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The license may not give you all of the permissions necessary for your intended use. For example, other rights such as publicity, privacy, or moral rights may limit how you use the material. 0 ratings0% found this document useful (0 votes)4 viewsThe document provides a step-by-step guide for installing Android Studio, including downloading the software, installing it on different operating systems, and configuring the setup. It outl...SaveSave how to setup android studio For Later0%0% found this document useful, undefined If you are starting your Android learning journey, Andriod Studio is the first thing you will install to write code on your system. This article will guide you on how to install and set up Android Studio on Windows 10, and 11 and what the actual Android Studio system requirements are. Quick Brief of Android Studio Android Studio is the official IDE (Integrated Development Environment) for Android app development and it is based on JetBrains' IntelliJ IDEA software. Android Studio provides many excellent features that enhance productivity when building Android apps, such as: A blended environment where one can develop for all Android devices Apply Changes to push code and resource changes to the running app without restarting the app A flexible Gradle-based build system A fast and feature-rich emulator GitHub and Code template integration to assist you in developing common app features and importing sample code Extensive testing tools and frameworks C++ and NDK support Built-in support for Google Cloud Platform, making it easy to integrate Google Cloud Messaging and App Engine, and many more. Provides GUI tools that simplify the less interesting parts of app development. Easy integration with real-time database ' firebase '. Android Studio System Requirements for Windows Microsoft Windows 7/8/10 (32-bit or 64-bit) 4 GB RAM minimum, 8 GB RAM recommended (plus 1 GB for the Android Emulator) 2 GB of available disk space minimum, 4 GB recommended (500 MB for IDE plus 1.5 GB for Android SDK and emulator system image) 1280 x 800 minimum screen resolution Steps to Install Android Studio on Windows Step 1: Head over to this link to get the Android Studio executable or zip file. Step 2: Click on the Download Android Studio Button. Click on the "I have read and agree with the above terms and conditions" checkbox followed by the download button. Click on the Save file button in the appeared prompt box and the file will start downloading. Step 3: After the downloading has finished, open the file from downloads and run it. It will prompt the following dialog box. Click on next. In the next prompt, it'll ask for a path for installation. Choose a path and hit next. Step 4: It will start the installation, and once it is completed, it will be like the image shown below. Click on next. Step 5: Once " Finish " is clicked, it will ask whether the previous settings need to be imported [if the android studio had been installed earlier], or not. It is better to choose the 'Don't import Settings option'. Click the OK button. Step 6: This will start the Android Studio. Meanwhile, it will be finding the available SDK components. Step 7: After it has found the SDK components, it will redirect to the Welcome dialog box. Click on Next . Choose Standard and click on Next. Now choose the theme, whether the Light theme or the Dark one. The light one is called the IntelliJ theme whereas the dark theme is called Dracula . Choose as required. Click on the Next button. Step 8: Now it is time to download the SDK components. Click on Finish. Components begin to download let it complete. The Android Studio has been successfully configured. Now it's time to launch and build apps. Click on the Finish button to launch it. Step 9: Click on Start a new Android Studio project to build a new app. To run your first android app in Android Studio you may refer to Running your first Android app. Conclusion: Android Studio is a powerful IDE for Android app development, offering features like Gradle-based build system, fast emulator, testing tools, and integration with Google Cloud Platform and Firebase. Installing it on Windows is easy and straightforward. So this was all about How to Install and Set up Android Studio on Windows. Android Studio is the official integrated development environment (IDE) for Android app development. This guide will walk you through the installation process for Android Studio on Windows, Mac, and Linux.Before installing Android Studio, ensure your system meets the following requirements:Windows: Windows 7 or later (64-bit)Mac: macOS 10.14 or laterLinux: Any modern Linux distribution (64-bit)Download Android Studio: Visit the official Android Studio website and download the installer for Windows.Run the Installer: Double-click the downloaded file and follow the installation prompts.Launch Android Studio: Once installed, you can launch Android Studio from the Start menu.Download Android Studio: Go to the official Android Studio website and download the installer for macOS.Open the Downloaded File: Double-click the downloaded file to mount the disk image.Drag to Applications: Drag the Android Studio icon to the Applications folder.Launch Android Studio: Open Android Studio from the Applications folder.Download Android Studio: Visit the official Android Studio website and download the .zip package for your distribution.Extract Files: Open a terminal and navigate to the download location. Use the command:unzip android-studio-*.zipRun the Installer: Navigate to the extracted folder and run:cd android-studio/bin./studio.shCongratulations! You have successfully installed Android Studio on your system. You can now start developing Android applications!Explore our collection of useful resources and downloads to enhance your experience:Android Developer Documentation: Access the official Android developer documentation for more advanced features.Android Tutorials: Learn Android app development through various tutorials available online.FAQQ: Can I use Android Studio for commercial purposes?A: Yes, Android Studio is free to use for both personal and commercial projects.Q: How do I uninstall Android Studio?A: You can uninstall it through the Control Panel on Windows, the Applications folder on Mac, or by deleting the installation directory on Linux.Read NextJava is not recognizedIntelliJ IDEA Installation GuideJava Update on Mac The Android SDK, short for Android Software Developer Kit, is arguably the most powerful software utility widely used by programmers who indulge in Android app development. The Windows version of this toolkit serves as a helping hand to developers, and ships several other features like launching apps on the side using the Windows CMD. If you think that this could be of help to you, you can follow this guide to download and use Android SDK and Android Studio on Windows.How to download and use Android SDK on WindowsThe Android SDK by Google allows developers to create Android apps in a very simplistic manner, without them having to be full-blown experts at developing apps. It packages inside the Android Studio, which is Google's own IDE, and several other necessary libraries. Although there is an option for users to download the SDK without Android Studio, most developers prefer to create with it. We will be looking at how you can use Android SDK both, with Android Studio and without it.Use Android SDK command line version on Windows (Install Java)If you're just interested in the Android SDK to execute command lines, you're required to download and install the latest version of Java first.Visit the official Java downloads page at Oracle.com and click on the Windows tabHere, download the 'x64 MSI Installer' file and install itOnce you're done installing Java, its time for you to install the SDK Command LineVisit the Downloads page on developer.android.com and click on Download optionsScroll down to find the 'Command Lines Only' head and download the '.zip' file for WindowsIt will take a few minutes for the '.zip' file to download, after which you can extract it and find the "cmdline-tools" program available inside it. Now, go to your C: Drive and create a folder named 'Android'. Inside it, create a folder named "cmdline-tools" and inside that folder, another new subfolder by the name of "tools". In this final subfolder, paste all the contents that you've just extracted from the SDK Command Line folder.Let us now see how you can initiate the process of using SDK's Command-Line version. To do that, follow the steps below:Run Command Prompt as administratorNow paste the following command line:cd C:\Android\cmdline-tools\tools\binThis will open the bin folder in the tools directory we just created. Now, given that you have downloaded and installed Java, paste the following line of code and press enter:SDK manager –listThis command will show you the list of installed and valid commands that came with the SDK Command LineIf you are interested in installing platform tools as well, execute the following commandsdkmanager "platform-tools" "platforms;android-33"Once you do that, you'll find a "platform-tools" folder automatically created in your Android folder.How to install Android Studio on WindowsLet's look at the flip side now, where you would want to use Google's Android Studio for your app development processes. The reason we suggested why you may wish to omit to install Android Studio is that it takes up a lot of space, but the convenience and easy-to-use UI it brings along makes it worth it.Visit the Android Studio download page as we'd done above, click on "Download Android Studio" and follow the steps as will be shown subsequentlyThis version accompanies a feature called Android Virtual Device. Developers use this to test their prototypes and products, but you don't need to download this along with the main fileSelect the directory in which you want to save this app, or select the option that you don't want to import any previous settings, and follow the setup wizard by continuing to click on 'Next'Select the theme you want to run with your Android SDK and if there are any extra components that you're interested inFinish the process once all the components are done downloading by clicking on FinishOnce this process is finished, you are pretty much good to get the ground running and start with your first project on Android Studio. You can do so by clicking on 'Create New Project' and selecting the template of your choice. You also get an option to play around with the SDK Manager. Click on "More Options" and select SDK Manager from this drop-down. In this SDK Manager window is a list of all the installed and non-installed packages that came with this file. You can further filter them out based on obsolete packages.Where is Android SDK installed in Windows 11/10?There can be confusion on your mind as to where the Android SDK application file is stored upon being downloaded since the network of files can often get very elaborate and complicated. A way to ensure you remember where it is stored is to manually select the directory in which you want to install it. Alternatively, you can resort to its default saving location:c:\Users\username\AppData\Local\Android\Sdk.How do I install platform tools on Windows?The Android "platform-tools" is a command line functionality used almost exclusively by app developers. Usually accompanied by the Android SDK Manager, they come in handy for complicated tasks like developing and debugging apps. If you find yourself in a situation where you have to download and install platform tools separately on your Windows PC, you can get a '.zip' file for the same from an online repository. Alternatively, the platform-tools utility can also be installed while running the SDK Command-line version.How do I fix the "SDK tools directory is missing" Error?You may face the "SDK tools directory is missing" error while starting Android Studio on Windows. To fix that, you have to open the SDK Manager, deselect the 'Hide obsolete packages' option on the bottom-right corner, and further, install the Android SDK Tools(obsolete) folder. A new folder by that name will be placed in the same directory as the main Android Studio files.We hope that you find this post helpful. 0 ratings0% found this document useful (0 votes)189 viewsAndroid Studio is the official IDE for developing Android apps. This tutorial shows how to download and install Android Studio on Windows 10. The steps include downloading the installer from...AI-enhanced title and descriptionSaveSave How to Download and Install Android Studio On Wind... For Later0%0% found this document useful, undefined 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 (10.0.26100.4061) (May 13, 2025; 12 days ago (2025-05-13)[1]) [±]Latest preview Release Preview Channel 24H2 (10.0.26100.4188) (May 19, 2025; 6 days ago (2025-05-19)[2][3]) [±] Beta Channel 24H2 (10.0.26120.4161) (May 23, 2025; 2 days ago (2025-05-23)[4]) [±] Dev Channel 24H2 (10.0.26200.5603) (May 19, 2025; 6 days ago (2025-05-19)[5]) [±] Canary Channel 10.0.27863.1000 (May 23, 2025; 2 days ago (2025-05-23)[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) DefaultuserinterfaceWindows 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] Each Git repository contains a complete history of all the files, which tends to be very large for Windows.[87] Microsoft has been working on a new project called the Virtual File System for Git (VFSForGit) to address these challenges.[86] In 2021 the VFS for Git was superseded by Scalar.[88] Legend:Old version, not maintainedOld version, still maintainedLatest versionLatest preview versionFuture version Table of Windows versions Product name Latest version General availability date Codename Support until[89] Latest version of Mainstream Extended IE DirectX Edge Old version, not maintained: Windows 1.0 1.04 November 20, 1985 Interface Manager December 31, 2001 — — — Old version, not maintained: Windows 2.0 2.03 December 9, 1987 — Old version, not maintained: Windows 2.1 2.11 May 27, 1988 — Old version, not maintained: Windows 3.0 3.0 May 22, 1990 — Old version, not maintained: Windows 3.1 3.1 April 6, 1992 — 5 Old version, not maintained: Windows For Workgroups 3.1 3.1 October 1992 Sparta, Winball Old version, not maintained: Windows NT 3.1 NT 3.1.528 July 27, 1993 — December 31, 2000 2 Old version, not maintained: Windows For Workgroups 3.11 3.11 August 11, 1993 Sparta, Winball December 31, 2001 5 Old version, not maintained: Windows 3.2 3.2 November 22, 1993 — Old version, not maintained: Windows NT 3.5 NT 3.5.807 September 21, 1994 Daytona 3 Old version, not maintained: Windows NT 3.51 NT 3.51.1057 May 30, 1995 — 5 Old version, not maintained: Windows 95 4.0.950 August 24, 1995 Chicago, 4.0 December 31, 2000 December 31, 2001 5.5 8.0a Old version, not maintained: Windows NT 4.0 NT 4.0.1381 July 31, 1996 Cairo June 30, 2002 June 30, 2004 6 3.0a Old version, not maintained: Windows 98 4.10.1998 June 25, 1998 Memphis, 97, 4.1 July 11, 2006 9.0c Old version, not maintained: Windows 98 SE 4.10.2222 May 5, 1999 — Old version, not maintained: Windows 2000 NT 5.0.2195 February 17, 2000 — June 30, 2005 July 13, 2010 Old version, not maintained: Windows Me 4.90.

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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) 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.[14][15] 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.[16] 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).[17] 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).[18] 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. 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.[19] 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.[20] In addition, extended attributes were also added to the FAT file system.[21] 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.[22][16] 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.[23] Much of its success was because Windows 3.0 (along with MS-DOS) was bundled with most new computers.[24] 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.[25] 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.[26] 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.[27] IBM developers complained about the terseness and lack of comments in Microsoft's code, while Microsoft developers complained that IBM's code was bloated.[28] 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.[29] 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.[30] 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.[31] 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.[32] 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.[33] 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".[34] 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.)[35] 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.[36] 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.[37] 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.[38] 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).[39] 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.[40] 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.[39] 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[41] of the then-upcoming series Star Trek: Voyager substituted for him at the last minute.[42][43] 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.[44] OS/2 Warp Connect—which has full LAN client support built-in—followed in mid-1995. Warp Connect was nicknamed "Grape".[19] 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.[45] 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.[46] 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.[47] 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 laun

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Put new text under old text. Click here to start a new topic. New to Wikipedia? Welcome! Learn to edit; get help. Assume good faith Be polite and avoid personal attacks Be welcoming to newcomers Seek dispute resolution if needed Article policies Neutral point of view No original research Verifiability Find sources: Google (books · news · scholar · free images · WP refs) · FENS · JSTOR · TWLArchives: 1Auto-archiving period: 12 months This article is rated C-class on Wikipedia's content assessment scale.It is of interest to multiple WikiProjects.Computing: Software Mid-importanceThis article is within the scope of WikiProject Computing, a collaborative effort to improve the coverage of computers, computing, and information technology on Wikipedia. If you would like to participate, please visit the project page, where you can join the discussion and see a list of open tasks.ComputingWikipedia:WikiProject ComputingTemplate:WikiProject ComputingComputingMidThis article has been rated as Mid-importance on the project's importance scale.This article is supported by WikiProject Software (assessed as Low-importance). Microsoft Mid-importanceThis article is within the scope of WikiProject Microsoft, a collaborative effort to improve the coverage of articles relating to Microsoft on Wikipedia. If you would like to participate, please visit the project page, where you can join the discussion and see a list of open tasks.MicrosoftWikipedia:WikiProject MicrosoftTemplate:WikiProject MicrosoftMicrosoftMidThis article has been rated as Mid-importance on the project's importance scale. Technology Technology portalThis article is within the scope of WikiProject Technology, a collaborative effort to improve the coverage of technology on Wikipedia. If you would like to participate, please visit the project page, where you can join the discussion and see a list of open tasks.TechnologyWikipedia:WikiProject TechnologyTemplate:WikiProject TechnologyTechnology The following references may be useful when improving this article in the future: Reimer, Jeremy (25 November 2013). "Half an operating system: The triumph and tragedy of OS/2". Ars Technica. Condé Nast. ESR has a good resume of history of OS/2 in The Art of Unix Programming: see The Art of Unix Programming Davidme — Preceding undated comment added 07:53, 29 June 2007 (UTC)[reply] Someone(s) should flesh out the following summary of a neglected part of the OS/2 history. I can contribute, but certain authoritative references might take considerable effort to obtain. IBM was a member of the Open Software Foundation, and participated with Digital Equipment Corp. on the OSF Research Institute's OSF/1 Mach kernel (OSFMK 7.3 kernel) microkernel design. That microkernel was derived from both the CMU CS Mach microkernel and the CMU CS Alpha real-time microkernel. Alpha's contributions were primarily application-specific scheduling algorithms and distributed threads. IBM Boca and Austin (VP Larry Loucks) decided to base the microkernel of Workplace OS for Power PC on that OSF microkernel. DEC had acquired most of the key Alpha designers, and was developing a real-time OS product based on MK7.3A. IBM contracted with the DEC Real-Time Business Unit to consult on the design and implementation of the WPOS/PPC microkernel. That collaboration included some key Alpha and MK7.3A designers at the OSF/RI. The IBM WPOS/PPC project was subsequently cancelled (as is documented herein), the OSF morphed into being the Object Management Group, dissolving the RI (its key MK7.3A designer went to Apple), and DEC's Real-Time Business Unit was terminated when Compaq purchased DEC. E Douglas Jensen (talk) 21:13, 28 January 2023 (UTC)[reply] during the mid 90s, os/2 was still under development and was a new thing. a coming soon thing. the article also says that protected mode was present in the 286 processors. it was not. i tested protected mode games on a 286 processor and they did not work, because of a lack of protected mode. this is not a joke 84.212.100.141 (talk) 14:58, 1 April 2023 (UTC)[reply] I am unsure as to what specifically your objection "during the mid 90s, os/2 was still under development and was a new thing. a coming soon thing." refers, but feel free to be more specific as to what sections or sentences you feel are incorrect or inappropriate. As to the 286 protected mode, all RS I have been able to find documents the ability of the 286 to enter protected mode, but it certainly seemed like it was very difficult to use in practice, and one of it's main criticisms was especially the fact that you could not escape protected mode without resetting the 286. This thread on stackexchange explains in detail how to put a 286 in protected mode, if you are interested. askeuh (talk) 10:36, 4 April 2023 (UTC)[reply] 286 did have a protected mode and it could be 'exited' (return to RM). I think the OP was trying to run 386 PM software on a 286 which isn't going to work for obvious reasons. 57.135.233.22 (talk) 15:37, 8 May 2024 (UTC)[reply] The commands list (OS/2#Commands) seems to break up the general flow and seems to provide excessive information considering the rest of the article. Seems out of place, placing {{summarize section}} tag until further input has been received on what should be done with this section. Vghfr (talk) 04:53, 8 January 2024 (UTC)[reply] This section heading seems fundamentally wrong – Windows 3.0 compatibility already shipped in 1992's OS/2 2.0, as the text of this section itself confirms. OS/2 2.1 brought about improved Windows compatibility (i.e. support for Windows 3.1 as opposed to Windows 3.0), but Windows support was already there in 1992's OS/2 2.0 SomethingForDeletion (talk) 07:47, 6 April 2025 (UTC)[reply] Retrieved from " 4 The following pages link to Talk:OS/2 External tools (link count transclusion count sorted list) · See help page for transcluding these entries Showing 26 items. 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" The world of Android app development is booming, and Android Studio is your gateway to creating innovative apps that reach millions of users. Whether you dream of building the next viral game or a productivity tool that simplifies everyday tasks, Android Studio empowers you to turn those ideas into reality. This official integrated development environment (IDE) offers everything you need to design, code, test, and deploy your Android apps. If you're a beginner eager to dive into Android app development on your Windows PC, this comprehensive guide is for you. We'll walk you through each step of the Android Studio installation process, from downloading the software to configuring your development environment. By the end, you'll have a fully functional Android Studio setup, ready to embark on your app development journey. Before you start installing Android Studio requirements, it's crucial to make sure your system meets the minimum requirements for smooth performance. Here's what you'll need: Hardware Operating System: Microsoft® Windows® 11/10 (64-bit) RAM: 8 GB or more is recommended. Storage: 4 GB of available disk space minimum (IDE + Android SDK and emulator system image). 8 GB of available disk space minimum if you also want to install Android Emulator and system image. CPU: x86_64 CPU architecture; 2nd generation Intel Core or newer, or an AMD CPU with support for Windows Hypervisor Framework. Software Java Development Kit (JDK): Android Studio requires a JDK to function properly. You can download the latest version of OpenJDK from the official website or install the AdoptOpenJDK distribution. For the most up-to-date and detailed system requirements, refer to the official Android Studio documentation on the Android Developers website. While these are the minimum requirements, for optimal performance, especially if you plan to use the Android Emulator, it's recommended to have a more powerful system with the following: RAM: 16 GB or more Storage: SSD (Solid State Drive) for faster loading and build times CPU: A modern multi-core processor By ensuring your system meets these requirements, you'll set yourself up for a smoother installation process and a more enjoyable Android development experience. Unlock Seamless Performance with Windows 10 VPS Experience the epitome of digital performance with our Windows 10 VPS, delivering unparalleled efficiency and power. Uncover the pinnacle of technological excellence today! Step 1: Downloading Android Studio for Windows Now that you've confirmed your system meets the minimum requirements, it's time to download and install Android Studio like you install Bluestacks Android on your Windows. This can be done by launching the Android Studio official website: Here, you'll find the latest stable release of Android Studio for Windows. Note: For your security, it's crucial to download Android Studio only from the official Android Developers website. Downloading from unofficial sources may expose your system to potential security risks, such as malware or viruses. Before you can download Android Studio, you'll be presented with a Terms and Conditions page. This is a standard step in the download process, where you're required to acknowledge and agree to the licensing terms and conditions set by Google, the developer of Android Studio. To proceed with the download, carefully read through the terms and conditions, then check the box to indicate your acceptance. This will enable the Download button, allowing you to download the Android Studio installation package. Step 2: Start the Installer Once the download is complete, locate the Android Studio installer file in your default downloads folder or wherever you choose to save it. Double-click the installer to begin the installation process. Step 2: Choose Components The first step in the installation wizard is to Choose Components. By default, the only component selected is the Android Virtual Device, which is required for running and testing your Android apps on an emulator: In this step, you'll see a brief description of the Android Virtual Device component and the required disk space, which is approximately 3.6 GB. For a standard Android development environment, it's recommended to install the Android Virtual Device component. This will allow you to create and manage virtual devices, which are essential for testing and debugging your Android apps. Step 3: Choose the Installation Location In this step, you'll be asked to specify the installation location for Android Studio. This is where the Android Studio IDE will be installed on your system. The installation wizard will suggest a default installation location and you can either choose that or specify a different location on your system: Make sure the selected location has enough disk space available, as mentioned earlier (approximately 3.6 GB). Step 4: Choose the Start Menu Folder and Install In this step, you'll be asked to specify the Start Menu Folder where you want to create shortcuts for Android Studio. The Start Menu Folder is where you'll find the Android Studio shortcuts in your Windows Start Menu. Below the Start Menu Folder input field, you'll see a checkbox labeled Do not create shortcuts. If you check this box, the installer will not create any shortcuts for Android Studio in your Start Menu or on your desktop. Once you've specified the Start Menu Folder and made your selection regarding shortcuts, click the Install button to begin the installation process. The installer will now copy the necessary files and configure Android Studio on your system: Step 5: Complete the Installation You've reached the final step of the installation process! In this step, you'll have the opportunity to launch Android Studio immediately after installation, and then complete the installation process. At the bottom of the window, you'll see a checkbox labeled Start Android Studio. If you check this box, Android Studio will launch automatically once the installation is complete: Step 6: Import Android Studio Settings After clicking the Finish button, a new window appears, asking you to Import Android Studio settings. This step allows you to customize your Android Studio experience by importing settings from a previous installation or skipping the import process altogether. If you choose not to import settings, you'll need to set up Android Studio from scratch. While this may take some time, it ensures that you have a clean and customized installation tailored to your specific needs: Step 7: Choose Settings In this screen, you'll see two different settings options. The first option is Standard Settings which sets up Android Studio with a default configuration that includes the most commonly used settings and plugins. This is a good choice if you're new to Android Studio or want a straightforward setup process. The second option is Custom Settings which allows you to customize your Android Studio installation by selecting specific settings and plugins that meet your specific needs. This is a good choice if you have specific requirements or prefer a more tailored setup. Step 8: Accept License Agreement Before you can complete the installation process, you'll need to agree to the Android Studio License Agreement. This agreement outlines the terms and conditions of using Android Studio, including intellectual property rights, warranties, and limitations of liability. Take a moment to read through the license agreement carefully. It's essential to understand the terms and conditions of using Android Studio, especially if you plan to use it for commercial purposes. At the bottom of the screen, you'll see a Finish button which will only be enabled if you accept the license agreement. Once you click Finish, the installation process will be complete, and Android Studio will be ready for use. In this comprehensive guide, we walked you through the step-by-step process of installing Android Studio on a Windows PC. From downloading the installation package to configuring the IDE, we covered every aspect of the installation process in detail. By following the instructions outlined in this article, you should now have a fully functional Android Studio installation on your Windows PC, ready to help you build and develop innovative Android apps. By the end of this article, you should have a clear understanding of how to install Android Studio Windows PC and be ready to start building your first Android app. Download the installer from the official Android Studio website, run it, and follow the setup wizard. Make sure your system meets the requirements: Windows 7/8/10, 4 GB RAM (8 GB recommended), and sufficient disk space. After installation, start developing Android apps. For additional resources, consider Ultahost VDS hosting for its dedicated resources, scalability, control, and enhanced security. Operating System: Windows 7/8/10/11 (64-bit) RAM: Minimum 4 GB RAM, 8 GB RAM recommended Disk Space: Minimum 2 GB of free disk space, 4 GB recommended (500 MB for the IDE + 1.5 GB for the Android SDK and emulator system image) Java Development Kit (JDK): Android Studio includes an OpenJDK; however, a standalone JDK can be installed if needed. Go to the Android Studio download page. Click on the "Download Android Studio" button. Review and accept the terms and conditions. The download should begin automatically. Run the downloaded .exe file. Follow the setup wizard steps: Click "Next" to continue. Choose the components you want to install (e.g., Android Virtual Device). Click "Next" and choose the installation location. Click "Install" to begin the installation. Once the installation is complete, click "Finish" to launch Android Studio. When you first launch Android Studio, the "Welcome to Android Studio" window will appear. Click on "Configure" > "SDK Manager." Select the SDK platforms and tools you need. Click "Apply" to download and install the selected SDK components. Open Android Studio. Go to "Help" > "Check for Updates." Follow the prompts to download and install any available updates.