

Browser extension

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A **browser extension** is a [software](#) module for customizing a [web browser](#). Browsers typically allow users to install a variety of extensions, including [user interface](#) modifications, [cookie](#) management, [ad blocking](#),^[1] and the custom [scripting](#) and [styling](#) of [web pages](#).^[1]

Browser [plug-ins](#) are a different type of module and no longer supported by the major browsers.^{[2][3]} One difference is that extensions are distributed as [source code](#), while plug-ins are [executables](#) (i.e. [object code](#)).^[2] The most popular browser, [Google Chrome](#),^[4] has over 200,000 extensions available^[5] but stopped supporting plug-ins in 2020.^[6]

[Internet Explorer](#) was the first major browser to support extensions, with the release of [version 4](#) in 1997.^[7] [Firefox](#) has supported extensions since its launch in 2004. [Opera](#) and Chrome began supporting extensions in 2009,^[8] and [Safari](#) did so the following year. [Microsoft Edge](#) added extension support in 2016.^[9]

In 2015, a community group formed under the [W3C](#) to create a single standard [application programming interface](#) (API) for browser extensions.^[10] While this particular work did not reach fruition,^[11] every major browser now has the same or very similar API due to the popularity of [Google Chrome](#).^{[4][12]}

Chrome was the first browser with an extension API based solely on [HTML](#), [CSS](#), and [JavaScript](#). Beta testing for this capability began in 2009,^{[13][14]} and the following year [Google](#) opened the [Chrome Web Store](#). As of June 2012, there were 750 million total installations of extensions and other content hosted on the store.^[15] In the same year, Chrome overtook [Internet Explorer](#) as the world's most popular browser,^[16] and its [usage share](#) reached 60% in 2018.^[17]

Because of Chrome's success, [Microsoft](#) created a very similar extension API for its [Edge](#) browser, with the goal of making it easy for Chrome extension developers to port their work to Edge.^[18] But after three years Edge still had a disappointingly small market share, so Microsoft rebuilt it as a [Chromium](#)-based browser.^{[19][20]} (Chromium is Google's open-source project that serves as the functional core of Chrome and [many other](#) browsers.) Now that Edge has the same API as Chrome, extensions can be installed directly from the Chrome Web Store.^[21]

In 2015, [Mozilla](#) announced that the long-standing [XUL](#) and [XPCOM](#) extension capabilities of [Firefox](#) would be replaced with a less-permissive API very similar to Chrome's.^[22] This change was enacted in 2017.^{[23][24]} Firefox extensions are now largely compatible with their Chrome counterparts.^[25]

[Apple](#) was the last major exception to this trend, but support for extensions conforming to the Chrome API was added to [Safari](#) for [macOS](#) in 2020.^[26] Extensions were later enabled in the [iOS](#) version for the first time.^[27]

In 2021, these browser vendors formed a new W3C community group, called WebExtensions, to "specify a model, permissions, and a common core of APIs".^[28] However, Google joined this during its overhaul of Chrome's extension API, known as [Manifest V3](#), which greatly reduces the capability of [ad blockers](#) and [privacy](#)-related extensions.^{[29][30][31]} Thus the WebExtensions group is viewed by some extension developers as nothing more than Google imposing its Manifest V3 design.^{[32][33][34]}

Browser extensions typically have access to sensitive data, such as [browsing history](#), and they have the ability to alter some browser settings, add user interface items, or replace website content.^{[35][36]} As a result, there have been instances of [malware](#), so users need to be cautious about what extensions they install.^{[37][38][39][40]}

There have also been cases of [applications](#) installing browser extensions [without the user's knowledge](#), making it hard for the user to uninstall the unwanted extension.^[41]

Some [Google Chrome](#) extension developers have sold their extensions to third-parties who then incorporated [adware](#).^{[42][43]} In 2014, [Google](#) removed two such extensions from the [Chrome Web Store](#) after many users complained about unwanted pop-up ads.^[44] The following year, Google acknowledged that about five percent of visits to its own websites had been altered by extensions with adware.^{[45][46][47]}

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- Extension API documentation from [Google](#), [Apple](#), [Mozilla](#), [Microsoft](#), [Opera](#)
 - Official extension stores for [Chrome](#), [Firefox](#), [Edge](#), [Opera](#)

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