# Pale Moon (web browser)

**Pale Moon** is an open-source web browser with an emphasis on customizability; its motto is "Your browser, Your way".[9] There are official releases for Microsoft Windows and Linux,[9] an unofficial build for Mac OS,[4] and contributed builds for various platforms.[5]

Pale Moon is a fork of Firefox with substantial divergence. The main differences are the user interface, add-on support, and running in single-process mode. Pale Moon retains the highly customizable user interface of the Firefox version 4–28 era.[10] It also continues to support some types of add-ons that are no longer supported by Firefox.[10][11][12]
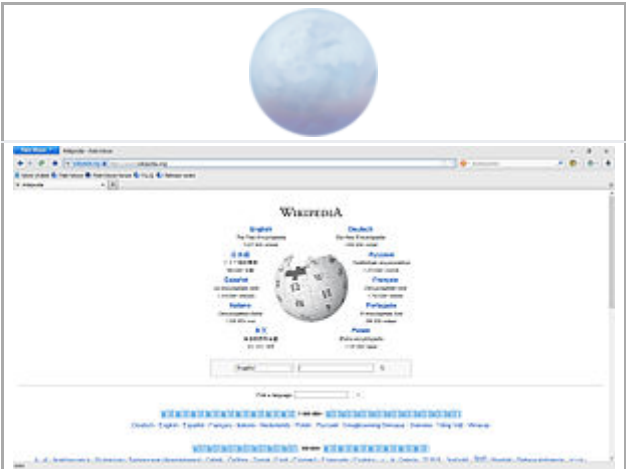
## Contents

## Overview

Pale Moon has diverged from Firefox in a number of ways:

- Always runs in single-process mode, whereas Firefox became a multi-process program.[13][14]
- Replaces the Gecko browser engine with the Goanna fork

| Pale Moon | |
|---|---|
|  | |
| Pale Moon 26 running on Windows 10 | |
| **Developer(s)** | M.C. Straver[1] |
| **Initial release** | October 4, 2009 |
| **Stable release(s)** [±] (https://en.wikipedia.org/wiki/Template:Latest_stable_software_release/Pale_Moon?action=edit) | |
| 28.8.4 (1 March 2020[2]) [±] (https://en.wikipedia.org/w/index.php?title=Template:Latest_stable_software_release/Pale_Moon&action=edit) | |
| **Preview release(s)** [±] (https://en.wikipedia.org/wiki/Template:Latest_preview_software_release/Pale_Moon?action=edit) | |
| 29.0.0a2 (January 28, 2020[3]) [±] (https://en.wikipedia.org/w/index.php?title=Template:Latest_stable_software_release/Pale_Moon&action=edit) | |
| **Repository** | github.com/MoonchildProductions/Pale-Moon (https://github.com/MoonchildProductions/Pale-Moon) ✎ |
| **Written in** | C/C++, CSS, JavaScript, XUL |
| **Engines** | Goanna, SpiderMonkey |
| **Operating system** | Windows 7 or later, Linux (unofficial build for OS X 10.7 or |

- Uses the pre-Australis Firefox user interface
- Continues add-on support for XUL, XPCOM, and NPAPI plugins, all of which are no longer supported in Firefox.[10]
- Supports add-ons exclusive to Pale Moon, including dozens of themes. These include retention of "Complete Themes", themes which apply to the entire UI of the browser rather than affecting only a few elements, support for which was removed in Firefox.[15]
- Defaults to a customizable start page in cooperation with start.me[16]
- Defaults to DuckDuckGo as the search engine instead of Google or Yahoo!
- Uses the IP-API service instead of Google's for geolocation[17]

| | |
|---|---|
| | later[4] and contributed builds for various platforms[5]) |
| **Platform** | IA-32, x86-64[6] |
| **Available in** | 23 languages[7] |
| **List of languages** Argentine-Uruguayan Spanish, Brazilian Portuguese, British English, Bulgarian, Chinese Simplified, Czech, Dutch, Filipino, French, German, Greek, Hungarian, Italian, Korean, Mexican Spanish, Polish, Portuguese, Russian, Slovak, Spanish, Swedish, Turkish, Ukrainian | |
| **Type** | Web browser News aggregator |
| **License** | **Source code**: MPL 2.0 **Binaries**: Proprietary freeware, or MPL 2.0 if branding is removed[8] |
| **Website** | www.palemoon.org (https:// www.palemoon.org) |

## Old platforms

Version 26.5 was the final official release to support Windows XP.[18] Version 27.9 was the final official release to support Windows Vista.

The end of XP support was quickly followed by Pale Moon getting at least two forks of its own, both of which take the most recent Pale Moon code and recompile it for XP: "New Moon" by roytam1, and "Mypal" by Feodor2.[19]

The official releases do not support older processors without the SSE2 instruction set.[6] However, a contributed build for Linux is available that supports some older processors.[20]



Pale Moon 8 running on Windows XP (no longer supported)

## License

Pale Moon's source code is released under the Mozilla Public License 2.0 except for parts relating to branding. To ensure quality, redistribution of officially branded Pale Moon binaries is only permissible under specific circumstances.[8] The name and logo are trademarked by the project founder and cannot be used without his prior permission.[21]



Unbranded logo

# History

M.C. Straver is the project founder and lead developer.[1] Straver's first official release of Pale Moon, in 2009, was a rebuild of Firefox 3.5.2 with tweaked compiler settings.[22] Eventually the scope of the project grew, and version 24 became a true fork of Firefox 24 ESR.[22] Starting with version 25, Pale Moon uses a completely independent versioning scheme.[23]

Pale Moon 27 was a major re-fork of the core browser code to Firefox 38 ESR, which added HTTP/2, DirectX 11, MSE/DASH, and JavaScript ES6 capabilities.[24] Add-on support remained almost entirely unchanged, with a slight reduction of Jetpack compatibility.[10][25]

## UXP

In 2017, the team behind Pale Moon began the Unified XUL Platform (UXP) project.[26] UXP is an actively maintained fork with a historical fork point of the Mozilla code at Firefox 52 ESR[27] with significant modifications to be a codebase for updated web technology support and creating any number of XUL-based applications.[28][29] To demonstrate, develop and refine the platform, Straver used it to create a new browser, Basilisk.[30][31]

Pale Moon 28, released in August 2018, was the first version built on UXP, thereby providing improved support for web standards and video.[32]

## Android

Pale Moon for Android was a distinct development effort that is no longer maintained.[33] First released in 2014,[34] Straver announced the following year that it would likely be abandoned due to lack of community involvement.[35] The final release was 25.9.6.[36]

## Releases

| Release history | | |
|---|---|---|
| **Version** | **Release date** | **Significant changes** |
| 3.5.2 | October 09, 2009 | First public version. |
| 3.6.x versions were Firefox rebuilds without code changes. | | |
| 4.0 | | Rebase to gecko/2.0. |
| 4.0.3 | | |
| 4.0.5 | | |
| 4.0.6 | | |
| 4.0.7 | | |
| 5.0 | | Rebase to gecko/5.0. |
| 6.0 | | Rebase to gecko/6.0. |
| 6.0.2 | | |
| 7.0 | | Rebase to gecko/7.0. |
| 7.0.1 | | |
| 8.0 | | Rebase to gecko/8.0. |
| 9.0.1 | | Rebase to gecko/9.0. |
| 9.1 | | Pale Moon is now built using MSVC 10.0. |
| 9.2 | | |
| 11.0 | | Rebase to gecko/11.0. |
| 11.0.1 | | |
| 12.0 | | Rebase to gecko/12.0. |
| 12.1 | | Major update, numerous security and stability fixes. |
| 12.2 | | |
| 12.2.1 | | |
| 12.3 | | |
| 12.3 r2 | | A 32-bit only build addressing a performance regression. |
| 15.0 | | Rebase to gecko/15.0. |
| 15.1 | | |
| 15.1.1 | | |
| 15.2 | | |
| 15.2.1 | | |
| 15.3 | | Pale Moon is now build using MSVC 11.0. |
| 15.3.1 | November 30, 2012 | |
| 15.3.2 | December 05, 2012 | |
| 15.4 | January 16, 2013 | |
| 15.4.1 | January 28, 2013 | |
| 19.0 | February 22, 2013 | Rebase to gecko/19.0. |
| 19.0.1 | February 24, 2013 | |
| | | |

| Version | Date | Notes |
|---|---|---|
| 19.0.2 | March 09, 2013 | |
| 20.0.1 | April 11, 2013 | Rebase to gecko/20.0. |
| 20.1 | May 23, 2013 | |
| 20.2 | July 01, 2013 | |
| 20.2.1 | July 08, 2013 | |
| 20.3 | August 13, 2013 | |
| 24.0 | September 13, 2013 | Rebase to gecko/24esr. |
| 24.0.1 | September 18, 2013 | |
| 24.0.2 | September 27, 2013 | |
| 24.1.0 | November 04, 2013 | |
| 24.1.1 | November 05, 2013 | |
| 24.1.2 | November 19, 2013 | |
| 24.2.0 | November 26, 2013 | |
| 24.2.1 | December 04, 2013 | |
| 24.2.2 | December 11, 2013 | |
| 24.3.0 | January 28, 2014 | Intel Atom optimized build introduced.<br>Geo-location provider switched. |
| 24.3.1 | January 31, 2014 | |
| 24.3.2 | February 11, 2014 | Support for TLS 1.2 introduced.<br>First Pale Moon for Linux release. |
| 24.4.0 | March 10, 2014 | Default search engine changed to DuckDuckGo. |
| 24.4.1 | March 19, 2014 | |
| 24.4.2 | April 02, 2014 | Support for OCSP-stapling introduced. |
| 24.5.0 | April 25, 2014 | |
| 24.6.0 | June 06, 2014 | Rendering engine overhaul.<br>From this version Pale Moon uses its own Sync server. |
| 24.6.1 | June 08, 2014 | |
| 24.6.2 | June 16, 2014 | |
| 24.7.0 | July 29, 2014 | |
| 24.7.1 | August 06, 2014 | First Pale Moon for Android release. |
| 24.7.2 | September 11, 2014 | Last version to support Windows XP on non-Intel Atom optimized builds. |
| 25.0.0 | October 10, 2014 | Pale Moon now uses its own UUID.<br>Forked gecko/24esr code base is still being used. |
| 25.0.1 | October 15, 2014 | |
| 25.0.2 | October 24, 2014 | SSL 3.0 is now disabled by default. |
| 25.1.0 | November 11, 2014 | |
| 25.1.1 | November 28, 2014 | An Android-only update. |
| 25.2.0 | January 15, 2015 | Improved ES6 draft implementation. |
| 25.2.1 | January 27, 2015 | |
| 25.3.0 | March 13, 2015 | |

| 25.3.1 | March 25, 2015 | |
|---|---|---|
| 25.3.2 | April 25, 2015 | |
| 25.4.0 | May 08, 2015 | |
| 25.4.1 | May 10, 2015 | |
| 25.5.0 | June 10, 2015 | |
| 25.6.0 | July 15, 2015 | |
| 25.7.0 | August 26, 2015 | |
| 25.7.1 | September 28, 2015 | |
| 25.7.2 | October 02, 2015 | |
| 25.7.3 | October 14, 2015 | |
| 25.7.3.1 | October 15, 2015 | An Android-only update. |
| 25.8.0 | November 17, 2015 | |
| 25.8.1 | November 18, 2015 | |
| 26.0.0 | January 26, 2016 | Layout engine is rebranded to Goanna.<br>Basic support for ES6 Promises and WebP image format implemented.<br>A built-in XSS filter added.<br>Forked gecko/24esr code base is still being used. |
| 26.0.2 | February 03, 2016 | |
| 26.0.3 | February 05, 2016 | |
| 26.1.0 | February 16, 2016 | |
| 26.1.1 | February 24, 2016 | |
| 26.2.0 | April 05, 2016 | |
| 26.2.1 | April 08, 2016 | |
| 26.2.2 | April 10, 2016 | An Android-only version 25.9.2 is released at the same time. |
| 26.3.0 | June 21, 2016 | |
| 26.3.1 | June 25, 2016 | |
| 26.3.2 | June 27, 2016 | A Microsoft Windows-only build. |
| 26.3.3 | July 01, 2016 | |
| 26.4.0 | August 17, 2016 | |
| 26.4.0.1 | August 23, 2016 | A Linux only build. |
| 26.4.1 | September 12, 2016 | Triple-DES cipher suites are now disabled by default. |
| 26.5.0 | September 28, 2016 | This is the last version supporting Microsoft Windows XP. |
| 27.0.0 | November 22, 2016 | Pale Moon is now based on forked mozilla/38esr platform code.<br>Support for add-on SDK extensions dropped.<br>HTTP/2 implemented. Initial MSE implementation introduced. |
| 27.0.1 | November 28, 2016 | |
| 27.0.2 | December 02, 2016 | |
| 27.0.3 | December 16, 2016 | |
| 27.1.0 | February 09, 2017 | Media back-end reworked, now uses FFmpeg on Linux. |
| 27.1.1 | February 21, 2017 | |
| 27.1.2 | March 03, 2017 | |

| 27.2.0 | March 18, 2017 | Support for JPEG-XR implemented. |
|---|---|---|
| 27.2.1 | March 24, 2017 | |
| 27.3.0 | April 28, 2017 | MSE implementation is now more spec-compliant. |
| 27.4.0 | July 12, 2017 | MSE implementation is now fully spec-compliant and asynchronous. |
| 27.4.1 | August 03, 2017 | |
| 27.4.2 | August 22, 2017 | |
| 27.4.2.1 | August 28, 2017 | A Microsoft Windows-only portable version build. |
| 27.5.0 | September 26, 2017 | |
| 27.5.1 | October 10, 2017 | |
| 27.6.0 | November 07, 2017 | |
| 27.6.1 | November 15, 2017 | |
| 27.6.2 | November 28, 2017 | |
| 27.7.0 | January 15, 2018 | |
| 27.7.1 | January 18, 2018 | |
| 27.7.2 | February 02, 2018 | |
| 27.8.0 | March 02, 2018 | Improved TLS 1.3 draft support. |
| 27.8.1 | March 06, 2018 | |
| 27.8.1 | March 22, 2018 | |
| 27.8.3 | March 28, 2018 | |
| 27.9.0 | April 17, 2018 | |
| 27.9.1 | May 07, 2018 | |
| 27.9.2 | May 18, 2018 | |
| 27.9.3 | June 12, 2018 | |
| 27.9.4 | July 17, 2018 | This is the last version supporting Microsoft Windows Vista. |
| 28.0.0 | August 16, 2018 | Pale Moon is now based on Unified XUL Platform forked from mozilla/52esr. Nearly complete ES6 support. WebGL2, WASM, CSS Grid and FLAC support introduced. |
| 28.0.0.1 | August 28, 2018 | A Microsoft Windows-only version. |
| 28.0.1 | August 31, 2018 | |
| 28.1.0 | September 20, 2018 | Final TLS 1.3 draft support implemented. |
| 28.2.0 | November 13, 2018 | |
| 28.2.1 | November 16, 2018 | |
| 28.2.2 | December 06, 2018 | |
| 28.3.0 | January 15, 2019 | AV1 support introduced. |
| 28.3.1 | January 23, 2019 | |
| 28.4.0 | February 19, 2019 | |
| 28.4.1 | March 27, 2019 | |
| 28.5.0 | April 30, 2019 | |
| 28.5.1 | June 4, 2019 | |

| | | |
|---|---|---|
| 28.5.2 | June 5, 2019 | |
| 28.6.0 | July 2, 2019 | |
| 28.6.0.1 | July 4, 2019 | |
| 28.6.1 | July 25, 2019 | |
| 28.7.0 | August 29, 2019 | |
| 28.7.1 | September 12, 2019 | |
| 28.7.2 | October 29, 2019 | |
| 28.8.0 | December 10, 2019 | Added support for modern Solaris. |
| 28.8.1 | January 11, 2020 | |
| 28.8.2 | January 28, 2020 | |
| 28.8.2.1 | February 4, 2020 | |
| 28.8.3 | February 18, 2020 | |
| 28.8.4 | 1 March 2020 | |
| 29.0.0a2 | | |

☐ Old, ☐ stable, ☐ testing

# Benchmarks

Straver has remarked that the role of benchmark tests is questionable, stating that they "can't be used to draw hard (or regularly even any) conclusions. Plain and simple: they are an indication, nothing more. They serve well if you compare closely related siblings (e.g. Firefox and Iceweasel) or different builds of the exact same browser, to get a relative performance difference between the two on the limited subset of what is actually tested, but that's about as far as it goes."[37]

The questionable role of benchmarking was confirmed by leading technology experts[38][39] when, for example, Google announced it was retiring its Octane benchmark in 2017.[40]

In 2013, Pale Moon was a bit slower than Firefox in the ClubCompy Real-World Benchmark, with the browsers respectively scoring 8,168 and 9,344 points out of a possible 50,000.[41] In a 2016 browser comparison test by Ghacks, Pale Moon version 25 had the smallest memory footprint after opening 10 different websites in separate tabs.[42] However, in the same report Pale Moon scored bottom in the Mozilla Kraken, Google Octane, 32-bit RoboHornet tests and second-to-last in the 64-bit RoboHornet benchmarks. Whilst other browsers hung during some tests, Pale Moon only hung during the JetStream JavaScript benchmark.[42]

Current (UXP) versions of Pale Moon score comparatively to other browsers in benchmarks, showing, for example, no significant difference on the Sunspider benchmark compared to Firefox Quantum.[43]

# Data breach incident

It was reported on 10th July, 2019 that a data breach of the archive server holding previous binaries of the Pale Moon browser had occurred and malware inserted into the executables. This breach was discovered on the previous day. It is unknown when the breach first occurred. Firstly, it was estimated to have been

as early as the 27th December, 2017, according to timestamps. After getting some more feedback from users, it is now estimated to have occurred somewhere between April and June 2019. [44]

# References

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# External links

- Official website (https://www.palemoon.org) ✎
- Pale Moon (https://twitter.com/palemoonbrowser) on Twitter ✎