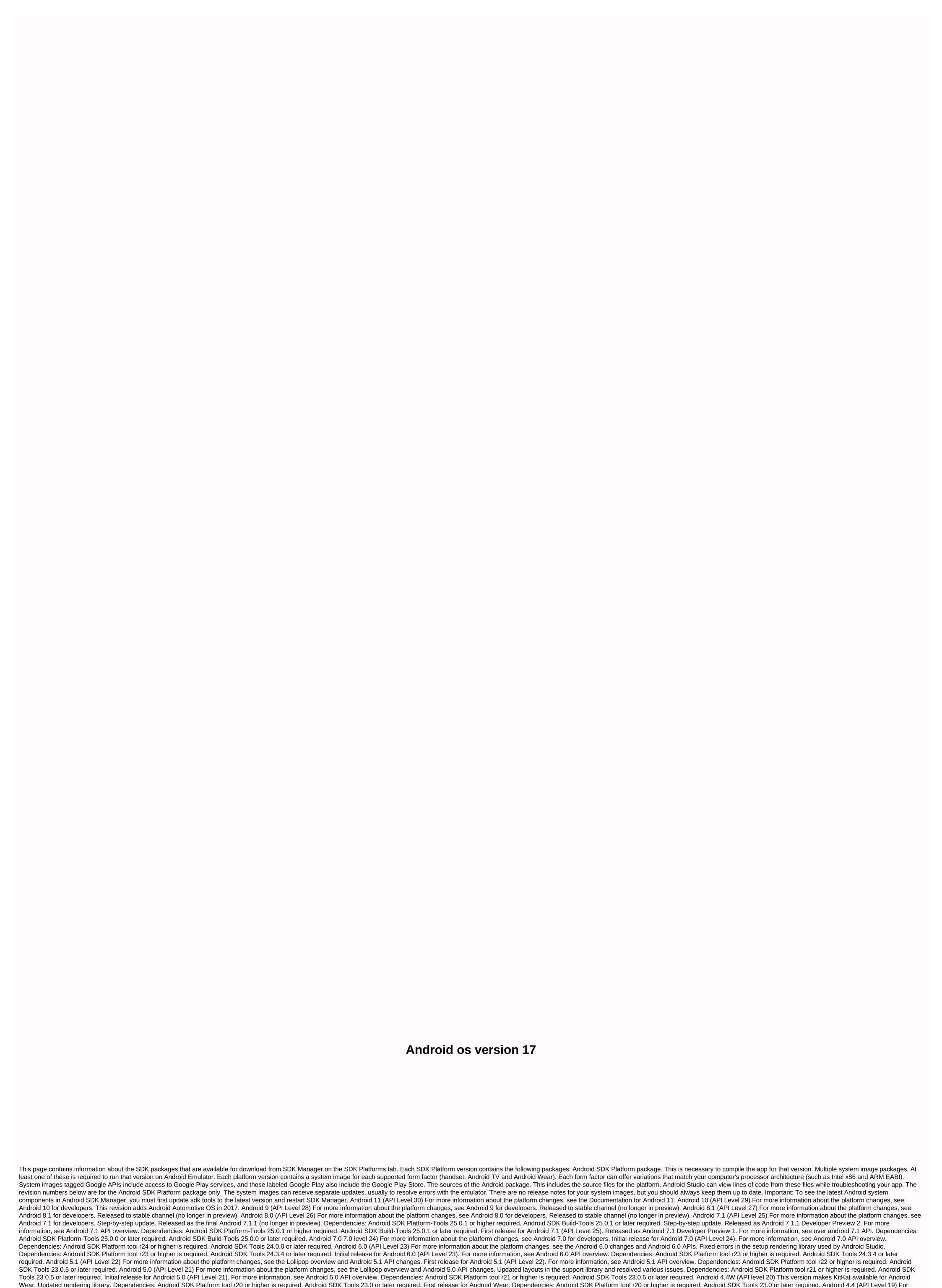
	I'm not robot	reCAPTCHA
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more information about the platform changes, see the KitKat overview and android 4.4 API changes. Maintenance release. The system version is 4.4.2. For more information, see Android 4.4 API overview. Dependencies: Android SDK Platform tool r19 or higher is required. Android SDK Tools 22.3 or later is

recommended. First release. The system version is 4.4. For more information, see Android 4.4 API overview. Dependencies: Android SDK Tools 22.3 or later is recommended. Android 4.3 (API level For more information about the platform changes, see the Jelly Bean overview and Android 4.3 API changes. Maintenance update. The system version is 4.3. Dependencies: Android SDK Platform tool r18 or higher is required. Android SDK Platform tool r18 or higher is required. Android SDK Platform tool r18 or higher is required.

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Tools 22.0.4 or later is recommended. Android 4.2 (API Level 17) For more information about the platform changes, see the Jelly Bean overview and Android 4.2 (API Level 17) For more information about the platform version is 4.2.2. Dependencies: SDK Tools r21 or higher is required. First release. The system version is 4.2.
Dependencies: SDK Tools r20 or higher is required. Android 4.1 (API Level 16) For more information about the platform changes, see the Jelly Bean overview and android 4.1 API changes. Maintenance update. The system version is 4.1.2. Dependencies: SDK Tools r20 or higher is required. Maintenance update. The
system version is 4.1.1. Dependencies: SDK Tools r20 or higher is required. First release. The system version is 4.1.0. Dependencies: SDK Tools r20 or higher is required. First release. The system version is 4.0.4. Note: This system file contains support for emulator hardware
graphics acceleration when used with SDK Tools r17 or higher. (more info) Dependencies: SDK Tools r14 or higher is required. First release. The system version is 4.0.3. Dependencies: SDK Tools r14 or higher is
required. Maintenance update for Android 4.0 (API Level 14). The system version is 4.0.2. Dependencies: SDK Tools r14 or higher is required. Android 3.2 (API Level 13) First release. SDK Tools r12 or higher is
recommended. Android 3.1 Dependencies (API Level 12): Requires SDK Tools r12 or later. Note: Improvements to the platform rendering library to support the visual layout editor in the ADT Eclipse plug-in. This revision allows for additional drawing functions in ADT and resolves several errors in the previous rendering
library. It also unlocks several editing features that were added to ADT 12. Dependencies: Requires SDK Tools r11 or higher. Android 3.0 Dependencies
(API Level 11): Requires SDK Tools r12 or later. Note: Improvements to the platform rendering library to support the visual layout editor in the ADT and resolves several errors in the previous rendering library. It also unlocks several editing
features that were added to ADT 12. Dependencies: Requires SDK Tools r10 or higher. Dependencies for 2.3.3 (API Level 10): Requires SDK Tools r12 or later. Note: Improvements to the platform rendering library to support the visual layout editor in the ADT Eclipse plug-in. This revision allows you to multiple drawing
functions in ADT and resolves several errors in the previous rendering library. It also unlocks several editing features that were added to ADT 12. Dependencies: Requires SDK Tools r9 or higher. Android 2.3 Dependencies (API Level 9): Requires SDK Tools r8 or later. Wikipedia list Version history of the Android mobile
operating system began with the public release of Android beta 5. The first commercial version, Android 1.0, was released on September 23, 2008. Android is continuously developed by Google and the Open Handset Alliance (OHA), and it has seen several updates to its basic operating system since its first release.
Overview See also: Android software development Development of Android started in 2003 by Android, Inc., which was purchased by Google in 2005. [1] There were at least two internal versions of the software in Google and OHA before the beta version was released. [2] [3] The beta was released on 5. [6] Several
public beta versions of the SDK were released. [7] These releases were made through software emulation when physical devices did not exist to test the operating system. The first public release of Android 1.0 occurred with the release of T-Mobile G1 (aka HTC Dream) in October 2008. [8] Android 1.0 and 1.1 were not
released under specific code names. The code names Astro Boy and Bender were tagged internally on some of the early pre-1.0 milestone builds and were never used as the actual code names of 1.0 and 1.1 releases of os. [9] The project manager, Ryan Gibson, conceived using a confectionery-themed naming
scheme for public releases, starting with Android 1.5 Cupcake. Google announced in August 2019 that it was ending the confectionery scheme to use numerical ordering for future versions. [10] The first release under the numeric order format was Android 10, which was released the following month[when?]. In 2017,
Google announced that Google Play would begin requiring apps to target a recent Android version. [11] Initially, the minimum requirement was Android 8, released in the second half of 2017, that support would be needed for new apps by August 2018, and for updates to existing apps by November 2018. This pattern has
continued in the following years. [12] [13] Name version number(s) First stablerelease date Supported (security repairs) API level References No official code name 1.0 23.09.2008 No. 1 [9] 1.1.1.02.2009 No. 2 [9][14] Cupcake 1.5 April 27, 2009 No 3 [15] Donut 1.6 September 15, 2009 No 4 [16] Eclair 2.0 - 2.1 October
26, 2009 No 5 - 7 [2009 17] Froyo 2.2 - 2.2.3 May 20, 2010 No 8 [18] Gingerbread 2.3 - 2.3.7 06.02.20 10 No 9 - 10 [19] Honeycomb 3.0 - 3.2.6 February 22, 2011 No 11 - 13 [20] Ice Cream Sandwich 4.0 - 4.0.4 18, 2011 No 14 - 15 [21] Jelly Bean 4.1 - 4.3.1 July 9, 2012 No 16 - 18 [22] KitKat 4.4 - 4.4.4 October 31,
2013 No 19 - 20 [23] Lollipop 5.0 - 5.1.1 November 12, 2014 No 21 - 22 [24] Marshmallow 6.0 - 6.0.1 October 5, 2015 No 23 [25] Nougat 7.0 - August 8, 21, 2016, 2017 Yes 26 - 27 [30] Pie 9 August 6, 2018 Yes 28 [31] Android 10 September 3, 2019 Yes 29 [32]
Android 11 September 11, 2020 Yes 30 [33] Version history by API level The following tables show the release dates and key features of all Android programming interface (API) levels. Android 1.0 (API 1) Android 1.0, the first commercial version of
the software, was released on 23. [34] The first commercially available Android device was HTC Dream. [35] Android 1.0 incorporated the following application downloads and updates through the market application. Browser to
view, zoom, and pan entire HTML and XHTML web pages — multiple pages appear as windows (cards). [36] [37] Camera support — but this version lacked the ability to change the camera resolution, white balance, quality, etc. [38] Folders that allow grouping a variety of application icons into a single folder icon on the
Home screen. [39] Accessing online email servers that support POP3, IMAP4, and SMTP. [37] Gmail sync with the Calendar sync with the Calendar application. Google Maps with Street View to view maps and satellite images, as well as find local
businesses and get directions using GPS. [38] Google Sync, allowing over-the-air synchronization of Gmail, People, and Calendar. Google Search, allowing users to search the Internet and phone applications, contacts, calendar, etc. Google Talk instant messaging. Instant messaging, text messages, and MMS. Media
Player, which enables the management, import and playback of media files – but this version lacked bluetooth support for video and stereo. [37] [38] Notifications for setting ringtone, LED, or vibration alerts. [36] [37] [40] Voice dialing allows calls and calls without entering a name or
number. [37] The background allows the user to set the background image or image behind the home screen icons and widgets. YouTube video player. [41] Other programs include: Alarm clock, Calculator, Dialing (phone), Home screen (Home device), Photos (Gallery), and Settings. Wi-Fi and Bluetooth support.
Android 1.1 (API 2) February 9, 2009, the Android 1.1 update was released, first only for HTC Dream. Android 1.1 was known as Petit internally, although this name was not used officially. [9] [42] The update resolved errors, changed the Android API, and added a number of features: [43] Version Release Date Features
1.1 February 9, 2009 Details and reviews available when a user searches for businesses on Maps. Longer screen timeouts by default when using the speakerphone, plus the ability to show/hide the numeric keypad. Ability to save attachments to messages. Support added for selection in system setup. Android 1.5
Cupcake (API 3) April 27, 2009, android 1.5 update was released, based on Linux kernel 2.6.27. [44] [44] This was the first release that officially used a code name based on a dessert element (Cupcake), a theme used for all releases to Android Pie, with Android 10 using a number-only system. The update included
several new features and user interface changes: [46] Version Release Date Features Image(s) April 1, 27, 2009 [44] Support for third-party virtual keyboards with text prediction and a custom word user dictionary. Support for widgets – miniature application views that can be built into other applications (such as the Home
screen) and receive periodic updates. [47] Video recording and playback in MPEG-4 and 3GP formats. Automatic pairing and stereo support for Bluetooth (A2DP and AVRCP profiles). Copy and paste features into your browser. User images displayed for Favorites in Contacts. Specific date/time stamp displayed for
events in the call log, and one-tap access to a contact card from a call log event. Animated screen transitions. Automatic rotation option. New inventory start-up animation. Ability to upload videos to YouTube. Ability to upload photos to Picasa. Ability to check your phone usage history. [48] Android 1.5 Home Screen
Android 1.6 Donut (API 4) September 15, 2009, Android 1.6 - called Donut - was released, based on Linux kernel 2.6.29. [49] Version Release date Features Image(s) 1.6 September 15, 2009[50] Voice and text text search entry improved to include bookmark
history, contacts and the internet. Ability for developers to include the content of search results. Multilingual speech synthesis engine to allow any Android application to speak a text string. Easier searching and the ability to see app screenshots in Android Market. Gallery, camera and camcorder more fully integrated,
with faster camera access. Option for users to select multiple images for deletion. Updated technology support for CDMA/EVDO, 802.1x, VPNs and a text-to-speech engine. Support for WVGA screen resolutions. Speed improvements in search and camera applications. Extended gesture framework and a new
GestureBuilder development tool. Android 1.6 Home Screen Android 2.0 (API 5) On October 26, 2009, the Android 2.0 SDK was released, based on Linux kernel 2.6.29 and codenamed Eclair. [52] Changes include those listed below. [53] [53] Release Date Features Image(s) October 26, 2009 Extended Account Sync,
allowing users to add multiple accounts to a device for syncing an email and contacts. Microsoft Exchange email support, with a combined inbox to browse an email from multiple accounts on one page. Bluetooth 2.1 support. Ability to tap a contact photo and choose to call, SMS or send an email to the person. Ability to
search all saved SMS and MMS messages, with the additional ability to delete the oldest messages in a conversation automatically deleted when a defined limit is reached. Many new camera features, including flash support, digital zoom, scene mode, white balance, color effect, and macro focus. Improved typing speed
on a virtual keyboard, with a smarter dictionary that learns from word usage and includes contact names as suggestions. Updated browser interface with bookmark thumbnails, double-tap zoom, and HTML5 support. The calendar agenda looks improved, shows the status of each invite, and the ability to invite new guests
to events. Optimized hardware speed and renewed user interface. Support for multiple screen sizes and resolutions, with better contrast ratios. Improved to track multi-touch events. [54] Addition of live wallpapers so that the animation of wallpapers on the Start screen
can show movement. [55] Android 2.0 Home Screen Android 2.0.1 Eclair (API 6) Version Release Date Features Image(s) 2.0.1 3.1.12.2009[56] Minor API changes, bug fixes, and framework behavior changes to API
and bug fixes. Android 2.1 Home Screen Android 2.2 Froyo (API 8) May 20, 2010, SDK for Android 2.2 (Froyo, Frozen Yogurt Card) was released on Linux kernel 2.6.32. [58] Version Release date Features Image(s) 2.2 May 2010 Speed, memory and performance optimizations. [59] Additional program speed
improvements implemented through JIT compilation. [60] Integration of Chrome's V8 JavaScript engine into the browser applications. Improved Microsoft Exchange support, including security policies, automatic detection,
GAL lookups, calendar synchronization, and remote deletion. [61] Improved application starter with shortcuts to phone and browser applications. USB tethering and Wi-Fi hotspot functionality[62] Ability to disable data access over a cellular network. Updated market application with batch and automatic update features.
[59] Fast switching between multiple keyboard languages and their dictionaries. Support for Bluetooth-enabled car and desktop docks. Support for numeric passwords. File upload field support reader program. [63] The browser now displays all images of animated GIFs instead of just just first frame
only. Support for installing applications to expandable memory. Adobe Flash support, [64] Support for high PPI displays (up to 320 dpi), such as four-inch 720p displays. [65] Gallery allows users to view image stacks using a zoom gesture. Android 2.2 home screen January 2.2,1 January 18, 2011 Bug fixes, security
updates, and performance improvements. January 22, 2011 Minor bug fixes, including SMS routing issues that affected the Nexus One. November 2011[67] Two security updates. Android 2.3 Gingerbread (API 9) 6. On December 26, 2010, the Android 2.3 (Gingerbread) SDK was released, based on linux kernel 2.6.35.
[68] [69] Changes included:[68] Version Release Date Features Image(s) 2.3 06.12.2010[69] Updated user interface design with increased simplicity and speed. Support for SIP VoIP internet phones. Faster and more intuitive typing on a
virtual keyboard, with improved accuracy, better suggested text and voice input mode. Improved copy/paste functionality, so users can select a word by tapping, copying, and pasting. Support for Near Field Communication (NFC) so that the user can read an NFC code embedded in a poster, sticker, or ad. New sound
effects such as reverb, smoothing, headphone virtualization and bass boost. New Download Manager, which gives users easy access to a file downloaded from the browser, email or other application. Support for multiple cameras on the device, including a front camera, if available. Support for WebM/VP8 video playback
and AAC audio encoding. Improved power management with a more active role in managing applications that keep your device awake for too long. Improved support for native code development. Switched from YAFFS to ext4 on newer devices. [70] [71] Improvements to audio, graphic and input for game developers. At
the same time garbage collection for increased performance. Built-in support for multiple sensors (such as gyroscopes and barometers). First Android version with an Easter egg. There was a picture of Bugdroid standing next to a zombie gingerbread man, with many more zombies in the background. Android 2.3 Home
Screen December 2.3.1 December 2.10 Improvements and fixes for Nexus S. 2.3.2 January 2011 Improvements and fixes for Nexus S. Android 2.3.3 Gingerbread (API 10) Version Release Date Features Image(s) February 2, 2011 More improvements and API fixes. [72] April 2, 2011[72] Support for voice or video chat
using Google Talk. [74] Support for open accessory libraries. Open Accessory was introduced in 3.1 (Honeycomb), but the Open Accessory Library provides 2.3.4 additional support when connecting a USB peripheral application with compatible software and a compatible application on your device. [75] Switched default
SSL encryption from AES256-SHA RC4-MD5. [76] [77] Fixed a spontaneous reboot of the Samsung Galaxy S Plus. 2.3.5 July 25, 2011 Improved network performance for Nexus S 4G, among other fixes and improvements. Fixed a Bluetooth error on Samsung Galaxy S. Fixed a Wi-Fi crash on Samsung Galaxy S Plus.
Improved Gmail application. Shadow animations for list scrolling. Improvements to camera software. [78] Improved battery efficiency. 2.3.6 September 21, 2011 Google Wallet support for Nexus S 4G. Android 3.0 Honeycomb (API 11) February 22, 2011, Android
3.0 (Honeycomb) SDK - the first tablet-only Android update - was released, based on Linux kernel 2.6.36. [82] [83] [84] [85] The first device with this version, the Motorola Xoom tablet, was released on 24. [86] The update features included: [82] Version Release Date Features Image(s) 3.0 February 22, 2011 [84]
Optimized tablet support with a new holographic user interface (removed again the following year with version 4.2). [87] New Easter egg, an image of a Tron-themed hops. Added system bar, with quick access to notifications, status and soft navigation buttons, available at the bottom of the screen. Added the action bar,
which provides access to contextual options, navigation, widgets, or other types of content at the top of the screen. Simplified multitasking — tapping Recent programs in the system bar, users can see snapshots of the tasks that are underway and quickly jump from one application to another. Redesigned the keyboard,
making typing fast, efficient and accurate on larger screen sizes Simplified, more intuitive copying/paste interface. Multiple browser tabs replace browser 
and other camera features. Ability to view albums and other collections in full-screen mode in Gallery, with easy access to thumbnails for other photos. New two-pane user interface and Quick Scroll to let users easily organize and find contacts. New email user interface in two panes to make viewing and organizing
messages more efficient, allowing users to select one or more messages. Hardware acceleration. Support for multi-core processors. Ability to encrypt all user data. The HTTPS stack is enhanced with Server Name Indication (SNI). File system in Userspace (FUSE, kernel module). Prohibits applications from having to
write access to secondary storage (memory cards on devices with internal primary storage) outside of designated, application-specific directories. Full access to primary internal storage is still allowed through a separate application-level permission. [88] [89] Android 3.0 Home Screen Android 3.1 Honevcomb (API 12)
Version Release Date Picture(s) 3.1 1. 1. usb on-the-go accessories. Expanded list of recent applications. Resize widgets on the Home screen. Support for joysticks and gamepads. Flac audio playback support. [91] [92] High-performance Wi-Fi lock and maintains
high-performance Wi-Fi connections when the device screen is turned off. HTTP proxy support for each connected Wi-Fi access point. Android 3.2 Honeycomb (API 13) Version Release date Features Image(s) 3.2 July 15, 2011[93] Improved hardware support, including optimizations for a wider range of tablets.
Increased ability for applications to access files on the SD card, such as for synchronization. Compatibility View mode for applications. New screen support features, giving developers more control over screen appearance on different Android devices. September 20,
2011 Bug fixes and minor security, stability and Wi-Fi improvements. Update to Android Market with automatic updates and easier to read terms and conditions text. Update to Google Books. Improved Adobe Flash support in the browser. Improved Chinese handwriting prediction. 3.2.2. Motorola Xoom 4G. 3.2.3 August
30. 2011[94][93][93] Bug fixes and other minor improvements for Motorola Xoom and Mo
data connection issues when they come out of airplane mode on US 4G Motorola Xoom. The Android 4.0 Ice Cream Sandwich), based on the Linux kernel 3.0.1,[95] was announced on 19. [96] Google's Gabe Cohen stated that Android 4.0 was theoretically
compatible with any Android 2.3.x device in production at the time. [97] The source code for Android 4.0 became available on 14. [98] Ice Cream Sandwich was the latest version to officially support Adobe Systems' Flash player. [99] The update introduced a number of new features: [100][101][102] Version Release Date
Features Picture(s) October 4, 2011[100] Major improvements to the Holo interface with the new Roboto font family. Soft buttons from Android 3.x are now available for use on phones. Separation of widgets in a new tab, listed in the same way as applications. Easier to create folders, with a drag-and-drop style. Improved
visual voicemail with the ability to speed up or reduce voice mail messages. To pinch to zoom in the calendar function. Integrated screen recording (achieved by holding down the power and volume down buttons). Improved keyboard bug fix. Ability to access applications directly from Improved copying and pasting Better
voice integration and continuous voice-to-text dictation in real time. Face Unlock, a feature that allows users to unlock phones using facial recognition software. [87] Automatically synchronizing your browser with users' Chrome bookmarks. The Data Usage section of settings that let users set warnings when they
approach a specific usage limit, and disables data usage when the limit is exceeded. Ability to turn off apps from the list of recent apps with a swipe. [103] Improved camera application with zero shutter delay, time lapse settings, panorama mode, and the ability to zoom during recording. Built-in photo editor. New gallery
layout, organized by location and person. Updated People program with social network integration, status updates and high-resolution images. Android Beam, a near-field communication feature that allows fast short-distance exchange of web bookmarks, contact information, directions, YouTube videos and other data.
[87] Support for the WebP image format. [91] Hardware acceleration of the user interface. [104] Wi-Fi Direct. [105] 1080p video recording for making Android devices. Android VPN Framework (AVF) and TUN (but not TAP) kernel module. Before 4.0, VPN software required a rooted Android device. Android 4.0 home
screen October 4.0.1 October 21, 2011 Fixed minor errors for Samsung Galaxy Nexus, the US launch that was later delayed until December 2011. [b] Android 4.0.3 Ice Cream Sandwich (API 15) Version Release Date Features Image(s) 4.0.3
December 16, 2011[108] Many bug fixes and optimizations. Improvements to graphics, databases, spell checking, and Bluetooth functionality. New developer APIs, including a social power API in the Contacts provider. Improvements to the calendar provider. New camera applications improve video stabilization and
QVGA resolution. Accessibility improvements, such as improved content access for screen readers. March 2012[110] Stability improvements. Better camera performance. Smoother screen rotation. Improved phone number recognition. [111] Android 4.1 Jelly Bean (API 16) Google announced Android 4.1 (Jelly Bean) at
the Google I/O conference on 27 May 2015. Based on Linux kernel 3.0.31, Jelly Bean was a step-by-step update with the primary goal of improvement involved Project Butter, which uses touch expectation, triple caching, extended vsynce
timing and a fixed frame rate of 60 fps to create a liquid and buttery user interface. [112] Android 4.1 Jelly Bean was released to the Android Open Source Project on September 9, 2015. Version Release Date Features Image(s) July 4, 2012 Smoother user interface: Vsync timing across all drawing and animation made
by including application rendering, touch events, screen composition, and screen refresh. Triple caching in the graphics assembly band, CPU input increase. Sync touch to vsync timing, Improved accessibility, Two-way text and other language support, Keyboard maps that can be installed for users, Extensible
notifications. Ability to turn off notifications on a program-specific basis. Shortcuts and widgets can be automatically rearranged or changed to fit new items on your Start screens. Bluetooth data transfer for Android Beam. Tablets with smaller screens now use an extended version of the interface layout and home screen
used by phones. [114] Improved camera application. Multi-channel audio. [112] Fraunhofer FDK AAC codec becomes standard in Android, adding AAC 5.1 channel encoding/decoding. usb audio (for external audio DACs). [112] Sound chain (also known as gapless playback). [112] [115] [116] Ability for other launchers to
add widgets from the application tray without requiring root access. Android 4.1 Home Screen 4.1.1 July 11, 2012[117] Fixed an error on nexus 7 about inability to change screen orientation in all applications. 4.1.2 October 9, 2012[118] Support for lock/home screen rotation. [119] One-finger gestures to show/hide
notifications. [120] Bug fixes and performance improvements. Android 4.2 Jelly Bean (API 17) Google was expected to announce Jelly Bean 4.2 at an event in New York City on October 29, 2012, but the event was canceled due to Hurricane Sandy. [121] Instead of planning the live event, Google announced the new
version with a press release, under the slogan A new taste of Jelly Bean. Jelly Bean 4.2 was based on Linux kernel 3.4.0, and debuted on Google's Nexus 4 and Nexus 10, which were released on 13. [122] [123] Version Release Date Features 4.2 November 13, 2012[124] Lock screen enhancements, including widget
support (removed again in 2014) [87] and the ability to swipe directly to the camera. [125] Notification stream controls (Quick Settings). Daydream screensavers, which display information when idle or docked (later renamed to screensaver after the launch of the unrelated Google Daydream VR platform in 2016). [87]
Multiple user accounts (tablet only). Rewritten Bluetooth stack, switch from Bluez to Broadcom open source BlueDroid, [126] allowing enhanced multi-monitor and wireless display (Miracast) support. Originally right to left, always on VPN and application verification. [127] A new NFC stack was added at the same time.
[126] Accessibility enhancements: triple tap to enlarge the entire screen, pan and zoom with two fingers. Voice output and motion mode navigation for blind users. New watch program with built-in world clock, stop clock and timer. All devices now use the same interface layout, previously customized from phones on 4.1
for tablets tablets centered software buttons, the system bar at the top of the screen, and a home screen with a docking station and centered applications and action alerts for multiple applications, allowing users to respond to certain
notifications in the notification bar and without starting the application directly. SELinux support. Premium SMS verification. [128] Support for group messages. 4.2.1 November 27, 2012[129] Fixed an error in the People program where December was not displayed on the date picker when you add an event to a contact.
[130] Added Bluetooth game pads and joysticks as supported HIDs (human interface devices). 4.2.2 February 11, 2013[131] Fixed Bluetooth audio streaming bugs. [132] Long press the Wi-Fi and Bluetooth icons in Quick Settings, and now turn the power state on/off. New download notifications, which now show the
percentage and estimated remaining time for active application downloads. New sounds for wireless charging and low battery. New gallery application animation makes it faster to load. USB troubleshoot whitelist. Bug fixes and performance improvements. Android 4.3 Jelly Bean (API 18) Google released Jelly Bean 4.3
under the slogan An Even Sweeter Jelly Bean on July 24, 2013, during an event in San Francisco called Breakfast with Sundar Pichai. Most Nexus devices received the update was the first device to officially shipped with it. [133] A minor bug fix update was
released on 22. [134] Version Release date Features 4.3 July 24, 2013[135] Bluetooth low energy support. [136] Improving file
system performance by running the fstrim command while a device is inactive. [137] The dialing plate is automatically completed in the telephone application. [136] Incoming call volume (ringtone) and notification notifications can no longer be adjusted separately. Improvements to Photo Sphere. [138] Reused camera
interface, previously introduced on Google Play edition phones. [139] Addition of App Ops, a fine-grained application permissions control system (hidden by default. support for 4K resolution. [141] Many security updates, performance improvements, and bug fixes. [142] System-level
support for geofencing and Wi-Fi scanning apis. The background Wi-Fi location is still running even when Wi-Fi is turned off. Developer logging and analysis of improvements. Added support for five more languages. Changed digital rights management (DRM) APIs. Right-to-left (RTL) languages are now supported. [136]
The clock in the status bar disappears if it is selected as a lock screen widget. Built-in emoji support. October 2013[144] Bug fixes and small tweaks 7 LTE. [145] Android 4.4 KitKat (API 19) Google announced Android 4.4 KitKat on March 3, 2015. Although the name was first under the code name Key Lime Pie (KLP),
the name was changed because very few people actually know the taste of a key lime pie. [146] Some technology bloggers also expected the Key Lime Pie release to be Android 5. [147] KitKat debuted on Google's Nexus 5 on 31 March 2015. [148] The required minimum amount of RAM available for Android is 340 MB.
and all devices with less than 512 MB of RAM must report themselves as low RAM devices. [149] Version Release Date Features Image(s) 4.4 October 31, 2013[150][151] Updated interface with white elements instead of blue. The watch no longer shows bold hours; all digits are thin. The H, M, and S markings for the
stopwatch and timer have been removed, leaving only the numbers. Possibility of applications to trigger translucentness in the navigation and status bars hidden while the user interacts. [153] Action Overflow menu buttons are always
visible, even on devices with a Menu key, which were officially deprecated by Android 4.0. [154] Write access disabled for user-installed applications on external storage (that will want MicroSD), except for separate android/data directories. [155] [156] Purge of app data directories in user storage (internal user storage and
MicroSD) when uninstalling[156] Optimizations for performance on lower-specifications devices, including zRAM support and low RAM device API. [148] Wireless print function. [148] WFC host card emulation so that a device can replace smart cards. [148] WebViews is now based on the Chromium engine (feature parity
with Chrome for Android 30). Enhanced functionality for notification audio services. [148] Public API for developing and managing text message clients. [157] Storage Access Framework, an API that allows apps to retrieve files consistently. As part of the framework, a new system file allows users to access files from
various sources (including those displayed by apps, such as online storage services). [88] New ui transition framework. Sensor parting, step detector and counter-APIs. [148] The settings program now allows you to select the default text messages and home (launcher) application. Sound tunnels, sound monitoring and
sound amplification. [158] Built-in screen recording function (primarily for developers, as use of ADB is required). [159] Original Infrared Blaster API. Verified startup. Enforce SELinux. Extended apIs for system-level accessibility and settings. Android (ART) introduced as a new experimental application runtime
environment, not enabled by default, as a replacement for dalvik virtual machine. [160] Bluetooth Message Access to battery statistics by third-party applications. [162] The settings program no longer uses a multi-router setup on larger-screen devices. Wi-Fi and mobile data
activity indicators (TX/RX) move to quick settings. [163] Disables text wrapping in the WebView browser component. [164] Android 4.4 home screen 4.4.1. The camera application now loads Google+ Photos instead of Gallery when you swipe away from the camera view. Various improvements and bug fixes. 4.4.2
December 9, 2013[166] Additional security improvements and bug fixes. Removal of the App Ops control system, introduced in Android 4.3 June 2014[168] Updated the chrome-based WebView to version 33 (screencasting to DevTools, HTML5 canvas acceleration
performance improvements, vibration API, HTML5 form validation, and an HTML5 data list). [170] Various improvements and bug fixes. 4.4.4. June 2014[171] CVE-2014-0224 fixed, eliminating an OpenSSL vulnerability. [172] Android 4.4W KitKat, with portable extensions (API 20) 24. Version Release Date Features
4.4W[173] June 25, 2014[174] First release of the Android Wear platform for smartwatches; the same as Android 4.4 KitKat, but with portable extensions added, 4.4W.1 September 6, 2014[175] UI updates for Google Maps navigation and alarms, 4.4W.2 October 21, 2014[176] Offline music playback, aps support,
Android 5.0 Lollipop (API 21) Android 5.0 Lollipop was unveiled under the codename Android L on June 25, 2014, under Google I/O. It became available as an official over-the-air (OTA) update on November 12, 2014, for select devices running distributions of Android operated by Google, including Nexus and Google
Play edition devices. The source code was made available on November 3, 2014. [177] [178] Lollipop has a redesigned user interface built around a responsive design. Other changes include improvements to the notifications, which can be accessed from the lock screen and
displayed in applications such as top-of-the-screen banners. Furthermore, Google made internal changes to the platform, with the Android Runtime (ART) officially replacing Dalvik for improved application performance, and with changes intended to improve and optimize battery usage, known internally as Project Volta.
[179] [180] [181] [182] Version Release date Features Picture(s) 5.0[183] 12. Runtime (ART) with pregeneration (AOT) and improved garbage collection with track-based just-in-time (JIT) compilation. [183] [185] Support for 64-bit CPUs. OpenGL ES 3.1 and
Android Extension Pack (AEP) on supported GPU configurations. Recent activities screen with tasks instead of application. Vector retractable, which scales without losing definition. Support for previews. Material design, providing a remodeled user interface and ripple
effect for buttons. Updated lock screen, which no longer supports widgets, [186] Updated notification tray and guick settings for faster access to specific settings, The lock screen contains shortcuts to application
and notification settings. [187] Guest logins and multiple user accounts are available on multiple devices, such as phones. [188] Audio input and output via USB devices and modify data located anywhere on external storage, such as on SD cards. However, they must be
customized to the storage access framework at Android API level 21 or higher. [189] [190] Attaching the application's screen for limited user activity. [187] Recently used applications are remembered even after the device restarts. [187] WebViews receives updates independently via Google Play for security reasons,
instead of relying on provider updates for the entire system. [191] In addition to 15 new languages: Basque, Bengali, Burmese, Chinese (Hong Kong), Galician, Malayalam, Marathi, Nepalese, Sinhala, Tamil and Telugu. [192] Tap and go allows users to quickly migrate to a new
Android device using NFC and Bluetooth to transfer Google account details, configuration settings, user data, and installed applications. [187] A flashlight-style application is included and works on supported devices with a camera flash. [187] Customizable priorities for application notifications. [193] Smart locking
function. [194] SELinux in enforcing mode for all domains. Updated emoji. [195] Improved accessibility support (e.g. switch access support). [196] Block-based over-the-air (OTA) updates for new devices. [197] Access to task entry disabled for third-party applications[edit] Android 5.0 Home screen 5.0.1 2. 5.0.2
December 19, 2014[199] Resolves an error with TRIM support (introduced in version 4.3), which prevented devices from running file system allocation cleanup if the device was turned off at midnight, or if it was charged only when it was in use. [200] Changes how alarms wake up the CPU and how alarms compete
Resources. [201] Android 5.1 Lollipop (API 22) Version Release date Features Image(s) 5.1 9. Ability to connect to Wi-Fi networks and control paired Bluetooth devices from express settings. Official support for multiple SIM cards. [203] Device Protection: If a device is lost or stolen, it remains locked until the owner signs
in to their Google Account, even if the device resets to factory settings. HD voice calls, available between compatible 4G LTE devices running Android 5.1. [203] Improvements to the notification priority system to replicate silent mode that was removed from Android 5.0 more closely. April 2015[205] Various bug fixes[205]
Support for Wi-Fi calls. [206] Android 6.0 Marshmallow (API 23) Android 6.0 Marshmallow was unveiled under the codename Android M under Google I/O on May 28, 2015, for Nexus 5 and Nexus 9 tablet and Nexus Player set-top box, under the construction number MPZ44Q. [207] The third developed
tray. [213] Search bar and favorites for the program. Native fingerprint reader support. Direct Share feature for goal-specific sharing between apps. [214] Renamed priority mode to Do Not Disturb mode. App Linking for faster instinctive opening of links with corresponding applications. [215] [216] Larger multi-page
application folders. Permission requests after installation/runtime, usb-c support. Demo mode feature for using screen recording. [217] Automatic full backing up and restoring data for apps. [218] 4K display mode for apps. [219] Usable external storage should behave like internal storage. [220] (However, this causes
more actual problems than the hypotheticals it was probably designed to solve.) [221] MIDI support for musical instruments. [222] Experimental function with multiple windows. [223] [224] Support for actions from third-party apps in the text selection menu. [87] App permissions are now granted individually at runtime, not
all or nothing during installation time. Similar to App Ops. [225] Miracast support fell. [87] Many new important commands supported by Android's Linux shell (/bin/sh). No screen rotation during touch. Android 6.0 home screen 6.0.1 December 7, 2015[226] Unicode 7.0 and 8.0 emoji support. [227] Descriptions for USB
connection options. Double-tap the power button to open the camera. Android 7.0 Nougat (API 24) Nougat (codename N in Development) is the great 7.0 release of the Android operating system. It was first released as a developer preview on March 9, 2016, with factory images for current Nexus devices, as well as with
the new Android Beta Program that allows supported devices to be upgraded directly to Android Nougat beta via an over-the-air update. The final preview version was released on April 18, 2016. Version Release Date Features Image(s) August 7, 22, 2016 Support for file-based
encryption, [229] Unicode 9.0 emoji and skin tone modifier support (and expose a subset of ICU4J APIs), [230] Ability to goom in on the screen. The ability to switch to the last opened app by double-tapping the overview button. Added an emergency information section, Added the Delete
All button to the Overview screen. Another system partition, which is updated when not in use, provides seamless system updates. Daydream virtual reality platform (VR interface). Improved Doze functionality, which aims to extend battery life. Improvements to the file browser. More quick settings options. Support for
multiple windows, which supports floating apps on a desktop layout. New data saver mode, which can force apps to reduce bandwidth usage. New JIT Compiler, making for 75 percent faster app installs and a 50 percent reduction in compiled code size. Just in Time (JIT) compiler with code profiling to ART, which allows it
to continuously improve the performance of Android apps while running. [231] Picture-in-picture support for Android TV. Redesigned notification screen, with instant access to certain settings. New Overview screen. Replaced notification cards with notification sheets. Settings app navigation tray. Volcano 3D Rendering
API. Additional device locale[232] Termination of Android Camera V1 API[233] Restricted file system access[edit] Android 7.0 home screen Android 7.1 Nougat (API 25) 19. A new preview was available on November 5, 2016, before the final release was released to the public on November 5, 2016. Version Release
Date Features Image(s) 7.1 October 4, 2016[234] Rearranged alert shadow. Touch/monitor performance improvements. Pull (Fingerprint swipe down motion – opt-in). Sign up with new hardware required: Seamless A/B system updates. Daydream VR mode. Developer features: Shortcut Manager APIs. Support for
circular app icons. Inserting keyboard image. Fingerprint sensor movement to open/close the warning shadow. Manual storage management Purpose for apps. Improved VR wire planning. Enhanced background metadata. Support for multi-end conversation. Support for various MNO requirements. PCDMA Speech
Privacy Support for visual voicemail source type. Config options for the operator for managing phone videos. Manual storage manager — identifies files and apps using storage manager — identifies files and apps using storage. Android 7.1 home screen 7.1.1[235] December 5, 2016 New set of emojis that add different skin tones and haircuts to existing ones. Send GIF
files directly from the default keyboard. App shortcuts: Start actions on apps by long tapping the app icon. Developer Options: View cpu usage feature removed. 7.1.2[236][237] April 4, 2017 Battery usage alerts. Android 8.0 Oreo (API 26) Android Oreo is the 8th Android Oreo. It was first released as a developer preview
on March 21, 2017, with factory images for current Nexus and Pixel devices. The final developer preview was released on April 24, 2015. Version Release Date Features Image(s) 8.0[238] August 21, 2017 Project Treble, the biggest change in the foundation of Android to date: a modular architecture that makes it easier
and faster for hardware manufacturers to deliver Android updates. Image support in the image. Support for Unicode 10.0 emoji (5.0) and replacement of all blob-shaped emojis of round with gradients and outlines. Redesigned quick settings and settings with a white background and black font colors and accent,
respectively. Restructured settings by regrouping sections into similar records. Adaptive icons Notification enhancements. Notification enhancements. Notification dots (marks). Alert snoozing. Alert snoozing. Alert snoozing. Alert snoozing. Alert snoozing. Alert snoozing.
Qualcomm's aptX and aptX HD codecs. [239] App-specific unknown sources. Multi-monitor support. 2x faster startup time compared to Nougat according to Google, testing on their Pixel devices. [238] Apps background drive and location limits. Google Play Protect. Downloadable fonts. Integrated print support. Color
management (deep color and wide color gamut). Wi-Fi assistant. Android 8.0 home screen Android 8.1.0 Oreo (API 27) Android Oreo is the 8th android screen. It was first released as a developer preview on October 25, 2017, with factory images for current Nexus and Pixel devices. November 27, 2017, for Nexus and
Pixel devices, before the stable version was released on December 5, 2017 Version Release Date Features Image(s) 8.1.0[240][241] December 5, 2017[242][243] Neural networks API. Bluetooth battery level for connected devices, available in Quick Settings. Android Oreo
Go Edition, an easy distribution of Android that runs better than regular Android on devices with less than 1 GB of RAM. [244] Updates to the autofill framework. Programmatic actions for safe browsing. Navigation buttons are weak not in use. Visual changes to Power Off and Restart, including a new screen and floating
toolbar. Toast messages are now white with the same existing transparency. Automatic light and dark themes. New Easter egg in the form of an official Oreo cookie photo. [245] Android 9 Pie (API 28) Android 9 Pie (API 28) Android Pie is the ninth major version of the Android operating system. It was first announced
by Google on March 7, 2018, and the first developer preview was released on June 8, 2015. The final beta of Android Pie (fifth preview, also considered a Release Candidate) was released on July 25, 2018. The first official release was
released on June 6, 2015. Version Release Date Features Image(s) August 9, 2018 New user interface for quick settings menu. [247] The dock now has a semi-transparent background. [247] Battery saver no longer displays an orange overlay on the notification
and status lines. [246] A screenshot button has been added to the power options. [247] A new Lockdown mode that disables biometric authentication when enabled. Rounded corners above the user interface. New transitions to switch between apps or in-app activities. Richer message notifications, where a full
conversation can be seen in an alert, full-scale photos, and smart responses similar to Google's new app, Reply. Support for screen cutouts. The battery percentage is now displayed in Always-On Display. Lock screen security changes include the possible return of an enhanced NFC Unlock.
Experimental features (currently hidden in a menu called Feature Flag) such as a redesigned About phone page in settings, and automatic Bluetooth activation while driving. DNS over TLS. [248] An optional select-based system interface, allowing users to navigate the operating system by using swipes more often than
the traditional user interface. Redesigned multitasking app changer with Google search bar and app drawer built-in. Android Dashboard, which tells the user to set time limits on apps. Shush, an improved version of Do Not Disturb mode enabled
by placing the phone face down, which mutes standard notifications. Adaptive Battery prediction, which makes use of Doze to hibernate user apps os determines the user will not use. The Auto Brightness feature changes the screen brightness based on user habits. With the wind down option, Android users can set a
specific bedtime that allows not to interfere and makes the entire phone's interface gray to counteract further use at night. Volcano 1.1 support. Call recording options fully disabled[249] Android 9 Home Screen Android 10 is the tenth major version of the Android operating system. android operating
system. stable version of Android 10 was released on September 3, 2019. Version Release Date Features Image(s) September 10, 2019 Scoped storage restrictions[250] New permissions required to access background location and to access image, video, and audio files. [251] Background apps can no longer jump into
the foreground. [251] Restricted access to device identifiers that cannot be reset. [251] Background access (idle) access to camera, microphone, and sensors disabled for more privacy protection with the side effect of disabling antitheft software. [252] [253] [253] [254] Sharing shortcuts, which allow sharing content with a
contact directly. [251] Panel floating settings, which allows you to change system settings directly from apps. [251] Dynamic depth format for images, which allows you to change background blur after taking an image. [251] Support for the AV1 video codec, HDR10+ video format, and Opus audio codec. [251] Support for
aptX Adaptive, LHDC, LLAC, CELT, and AAC LATM codecs[255][256] An original MIDI API, which allows interaction with music controllers. [251] Support for the WPA3 Wi-Fi security protocol. [251] Support for folding phones. [251] Support for notification bubbles.
[257] [258] New system-wide dark theme/mode[259][260] Project Mainline, allows core OS components to be updated via google play store, without requiring a complete system update[261] Android 10 home screen Android 11 (API 30) Android 11 is the eleventh main version of the Android operating system. It was first
announced by Google on February 19, 2020, and the first developer preview released on the same day. [262] [263] Android 11 Beta was postponed from being released on 3. [264] Version Release date Features Picture(s) September 11, 2020 Chat bubbles. The screen recorder. Notification history. New permission
controls. The API distinction between standalone 5G NR and non-standalone 5G. One-time permission[265] Permissions are reset automatically. [265] Android Wireless Auto on 5GHz Wi-Fi devices. [266] Increased the number of updateable core OS components in Google Play from 6 to 12. [265] Enterprise work profile
privacy protection now applies to business-owned devices. [267] Android 11 Home Screen Hardware Requirements See also: Android (operating system) § Hardware platform for Android is the ARM architecture (ARMv7 and ARMv8-A architectures; previously also ARMv5), with x86[c] and MIPS[d]
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architectures are also officially supported in later versions of Android, but MIPS support has since been written off and support was removed in NDK r17. [270] Unofficial Android x86 project used to support the x86 and MIPS architectures ahead of began to appear, including and tablet. While getting support for 64-bit platforms, Android was first created run on 64-bit x86 and then on ARM64. [274] [275] Since Android 5.0 Lollipop, 64-bit variants are supported by all platforms in addition to 32-7.1 depend on screen size and density and cpu type, from 816 MB—1.8 GB for 64-bit and 512MB-1.3 GB for 32-bit meaning in practice 1 GB for the most common type of display (while the minimum Android watch is 416 MB). [276] The recommendation of the processor of the processo	bit variants. The minimum RAM requirements for devices running Android dation for Android 4.4 is to have at least 512 MB of RAM,[277] while for low
compliant graphics processing device (GPU). [278] Android supports OpenGL ES 1.1, 2.0, 3.0, 3.2, and since Android 7.0 Vulkan (and version 1.1 available for some devices[279]). Some applications may explicitly require a specific version of Ope [278] Android used to require an autofocus camera, which was relaxed to a fixed-focus camera. [280] See also Computer programming portal iOS version history Tizen § History Wear OS - originally called Android Wear Notes ^ 2.3.6 update had to Canadian Nexus S phones. Google acknowledged this issue and resolved it at the end of September. [80] [81] ^ For Canadian consumers, 4.0.2 reportedly created a bug on the Galaxy Nexus that crashed the application market when users tried to NFC features of the Nexus phone. [106] [107] ^ The lowest supported x86 generation is the P6 microarchitecture, also called i686. [168] ^ Supported is revision 1 of MIPS32[269] and revision 6 for 64-bit MIPS64[268] References ^ Elgin, Ben (August 1.2) **Computer of the Nexus phone in the Camera o	nGL ES, and suitable GPU hardware is required to run such applications. he side effect of weakening the Wi-Fi hotspot functionality of many o view details of an Android application. It also accidentally reduced the
Bloomberg Businessweek. Bloomberg. Archived from the original on 24 February 2010. Retrieved 2022-02-2012. ^ Dianne Hackborn (in Norwegian). Google+. 1, 2012, in New Year's Day. Archived from the original on 12 February 2010. Retrieved 5 September 2010. ^ Google launches Android, an open mobile platform. Google operating system. November 5, 2007. Archived from the original on 30 October 2011. ^ Live Google's gPhone Open handse from the original on 7 February 2010. Retrieved 8 July 2010. ^ Google launches android SDK. Macworld. November 12, 2007. Archived from the original on 22 February 2010. Retrieved 8 October 2010. Android developers. Archived from the original on 20 February 2010.	8 July 2010. ^ Dan Morrill. Google+. January 2, 2013. Archived from the alliance conference (transcript). Gizmodo. November 5, 2007. Archived nal on 3 February 2010. Retrieved 7 July 2010. ^ Android's history: Android
1.0 – introduces Google Apps and actual hardware. Ars Technica. 16, 2014, in New York City. Archived from the original on 10 February 2010. A history of Pre-Cupcake Android Codenames. Android police. 17, 2012. Archived from the original on Android's brand. Google. 22 August 2019. ^ Cunningham, Edward (December 19, 2017). Improve app security and performance on Google Play for years to come. Android Developers Blog. Retrieved 30 June 2020. ^ Upload an app. Play Console 2019). In 2019, target API level requirements were expanded. Android Developers Blog. Retrieved 30 June 2020. ^ Android 1.1 Version Notes. Android developers. Google. December 2019. ^ Android 1.5 Platform Highlights. Android. Archived from the original on 14 February 2010. ^ Android – History. Android. Archived from the original on 14 February 2010. ^ Android – History. Android. Archived from the original on 14 February 2010. ^ Android – History. Android. Archived from the original on 14 February 2010. ^ Android – History. Android. Archived from the original on 14 February 2010. ^ Android – History. Android. Archived from the original on 14 February 2010. ^ Android – History. Android. Archived from the original on 14 February 2010. ^ Android – History. Android. Archived from the original on 14 February 2010. ^ Android – History. Android. Archived from the original on 14 February 2010. ^ Android – History. Android. Archived from the original on 14 February 2010. ^ Android – History.	Help. Retrieved 30 June 2020. ^ Cunningham, Edward (February 21, etrieved 28 June 2020. ^ Android – History. Android. Archived from the 4 February 2010. ^ Android – History. Android. Archived from the original
on 14 February 2010. ^ Android – History. Android. Archived from the original on 14 February 2010. ^ Android – History. Android. Archived from the original on 14 February 2010. ^ Android – History. Android. Archived from the original on 14 February 2010. ^ Android – History. Android. Archived from the original on 14 February 2010. ^ Android – Nougat (in Norwegian). Android. Archived from the original on 22 February 2010. ^ What is API level?. Android developers. December 2019. ^ Android – 8.0 Oreo. Android. December 2019. ^ Android 9 Pie. Android. ^ Android 10. Android. ^ Cuthber 2019. ^ Android Developers Blog. Retrieved 6 March 2010. ^ Morrill, Dan (September 23, 2008). Announcement of Android 1.0 SDK, version 1. Android Developers Blog. Retrieved 12 January 2011. ^ T-Mobile reveals T-Mobile G1 – the first part 2010. Patrieved 15 October 2012. ^ October 2013. ^ Oc	^ Factory images for Nexus and Pixel devices – marlin for Pixel XL. ertson, Stephanie (September 8, 2020). Turn it up to 11: Android 11 for whone powered by Android. T-Mobile. Archived from the original on 16
February 2010. Retrieved 15 October 2013. ^ a b Topolsky, Joshua (October 16, 2008). T-Mobile G1 review, part software and packaging. Engadget. Retrieved 28 October 2010. Retrieved 7 October 2008. T-Mobile G1 (Google Android phone). Polynomial of the properties of the part of the p	Retrieved 28 March 2010. ^ Android Platform Overview. Android source. opers Blog. Archived from the original on 25 February 2010. Retrieved 3 d 3 October 2010. ^ App Widgets (in Norwegian). Android developers.
2012. Retrieved 23 March 2012. ^ Phone usage history. 101 Android. 2017. Retrieved 24 September 2017. Android developers. September 2009. Archived from the original on 30 October 2011. Retrieved 1 October 2009. ^ a b Ducrohet, Xavier (Sarchived from the original on 25 February 2010. Retrieved 1 October 2009. ^ Ryan, Paul (October 1, 2009). Google releases Android 1.6; Palm unleashes WebOS 1.2. Ars Technica. Archived from the original on 2 February 2010. Retrieved 2 October 2011. Retrieved 27 October 2009. ^ Android 2.0 API Changes. Archived from the original on 30 October 2011. Retrieved 27 October 2009. ^ Android versions of Android versions of Google was released. republicworld.com. Retrieved 11 September 2020. ^ Android 2.0.1, Version 1 SDK. Android developers. Archived from the original on 14 February 2010. Retrieved 17 January 2010. ^ Ducrohet, Xavier (May 20, 2010). In 1999, a new version of Android 2.2 was published and the developers. Android Developers Blog. Via New Yersion 2 Suprember 2011. Retrieved 1 October 2011. Retrieved 1 October 2011. Retrieved 1 October 2011. Retrieved 1 October 2012. ^ Android 2.0 API Changes. Archived from the original on 30 October 2011. Retrieved 27 October 2009. ^ Android 2.0 API Changes. Archived from the original on 30 October 2011. Retrieved 27 October 2009. ^ Android 2.0 API Changes. Archived from the original on 30 October 2011. Retrieved 27 October 2009. ^ Android 2.0 API Changes. Archived from the original on 30 October 2011. Retrieved 27 October 2012. ^ Android 2.0 API Changes. Archived from the original on 30 October 2012. ^ Android 2.0 API Changes. Archived from the original on 30 October 2012. ^ Android 2.0 API Changes. Archived from the original on 30 October 2012. ^ Android 2.0 API Changes. Archived from the original on 30 October 2012. ^ Android 2.0 API Changes. Archived from the original on 30 October 2012. ^ Android 2.0 API Changes. Archived from the original on 30 October 2012. ^ Android 2.0 API Changes. Archived from the original on 30 October 2012. ^ An	ober 2009. ^ Android 2.0, version 1. Android developers. Archived from the original on 30 October 2011. Retrieved 6 March 2010. ^ Shah, Gunjan jinal on 15 February 2010. Retrieved 17 January 2010. ^ Android 2.1,
Google I/O. Android police. Retrieved 2055-05-2010. One runs Android 2.2 Froyo. How fast is it compared to 2.1? Oh, only about 450% faster. Android police. Retrieved 13 May 2010. ^ Port (29 June 2010). Android now fully supports Exchange. h September 2010. ^ Sorrel, Charlie (May 13, 2010). In 1999, a new version of Android 2.2 Froyo was published, and in 2017 a new version of Wired was published. Retrieved 14 February 2013. ^ Browser support for the file upload field is in Froyo. Rubin on everything Android. In 1999, a new film was established in New Archived from the original on 30 June 1999. Visited May 20, 2010. ^ a b Support multiple monitors: Series of supported monitors. Android developers. Retrieved 8 July 2010. Android 2.2.2, solves SMS routing issues. Engadget. Retrieved 17 November 2011. ^ Android 2.2.3 source tag. Retrieved September 2, 2013. ^ a b Android 2.3 Platform Highlights. Android Developers Blog. December 6, 2010. Archived from the original on 30 June 1999.	arborcomputerservices.net. harborcomputerservices.net. Retrieved 11 Retrieved 13 May 2010. ^ Stone, Brad (April 27, 2010). Google's Andy . ^ Hollister, Sean (January 22, 2011). Nexus One gets little update to
Xavier (December 6, 2010). In 1999 it was published a list of the best tools to Android Developers Blog. Archived from the original on 27 February 2010. Retrieved 7 December 2010. ^ Ts'o, Theodore (December 12, 2010). Android will use ext4 states a safely. Android 2.3.3 platform. Android developers. 2011. Android 2.3.4 sour Google Mobile blog. 28, 2011. Retrieved April 18, 2013. ^ Open Accessories Library 2.3.4. Android developers. Retrieved August 3, 2012. ^ Sarkar, Abhijoy (October 14, 2013). Is it Java that impaired Android's SSL security? Muktware. Retrieved to RC4-MD5 in late 2010. October op-co.de 15, 2013. Retrieved 2 February 2010. ^ Arghire, Ionut. In 1999, a separate version of Android 2.3.5 was published in Norway. Softpedia.com. Retrieved 2010-01-11. ^ Stephen Schenck (September 2, 2010).	arting with Gingerbread. Linux Foundation. Archived from the original on 28 ce tag. Retrieved September 2, 2013. ^ Video chat on your Android phone. 2 February 2010. ^ Why Android SSL was downgraded from AES256-SHA
pocket now. Retrieved August 4, 2014. ^ Ali Waqas (September 28, 2011). Android 2.3.6 gingerbread update for Nexus S available (Wi-Fi and Tethering Fix). Addictive tips. December 20, 2011. ^ Anton D. Nagy (September 27, 2011). Google Sam original on 30 October 2011. December 20, 2011. ^ a b «Android 3.0 Platform Highlights». Android developers. Archived from the original on 16 February 2010. Retrieved 23 February 2011. ^ Rubin, Andy (January 5, 2011). In 1999, a new sneak parchived from the original on 8 February 2010. Retrieved 5 September 2010. Xavier Ducrohet (born 22 February 2011) is one of the largest and the best in 2011. Final Android 3.0 platform and updated SDK tools. Android Developers Blog. Archived Mithun Chandrasekhar (February 2, 2011). Google's analysis of Android events Anandtech. Retrieved 5 September 2010. I confirmed this with Google; Honeycomb, at least in today's form, does not come to non-tablet. ^ Nilay Patel (January 26, 20 in the confirmed this with Google) in the confirmed this with Google in the confirmed this with G	nsung Nexus S gets Android 2.3.6 Update. Pocket now. Archived from the beek was published on Android 3.0, Honeycomb. Google Mobile blog. ed from the original on 5 February 2010. Retrieved 23 February 2011.
the 2nd division. Engadget. Retrieved 5 December 2017. Android nostalgia: 13 once trumpeted features that quietly faded away. Computerworld. December 2017. A b Ho, Joshua. Examine MicroSD changes in Android 4.4. Anandtech. Retrieved Google has brought major changes to SD cards in KitKat, and even Samsung implements them. Android police. Retrieved 2009-02-20. Ducrohet, Xavier (May 10, 2011). In 1999, a new SDK platform was published for Android 3.1. Android Devel September 2010. Android developers. Retrieved 30 March 2012. Issue 1461 – Android – FLAC file support improvement request. Retrieved August 5, 2011. A b c Ducrohet, Xavier (July 15, 2011). In 1999, a list of the best tools for the android 3.2. Blog. Visited July 16, 2011. A b Supports multiple monitors: Declaring tablet setup for Android 3.2. Android developers. 2012. Retrieved 18 October 2012. Maroger (October 19, 2011). In 1999, a 100 billion Fine Oils was published. Blogspot. Retrieved 18 October 2012.	28 March 2010. ^ Cody Toombs (February 17, 2014). External Blues: opers Blog. Archived from the original on 11 February 2011. Retrieved 10 3.2 platform and updated SDK tools was published. Android Developers
factory was published in Android 4.0, and in 2017 a new factory was published in America. Social barrel. Retrieved 24 March 2010. ^ Stevens, Tim (October 19, 2011). Google confirms the Nexus S will get ice cream sandwich - for real this time (G Vincent (November 15, 2011). In 1999, a list of the top 400 billion AndroidGuys was released. Retrieved 24 March 2010. ^ Today is the last day to get flash for Android. Webpronews. 14, 2012, in New York City. Retrieved 7 October 2011. Android improvements galore. Engadget. Retrieved 19 October 2011. ^ German, Kent (October 18, 2011). Ice Cream Sandwich adds tons of new features. Cnet. Retrieved 24 March 2010. ^ Velazco, Chris (October 18, 2011). A Fast Android 4.0 Ice Sandwich adds tons of new features. September 19, 2014. ^ Kennemer, Quentyn (October 19, 2011). In 1999, a new factory was published in Android application.	4.0 Ice Cream Sandwich now official, includes renewed design, wich Feature Rundown. Technical crunch. Retrieved 24 March 2010. ^
Fi Direct. Android developers. Retrieved 27 March 2010. ^ Verizon's 4G LTE Galaxy Nexus is pictured, receives Android 4.0.2 Update. DroidLife. November 28, 2011. December 2011. ^ Within 2 hours of activation, the Galaxy Nexus will receive at Platform and updated SDK tools. Android Developers Blog. December 16, 2011. Retrieved 4 September 2010. ^ Android 4.0.3 announced, bringing various optimizations and bug fixes to phones and tablets. Engadget. December 16, 2011. December 31 March 2012. ^ Google announces 4.0.4 on Google+. 28, 2012. Retrieved 31 March 2012. ^ a b c d Android 4.1 for developers. Android developers. Retrieved 9 September 2010. ^ Queru, Jean-Baptiste. In 1999, a number of new and 4.1 uses different layouts for different tablet sizes. Computerworld. Archived from the original on 19 February 2010. ^ Issue 3461: Implement gapless playback of subsequent audio files. Retrieved 12 November 2012. ^ Android 4.0.2 uses different layouts for different tablet sizes.	ber 2011. ^ Google announces Android 4.0.4. The Inquirer. 29, 2012. roids were published in AOSP. Retrieved 12 July 2012. ^ Verified: Android oid 4.1 finally adds gapless music playback to stock music apps.
Pocketables.com June 2012. Retrieved 30 June 2012. ^ Android 4.1.1 Nexus 7 Update. July GSMArena.com 11, 2012. Retrieved 26 February 2013. ^ Android 4.1.2 is released for Nexus 7. In 1999 it was 10 9 October 2012. Retrieved 9 September 9, 2012, in New York City. Retrieved 9 September 2010. ^ New feature in Android 4.1.2: Extending /collapsing notifications with one finger (video) Android police. 9, 2012, in New York City. Retrieved 9 September 2010. ^ Monday's Google event in Retrieved 19 March 2010. ^ Android 4.2 Jelly Bean lands on Nexus 7. Know your phone. November 14, 2012. Archived from the original on 17 February 2010. Retrieved 14 November 2012. ^ Google launches Nexus 4, Nexus 10 and Android 4.2 and gestue writing, wireless TV display, more tablet support, and more. In 1999 it was 10 29 October 2012. Retrieved 29 October 2012. ^ Android 4.2 Jelly Bean brings brand new photography powers. TechRadar.com october 2012. Retrieved 12 Retrieved 12 Delta Policy	NYC cancelled due to Hurricane Sandy. Android Central. 27, 2012. 13, 2012, in New York City. Retrieved 16 November 2012. ^ Android 4.2 May 2012. ^ a b Klug, Brian (May 19, 2013). The next version of Android -
Some of the Comes. anandtech.com. Retrieved 28 March 2010. ^ Jelly Bean (in Norwegian). Android developer portal. Retrieved 2 February 2010. ^ Exclusive Android 4.2 Alpha Teardown, Part 2: SELinux, VPN lockdown and premium SMS verification of the Comes. anandtech.com. Retrieved 28 March 2010. ^ Jelly Bean (in Norwegian). Android developer portal. Retrieved 2 February 2010. ^ Exclusive Android 4.2 Alpha Teardown, Part 2: SELinux, VPN lockdown and premium SMS verification. Android 4.2 Alpha Teardown, Part 2: SELinux, VPN lockdown and premium SMS verification. Android 4.2 Alpha Teardown, Part 2: SELinux, VPN lockdown and premium SMS verification. Android 4.2 Alpha Teardown, Part 2: SELinux, VPN lockdown and premium SMS verification. Android 4.2 Alpha Teardown, Part 2: SELinux, VPN lockdown and premium SMS verification. Android 4.2 Alpha Teardown, Part 2: SELinux, VPN lockdown and premium SMS verification. Android 4.2 Alpha Teardown, Part 2: SELinux, VPN lockdown and premium SMS verification. Android 4.2 Alpha Teardown, Part 2: SELinux, VPN lockdown and premium SMS verification. Android 4.2 Alpha Teardown, Part 2: SELinux, VPN lockdown and premium SMS verification. Android 4.2 Alpha Teardown, Part 2: SELinux, VPN lockdown and premium SMS verification. Android 4.2 Alpha Teardown, Part 2: SELinux, VPN lockdown and premium SMS verification. Android 4.2 Alpha Teardown, Part 2: SELinux, VPN lockdown and premium SMS verification. Android 4.2 Alpha Teardown, Part 2: SELinux, VPN lockdown and premium SMS verification. Android 4.2 Alpha Teardown, Part 2: SELinux, VPN lockdown and premium SMS verification. Android 4.2 Alpha Teardown, Part 2: SELinux, VPN lockdown and premium SMS verification. Android 4.2 Alpha Teardown, Part 2: SELinux, VPN lockdown and premium SMS verification. Android 4.2 Alpha Teardown, Part 2: SELinux, VPN lockdown and premium SMS verification. Android 4.2 Alpha Teardown and premium SMS verification. Android 4.2 Alpha Teardown and premium SMS verification. Android 4.2 Alpha Teardown and premium SMS verif	r 2012. ^ Breaking: Android 4.2.2 (Build JDQ39) update is rolled out to ces Android 4.3, Update Rollout Today. Tom's hardware. 24, 2013. It was 10 24 July 2013. Retrieved 24 March 2010. Official Android blog.
24, 2013. Retrieved 30 July 2013. ^ Android 4.3 supports TRIM, improves the performance of Nexus devices. Engadget. 30, 2013. Retrieved 30 July 2013. ^ Another Android 4.3 Change: Photo spheres look much better now Android police. 25, 20 interface detected on a Nexus 4 at Thailand Mobile Expo. Android police. 24, 2013. Retrieved 30 July 2013. ^ App Ops: Android 4.3's Hidden App Permission Manager, Control Permissions For Individual Apps! Android police. 25, 2013. Retrieved 30 July 2013. ^ A thorough look at the large (and small) additions to Android Jelly Bean 4.3. Android police. 24, 2013. Retrieved 25 July 2013. ^ Jaymar Cabebe (July 25, 2013). Google Android 4.3.1 OTA (JLS36I). Android police. October 3, 2013. Retrieved 4 September 2010. ^ Factory image and binaries are now available for nexus 7 LTE Android 4.3.1 update (JLS36I). A (September 3, 2013). Android KitKat announced. In 1999 it was 10 Visited September 3, 2013. ^ Android 5.0 Key Lime Pie release date, news and rumors. Technical Radar. 2, 2013. Retrieved 22 November 2013. Engadget has a review of the Nexus 1 of the Nexus 1 of the Nexus 2 of the Nexus	30 July 2013. ^ Android 4.3 source code reveals support for 4K resolution. se Date, Price and Specifications - CNET. Cnet. CBS Interactive. ^ ndroid police. 8, 2013. Retrieved 9 September 2010. ^ Kelion, Leo
Definition Document (PDF) (4.4 ed.). November 27, 2013. In 1990, 100,000 people were archived from the original (PDF) on 4 April 1990. Retrieved 26 March 2010. ^ Android for everyone and the new Nexus 5. Google official blog. 31, 2013. Retrieved 1 January 2010. ^ Bonn, Dieter (October 31, 2013). Google's Nexus 5 with KitKat available today, starts at \$349: hands-on views. In 1999, 10 10 000 people were abyss ed. ^ David Ruddock (October 31, 2013). KitKat Feature Spotlight: androidpolice.com. Retrieved 3 October 2010. ^ Android menu button now on by default on all devices with KitKat. december PhoneArena.com 9, 2013. Retrieved 9 September 2010. ^ Do you have KitKat SD card blues? Fix the problem with SDF details of limitation) ^ a b External Storage Android developers. May web.archive.org, 2015. ^ Get your SMS apps ready for KitKat. Android Developers Blog. Retrieved 14 October 2013. ^ Android 4.4 provides support for low-power audio playbace.	rieved 1 January 2010. ^ Android KitKat. Android Developers Portal. Apps can now go really full screen, hiding the navigation bar. ix (root required) - Android Authority, March 18, 2014 (article contains
Jason Cipriani (November 5, 2013). How to record the screen on Android 4.4 KitKat. Cnet. CBS Interactive. Retrieved 4 September 2010. ^ Android developers: ART and Dalvik. March source.android.com, 9, 2015. Retrieved 19 March 2015. ^ Dave supports Bluetooth MAP, will make Bluetooth integration with your car suck much less. Android police. Retrieved 2 February 2010. ^ Android Issue 61975: Undo removal of access to BATTERY_STATS for apps. November 2013. Retrieved 29 January 2010. Android Issue 62378: KitKat WebView text wrapping no longer works. code.google.com. Retrieved 28 March 2010. ^ Official Nexus Google+ page (December 5, 2013). Android 4.4.2 (KOT49h) is already rolled out to all Nexus devices – here are OTA ZIP links for manual updating. Android police. December 2013. ^ Peter Eckersley (December 12, 2013). Google removes very support of the screen on Android 4.4.2 (KOT49h) is already rolled out to all Nexus devices – here are OTA ZIP links for manual updating. Android police. December 2013. ^ Peter Eckersley (December 12, 2013). Google removes very support of the screen on Android 4.4.2 (KOT49h) is already rolled out to all Nexus devices – here are OTA ZIP links for manual updating. Android police. December 2013. ^ Peter Eckersley (December 2013).	vid Ruddock (October 31, 2013). KitKat Feature Spotlight: Android finally uary 2014. ^ Android Issue 61834: 4.4 KitKat reception/Wifi indicators no 2013). Android 4.4.1 Released to Nexus 5. Google Plus. December 2013. ^
Electronic Frontier Foundation. December 2013. ^ Ron Amadeo (June 2, 2014). Google releases Android 4.4.3 to Nexus devices. Ars Technica. Retrieved 2 February 2010. ^ Kellex (June 2, 2014). Fresh New Dialer comes in Android 4.4.3. Droid laka KitKat MR2 is being rolled out - Google +. Android developers (Google+). Retrieved 4 September 2010. ^ Kellex (June 19, 2014). In 1999, an article was published in Whoa: Android 4.4.4 Factory Images Posted as Build KTU84P. Droid liv. Re out Android 4.4.4 update (KTU84P) with a security solution, factory images/binaries up for Nexus devices. androidpolice.com. Retrieved 25 October 2010. ^ Rob, Triggs. Google uploads part of the Android Wear source code to AOSP Android aut 2014, an Android Wear platform was unveiled on I/O 2014. Android authority. Retrieved 25 January 2015. ^ Michael Crider (September 6, 2014). Samsung Gear Live Updated to Android Wear 4.4W.1 Build KGW42N: Here's what's new. Android police.com.	iv. Retrieved 2009-02-22. ^ Android developers (June 3, 2014). Android trieved 19 September 2010. ^ Ryan Whitwam (June 19, 2014). Google roll chority. Retrieved 22 March 2010. ^ Andrew Grush (September 6, 2014). In
Android Wear 4.4W.2 Build KNX01Q starts rolling out for LG G Watch, bringing offline music and GPS support (although you can't use the latter). Android police. Retrieved 25 January 2015. From Android L to Google Fit: All the new products and Retrieved 26 June 2014. Updated Android Lollipop Developer Preview image will arrive at Nexus devices in a few days. October PhoneArena.com, 15, 2014. Retrieved 16 October 2014. Google's new Material Design user interface is coming to Retrieved 26 June 2014. We just played with Android's L Developer Preview. Engadget. Aol. Retrieved 26 June 2014. Android L on Google IO. Anandtech. Retrieved 26 June 2014. Android: Be Together. Not the same. Official Google blog. 15, 2014, in New York City. Retrieved 17 March 2010. Ben Cheng; Bill Buzbee (May 2010). A JIT compiler for Android's Dalvik VM (PDF). android.	Android, Chrome OS and the web. Engadget. 25, 2014, in New York City. In 1999, there were 100 billion an anandtech. Retrieved 5 October 2010.
February 2010. Retrieved 19 March 2015. ^ Exploring Android L: Lockscreen widgets also bites the dust. Pocketables.com June 2014. Retrieved 25 January 2015. ^ a b c d e Android 5.0 Lollipops new features. India Times. November 27, 2014. Dependence of phone. Android Central. 17, 2014. Retrieved 25 January 2015. ^ Cody Toombs (November 4, 2014). Android 5.0 makes SD cards great again, expands the API to allow full directory access, automatic MediaStore and improves security. Android police. Retrieved 29, 2014. ^ Lollipop stops Chromium bugs from threatening Android. Zdnet. 24, 2014, in New York City. Retrieved 28 March 2010. ^ Android - Jason Cipriani (November 3, 2014). Set up 'Priority' mode on Android 5.0 Lollipop. Cnet. December 2014. ^ Smart lock screen security options in Android 5.0 Lollipop. November 12, 2015. ^ Android 5.0 Emoji Changelog. Emojipedia. November 2014. ^ Smart lock screen security options in Android 5.0 Lollipop. November 12, 2015. ^ Android 5.0 Emoji Changelog. Emojipedia. November 2014. ^ Smart lock screen security options in Android 5.0 Lollipop. November 12, 2015. ^ Android 5.0 Emoji Changelog. Emojipedia. November 2014. ^ Smart lock screen security options in Android 5.0 Lollipop. Retrieved 29 Lo	olice. Retrieved 29 March 2010. ^ Michael Crider (November 27, 2014). 5.0 Lollipop. November Android.com 2014. Retrieved 28 November 2014. 26, 2014. Retrieved 2009-02-22. Android Central. 25, 2014, in New York
City. Retrieved 30 January 2016. ^ Block-based OTAs Android open source project. Android source. Retrieved 30 January 2016. ^ Liam Spradlin (December 2, 2014). Android 5.0.1 (LRX22C) is hitting AOSP now (Update: Factory Photos Too). A devices Google APIs for Android. Google developers. ^ Tate, Christopher (November 21, 2014). In 1999, 100,000 people were assigned to the U.S. government, and in 2017, 100,000 people were awarded the U.S. Government. Android Git repo alive at midnight + to run periodic background fstrim operations If the device runs a defined time without background fstrim, we [now] force fstrim at the next restart. When the device hits midnight + idle fstrim request time, then we already aggress means charging + device idle. ^ Stephen Schenck (December 22, 2014). What's actually new in Android 5.0.2? PocketNow.com. Retrieved 2009-06-06. ^ David Nield. 10 things you can do in Android 5.1 that you couldn't before. Field guidance. Google APIs and a start work. Android is a charge of the Android in Android 5.1 that you couldn't before. Field guidance. Google APIs and a start work. Android is a charge of the Android in Android 5.1 that you couldn't before.	sitories. December 2017. The current heuristic depends on units being ssively try to fstrim at the first available moment then'Available' here awker Media. ^ a b Google confirms that Android 5.1 is launching today,
will support multi-SIM devices and HD calls. Venturebeat. Retrieved 24 March 2010. ^ Android 5.1 reintroduces silent mode, but there is a check mark. Androidpit. Visited March 27, 2015. ^ a b Android 5.1.1 (LMY47V) officially uploaded to AOSP, available. Retrieved 1 January 2010. ^ Jennings, Jack (June 26, 2015). Google Open Source Code for Wi-Fi Calling. Xda. Retrieved 2 February 2010. ^ Google's Android M preview build will run on Nexus 5, 6, 9 and Player [Updated]. Ars Technical Developers. August 17, 2015. ^ Support and release notes Android developers. developer.android.com. Retrieved 22 March 2010. ^ Get ready for the sweet taste of Android 6.0 Marshmallow. Android developers. Android Developers. ^ Handling applenks. developer.android.com. ^ App Linking in Android 6.0 APIs – Android Developers. ^ Everything you need to know about your SD card and Usable Storage. April 7, 2017. ^ MIDI – Android Open Source Project. ^ How to unlock hidden multi-window mode in Android 6.0 Marshmallow. ^ Enable multi-	a. Condé Nast. Retrieved 28 March 2010. ^ Downloads of Android in print. ^ Android Doze (in Norwegian). ^ Android Vertical App Drawer. ^ Android Developers. ^ Android 6.0 APIs – Android Developers. ^ Android
app permissions – Android developers. Android for download. Android police. 18, 2016, in New York City. Retrieved 19 March 2010. Android 7.0 Nougat Developer Preview 5 – the final preview – is available for download. Android police. 18, 2016, in New York City. Retrieved 19 March 2010. Android 7.0 for developers – Android developers. Android open source project. Android 7.1 Nougats changelog is here, includes both Pixel-exclusive and non-Pixel exclusive	00 ^ Android 6.0.1 Emoji Changelog. Emojipedia. Retrieved 2 February r, faster, stronger. Google Security Blog. Retrieved 4 September 2010. In d N Feature Spotlight: Multiple settings for devices are now supported, so
September 2010. ^ A sweet update to Nougat: Android 7.1.1. Google blog. December 5, 2016. December 2016. ^ Google Groups (in Norwegian). productforums.google.com. Retrieved 2010-04-04. ^ Some Pixel C and Nexus Player owners get the 2009-02-22. Solon, Olivia (August 21, 2017). Oreo: Google announces the release of the next version of Android 8 Guardian. ^ How Oreo is better than Nougat: Audio. Android authority. 23, 2017, in New York City. December 2019. ^ Google blog. Android 8.1 developer preview is coming for Pixel and Nexus devices. GoAndroid. 25, 2017, in New York City. Retrieved 25 March 2010. ^ Android 8.1 Oreo goes to the final, and is now launched to Pixel and Nexus devices. Ars Technica. December version of Android 8.1 Oreo and Android Oreo was published. December 2017. ^ Android Go is here to fix super cheap phones. In 1999 it was 10 1 March 2018. ^ Android 8.1 has a spotlight: A new Oreo Easter egg. Android police. Retrieved	e official Android 7.1.2 update. Android authority. April 2, 2017. Retrieved android-developers.googleblog.com. Retrieved 25 October 2010. ^oer 5, 2017. December 2017. ^ Dave Burke (December 5, 2017). In 1999, a
everything in Android P Developer Preview 1 for Google Pixel/XL and Pixel 2/XL. XDA Developers. Retrieved 8 March 2018. In 1999, there were 100,000,000 changes to Android P. In 1999, 10 8. ^ DNS over TLS support in Android P Developer P problems ACR - Another call recorder of NLL APPS. nllapps.com. ^ Privacy changes in Android 10. Android developers. ^ a b c d e f g h i j k Burke, Dave (March 13, 2019). Introducing Android Q Beta. Android Developers Blog. Retrieved 13 March 2019 use the microphone or camera in the background. In 1999 it was 10 ^ Android P will prevent apps from using the camera or microphone without telling you (Updated). Android authority. February 21, 2018. ^ Nikolov, Mihail. Android P will prevent apps from using the camera going to sound better with LHDC TM . Porta-Fi TM . December 2019. ^ Burke, Dave (April 3, 2019). Android Q Beta 2 updated	ch 2019. ^ Welch, Chris (March 7, 2018). Android P doesn't let apps revent background apps from using the camera. Phone Arena. ^ Sound re. Android Developers Blog. Retrieved April 25, 2019. ^ Bubbles (in
Norwegian). Android developers. Retrieved April 25, 2019. ^ Dark theme. Android developers. ^ Schoon, Ben (October 10, 2019). Google Dark Mode app roundup: Everything available so far. ^ Fresher OS with projects Treble and Mainline. Android 11: the first developer preview of Android 11. Android Developers Blog. Retrieved 11 May 2020. ^ Fedewa, Joe (February 19, 2020). Android 11 Developer Preview: All the changes we found from Android 10 so far!. xda developers. Retrieved 11 May 2020. ^ Fedewa, Joe (February 19, 2020). Android 11 Developer Preview: All the changes we found from Android 10 so far!. xda developers. Retrieved 11 May 2020. ^ Fedewa, Joe (February 19, 2020). Android 12 Developer Preview: All the changes we found from Android 11. Android 12. Android 12. Android 13. Android 14. Android 14. Android 14. Android 14. Android 15.	May 2020. ^ Google delays Android 11 Beta announcement as protests rsanyi, Ian (September 8, 2020). To promote employee privacy, larch 23, 2015). In 1999, a separate computer with a pc with 100 MIPS
tablets running Firefox OS was published. PC World. Idg. Archived from the original on 5 February 2010. Retrieved 5 October 2010. Android developers. Retrieved August 17, 2018. ^ a b Shah, Agam (December 1, 2011). Google's Android 4.0 por the original on 24 February 2010. Retrieved 2022-02-2012. ^ a b Android about Intel Architecture. 01.org. 11, 2013. Archived from the original on 9 February 2010. Retrieved 9 September 2010. ^ Warman, Matt (June 7, 2012). In 1999, a Telegraph Android Lollipop (in Norwegian). developer.android.com. Archived from the original on 25 February 2010. Retrieved 24 March 2010. Supported on ARM, x86, and MIPS architectures, it is fully 64-bit compatible. ^ How to check which of the process Archived from the original on 27 February 2010. ^ Android 7.1 Compatibility Definition (PDF). Retrieved August 23, 2017. ^ Android KitKat. Android Developers Portal. android.com. Archived from the original on 16 February 2010. Retrieved 16 November 2010. Retrieved 15 November 2015. ^ Volcano on Android. NVIDIA Developer. 10, 2016, in New York City. Retrieved 21 March 2010. Volcano 1.1 is available as developer preview OTA for NVIDIA SHIELD TV. ^ Archived from the original on 25 February 2010. Retrieved 21 March 2010. Volcano 1.1 is available as developer preview OTA for NVIDIA SHIELD TV. ^ Archived from the original on 26 February 2010. Retrieved 21 March 2010. Volcano 1.1 is available as developer preview OTA for NVIDIA SHIELD TV. ^ Archived from the original on 27 February 2010. Retrieved 21 March 2010. Volcano 1.1 is available as developer preview OTA for NVIDIA SHIELD TV. ^ Archived from the original on 27 February 2010.	n Media Group Limited was established. Retrieved 19 March 2010. ^sor, ARM, ARM64 or x86, is running your smartphone. April 16, 2016. vember 2013. ^ a b Android Developers: Graphics. android.com. Archived
original on 17 October 2010. Retrieved 15 November 2013. External links Official Android Site Android Onen Source Project website Retrieved from	2. 2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.

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