

Line Mode Browser

The **Line Mode Browser** (also known as LMB,^[4] WWWLib, or just `www`^[5]) is the second web browser ever created.^[6] The browser was the first demonstrated to be portable to several different operating systems.^{[7][8]} Operated from a simple command-line interface, it could be widely used on many computers and computer terminals throughout the Internet. The browser was developed starting in 1990, and then supported by the World Wide Web Consortium (W3C) as an example and test application for the libwww library.^[9]

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History

One of the fundamental concepts of the "World Wide Web" projects at CERN was "universal readership".^[10] In 1990, Tim Berners-Lee had already written the first browser, WorldWideWeb (later renamed to *Nexus*), but that program only worked on the proprietary software of NeXT computers, which were in limited use.^[7] Berners-Lee and his team could not port the WorldWideWeb application with its features—including the graphical WYSIWYG editor—to the more widely deployed X Window System, since they had no experience in programming it.^[11] The team recruited Nicola Pellow, a math student intern working at CERN,^[12] to write a "passive browser" so basic that it could run on most computers of that time.^[7] The name "Line Mode Browser" refers to the fact that, to ensure compatibility with the earliest computer terminals such as Teletype machines, the program only displayed text, (no images) and had only line-by-line text input (no cursor positioning).^{[11][13]}

Development started in November 1990 and the browser was demonstrated in December 1990.^[14] The development environment used resources from the PRIAM project, a French language acronym for "Projet Interdivisionnaire d'Assistance aux Microprocesseurs", a project to standardise microprocessor

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Line Mode Browser displaying the German Wikipedia
<div>Original author(s)</div> <div>Tim Berners-Lee</div> <div>Henrik Frystyk Nielsen</div> <div>Nicola Pellow</div>
<div>Developer(s)</div> <div>W3C / CERN</div>
<div>Initial release</div> <div>0.7, 14 May 1991^[1]</div>
<div>Stable release</div> <div>5.4.1 / 4 December 2006^[2]</div>
<div>Written in</div> <div>C^[3]</div>
<div>Operating system</div> <div>Cross-platform, same as Libwww</div>
<div>Type</div> <div>Web browser</div>
<div>License</div> <div>W3C Software Notice and License</div>
<div>Website</div> <div>www.w3.org /LineMode/ (http://www.w3.org/LineMode/)</div>

development across CERN.^[15] The short development time produced software in a simplified dialect of the C programming language. The official standard ANSI C was not yet available on all platforms.^[11] The Line Mode Browser was released to a limited audience on VAX, RS/6000 and Sun-4 computers in March 1991.^[16] Before the release of the first publicly available version, it was integrated into the CERN Program Library (CERNLIB), used mostly by the High-Energy Physics-community.^{[8][17]} The first beta of the browser was released on 8 April 1991.^[18] Berners-Lee announced the browser's availability in August 1991 in the *alt.hypertext* newsgroup of Usenet.^{[19][20]} Users could use the browser from anywhere in the Internet through the telnet protocol to the *info.cern.ch* machine (which was also the first web server). The spreading news of the World Wide Web in 1991 increased interest in the project at CERN and other laboratories such as DESY in Germany, and elsewhere throughout the world.^{[7][21][22]}

The first stable version, 1.1, was released in January 1992.^{[16][23]} Since version 1.2l, released in October 1992, the browser has used the *common code library* (later called libwww).^[1] The main developer, Pellow, started working on the MacWWW project, and both browsers began to share some source code.^[24] In the *May 1993 World Wide Web Newsletter* Berners-Lee announced that the browser was released into the public domain to reduce the work on new clients.^[25] On 21 March 1995, with the release of version 3.0, CERN put the full responsibility for maintaining the Line Mode Browser on the W3C.^[1] The Line Mode Browser and the libwww library are closely tied together—the last independent release of a separate browser component was in 1995, and the browser became part of libwww.^[26]

The Agora World Wide Web email browser was based on the Line Mode Browser.^[27] The Line Mode Browser was very popular in the beginning of the web, since it was the only web browser available for all operating systems. Statistics from January 1994 show that Mosaic had quickly changed the web browser landscape and only 2% of all World Wide Web users browsed by Line Mode Browser.^[28] The new niche of text-only web browser was filled by Lynx, which made the Line Mode Browser largely irrelevant as a browser. One reason was that Lynx is much more flexible than the Line Mode Browser.^[29] It then became a test application for the libwww.

Operating mode

The simplicity of the Line Mode Browser had several limitations. The Line Mode Browser was designed to work on any operating system using what were called "dumb" terminals. The user interface had to be as simple as possible. The user began with a command-line interface specifying a Uniform Resource Locator (URL). The requested web page was then printed line by line on the screen, like a teleprinter. Websites were displayed using the first versions of HTML. Formatting was achieved with capitalization, indentation, and new lines. Header elements were capitalized, centered and separated from the normal text by empty lines.^[30]

Navigation was not controlled by a pointing device such as a mouse or arrow keys, but by text commands typed into the program.^[31] Numbers in brackets are displayed for each link; links are opened by typing the corresponding number into the program. This led one journalist of the time to write: "The Web is a way of finding information by typing numbers."^[6] The page scrolled down when an empty command (carriage return) was entered, and scrolled up with the command "u". The command "b" navigated backwards in history, and new pages were navigated with "g http://..." (for *go to*) and the URL.^[32]

The browser had no authoring functions, so pages could only be read and not edited. This was considered to be unfortunate by Robert Cailliau, one of the developers:

"I think in retrospect the biggest mistake made in the whole project was the public release of the Line-Mode Browser. It gave the Internet hackers immediate access, but only from the point of view of the passive browser — no editing capabilities"^[11]

Features

The Line Mode Browser was designed to be able to be platform independent. There are official ports to Apollo/Domain,^[33] IBM RS6000,^[33] DECStation/ultrix,^[33] VAX/VMS,^[33] VAX/Ultrix,^[33] MS-DOS,^[13] Unix,^{[13][34]} Windows,^[34] Classic Mac OS,^[34] Linux,^[34] MVS,^[35] VM/CMS,^[35] FreeBSD,^[36] Solaris,^[36] and to macOS.^[36] The browser supports many protocols like File Transfer Protocol (FTP), Gopher, Hypertext Transfer Protocol (HTTP), Network News Transfer Protocol (NNTP), and Wide area information server (WAIS).^{[1][17][37]}

Other features included rlogin^[17] and telnet^[17] hyperlinks, Cyrillic support (added at 25 November 1994 in version 2.15),^[1] and ability to be set up as a proxy client.^[38] The browser could run as a background process and download files.^[29] The Line Mode Browser has had problems recognizing character entities, properly collapsing whitespace, and supporting tables and frames.^[39]

References

1. Berners-Lee, Tim (23 April 1998). "Change History of Line Mode Browser" (<http://www.w3.org/LineMode/User/Features.html>). World Wide Web Consortium. Retrieved 2 June 2010.
2. Bancroft, Vic (4 December 2006). "libwww/ChangeLog" (<http://dev.w3.org/cvsweb/libwww/ChangeLog?annotate=HEAD>). World Wide Web Consortium. Retrieved 7 November 2015.
3. Pellow, Nicola (February 1991). "LM Availability – /Talk_Feb-91" (http://www.w3.org/Talks/LM_Availability.html). World Wide Web Consortium. Retrieved 10 August 2010.
4. Nielsen, Henrik Frystyk (April 1995). "How can I download a Document?" (<https://web.archive.org/web/20120112140848/http://www.w3.org/Library/FAQ/Download.html>). World Wide Web Consortium. Archived from the original (<http://www.w3.org/Library/FAQ/Download.html>) on 12 January 2012. Retrieved 10 August 2010.
5. Bolso, Erik Inge (8 March 2005). "2005 Text Mode Browser Roundup" (<http://www.linuxjournal.com/article/8148>). Linux Journal. Retrieved 5 August 2010.
6. Berners-Lee, Tim. "Frequently asked questions – What were the first browsers?" (<http://www.w3.org/People/Berners-Lee/FAQ.html#browser>). World Wide Web Consortium. Retrieved 26 July 2011.
7. "Ten Years Public Domain for the Original Web Software" (<http://tenyears-www.web.cern.ch/tenyears-www/Story/WelcomeStory.html>). CERN. 30 April 2003. Retrieved 21 July 2005.
8. "How the web began" (<http://public.web.cern.ch/public/en/About/WebStory-en.html>). CERN. 2008. Retrieved 25 July 2010.
9. Nielsen, Henrik Frystyk (4 May 1998). "WWW – The Libwww Line Mode Browser" (<http://www.w3.org/LineMode/>). World Wide Web Consortium. Retrieved 9 June 2010.
10. Berners-Lee, Tim. "W3 Concepts" (<http://www.w3.org/Talks/General/Concepts.html>). World Wide Web Consortium. Retrieved 20 July 2005. "The W3 principle of universal readership is that once information is available, it should be accessible from any type of computer, in any country, and an (authorized) person should only have to use one simple program to access it."

11. Petrie, Charles; Cailliau, Robert (November 1997). "Interview Robert Cailliau on the WWW Proposal: "How It Really Happened."" (<https://web.archive.org/web/20110106041256/http://www.computer.org/portal/web/computingnow/ic-cailliau>). Institute of Electrical and Electronics Engineers. Archived from the original (<http://www.computer.org/portal/web/computingnow/ic-cailliau>) on 6 January 2011. Retrieved 18 August 2010.
12. Berners-Lee, Tim; Fischetti, Mark (1999). *Weaving the Web*. p. 29. "[...] we needed help. Ben Segal [...] spotted a young intern named Nicola Pellow."
13. Stewart, Bill. "Web Browser History" (http://www.livinginternet.com/w/wi_browse.htm). Living Internet. Retrieved 2 June 2010.
14. Cailliau, Robert (1995). "A Little History of the World Wide Web" (<http://www.w3.org/History.html>). World Wide Web Consortium. Retrieved 7 August 2010. "Technical Student Nicola Pellow (CN) joins and starts work on the line-mode browser."
15. Eck, C. (December 1985). "PRIAM and VMEbus at CERN" (http://www.iaea.org/inis/collecton/NCLCollectionStore/_Public/17/041/17041317.pdf) (PDF). *VMEbus in Physics Conference*. Retrieved 26 July 2011.
16. Crémel, Nicole (5 April 2001). "A Little History of the World Wide Web" (<https://web.archive.org/web/20071219114722/http://ref.web.cern.ch/ref/CERN/CNL/2001/001/www-history/>). CERN. Archived from the original (<http://ref.web.cern.ch/ref/CERN/CNL/2001/001/www-history/>) on 19 December 2007. Retrieved 2 June 2010.
17. Berners-Lee, Tim (January 1992). "What's new in '92" (<http://www.w3.org/News/9201.html>). World Wide Web Consortium. Retrieved 25 July 2010.
18. Gillies, James; Cailliau, Robert (2000). *How the Web Was Born* (<https://archive.org/details/howwebwasbornsto00gill/page/345>). pp. 345 (<https://archive.org/details/howwebwasbornsto00gill/page/345>). ISBN 0-19-286207-3.
19. Stewart, Bill. "Tim Berners-Lee, Robert Cailliau, and the World Wide Web" (http://www.livinginternet.com/w/wi_lee.htm#dev). Living Internet. Retrieved 26 July 2010.
20. Berners-Lee, Tim (6 August 1991). "Re: Qualifiers on Hypertext links..." (<http://www.w3.org/People/Berners-Lee/1991/08/art-6484.txt>) Retrieved 28 July 2010. "We have a prototype hypertext editor for the NeXT, and a browser for line mode terminals which runs on almost anything."
21. Gillies, James; Cailliau, Robert (2000). *How the Web Was Born* (<https://archive.org/details/howwebwasbornsto00gill/page/205>). p. 205 (<https://archive.org/details/howwebwasbornsto00gill/page/205>). ISBN 0-19-286207-3.
22. Berners-Lee, Tim (7 May 1993). "Public Domain CERN WWW Software" (<http://1997.webhistory.org/www.lists/www-talk.1993q2/0259.html>). Retrieved 11 October 2010.
23. The PC-NFS version (dated 92.01.16) for MS-DOS: [wwwpcnfs.zip](http://www.w3.org/2016/11/ftp-shutdown/info.html) (<http://www.w3.org/2016/11/ftp-shutdown/info.html>) (**NOTE:** Firefox browsers may refuse to download the file, claiming that "file contains a virus or malware". [VirusTotal results](https://www.virustotal.com/gui/url/1e1a16c01b613745ba1ec674d07b59030df8facc2ebdb07bd3983442951aa616/detection) (<https://www.virustotal.com/gui/url/1e1a16c01b613745ba1ec674d07b59030df8facc2ebdb07bd3983442951aa616/detection>)).
24. Berners-Lee, Tim (3 November 1992). "Macintosh Browser" (<http://www.w3.org/History/19921103-hypertext/hypertext/WWW/Macintosh/Overview.html>). World Wide Web Consortium. Retrieved 2 June 2010.
25. Berners-Lee, Tim (May 1993). "May World-Wide Web News" (<http://www.w3.org/News/9305.html>). World Wide Web Consortium. Retrieved 7 June 2010.
26. Kreutzmann, Dr. Helge (6 January 2010). "WWW-Browsers for Linux" (<http://www.helgefjell.de/browser.php>). Retrieved 3 June 2010.
27. Sendall, Mike (29 March 1995). "World Wide Web Clients" (<http://www.w3.org/Clients.html>). World Wide Web Consortium. Retrieved 10 August 2010.

28. "History of the Web" (<https://web.archive.org/web/20100925204436/http://www.w3c.rl.ac.uk/primers/history/origins.htm>). Oxford Brookes University. 2002. Archived from the original (<http://www.w3c.rl.ac.uk/primers/history/origins.htm>) on 25 September 2010. Retrieved 20 November 2010.
29. Graham, Ian S. (1995). *The HTML Sourcebook: The Complete Guide to HTML* (<https://archive.org/details/htmlsourcebook00grah/page/323>). John Wiley & Sons. pp. 323 (<https://archive.org/details/htmlsourcebook00grah/page/323>). ISBN 0-471-11849-4.
30. "Line Mode Browser" (<http://www.w3.org/History/19921103-hypertext/hypertext/WWW/LineMode/Browser.html>). World Wide Web Consortium. 3 November 1992. Retrieved 21 July 2010.
31. Pellow, Nicola (February 1991). "Features_of_LM – /Talk_Feb-91" (http://www.w3.org/Talks/Features_of_LM.html). World Wide Web Consortium. Retrieved 10 August 2010.
32. Berners-Lee, Tim (3 November 1992). "Commands" (<http://www.w3.org/History/19921103-hypertext/hypertext/WWW/LineMode/Defaults/Commands.html>). CERN/World Wide Web Consortium. Retrieved 24 July 2010.
33. Berners-Le, Tim. "Installation" (<https://web.archive.org/web/20120111120246/http://www.slac.stanford.edu/BF/src/WWW/WWWLineMode/LineMode/Defaults/Installation.html>). Archived from the original (<http://www.slac.stanford.edu/BF/src/WWW/WWWLineMode/LineMode/Defaults/Installation.html>) on 11 January 2012. Retrieved 16 November 2010.
34. Nielsen, Henrik Frystyk (1 April 1999). "List of Platforms for libwww" (<http://www.w3.org/Library/User/Platform/>). World Wide Web Consortium. Retrieved 9 June 2010.
35. "WWW people" (<http://www.w3.org/History/19921103-hypertext/hypertext/WWW/People.html#9>). World Wide Web Consortium. Retrieved 15 June 2010.
36. "W3C libwww libraries" (<http://physionet.incor.usp.br/physiotools/libwww/>). *PhysioNet*. Cambridge, MA: University of São Paulo. 19 March 2008. Retrieved 30 May 2010.
37. Berners-Lee, Tim; Nielsen, Henrik Frystyk (9 December 1996). "Defining a News Server" (<http://www.w3.org/LineMode/User/NewsServer.html>). World Wide Web Consortium. Retrieved 28 June 2010.
38. Nielsen, Henrik Frystyk (9 August 1997). "Libwww – the W3C Sample Code Library README" (<http://www.w3.org/README.html#Line>). World Wide Web Consortium. Retrieved 11 August 2010.
39. Tobias, Daniel R. (4 April 2010). "'Brand-X' Browsers – Alphabetical List: A-G" (<http://webtips.dan.info/brand-x/a-g.html>). Retrieved 5 July 2010.

Further reading

- Gay, Martin (1 June 2000). *Recent advances and issues in computers* (https://books.google.com/books?id=sv7N_JKMPI8C&pg=PA121). Greenwood Publishing Group. p. 121. ISBN 978-1-57356-227-0.
- Gillies, James; Cailliau, Robert (15 January 2000). *How the Web was Born: The Story of the World Wide Web* (<https://archive.org/details/howwebwasbornsto00gill>). Oxford University Press. ISBN 0-19-286207-3.
- December, John; Randall, Neil (1994). *The World Wide Web unleashed* (<https://archive.org/details/worldwidewebunle00dece>). Sams Publishing. ISBN 1-57521-040-1.
- Kantor, Andrew (1995). *60-minute guide to the Internet: including the World-Wide Web* (<https://archive.org/details/60minuteguidetoi00kant>). IDG Books Worldwide. ISBN 1-56884-342-9.

External links

- [Official website \(http://www.w3.org/LineMode/\)](http://www.w3.org/LineMode/)
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