M30s android version

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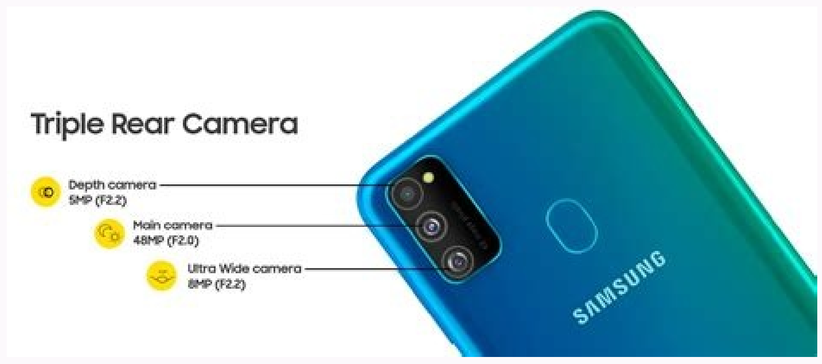

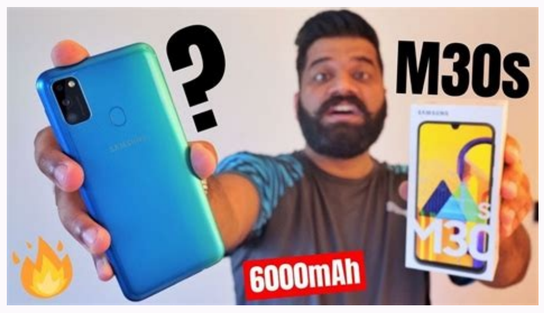

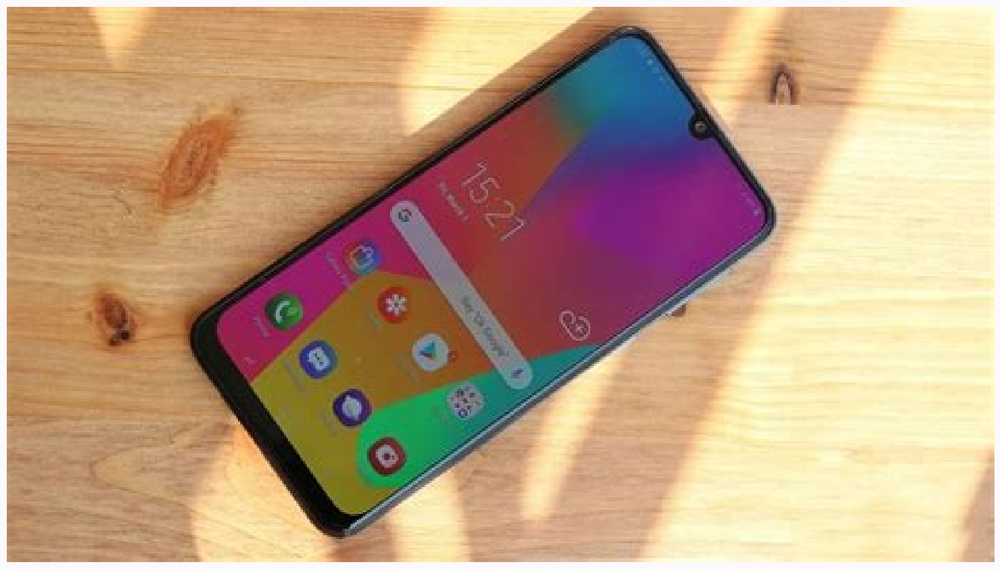

NETWORK Technology GSM / HSPA / LTE 2G GSM 850 / 900 / 1800 / 1900 - SIM 1 & SIM 2 3G HSDPA 850 / 900 / 1900 / 2100 4G 1, 3, 5, 7, 8, 20, 38, 40, 41 Speed HSPA 42.2/5.76 Mbps, LTE-A TIMELINE Announced 2019, September 18 Released Released 2019, October 30 BODY Dimensions 159 x 75.1 x 8.9 mm (6.26 x 2.96 x 0.35 in) Build Glass front, plastic back, plastic frame SIM Dual SIM (Nano-SIM, dual stand-by) DISPLAY Type Super AMOLED, 420 nits (peak) Size 6.4 inches, 100.5 cm2 (~84.2% screen-to-body ratio) Resolution 1080 x 2340 pixels, 19.5:9 ratio (~403 ppi density) PLATFORM OS Android 9.0 (Pie), upgradable to Android 11, One UI 3.0 Chipset Exynos 9611 (10nm) CPU Octa-core (4x2.3 GHz Cortex-A73 & 4x1.7 GHz Cortex-A53) MEMORY Card slot microSDXC (dedicated slot) Internal 64GB 4GB RAM, 128GB 4GB RAM, 128GB 6GB RAM MAIN CAMERA Camera 48 MP, f/2.0, 26mm (wide), 1/2.0", 0.8µm, PDAF 8 MP, f/2.2, 12mm (ultrawide), 1/4.0", 1.12µm 5 MP, f/2.2, (depth) Features LED flash, panorama, HDR Video , , gyro-EIS FRONT CAMERA Camera 16 MP, f/2.0, 26mm (wide), 1/3.06", 1.0µm SOUND COMMUNICATES WLAN Wi-Fi 802.11 a/b/g/n/ac, dual-band, Wi-Fi Direct, hotspot GPS Yes, with A-GPS, GLONASS, BDS NFC Yes (market/region dependent) Radio FM radio, RDS, recording FEATURES Sensors Fingerprint (rear-mounted), accelerometer, gyro, proximity, compass BATTERY Battery Li-Po 6000 mAh, non-removable Charging Fast charging 15W MISC Colors Opal Black, Sapphire Blue, Pearl White SAR EU 0.49 W/kg (head) 1.13 W/kg (body) Performance AnTuTu: 152075 (v7), 180321 (v8) GeekBench: 5566 (v4.4), 1288 (v5.1) GFXBench: 8.7fps (ES 3.1 onscreen) Specs source: gsmarena.com Disclaimer. We can not guarantee that the information on this page is 100% correct BIT/SW REV. ANDROID VERSION On no! No CSC code or country found! 1. Extract (unzip) the Samsung firmware file. Recommended using WinRAR or 7-Zip 2. Download Odin Tool 3.13.1 3. Extract Odin ZIP file 4. Open Odin execute file 5. Reboot Samsung phone in Download Mode (hold Home + Power + Volume Down buttons / hold Volume Down + Bixby buttons then plug-in cable) 6. Connect you Samsung phone and wait until you get a blue sign in Odin 7. Add the 1 file Samsung firmware to AP/PDA or 4 files Samsung firmware (AP/BL/CP/CSC) to it's slots 8. Make sure re-partition is NOT ticked 9. Click the START button, sit back and wait few minutes Android smartphone designed by HTC introduced in 2008 HTC Dream/T-Mobile G1A white Orange HTC Dream with an AZERTY keyboardManufacturerHTCSuccessorHTC Magic, HTC Desire Z (T-Mobile G2), Nexus OneForm factorSlider smartphoneDimensions 117.7 mm (4.63 in) (h) 55.7 mm (2.19 in) (w) 17.1 mm (0.67 in) (d) Mass158 g (5.6 oz)Operating systemOriginal: Android 1.0 Current: Android 1.6 "Donut"CPU528 MHz Qualcomm MSM7201A ARM11 processorMemory256 MB of internal storage, 192 MB RAMRemovable storageUp to 16 GB microSDBattery1150 mAhInternal rechargeable removable lithium-ion batteryDisplay320 x 480 927061601592px, 3.2 in (81 mm), HVGA, 65,536 color TFT-LCD at 180 pixels per inch (ppi)Rear camera3.15 megapixel, autofocusConnectivityData inputscapacitive touchscreen display, QWERTY keyboard, trackball, volume controls, 3-axis accelerometer The HTC Dream (also known as the T-Mobile G1 in the United States and parts of Europe, and as the Era G1 in Poland) is a smartphone developed by HTC. First released in September 2008, the Dream was the first commercially released device to use the Linux-based Android operating system, which was purchased and further developed by Google and the Open Handset Alliance to create an open competitor to other major smartphone platforms of the time, such as Symbian, BlackBerry OS, and iPhone OS. The operating system offers a customizable graphical user interface, integration with Google services such as Gmail, a notification system that shows a list of recent messages pushed from apps, and Android Market for downloading additional apps. The Dream was released to mostly positive reception. While the Dream was praised for its solid and robust hardware design, the introduction of the Android operating system was met with criticism for its lack of certain functionality and third-party software in comparison to more established platforms, but was still considered to be innovative due to its open nature, notifications system, and heavy integration with Google services, like Gmail. History Development The "Sooner" prototype was shelved in favor of the Dream In July 2005, Google acquired Android Inc., a company led by Andy Rubin which was working on unspecified software for mobile devices. Under the leadership of Google, the team was in the process of developing a standardized, Linux-based operating system for mobile phones to compete against the likes of Symbian and Windows Mobile, which would be offered for use by individual original equipment manufacturers. Initial development of what would become Android was targeted towards a prototype device codenamed "Sooner"; the device was a messaging phone in the style of BlackBerry, with a small, non-touch screen, navigation keys, and a physical QWERTY keyboard. The January 2007 unveiling of the iPhone, Apple's first smartphone, and its pioneering design aspects, caught Rubin off-guard and led to a change in course for the project. The operating system's design was quickly reworked, and attention shifted to a new prototype device codenamed "Dream"—a touchscreen device with a sliding, physical keyboard. The inclusion of a physical keyboard was intentional, as Android developers recognized users did not like the idea of a virtual keyboard as they lacked the physical feedback that makes hardware keyboards useful.[1][2][3] The Android operating system was officially unveiled in November 2007 along with the founding of the Open Handset Alliance (OHA); a consortium of hardware, software, and telecommunication companies devoted to advancing open standards for mobile devices. These companies included Google, along with HTC, a company which was at the time, one of the largest manufacturers of phones.[4][5] While Google indicated in 2008 that several Linux devices were being tested in preparation for the official public launch of Android, only one was to be released in the United States that year—the HTC Dream. Plans called for the Dream to be released on T-Mobile USA by the end of the year (with some reports suggesting October 2008), targeting the holiday shopping season. Sprint had worked with the OHA, but had not yet unveiled any plans to release an Android phone of its own, while Verizon Wireless and AT&T did not have any plans for Android devices yet at all.[5] Release A bronze T-Mobile G1 carrier-branded version of the Dream HTC officially announced the Dream on 23 September 2008. It would first be released by T-Mobile as the T-Mobile G1, starting in the United States on 20 October 2008 in its 3G-enabled markets only (it became available in all markets on 24 January 2009),[6][7] followed by a British release in November 2008, and a release in other European territories in early 2009.[8] On 10 March 2009, it became available in Poland as the Era G1 on Era.[9] On 2 June 2009, both the Dream and its successor (the HTC Magic) were released by Rogers Wireless in Canada.[10] The Dream was discontinued by T-Mobile on 27 July 2010.[11] The G1 was spiritually succeeded in October 2010 by the T-Mobile G2, a new HTC device which also featured stock Android and a sliding keyboard, and was T-Mobile USA's first "4G" smartphone.[12] In Canada, Rogers suspended sales of the Dream on 15 January 2010 due to a bug affecting the proper use of emergency calls.[13] Features Hardware A white HTC Dream with back cover removed The Dream's exterior uses a soft, smooth matte plastic shell, and was made available in white, black, and bronze colors. The Dream's design features a distinctive "chin" on the bottom, which houses 5 navigation buttons ("Call", "Home", "Menu", "Back", and "End Call") and a clickable trackball in the center which can be used for scrolling and selecting.[6] The device uses a 3.2 inches (8.1 cm) capacitive touchscreen LCD at a resolution of 320×480; the screen can be slid along a curved hinge to expose a five-row QWERTY keyboard—as the first releases of Android did not include a virtual keyboard, the keyboard was originally the only method of text input on the device. While supporting multitouch at the hardware level, the Linux kernel in the Dream's Android distribution was patched to remove multitouch support from its touchscreen drivers for undisclosed reasons.[14] The Dream does not include a traditional headphone jack, requiring an adapter for HTC's proprietary (but Mini-USB compatible) "ExtUSB" port located on the bottom of the device. The rear of the device houses a 3.15-megapixel rear camera with auto-focus.[15][16] The Dream uses a 528 MHz Qualcomm MSM7201A system on a chip with 192 MB of RAM, and comes with 256 MB of internal storage, which can be expanded by up to 16 GB using a Micro SD card slot.[15] For network connectivity, the Dream supports Quad-band GSM 850/900/1800/1900 MHz and GPRS/EDGE, plus Dual band UMTS Bands I and IV (1700 & 2100 MHz) and HSDPA/HSUPA (in US/Europe) at 7.2/2 Mbit/s. The device also supports standalone GPS and A-GPS.[17] Software The HTC Dream was the first ever smartphone to ship with the Android operating system. The operating system heavily integrates with, and provides apps for various Google services, such as Gmail (with push email support), Maps, Search, Talk, and YouTube, while the contacts and calendar apps can sync with the online Google Contacts and Google Calendar services respectively. The device also ships with an email app supporting other POP3 and IMAP-based mail services, an instant messaging app with support for multiple services, and a WebKit-based web browser. A notification system displays icons for certain events (such as e-mails and text messages) on the left side of the status bar across the top of the screen; dragging down from the top of the screen exposes a tray with more detailed information for each notification. The Android Market can be used to download additional apps for the device. The G1 as sold by T-Mobile also shipped with an Amazon MP3 app, allowing users to purchase DRM-free music online, and download them straight to the device via Wi-Fi.[18] The Dream could also be upgraded to newer versions of Android, which added new features and enhancements to the platform. The latest version of Android officially made available for the Dream, 1.6 "Donut", was released for T-Mobile USA's G1 in October 2009.[19][20] The 1.6 update was not released on the Rogers HTC Dream in Canada (which stayed on 1.5 "Cupcake"); Rogers claimed that the update was only being made available for "'Google'-branded" models of the device.[21] Development and modding Due to the open source nature of the Android platform, the Dream became a popular target for modding. Shortly after the release of the Dream, developers discovered a software exploit which would allow a user to gain superuser access to the phone—a process which would be referred to as "rooting". As a parallel to "jailbreaking" on iOS devices, root access would enable users to perform tweaks and other changes at the system level that cannot be performed under normal circumstances (such as adding auto-rotation, and installing a custom kernel that restored the aforementioned multitouch support).[14][22] After the Dream's bootloader was dumped, work began on modifying it so that it could install third-party firmware, and on converting official Android update files into a format that could be installed using the modified bootloader.[23] Around the same time, Google made the Android Dev Phone 1 available for registered Android developers; the Dev Phone 1 was a SIM- and hardware-unlocked version of the HTC Dream that came pre-configured for superuser access to the internal files of the phone, allowing users to completely replace the bootloader and operating system.[24][25] As a result of these developments, a dedicated community, centered on forums such as XDA Developers, emerged surrounding the creation of custom firmware ("ROMs") built from the Android source code. Projects such as CyanogenMod continued to produce ports of newer versions of Android for the Dream and later Android devices, while adding their own features and enhancements to the operating system as well.[26] On later Android devices, where a number of factors (including carrier practices, and custom software provided by device manufacturers that sit atop Android, such as HTC Sense and Samsung TouchWiz) led to fragmentation regarding the availability of newer versions of the OS for certain devices, the development and use of custom ROMs (which are usually based on the "stock" version of Android) have ultimately become an important, yet controversial aspect of the Android ecosystem.[27] In August 2012, a group of users released an unofficial port of a later version of Android, 4.1 "Jelly Bean", for the Dream as a proof of concept. However, the port lacked key functionality, and had severe performance issues due to the phone's relatively weak hardware in comparison to the modern devices that 4.1 was designed for.[28] Reception Critical reception The Dream was released to mixed reviews. The design of the Dream was considered to be solid and robust; Joshua Topolsky of Engadget considered its hardware design a contrast to that of the iPhone, due to its numerous navigation buttons (in comparison to just a home button) and its "charming, retro-future look; like a gadget in a 1970's sci-fi movie set in the year 2038." The Dream's keyboard, as the only method of text input prior to Android 1.5's introduction of a virtual keyboard, was considered to be sufficient, although some felt that its keys were too small.[15][16][17] Its display was considered sufficient for a phone of its class, but John Brandon of TechRadar felt that it was not good enough for watching videos due to its poor contrast and small size in comparison to the iPhone.[16][17] Android itself was considered to still be in its infancy (primarily due to its bare-bones functionality in certain areas, limited application catalog, lack of multitouch gestures, or syncing with certain enterprise platforms), but showed promise through its customizable interface, increased flexibility over iOS, its notification system, ability to display security permissions when downloading apps, and its heavy integration with Google services.[16][18] Brandon gave the Dream a 4.5/5, despite stating that it was "no Apple iPhone killer", given its lower quality of its application selection and multimedia features in comparison. In conclusion, the Dream was considered to be a "stellar" phone that "points to a future when a phone is as flexible and useful as the PC on your desk."[16] Engadget felt that the Dream "isn't going to blow anyone's mind right out of the gate" due to its hardware, but that the Android platform as a whole held its own against its competitors, and that early adopters of Android through the G1 were "buying into one of the most exciting developments in the mobile world in recent memory."[18] GSMArena noted that the Dream would have been "another average smart QWERTY messenger" had it not been for its introduction of Android; in conclusion, the Dream was considered "far from the perfect package", but still believed that "it gets the things that matter done and gets them done right."[17] Commercial reception In April 2009, T-Mobile announced that it had sold over a million G1s in the United States, accounting for two-thirds of the devices on its 3G network. AdMob estimated in March 2009 that Android and the G1 had reached a market share of 6% in the United States.[29] See also Wikimedia Commons has media related to HTC Dream. HTC Hero, HTC's first Android device with its Sense software. Nexus One, an Android device developed for Google by HTC to launch the Nexus series of flagship devices HTC Touch Diamond, HTC's Windows Mobile flagship at the time References ^ Vogelstein, Fred. "The Day Google Had to 'Start Over' on Android". The Atlantic. Retrieved 20 December 2013. ^ Elgin, Ben (17 August 2005). "Google Buys Android for Its Mobile Arsenal". Bloomberg Businessweek. Bloomberg. Archived from the original on 27 February 2011. Retrieved 20 February 2012. ^ Block, Ryan (28 August 2007). "Google is working on a mobile OS, and it's due out shortly". Engadget. Retrieved 17 February 2012. ^ "Industry Leaders Announce Open Platform for Mobile Devices" (Press release). Open Handset Alliance. 5 November 2007. 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Retrieved 24 November 2012. ^ "Android 4.1 ported to the venerable HTC G1". The Verge. Vox Media. 9 August 2012. Retrieved 17 June 2013. ^ "T-Mobile has sold 1 million G1 Android phones". CNET. CBS Interactive. Retrieved 3 September 2013. External links T-Mobile G1 product page (archived) Retrieved from " 2Third generation of wireless mobile telecommunications technology For other uses, see 3G (disambiguation). This article has multiple issues. Please help improve it or discuss these issues on the talk page. (Learn how and when to remove these template messages) This article may be too technical for most readers to understand. Please help improve it to make it understandable to non-experts, without removing the technical details. (October 2017) (Learn how and when to remove this template message) This article needs to be updated. Please help update this article to reflect recent events or newly available information. (April 2021) (Learn how and when to remove this template message) PC modem 3G Part of a series on theMobile phone generations Mobile telecommunications Analog 0G 1G Digital 2G 2.5G 2.75G 3G 3.5G 3.75G 3.9G/3.95G 4G 4G/4.5G 4.5G/4.9G 5G 6G vte 3G is the third generation of wireless mobile telecommunications technology. It is the upgrade over 2G, 2.5G, GPRS and 2.75G EDGE networks, offering faster data transfer, and better voice quality.[1] This network was superseded by 4G, and later on by 5G. This network is based on a set of standards used for mobile devices and mobile telecommunications use services and networks that comply with the International Mobile Telecommunications-2000 (IMT-2000) specifications by the International Telecommunication Union. 3G finds application in wireless voice telephony, mobile Internet access, fixed wireless Internet access, video calls and mobile TV.[1] 3G telecommunication networks support services that provide an information transfer rate of at least 144 kbit/s.[2][3][4] Later 3G releases, often denoted 3.5G and 3.75G, also provide mobile broadband access of several Mbit/s to smartphones and mobile modems in laptop computers. This ensures it can be applied to wireless voice calls, mobile Internet access, fixed wireless Internet access, video calls and mobile TV technologies. A new generation of cellular standards has appeared approximately every tenth year since 1G systems were introduced in 1979 and the early to mid-1980s. Each generation is characterized by new frequency bands, higher data rates and non–backward-compatible transmission technology. The first commercial 3G networks were introduced in mid-2001.[5][6][7][8] Overview Several telecommunications companies market wireless mobile Internet services as 3G, indicating that the advertised service is provided over a 3G wireless network. Services advertised as 3G are required to meet IMT-2000 technical standards, including standards for reliability and speed (data transfer rates). To meet the IMT-2000 standards, a system must provide peak data rates of at least 144 kbit/s.[4] However, many services advertised as 3G provide higher speed than the minimum technical requirements for a 3G service.[9] Subsequent 3G releases, denoted 3.5G and 3.75G, provided mobile broadband access of several Mbit/s for smartphones and mobile modems in laptop computers.[10] 3G branded standards: The UMTS (Universal Mobile Telecommunications System) system, standardized by 3GPP in 2001, was used in Europe, Japan, China (with a different radio interface) and other regions predominated by GSM (Global Systems for Mobile) 2G system infrastructure. The cell phones are typically UMTS and GSM hybrids. Several radio interfaces are offered, sharing the same infrastructure: The original and most widespread radio interface is called W-CDMA (Wideband Code Division Multiple Access). The TD-SCDMA radio interface was commercialized in 2009 and only offered in China. The latest UMTS release, HSPA+, can provide peak data rates up to 56 Mbit/s in the downlink in theory (28 Mbit/s in existing services) and 22 Mbit/s in the uplink. The CDMA2000 system, first offered in 2002, standardized by 3GPP2, used especially in North America and South Korea, sharing infrastructure with the IS-95 2G standard. The cell phones are typically CDMA2000 and IS-95 hybrids. The latest release EVDO Rev. B offers peak rates of 14.7 Mbit/s downstream. The 3G systems and radio interfaces are based on spread spectrum radio transmission technology. While the GSM EDGE standard ("2.9G"), DECT cordless phones and Mobile WiMAX standards formally also fulfill the IMT-2000 requirements and are approved as 3G standards by ITU, these are typically not branded as 3G and are based on completely different technologies. The common standards complying with the IMT2000/3G standard are: EDGE, a revision by the 3GPP organization to the older 2G GSM based transmission methods, which utilizes the same switching nodes, base station sites, and frequencies as GPRS, but includes a new base station and cellphone RF circuits. It is based on the three times as efficient 8PSK modulation scheme as a supplement to the original GMSK modulation scheme. EDGE is still used extensively due to its ease of upgrade from existing 2G GSM infrastructure and cell phones. EDGE combined with the GPRS 2.5G technology is called EGPRS, and allows peak data rates in the order of 200 kbit/s, just like the original UMTS WCDMA versions and thus formally fulfill the IMT2000 requirements on 3G systems. However, in practice, EDGE is seldom marketed as a 3G system, but a 2.9G system. EDGE shows slightly better system spectral efficiency than the original UMTS and CDMA2000 systems, but it is difficult to reach much higher peak data rates due to the limited GSM spectral bandwidth of 200 kHz, and it is thus a dead end. EDGE was also a mode in the IS-136 TDMA system, no longer used. Evolved EDGE, the latest revision, has peaks of 1 Mbit/s downstream and 400 kbit/s upstream but is not commercially used. The Universal Mobile Telecommunications System, created and revised by the 3GPP. The family is a full revision from GSM in terms of encoding methods and hardware, although some GSM sites can be retrofitted to broadcast in the UMTS/W-CDMA format. W-CDMA is the most common deployment, commonly operated on the 2,100 MHz band. A few others use the 850, 900, and 1,900 MHz bands. HSPA is an amalgamation of several upgrades to the original W-CDMA standard and offers speeds of 14.4 Mbit/s down and 5.76 Mbit/s up. HSPA is backward-compatible and uses the same frequencies as W-CDMA. HSPA+, a further revision and upgrade of HSPA, can provide theoretical peak data rates up to 168 Mbit/s in the downlink and 22 Mbit/s in the uplink, using a combination of air interface improvements as well as multi-carrier HSPA and MIMO. Technically though, MIMO and DC-HSPA can be used without the "+" enhancements of HSPA+. The CDMA2000 system, or IS-2000, including CDMA2000 1x and CDMA2000 High Rate Packet Data (or EVDO), standardized by 3GPP2 (differing from the 3GPP), evolving from the original IS-95 CDMA system, is used especially in North America, China, India, Pakistan, Japan, South Korea, Southeast Asia, Europe, and Africa. CDMA2000 1x Rev. E has an increased voice capacity (by three times the original amount) compared to Rev. 0 EVDO Rev. B offers downstream peak rates of 14.7 Mbit/s while Rev. C enhanced existing and new terminal user experience. While DECT cordless phones and Mobile WiMAX standards formally also fulfill the IMT-2000 requirements, they are not usually considered due to their rarity and unsuitability for usage with mobile phones.[11] Break-up of 3G systems The 3G (UMTS and CDMA2000) research and development projects started in 1992. In 1999, ITU approved five radio interfaces for IMT-2000 as a part of the ITU-R M.1457 Recommendation; WiMAX was added in 2007.[12] There are evolutionary standards (EDGE and CDMA) that are backward-compatible extensions to pre-existing 2G networks as well as revolutionary standards that require all-new network hardware and frequency allocations. The cell phones use UMTS in combination with 2G GSM standards and bandwidths, but do not support EDGE. The latter group is the UMTS family, which consists of standards developed for IMT-2000, as well as the independently developed standards DECT and WiMAX, which were included because they fit the IMT-2000 definition. While EDGE fulfills the 3G specifications, most GSM/UMTS phones report EDGE ("2.75G") and UMTS ("3G") functionality.[13] History 3G technology was the result of research and development work carried out by the International Telecommunication Union (ITU) in the early 1980s. 3G specifications and standards were developed in fifteen years. The technical specifications were made available to the public under the name IMT-2000. The communication spectrum between 400 MHz to 3 GHz was allocated for 3G. Both the government and communication companies approved the 3G standard. The first pre-commercial 3G network was launched by NTT DoCoMo in Japan in 1998,[14] branded as FOMA. It was first available in May 2001 as a pre-release (test) of W-CDMA technology. The first commercial launch of 3G was also by NTT DoCoMo in Japan on 1 October 2001, although it was initially somewhat limited in scope;[15][16] broader availability of the system was delayed by apparent concerns over its reliability.[17] The first European pre-commercial network was an UMTS network on the Isle of Man by Manx Telecom, the operator then owned by British Telecom, and the first commercial network (also UMTS based W-CDMA) in Europe was opened for business by Telenor in December 2001 with no commercial handsets and thus no paying customers. The first network to go commercially live was by SK Telecom in South Korea on the CDMA-based 1xEV-DO technology in January 2002. By May 2002, the second South Korean 3G network was by KT on EV-DO and thus the South Koreans were the first to see competition among 3G operators. The first commercial United States 3G network was by Monet Mobile Networks, on CDMA2000 1x EV-DO technology, but the network provider later shut down operations. The second 3G network operator in the USA was Verizon Wireless in July 2002, also on CDMA2000 1x EV-DO. AT&T Mobility was also a true 3G UMTS network, having completed its upgrade of the 3G network to HSUPA. The first commercial United Kingdom 3G network was started by Hutchison Telecom which was originally behind Orange S.A.[18] In 2003, it announced first commercial third generation or 3G mobile phone network in the UK. The first pre-commercial demonstration network in the southern hemisphere was built in Adelaide, South Australia, by m.Net Corporation in February 2002 using UMTS on 2100 MHz. This was a demonstration network for the 2002 IT World Congress. The first commercial 3G network was launched by Hutchison Telecommunications branded as Three or "3" in June 2003.[19] In India, on 11 December 2008, the first 3G mobile and internet services were launched by a state-owned company, Mahanagar Telecom Nigam Limited (MTNL), within the metropolitan cities of Delhi and Mumbai. After MTNL, another state-owned company, Bharat Sanchar Nigam Limited (BSNL), began deploying the 3G networks country-wide. Emtel launched the first 3G network in Africa.[20] Adoption Japan was one of the first countries to adopt 3G, the reason being the process of 3G spectrum allocation, which in Japan was awarded without much upfront cost. The frequency spectrum was allocated in the US and Europe based on auctioning, thereby requiring a huge initial investment for any company wishing to provide 3G services. European companies collectively paid over 100 billion dollars in their spectrum auctions.[21] Nepal Telecom adopted 3G Service for the first time in southern Asia. However, its 3G was relatively slow to be adopted in Nepal. In some instances, 3G networks do not use the same radio frequencies as 2G, so mobile operators must build entirely new networks and license entirely new frequencies, especially to achieve high data transmission rates. Other countries' delays were due to the expenses of upgrading transmission hardware, especially for UMTS, whose deployment required the replacement of most broadcast towers. Due to these issues and difficulties with deployment, many carriers could not or delayed the acquisition of these updated capabilities. In December 2007, 190 3G networks were operating in 40 countries and 154 HSDPA networks were operating in 71 countries, according to the Global Mobile Suppliers Association (GSA). In Asia, Europe, Canada, and the US, telecommunication companies use W-CDMA technology with the support of around 100 terminal designs to operate 3G mobile networks. The roll-out of 3G networks was delayed by the enormous costs of additional spectrum licensing fees in some countries. The license fees in some European countries were particularly high, bolstered by government auctions of a limited number of licenses and sealed bid auctions, and initial excitement over 3G's potential. This led to a telecoms crash that ran concurrently with similar crashes in the fibre-optic and dot.com fields. The 3G standard is perhaps well known because of a massive expansion of the mobile communications market post-2G and advances of the consumer mobile phone. An especially notable development during this time is the smartphone (for example, the iPhone, and the Android family), combining the abilities of a PDA with a mobile phone, leading to widespread demand for mobile internet connectivity. 3G has also introduced the term "mobile broadband" because its speed and capability made it a viable alternative for internet browsing, and USB Modems connecting to 3G networks, and now 4G became increasingly common. Market penetration By June 2007, the 200 millionth 3G subscriber had been connected of which 10 million were in Nepal and 8.2 million in India. This 200 millionth is only 6.7% of the 3 billion mobile phone subscriptions worldwide. (When counting CDMA2000 1x RTT customers—max bitrate 72% of the 200 kbit/s which defines 3G—the total size of the nearly-3G subscriber base was 475 million as of June 2007, which was 15.8% of all subscribers worldwide.) In the countries where 3G was launched first – Japan and South Korea – 3G penetration is over 70%.[22] In Europe the leading country[when?] for 3G penetration is Italy with a third of its subscribers migrated to 3G. Other leading countries[when?] for 3G use include Nepal, UK, Austria, Australia and Singapore at the 32% migration level. According to ITU estimates,[23] as of Q4 2012 there were 2096 million active mobile-broadband[vague] subscribers worldwide out of a total of 6835 million subscribers—this is just over 30%. About half the mobile-broadband subscriptions are for subscribers in developed nations, 934 million out of 1600 million total, well over 50%. Note however that there is a distinction between a phone with mobile-broadband connectivity and a smart phone with a large display and so on—although according[24] to the ITU and informatandm.com the USA has 321 million mobile subscriptions, including 256 million that are 3G or 4G, which is both 80% of the subscriber base and 80% of the USA population, according[23] to ComScore just a year earlier in Q4 2011 only about 42% of people surveyed in the USA reported they owned a smart phone. In Japan, 3G penetration was similar at about 81%, but smart phone ownership was lower at about 17%.[23] In China, there were 486.5 million 3G subscribers in June 2014,[25] in a population of 1,385,566,537 (2013 UN estimate). Decline and decommissions This section needs to be updated. Please help update this article to reflect recent events or newly available information. (May 2022) Since the increasing adoption of 4G networks across the globe, 3G use has been in decline. Several operators around the world have already or are in the process of shutting down their 3G networks (see table below). In several places, 3G is being shut down while its older predecessor 2G is being kept in operation; Vodafone Europe is doing this, citing 2G's usefulness as a low-power fall-back.[26] EE in the UK have indicated that they plan to phase out 3G by 2023 with the spectrum being used to enhance 5G capacity.[27] In the US, Verizon was planning to shut down its 3G services at the end of 2020 (later delayed to the end of 2022[28]), while T-Mobile/Sprint is planning to do so on 31 March 2022, and AT&T is planning to do so in February 2022.[29][30] Currently 3G around the world is declining in availability and support. Technology that depends on 3G for usage will soon become inoperable in many places. For example, the European Union plans to ensure that member countries maintain 2G networks as a fallback[citation needed], so 3G devices that are backwards compatible with 2G frequencies can continue to be used. However, in countries that plan to decommission 2G networks as well, such as the United States, devices supporting only 3G and backwards compatible with 2G will soon be inoperable.[31] Patents It has been estimated that there are almost 8,000 patents declared essential (FRAND) related to the 483 technical specifications which form the 3GPP and 3GPP2 standards.[32][33] Twelve companies accounted in 2004 for 90% of the patents (Qualcomm, Ericsson, Nokia, Motorola, Philips, NTT DoCoMo, Siemens, Mitsubishi, Fujitsu, Hitachi, InterDigital, and Matsushita). Even then, some patents essential to 3G might not have been declared by their patent holders. It is believed that Nortel and Lucent have undisclosed patents essential to these standards.[33] Furthermore, the existing 3G Patent Platform Partnership Patent pool has little impact on FRAND protection because it excludes the four largest patent owners for 3G.[34][35] Features Data rates ITU has not provided a clear[36][vague] definition of the data rate that users can expect from 3G equipment or providers. Thus users sold 3G service may not be able to point to a standard and say that the rates it specifies are not being met. While stating in commentary that "it is expected that IMT-2000 will provide higher transmission rates: a minimum data rate of 2 Mbit/s for stationary or walking users, and 348 kbit/s in a moving vehicle,"[37] the ITU does not actually clearly specify minimum required rates, nor required average rates, nor what modes[clarification needed] of the interfaces qualify as 3G, so various[vague] data rates are sold as '3G' in the market. In a market implementation, 3G downlink data speeds defined by telecom service providers vary depending on the underlying technology deployed; up to 384kbit/s for UMTS (WCDMA), up to 7.2Mbit/sec for HSPA, and a theoretical maximum of 21.1 Mbit/s for HSPA+ and 42.2 Mbit/s for DC-HSPA+ (technically 3.5G, but usually clubbed under the tradename of 3G).[citation needed] Compare data speeds with 3.5G and 4G. Security See also: Mobile security § Attacks based on the GSM networks 3G networks offer greater security than their 2G predecessors. By allowing the UE (User Equipment) to authenticate the network it is attaching to, the user can be sure the network is the intended one and not an impersonator. 3G networks use the KASUMI block cipher instead of the older A5/1 stream cipher. However, a number of serious weaknesses in the KASUMI cipher have been identified.[38] In addition to the 3G network infrastructure security, end-to-end security is offered when application frameworks such as IMS are accessed, although this is not strictly a 3G property. Applications of 3G The bandwidth and location information available to 3G devices gives rise to applications not previously available to mobile phone users. It became possible to conveniently surf the internet on a 3G network on the go with minimum hassle, and do many other tasks previously a slow and difficult hassle on 2G. Medical devices, fire alarms, ankle monitors use this network for accomplishing their designated tasks alongside mobile phone users.[39] This network marked the first for a cellular communications network to be used in such a wide variety of tasks, kick-starting the beginning of widespread usage of cellular networks. Evolution Both 3GPP and 3GPP2 are working on the extensions to 3G standards that are based on an all-IP network infrastructure and using advanced wireless technologies such as MIMO. These specifications already display features characteristic for IMT-Advanced (4G), the successor of 3G. However, falling short of the bandwidth requirements for 4G (which is 1 Gbit/s for stationary and 100 Mbit/s for mobile operation), these standards are classified as 3.9G or Pre-4G. 3GPP plans to meet the 4G goals with

LTE Advanced, whereas Qualcomm has halted UMB development in favour of the LTE family.[40] On 14 December 2009, TeliaSonera announced in an official press release that "We are very proud to be the first operator in the world to offer our customers 4G services."[41] With the launch of their LTE network, initially they are offering pre-4G (or beyond 3G) services in Stockholm, Sweden and Oslo, Norway. Phase out Country Network Shutdown date Standard Notes Australia Telstra 2024-06 UMTS [42][43] Austria Magenta Telekom 2024 UMTS [44] Belgium Orange 2025-12-31 UMTS [45] Canada Bell 2025-12-31 UMTS [46] Rogers 2025-12-31 UMTS [46][47] Telus 2025-12-31 UMTS [46] China China Mobile since2016-03-16 TD-SCDMA [48][49] China Telecom since2020-06-16 CDMA2000 1xEV-DO [50] Czech Republic O2 2021-11-30 UMTS [51] Telekom 2021-11-30 UMTS [51] Vodafone 2021-03-31 UMTS [52] Denmark Telenor Denmark 2022 Q3 UMTS [53] Estonia Tele2 2025-12-31 UMTS [54] Telia Eesti 2023-12-31 UMTS [55] France Orange 2028-12-31 UMTS [45] Germany Deutsche Telekom 2021-06-30 UMTS [56] O2 2021-12-31 UMTS [57][58][59] Vodafone 2021-06-30 UMTS [60] Greece Cosmote 2021-12-31 UMTS [61] WIND Hellas 2022-12-31 UMTS [62][63] Hungary Magyar Telekom 2022-06-30 UMTS [64][65][66] Yettel Hungary 2023-03 UMTS [64] [66] Vodafone Hungary 2023-03 UMTS [67][66] India Airtel 2020-03-31 UMTS [68][69] Vodafone Idea 2022–03-?? UMTS [70] Indonesia Telkomsel 2022-12-31 UMTS [71][72] Indosat 2022-12-31 UMTS [73] XL Axiata 2022-03-31 UMTS [71] Israel < 2025 UMTS per government statement[74] Ireland Vodafone 2022+ UMTS [75] Italy TIM 2022-10-15 UMTS [76][77][78] Vodafone 2021-02-28 UMTS [79] Japan KDDI 2022-03-31 CDMA2000 1xEV-DO [80][81] NTT docomo 2026-03-31 UMTS [82] Softbank 2024-01-31 UMTS [83] Lithuania Telia 2022-12-31 UMTS [84][85] Luxembourg Orange 2025-12-31 UMTS [45] Malaysia Celcom 2021-12-31 UMTS [86][87] Digi 2021-12-31 UMTS [88][87] Maxis 2021-12-31 UMTS [88] U Mobile 2021-12-31 UMTS [88] Netherlands KPN 2021-12-31 UMTS [89] Vodafone 2020-02-04 UMTS [90] New Zealand Vodafone > 2024 UMTS [91] Norway Telia 2021-11-11 UMTS [92] Telenor since2021 UMTS [93] Poland T-Mobile since2022-02-01 UMTS [94][95] Orange 2025-12-31 UMTS [45] Philippines Smart (PLDT) 2023 UMTS [96] Romania Orange 2025-12-31 UMTS [45] Slovakia Orange 2025-12-31 UMTS [45] Slovenia Telekom Slovenije 2022-09-30 UMTS [97] South Africa < 2025-03 UMTS per government statement[98][99] South Korea KT 2012-03-19 CDMA2000 1xEV-DO [100][101][102]CDMA2000 1xEV-DO was also referred to as "2G"in South Korea, besides cdmaOne (IS-95).[103]KT also operates an UMTS "3G" network. LG U+ 2021-06-30 CDMA2000 1xEV-DO [104][105][100][106] SK Telecom 2020-07-27 CDMA2000 1xEV-DO [107][102][100][108]CDMA2000 1xEV-DO was also referred to as "2G"in South Korea, besides cdmaOne (IS-95).[103]SKT also operates an UMTS "3G" network. Spain Orange 2025-12-31 UMTS [45] Sri Lanka Airtel 2022-06-12 UMTS [109] Taiwan Asia Pacific Telecom 2017-12-31 CDMA2000 1xEV-DO Chunghwa Telecom 2018-12-31 UMTS [110][111] Far EasTone 2018-12-31 UMTS [110][111] Taiwan Mobile 2018-12-31 UMTS [110][111] Taiwan Star 2018-12-31 UMTS [110][111] United Kingdom EE 2023 UMTS [112] Three 2024-12-31 UMTS [113] Vodafone 2023 UMTS [114] United States Puerto Rico US Virgin Islands AT&T 2022-02-22 UMTS [115][116] Liberty 2022-02-22 UMTS [117] T-Mobile 2022-07-01 UMTS [118][119][120][121] T-Mobile (Sprint) 2022-05-31 CDMA2000 1xEV-DO [118][119][120][122][123]Shutdown commenced on 31 Mar 2022. 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