[Template:About](/wiki/Template:About" \o "Template:About) [Template:Pp-pc1](/wiki/Template:Pp-pc1) [Template:Pp-move-indef](/wiki/Template:Pp-move-indef) [Template:Use mdy dates](/wiki/Template:Use_mdy_dates) [Template:Infobox OS](/wiki/Template:Infobox_OS)

**Linux** (pronounced [Template:IPAc-en](/wiki/Template:IPAc-en) [Template:Respell](/wiki/Template:Respell)[[1]](#cite_note-1)[[2]](#cite_note-2) or, less frequently, [Template:IPAc-en](/wiki/Template:IPAc-en) [Template:Respell](/wiki/Template:Respell)[[2]](#cite_note-2)[[3]](#cite_note-3)) is a [Unix-like](/wiki/Unix-like) and mostly [POSIX](/wiki/POSIX)-compliant[[4]](#cite_note-4) computer [operating system](/wiki/Operating_system) (OS) assembled under the model of [free and open-source software](/wiki/Free_and_open-source_software) development and distribution. The defining component of Linux is the [Linux kernel](/wiki/Linux_kernel),[[5]](#cite_note-5) an [operating system kernel](/wiki/Kernel_(computing)) first released on October 5, 1991 by [Linus Torvalds](/wiki/Linus_Torvalds).[[6]](#cite_note-6)[[7]](#cite_note-7) The [Free Software Foundation](/wiki/Free_Software_Foundation) uses the name [*GNU*](/wiki/GNU)*/Linux* to describe the operating system, which has led to some [controversy](/wiki/GNU/Linux_naming_controversy).[[8]](#cite_note-8)[[9]](#cite_note-9) Linux was originally developed as a [free operating system](/wiki/Free_operating_system) for [personal computers](/wiki/Personal_computer) based on the [Intel x86](/wiki/Intel_x86) architecture, but has since been [ported](/wiki/Porting) to more [computer hardware platforms](/wiki/Computer_hardware_platforms) than any other operating system.[[10]](#cite_note-10) Because of the dominance of [Android](/wiki/Android_(operating_system)) on [smartphones](/wiki/Smartphone), Linux has the [largest](/wiki/Usage_share_of_operating_systems) [installed base](/wiki/Installed_base) of all general-purpose operating systems.[[11]](#cite_note-11) Linux, in its original form, is also the leading operating system on [servers](/wiki/Server_(computing)) and other [big iron](/wiki/Big_iron) systems such as [mainframe computers](/wiki/Mainframe_computer) and virtually all fastest [supercomputers](/wiki/Supercomputer),[[12]](#cite_note-12)[[13]](#cite_note-13) but is used on only around 1.6% of [desktop computers](/wiki/Desktop_computer)[[14]](#cite_note-14)[[15]](#cite_note-15) including the top 280.[[90]](#cite_note-90)

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### Smart devices[[edit](/index.php?title=(none)&action=edit&section=20)]

[thumb|Android smartphones](/wiki/File:Samsung_Galaxy_Note_series_2.jpg)

Several operating systems for [smart devices](/wiki/Smart_devices), such as [smartphones](/wiki/Smartphone), [tablet computers](/wiki/Tablet_computer), [smart TVs](/wiki/Smart_TV), and [in-vehicle infotainment](/wiki/In-vehicle_infotainment) (IVI) systems, are based on Linux. Major platforms for such systems include [Android](/wiki/Android_(operating_system)), [Firefox OS](/wiki/Firefox OS), [Mer](/wiki/Mer_(software_distribution)) and [Tizen](/wiki/Tizen).

Android has become the dominant mobile operating system for [smartphones](/wiki/Smartphone), running on 79.3% of units sold worldwide during the second quarter of 2013.[[91]](#cite_note-91) Android is also a popular operating system for tablets, and Android smart TVs and in-vehicle infotainment systems have also appeared in the market.

Cellphones and PDAs running Linux on open-source platforms became more common from 2007; examples include the [Nokia N810](/wiki/Nokia_N810), [Openmoko's](/wiki/Openmoko) [Neo1973](/wiki/Neo1973), and the [Motorola ROKR E8](/wiki/Motorola_ROKR_E8). Continuing the trend, [Palm](/wiki/Palm,_Inc.) (later acquired by [HP](/wiki/Hewlett-Packard)) produced a new Linux-derived operating system, [webOS](/wiki/WebOS), which is built into its line of [Palm Pre](/wiki/Palm_Pre) smartphones.

[Nokia's](/wiki/Nokia) [Maemo](/wiki/Maemo), one of the earliest mobile operating systems, was based on [Debian](/wiki/Debian).[[92]](#cite_note-92) It was later merged with [Intel's](/wiki/Intel) [Moblin](/wiki/Moblin), another Linux-based operating system, to form [MeeGo](/wiki/MeeGo).[[93]](#cite_note-93) The project was later terminated in favor of Tizen, an operating system targeted at mobile devices as well as IVI. Tizen is a project within [The Linux Foundation](/wiki/The_Linux_Foundation). Several [Samsung](/wiki/Samsung) products are already running Tizen, [Samsung Gear 2](/wiki/Samsung_Gear_2) being the most significant example.[[94]](#cite_note-94) [Samsung Z](/wiki/Samsung_Z) smartphones will use Tizen instead of Android.[[95]](#cite_note-95) As a result of MeeGo's termination, the Mer project forked the MeeGo codebase to create a basis for mobile-oriented operating systems.[[96]](#cite_note-96) In July 2012, [Jolla](/wiki/Jolla) announced [Sailfish OS](/wiki/Sailfish_OS), their own mobile operating system built upon Mer technology.

[Mozilla's](/wiki/Mozilla) Firefox OS consists of the Linux kernel, a [hardware abstraction layer](/wiki/Hardware_abstraction_layer), a [web-standards](/wiki/Web_standards)-based [runtime environment](/wiki/Runtime_system) and user interface, and an integrated [web browser](/wiki/Web_browser).[[97]](#cite_note-97) [Canonical](/wiki/Canonical_Ltd.) has released [Ubuntu Touch](/wiki/Ubuntu_Touch), aiming to bring convergence to the user experience on this mobile operating system and its desktop counterpart, [Ubuntu](/wiki/Ubuntu_(operating_system)). The operating system also provides a full Ubuntu desktop when connected to an external monitor.[[98]](#cite_note-98)

### Embedded devices[[edit](/index.php?title=(none)&action=edit&section=21)]

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

[thumb|150px|The](/wiki/File:Jolla_smartphones.jpg) [Jolla Phone](/wiki/Jolla_(mobile_phone)) has the Linux-based [Sailfish OS](/wiki/Sailfish_OS) [thumb|150px|](/wiki/File:Tesla_Model_S_digital_panels.jpg)[In-car entertainment](/wiki/In-car_entertainment) system of the [Tesla Model S](/wiki/Tesla_Model_S) is based on [Ubuntu](/wiki/Ubuntu_(operating_system))[[99]](#cite_note-99) [thumb|150px|](/wiki/File:My_green_Nokia_X_(13582469484).jpg)[Nokia X](/wiki/Nokia X), a smartphone that runs Linux kernel

Due to its low cost and ease of customization, [Linux](/wiki/Embedded_Linux) is often used in [embedded systems](/wiki/Embedded_system). In the non-mobile telecommunications equipment sector, the majority of [customer-premises equipment](/wiki/Customer-premises_equipment) (CPE) hardware runs some Linux-based operating system. [OpenWrt](/wiki/OpenWrt) is a community driven example upon which many of the OEM firmwares are based.

For example, the popular [TiVo](/wiki/TiVo) digital video recorder also uses a customized Linux,[[100]](#cite_note-100) as do several network [firewalls](/wiki/Firewall_(computing)) and [routers](/wiki/Router_(computing)) from such makers as [Cisco](/wiki/Cisco)/[Linksys](/wiki/Linksys). The [Korg OASYS](/wiki/Korg_OASYS), the [Korg KRONOS](/wiki/Korg_KRONOS), the [Yamaha Motif XS](/wiki/Yamaha_Motif#Motif_XS)/Motif XF [music workstations](/wiki/Music_workstation),[[101]](#cite_note-101) Yamaha S90XS/S70XS, Yamaha MOX6/MOX8 synthesizers, Yamaha Motif-Rack XS [tone generator module](/wiki/Synthesizer), and Roland RD-700GX [digital piano](/wiki/Digital_piano) also run Linux. Linux is also used in [stage lighting](/wiki/Stage_lighting) control systems, such as the WholeHogIII console.[[102]](#cite_note-102)

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

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

There had been several games that run on traditional desktop Linux, and many of which originally written for desktop OS. However, due to most game developers not paying attention to such a small market as desktop Linux, only a few prominent games have been available for desktop Linux. On the other hand, as a popular mobile platform, Android has gained much developer interest and there are many games available for Android.

On February 14, 2013, [Valve](/wiki/Valve_Corporation) released a Linux version of [Steam](/wiki/Steam_(software)), a popular game distribution platform on PC.[[103]](#cite_note-103) Many Steam games were ported to Linux.[[104]](#cite_note-104) On December 13, 2013, Valve released [SteamOS](/wiki/SteamOS), a gaming oriented OS based on Debian, for [beta testing](/wiki/Beta_testing), and has plans to ship [Steam Machines](/wiki/Steam_Machine_(hardware_platform)) as a gaming and entertainment platform.[[105]](#cite_note-105) Valve has also developed [VOGL](/wiki/VOGL), an [OpenGL](/wiki/OpenGL) debugger intended to aid video game development,[[106]](#cite_note-106) as well as porting its [Source](/wiki/Source_(game_engine)) game engine to desktop Linux.[[107]](#cite_note-107) As a result of Valve's effort, several prominent games such as [DotA 2](/wiki/Dota_2), [Team Fortress 2](/wiki/Team_Fortress_2), [Portal](/wiki/Portal_(video_game)), [Portal 2](/wiki/Portal_2) and [Left 4 Dead 2](/wiki/Left_4_Dead_2) are now natively available on desktop Linux.

On July 31, 2013, [Nvidia](/wiki/Nvidia) released [Shield](/wiki/Nvidia_Shield) as an attempt to use Android as a specialized gaming platform.[[108]](#cite_note-108)

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

Due to the flexibility, customizability and free and open-source nature of Linux, it becomes possible to highly tune Linux for a specific purpose. There are two main methods for creating a specialized Linux distribution: building from scratch or from a general-purpose distribution as a base. The distributions often used for this purpose include [Debian](/wiki/Debian), [Fedora](/wiki/Fedora_(operating_system)), [Ubuntu](/wiki/Ubuntu_(operating_system)) (which is itself based on Debian), [Arch Linux](/wiki/Arch_Linux), [Gentoo](/wiki/Gentoo_Linux), and [Slackware](/wiki/Slackware). In contrast, Linux distributions built from scratch do not have general-purpose bases; instead, they focus on the [JeOS](/wiki/JeOS) philosophy by including only necessary components and avoiding [resource](/wiki/System_resource) overhead caused by components considered redundant in the distribution's use cases.

#### Home theater PC[[edit](/index.php?title=(none)&action=edit&section=24)]

A [home theater PC](/wiki/Home_theater_PC) (HTPC) is a PC that is mainly used as an entertainment system, especially a [Home theater system](/wiki/Home_theater_system). It is normally connected to a television, and often an additional audio system.

[OpenELEC](/wiki/OpenELEC), a Linux distribution that incorporates the media center software [Kodi](/wiki/Kodi_(software)), is an OS tuned specifically for an HTPC. Having been built from the ground up adhering to the JeOS principle, the OS is very lightweight and very suitable for the confined usage range of an HTPC.

There are also special editions of Linux distributions that include the [MythTV](/wiki/MythTV) media center software, such as [Mythbuntu](/wiki/Mythbuntu), a special edition of Ubuntu.

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

[Kali Linux](/wiki/Kali_Linux) is a Debian-based Linux distribution designed for [digital forensics](/wiki/Digital_forensics) and [penetration testing](/wiki/Penetration_test). It comes preinstalled with several software applications for penetration testing and identifying [security exploits](/wiki/Exploit_(computer_security)).[[109]](#cite_note-109) The Ubuntu derivative [BackBox](/wiki/BackBox) provides pre-installed security and network analysis tools for ethical hacking.

There are many Linux distributions created with privacy, secrecy, network anonymity and information security in mind, including [Tails](/wiki/Tails_(operating_system)), [Tin Hat Linux](/wiki/Tin_Hat_Linux) and [Tinfoil Hat Linux](/wiki/Tinfoil_Hat_Linux). [Lightweight Portable Security](/wiki/Lightweight_Portable_Security) is a distribution based on Arch Linux and developed by the [United States Department of Defense](/wiki/United_States_Department_of_Defense). [Tor-ramdisk](/wiki/Tor-ramdisk) is a minimal distribution created solely to host the network anonymity software [Tor](/wiki/Tor_(anonymity_network)).

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

Linux [Live CD](/wiki/Live_CD) sessions have long been used as a tool for recovering data from a broken computer system and for repairing the system. Building upon that idea, several Linux distributions tailored for this purpose have emerged, most of which use [GParted](/wiki/GParted) as a partition editor, with additional data recovery and system repair software:

* [GParted Live](/wiki/Gparted_live)[Template:Snd](/wiki/Template:Snd) a Debian-based distribution developed by the GParted project.
* [Parted Magic](/wiki/Parted_Magic)[Template:Snd](/wiki/Template:Snd) a commercial Linux distribution.
* [SystemRescueCD](/wiki/SystemRescueCD)[Template:Snd](/wiki/Template:Snd) a Gentoo-based distribution with support for editing Windows [registry](/wiki/Windows_Registry).

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

[SpaceX](/wiki/SpaceX) uses multiple redundant [flight computers](/wiki/Category:Avionics_computers) in a [fault-tolerant design](/wiki/Fault-tolerant_design) in the [Falcon 9](/wiki/Falcon 9) rocket. Each Merlin engine is controlled by three [voting](/wiki/Voting_logic) computers, with two physical processors per computer that constantly check each other's operation. Linux is not inherently fault-tolerant (no operating system is, as it is a function of the whole system including the hardware), but the flight computer software makes it so for its purpose.<ref name=aw20121118/> For flexibility, [commercial off-the-shelf](/wiki/Commercial_off-the-shelf) parts and system-wide "radiation-tolerant" design are used instead of [radiation hardened](/wiki/Radiation_hardened) parts.<ref name=aw20121118>[Template:Cite news](/wiki/Template:Cite_news)</ref> [Template:As of](/wiki/Template:As_of), SpaceX has made 19 launches of the Falcon 9 since 2010, out of which 18 have successfully delivered their primary payloads to [Earth orbit](/wiki/Earth_orbit), including some support missions for the [International Space Station](/wiki/International_Space_Station).

In addition, Windows was used as an operating system on non-mission critical systems[Template:Mdashblaptops](/wiki/Template:Mdashb) used on board the space station, for example[Template:Mdashbbut](/wiki/Template:Mdashb) it has been replaced with Linux; the first Linux-powered humanoid robot is also undergoing in-flight testing.[[110]](#cite_note-110) The [Jet Propulsion Laboratory](/wiki/Jet_Propulsion_Laboratory) has used Linux for a number of years "to help with projects relating to the construction of unmanned space flight and deep space exploration"; [NASA](/wiki/NASA) uses Linux in robotics in the Mars rover, and [Ubuntu](/wiki/Ubuntu_(operating_system)) Linux to "save data from satellites".[[111]](#cite_note-111)

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

Linux distributions have been created to provide hands-on experience with coding and source code to students, on devices such as the [Raspberry Pi](/wiki/Raspberry_Pi). In addition to producing a practical device, the intention is to show students "how things work under the hood".

The Ubuntu derivatives [Edubuntu](/wiki/Edubuntu) and [The Linux Schools Project](/wiki/The_Linux_Schools_Project), as well as the Debian derivative [Skolelinux](/wiki/Skolelinux), provide education-oriented software packages. They also include tools for administering and building school computer labs and computer-based classrooms, such as the [Linux Terminal Server Project](/wiki/Linux_Terminal_Server_Project) (LTSP).

#### Others[[edit](/index.php?title=(none)&action=edit&section=29)]

[Instant WebKiosk](/wiki/Instant_WebKiosk) and [Webconverger](/wiki/Webconverger) are browser-based Linux distributions often used in web [kiosks](/wiki/Interactive_kiosk) and [digital signage](/wiki/Digital_signage). [Thinstation](/wiki/Thinstation) is a minimalist distribution designed for [thin clients](/wiki/Thin_client). [Rocks Cluster Distribution](/wiki/Rocks_Cluster_Distribution) is tailored for [high-performance computing clusters](/wiki/HPCC).

There are general-purpose Linux distributions that target a specific audience, such as users of a specific language or geographical area. Such examples include [Ubuntu Kylin](/wiki/Ubuntu_Kylin) for Chinese language users and [BlankOn](/wiki/BlankOn) targeted at Indonesians. Profession-specific distributions include [Ubuntu Studio](/wiki/Ubuntu_Studio) for media creation and [DNALinux](/wiki/DNALinux) for [bioinformatics](/wiki/Bioinformatics). There is also a Muslim-oriented distribution of the name [Sabily](/wiki/Sabily), as well as an Arabic-focused distribution called [Ojuba Linux](/wiki/Ojuba_Linux) that consequently also provides some Islamic tools. Certain organizations use slightly specialized Linux distributions internally, including [GendBuntu](/wiki/GendBuntu) used by the French [National Gendarmerie](/wiki/National_Gendarmerie), [Goobuntu](/wiki/Goobuntu) used internally by Google, and [Astra Linux](/wiki/Astra_Linux) developed specifically for the Russian army.

## Market share and uptake[[edit](/index.php?title=(none)&action=edit&section=30)]

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

Many quantitative studies of [free](/wiki/Free_software)/open-source software focus on topics including market share and reliability, with numerous studies specifically examining Linux.[[112]](#cite_note-112) The Linux market is growing rapidly, and the revenue of servers, desktops, and packaged software running Linux was expected to[Template:Update inline](/wiki/Template:Update_inline) exceed $35.7 billion by 2008.[[113]](#cite_note-113) Analysts and proponents attribute the relative success of Linux to its security, reliability, low cost, and freedom from [vendor lock-in](/wiki/Vendor_lock-in).[[114]](#cite_note-114)[[115]](#cite_note-115)

Desktops and laptops

According to [web server statistics](/wiki/Web_analytics), [Template:As of](/wiki/Template:As_of), the estimated market share of Linux on [desktop computers](/wiki/Desktop_computer) is around 1.8%. In comparison, [Microsoft Windows](/wiki/Microsoft_Windows) has a market share of around 89.7%, while [Mac OS](/wiki/Mac_OS) covers around 8.5%.[[14]](#cite_note-14)

Web servers

W3Cook publishes stats that use the top one million Alexa domains,[[116]](#cite_note-116) which [Template:As of](/wiki/Template:As_of) estimate that 96.55% of web servers run Linux, 1.73% run Windows, and 1.72% run FreeBSD.[[117]](#cite_note-117) W3Techs publishes stats that use the top ten million Alexa domains, which is updated every month[[118]](#cite_note-118) and [Template:As of](/wiki/Template:As_of) estimates that 32.6% of web servers run Windows, with the rest being Linux or Unix.[[119]](#cite_note-119) [IDC's](/wiki/International_Data_Corporation) Q1 2007 report indicated that Linux held 12.7% of the overall server market at that time;[[120]](#cite_note-120) this estimate was based on the number of Linux servers sold by various companies, and did not include server hardware purchased separately that had Linux installed on it later. In September 2008, Microsoft's CEO [Steve Ballmer](/wiki/Steve_Ballmer) stated that 60% of web servers ran Linux, versus 40% that ran [Windows Server](/wiki/Windows_Server).[[121]](#cite_note-121)

Mobile devices

Android, which is based on the Linux kernel, has become the dominant operating system for [smartphones](/wiki/Smartphone). During the second quarter of 2013, 79.3% of smartphones sold worldwide used Android.[[91]](#cite_note-91) Android is also a popular operating system for tablets, being responsible for more than 60% of tablet sales as of 2013.[[122]](#cite_note-122) According to web server statistics, [Template:As of](/wiki/Template:As_of) Android has a market share of about 46%, with [iOS](/wiki/IOS) holding 45%, and the remaining 9% attributed to various niche platforms.[[123]](#cite_note-123)

Film production

For years Linux has been the platform of choice in the film industry. The first major film produced on Linux servers was 1997's [*Titanic*](/wiki/Titanic_(1997_film)).[[124]](#cite_note-124)[[125]](#cite_note-125) Since then major studios including [DreamWorks Animation](/wiki/DreamWorks_Animation), [Pixar](/wiki/Pixar), [Weta Digital](/wiki/Weta_Digital), and [Industrial Light & Magic](/wiki/Industrial_Light_&_Magic) have migrated to Linux.[[126]](#cite_note-126)[[127]](#cite_note-127)[[128]](#cite_note-128) According to the Linux Movies Group, more than 95% of the servers and desktops at large animation and visual effects companies use Linux.[[129]](#cite_note-129)

Use in government

Linux distributions have also gained popularity with various local and national governments. The federal government of Brazil is well known for its support for Linux.[[130]](#cite_note-130)[[131]](#cite_note-131) News of the Russian military creating its own Linux distribution has also surfaced, and has come to fruition as the G.H.ost Project.[[132]](#cite_note-132) The Indian state of [Kerala](/wiki/Kerala) has gone to the extent of mandating that all state high schools run Linux on their computers.[[133]](#cite_note-133)[[134]](#cite_note-134) [China](/wiki/People's_Republic_of_China) uses Linux exclusively as the operating system for its [Loongson](/wiki/Loongson) processor family to achieve technology independence.[[135]](#cite_note-135) In Spain, some regions have developed their own Linux distributions, which are widely used in education and official institutions, like [gnuLinEx](/wiki/GnuLinEx) in Extremadura and [Guadalinex](/wiki/Guadalinex) in Andalusia. [France](/wiki/France) and [Germany](/wiki/Germany) have also taken steps toward the adoption of Linux.[[136]](#cite_note-136) North Korea's [Red Star OS](/wiki/Red_Star_OS), developed since 2002, is based on a version of [Fedora Linux](/wiki/Fedora_Linux).[[137]](#cite_note-137)

## Copyright, trademark, and naming[[edit](/index.php?title=(none)&action=edit&section=31)]

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

Linux kernel is [licensed](/wiki/Software_license) under the [GNU General Public License](/wiki/GNU_General_Public_License) (GPL), version 2. The GPL requires that anyone who distributes software based on source code under this license, must make the originating source code (and any modifications) available to the recipient under the same terms.[[138]](#cite_note-138) Other key components of a typical Linux distribution are also mainly licensed under the GPL, but they may use other licenses; many libraries use the [GNU Lesser General Public License](/wiki/GNU_Lesser_General_Public_License) (LGPL), a more permissive variant of the GPL, and the [X.org](/wiki/X.org_Server) implementation of the [X Window System](/wiki/X_Window_System) uses the [MIT License](/wiki/MIT_License).

Torvalds states that the Linux kernel will not move from version 2 of the GPL to version 3.[[139]](#cite_note-139)[[140]](#cite_note-140) He specifically dislikes some provisions in the new license which prohibit the use of the software in [digital rights management](/wiki/Digital_rights_management).[[141]](#cite_note-141) It would also be impractical to obtain permission from all the copyright holders, who number in the thousands.[[142]](#cite_note-142) A 2001 study of [Red Hat Linux](/wiki/Red_Hat_Linux) 7.1 found that this distribution contained 30 million [source lines of code](/wiki/Source_lines_of_code).[[143]](#cite_note-143) Using the [Constructive Cost Model](/wiki/COCOMO), the study estimated that this distribution required about eight thousand man-years of development time. According to the study, if all this software had been developed by conventional [proprietary](/wiki/Proprietary_software) means, it would have cost about $[Template:Format price](/wiki/Template:Format_price) ([Template:CURRENTISOYEAR](/wiki/Template:CURRENTISOYEAR) US dollars) to develop in the United States.[[143]](#cite_note-143) Most of the source code (71%) was written in the [C](/wiki/C_(programming_language)) [programming](/wiki/Computer_programming) [language](/wiki/Programming_language), but many other languages were used, including [C++](/wiki/C++), [Lisp](/wiki/Lisp_(programming_language)), [assembly language](/wiki/Assembly_language), [Perl](/wiki/Perl), [Python](/wiki/Python_(programming_language)), [Fortran](/wiki/Fortran), and various [shell scripting](/wiki/Shell_script) languages. Slightly over half of all lines of code were licensed under the GPL. The Linux kernel itself was 2.4 million lines of code, or 8% of the total.[[143]](#cite_note-143) In a later study, the same analysis was performed for [Debian](/wiki/Debian) version 4.0 (etch, which was released in 2007).[[144]](#cite_note-144) This distribution contained close to 283 million source lines of code, and the study estimated that it would have required about seventy three thousand man-years and cost US$[Template:Format price](/wiki/Template:Format_price) (in [Template:CURRENTISOYEAR](/wiki/Template:CURRENTISOYEAR) dollars) to develop by conventional means.

[Template:Anchor](/wiki/Template:Anchor) [thumb|right|The name "Linux" is also used for a laundry detergent made by Swiss company Rösch.](/wiki/File:LinuxWasch3.jpg)[[145]](#cite_note-145)

In the United States, the name *Linux* is a trademark registered to Linus Torvalds.[[146]](#cite_note-146) Initially, nobody registered it, but on August 15, 1994, William R. Della Croce, Jr. filed for the trademark *Linux*, and then demanded royalties from Linux distributors. In 1996, Torvalds and some affected organizations sued him to have the trademark assigned to Torvalds, and, in 1997, the case was settled.[[147]](#cite_note-147) The licensing of the trademark has since been handled by the [Linux Mark Institute](/wiki/Linux_Mark_Institute). Torvalds has stated that he trademarked the name only to prevent someone else from using it. LMI originally charged a nominal sublicensing fee for use of the Linux name as part of trademarks,[[148]](#cite_note-148) but later changed this in favor of offering a free, perpetual worldwide sublicense.[[149]](#cite_note-149) The [Free Software Foundation](/wiki/Free_Software_Foundation) prefers *GNU/Linux* as the name when referring to the operating system as a whole, because it considers Linux to be a [variant](/wiki/GNU_variants) of the [GNU](/wiki/GNU) operating system, initiated in 1983 by [Richard Stallman](/wiki/Richard_Stallman), president of the Free Software Foundation.[[8]](#cite_note-8)[[9]](#cite_note-9) A minority of public figures and software projects other than Stallman and the Free Software Foundation, notably [Debian](/wiki/Debian) (which had been sponsored by the Free Software Foundation up to 1996[[150]](#cite_note-150)), also use *GNU/Linux* when referring to the operating system as a whole.[[100]](#cite_note-100)[[151]](#cite_note-151)[[152]](#cite_note-152) Most media and common usage,[Template:OR](/wiki/Template:OR) however, refers to this family of operating systems simply as *Linux*, as do many large Linux distributions (for example, [SUSE Linux](/wiki/SUSE_Linux) and [Red Hat Enterprise Linux](/wiki/Red_Hat_Enterprise_Linux)). [Template:As of](/wiki/Template:As_of), about 8% to 13% of a modern Linux distribution is made of GNU components (the range depending on whether [GNOME](/wiki/GNOME) is considered part of GNU), as determined by counting [lines of source code](/wiki/Source_lines_of_code) making up Ubuntu's "Natty" release; meanwhile, about 9% is taken by the Linux kernel.[[153]](#cite_note-153)

## See also[[edit](/index.php?title=(none)&action=edit&section=32)]

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

[Template:Div col](/wiki/Template:Div_col)

* [Comparison of Linux distributions](/wiki/Comparison_of_Linux_distributions)
* [Comparison of open source and closed source](/wiki/Comparison_of_open_source_and_closed_source)
* [Comparison of operating systems](/wiki/Comparison_of_operating_systems)
* [Comparison of X Window System desktop environments](/wiki/Comparison_of_X_Window_System_desktop_environments)
* [Criticism of Linux](/wiki/Criticism_of_Linux)
* [Linux Documentation Project](/wiki/Linux_Documentation_Project)
* [Linux Foundation](/wiki/Linux_Foundation)
* [List of Linux distributions](/wiki/List_of_Linux_distributions)
* [List of games released on Linux](/wiki/List_of_Linux_titles)
* [List of operating systems](/wiki/List_of_operating_systems)
* [Loadable kernel module](/wiki/Loadable_kernel_module)
* [Usage share of operating systems](/wiki/Usage_share_of_operating_systems)

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## Notes[[edit](/index.php?title=(none)&action=edit&section=33)]

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

## References[[edit](/index.php?title=(none)&action=edit&section=34)]

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

## External links[[edit](/index.php?title=(none)&action=edit&section=35)]

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

* [Template:Dmoz](/wiki/Template:Dmoz)
* [Graphical map of Linux Internals](http://www.makelinux.net/system/new)
* [Linux kernel website and archives](http://www.kernel.org/)
* [The History of Linux in GIT Repository Format 1992–2010](https://archive.org/details/git-history-of-linux)

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

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