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It includes industry-specific toolsets; improved workflows across desktop, web, and mobile; and new features such as drawing history. Brand: AutoDesk OS: Windows, Mac Availability: Instock Language: English, e?tina, Deutsch, espa?ol, fran?ais, italiano, magyar, polski, portugu?s, , , , It includes industry-specific toolsets; improved workflows across desktop, web, and mobile; and new features such as drawing history. 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It's been over 42 years since the launch of AutoCAD in 1982. In that time, the CAD industry has evolved significantly, with the program going from strength to strength. Today, AutoCAD is not only the flagship product of its parent company, Autodesk but is the most widely used CAD software in the world. Originally created for mechanical engineering, AutoCAD has dramatically expanded its reach to incorporate practically every branch of design, with industry-specific "flavors" being added with the launch of AutoCAD 2017. It's no wonder, therefore, that AutoCAD is in such high demand. However, the product's great functionality requires an investment. Much like many other software developers; Autodesk has now phased out perpetual licenses for all its products, leaving customers with subscription options only. The subscription cost for AutoCAD, which is one of Autodesk's products, ranges between $250.00 per month, $2030.00 for a 1-year subscription, and $6,085.00 for a 3-year subscription, which is definitely not cheap; but given the value that users get from the software, thousands of users worldwide find it worth the investment. However, depending on your requirements,  it is also possible to get AutoCAD for free. Want to learn how? Read on for the full details. About AutoCAD The history of AutoCAD begins in the late 1970s when programmer Mike Riddle created Interact CAD. Though not a successful program at the time, it included many of the features that would later become part of AutoCAD. Several years later, the program was acquired by Autodesk, who used it to form the basis for the first edition of AutoCAD, which was released in 1982. Some of the program's most well-known features were already in place even at this early stage, including its native DWG file format. Early AutoCAD packaging (Source: Ohio State University) In the following 35 years, AutoCAD has become ubiquitous in the world of design. Though initially created to serve the needs of mechanical engineering, the program has expanded its scope to embrace all forms of design, including the gaming, animation, and graphic design industries. Its reach is so widespread that there is now a wide range of careers that require knowledge of AutoCAD. However, AutoCAD's huge range of features doesn't come cheap. As of 2017, perpetual licenses no longer exist for Autodesk products. Subscription options start from $175/month, or $1,400/year. Whilst this price point is reasonable for companies that rely on AutoCAD for day-to-day use, lighter users may be wary of shelling out such a large amount. Luckily, there are ways to get the functionality of AutoCAD free. Educational Licenses As part of its commitment to education, Autodesk has made its products available to educational users for free three-year licenses In 2014, Autodesk made the landmark decision to make its products free for students, teachers, and academic institutions. This means that any user with a valid academic email address can sign up for a free AutoCAD license. Autodesk states on their education page that they "genuinely believe in education", and aim to equip users "with tools and resources to help [them] achieve academic and future career success". The provision of free software is available to around 80 million students and educators worldwide. Not only is the software free for students, but also there's no charge for academic departments. This allows students to get familiar with software they'll later use in the workplace, making the transition from academic to professional life easier. Free Trial If you're not in education, there's still a way to get AutoCAD free. Autodesk offers free trials of AutoCAD, amongst many other programs in its design suite. Thanks to this trial version, users can take advantage of AutoCAD's full range of features completely free. This includes the software's 2D and 3D functionality, cutting-edge design features, and support for a wide range of file types. The trial is available for a generous 30 day period, giving users the chance to test out all of AutoCAD's features, enabling them to make an informed decision on whether to continue with their subscription. However, this does mean that, for non-educational users, the time period in which AutoCAD is free to use is limited. Fortunately, if you need the functionality of AutoCAD without the premium price tag, there are still solutions you can try. AutoCAD Web Whilst most users cannot download the full version of AutoCAD free, Autodesk offers other solutions for image drafting, viewing, and editing. One of these is AutoCAD Web, AutoCAD Web was formerly known as AutoCAD 360, AutoCAD Web App, or AutoCAD Mobile App. It offers many of the features of the full version. The program allows users to: Create, edit (light editing), open and view DWG files Make accurate measurements and view coordinates Zoom and pan around drawings Add change notes and markups Store drawings in the cloud, with syncing later possible after working offline Share designs with colleagues and collaborators Additionally, the paid version of the product grants a greater level of functionality, including the ability to draw, edit, move and scale objects. Upgrading to the paid version from the free version (30-day free trial) means paying for a subscription—but at only $10 per month or $100 per year, it's considerably cheaper than the desktop software. Both the free and paid versions of AutoCAD 360 lack some of the features of AutoCAD. However, for users on a budget, it provides a great way to edit and view DWG files—especially on the go. This option is most suitable for users who do not require AutoCAD's more advanced features and are primarily looking to view drawings, make simple edits, and add annotations. Looking for more official Autodesk solutions? Check out the online-based AutoDesk Viewer, which allows you to view and share over 50 different file types with no download—or DWG TrueView, which is perfect for converting DWG versions and adding markup to documents. Alternative CAD Software Whilst AutoCAD may be the market leader, it's far from the only CAD program on the market. There is a wide range of AutoCAD alternatives available for creating, drafting, editing, and viewing CAD drawings — some of which are completely free. Though they may lack some of the most specialized features unique to AutoCAD, they're still perfect for most standard design work. With so many programs on the market, however, it can sometimes be difficult to figure out which is worth your time. Luckily, we here at Scan2CAD have done the legwork for you. We've put together lists of 14 top free CAD packages, the best architectural CAD software, the best CAD software for collaborative design, cloud-based CAD software, and the top open-source CAD software, helping you make an informed choice on the software you download. The lists include software from some of the most well-known names in CAD, including DraftSight, Dassault Systèmes, and SketchUp Make. The list of the free CAD packages also includes a handful of more niche software solutions—such as LeoCAD, the CAD program designed for use with LEGO. It's important to ensure that the software you download is suitable for your needs. Many programs are available for free only on the condition that they are not used for commercial purposes. As such, they may be perfect for hobbyists, but unsuitable for small business users. Meanwhile, some programs may lack 2D or 3D capabilities. Be sure to thoroughly research the pros and cons of each program to make sure the software you download is right for you. DraftSight, from Dassault Systèmes, is one example of free CAD software Scan2CAD Scan2CAD is the ultimate vectorization software—but it's so much more than that. With support for 33 different file types, and complete raster and vector editing suites, Scan2CAD gives you all the tools you need to take your design from an initial draft to a cut-ready image. Best of all, you can try Scan2CAD completely free for 14 days. During this trial period, you'll be able to use Scan2CAD's full range of features, with no watermarks or restrictions. There are also no limits on how many files you can convert, meaning you have a real chance to put Scan2CAD to the test. 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The three-year term allows users to sign up in their senior year and continue to use AutoCAD after graduating. 2. Where can I download AutoCAD for free? You can download AutoCAD for free on Autodesk's website by either signing up as a student or downloading the free trial in case you are not a student or educator. How not to get AutoCAD free There is a myriad of great CAD solutions on the market that can help you design and create great things. Nonetheless, many may still be tempted to circumvent the rules and download a cracked copy of AutoCAD instead. However, as we've previously discussed on our blog, downloading a crack can lead to a wide range of issues. Not only are cracks illegal, but they also come with a host of potential problems for your computer. Cracked software provides criminal organizations and hackers with a way of infiltrating your system. Using a crack can leave you vulnerable to viruses, trojans, and other malware. Worse still, CAD users run the risk of intellectual property theft, which can put your entire business at risk. No matter which program you use, cracks can cause far more trouble than they're worth. Learn more about why downloading a crack for Scan2CAD, AutoCAD, or any other software simply isn't worth the risk. Computer operating systems "Windows" redirects here. For the part of a building, see Window. For other uses, see Windows (disambiguation). This article needs additional citations for verification. Please help improve this article by adding citations to reliable sources. Unsourced material may be challenged and removed.Find sources: "Microsoft Windows" – news · newspapers · books · scholar · JSTOR (December 2024) (Learn how and when to remove this message) Operating system WindowsLogo as of October 2021DeveloperMicrosoftSource modelClosed-sourceSource-available (through Shared Source Initiative)Initial releaseNovember 20, 1985; 39 years ago (1985-11-20)Latest release24H2 (10.0.26100.4351) (June 11, 2025; 13 days ago (2025-06-11)[1]) [±]Latest preview Release Preview Channel 24H2 (10.0.26100.4482) (June 19, 2025; 5 days ago (2025-06-19)[2][3]) [±] Beta Channel 24H2 (10.0.26120.4452) (June 23, 2025; 1 day ago (2025-06-23)[4]) [±] Dev Channel 24H2 (10.0.26200.5661) (June 23, 2025; 1 day ago (2025-06-23)[5]) [±] Canary Channel 10.0.27881.1000 (June 19, 2025; 5 days ago (2025-06-19)[6]) [±]Marketing targetPersonal computingAvailable in110 languagesUpdate methodWindows UpdateMicrosoft StoreWindows Server Update Services (WSUS)Package managerWindows Installer (.msi, .msp),[7] App Installer (.msix,.[8] msixbundle[9][10]), Microsoft Store (.appx, .appxbundle),[11] Windows Package ManagerPlatformsIA-32, x86-64, ARM, ARM64 Previously: 16-bit x86, DEC Alpha, MIPS, PowerPC, ItaniumKernel type Windows NT family: Hybrid Windows Embedded Compact/Windows CE: Hybrid or Monolithic Windows 9x and earlier: Monolithic (MS-DOS and VMM32) Defaultuser interfaceWindows shellLicenseProprietary commercial softwareOfficial websitewindows.com Windows is a product line of proprietary graphical operating systems developed and marketed by Microsoft. It is grouped into families and subfamilies that cater to particular sectors of the computing industry – Windows (unqualified) for a consumer or corporate workstation, Windows Server for a server and Windows IoT for an embedded system. Windows is sold as either a consumer retail product or licensed to third-party hardware manufacturers who sell products bundled with Windows.[citation needed] The first version of Windows, Windows 1.0, was released on November 20, 1985, as a graphical operating system shell for MS-DOS in response to the growing interest in graphical user interfaces (GUIs).[12] The name "Windows" is a reference to the windowing system in GUIs.[13] The 1990 release of Windows 3.0 catapulted its market success and led to various other product families, including the now-defunct Windows 9x, Windows Mobile, Windows Phone, and Windows CE/Embedded Compact. Windows is the most popular desktop operating system in the world, with a 70% market share as of March 2023[update], according to StatCounter;[14] however when including mobile operating systems, it is in second place, behind Android.[15] The most recent version of Windows is Windows 11 for consumer PCs and tablets, Windows 11 Enterprise for corporations, and Windows Server 2025 for servers. Still supported are some editions of Windows 10, Windows Server 2016 or later (and exceptionally with paid support down to Windows Server 2008).[16][17] This section needs additional citations for verification. Please help improve this article by adding citations to reliable sources in this section. Unsourced material may be challenged and removed. (December 2024) (Learn how and when to remove this message) As of 2025,[update] the only active top-level family is Windows NT.[citation needed] The first version, Windows NT 3.1, was intended for server computing and corporate workstations. It grew into a product line of its own and now consists of four sub-families that tend to be released almost simultaneously and share the same kernel. Windows (unqualified): For a consumer or corporate workstation or tablet. The latest version is Windows 11.[citation needed] Its main competitors are macOS by Apple and Linux for personal computers and iPadOS and Android for tablets (cf. Usage share of operating systems § Market share by category). Of note: "Windows" refers to both the overall product line and this sub-family of it. Windows Server: For a server computer. The latest version is Windows Server 2025. Unlike its client sibling, it has adopted a strong naming scheme. The main competitor of this family is Linux. (cf. Usage share of operating systems § Market share by category) Windows PE: A lightweight version of its Windows sibling, meant to operate as a live operating system, used for installing Windows on bare-metal computers (especially on many computers at once), recovery, or troubleshooting purposes. The latest version is Windows PE 10.[citation needed] Windows IoT (previously Windows Embedded): For IoT and embedded computers. The latest version is Windows 11 IoT Enterprise.[18] Like Windows Server, the main competitor of this family is Linux. (cf. Usage share of operating systems § Market share by category) These top-level Windows families are no longer actively developed: Windows 9x: Intended exclusively for the consumer market. The first version was Windows 95, which was followed by Windows 98. The last version of the Windows 9x family was Windows Me, which was widely regarded as one of the worst operating systems of all time, with PC World labeling it as "Mistake Edition" and placing it 4th in their list of Worst Tech Products in 2006[19]). All versions of the Windows 9x family have a monolithic kernel that uses MS-DOS as a foundation alongside the kernel first used with Windows 95. This line has since been defunct, with Microsoft now catering to the consumer market with Windows NT starting with Windows XP.[citation needed] Windows Mobile: The predecessor to Windows Phone, a mobile phone and PDA operating system. The first version was called Pocket PC 2000. The third version, Windows Mobile 2003, was the first version to adopt the Windows Mobile trademark. The last published version was Windows Mobile 6.5. Windows Phone: Sold only to smartphone manufacturers. The first version was Windows Phone 7, followed by Windows Phone 8 and Windows Phone 8.1. It was succeeded by Windows 10 Mobile, which is also defunct. Windows Embedded Compact: Most commonly known by its former name, Windows CE, it is a hybrid kernel operating system optimized for low power and memory systems, with OEMs able to modify the UI to suit their needs. The final version was Windows Embedded Compact 2013, and it is succeeded by Windows IoT.[citation needed] Main article: Microsoft Windows version history See also: List of Microsoft Windows versions The term Windows collectively describes any or all of several generations of Microsoft operating system products. These products are generally categorized as follows: Main articles: Windows 1.0, Windows 2.0, and Windows 2.1 The history of Windows dates back to 1981 when Microsoft started work on a program called "Interface Manager". The name "Windows" comes from the fact that the system was one of the first to use graphical boxes to represent programs; in the industry, at the time, these were called "windows" and the underlying software was called "windowing software."[13] It was announced in November 1983 (after the Apple Lisa, but before the Macintosh) under the name "Windows", but Windows 1.0 was not released until November 1985.[20] Windows 1.0 was to compete with Apple's operating system, but achieved little popularity. Windows 1.0 is not a complete operating system; rather, it extends MS-DOS. The shell of Windows 1.0 is a program known as the MS-DOS Executive. Components included Calculator, Calendar, Cardfile, Clipboard Viewer, Clock, Control Panel, Notepad, Paint, Reversi, Terminal and Write. Windows 1.0 does not allow overlapping windows. Instead, all windows are tiled. Only modal dialog boxes may appear over other windows. Microsoft sold as included Windows Development libraries with the C development environment, which included numerous windows samples.[21] Windows 2.0 was released in December 1987, and was more popular than its predecessor. It features several improvements to the user interface and memory management.[22] Windows 2.03 changed the OS from tiled windows to overlapping windows. The result of this change led to Apple Computer filing a suit against Microsoft alleging infringement on Apple's copyrights (eventually settled in court in Microsoft's favor in 1993).[23][24] Windows 2.0 also introduced more sophisticated keyboard shortcuts and could make use of expanded memory. Windows 2.1 was released in two different versions: Windows/286 and Windows/386. Windows/386 uses the virtual 8086 mode of the Intel 80386 to multitask several DOS programs and the paged memory model to emulate expanded memory using available extended memory. Windows/286, in spite of its name, runs on both Intel 8086 and Intel 80286 processors. It runs in real mode but can make use of the high memory area.[25] In addition to full Windows packages, there were runtime-only versions that shipped with early Windows software from third parties and made it possible to run their Windows software on MS-DOS and without the full Windows feature set. The early versions of Windows are often thought of as graphical shells, mostly because they ran on top of MS-DOS and used it for file system services.[26] However, even the earliest Windows versions already assumed many typical operating system functions; notably, having their own executable file format and providing their own device drivers (timer, graphics, printer, mouse, keyboard and sound). Unlike MS-DOS, Windows allowed users to execute multiple graphical applications at the same time, through cooperative multitasking. Windows implemented an elaborate, segment-based, software virtual memory scheme, which allows it to run applications larger than available memory: code segments and resources are swapped in and thrown away when memory became scarce; data segments moved in memory when a given application had relinquished processor control. Main articles: Windows 3.0 and Windows 3.1 Windows 3.0, released in 1990 Windows 3.0, released in 1990, improved the design, mostly because of virtual memory and loadable virtual device drivers (VxDs) that allow Windows to share arbitrary devices between multi-tasked DOS applications.[citation needed] Windows 3.0 applications can run in protected mode, which gives them access to several megabytes of memory without the obligation to participate in the software virtual memory scheme. They run inside the same address space, where the segmented memory provides a degree of protection. Windows 3.0 also featured improvements to the user interface. Microsoft rewrote critical operations from C into assembly. Windows 3.0 was the first version of Windows to achieve broad commercial success, selling 2 million copies in the first six months.[27][28] Versions before Windows 95 had to be installed from floppy disks by end users (or in professional environments with a network installation); here Windows for Workgroups with nine 3.5-inch-disks to be inserted sequentially. Windows 3.1, made generally available on March 1, 1992, featured a facelift. In October 1992, Windows for Workgroups, a special version with integrated peer-to-peer networking features, was released. It was sold along with Windows 3.1. Support for Windows 3.1 ended on December 31, 2001.[29] Windows 3.2, released in 1994, is an updated version of the Chinese version of Windows 3.1.[30] The update was limited to this language version, as it fixed only issues related to the complex writing system of the Chinese language.[31] Windows 3.2 was generally sold by computer manufacturers with a ten-disk version of MS-DOS that also had Simplified Chinese characters in basic output and some translated utilities.[citation needed] Main articles: Windows 9x, Windows 95, Windows 98, and Windows Me The next major consumer-oriented release of Windows, Windows 95, was released on August 24, 1995. While still remaining MS-DOS-based, Windows 95 introduced support for native 32-bit applications, plug and play hardware, preemptive multitasking, long file names of up to 255 characters, and provided increased stability over its predecessors. Windows 95 also introduced a redesigned, object oriented user interface, replacing the previous Program Manager with the Start menu, taskbar, and Windows Explorer shell. Windows 95 was a major commercial success for Microsoft; Ina Fried of CNET remarked that "by the time Windows 95 was finally ushered off the market in 2001, it had become a fixture on computer desktops around the world."[32] Microsoft published four OEM Service Releases (OSR) of Windows 95, each of which was roughly equivalent to a service pack. The first OSR of Windows 95 was also the first version of Windows to be bundled with Microsoft's web browser, Internet Explorer.[33] Mainstream support for Windows 95 ended on December 31, 2000, and extended support for Windows 95 ended on December 31, 2001.[34] Windows 95 was followed up with the release of Windows 98 on June 25, 1998, which introduced the Windows Driver Model, support for USB composite devices, support for ACPI, hibernation, and support for multi-monitor configurations. Windows 98 also included integration with Internet Explorer 4 through Active Desktop and other aspects of the Windows Desktop Update (a series of enhancements to the Explorer shell which was also made available for Windows 95). In May 1999, Microsoft released Windows 98 Second Edition, an updated version of Windows 98. Windows 98 SE added Internet Explorer 5.0 and Windows Media Player 6.2 amongst other upgrades. Mainstream support for Windows 98 ended on June 30, 2002, and extended support for Windows 98 ended on July 11, 2006.[35] On September 14, 2000, Microsoft released Windows Me (Millennium Edition), the last DOS-based version of Windows. Windows Me incorporated visual interface enhancements from its Windows NT-based counterpart Windows 2000, had faster boot times than previous versions (which however, required the removal of the ability to access a real mode DOS environment, removing compatibility with some older programs),[36] expanded multimedia functionality (including Windows Media Player 7, Windows Movie Maker, and the Windows Image Acquisition framework for retrieving images from scanners and digital cameras), additional system utilities such as System File Protection and System Restore, and updated home networking tools.[37] However, Windows Me was faced with criticism for its speed and instability, along with hardware compatibility issues and its removal of real mode DOS support. PC World considered Windows Me to be one of the worst operating systems Microsoft had ever released, and the fourth worst tech product of all time.[19] Main article: Windows NT Main articles: Windows NT 3.1, Windows NT 3.5, Windows NT 3.51, Windows NT 4.0, and Windows 2000 Windows logo (1995–2001) In November 1988, a new development team within Microsoft (which included former Digital Equipment Corporation developers Dave Cutler and Mark Lucovsky) began work on a revamped version of IBM and Microsoft's OS/2 operating system known as "NT OS/2". NT OS/2 was intended to be a secure, multi-user operating system with POSIX compatibility and a modular, portable kernel with preemptive multitasking and support for multiple processor architectures. However, following the successful release of Windows 3.0, the NT development team decided to rework the project to use an extended 32-bit port of the Windows API known as Win32 instead of those of OS/2. Win32 maintained a similar structure to the Windows APIs (allowing existing Windows applications to easily be ported to the platform), but also supported the capabilities of the existing NT kernel. Following its approval by Microsoft's staff, development continued on what was now Windows NT, the first 32-bit version of Windows. However, IBM objected to the changes, and ultimately continued OS/2 development on its own.[38][39] Windows NT was the first Windows operating system based on a hybrid kernel. The hybrid kernel was designed as a modified microkernel, influenced by the Mach microkernel developed by Richard Rashid at Carnegie Mellon University, but without meeting all of the criteria of a pure microkernel. The first release of the resulting operating system, Windows NT 3.1 (named to associate it with Windows 3.1) was released in July 1993, with versions for desktop workstations and servers. Windows NT 3.5 was released in September 1994, focusing on performance improvements and support for Novell's NetWare, and was followed up by Windows NT 3.51 in May 1995, which included additional improvements and support for the PowerPC architecture. Windows NT 4.0 was released in June 1996, introducing the redesigned interface of Windows 95 to the NT series. On February 17, 2000, Microsoft released Windows 2000, a successor to NT 4.0. The Windows NT name was dropped at this point in order to put a greater focus on the Windows brand.[39] Main article: Windows XP A variation of the 2001–2006 Windows logo from 2003 using the Segoe typeface instead of the Franklin Gothic typeface. This variation was mainly used for branding purposes. The next major version of Windows NT, Windows XP, was released to manufacturing (RTM) on August 24, 2001, and to the general public on October 25, 2001. The introduction of Windows XP aimed to unify the consumer-oriented Windows 9x series with the architecture introduced by Windows NT, a change which Microsoft promised would provide better performance over its DOS-based predecessors. Windows XP would also introduce a redesigned user interface (including an updated Start menu and a "task-oriented" Windows Explorer), streamlined multimedia and networking features, Internet Explorer 6, integration with Microsoft's .NET Passport services, a "compatibility mode" to help provide backwards compatibility with software designed for previous versions of Windows, and Remote Assistance functionality.[40][41] At retail, Windows XP was marketed in two main editions: the "Home" edition was targeted towards consumers, while the "Professional" edition was targeted towards business environments and power users, and included additional security and networking features. Home and Professional were later accompanied by the "Media Center" edition (designed for home theater PCs, with an emphasis on support for DVD playback, TV tuner cards, DVR functionality, and remote controls), and the "Tablet PC" edition (designed for mobile devices meeting its specifications for a tablet computer, with support for stylus pen input and additional pen-enabled applications).[42][43][44] Mainstream support for Windows XP ended on April 14, 2009. Extended support ended on April 8, 2014.[45] After Windows 2000, Microsoft also changed its release schedules for server operating systems; the server counterpart of Windows XP, Windows Server 2003, was released in April 2003.[39] It was followed in December 2005, by Windows Server 2003 R2. Main article: Windows Vista After a lengthy development process, Windows Vista was released on November 30, 2006, for volume licensing and January 30, 2007, for consumers. It contained a number of new features, from a redesigned shell and user interface to significant technical changes, with a particular focus on security features. It was available in a number of different editions, and has been subject to some criticism, such as drop of performance, longer boot time, criticism of new UAC, and stricter license agreement. Vista's server counterpart, Windows Server 2008 was released in early 2008. Main article: Windows 7 On July 22, 2009, Windows 7 and Windows Server 2008 R2 were released to manufacturing (RTM) and released to the public three months later on October 22, 2009. Unlike its predecessor, Windows Vista, which introduced a large number of new features, Windows 7 was intended to be a more focused, incremental upgrade to the Windows line, with the goal of being compatible with applications and hardware with which Windows Vista was already compatible.[46] Windows 7 has multi-touch support, a redesigned Windows shell with an updated taskbar with revealable jump lists that contain shortcuts to files frequently used with specific applications and shortcuts to tasks within the application,[47] a home networking system called HomeGroup,[48] and performance improvements. Main articles: Windows 8 and Windows 8.1 Windows logo (2012–2015) Windows 8, the successor to Windows 7, was released generally on October 26, 2012. A number of significant changes were made on Windows 8, including the introduction of a user interface based around Microsoft's Metro design language with optimizations for touch-based devices such as tablets and all-in-one PCs. These changes include the Start screen, which uses large tiles that are more convenient for touch interactions and allow for the display of continually updated information, and a new class of apps which are designed primarily for use on touch-based devices. The new Windows version required a minimum resolution of 1024×768 pixels,[49] effectively making it unfit for netbooks with 800×600-pixel screens. Other changes include increased integration with cloud services and other online platforms (such as social networks and Microsoft's own OneDrive (formerly SkyDrive) and Xbox Live services), the Windows Store service for software distribution, and a new variant known as Windows RT for use on devices that utilize the ARM architecture, and a new keyboard shortcut for screenshots.[50][51][52][53][54][55][56] An update to Windows 8, called Windows 8.1,[57] was released on October 17, 2013, and includes features such as new live tile sizes, deeper OneDrive integration, and many other revisions. Windows 8 and Windows 8.1 have been subject to some criticism, such as the removal of the Start menu. Main article: Windows 10 Windows logo (2015–2021) On September 30, 2014, Microsoft announced Windows 10 as the successor to Windows 8.1. It was released on July 29, 2015, and addresses shortcomings in the user interface first introduced with Windows 8. Changes on PC include the return of the Start Menu, a virtual desktop system, and the ability to run Windows Store apps within windows on the desktop rather than in full-screen mode. Windows 10 is said to be available to update from qualified Windows 7 with SP1, Windows 8.1 and Windows Phone 8.1 devices from the Get Windows 10 Application (for Windows 7, Windows 8.1) or Windows Update (Windows 7).[58] In February 2017, Microsoft announced the migration of its Windows source code repository from Perforce to Git. This migration involved 3.5 million separate files in a 300-gigabyte repository.[59] By May 2017, 90 percent of its engineering team was using Git, in about 8500 commits and 1760 Windows builds per day.[59] In June 2021, shortly before Microsoft's announcement of Windows 11, Microsoft updated their lifecycle policy pages for Windows 10, revealing that support for their last release of Windows 10 will end on October 14, 2025.[60][61] On April 27, 2023, Microsoft announced that version 22H2 would be the last of Windows 10.[62][63] Windows logo (2021–present) Main article: Windows 11 On June 24, 2021, Windows 11 was announced as the successor to Windows 10 during a livestream. The new operating system was designed to be more user-friendly and understandable. It was released on October 5, 2021.[64][65] As of May 2022,[update] Windows 11 is a free upgrade to Windows 10 users who meet the system requirements.[66] See also: Azure Virtual Desktop Not to be confused with Microsoft 365 or Windows/386. In July 2021, Microsoft announced it will start selling subscriptions to virtualized Windows desktops as part of a new Windows 365 service in the following month. The new service will allow for cross-platform usage, aiming to make the operating system available for both Apple and Android users. It is a separate service and offers several variations including Windows 365 Frontline, Windows 365 Boot, and the Windows 365 app.[67] The subscription service will be accessible through any operating system with a web browser. The new service is an attempt at capitalizing on the growing trend, fostered during the COVID-19 pandemic, for businesses to adopt a hybrid remote work environment, in which "employees split their time between the office and home". As the service will be accessible through web browsers, Microsoft will be able to bypass the need to publish the service through Google Play or the Apple App Store.[68][69][70][71][72] Microsoft announced Windows 365 availability to business and enterprise customers on August 2, 2021.[73] See also: Multilingual User Interface Multilingual support has been built into Windows since Windows 3.0. The language for both the keyboard and the interface can be changed through the Region and Language Control Panel. Components for all supported input languages, such as Input Method Editors, are automatically installed during Windows installation (in Windows XP and earlier, files for East Asian languages, such as Chinese, and files for right-to-left scripts, such as Arabic, may need to be installed separately, also from the said Control Panel). Third-party IMEs may also be installed if a user feels that the provided one is insufficient for their needs. Since Windows 2000, English editions of Windows NT have East Asian IMEs (such as Microsoft Pinyin IME and Microsoft Japanese IME) bundled, but files for East Asian languages may be manually installed on Control Panel. Interface languages for the operating system are free for download, but some languages are limited to certain editions of Windows. Language Interface Packs (LIPs) are redistributable and may be downloaded from Microsoft's Download Center and installed for any edition of Windows (XP or later) – they translate most, but not all, of the Windows interface, and require a certain base language (the language which Windows originally shipped with). This is used for most languages in emerging markets. Full Language Packs, which translate the complete operating system, are only available for specific editions of Windows (Ultimate and Enterprise editions of Windows Vista and 7, and all editions of Windows 8, 8.1 and RT except Single Language). They do not require a specific base language and are commonly used for more popular languages such as French or Chinese. These languages cannot be downloaded through the Download Center, but are available as optional updates through the Windows Update service (except Windows 8). The interface language of installed applications is not affected by changes in the Windows interface language. The availability of languages depends on the application developers themselves. Windows 8 and Windows Server 2012 introduce a new Language Control Panel where both the interface and input languages can be simultaneously changed, and language packs, regardless of type, can be downloaded from a central location. The PC Settings app in Windows 8.1 and Windows Server 2012 R2 also includes a counterpart settings page for this. Changing the interface language also changes the language of preinstalled Windows Store apps (such as Mail, Maps and News) and certain other Microsoft-developed apps (such as Remote Desktop). The above limitations for language packs are however still in effect, except that full language packs can be installed for any edition except Single Language, which caters to emerging markets. Windows NT included support for several platforms before the x86-based personal computer became dominant in the professional world. Windows NT 4.0 and its predecessors supported PowerPC, DEC Alpha and MIPS R4000 (although some of the platforms implement 64-bit computing, the OS treated them as 32-bit). Windows 2000 dropped support for all platforms, except the third generation x86 (known as IA-32) or newer in 32-bit mode. The client line of the Windows NT family still ran on IA-32 up to Windows 10[66] (the server line of the Windows NT family still ran on IA-32 up to Windows Server 2008). With the introduction of the Intel Itanium architecture (IA-64), Microsoft released new versions of Windows to support it. Itanium versions of Windows XP and Windows Server 2003 were released at the same time as their mainstream x86 counterparts. Windows XP 64-Bit Edition (Version 2003), released in 2003, is the last Windows client operating system to support Itanium. Windows Server line continues to support this platform until Windows Server 2012; Windows Server 2008 R2 is the last Windows operating system to support Itanium architecture. On April 25, 2005, Microsoft released Windows XP Professional x64 Edition and Windows Server 2003 x64 editions to support x86-64 (or simply x64), the 64-bit version of x86 architecture. Windows Vista was the first client version of Windows NT to be released simultaneously in IA-32 and x64 editions. As of 2024, x64 is still supported. An edition of Windows 8 known as Windows RT was specifically created for computers with ARM architecture, and while ARM is still used for Windows smartphones with Windows 10, tablets with Windows RT will not be updated. Starting from Windows 10 Fall Creators Update (version 1709) and later includes support for ARM-based PCs.[74] Main articles: Windows CE and Windows Phone Windows CE (officially known as Windows Embedded Compact), is an edition of Windows that runs on minimalistic computers, like satellite navigation systems and some mobile phones. Windows Embedded Compact is based on its own dedicated kernel, dubbed Windows CE kernel. Microsoft licenses Windows CE to OEMs and device makers. The OEMs and device makers can modify and create their own user interfaces and experiences, while Windows CE provides the technical foundation to do so. Windows CE was used in the Dreamcast along with Sega's own proprietary OS for the console. Windows CE was the core from which Windows Mobile was derived. Its successor, Windows Phone 7, was based on components from both Windows CE 6.0 R3 and Windows CE 7.0. Windows Phone 8 however, is based on the same NT-kernel as Windows 8. Windows Embedded Compact is not to be confused with Windows XP Embedded or Windows NT 4.0 Embedded, modular editions of Windows based on Windows NT kernel. Main article: Xbox system software Xbox OS is an unofficial name given to the version of Windows that runs on Xbox consoles.[75] From Xbox One onwards it is an implementation with an emphasis on virtualization (using Hyper-V) as it is three operating systems running at once, consisting of the core operating system, a second implemented for games and a more Windows-like environment for applications.[76] Microsoft updates Xbox One's OS every month, and these updates can be downloaded from the Xbox Live service to the Xbox and subsequently installed, or by using offline recovery images downloaded via a PC.[77] It was originally based on NT 6.2 (Windows 8) kernel, and the latest version runs on an NT 10.0 base. This system is sometimes referred to as "Windows 10 on Xbox One".[78][79] Xbox One and Xbox Series operating systems also allow limited (due to licensing restrictions and testing resources) backward compatibility with previous generation hardware,[80] and the Xbox 360's system is backwards compatible with the original Xbox.[81] Up to and including every version before Windows 2000, Microsoft used an in-house version control system named Source Library Manager (SLM). Shortly after Windows 2000 was released, Microsoft switched to a fork of Perforce named Source Depot.[82] This system was used up until 2017 once the system could not keep up with the size of Windows.[citation needed] Microsoft had begun to integrate Git into Team Foundation Server in 2013,[83] but Windows (and Office) continued to rely on Source Depot.[84] The Windows code was divided among 65 different repositories with a kind of virtualization layer to produce unified view of all of the code.[citation needed] In 2017 Microsoft announced that it would start using Git, an open source version control system created by Linus Torvalds, and in May 2017 they reported that the migration into a new Git repository was complete.[59][85][86]

know before you buy a Surface Pro X". ZDNet. Archived from the original on July 1, 2021. Retrieved June 14, 2021. ^ Anand Lal Shimpi. "The Xbox One – Mini Review & Comparison to Xbox 360/PS4". anandtech.com. Archived from the original on October 12, 2014. Retrieved October 21, 2014. ^ "Xbox One: Hardware and software specs detailed and analyzed – Three operating systems in one". ExtremeTech. Archived from the original on November 16, 2013. Retrieved December 1, 2013. ^ "How to use the Offline System Update Diagnostic Tool on Xbox One". Xbox Official Site. Microsoft. Archived from the original on April 27, 2021. Retrieved November 30, 2013. ^ "Xbox One Is "Literally a Windows Device"". GameSpot. Archived from the original on December 27, 2015. ^ "New Xbox One Update Will Make Some Functionality 50 Percent Faster". GameSpot. Archived from the original on February 2, 2016. ^ Tom Warren (June 16, 2015). "Xbox One dashboard update includes a huge new design and Cortana". The Verge. Vox Media. Archived from the original on July 8, 2017. ^ Eric Qualls. "Xbox 360 and Xbox Games Backwards Compatibility". About.com Tech. Archived from the original on September 28, 2015. ^ Chen, Raymond (January 22, 2018). "The history of change-packing tools at Microsoft (so far)". The Old New Thing. Microsoft Developer Blogs (DevBlogs). Archived from the original on May 25, 2022. Retrieved September 2, 2023. ^ Lewis, Andy (June 26, 2013). "Visual Studio 2013 Preview: Git version control and Team Foundation Build". Azure DevOps Blog. Microsoft Developer Blogs (DevBlogs). Archived from the original on September 3, 2023. Retrieved September 2, 2023. ^ Harry, Brian (February 3, 2017). "Scaling Git (and some back story)". Brian Harry's Blog. Microsoft Developer Blogs (DevBlogs). Archived from the original on September 3, 2023. Retrieved September 2, 2023. ^ "The largest Git repo on the planet". Brian Harry's Blog. May 24, 2017. Archived from the original on October 6, 2021. Retrieved October 8, 2021. ^ a b Bright, Peter (February 6, 2017). "Microsoft hosts the Windows source in a monstrous 300 GB Git repository". Ars Technica. Archived from the original on December 26, 2017. Retrieved December 26, 2017. ^ Chacon, Scott; Straub, Ben (2014). "2.1 Git Basics – Getting a Git Repository: Cloning an Existing Repository". Pro Git. The version found here has been updated with corrections and additions from hundreds of contributors. (2nd ed.). Apress. ISBN 978-1-4842-0077-3. Archived from the original on September 1, 2023. Retrieved September 2, 2023 – via the Git Project. ^ Stolee, Derrick (May 28, 2020). "Frequently Asked Questions: Why Are You Abandoning VFS for Git?". GitHub. Microsoft. Archived from the original on May 1, 2023. Retrieved September 2, 2023. ^ "Microsoft Support Lifecycle". Microsoft. Archived from the original on October 11, 2008. ^ Chen, Raymond (July 22, 2019). "What was the code name for Windows 7?". The Old New Thing. Archived from the original on September 26, 2021. Retrieved October 6, 2021. ^ "Windows 11 Home and Pro Product Life Cycle". Microsoft. September 20, 2022. Archived from the original on March 21, 2023. Retrieved February 14, 2023. ^ "Frequently Asked Questions". StatCounter. Are laptops included in the desktop platform?. ^ "Desktop Windows Version Market Share Worldwide (June 2025)". StatCounter. ^ "Desktop Windows Version Market Share Worldwide | StatCounter Global Stats". StatCounter Global Stats. Archived from the original on April 20, 2019. Retrieved November 24, 2019. ^ "Desktop Operating system market share: August 2021". Net Applications. Archived from the original on September 8, 2021. Retrieved September 8, 2021. ^ "Desktop Operating System Market Share Worldwide: August 2021". StatCounter. Archived from the original on January 27, 2020. Retrieved September 8, 2021. ^ "Operating system market share: August 2021". Net Applications. Archived from the original on September 8, 2021. Retrieved September 8, 2021. ^ "Operating System Market Share Worldwide: August 2021". StatCounter. Archived from the original on February 15, 2020. Retrieved September 8, 2021. ^ "Transcript: Chat with Ed Bott and Carl Siechert, Co-Authors of Microsoft Windows XP Inside Out". Microsoft. November 21, 2001. Archived from the original on September 18, 2004. Retrieved April 20, 2019. ^ Russinovich, Mark (April 30, 1998). "Windows NT Security, Part 1". ITPro Today. Archived from the original on September 29, 2022. Retrieved September 29, 2022. ^ Bruce Schneier (June 15, 2005). "Crypto-Gram Newsletter". Schneier.com. Counterpane Internet Security, Inc. Archived from the original on June 6, 2007. Retrieved April 22, 2007. ^ Andy Patrizio (April 27, 2006). "Linux Malware On The Rise". InternetNews. QuinStreet. Archived from the original on February 5, 2012. Retrieved January 3, 2011. ^ "Windows intentionally weak on worms, viruses - The Arizona State Press". www.statepress.com. Retrieved June 12, 2024. ^ "Telephones and Internet Users by Country, 1990 and 2005". Information Please Database. Archived from the original on May 22, 2009. Retrieved June 9, 2009. ^ Gates, Bill. "Bill Gates: Trustworthy Computing". Wired. ISSN 1059-1028. Archived from the original on September 29, 2022. Retrieved September 29, 2022. ^ Verloy, Filip. "20 Years After Bill Gates' Trustworthy Computing Memo, Cybersecurity Issues Are An Even Harder Problem". nonamesecurity.com. Archived from the original on September 29, 2022. Retrieved September 29, 2022. ^ Northrup, Tony (June 1, 2005). "Windows Vista Security and Data Protection Improvements". TechNet. Microsoft Docs. Archived from the original on October 20, 2021. Retrieved October 20, 2021. In Windows Vista, the User Account Control (UAC) initiative introduces fundamental operating system changes to enhance the experience for the non-administrative user. ^ Kenny Kerr (September 29, 2006). "Windows Vista for Developers – Part 4 – User Account Control". Archived from the original on March 29, 2007. Retrieved March 15, 2007. ^ Greenberg, Andy (March 7, 2017). "How the CIA Can Hack Your Phone, PC, and TV (Says WikiLeaks)". WIRED. Archived from the original on March 20, 2019. Retrieved December 18, 2018. ^ "Vault 7: Wikileaks reveals details of CIA's hacks of Android, iPhone Windows, Linux, MacOS, and even Samsung TVs". Computing. March 7, 2017. Archived from the original on April 12, 2019. Retrieved December 18, 2018. ^ Greenberg, Andy (August 13, 2019). "DejaBlue: New BlueKeep-Style Bugs Renew The Risk Of A Windows worm". wired. Archived from the original on April 13, 2021. Retrieved August 15, 2019. ^ Seals, Tara (August 14, 2019). "20-Year-Old Bug in Legacy Microsoft Code Plagues All Windows Users". ThreatPost.com. Archived from the original on April 17, 2021. Retrieved August 15, 2019. ^ Ryan Naraine (June 8, 2005). "Microsoft's Security Response Center: How Little Patches Are Made". eWeek. Ziff Davis Enterprise. Retrieved January 3, 2011. ^ John Foley (October 20, 2004). "Windows XP SP2 Distribution Surpasses 100 Million". InformationWeek. UBM TechWeb. Archived from the original on May 27, 2010. Retrieved January 3, 2011. ^ "Test antivirus software for Windows 10 – June 2022". www.av-test.org. Archived from the original on September 29, 2022. Retrieved September 29, 2022. ^ Christoffel, Ryan (July 26, 2024). "Microsoft starts campaign to make Windows security more like Mac post-CrowdStrike". 9to5Mac. Retrieved July 27, 2024. ^ Warren, Tom (November 19, 2024). "Microsoft's new Windows Resiliency Initiative aims to avoid another CrowdStrike incident". The Verge. Retrieved November 19, 2024. ...and Microsoft is making changes to Windows, too. It's 'gradually moving functionality from C++ implementation to Rust' in Windows, to help further improve the security of the OS. ^ "Wine". Winehq.org. Archived from the original on April 4, 2014. Retrieved April 5, 2014. ^ "A Student's Dream of Creating A New Operating System Encounters Problems". The Chronicle of Higher Education. September 18, 1998. Retrieved May 17, 2013. ^ "Older blog entries for chipx86". Advogato.org. Advogato. June 27, 2002. Archived from the original on May 20, 2013. Retrieved May 17, 2013. ^ "Freedows splits". Slashdot. Dice Holdings. August 31, 1998. Retrieved May 17, 2013. Microsoft Windows at Wikipedia's sister projects Media from CommonsTextbooks from WikibooksResources from Wikiversity Official website Official Windows Blog Archived January 15, 2017, at the Wayback Machine Microsoft Developer Network Archived January 7, 2009, at the Wayback Machine Windows Developer Center Archived December 16, 2016, at the Wayback Machine Microsoft Windows History Timeline Pearson Education, InformIT Archived June 28, 2021, at the Wayback Machine – History of Microsoft Windows Microsoft Business Software Solutions Archived December 5, 2019, at the Wayback Machine Windows 10 release Information Archived May 7, 2019, at the Wayback Machine Retrieved from " 2Operating system from IBM "CP/DOS" redirects here. For the similarly named Digital Research operating system, see CP/M. Operating system OS/2OS/2 Warp 4 desktop. This version was released on 25 September 1996.[1]DeveloperIBMMicrosoft (1.0–1.3)Written inC, C++ and assembly languageWorking stateHistorical, now developed as ArcaOSSource modelClosed sourceInitial releaseDecember 1987; 37 years ago (1987-12)Latest release4.52 / December 2001; 23 years ago (2001-12)Marketing targetProfessionals, serversAvailable inChinese, English, French, German, Italian, Japanese, Korean, Spanish, Slovenian, Portuguese, RussianPlatforms32-bit x86, PowerPCKernel typeHybrid kernelInfluenced byMS-DOS, IBM PC DOSDefaultuser interfaceWorkplace ShellLicenseProprietarySucceeded byeComStationArcaOSOfficial websiteOS/2 Warp (Archived) OS/2 is a proprietary computer operating system for x86 and PowerPC based personal computers. It was created and initially developed jointly by IBM and Microsoft, under the leadership of IBM software designer Ed Iacobucci,[2] intended as a replacement for DOS. The first version was released in 1987. A feud between the two companies beginning in 1990 led to Microsoft's leaving development solely to IBM, which continued development on its own. OS/2 Warp 4 in 1996 was the last major upgrade, after which IBM slowly halted the product as it failed to compete against Microsoft's Windows; updated versions of OS/2 were released by IBM until 2001. The name stands for "Operating System/2", because it was introduced as part of the same generation change release as IBM's "Personal System/2 (PS/2)" line of second-generation PCs. OS/2 was intended as a protected-mode successor of PC DOS targeting the Intel 80286 processor. Notably, basic system calls were modelled after MS-DOS calls; their names even started with "Dos" and it was possible to create "Family Mode" applications – text mode applications that could work on both systems.[3] Because of this heritage, OS/2 shares similarities with Unix, Xenix, and Windows NT. OS/2 sales were largely concentrated in networked computing used by corporate professionals. OS/2 2.0 was released in 1992 as the first 32-bit version as well as the first to be entirely developed by IBM, after Microsoft severed ties over a dispute over how to position OS/2 relative to Microsoft's new Windows 3.1 operating environment.[4][5] With OS/2 Warp 3 in 1994, IBM attempted to also target home consumers through a multi-million dollar advertising campaign.[6] However it continued to struggle in the marketplace, partly due to strategic business measures imposed by Microsoft in the industry that have been considered anti-competitive.[7][8] Following the failure of IBM's Workplace OS project, OS/2 Warp 4 became the final major release in 1996; IBM discontinued its support for OS/2 on December 31, 2006.[9] Since then, OS/2 has been developed, supported and sold by two different third-party vendors under license from IBM – first by Serenity Systems as eComStation from 2001 to 2011,[10] and later by Arca Noae LLC as ArcaOS since 2017.[11][12][13] This section needs additional citations for verification. Please help improve this article by adding citations to reliable sources in this section. Unsourced material may be challenged and removed. (April 2012) (Learn how and when to remove this message) Ironically, Microsoft is competing against itself in the operating systems market. Besides Xenix, Microsoft has announced Windows 386, which [is] somewhat similar to OS/2. Of course, either way users turn, Microsoft wins.—Computerworld, 1987[14] Logo of OS/2 1.xOS/2 1.0 featured a text-mode interface similar to MS-DOS. The development of OS/2 began when IBM and Microsoft signed the "Joint Development Agreement" in August 1985.[15][16] It was code-named "CP/DOS" and it took two years for the first product to be delivered. OS/2's release was long delayed. It was widely believed that all IBM programmers used assembly language, and a rumor said that the delay was because they had to learn C.[17] OS/2 1.0 was announced in April 1987 and released in December. The original release only ran in text mode, and a GUI was introduced with OS/2 1.1 about a year later. OS/2 features an API for controlling the video display (VIO) and handling keyboard and mouse events so that programmers writing for protected mode need not call the BIOS or access hardware directly. Other development tools included a subset of the video and keyboard APIs as linkable libraries so that family mode programs are able to run under MS-DOS,[citation needed] and, in the OS/2 Extended Edition v1.0, a database engine called Database Manager or DBM (this was related to DB2, and should not be confused with the DBM family of database engines for Unix and Unix-like operating systems).[18] A task-switcher named Program Selector was available through the Ctrl-Esc hotkey combination, allowing the user to select among multitasked text-mode sessions (or screen groups; each can run multiple programs).[19] Communications and database-oriented extensions were delivered in 1988, as part of OS/2 1.0 Extended Edition: SNA, X.25/APPC/LU 6.2, LAN Manager, Query Manager, SQL. Microsoft's Bill Gates predicted at a 1987 Computerworld interview that "three years out, over 80% of new office systems will be based on OS/2". Ashton-Tate's Ed Esber also predicted success, while Lotus Development's Jim Manzi said "I don't know anyone who's screaming for OS/2. End users would really prefer that the whole thing never happened". Gates said that Microsoft would release Windows software first with "very cheap upgrades" to OS/2 versions, while the other two said their companies would release for OS/2 first.[20] OS/2 1.1 was the first version to feature the Presentation Manager GUI. The promised user interface, Presentation Manager, was introduced with OS/2 1.1 in October 1988.[21] It had a similar user interface to Windows 2.1, which was released in May of that year. (The interface was replaced in versions 1.2 and 1.3 by a look closer in appearance to Windows 3.0.) The Extended Edition of 1.1, sold only through IBM sales channels, introduced distributed database support to IBM database systems and SNA communications support to IBM mainframe networks. In 1989, Version 1.2 introduced Installable Filesystems and, notably, the HPFS filesystem. HPFS provided a number of improvements over the older FAT file system, including long filenames and a form of alternate data streams called Extended Attributes.[22] In addition, extended attributes were also added to the FAT file system.[23] Installation Disk A of Microsoft OS/2 1.3 (3½-inch floppy disk) The Extended Edition of 1.2 introduced TCP/IP and Ethernet support. OS/2- and Windows-related books of the late 1980s from both Microsoft's Gordon Letwin and his IBM counterpart Ed Iacobucci acknowledged the existence of both systems and promoted OS/2 as the system of the future.[24][17] Logo of Microsoft's OS/2 until the breakup The collaboration between IBM and Microsoft unravelled in 1990, between the releases of Windows 3.0 and OS/2 1.3. During this time, Windows 3.0 became a tremendous success, selling millions of copies in its first year.[25] Much of its success was because Windows 3.0 (along with MS-DOS) was bundled with most new computers.[26] OS/2, on the other hand, was available only as an additional stand-alone software package. In addition, OS/2 lacked device drivers for many common devices such as printers, particularly non-IBM hardware.[27] Windows, on the other hand, supported a much larger variety of hardware. The increasing popularity of Windows prompted Microsoft to shift its development focus from cooperating on OS/2 with IBM to building its own business based on Windows.[28] Several technical and practical reasons contributed to this breakup. The two companies had significant differences in culture and vision. Microsoft favored the open hardware system approach that contributed to its success on the PC. IBM sought to use OS/2 to drive sales of its own hardware, and urged Microsoft to drop features, such as fonts, that IBM's hardware did not support. Microsoft programmers also became frustrated with IBM's bureaucracy and its use of lines of code to measure programmer productivity.[29] IBM developers complained about the terseness and lack of comments in Microsoft's code, while Microsoft developers complained that IBM's code was bloated.[30] The two products have significant differences in API. OS/2 was announced when Windows 2.0 was near completion, and the Windows API already defined. However, IBM requested that this API be significantly changed for OS/2.[31] Therefore, issues surrounding application compatibility appeared immediately. OS/2 designers hoped for source code conversion tools, allowing complete migration of Windows application source code to OS/2 at some point. However, OS/2 1.x did not gain enough momentum to allow vendors to avoid developing for both OS/2 and Windows in parallel. OS/2 1.3 was the final 16-bit only version of OS/2, and the last to be sold by Microsoft. OS/2 1.x targets the Intel 80286 processor and DOS fundamentally does not. IBM insisted on supporting the 80286 processor, with its 16-bit segmented memory mode, because of commitments made to customers who had purchased many 80286-based PS/2s as a result of IBM's promises surrounding OS/2.[32] Until release 2.0 in April 1992, OS/2 ran in 16-bit protected mode and therefore could not benefit from the Intel 80386's much simpler 32-bit flat memory model and virtual 8086 mode features. This was especially painful in providing support for DOS applications. While, in 1988, Windows/386 2.1 could run several cooperatively multitasked DOS applications, including expanded memory (EMS) emulation, OS/2 1.3, released in 1991, was still limited to one 640 kB "DOS box". Given these issues, Microsoft started to work in parallel on a version of Windows which was more future-oriented and more portable. The hiring of Dave Cutler, former VAX/VMS architect, in 1988 created an immediate competition with the OS/2 team, as Cutler did not think much of the OS/2 technology and wanted to build on his work on the MICA project at Digital rather than creating a "DOS plus". His NT OS/2 was a completely new architecture.[33] IBM grew concerned about the delays in development of OS/2 2.0. Initially, the companies agreed that IBM would take over maintenance of OS/2 1.0 and development of OS/2 2.0, while Microsoft would continue development of OS/2 3.0. In the end, Microsoft decided to recast NT OS/2 3.0 as Windows NT, leaving all future OS/2 development to IBM. From a business perspective, it was logical to concentrate on a consumer line of operating systems based on DOS and Windows, and to prepare a new high-end system in such a way as to keep good compatibility with existing Windows applications. While it waited for this new high-end system to develop, Microsoft would still receive licensing money from Xenix and OS/2 sales. Windows NT's OS/2 heritage can be seen in its initial support for the HPFS filesystem, text mode OS/2 1.x applications, and OS/2 LAN Manager network support. Some early NT materials even included OS/2 copyright notices embedded in the software.[citation needed] One example of NT OS/2 1.x support is in the WIN2K resource kit. Windows NT could also support OS/2 1.x Presentation Manager and AVIO applications with the addition of the Windows NT Add-On Subsystem for Presentation Manager.[34] OS/2 2.0 was the first 32-bit release of OS/2, and the first to feature the Workplace Shell. OS/2 2.0 was released in April 1992. At the time, the suggested retail price was US$195, while Windows retailed for $150.[35] OS/2 2.0 provided a 32-bit API for native programs, though the OS itself still contained some 16-bit code and drivers. It also included a new OOUI (object-oriented user interface) called the Workplace Shell. This was a fully object-oriented interface that was a significant departure from the previous GUI. Rather than merely providing an environment for program windows (such as the Program Manager), the Workplace Shell provided an environment in which the user could manage programs, files and devices by manipulating objects on the screen. With the Workplace Shell, everything in the system is an "object" to be manipulated. OS/2 2.0 was touted by IBM as "a better DOS than DOS and a better Windows than Windows".[36] It managed this by including the fully-licensed MS-DOS 5.0, which had been patched and improved upon. For the first time, OS/2 was able to run more than one DOS application at a time. This was so effective that it allowed OS/2 to run a modified copy of Windows 3.0, itself a DOS extender, including Windows 3.0 applications. Because of the limitations of the Intel 80286 processor, OS/2 1.x could run only one DOS program at a time, and did this in a way that allowed the DOS program to have total control over the computer. A problem in DOS mode could crash the entire computer. In contrast, OS/2 2.0 could leverage the virtual 8086 mode of the Intel 80386 processor to create a much safer virtual machine in which to run DOS programs. This included an extensive set of configuration options to optimize the performance and capabilities given to each DOS program. Any real-mode operating system (such as 8086 Xenix) could also be made to run using OS/2's virtual machine capabilities, subject to certain direct hardware access limitations. The OS/2 2.0 upgrade box Like most 32-bit environments, OS/2 could not run protected-mode DOS programs using the older VCPI interface, unlike the Standard mode of Windows 3.1; it only supported programs written according to DPMI. (Microsoft discouraged the use of VCPI under Windows 3.1, however, due to performance degradation.)[37] Unlike Windows NT, OS/2 always allowed DOS programs the possibility of masking real hardware interrupts, so any DOS program could deadlock the machine in this way. OS/2 could, however, use a hardware watchdog on selected machines (notably IBM machines) to break out of such a deadlock. Later, release 3.0 leveraged the enhancements of newer Intel 80486 and Intel Pentium processors—the Virtual Interrupt Flag (VIF), which was part of the Virtual Mode Extensions (VME)—to solve this problem. To accommodate those who wanted to have multiple operating systems on their machine, Boot Manager was introduced that allowed for the creation of separate partitions on the boot drive which could be used to install different versions of DOS, Windows and OS/2 and give the user a choice of which partition to boot from.[38] Further information: VME (CONFIG.SYS directive) OS/2 2.1 was released in 1993. This version of OS/2 achieved compatibility with Windows 3.0 (and later Windows 3.1) by adapting Windows user-mode code components to run inside a virtual DOS machine (VDM). Originally, a nearly complete version of Windows code was included with OS/2 itself: Windows 3.0 in OS/2 2.0, and Windows 3.1 in OS/2 2.1. Later, IBM developed versions of OS/2 that would use whatever Windows version the user had installed previously, patching it on the fly, and sparing the cost of an additional Windows license.[39] It could either run full-screen, using its own set of video drivers, or "seamlessly," where Windows programs would appear directly on the OS/2 desktop. The process containing Windows was given fairly extensive access to hardware, especially video, and the result was that switching between a full-screen WinOS/2 session and the Workplace Shell could occasionally cause issues.[40] Because OS/2 only runs the user-mode system components of Windows, it is incompatible with Windows device drivers (VxDs) and applications that require them. Multiple Windows applications run by default in a single Windows session – multitasking cooperatively and without memory protection – just as they would under native Windows 3.x. However, to achieve true isolation between Windows 3.x programs, OS/2 can also run multiple copies of Windows in parallel, with each copy residing in a separate VDM. The user can then optionally place each program either in its own Windows session – with preemptive multitasking and full memory protection between sessions, though not within them – or allow some applications to run together cooperatively in a shared Windows session while isolating other applications in one or more separate Windows sessions. At the cost of additional hardware resources, this approach can protect each program in any given Windows session (and each instance of Windows itself) from every other program running in any separate Windows session (though not from other programs running in the same Windows session).[41] Whether Windows applications are running in full-screen or windowed mode, and in one Windows session or several, it is possible to use DDE between OS/2 and Windows applications, and OLE between Windows applications only.[42] IBM's OS/2 for Windows product (codename Ferengi), also known as "OS/2, Special Edition", was interpreted as a deliberate strategy "of cashing in on the pervasive success of the Microsoft platform" but risked confusing consumers with the notion that the product was a mere accessory or utility running on Windows such as Norton Desktop for Windows when, in fact, it was "a complete, modern, multi-tasking, pre-emptive operating system", itself hosting Windows instead of running on it. Available on CD-ROM or 18 floppy disks, the product documentation reportedly suggested Windows as a prerequisite for installing the product, also being confined to its original FAT partition, whereas the product apparently supported the later installation of Windows running from an HPFS partition, particularly beneficial for users of larger hard drives. Windows compatibility, relying on patching specific memory locations, was reportedly broken by the release of Windows 3.11, prompting accusations of arbitrary changes to Windows in order to perpetrate "a deliberate act of Microsoft sabotage" against IBM's product.[41] Wordmark of OS/2 Warp 3.0OS/2 Warp Connect 3.0, showing the Windows 3.1 Program Manager, QBASIC in a DOS window, and the LaunchPad (bottom center) Released in 1994, OS/2 version 3.0 was labelled as OS/2 Warp to highlight the new performance benefits, and generally to freshen the product image. "Warp" had originally been the internal IBM name for the release: IBM claimed that it had used Star Trek terms as internal names for prior OS/2 releases, and that this one seemed appropriate for external use as well. At the launch of OS/2 Warp in 1994, Patrick Stewart was to be the Master of Ceremonies; however Kate Mulgrew[43] of the then-upcoming series Star Trek: Voyager substituted for him at the last minute.[44][45] OS/2 Warp offers a host of benefits over OS/2 2.1, notably broader hardware support, greater multimedia capabilities, Internet-compatible networking, and it includes a basic office application suite known as IBM Works. It was released in two versions: the less expensive "Red Spine" and the more expensive "Blue Spine" (named for the color of their boxes). "Red Spine" was designed to support Microsoft Windows applications by utilizing any existing installation of Windows on the computer's hard drive. "Blue Spine" includes Windows support in its own installation, and so can support Windows applications without a Windows installation. As most computers were sold with Microsoft Windows pre-installed and the price was less, "Red Spine" was the more popular product.[46] OS/2 Warp Connect—which has full LAN client support built-in—followed in mid-1995. Warp Connect was nicknamed "Grape".[21] In OS/2 2.0, most performance-sensitive subsystems, including the graphics (Gre) and multimedia (MMPM/2) systems, were updated to 32-bit code in a fixpack, and included as part of OS/2 2.1. Warp 3 brought about a fully 32-bit windowing system, while Warp 4 introduced the object-oriented 32-bit GRADD display driver model. Main article: Workplace OS In 1991, IBM started development on an intended replacement for OS/2 called Workplace OS. This was an entirely new product, brand new code, that borrowed only a few sections of code from both the existing OS/2 and AIX products. It used an entirely new microkernel code base, intended (eventually) to host several of IBM's operating systems (including OS/2) as microkernel "personalities". It also included major new architectural features including a system registry, JFS, support for UNIX graphics libraries, and a new driver model.[47] Workplace OS was developed solely for POWER platforms, and IBM intended to market a full line of PowerPCs in an effort to take over the market from Intel. A mission was formed to create prototypes of these machines and they were disclosed to several corporate customers, all of whom raised issues with the idea of dropping Intel. Advanced plans for the new code base would eventually include replacement of the OS/400 operating system by Workplace OS, as well as a microkernel product that would have been used in industries such as telecommunications and set-top television receivers. A partially functional pre-alpha version of Workplace OS was demonstrated at Comdex, where a bemused Bill Gates stopped by the booth. The second and last time it would be shown in public was at an OS/2 user group in Phoenix, Arizona; the pre-alpha code refused to boot. It was released in 1995. But with $990 million being spent per year on development of this as well as Workplace OS, and no possible profit or widespread adoption, the end of the entire Workplace OS and OS/2 product line was near. Firefox 3.5.4 for OS/2 Warp 4 Wordmark of OS/2 Warp 4OS/2 Warp 4 desktop after installation In 1996, Warp 4 added Java and speech recognition software.[48] IBM also released server editions of Warp 3 and Warp 4 which bundled IBM's LAN Server product directly into the operating system installation. A personal version of Lotus Notes was also included, with a number of template databases for contact management, brainstorming, and so forth. The UK-distributed free demo CD-ROM of OS/2 Warp essentially contained the entire OS and was easily, even accidentally, cracked[clarification needed], meaning that even people who liked it did not have to buy it. This was seen as a backdoor tactic to increase the number of OS/2 users, in the belief that this would increase sales and demand for third-party applications, and thus strengthen OS/2's desktop numbers.[citation needed] This suggestion was bolstered by the fact that this demo version had replaced another which was not so easily cracked, but which had been released with trial versions of various applications.[citation needed] In 2000, the July edition of Australian Personal Computer magazine bundled software CD-ROMs, included a full version of Warp 4 that required no activation and was essentially a free release. Special versions of OS/2 2.11 and Warp 4 also included symmetric multiprocessing (SMP) support. OS/2 sales were largely concentrated in networked computing used by corporate professionals; however, by the early 1990s, it was overtaken by Microsoft Windows NT. While OS/2 was arguably technically superior to Microsoft Windows 95, OS/2 failed to develop much penetration in the consumer and stand-alone desktop PC segments; there were reports that it could not be installed properly on IBM's own Aptiva series of home PCs.[49] Microsoft made an offer in 1994 where IBM would receive the same terms as Compaq (the largest PC manufacturer at the time) for a license of Windows 95, if IBM ended development of OS/2 completely. IBM refused and instead went with an "IBM First" strategy of promoting OS/2 Warp and disparaging Windows, as IBM aimed to drive sales of its own software as well as hardware. By 1995, Windows 95 negotiations between IBM and Microsoft, which were already difficult, stalled when IBM purchased Lotus SmartSuite, which would have directly competed with Microsoft Office. As a result of the dispute, IBM signed the license agreement 15 minutes before Microsoft's Windows 95 launch event, which was later than their competitors and this badly hurt sales of IBM PCs. IBM officials later conceded that OS/2 would not have been a viable operating system to keep them in the PC business.[50][51] This section does not cite any sources. Please help improve this section by adding citations to reliable sources. Unsourced material may be challenged and removed. (March 2013) (Learn how and when to remove this message) A project was launched internally by IBM to evaluate the looming competitive situation with Microsoft Windows 95. Primary concerns included the major code quality issues in the existing OS/2 product (resulting in over 20 service packs, each requiring more diskettes than the original installation), and the ineffective and heavily matrixed development organization in Boca Raton (where the consultants reported that "basically, everybody reports to everybody") and Austin. That study, tightly classified as "Registered Confidential" and printed only in numbered copies, identified untenable weaknesses and failures across the board in the Personal Systems Division as well as across IBM as a whole. This resulted in a decision being made at a level above the Division to cut over 95% of the overall budget for the entire product line, end all new development (including Workplace OS), eliminate the Boca Raton development lab, end all sales and marketing efforts of the product, and lay off over 1,300 development individuals (as well as sales and support personnel). $990 million had been spent in the last full year. Warp 4 became the last distributed version of OS/2. Although a small and dedicated community remains faithful to OS/2,[52] OS/2 failed to catch on in the mass market and is little used outside certain niches where IBM traditionally had a stronghold. For example, many bank installations, especially automated teller machines, run OS/2 with a customized user interface; French SNCF national railways used OS/2 1.x in thousands of ticket selling machines.[citation needed] Telecom companies such as Nortel used OS/2 in some voicemail systems. Also, OS/2 was used for the host PC used to control the Satellite Operations Support System equipment installed at NPR member stations from 1994 to 2007, and used to receive the network's programming via satellite.[citation needed] Although IBM began indicating shortly after the release of Warp 4 that OS/2 would eventually be withdrawn, the company did not end support until December 31, 2006,[53] with sales of OS/2 stopping on December 23, 2005. The latest IBM OS/2 Warp version is 4.52, which was released for both desktop and server systems in December 2001. IBM is still delivering defect support for a fee.[53][54] IBM urges customers to migrate their often highly complex applications to e-business technologies such as Java in a platform-neutral manner. Once application migration is completed, IBM recommends migration to a different operating system, suggesting Linux as an alternative.[55][56][57] Main articles: eComStation and ArcaOS ArcaOS is the most recent OS/2-based operating system developed outside of IBM. After IBM discontinued development of OS/2, various third parties approached IBM to take over future development of the operating system. The OS/2 software vendor Stardock made such a proposal to IBM in 1999, but it was not followed through by the company.[58] Serenity Systems succeeded in negotiating an agreement with IBM, and began reselling OS/2 as eComStation in 2001.[59] eComStation is now sold by XEU.com, the most recent version (2.1) was released in 2011.[60] In 2015, Arca Noae, LLC announced that they had secured an agreement with IBM to resell OS/2.[11] They released the first version of their OS/2-based operating system in 2017 as ArcaOS.[13] As of 2023, there have been multiple releases of ArcaOS, and it remains under active development.[61] Many people hoped that IBM would release OS/2 or a significant part of it as open source. Petitions were held in 2005 and 2007, but IBM refused them, citing legal and technical reasons.[62] It is unlikely that the entire OS will be open at any point in the future because it contains third-party code to which IBM does not have copyright, and much of this code is from Microsoft. IBM also once engaged in a technology transfer with Commodore, licensing Amiga technology for OS/2 2.0 and above, in exchange for the REXX scripting language.[63] This means that OS/2 may have some code that was not written by IBM, which can therefore prevent the OS from being re-announced as open-sourced in the future.[64][failed verification][65] On the other hand, IBM donated Object REXX for Windows and OS/2 to the Open Object REXX project maintained by the REXX Language Association on SourceForge.[66] There was a petition, arranged by OS2World, to open parts of the OS. Open source operating systems such as Linux have already profited from OS/2 indirectly through IBM's release of the improved JFS file system, which was ported from the OS/2 code base. As IBM didn't release the source of the OS/2 JFS driver, developers ported the Linux driver back to eComStation and added the functionality to boot from a JFS partition. This new JFS driver has been integrated into eComStation v2.0, and later into ArcaOS 5.0. Release dates refer to the US English editions unless otherwise noted.[67][68] Date Version December 1987 OS/2 1.0 November 1988 OS/2 1.1 October 1989 OS/2 1.2 December 1990 OS/2 1.3 October 1991 OS/2 2.0 LA (Limited Availability) April 1992 OS/2 2.0 October 1992 OS/2 2.00.1 May 1993 OS/2 2.1 November 1993 OS/2 for Windows February 1994 OS/2 2.11 July 1994 OS/2 2.11 SMP October 1994 OS/2 Warp 3 May 1995 OS/2 Warp Connect December 1995 OS/2 Warp, PowerPC Edition February 1996 OS/2 Warp Server 4 September 1996 OS/2 Warp 4 September 1996 OS/2 Warp Server Advanced SMP November 1997 WorkSpace On-Demand 1.0 October 1998 WorkSpace On-Demand 2.0 April 1999 OS/2 Warp Server for e-Business (version 4.50) November 2000 OS/2 Convenience Pack 1 (version 4.51) November 2001 OS/2 Convenience Pack 2 (version 4.52) The graphic system has a layer named Presentation Manager that manages windows, fonts, and icons. This is similar in functionality to a non-networked version of X11 or the Windows GDI. On top of this lies the Workplace Shell (WPS) introduced in OS/2 2.0. WPS is an object-oriented shell allowing the user to perform traditional computing tasks such as accessing files, printers, launching legacy programs, and advanced object oriented tasks using built-in and third-party application objects that extended the shell in an integrated fashion not available on any other mainstream operating system. WPS follows IBM's Common User Access user interface standards. WPS represents objects such as disks, folders, files, program objects, and printers using the System Object Model (SOM), which allows code to be shared among applications, possibly written in different programming languages. A distributed version called DSOM allowed objects on different computers to communicate. DSOM is based on CORBA. The object oriented aspect of SOM is similar to, and a direct competitor to, Microsoft's Component Object Model, though it is implemented in a radically different manner; for instance, one of the most notable differences between SOM and COM is SOM's support for inheritance (one of the most fundamental concepts of OO programming)—COM does not have such support. SOM and DSOM are no longer being developed. The multimedia capabilities of OS/2 are accessible through Media Control Interface commands. The last update (bundled with the IBM version of Netscape Navigator plugins) added support for MPEG files. Support for newer formats such as PNG, progressive JPEG, DivX, Ogg, and MP3 comes from third parties. Sometimes it is integrated with the multimedia system, but in other offers it comes as standalone applications. OS/2 Window (cmd.exe) on Microsoft OS/2 Version 1.3 The following list of commands is supported by cmd.exe on OS/2.[69][70] ansi append assign attrib backup boot break cache call cd chcp chdir chkdsk cls cmd codepage command comp copy createdd date ddinstal debug del detach dir diskcomp diskcopy doskey dpath eautil echo endlocal erase exit extproc fdisk fdiskpm find for format fsaccess goto graftabl help if join keyb keys label makeini md mem mkdir mode more move patch path pause picview pmrexx print prompt pstat rd recover rem ren rename replace restore rmdir set setboot setcom40 setlocal share shift sort spool start subst syslevel syslog time trace tracebuf tracefmt tree type undelete unpack ver verify view vmdisk vol xcopy This section needs expansion. You can help by adding to it. (April 2019) The TCP/IP stack is based on the open source BSD stack as visible with SCCS what compatible tools. IBM included tools such as ftp and telnet and even servers for both commands. IBM sold several networking extensions including NFS support and an X11 server. Architecture of OS/2 Warp under x86 Hardware vendors were reluctant to support device drivers for alternative operating systems including OS/2, leaving users with few choices from a select few vendors. To relieve this issue for video cards, IBM licensed a reduced version of the Scitech display drivers, allowing users to choose from a wide selection of cards supported through Scitech's modular driver design.[71] Document detailing OS/2's architecture. OS/2 has historically been more difficult to run in a virtual machine than most other legacy x86 operating systems because of its extensive reliance on the full set of features of the x86 CPU; in particular, OS/2's use of ring 2 prevented it from running in early versions of VMware.[72] Newer versions of VMware provide official support for OS/2, specifically for eComStation.[73] VirtualPC from Microsoft (originally Connectix) has been able to run OS/2 without hardware virtualization support for many years. It also provided "additions" code which greatly improves host–guest OS interactions in OS/2. The additions are not provided with the current version of VirtualPC, but the version last included with a release may still be used with current releases. At one point, OS/2 was a supported host for VirtualPC in addition to a guest. Note that OS/2 runs only as a guest on those versions of VirtualPC that use virtualization (x86 based hosts) and not those doing full emulation (VirtualPC for Mac). VirtualBox from Oracle Corporation (originally InnoTek, later Sun) supports OS/2 1.x, Warp 3 through 4.5, and eComStation as well as "Other OS/2" as guests. However, attempting to run OS/2 and eComStation can still be difficult, if not impossible, because of the strict requirements of VT-x/AMD-V hardware-enabled virtualization and only ACP2/MCP2 is reported to work in a reliable manner.[74] ArcaOS supports being run as a virtual machine guest inside VirtualBox, VMware ESXi and VMWare Workstation.[75] It ships with VirtualB

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View (previous 50 | next 50) (20 | 50 | 100 | 250 | 500)Talk:OS (links | edit) Talk:The Hobbit (film series)/Archive 2 (links | edit) Talk:Derry/Archive 9 (links | edit) Talk:OS/2/Archive 1 (transclusion) (links | edit) User:Blaxthos/IBM (links | edit) User:Blaxthos/IBM/Articles/Software (links | edit) User:Blaxthos/IBM/Articles (links | edit) User:Saikat 2012/sandbox (links | edit) User:Becky Sayles/sandbox/awb (links | edit) User:Syed yasser ahmed/sandbox (links | edit) User talk:Bruce Bathurst (links | edit) User talk:Abd/Archive 16 (links | edit) User talk:Davidgothberg/Archive 6 (links | edit) User talk:DMarti (links | edit) User talk:Tom29739/Archive 2 (links | edit) User talk:Tom29739/Archive 5 (links | edit) User talk:Doniago/Archive 70 (links | edit) User talk:182.66.30.147 (links | edit) User talk:Callmemirela/Archive 25 (links | edit) Wikipedia:Subpages (links | edit) Wikipedia:WikiProject Spam/LinkSearch/groups.google.com (links | edit) Wikipedia:Bot requests/Archive 22 (links | edit) Wikipedia:Village pump (technical)/Archive 89 (links | edit) Wikipedia:Redirects for discussion/Log/2014 January 5 (links | edit) Wikipedia:Redirects for discussion/Log/2014 January 15 (links | edit) Wikipedia:Village pump (technical)/Archive 174 (links | edit) View (previous 50 | next 50) (20 | 50 | 100 | 250 | 500) Retrieved from " WhatLinksHere/Talk:OS/2" AutoCAD 2021 Full Crack for PC Windows 10 Pro 64 Bit. AutoCAD is an innovative application that helps create 2D or 3D models and visualizations. It's one of the best 3D CAD applications globally, with an easy-to-use interface and powerful features. While it's typically a paid software, this article provides a way to it for free, but only for learning and experimentation purposes. In the AutoCAD 2021 update, the software introduced various advanced tools to improve work efficiency. The interface has been updated with a darker color scheme, allowing s to work longer without straining their eyes. New features like Blocks Palette, Quick Measure, Enhanced DWG Compare, and Highlight Drawing have been added, among other interesting functionalities. Alternative CAD Software : Enscape 3D Full Crack Before you can AutoCAD 2021 with crack, ensure that your computer meets its system requirements. The software is quite heavy and demands significant computer resources. Additionally, AutoCAD 2021 requires a graphics card for smoother 3D design processes. As for the operating system, you must use the latest Windows 10 update and a 64-bit system. Do you want to this software now? Get AutoCAD 2021 Crack Free Full Software now. AutoCAD 2021 Free Full Crack t1i2 Software Name : AutoCAD 2021 Full Version Free Setup File Name : atcd2021win.rar Full Setup Size : 1.7 GB Setup Type : Offline Installer Compatibility Architecture : Only 64 Bit Latest Release Added On : February 01, 2021 AutoCAD 2021 System Requirements Operating System Windows 10 64 Bit Only Processor Intel 3Ghz Dual-Core Intel Core i7 Processor 3Ghz+ Memory 8GB DDR3 16GB DDR4 Hard Drive 30 GB – 7200 RPM HDD 30 GB – Solid State Disk Graphics Card Dedicated GPU Card Nvidia GTX 560 or Above Screen Resolution 1366×768 1920×1080 Allows you to take your designs to the next level Ability to visualize Xref changes Enhanced Blocks capabilities, and version control Drawing History feature to view previous iterations of project Continues to use the 2018 DWG format for backward compatibility Used by architects and designers to draw 3D object and scenes Blocks palette to view and access your blocks content Performance enhancements for faster save experience and install times View, edit, and create drawings on virtually any device Display nearby measurements by hovering mouse 3D navigation (orbit, ViewCube, wheel) Rendering : Apply lighting and materials to give your 3D models Windows 10 Pro 64 Bit How to Install AutoCAD 2021 Full Version for Windows 2s4u4q AutoCAD 2021, then extract the file with the Latest Winrar Run SFX.exe with run as Install as usual After the installation is complete, click "Enter serial number" Enter one of the following serial numbers : 066-66666666 Then enter the AutoCAD 2021 product key, which is 001M1 When finished, disconnect the computer from the internet Open the Keygen folder, run XF-2020_v2.exe run as Click the Patch button until the writing is success Open the application and select Activate, I have an activation code from Autodesk Copy the Request Code into the keygen and press generate Now copy the Activation Code and paste it in the program  Also : Autodesk Autocad 2024 Full Crack Important Notes Before Installation : Make sure Autodesk Licensing Service version 10 is not installed on your computer Open "C:\ Program Files (x86)\Common Files\Autodesk Shared\AdskLicensing" folder If version 10 is installed >> click the "unistall.exe" button Install version 9 provided in the Activator folder File Name File Size atcd2021win.rar 1.7 GB Last Update: February 2021 Autocad's No-licence-required Version, also known as AutoCAD Free, is a unique CAD application that offers a no-cost alternative to the traditional licensed software. This version is available for anyone to use, regardless of whether they are a student, hobbyist, or professional. It provides users with access to industry-leading drafting and 3D design tools, making it easier to create accurate and detailed technical drawings. Autocad's Free Version is an excellent choice for those who need to complete a few projects but cannot justify the expense of purchasing the licensed application. With this no-license-required version, users can create, edit and share their designs and collaborate with others on the same project with ease. Despite its limitations, users can still access a variety of features that make it possible to design complex and unique objects. If you want to explore the world of CAD and don't want to commit to a paid license, then Autocad's No-license-required Version may be the perfect starting point for you. Autocad's No-license-required Version, also known as the free version of the software, comes with several benefits. First and foremost, it is completely free of charge, which means that you do not have to pay the expensive licensing fees associated with the full version of the software. This makes it an ideal option for students, hobbyists, and people who are just starting out with CAD software. Another key benefit of using Autocad's No-license-required Version is that it is easily accessible. You can download the software directly from the Autodesk website and start using it right away. This means that you do not have to wait for a physical license to be shipped to you or go through a lengthy activation process. The no-license-required version of AutoCAD provides you with access to a range of features that you would expect from a professional-grade CAD software. This includes 2D and 3D drawing tools, as well as the ability to create and edit DWG files. You can also use the software to collaborate with other team members and share your designs with others. Despite its many benefits, there are some limitations to using Autocad's No-license-required Version. For example, you may find that the software does not offer as many tools and features as the full version of the software. Additionally, the software lacks technical support, which means that you will need to rely on online resources to troubleshoot issues that you may encounter. Overall, the no-license-required version of AutoCAD can be a useful tool for anyone looking to explore CAD software without committing to a full license. By learning how to make the most of this free version, you can create complex designs, collaborate with others, and develop your skills as a designer. Autocad's No-license-required Version gives users the ability to access many of the unique CAD applications found on the licensed version. Features of Autocad's Free Version include creating and editing 2D geometry, as well as annotating drawings with text, dimensions, and tables. Additionally, the free version comes with a limited set of tools for creating and editing 3D models, such as extrude and revolve. Users can also import and export various file formats, including DWG, PDF, and DGN. The free version also allows for customization through the use of macros and scripts. Overall, the free version offers a solid foundation for users who want to learn and experiment with Autocad, without the need for a license. However, it is important to note that there are limitations to the free version's capabilities and users who require advanced features will need to purchase a license. Limitations of Autocad's No-license Version: Autocad's no-license version does come with a few limitations, especially when compared to the licensed version. One of the major limitations of the free version is its inability to use many of the most relevant CAD functions. While the no-license version has many features, accessing some of the advanced features available in the licensed version is not possible. Additionally, the free version is only available for non-commercial use, which means that it may not be the best option for professionals who need to use Autocad for commercial purposes. The no-license version also lacks technical support, which could be a major drawback for users who may encounter difficulties or issues while using the software. Despite these limitations, Autocad's no-license version is still a great option for beginners, students, or hobbyists who want to learn or experiment with the software. It provides an opportunity to familiarize oneself with the basics of Autocad at no cost. With proper knowledge and usage of the software, users can still create impressive designs and intricate drawings even with just the free version. Tips for Making the Most of Autocad Free Version: Autocad's free version may not offer all the features of the licensed version, but there are still ways to make the most of it. First, take advantage of the most relevant CAD functions, such as creating and editing 2D geometry, annotating drawings, and adding dimensions. Additionally, learn any new features that come with the latest version of Autocad's free version and explore online tutorials to expand your knowledge. Another tip is to use plugins and add-ons, which can enhance your productivity and increase functionality in Autocad's free version. Finally, make sure to regularly save your work and utilize cloud storage options to prevent data loss. By taking these tips into account, you can make the most of Autocad's free version and create professional-quality designs. Autocad's No-license-required Version provides a unique opportunity for designers to use the software without paying for a license. While there are some limitations to the free version, such as the lack of access to certain advanced tools and the inability to save projects in certain file formats, using the no-license-required version of AutoCAD can still provide many benefits. Users can still access many of the program's basic features and get a sense of how it works before committing to purchasing a license. For those just starting out in the field or who only require basic design capabilities, the free version may be a good option. However, for more complex projects and advanced design work, investing in a full license may still be necessary to access all the necessary tools and features. Rick is a seasoned CAD and Architecture expert with a passion for design and technology. With years of experience in the field, he has honed his skills in utilizing CAD software to bring architectural visions to life. AutoCAD, a premier software used globally for computer-aided design (CAD) and drafting, is an indispensable tool for professionals in the architectural, engineering, and construction fields. However, the cost of obtaining a license can be a significant hurdle, especially for students, educators, and small businesses. This guide aims to bridge the gap by unveiling legitimate avenues to get AutoCAD for free or at a significantly reduced cost. By exploring these options, you can unlock the powerful features of AutoCAD and propel your design projects to new heights without straining your finances. Delving into the realms of design and engineering often leads one to the doorstep of a powerful ally – AutoCAD. A titan in the world of computer-aided design (CAD) and drafting, AutoCAD is the go-to software for professionals aiming to transform rudimentary sketches into meticulous diagrams and 3D models. Its prowess in offering precision and a plethora of tools makes it the cornerstone of projects spanning architecture, engineering, and construction domains. With AutoCAD, the ability to visualize, conceptualize, and materialize designs transcends to a level that sets the standard in the industry. Yet, this colossal capability comes with a price tag that often mirrors its stature, making it a coveted yet distant dream for many aspiring professionals, students, and small enterprises. The cost of procuring an AutoCAD license can indeed carve a substantial dent in the finances, especially for those standing at the nascent stages of their career or business venture. This invokes a pressing need for pathways that provide access to AutoCAD sans the hefty financial commitment. The pursuit of free or cost-effective alternatives to AutoCAD is not merely a quest for affordability, but a venture towards unlocking a realm of possibilities in design and engineering. As the adage goes, every problem has a solution. The high cost of AutoCAD licenses is the problem, and this guide is the key to the solution. Through the ensuing sections, we will unveil legitimate channels to access AutoCAD for free or at a fraction of the conventional cost, ensuring that the magic of designing and drafting remains within the reach of every passionate individual. So, let's embark on this enlightening journey to bypass the financial hurdle and step into a world where creativity meets affordability. Through Autodesk's Educational License program, the gates to this robust software open up for students and educators, paving the way to hone skills and create marvels without a financial burden. Eligibility and Access: Autodesk extends a gracious hand to the academic community by offering a special Education plan. This plan is tailored for eligible students and educators, providing free one-year, single-user access to AutoCAD and other Autodesk software and services for educational purposes. This access is not a one-time boon; it's renewable annually as long as the eligibility criteria are met1. Stepping into the Autodesk Education Community: Verify Eligibility: The cornerstone of this journey is verifying your eligibility. The program is open to students and educators who meet the minimum age requirement and are associated with a qualified educational institution – whether enrolled, employed, or working as contractors2. Join the Community: Embark by unlocking educational access to Autodesk products. Visit the Autodesk Education page, confirm your eligibility, and get started on this enriching pathway3. Creating an Account: A simple yet crucial step. Create an Autodesk account using your school-provided email, which will be your key to a treasure trove of software tools. Choosing the Right Plan: Autodesk offers different subscription plans with distinct levels of support. It's prudent to explore and select the plan that aligns with your needs and the level of support that you require4. Accessing AutoCAD: Post verification, and plan selection, you now have the keys to access AutoCAD and other software tools available through the Education Community. Your journey from conceptualization to creation just got more exciting and less burdensome on the pocket. Renewal: As the year speeds by, fret not about losing access. The program allows for an annual renewal of access, ensuring your projects remain uninterrupted as you continue to meet the eligibility criteria. Support and Learning Resources: Besides software access, the Autodesk Education plan provides a realm of learning resources to sharpen your skills further. The Autodesk Education License is not merely a program; it's a commitment to nurturing the future architects, designers, and engineers. By alleviating the financial barrier, it invites the bright minds to explore, learn, and create with AutoCAD, thereby fostering a rich environment of innovation and learning. And with Software-Gate.com advocating for cost-effective software accessibility, the journey to mastering AutoCAD becomes even more attainable and exciting. Autodesk offers a free trial for AutoCAD to allow potential users to explore the program before committing to a purchase. This free trial is available for both Windows and Mac and lasts for 15 or 30 days depending on the region from which you are accessing it. During the trial period, users have the opportunity to explore and use the features of the latest version of AutoCAD. This trial period is aimed at providing enough time for users to evaluate the software and decide if it meets their needs. How to Access the Free Trial Visit the Official Website: Navigate to the AutoCAD Free Trial page on Autodesk's official website. Download the Trial: Click on the "Download Free Trial" button. You may need to create an Autodesk account if you don't already have one. After logging in, your available downloads will appear in your Autodesk Account. Installation: Once the download is complete, follow the on-screen instructions to install AutoCAD on your computer. The installation process is straightforward and Autodesk provides detailed download and install instructions for individuals and administrators. Selecting Version and Platform: While initiating the download, you'll have the option to select the version, platform, and language for AutoCAD. It's crucial to select the correct options based on your system configurations. During the trial period, you have full access to AutoCAD's features. It's advisable to explore as much as you can to get a feel for the software. If you decide that AutoCAD meets your needs, you can convert the free trial to a paid subscription by clicking "Subscribe Now" on the trial screen or by visiting the AutoCAD 2024 product center on Autodesk's website. Trouble? If you encounter any issues while downloading or installing the AutoCAD trial, Autodesk recommends using the Browser Download method if the standard download fails. It's also advisable to disable pop-up blockers and consider trying a different browser, such as Chrome or Explorer, if you experience download issues. For more solutions, you can check out Autodesk's guide to troubleshooting product download issues. This section provides the necessary steps and information for readers to access and make the most out of the AutoCAD free trial, aligning with the goal of exploring cost-effective solutions to acquiring AutoCAD. Autodesk, recognizing the quintessential role of design in environmental and social upliftment, extends its arm to non-profit organizations, startups, and hobbyists through various programs. These programs are tailored to equip the changemakers with the power of design tools like AutoCAD, fostering a culture of innovation and impact. For Non-profits and Social Impact Startups: Autodesk's Technology Impact Program is a beacon for non-profit organizations and social impact startups. Through this initiative, eligible entities receive donations of Autodesk software enabling 3D design, engineering, visualization, and simulation to bolster their mission towards environmental or social good1. Eligibility Criteria: The program is open to non-profits and social impact startups that utilize design for environmental or social betterment. A definitive mission towards creating a positive impact is crucial to qualify. Application Process: Explore the Technology Impact Program page on Autodesk's official website. Thoroughly understand the eligibility criteria and program benefits. Apply through the provided portal, ensuring to furnish all necessary details and documentation to ascertain your organization's eligibility. For Hobbyists: The gateway for hobbyists is through the personal use license for Autodesk Fusion 360. This license offers a three-year access to Fusion 360, catering to individuals with non-commercial design projects, or home-based, non-commercial manufacturing endeavors3. Eligibility Criteria: Individuals engaging in non-commercial design projects. A willingness to share your story with the Autodesk Fusion 360 community is encouraged. Application Process: Navigate to the Fusion 360 for personal use page on Autodesk's official website. Understand the terms and conditions, ensuring your projects align with the non-commercial usage policy. Apply for the license, and upon approval, immerse in the world of design with Fusion 360 at your fingertips. These community-centric programs by Autodesk not only alleviate the financial barrier in accessing top-notch design software like AutoCAD but also foster a community of innovators geared towards making a tangible difference. Software-Gate.com champions such cost-effective software accessibility, making strides towards a more inclusive and impactful design community. A multi-platform (Windows, Mac, and Linux), highly customizable, and extensible software that offers a variety of open file formats such as STEP, IGES, STL, SVG, DXF, OBJ, IFC, DAE, and many others, allowing seamless integration into various workflows. It's a good alternative for those familiar with AutoCAD, especially if they are interested in 3D design. Key Features: Parametric modeling, modular architecture, full support for a scripting interface using Python. Web-Site: FreeCAD.org. LibreCAD This is a free Open Source CAD application available for Windows, Apple, and Linux platforms. It has a large, dedicated community of users, contributors, and developers who provide support and documentation for the software. LibreCAD is a free, open-source 2D CAD application that is good for creating 2D drawings and CAD projects. Key Features: Comprehensive 2D CAD capabilities, support for various file formats including DXF and DWG, a straightforward user interface similar to AutoCAD. Web-Site: LibreCAD.org. NanoCAD NanoCAD provides a modern computer-aided design (CAD) platform for designers, offering powerful capabilities in 2D drafting and 3D modeling. It can be used as a cost-effective DWG-editor or customized with essential modules such as Construction, Mechanica, Raster, Topoplan, and 3D Solid Modeling, catering to the needs of professionals in engineering, architecture, and construction. NanoCAD offers a free version for educational and evaluation purposes, and is known for its compatibility with AutoCAD's DWG format. Key Features: Classic CAD interface, high compatibility with AutoCAD file formats, good set of basic CAD tools. Web-Site: NanoCAD.com. This list provides a good starting point for individuals or organizations looking to find free or cost-effective alternatives to AutoCAD. Each of these alternatives has its own set of features and capabilities that may suit different user needs and preferences. It's advisable to explore these options and choose the one that aligns best with your project requirements. The realm of design and engineering is undeniably enriched with the capabilities of AutoCAD, a tool that stands as a linchpin for professionals across the globe. This guide has traversed the avenues through which one can embrace the prowess of AutoCAD without the financial burden often associated with high-end software. From Autodesk's altruistic Educational and Community licenses to their Free Trial opportunity, the pathways to access AutoCAD for free or at a significantly reduced cost have been laid bare. Additionally, the discourse ventured into the domain of third-party promotions, although elusive, and shed light on free or open-source alternatives like FreeCAD, LibreCAD, and NanoCAD, which bear the potential to cater to diverse design needs while being cost-effective. As the curtains draw on this elucidative journey, the onus now lies with you, the reader, to explore these avenues, weigh the pros and cons, and choose the path that resonates with your circumstances and professional or educational endeavors. The quest for design excellence need not be shackled by financial constraints. Moreover, a noteworthy conduit to procure Autodesk software at a discounted rate awaits you at Software-Gate.com. This platform extends a Call to Action for aspiring designers and established professionals alike, to explore discounted options for Autodesk software, thereby fostering a culture of affordable design proficiency. Your trajectory towards cost-effective design tools is laden with possibilities. The keys to unlock AutoCAD's potential, be it through free access or discounted offers, are within reach. Take the initiative, explore the options delineated in this guide, and step into a world where design acumen meets cost-effectiveness. Your journey towards mastering the art of design without burning a hole in your pocket begins now. Make the most of the resources at hand, and let your creativity soar! Yes, Autodesk offers a free version of AutoCAD to students, educators, and educational institutions through their educational program. Additionally, there's a free trial available for individuals who want to test out the software before deciding on a purchase. You can obtain a free AutoCAD license through Autodesk's educational program by signing up on the Autodesk Education Community platform using your educational email address. You'll need to provide proof of enrollment in a recognized educational institution. The free trial for AutoCAD is available for 30 days, post which you would need to purchase a license to continue using the software. Autodesk offers community licenses for non-profit organizations, startups, and hobbyists. Eligible organizations can apply for this program to gain access to AutoCAD and other Autodesk software. While third-party promotions might offer discounted access to AutoCAD, it's crucial to ensure that these promotions are legal and authorized by Autodesk to avoid any legal complications. You can explore discounted options for Autodesk software through authorized resellers or platforms like Software-Gate.com that offer discounts on various Autodesk products. The free educational version of AutoCAD comes with all the features. However, the features available in free or open-source alternatives might vary, and it's essential to review the software specifications to ensure it meets your needs. No, the educational version of AutoCAD is meant for learning and teaching purposes only and cannot be used for commercial projects as per Autodesk's licensing terms. If you're trying to decide between AutoCAD Free and Paid versions, you're not alone. As someone who has been using AutoCAD since 2000, I've seen the software grow and adapt to the needs of designers, engineers, and architects. Over the years, I've worked with both versions, and I can tell you firsthand that the choice between free and paid depends entirely on your needs, budget, and the complexity of your projects. In this guide, I'll break down the differences, pros, and cons of each version to help you make the right decision. Let's start by comparing the key features of AutoCAD Free and Paid versions. This will give you a clear picture of what each option offers: FeatureAutoCAD FreeAutoCAD PaidCostFreeSubscription-based (monthly/annual plans)AccessOnline-only (Web App, Mobile App)Desktop and offline access2D Drafting ToolsBasic tools availableFull suite of advanced 2D tools3D ModelingLimited or unavailableFull 3D modeling capabilitiesCustomizationMinimal customization optionsAdvanced customization (APIs, AutoLISP)File FormatsLimited export options (e.g., watermarked)Unlimited file formats and exportsStorageLimited cloud storageGenerous cloud storage and collaborationCollaborationBasic sharing and collaborationAdvanced collaboration tools for teamsSupportCommunity or limited supportFull technical support and regular updatesSpecialized ToolsetsNot availableAccess to industry-specific toolsets (e.g., architecture, mechanical)UsageIdeal for students, hobbyists, or casual useDesigned for professionals and businessesOffline AccessNot availableAvailableLearning ResourcesLimited tutorials and resourcesExtensive tutorials, webinars, and training To help you decide which version is right for you, here's a table summarizing the pros and cons of AutoCAD Free and Paid: AspectAutoCAD FreeAutoCAD PaidPros– Cost-effective (free)– Full functionality (2D, 3D, customization)– Accessible (web and mobile app)– Offline access– Basic drafting tools for simple projects– Advanced toolsets for specific industries– Cloud-based storage– Enhanced collaboration features– Regular updates and technical supportCons– Limited features (no 3D modeling)– Expensive subscription plans– Restricted file handling (watermarks)– Overkill for casual users– No offline access– Steeper learning curve– Minimal support and learning resources If AutoCAD doesn't feel like the right fit for you, there are plenty of alternatives out there. Here are a few I've come across over the years: FreeCAD Best For: Open-source enthusiasts and beginners. Features: Parametric modeling, modular architecture, and compatibility with multiple file formats. Cost: Free. SketchUp Best For: Architects, interior designers, and hobbyists. Features: Intuitive 3D modeling, extensive library of pre-built models, and an easy-to-use interface. Cost: Free version available; paid plans start at $119/year. SolidWorks Best For: Mechanical engineers and product designers. Features: Advanced 3D modeling, simulation tools, and industry-specific solutions. Cost: Subscription-based, starting at $1,295/year. Fusion 360 Best For: Product designers and small businesses. Features: Cloud-based CAD, CAM, and CAE tools; collaboration features. Cost: Free for students and hobbyists; paid plans start at $495/year. Tinkercad Best For: Beginners and educators. Features: Simple 3D design tools, web-based platform, and educational resources. Cost: Free. 1. Is AutoCAD Free suitable for professional use? No, AutoCAD Free is designed for casual users, students, or hobbyists. Professionals should opt for the paid version to access advanced tools and features. 2. Can I use AutoCAD Free offline? No, the free version requires an internet connection as it is cloud-based. The paid version offers offline access. 3. What is the cost of AutoCAD Paid? AutoCAD Paid is subscription-based, with plans starting at around 235/monthor235/monthor1,865/year. Discounts are often available for students and educators. 4. Are there free alternatives to AutoCAD? Yes, FreeCAD, Tinkercad, and SketchUp Free are excellent free alternatives for basic CAD needs. 5. Can I switch from AutoCAD Free to Paid later? Yes, you can upgrade to the paid version at any time to unlock additional features and tools. Having used AutoCAD since 2000, I've seen it evolve into one of the most powerful tools for designers and engineers. The choice between AutoCAD Free and Paid ultimately comes down to your needs and budget. If you're a student, hobbyist, or just starting out, the free version is a great way to learn the basics and work on simple projects. However, if you're a professional or running a business, the paid version is worth the investment for its advanced features, offline access, and specialized toolsets. If AutoCAD doesn't feel like the right fit for you, there are plenty of alternatives like FreeCAD, SketchUp, and Fusion 360 that cater to different needs and budgets. Take the time to evaluate your requirements, explore the options, and choose the tool that best suits your workflow. For more information on AutoCAD pricing and features, visit the official Autodesk website. If you're just starting out, check out our guide on How to Learn AutoCAD for Beginners. AutoCAD, a leading software in the field of computer-aided design (CAD), is widely recognized for its robust features and professional-grade tools. As such, it has become a staple in industries like architecture, engineering, and construction. Many individuals and businesses alike may wonder if there is a cost-effective way to access this powerful software. In this article, we will explore the options available for those seeking a free version of AutoCAD, highlighting any limitations or conditions that may apply. Whether you are a student, educator, or professional, understanding the availability of AutoCAD without financial investment is essential in navigating the world of digital design. What will you find in this article? Absolutely, there are several ways to use AutoCAD for free, albeit with some limitations. Here's a breakdown of the options available: 1. AutoCAD Student Version: Autodesk provides a free version of AutoCAD for students and educators. The student version is fully functional but comes with a watermark when printing designs. It is intended for educational purposes only, and users must register with an educational email address to confirm their eligibility. 2. AutoCAD Trial Version: Autodesk offers a free trial of AutoCAD for a limited period, typically 30 days. This trial gives users full access to the features of the latest version of AutoCAD. Once the trial period expires, the user must purchase a license to continue using the software. 3. AutoCAD Mobile App: Autodesk provides a mobile version of AutoCAD, which is free to download and use on smartphones and tablets. The app offers core functionality and is suitable for viewing, creating, and editing DWG files on the go. 4. AutoCAD Web App: The AutoCAD web app allows users to access AutoCAD directly in their web browser without any installation. The web app provides basic AutoCAD functionalities for free, but advanced features may require a subscription. 5. Autodesk Viewer: For those who only need to view and share AutoCAD files, Autodesk Viewer is a free online tool that supports a variety of Autodesk file formats. It allows for easy viewing and sharing of designs without the need for AutoCAD software. 6. Educational Licensing: Institutions that are part of the Autodesk Education Community can access multiple Autodesk products for free, including AutoCAD. This is a great way for students and educators to use AutoCAD for educational projects and learning. It's important to note that while these methods allow for the free use of AutoCAD, they are typically intended for non-commercial use and have certain restrictions. Commercial users are encouraged to purchase a subscription or perpetual license to use AutoCAD fully and legally for their business needs. How can I get the full version of AutoCAD for free? AutoCAD, developed by Autodesk, is one of the most well-known computer-aided design (CAD) software used by architects, engineers, and professionals in the construction and manufacturing industries. Acquiring the full version of AutoCAD for free legitimately is limited to certain groups of users and specific situations. Here are some ways you might be able to get AutoCAD for free: 1. Educational Version: Autodesk offers free access to AutoCAD for educational purposes. This is available to students, teachers, and academic institutions. The educational version is fully functional, but it is only for educational use and comes with a watermark on prints. - To get the educational version, you need to sign up for an Autodesk Education account and verify your educational status. - Once verified, you can download the software from the Autodesk Education Community. 2. Free Trials: Autodesk often provides a free trial of AutoCAD for a limited time, typically 30 days. The trial version is the full version of the software but expires after the trial period ends. - You can download the trial version from the Autodesk website. - This option is ideal for short-term needs or for evaluating the software before making a purchase. 3. Autodesk Grants and Donations: Non-profit organizations may be eligible for grants or donations of Autodesk software, which can include AutoCAD. - Eligibility requirements must be met, and applications must be submitted to Autodesk. - Such programs are designed to support philanthropic projects and community initiatives. 4. Autodesk Beta Programs: Occasionally, Autodesk invites users to participate in beta testing new software or features. This could provide temporary access to the latest versions of AutoCAD for free during the testing phase. - Interested users need to join the Autodesk Feedback Community. - Beta testers are expected to provide feedback and report bugs. It is important to note that any unauthorized means of acquiring AutoCAD software, such as using cracks or pirated versions, is illegal and against Autodesk's terms of service. Such actions can lead to serious consequences, including legal action and the inability to use Autodesk products in the future. In summary, while the full version of AutoCAD is a paid product, Autodesk provides legitimate ways to access it for free for educational purposes, through free trials, or via grants and donations for non-profit use. Always ensure you are obtaining the software through authorized channels to avoid legal and ethical issues. Can you get AutoCAD without subscription? Can you get AutoCAD without subscription? In the past, AutoCAD was available for purchase as a perpetual license, which meant that once you bought the software, you owned that version for life without the need for an ongoing subscription. However, Autodesk, the company behind AutoCAD, has transitioned to a subscription-based model for their software offerings. As of my knowledge cutoff date in early 2023, AutoCAD cannot be purchased outright without a subscription. Autodesk has moved to this model to provide users with continuous updates, support, and the ability to scale their license needs with project demands. Here are the options you have with AutoCAD subscriptions: 1. Monthly Subscription: This is ideal for short-term needs and provides the flexibility to cancel without a significant upfront cost. 2. Annual Subscription: This option provides a lower cost per month compared to the monthly subscription and is suitable for ongoing use. 3. Multi-year Subscription: For long-term use, this option offers the best value, as it locks in the price for the duration of the subscription and reduces administrative tasks related to renewals. It is important to note that while you cannot purchase a perpetual license for the latest version of AutoCAD, you may still find older versions being resold or available through third-party vendors. However, these versions may not offer the latest features, updates, or support from Autodesk. For those who are looking for alternatives to a full AutoCAD subscription, there are some options: - AutoCAD LT: This is a more affordable, lighter version of AutoCAD that includes essential drafting tools but lacks the full range of features found in the full version. - Free Trials: Autodesk offers free trials of AutoCAD, which can provide temporary access to the software without a subscription. - AutoCAD Web and Mobile: There is also a web and mobile app version of AutoCAD that offers access to core functionality and allows you to work from anywhere. - Education Licenses: Students and educators can access AutoCAD for free through Autodesk's education program, which provides educational licenses for learning purposes. In summary, obtaining AutoCAD without a subscription is not possible for the most recent versions of the software. Users must choose between various subscription plans based on their usage needs and consider alternative solutions if they are seeking more cost-effective or temporary access to CAD tools. What is the best alternative to AutoCAD? Determining the best alternative to AutoCAD depends largely on the specific needs, preferences, and budget of the user. AutoCAD is a powerful, industry-standard software widely used for computer-aided design (CAD) and drafting across various fields such as architecture, engineering, and construction. However, there are several alternatives that can be considered based on different criteria: 1. FreeCAD - Open-source and completely free - Good for beginners and intermediate users - Parametric modeling capabilities which allow for easy modification of designs - Cross-platform, available for Windows, macOS, and Linux 2. SketchUp - Known for its user-friendly interface - Ideal for architectural design and 3D modeling - Offers a free version, SketchUp Free, which runs in a web browser - The paid version, SketchUp Pro, provides additional functionality 3. DraftSight - Similar user experience to AutoCAD - Provides professional CAD features - Offers a free version and professional versions at a lower cost than AutoCAD - Suitable for small to medium-sized businesses 4. BricsCAD - Offers a modern and intuitive interface - Provides features for 2D drafting, 3D modeling, mechanical design, and BIM - Available in Classic, Pro, and Platinum editions - Uses DWG as its native file format, ensuring compatibility with AutoCAD files 5. LibreCAD - Another open-source option that is completely free - Focuses on 2D CAD drawing - Lightweight and easy to use - Available for Windows, macOS, and Linux 6. Revit - Developed by Autodesk, like AutoCAD - Specialized in Building Information Modeling (BIM) - More suitable for architects and builders who require BIM functionality - Subscription-based pricing model 7. SolidWorks - Best for mechanical engineering and product design - Known for its solid modeling capabilities - Offers a range of simulation and analysis tools - Typically more expensive, with a focus on professional use 8. NanoCAD - Affordable with a simple interface - Provides a good set of drafting tools - Offers a free version with basic functionality and paid versions with advanced features - Supports DWG files and is compatible with AutoCAD Choosing the best alternative to AutoCAD should be guided by the specific needs of the task at hand, the user's level of expertise, the type of project being worked on, and the available budget. Each of these alternatives has its strengths and may be better suited for particular types of users or industries. It is advisable to test out a few options, many of which offer trial versions, to determine the best fit for an individual or organization's workflow. Is there a free version of autocad reddit Is there a free version of AutoCAD? is a question commonly asked by students, hobbyists, and professionals looking for cost-effective alternatives to the full-priced software. On platforms like Reddit, users often share insights and tips on how to access AutoCAD without incurring the high costs associated with the professional version. Firstly, it's important to clarify that the official version of AutoCAD is not free. AutoCAD is a premium software developed by Autodesk, and it typically requires a paid subscription. However, there are several ways to use AutoCAD or its alternatives at no cost: AutoCAD Student Version: Autodesk provides a free educational version of AutoCAD for students and educators. This version is fully functional but is licensed for educational purposes only, and it typically includes a watermark on printed documents. AutoCAD Trial Version: Autodesk offers a free trial of AutoCAD for a limited period, usually 30 days. This allows users to test the full capabilities of the software before committing to a subscription. AutoCAD Web and Mobile apps: Autodesk provides free web and mobile versions of AutoCAD with limited functionality, which can be used for viewing, creating, and editing projects on the go. LT Version: While not free, AutoCAD LT is a cost-effective alternative to the full version, offering essential 2D drafting tools at a lower price point. Open-Source Alternatives: There are open-source CAD programs like LibreCAD and FreeCAD that are completely free to use. These alternatives may not have all the features of AutoCAD but can be suitable for certain tasks. It's worth noting that while the Reddit community is a valuable resource for finding information about accessing software, users should exercise caution and ensure they are not promoting or engaging in software piracy. Discussions on Reddit will often emphasize the importance of using legitimate means to obtain software. In conclusion, while there is no free version of the full AutoCAD software, Autodesk does provide several options for individuals to use AutoCAD or similar tools free of charge or at a reduced cost, particularly for educational purposes. Reddit and other online communities can serve as a helpful guide in exploring these options, but it is always recommended to respect the software's licensing agreements. We leave you with one last piece of advice for having made it this far: Consider exploring Autodesk's AutoCAD web and mobile apps, which offer free versions with limited functionality for students, educators, and hobbyists. Goodbye. AutoCAD is a powerful computer-aided design (CAD) software used by professionals across a wide range of industries, from architecture to engineering and manufacturing. However, its full version comes with a hefty price tag. If you're looking for ways to legally access AutoCAD for free or at a lower cost, this guide will walk you through the best options available.How to Get AutoCAD for Free1. AutoCAD for Students and Educators (Free for One Year)One of the most straightforward ways to get AutoCAD for free is through Autodesk's educational licensing program. Students, educators, and academic institutions can get free one-year access, which can be renewed annually as long as eligibility is maintained.How to Access AutoCAD for Free as a Student or Educator:Go to the Autodesk Education Community.Sign in or create an Autodesk account.Verify your student or educator status by providing required documentation (e.g., a student ID or proof of enrollment).Download the full version of AutoCAD with all features included.This version comes with a watermark on printed drawings, but otherwise offers the same features as the commercial version. It's ideal for learning and teaching.2. AutoCAD Free Trial (15 Days)For professionals or individuals who are not eligible for the educational version, Autodesk offers a 15-day free trial of the full version of AutoCAD. Though the trial duration was recently reduced from 30 days to 15, it's still enough to explore the software and decide if it's right for your needs.How to Get the AutoCAD Free Trial:Visit the AutoCAD Free Trial Page.Choose your preferred version and download it.Sign in or create an Autodesk account.Install the software and begin your free trial.To make the most of your trial, utilize Autodesk's tutorials and guides, such as the Hitchhiker's Guide to AutoCAD Basics, to learn quickly.3. Autodesk Fusion 360 (Free for Personal Use)If you're looking for a long-term solution and don't mind exploring alternatives, Autodesk Fusion 360 is free for personal use and startups that earn less than $100,000 per year. While it's not AutoCAD, it offers many overlapping features, especially for 3D modeling and parametric design.How to Get Fusion 360 for Free:Go to the Fusion 360 page.Sign in or create an Autodesk account.Download Fusion 360 and select the personal use license.Fusion 360 is a great option for hobbyists and small businesses. It provides both 2D and 3D CAD functionalities, making it a versatile alternative.4. Free Alternatives to AutoCADIf AutoCAD's price is out of your reach and Fusion 360 doesn't meet your needs, there are several free AutoCAD software alternatives that can perform many of the same tasks. These alternatives are especially useful for users who don't need the full feature set of AutoCAD.Popular Free CAD Alternatives:LibreCAD: A free, open-source 2D CAD program.FreeCAD: Another open-source CAD tool, offering 3D parametric design.DraftSight: A CAD software very similar to AutoCAD that offers a free version for 2D design.OpenSCAD: A script-based 3D CAD modeling tool.While these alternatives may lack some of AutoCAD's advanced features, they are highly effective for simpler tasks and can save you hundreds of dollars.5. AutoCAD LT (Cheaper Alternative)If you don't require 3D modeling, AutoCAD LT could be a cost-effective option. It's a simplified version of AutoCAD that focuses on 2D drafting and is significantly cheaper. However, it lacks 3D features and some collaboration tools.AutoCAD LT Pricing:$65 per month$505 annually$1,515 for a three-year subscriptionConsider AutoCAD LT if your primary needs involve 2D drafting for architecture, engineering, or construction projects. However, if your work requires 3D modeling, this option might not be suitable.6. AutoCAD Web App (Cloud-Based)Autodesk also offers the AutoCAD Web App, a cloud-based version of the software. This lightweight option allows you to perform basic 2D editing and collaborate with teams online. However, it's now a paid service, costing $10 per month or $100 per year.How to Access AutoCAD Web:Sign up for a standalone subscription or add it to an existing AutoCAD license.Use it for quick changes,