetry[[edit](/index.php?title=(none)&action=edit&section=5)]

In Firefox versions prior to 7.0, an [information bar](/wiki/Information_bar) appears on the browser's first start asking users whether they would like to send performance statistics, or "telemetry", to [Mozilla](/wiki/Mozilla_Corporation). It is enabled by default in development versions of Firefox, but not in release versions.[[77]](#cite_note-77) According to Mozilla's privacy policy,[[78]](#cite_note-78) these statistics are stored only in aggregate format, and the only personally identifiable information transmitted is the user's [IP address](/wiki/IP_address).

### Localizations[[edit](/index.php?title=(none)&action=edit&section=6)]

[Template:Main](/wiki/Template:Main)

Firefox is a widely [localized](/wiki/Internationalization_and_localization) web browser. The first official release in November 2004 was available in 24 different languages and for 28 [locales](/wiki/Locale_(computer_software)), including [British English](/wiki/British_English), [American English](/wiki/American_English), [European Spanish](/wiki/Peninsular_Spanish), [Argentine Spanish](/wiki/Argentine_Spanish) and [Chinese](/wiki/Putonghua) in [Traditional Chinese characters](/wiki/Traditional_Chinese_characters) and [Simplified Chinese characters](/wiki/Simplified_Chinese_characters).[[79]](#cite_note-79) [Template:As of](/wiki/Template:As_of), currently supported 47.0.1 and 45.2.0esr are available in 89 locales (79 languages).<ref name=languages>[Template:Cite web](/wiki/Template:Cite_web)</ref>

### Platform availability[[edit](/index.php?title=(none)&action=edit&section=7)]

The desktop version of Firefox is available and supported for Windows, OS X and Linux, while [Firefox for mobile](/wiki/Firefox_for_mobile) is available for Android and Firefox OS. In September 2013, the [*Windows 8*](/wiki/Windows_8) *Touch* interface, optimized for [touchscreen](/wiki/Touchscreen) use, was introduced on the "Aurora" release channel; however, the project has since been cancelled as of March 2014, citing a lack of user adoption of the beta versions.<ref name=fx-metrocancelled>[Template:Cite web](/wiki/Template:Cite_web)</ref>[[80]](#cite_note-80)<ref name=engadget-firefoxmetro>[Template:Cite news](/wiki/Template:Cite_news)</ref>

#### Unofficial ports[[edit](/index.php?title=(none)&action=edit&section=8)]

Firefox has also been ported to [FreeBSD](/wiki/FreeBSD),[[81]](#cite_note-81) [NetBSD](/wiki/NetBSD),[[82]](#cite_note-82) [OpenBSD](/wiki/OpenBSD),[[83]](#cite_note-83) [OpenIndiana](/wiki/OpenIndiana),[[84]](#cite_note-84) [SkyOS](/wiki/SkyOS), and an unofficial rebranded version called [Timberwolf](/wiki/Timberwolf_(web_browser)) has been available for [AmigaOS 4](/wiki/AmigaOS_4).

#### Firefox on Unix[[edit](/index.php?title=(none)&action=edit&section=9)]

Firefox is also ported to [Solaris](/wiki/Solaris_(operating_system)) and [OpenSolaris](/wiki/OpenSolaris) by Oracle Solaris Desktop Beijing Team,[[85]](#cite_note-85)[[86]](#cite_note-86) unofficial port of [Firefox 3.6](/wiki/Firefox_3.6).x to [IBM AIX](/wiki/IBM_AIX)[[87]](#cite_note-87)[[88]](#cite_note-88) and unofficial port of v1.7.x to [UnixWare](/wiki/UnixWare).[[89]](#cite_note-89) [Firefox 3.5](/wiki/Firefox_3.5).9 is the last version to work on [HP-UX](/wiki/HP-UX) 11i, as packaged by [Hewlett-Packard](/wiki/Hewlett-Packard).[[90]](#cite_note-90)

#### OS support history[[edit](/index.php?title=(none)&action=edit&section=10)]

[Template:Firefox release compatibility](/wiki/Template:Firefox_release_compatibility)

#### CPU architectures[[edit](/index.php?title=(none)&action=edit&section=11)]

#### x86 family[[edit](/index.php?title=(none)&action=edit&section=12)]

Native [64-bit](/wiki/64-bit_computing) [builds](/wiki/Software_build) are officially supported on Linux, OS X and Windows (as of version 42).<ref name=64-bit-win>[Template:Cite web](/wiki/Template:Cite_web)</ref>[[91]](#cite_note-91) Mozilla made Firefox for 64-bit Linux a priority with the release of [Firefox 4](/wiki/Firefox_4), labeling it as tier 1 priority.[[91]](#cite_note-91)[[92]](#cite_note-92) Since being labeled tier 1, Mozilla has been providing official 64-bit releases for its browser for Linux.[[93]](#cite_note-93)[[94]](#cite_note-94) Vendor-backed 64-bit support has existed for Linux distributions such as [Novell-Suse Linux](/wiki/SUSE_Linux_distributions), [Red Hat Enterprise Linux](/wiki/Red_Hat_Enterprise_Linux), and [Ubuntu](/wiki/Ubuntu_(operating_system)) prior to Mozilla's support of 64-bit, even though vendors were faced with the challenge of having to turn off the 64-bit [JIT compiler](/wiki/Just-in-time_compilation) due to its instability prior to Firefox 4.[[95]](#cite_note-95)[[96]](#cite_note-96)[[97]](#cite_note-97) The official releases of Firefox for OS X are universal builds that include both 32-bit and 64-bit versions of the browser in one package, and have been this way since Firefox 4. A typical browsing session uses a combination of the 64-bit browser process and a 32-bit plugin process, because some popular plugins still are 32-bit.[[98]](#cite_note-98) The 32-bit and 64-bit versions of Windows can be used to run 32-bit Firefox.[[99]](#cite_note-99) In late 2012, Mozilla announced 64-bit Windows builds would be stopped[[100]](#cite_note-100) but later reversed the decision.[[101]](#cite_note-101) [Template:As of](/wiki/Template:As_of), 64-bit Windows builds are available as 38.0 Beta<ref name=win64-38.0beta>[Template:Cite web](/wiki/Template:Cite_web)</ref> and newer. 64-bit builds for Windows are officially supported as of November 2015 with the release of Firefox 42. All [NPAPI](/wiki/NPAPI) plugins except Adobe Flash Player and Silverlight are blacklisted and unsupported on 64-bit versions for Windows.[[102]](#cite_note-102)

#### Other CPU architectures[[edit](/index.php?title=(none)&action=edit&section=13)]

Besides x86, Firefox also supports other CPU architectures including [ARMv7](/wiki/ARMv7), [ARMv6](/wiki/ARMv6), [SPARC](/wiki/SPARC), [PowerPC](/wiki/PowerPC) and [68k](/wiki/68k) on different tiers.[[103]](#cite_note-103)

#### System requirements[[edit](/index.php?title=(none)&action=edit&section=14)]

Firefox source code may be [compiled](/wiki/Compiler) for various operating systems; however, officially distributed binaries are provided for the following:

{| class="wikitable" style="text-align:center;" |+ Recommended hardware and required software[[99]](#cite_note-99)|- ! ! Windows ! Linux desktop ! OS X ! Android[[104]](#cite_note-104)| iOS |- ! [CPU](/wiki/Central_processing_unit) | colspan="2" | [Pentium 4](/wiki/Pentium_4) or newer with [SSE2](/wiki/SSE2) | Any Intel CPU | [ARMv7 CPU](/wiki/ARM_architecture)  
(ARMv6 was also supported[[105]](#cite_note-105)) | ARMv7 |- ! [Memory (RAM)](/wiki/Random-access_memory) | colspan="3" | 512 [MB](/wiki/Megabyte) | 384 MB | ? |- ! [Hard disk drive](/wiki/Hard_disk_drive) free space | colspan="3" | 200 MB | 24 MB | ? |- ! Operating system version | [XP SP2](/wiki/Windows_XP_SP2) (desktop)  
[Server 2003 SP1](/wiki/Windows_Server_2003_SP1) (server)  
or newer | style="line-height:1.1em;"|</small>

Minimum

* [GTK+](/wiki/GTK+) 2.18 or newer ("GTK3 integration" as of 45 Developer Edition[[106]](#cite_note-106))
* [GLib](/wiki/GLib) 2.22 or newer
* [Pango](/wiki/Pango) 1.14 or newer
* [X.Org](/wiki/X.Org_Server) 1.0 or newer (1.7 or newer recommended)
* [libstdc++](/wiki/Libstdc++) 4.3 or newer

</small>

Recommended

* [NetworkManager](/wiki/NetworkManager) 0.7 or newer
* [DBus](/wiki/D-Bus) 1.0 or newer
* [HAL](/wiki/HAL_(software)) 0.5.8 or newer
* [GNOME](/wiki/GNOME) 2.16 or newer</small>

| [OS X 10.6](/wiki/OS_X_10.6) or newer | 2.3 or newer[[104]](#cite_note-104)| iOS 8.2 or later |}

#### Firefox for mobile[[edit](/index.php?title=(none)&action=edit&section=15)]

[Template:Main](/wiki/Template:Main)

Firefox for mobile, codenamed [Fennec](/wiki/Firefox_for_mobile), is a web browser for smaller non-PC devices, mobile phones and [PDAs](/wiki/PDA). It was first released for the [Nokia](/wiki/Nokia) [Maemo](/wiki/Maemo) operating system, specifically the Nokia N900, on January 28, 2010.[[107]](#cite_note-107) Version 4 for [Android](/wiki/Android_(operating_system)) and [Maemo](/wiki/Maemo) was released on March 29, 2011.[[108]](#cite_note-108) With the release of mobile version, the browser's version number was bumped from 2 to 4, synchronizing it with all future desktop releases of Firefox because the rendering engines used in both browsers are the same.[[109]](#cite_note-109) Version 7 was the last release for Maemo on the N900.[[110]](#cite_note-110) The user interface is completely redesigned and optimized for small screens, the controls are hidden away so that only the web content is shown on screen, and it uses [touchscreen](/wiki/Touchscreen) interaction methods. It includes the Awesomebar, tabbed browsing, Add-on support, password manager, location-aware browsing, and the ability to synchronize with the user's computer Firefox browser using [Firefox Sync](/wiki/Firefox_Sync).[[111]](#cite_note-111)

#### Firefox for iOS[[edit](/index.php?title=(none)&action=edit&section=16)]

[Template:Main](/wiki/Template:Main)

In April 2013, then-Mozilla-CEO [Gary Kovacs](/wiki/Gary_Kovacs) said that Firefox would not come to iOS as long as Apple required the use of the [WebKit](/wiki/WebKit) layout engine to do so. However, in 2015 Mozilla announced it was moving forward with Firefox for iOS, with a preview release made available in [New Zealand](/wiki/New_Zealand) in September of that year.[[112]](#cite_note-112)[[113]](#cite_note-113)[[114]](#cite_note-114) <gallery widths=180 heights=180 style="text-align:center"> Firefox 31 on Arch Linux.png|[Firefox 31](/wiki/History_of_Firefox#Version_31) running on [Arch Linux](/wiki/Arch_Linux) Firefox 30.0 on OS X Mavericks.png|Firefox 30 on [OS X Mavericks](/wiki/OS X_Mavericks) Screen Shot 2015-11-23 at 10.06.13 AM.png|Firefox 42.0 on [OS X El Capitan](/wiki/OS X_El_Capitan) Firefox\_for\_mobile.png|[Firefox for mobile](/wiki/Firefox_for_mobile) 39 on [Android](/wiki/Android_(operating_system)) Firefox in firefox os.png|Firefox on [Firefox OS](/wiki/Firefox_OS) </gallery>

## Release history[[edit](/index.php?title=(none)&action=edit&section=17)]

[Template:Main](/wiki/Template:Main)

Besides official releases, Mozilla provides development builds of Firefox in distribution channels named, in order of most to least stable, "Beta", "Developer Edition" (former "Aurora", renamed on November 10, 2014[[115]](#cite_note-115)[[116]](#cite_note-116)), and "Nightly". [Template:As of](/wiki/Template:As_of), Firefox 48 is in the "Beta" channel, Firefox 49 is in the "Developer Edition" channel, and Firefox 50 is in the "Nightly" channel.[[117]](#cite_note-117)

### Extended Support Release[[edit](/index.php?title=(none)&action=edit&section=18)]

[Template:See also](/wiki/Template:See_also)

Firefox *Extended Support Release*, abbreviated to ESR, is a version of Firefox for organizations and other groups that need extended support for mass deployments. Each ESR release, based on the regular version released at the same time, is supported for approximately one year.[[118]](#cite_note-118) Unlike the regular ("rapid") releases, ESRs are not updated with new features and performance enhancements every six weeks, but rather are updated with only high-risk-reduction or high-impact security fixes or major stability fixes with point releases, until the end of the ESR cycle.[[119]](#cite_note-119)

## Licensing[[edit](/index.php?title=(none)&action=edit&section=19)]

Firefox [source code](/wiki/Source_code) is [free software](/wiki/Free_software), with most of it being released under the [Mozilla Public License](/wiki/Mozilla_Public_License) (MPL) version 2.0.<ref name=Licensing-Policies>[Template:Citation](/wiki/Template:Citation)</ref> This license permits anyone to view, modify, or redistribute the source code. As a result, several publicly released applications have been built from it, such as [Netscape](/wiki/Netscape_(web_browser)), [Flock](/wiki/Flock_(web_browser)), [Miro](/wiki/Miro_(software)), [GNU IceCat](/wiki/GNU_IceCat), [Iceweasel](/wiki/Mozilla_Corporation_software_rebranded_by_the_Debian_project), [Songbird](/wiki/Songbird_(software)), [Pale Moon](/wiki/Pale_Moon_(web_browser)) and [Comodo IceDragon](/wiki/Comodo_IceDragon).

In the past, Firefox was licensed solely under the MPL, then version 1.1,[[120]](#cite_note-120) which the [Free Software Foundation](/wiki/Free_Software_Foundation) criticized for being [weak copyleft](/wiki/Weak_copyleft), as the license permitted, in limited ways, proprietary [derivative works](/wiki/Derivative_work). Additionally, code only licensed under MPL 1.1 could not legally be linked with code under the [GPL](/wiki/GNU_General_Public_License).[[121]](#cite_note-121)[[122]](#cite_note-122) To address these concerns, Mozilla re-licensed most of Firefox under the [tri-license](/wiki/Multi-licensing) scheme of MPL 1.1, GPL 2.0, or [LGPL](/wiki/GNU_Lesser_General_Public_License) 2.1. Since the re-licensing, developers were free to choose the license under which they received most of the code, to suit their intended use: GPL or LGPL linking and derivative works when one of those licenses is chosen, or MPL use (including the possibility of proprietary derivative works) if they chose the MPL.[[120]](#cite_note-120) However, on January 3, 2012, Mozilla released the GPL-compatible MPL 2.0,[[123]](#cite_note-123) and with the release of Firefox 13 on June 5, 2012, Mozilla used it to replace the tri-licensing scheme.[[124]](#cite_note-124) The crash reporting service was initially closed source, but switched with version 3 from a program called [Talkback](/wiki/Crash_reporter#Talkback) to the open source [Breakpad](/wiki/Breakpad) & Socorro.

## Trademark and logo[[edit](/index.php?title=(none)&action=edit&section=20)]

[Template:See also](/wiki/Template:See_also)

The name "Mozilla Firefox" is a [registered trademark](/wiki/Registered_trademark); along with the official Firefox logo, it may only be used under certain terms and conditions. Anyone may redistribute the official binaries in unmodified form and use the Firefox name and branding for such distribution, but restrictions are placed on distributions which modify the underlying source code.[[125]](#cite_note-125) The name "Firefox" derives from a nickname of the [red panda](/wiki/Red_panda).[[29]](#cite_note-29) Mozilla has placed the Firefox logo files under open-source licenses,[[126]](#cite_note-126)[[127]](#cite_note-127) but its trademark guidelines do not allow displaying altered[[128]](#cite_note-128) or similar logos[[129]](#cite_note-129) in contexts where trademark law applies.

[thumb|128px|Logo used for](/wiki/File:Iceweasel_icon.svg) [Iceweasel](/wiki/Iceweasel) (now discontinued)

There has been some controversy over the Mozilla Foundation's intentions in stopping certain open source distributions from using the "Firefox" trademark.[[1]](#cite_note-1) Open source browsers "enable greater choice and innovation in the market rather than aiming for mass-market domination."[[130]](#cite_note-130) Mozilla Foundation Chairperson [Mitchell Baker](/wiki/Mitchell_Baker) explained in an interview in 2007 that distributions could freely use the Firefox trademark if they did not modify source-code, and that the Mozilla Foundation's only concern was with users getting a consistent experience when they used "Firefox".[[131]](#cite_note-131) To allow distributions of the code *without* using the official branding, the Firefox [build system](/wiki/Build_system) contains a "branding switch". This switch, often used for alphas ("Auroras") of future Firefox versions, allows the code to be compiled without the official logo and name, and can allow a derivative work unencumbered by restrictions on the Firefox trademark to be produced. In the unbranded build the trademarked logo and name are replaced with a freely distributable generic globe logo and the name of the release series from which the modified version was derived.

Distributing modified versions of Firefox under the "Firefox" name required explicit approval from Mozilla for the changes made to the underlying code, and required the use of *all* of the official branding. For example, it was not permissible to use the name "Firefox" without also using the official logo. When the [Debian](/wiki/Debian) project decided to stop using the official Firefox logo in 2006 (because Mozilla's copyright restrictions at the time were incompatible with [Debian's guidelines](/wiki/Debian_Free_Software_Guidelines)), they were told by a representative of the Mozilla Foundation that this was not acceptable, and were asked either to comply with the published trademark guidelines or cease using the "Firefox" name in their distribution.[[132]](#cite_note-132) Ultimately, Debian switched to branding their modified version of Firefox "[Iceweasel](/wiki/Mozilla_Corporation_software_rebranded_by_the_Debian_project)" (but in 2016 switched back to Firefox), along with other Mozilla software. [GNU IceCat](/wiki/GNU_IceCat) is another derived version of Firefox distributed by the [GNU Project](/wiki/GNU_Project), which maintains its own separate branding.[[133]](#cite_note-133)

### Branding and visual identity[[edit](/index.php?title=(none)&action=edit&section=21)]

Early Firebird and Phoenix releases of Firefox were considered to have reasonable visual designs, but fell short when compared to many other professional software packages. In October 2003, professional interface designer Steven Garrity wrote an article covering everything he considered to be wrong with Mozilla's visual identity.[[134]](#cite_note-134) Shortly afterwards, the Mozilla Foundation invited Garrity to head up the new visual identity team. The release of Firefox 0.8 in February 2004 saw the introduction of the new branding efforts. Included were new icon designs by silverorange, a group of web developers with a long-standing relationship with Mozilla. The final renderings are by [Jon Hicks](/wiki/Jon_Hicks_(designer)), who had worked on [Camino](/wiki/Camino_(web_browser)).[[135]](#cite_note-135)[[136]](#cite_note-136) The logo was later revised and updated, fixing several flaws found when it was enlarged.[[137]](#cite_note-137)The animal shown in the logo is a stylized fox, although "firefox" is usually a common name for the [red panda](/wiki/Red_panda). The panda, according to Hicks, "didn't really conjure up the right imagery" and wasn't widely known.[[136]](#cite_note-136) The Firefox icon is a trademark used to designate the official Mozilla build of the Firefox software and builds of official distribution partners.[[138]](#cite_note-138) For this reason software distributors who distribute modified versions of Firefox do not use the icon.

<gallery caption="Logo history" style="text-align:center"> File:Firefox-logo.svg|Logo used for Firefox 1.0 – 3.0 from November 9, 2004 to June 29, 2009 File:Mozilla Firefox 3.5 logo 256.png|Logo used for Firefox 3.5 – 22.0 from June 30, 2009 to August 5, 2013 File:Mozilla Firefox logo 2013.svg|Logo used for Firefox 23 and after since August 6, 2013[[139]](#cite_note-139)</gallery>

<gallery caption="Other logos, used for specific versions" style="text-align:center" heights=74px> File:Mozilla Phoenix logo vector.svg|Logo of "Phoenix" and "Firebird" before being renamed as Firefox File:Mozilla Aurora icon.png|The 2011 Aurora logo, used to represent an [alpha release](/wiki/Alpha_release) File:Mozilla Nightly icon 2011.png|The 2011 Nightly logo, used to represent [nightly builds](/wiki/Nightly_build) of [pre-alpha versions](/wiki/Pre-alpha_version) File:Mozilla Firefox Aurora logo 2013.png|The 2013 Aurora logo File:Mozilla Firefox Nightly logo 2013.png|The 2013 Nightly logo File:Firefox Developer Edition logo.png|Firefox Developer Edition logo File:Minefield-icon.png|Minefield logo (former name for "nightly" Firefox) File:Deer park globe.svg|Blue globe artwork, distributed with the [source code](/wiki/Source_code), and is explicitly not protected as a trademark[[140]](#cite_note-140)</gallery>

## Promotion[[edit](/index.php?title=(none)&action=edit&section=22)]

[thumb|Firefox mascot at the](/wiki/File:Firefox_mascot_-_FISL_16.jpg) [FISL](/wiki/FISL) 16 (2015)

Firefox was adopted rapidly, with 100 million downloads in its first year of availability.[[141]](#cite_note-141) This was followed by a series of aggressive marketing campaigns starting in 2004 with a series of events [Blake Ross](/wiki/Blake_Ross) and [Asa Dotzler](/wiki/Asa_Dotzler) called "marketing weeks".[[142]](#cite_note-142) Firefox continued to heavily market itself by releasing a marketing portal dubbed "Spread Firefox" (SFX) on September 12, 2004,[[143]](#cite_note-143) It debuted along with the Firefox Preview Release, creating a centralized space for the discussion of various marketing techniques. The release of their manifesto stated that “the Mozilla project is a global community of people who believe that openness, innovation and opportunity are key to the continued health of the Internet.” [[130]](#cite_note-130) A two-page ad in the December 16th edition of the *New York Times*, placed by Mozilla Foundation in coordination with Spread Firefox, featured the names of the thousands of people worldwide who contributed to the Mozilla Foundation's fundraising campaign to support the launch of the Firefox 1.0 web browser.[[144]](#cite_note-144) SFX portal enhanced the "Get Firefox" button program, giving users "referrer points" as an incentive. The site lists the top 250 referrers. From time to time, the SFX team or SFX members launch marketing events organized at the Spread Firefox website. As a part of the Spread Firefox campaign, there was an attempt to break the world download record with the release of Firefox 3.[[145]](#cite_note-145) This resulted in an official certified [Guinness world record](/wiki/Guinness_World_Records), with over eight million downloads.[[146]](#cite_note-146) In February 2011, Mozilla announced that it would be retiring Spread Firefox (SFX). Three months later, in May 2011, Mozilla officially closed Spread Firefox. Mozilla wrote that *"there are currently plans to create a new iteration of this website [Spread Firefox] at a later date."*[[147]](#cite_note-147) In celebration of the third anniversary of the founding of the [Mozilla Foundation](/wiki/Mozilla_Foundation), the "World Firefox Day" campaign was established on July 15, 2006,[[148]](#cite_note-148)[[149]](#cite_note-149) and ran until September 15, 2006.[[150]](#cite_note-150) Participants registered themselves and a friend on the website for nomination to have their names displayed on the Firefox Friends Wall, a digital wall that will be displayed at the headquarters of the Mozilla Foundation.

The Firefox community has also engaged in the promotion of their web browser. In 2006, some of Firefox's contributors from [Oregon State University](/wiki/Oregon_State_University) made a [crop circle](/wiki/Crop_circle) of the Firefox logo in an [oat](/wiki/Oat) field near [Amity, Oregon](/wiki/Amity,_Oregon), near the intersection of Lafayette Highway and Walnut Hill Road.[[151]](#cite_note-151) After Firefox reached 500 million downloads on February 21, 2008, the Firefox community celebrated by visiting [Freerice](/wiki/Freerice) to earn 500 million grains of rice.[[152]](#cite_note-152) Other initiatives include Live Chat, a service Mozilla launched in 2007 that allowed users to seek technical support from volunteers.[[153]](#cite_note-153) The service was later retired.<ref name=Brinkmann8>[Template:Cite news](/wiki/Template:Cite_news)</ref>

## Performance[[edit](/index.php?title=(none)&action=edit&section=23)]

[Template:Essay-like](/wiki/Template:Essay-like) In December 2005, *Internet Week* ran an article in which many readers reported high memory usage in Firefox 1.5.[[154]](#cite_note-154) Mozilla developers said that the higher memory use of Firefox 1.5 was at least partially due to the new fast backwards-and-forwards (FastBack) feature.[[155]](#cite_note-155) Other known causes of memory problems were malfunctioning extensions such as [Google Toolbar](/wiki/Google_Toolbar) and some older versions of [AdBlock](/wiki/AdBlock),[[156]](#cite_note-156) or plug-ins, such as older versions of Adobe Acrobat Reader.[[157]](#cite_note-157) When *PC Magazine* compared memory usage of Firefox 2, [Opera 9](/wiki/Opera_(web_browser)), and Internet Explorer 7, they found that Firefox used approximately as much memory as each of the other two browsers.[[158]](#cite_note-158) [Softpedia](/wiki/Softpedia) noted that Firefox 1.5 took longer to start up than other browsers,[[159]](#cite_note-159) which was confirmed by further speed tests.[[160]](#cite_note-160)IE 6 launched more swiftly than Firefox 1.5 on Windows XP since many of its components were built into the OS and loaded during system startup. As a workaround for the issue, a preloader application was created that loaded components of Firefox on startup, similar to Internet Explorer.[[161]](#cite_note-161) A Windows Vista feature called [SuperFetch](/wiki/SuperFetch) performs a similar task of preloading Firefox if it is used often enough.

Tests performed by [*PC World*](/wiki/PC_World) and Zimbra in 2006 indicated that Firefox 2 used less memory than Internet Explorer 7.[[162]](#cite_note-162)[[163]](#cite_note-163) Firefox 3 used less memory than Internet Explorer 7, Opera 9.50 Beta, [Safari](/wiki/Safari_(web_browser)) 3.1 Beta, and Firefox 2 in tests performed by Mozilla, CyberNet, and The Browser World.[[164]](#cite_note-164)[[165]](#cite_note-165)[[166]](#cite_note-166) In mid-2009, Betanews benchmarked Firefox 3.5 and declared that it performed "nearly ten times better on XP than Microsoft Internet Explorer 7".[[167]](#cite_note-167) In January 2010, Lifehacker compared the performance of Firefox 3.5, Firefox 3.6, Google Chrome 4 (stable and Dev versions), Safari 4, and Opera (10.1 stable and 10.5 pre-alpha versions). Lifehacker timed how long browsers took to start and reach a page (both right after boot-up and after running at least once already), timed how long browsers took to load nine tabs at once, tested JavaScript speeds using Mozilla's Dromaeo online suite (which implements Apple's SunSpider and Google's V8 tests) and measured memory usage using Windows 7's process manager. They concluded that Firefox 3.5 and 3.6 were the fifth and sixth fastest browsers respectively on startup, 3.5 was third and 3.6 was sixth fastest to load nine tabs at once, 3.5 was sixth and 3.6 was fifth fastest on the JavaScript tests. They also concluded that Firefox 3.6 was the most efficient with memory usage followed by Firefox 3.5.[[168]](#cite_note-168) In February 2012, [Tom's Hardware](/wiki/Tom's_Hardware) performance tested Chrome 17, Firefox 10, Internet Explorer 9, Opera 11.61, and Safari 5.1.2 on Windows 7. Tom's Hardware summarized their tests into four categories: Performance, Efficiency, Reliability, and Conformance. In the performance category they tested [HTML5](/wiki/HTML5), [Java](/wiki/Java_(software_platform)), [JavaScript](/wiki/JavaScript), [DOM](/wiki/Document_Object_Model), [CSS 3](/wiki/CSS_3), [Flash](/wiki/Adobe_Flash), [Silverlight](/wiki/Silverlight), and [WebGL](/wiki/WebGL) – they also tested start up time and page load time. The performance tests showed that Firefox was either "acceptable" or "strong" in most categories, winning three categories (HTML5, HTML5 [Hardware acceleration](/wiki/Hardware_acceleration), and Java) only finishing "weak" in CSS performance. In the efficiency tests, Tom's Hardware tested memory usage and management. In this category, it determined that Firefox was only "acceptable" at performing light memory usage, while it was "strong" at performing heavy memory usage. In the reliability category, Firefox performed a "strong" amount of proper page loads. In the final category, conformance, it was determined that Firefox had "strong" conformance for JavaScript and HTML5. In conclusion, Tom's Hardware determined that Firefox was the best browser for Windows 7 OS, but that it only narrowly beat Google Chrome.[[169]](#cite_note-169) In June 2013, Tom's Hardware again performance tested Firefox 22, Chrome 27, Opera 12, and Internet Explorer 10. They found that Firefox slightly edged out the other browsers in their "performance" index, which examined wait times, Javascript execution speed, HTML5/CSS3 rendering, and hardware acceleration performance. Firefox also scored the highest on the "non-performance" index, which measured memory efficiency, reliability, security, and standards conformance, finishing substantially ahead of Chrome, the runner-up. Tom's Hardware concluded by declaring Firefox the "sound" winner of the performance benchmarks.<ref name=Overa13>[Template:Cite news](/wiki/Template:Cite_news)</ref>

In January 2014, a benchmark testing the memory usage of Firefox 29, Google Chrome 34, and Internet Explorer 11 indicated that Firefox used the least memory when a substantial number of tabs were open.<ref name=Brinkmann14>[Template:Cite news](/wiki/Template:Cite_news)</ref>

The battle providing the faster internet experience and better optimizations continue its legacy. Firefox as of the comparison performed on January 2014 was found to use the least amount of memory when large number of tabs were opened. This is an important aspect considering the system requirement required to have a smooth experience. Lower system requirements mean older machines can still provide a better internet surfing experience. Statistical analysis in this regard is more important thus, we’ll move forward to benchmark testing of browsers. In this test we are considering the Microsoft Edge, which in beta version was known as Spartan, Internet explorer as It has been important part of windows environment from past decades, chrome and Firefox.[[170]](#cite_note-170) The benchmarks included in this test include the Sunspider, Kraken, Octane, HTML5 test Peacekeeper and WebXPRT. Out of all these tests, Microsoft Edge took lead in Sunspider benchmark scoring the 90.9 which was lowest of the results from IE which was 92.6, chrome at 164.3 and Firefox taking a slight lead over chrome with 155.9. Chrome took lead in Kraken and Octane from the given browsers scoring 893.3 and 36150 respectively, where Firefox scored 1003.6 and 32288 respectively. This devised that Firefox and chrome are almost on par with each other in these two test categories. Comparing the Edge and IE for same two benchmarks they scored 1129.9, 31461 and 1784.9, 19598 respectively. Comparing the given browsers for Peacekeeper and WebXPRT, Firefox takes the lead with 4943 and 2042, providing better results as compared to chrome with 4861 and 1569. Both the Microsoft Edge and IE scored less as compared to chrome and Firefox in these two tests.[[171]](#cite_note-171) Performing the HTML5Test benchmark on given browsers, Microsoft edge scored 375, IE scored 348, Chrome taking the lead with 523 and 449. This leads us to the conclusion that Chrome and Firefox are almost on par with each other while Chrome slightly edging out the Firefox by taking lead in 3 test categories. Microsoft edge as compared to IE have improved much more but it is still not as good as Firefox or Chrome in performance.

## Market adoption[[edit](/index.php?title=(none)&action=edit&section=24)]

[Template:See also](/wiki/Template:See_also) [left|thumb|300px|](/wiki/File:Usage_share_of_web_browsers_(Source_StatCounter).svg)[Usage share of web browsers](/wiki/Usage_share_of_web_browsers) according to [StatCounter](/wiki/StatCounter)[Template:Update inline](/wiki/Template:Update_inline) [thumb|Usage share of web browsers (November 2012 – StatCounter)](/wiki/File:Browser_Marketshares—November_2012—Firefox.svg)[Template:Update inline](/wiki/Template:Update_inline) Downloads have continued at an increasing rate since Firefox 1.0 was released in November 2004, and as of July 31, 2009 Firefox had already been downloaded over one billion times.[[172]](#cite_note-172) This number does not include downloads using software updates or those from third-party websites.[[173]](#cite_note-173) They do not represent a user count, as one download may be installed on many machines, one person may download the software multiple times, or the software may be obtained from a third party. According to Mozilla, Firefox has more than 450 million users [Template:As of](/wiki/Template:As_of).[[21]](#cite_note-21)[[174]](#cite_note-174) In July 2010, all [IBM](/wiki/IBM) employees (about 400,000) were asked to use Firefox as their default browser.[[175]](#cite_note-175) Firefox was the second-most used web browser until December 2011, when Google Chrome surpassed it.[[176]](#cite_note-176) [Template:As of](/wiki/Template:As_of), Firefox was the third most widely used browser, with approximately 10% of worldwide [usage share of web browsers](/wiki/Usage_share_of_web_browsers).[[177]](#cite_note-177) [Template:Clear](/wiki/Template:Clear)

## See also[[edit](/index.php?title=(none)&action=edit&section=25)]

* [Mozilla Prism](/wiki/Mozilla_Prism)
* [Web browser history](/wiki/Web_browser_history)
* [XULRunner](/wiki/XULRunner)

## References[[edit](/index.php?title=(none)&action=edit&section=26)]

[Template:Reflist](/wiki/Template:Reflist)

## Further reading[[edit](/index.php?title=(none)&action=edit&section=27)]

[Template:Refbegin](/wiki/Template:Refbegin)

* [Template:Cite book](/wiki/Template:Cite_book)
* [Template:Cite book](/wiki/Template:Cite_book)
* [Template:Cite book](/wiki/Template:Cite_book)
* [Template:Cite book](/wiki/Template:Cite_book)
* [Template:Cite book](/wiki/Template:Cite_book)
* [Template:Cite book](/wiki/Template:Cite_book)
* [Template:Cite book](/wiki/Template:Cite_book)

[Template:Refend](/wiki/Template:Refend)

## External links[[edit](/index.php?title=(none)&action=edit&section=28)]

[Template:Sister project links](/wiki/Template:Sister_project_links)

* [Template:Official website](/wiki/Template:Official_website) for [end-users](/wiki/End-user_(computer_science))
* [Firefox Nightly Builds](http://nightly.mozilla.org/)
* [Firefox ESR Builds](https://www.mozilla.org/en-US/firefox/organizations/all.html)
* [Mozilla Foundation homepage](https://www.mozilla.org/)
* [Firefox Affiliates](//affiliates.mozilla.org)
* [Template:Dmoz](/wiki/Template:Dmoz)

[Template:Portal bar](/wiki/Template:Portal_bar)

[Template:Mozilla projects](/wiki/Template:Mozilla_projects) [Template:Aggregators](/wiki/Template:Aggregators) [Template:Timeline of web browsers](/wiki/Template:Timeline_of_web_browsers) [Template:Web browsers](/wiki/Template:Web_browsers)

[Template:Authority control](/wiki/Template:Authority_control)

[Category:Firefox](/wiki/Category:Firefox) [Category:Cross-platform free software](/wiki/Category:Cross-platform_free_software) [Category:Free FTP clients](/wiki/Category:Free_FTP_clients) [Category:Free multilingual software](/wiki/Category:Free_multilingual_software) [Category:Free software programmed in C++](/wiki/Category:Free_software_programmed_in_C++) [Category:Free web browsers](/wiki/Category:Free_web_browsers) [Category:Gecko-based software](/wiki/Category:Gecko-based_software) [Category:Gopher clients](/wiki/Category:Gopher_clients) [Category:History of the Internet](/wiki/Category:History_of_the_Internet) [Category:Mozilla](/wiki/Category:Mozilla) [Category:News aggregators](/wiki/Category:News_aggregators) [Category:OS X web browsers](/wiki/Category:OS_X_web_browsers) [Category:OS/2 web browsers](/wiki/Category:OS/2_web_browsers) [Category:POSIX web browsers](/wiki/Category:POSIX_web_browsers) [Category:Software that uses XUL](/wiki/Category:Software_that_uses_XUL) [Category:Software using the Mozilla license](/wiki/Category:Software_using_the_Mozilla_license) [Category:Unix Internet software](/wiki/Category:Unix_Internet_software) [Category:Web browsers for AmigaOS](/wiki/Category:Web_browsers_for_AmigaOS) [Category:Web browsers for Linux](/wiki/Category:Web_browsers_for_Linux) [Category:Windows web browsers](/wiki/Category:Windows_web_browsers) [Category:2002 software](/wiki/Category:2002_software)