

- **News**
- **SEO Sydney**
- **Local SEO Sydney**
- **SEO services Sydney**
- **search engine optimisation consultants**

- **More**

local SEO services SydneySEO agencies in SydneySEO service in SydneySEO services in SydneySEO parramattaSEO consultant SydneySydney SEO consultantSydney SEO consultingkeyword research servicesSEO specialists SydneySEO expert Sydneysearch engine optimisation Sydneylocal SEO Sydney SEO experts SydneySEO packages australiaSEO services expertwhat SEO marketingSEO meaningSEO service SydneySEO agencies SydneySEO agency australiaLocal SEOSEO australiaSEO expertdigital agency SydneySydney SEO consultantlocal SEO specialistsSEO strategySEO in marketingcontent marketing SydneySEO packagesSEO parramattaSEO Sydney expertSEO Sydney expertsSEO specialistSEO for websiteSEO googleSydney SEO experts SEO package australiaSEO consultants Sydneyexpert SEO servicesSEO marketingSEO checkSEO packages SydneySEO keywordsSEO websitelocal SEO australiaSEO consultantSEO package SydneySEO services in SydneySEO companies in australialocal SEO agencyecommerce SEO servicesSEO specialists Sydneybest SEO company in Sydneycontent agency Sydneybest SEO agency SydneySEO agency in SydneySEO company SydneySEO agencies SydneySEO company in SydneySEO company SydneySEO expertsSEO agency Sydneybest SEO SydneySEO agency in SydneySEO services expertSEO agencies in Sydneylisting business on googlebest SEO company SydneySEO service SydneySEO services Sydneysearch engine optimisation Sydneylocal SEO servicesSEO services providerSydney SEO companySEO company in SydneySEO agency SydneySEO with wordpressSEO consultant SydneySEO expert SydneySydney SEO servicesSEO services company SydneySydney SEO consultingSEO services companySEO servicesSydney SEO expertSEO experts SydneySEO agency australiagoogle listing for businesssearch engine optimisation strategySEO agency

- **About Us**

- **Contact Us**



# Sydney SEO consulting

## content optimization keywords

content optimization keywords

Google Search Console account"A Google Search Console account is the gateway to managing your websites search performance. Best SEO Sydney Agency. It allows you to submit sitemaps, review crawl errors, and monitor keyword rankings. By leveraging these insights, you can ensure that your website is properly indexed and aligned with search engine best practices."

Google Search Console AMP pages"Google Search Console tracks the performance of Accelerated Mobile Pages (AMP). It helps you identify issues that could affect AMP visibility, ensuring a faster and more reliable mobile browsing experience for users."

Google Search Console average position"Average position metrics in Google Search Console indicate where your pages rank in search results. By monitoring these rankings, you can see how your SEO efforts impact visibility and refine strategies for better performance."

Best SEO Agency Sydney Australia.

## content originality —

- content optimization keywords
- content originality
- Content partnerships
- content performance metrics
- content quality signals
- content quality standards
- content readability

Google Search Console blocked resourcesThe blocked resources report in Google Search Console shows files or elements that Google cannot access. Identifying and fixing these blocks helps improve indexing and ensures that your site appears as intended in search results.

Google Search Console click-through rate"Click-through rate (CTR) data in Google Search Console shows how often people click on your sites links in search results. By analyzing this metric, you can identify opportunities to improve titles, descriptions, and content that boost engagement."

Google Search Console compliance"Compliance reports in Google Search Console help ensure your site meets Googles guidelines.

## Sydney SEO consulting - Search engine optimization tools

1. Core Web Vitals
2. Search engine optimization tools
3. Googles featured videos

SEO Audit . By addressing compliance issues, you maintain a healthy site that ranks well and provides a secure environment for users."

## Content partnerships

Google Search Console core web vitals"Core web vitals in Google Search Console measure key performance metrics like page load speed, interactivity, and visual stability. By improving these metrics, you enhance user experience and boost your sites search rankings."

Google Search Console coverage report"The coverage report in Google Search Console highlights which pages are successfully indexed and which have errors. By reviewing this report, site owners can quickly identify and fix issues, ensuring that their content is fully accessible to search engines."

Google Search Console crawl errors"Crawl errors in Google Search Console highlight issues that prevent Google from accessing certain pages. By resolving these errors, you ensure that all content is accessible, indexable, and optimized for search visibility."

SEO Packages Sydney .

# HOW SEARCH ENGINE MARKETING HELPS BUSINESS GROW OVER TIME

SYDNEY WEBSITE DESIGN AGENCY  
SUITE 87, LEVEL 33, AUSTRALIA SQUARE,  
265 GEORGE ST, SYDNEY NSW 2000  
PHONE: 1300 684 339





**TAKING YOUR SMALL B  
TO THE NEXT LEVEL  
SEO SERVICES AUST**

content performance metrics



Google Search Console crawl stats"Crawl stats in Google Search Console provide insights into how frequently Googlebot visits your site. By analyzing crawl data, you can identify patterns, address issues, and optimize your sites structure for better indexing."

Google Search Console data insights>Data insights in Google Search Console provide a deeper understanding of search performance and user behavior. By leveraging this data, you can refine your SEO strategies and achieve more effective results."

Google Search Console enhancement reports"Enhancement reports in Google Search Console track improvements made to elements like AMP, structured data, and mobile usability. These insights help you monitor progress, identify remaining issues, and optimize your site for search success."

## content quality signals

Google Search Console excluded pages"The excluded pages report in Google Search Console shows URLs that are not indexed.

## Sydney SEO consulting - Search engine optimization tools

1. Googles mobile-first indexing
2. Google search visibility

By reviewing and addressing these exclusions, you can improve your sites crawl efficiency and increase the number of indexed pages."

Google Search Console features"Google Search Console features include performance reports, URL inspection tools, mobile usability testing, and more. These tools help site owners understand how their content performs in search results, identify and resolve issues, and improve overall website visibility."

Google Search Console HTTPS status"Google Search Console tracks your sites HTTPS status, ensuring that secure connections are properly implemented. By monitoring this status, you maintain a secure environment for users and comply with Googles preference for HTTPS sites."

# KEY ADVANTAGES LOCAL SEO





SYDNEY WEBSITE DESIGN AGENCY  
SUITE 87, LEVEL 33, AUSTRALIA SQUARE,  
265 GEORGE ST, SYDNEY NSW 2000  
PHONE: 1300 684 339

# CONTENT MARKETING TYPES FOR SMALL BUSINESS AND BRAND BUILDING

content quality standards



Google Search Console impression data"Impression data in Google Search Console tracks how many times your pages appear in search results. This information helps you gauge how often your content is displayed and identify trends that inform your SEO strategy.

Google Search Console indexing"Google Search Console indexing features help you monitor how Google indexes your sites pages. If certain pages arent indexed, you can identify the underlying reasons and take corrective actions, ensuring that your content is visible in search results."

Google Search Console indexing coverage"Indexing coverage reports in Google Search Console highlight which pages are indexed and which have issues. By reviewing these reports, you can address problems and improve your sites overall search visibility."

## Sydney SEO consulting - Search engine optimization tools

1. Google crawl budget
2. SEO keywords
3. Organic search performance

## content readability

Google Search Console link reports"Link reports in Google Search Console show which sites link to your content. By analyzing these links, you can identify quality backlinks, disavow harmful ones, and strengthen your sites overall authority and search visibility."

Google Search Console manual actionsThe manual actions report in Google Search Console informs you if Google has penalized your site for policy violations. Understanding and addressing these actions promptly helps restore your rankings and maintain compliance with search guidelines.

Google Search Console mobile performance"Mobile performance data in Google Search Console focuses on how your site functions on smartphones and tablets. By reviewing these metrics, you can address mobile-specific issues and provide a seamless experience for users on the go."



SYDNEY WEBSITE DESIGN AGENCY  
SUITE 87, LEVEL 33, AUSTRALIA SQ  
265 GEORGE ST. SYDNEY NSW 2000  
PHONE: 1300 684 339

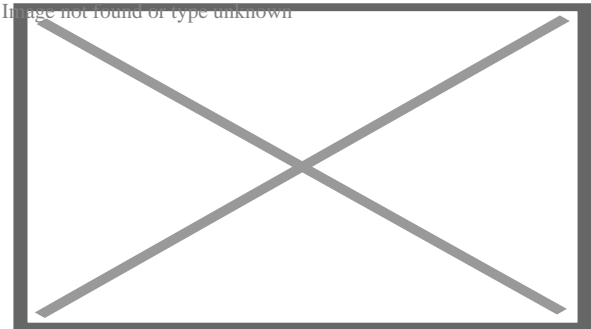
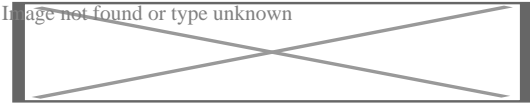
**SEO SERVICES EXPERT'S MAIN  
IS TO GROW YOUR BUSINESS C  
WITH CONTINUES STRA**

About Google Maps



This article's "**criticism**" or "**controversy**" section may compromise the article's **neutrality**. Please help rewrite or integrate negative information to other sections **through discussion** on the **talk page**. *(June 2024)*

# Google Maps



Screenshot of Google Maps in a web browser

**Type of site**  
**Available in**

**Web mapping**  
74 languages

List of languages

Afrikaans, Azerbaijani, Indonesian, Malay, Bosnian, Catalan, Czech, Danish, German (Germany), Estonian, English (United States), Spanish (Spain), Spanish (Latin America), Basque, Filipino, French (France), Galician, Croatian, Zulu, Icelandic, Italian, Swahili, Latvian, Lithuanian, Hungarian, Dutch, Norwegian, Uzbek, Polish, Portuguese (Brazil), Portuguese (Portugal), Romanian, Albanian, Slovak, Slovenian, Finnish, Swedish, Vietnamese, Turkish, Greek, Bulgarian, Kyrgyz, Kazakh, Macedonian, Mongolian, Russian, Serbian, Ukrainian, Georgian, Armenian, Hebrew, Urdu, Arabic, Persian, Amharic, Nepali, Hindi, Marathi, Bengali, Punjabi, Gujarati, Tamil, Telugu, Kannada, Malayalam, Sinhala, Thai, Lao, Burmese, Khmer, Korean, Japanese, Simplified Chinese, Traditional Chinese

**Owner**  
**URL**  
**Commercial**  
**Registration**  
**Launched**  
**Current status**  
**Written in**

**Google**  
**google.com/maps**  **Edit this at Wikidata**  
Yes  
Optional, included with a **Google Account**  
February 8, 2005; 20 years ago  
Active  
**C++** (back-end), **JavaScript**, **XML**, **Ajax** (UI)

**Google Maps** is a **web mapping** platform and consumer application offered by **Google**. It offers **satellite imagery**, **aerial photography**, street maps, 360° **interactive panoramic** views of streets ( **Street View**), real-time traffic conditions, and **route planning** for traveling by foot, car, bike, air (in **beta**) and **public transportation**. As of 2020, Google Maps was being used by over one billion people every month around the world.<sup>[1]</sup>

Google Maps began as a **C++** desktop program developed by brothers **Lars** and **Jens Rasmussen** in Australia at Where 2 Technologies. In October 2004, the company was acquired by Google, which converted it into a web application. After additional acquisitions of a geospatial data visualization company and a real-time traffic analyzer, Google Maps was launched in February 2005.<sup>[2]</sup> The service's **front end** utilizes **JavaScript**, **XML**, and **Ajax**. Google Maps offers an **API** that allows maps to be embedded on third-party websites,<sup>[3]</sup> and offers a locator for businesses and other organizations in numerous countries around the world. **Google Map Maker** allowed users to collaboratively expand and update the service's mapping worldwide but was discontinued from March 2017. However, crowdsourced contributions to Google Maps were not discontinued as the company announced those features would be transferred to the Google Local Guides program,<sup>[4]</sup> although users that are not Local Guides can still contribute.

Google Maps' satellite view is a "top-down" or **bird's-eye view**; most of the high-resolution imagery of cities is aerial photography taken from aircraft flying at 800 to 1,500 feet (240 to 460 m), while most other imagery is from satellites.<sup>[5]</sup> Much of the available satellite imagery is no more than three years old and is updated on a regular basis, according to a 2011 report.<sup>[6]</sup> Google Maps previously used a **variant** of the **Mercator projection**, and therefore could not accurately show areas around the poles.<sup>[7]</sup> In August 2018, the desktop version of Google Maps was updated to show a 3D globe. It is still possible to switch back to the 2D map in the settings.

Google Maps for mobile devices was first released in 2006; the latest versions feature **GPS turn-by-turn navigation** along with dedicated **parking** assistance features. By 2013, it was found to be the world's most popular **smartphone** app, with over 54% of global smartphone owners using it.<sup>[8]</sup> In 2017, the app was reported to have two billion users on Android, along with several other Google services including **YouTube**, **Chrome**, **Gmail**, **Search**, and **Google Play**.

## History

<sup>[edit]</sup>

## Acquisitions

<sup>[edit]</sup>

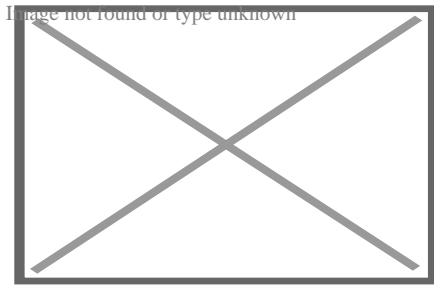
Google Maps first started as a **C++** program designed by two Danish brothers, **Lars** and **Jens Eilstrup Rasmussen**, and Noel Gordon and Stephen Ma, at the Sydney-based company Where 2 Technologies, which was founded in early 2003. The program was initially designed to be separately downloaded by users, but the company later pitched the idea for a purely Web-based product to Google management, changing the method of distribution.<sup>[9]</sup> In October 2004, the company was acquired by Google Inc.<sup>[10]</sup> where it transformed into the web application Google Maps. The Rasmussen brothers, Gordon and Ma joined Google at that time.

In the same month, Google acquired **Keyhole**, a geospatial data visualization company (with investment from the **CIA**), whose marquee application suite, Earth Viewer, emerged as the **Google Earth** application in 2005 while other aspects of its core technology were integrated into Google Maps.<sup>[11]</sup> In September 2004, Google acquired ZipDash, a company that provided real-time traffic analysis.<sup>[12]</sup>



## 2005–2010

[[edit](#)]

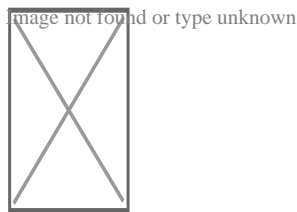


Google Maps Beta in 2005

The launch of Google Maps was first announced on the Google Blog on February 8, 2005.<sup>[13]</sup>

In September 2005, in the aftermath of [Hurricane Katrina](#), Google Maps quickly updated its satellite imagery of [New Orleans](#) to allow users to view the extent of the flooding in various parts of that city.<sup>[14][15]</sup>

As of 2007, Google Maps was equipped with a miniature view with a draggable rectangle that denotes the area shown in the main viewport, and "Info windows" for previewing details about locations on maps.<sup>[16]</sup> As of 2024, this feature had been removed (likely several years prior).



Original Google Maps icon

On November 28, 2007, Google Maps for Mobile 2.0 was released.<sup>[17][18][19]</sup> It featured a [beta version](#) of a "My Location" feature, which uses the GPS / [Assisted GPS](#) location of the mobile device, if available, supplemented by determining the nearest [wireless networks](#) and [cell sites](#).<sup>[18][19]</sup> The software looks up the location of the cell site using a database of known wireless networks and sites.<sup>[20][21]</sup> By [triangulating](#) the different signal strengths from cell transmitters and then using their location property (retrieved from the database), My Location determines the user's current location.<sup>[22]</sup>

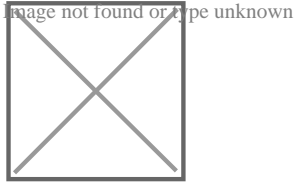
On September 23, 2008, coinciding with the announcement of the [first commercial Android device](#), Google announced that a Google Maps app had been released for its Android operating system.<sup>[23][24]</sup>

In October 2009, Google replaced [Tele Atlas](#) as their primary supplier of geospatial data in the US version of Maps and used their own data.<sup>[25]</sup>

## 2011–2015

[[edit](#)]

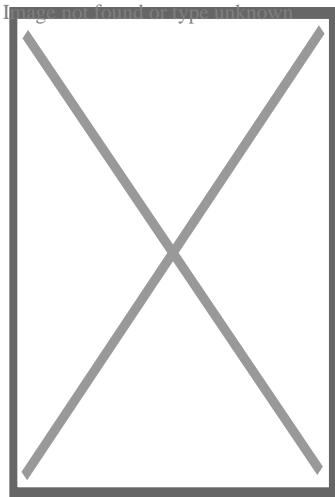
On April 19, 2011, Map Maker was added to the American version of Google Maps, allowing any viewer to edit and add changes to Google Maps. This provides Google with local map updates almost in real-time instead of waiting for digital map data companies to release more infrequent updates.



Icon used from 2015 to 2020

On January 31, 2012, Google, due to offering its Maps for free, was found guilty of abusing the dominant position of its Google Maps application and ordered by a court to pay a fine and damages to Bottin Cartographeur, a French mapping company.<sup>[26]</sup> This ruling was overturned on appeal.<sup>[27]</sup>

In June 2012, Google started mapping the UK's rivers and canals in partnership with the [Canal and River Trust](#). The company has stated that "it would update the program during the year to allow users to plan trips which include locks, bridges and towpaths along the 2,000 miles of river paths in the UK."<sup>[28]</sup>



A monument in the shape of a [Google Maps pin](#) in the center of the city of [Szczecin](#), Poland

In December 2012, the Google Maps application was separately made available in the App Store, after Apple removed it from its default installation of the mobile operating system version [iOS 6](#) in September 2012.<sup>[29]</sup>

On January 29, 2013, Google Maps was updated to include a map of [North Korea](#).<sup>[30]</sup> As of May 3, 2013, Google Maps recognizes [Palestine](#) as a country, instead of redirecting to the

[Palestinian territories](#).<sup>[31]</sup>

In August 2013, Google Maps removed the Wikipedia Layer, which provided links to Wikipedia content about locations shown in Google Maps using [Wikipedia geocodes](#).<sup>[32]</sup>

On April 12, 2014, Google Maps was updated to reflect the [annexation of Ukrainian Crimea by Russia](#). Crimea is shown as the [Republic of Crimea](#) in Russia and as the [Autonomous Republic of Crimea](#) in Ukraine. All other versions show a dotted disputed border.<sup>[33]</sup>

In April 2015, on a map near the Pakistani city of Rawalpindi, the imagery of the Android logo urinating on the Apple logo was added via Map Maker and appeared on Google Maps. The [vandalism](#) was soon removed and Google publicly apologized.<sup>[34]</sup> However, as a result, Google disabled user moderation on Map Maker, and on May 12, disabled editing worldwide until it could devise a new policy for approving edits and avoiding vandalism.<sup>[35]</sup>

On April 29, 2015, users of the classic Google Maps were forwarded to the new Google Maps with the option to be removed from the interface.<sup>[36]</sup>

On July 14, 2015, the Chinese name for [Scarborough Shoal](#) was removed after a petition from the [Philippines](#) was posted on [Change.org](#).<sup>[37]</sup>

## 2016–2018

[\[edit\]](#)

On June 27, 2016, Google rolled out new satellite imagery worldwide sourced from [Landsat 8](#), comprising over 700 trillion pixels of new data.<sup>[38]</sup> In September 2016, Google Maps acquired mapping analytics startup Urban Engines.<sup>[39]</sup>

In 2016, the Government of South Korea offered Google conditional access to the country's geographic database – access that already allows indigenous Korean mapping providers high-detail maps. Google declined the offer, as it was unwilling to accept restrictions on reducing the quality around locations the South Korean Government felt were sensitive (see [restrictions on geographic data in South Korea](#)).<sup>[40]</sup>

On October 16, 2017, Google Maps was updated with accessible imagery of several planets and moons such as [Titan](#), [Mercury](#), and [Venus](#), as well as direct access to imagery of the [Moon](#) and [Mars](#).<sup>[41][42]</sup>

In May 2018, Google announced major changes to the API structure starting June 11, 2018. This change consolidated the 18 different endpoints into three services and merged the basic and premium plans into one pay-as-you-go plan.<sup>[43]</sup> This meant a 1400% price raise for users on the basic plan, with only six weeks of notice. This caused a harsh reaction within the developers community.<sup>[44]</sup> In June, Google postponed the change date to July 16, 2018.

In August 2018, Google Maps designed its overall view (when zoomed out completely) into a [3D](#) globe dropping the [Mercator projection](#) that projected the planet onto a flat surface.<sup>[45]</sup>

## 2019–present

[\[edit\]](#)

### Google Maps icon 2020

Image not found or type unknown  
2020 icon redesign

In January 2019, Google Maps added speed trap and **speed camera** alerts as reported by other users.[\[46\]](#)[\[47\]](#)

On October 17, 2019, Google Maps was updated to include incident reporting, resembling a functionality in **Waze** which was acquired by Google in 2013.[\[48\]](#)

In December 2019, Incognito mode was added, allowing users to enter destinations without saving entries to their Google accounts.[\[49\]](#)

In February 2020, Maps received a 15th anniversary redesign.[\[50\]](#) It notably added a brand-new app icon, which now resembles the original icon in 2005.

On September 23, 2020, Google announced a COVID-19 Layer update for Google maps, which is designed to offer a seven-day average data of the total COVID-19-positive cases per 100,000 people in the area selected on the map. It also features a label indicating the rise and fall in the number of cases.[\[51\]](#)

In January 2021, Google announced that it would be launching a new feature displaying COVID-19 vaccination sites.[\[52\]](#)

In January 2021, Google announced updates to the route planner that would accommodate drivers of electric vehicles. Routing would take into account the type of vehicle, vehicle status including current charge, and the locations of charging stations.[\[53\]](#)

In June 2022, Google Maps added a layer displaying air quality for certain countries.[\[54\]](#)

In September 2022, Google removed the COVID-19 Layer from Google Maps due to lack of usage of the feature.[\[55\]](#)

## Functionality

[\[edit\]](#)

### Directions and transit

[\[edit\]](#)



Google Maps provides a [route planner](#),<sup>[56]</sup> allowing users to find available directions through driving, public transportation, walking, or biking.<sup>[57]</sup> Google has partnered globally with over 800 public transportation providers to adopt [GTFS](#) (General Transit Feed Specification), making the data available to third parties.<sup>[58]</sup><sup>[59]</sup> The app can indicate users' transit route, thanks to an October 2019 update. The incognito mode, eyes-free walking navigation features were released earlier.<sup>[60]</sup> A July 2020 update provided bike share routes.<sup>[61]</sup>

In February 2024, Google Maps started rolling out glanceable directions for its Android and iOS apps. The feature allows users to track their journey from their device's [lock screen](#).<sup>[62]</sup><sup>[63]</sup>

## Traffic conditions

[\[edit\]](#)

[Screenshot of Google Maps with traffic option enabled](#)

Image not found or type unknown

[Screenshot of Google Maps with traffic option enabled](#)

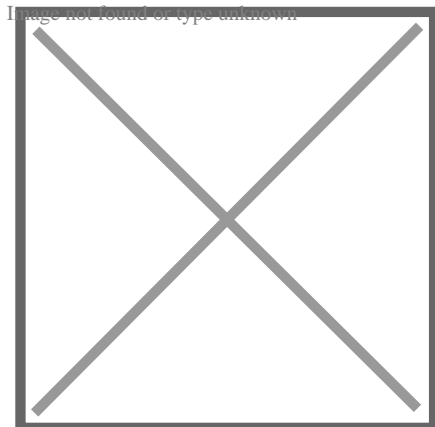
In 2007, Google began offering traffic data as a colored overlay on top of roads and motorways to represent the speed of vehicles on particular roads. [Crowdsourcing](#) is used to obtain the GPS-determined locations of a large number of cellphone users, from which live traffic maps are produced.<sup>[64]</sup><sup>[65]</sup><sup>[66]</sup>

Google has stated that the speed and location information it collects to calculate traffic conditions is anonymous.<sup>[67]</sup> Options available in each phone's settings allow users not to share information about their location with Google Maps.<sup>[68]</sup> Google stated, "Once you disable or opt out of My Location, Maps will not continue to send radio information back to Google servers to determine your handset's approximate location".<sup>[69]</sup><sup>[failed verification](#)</sup>

## Street View

[\[edit\]](#)

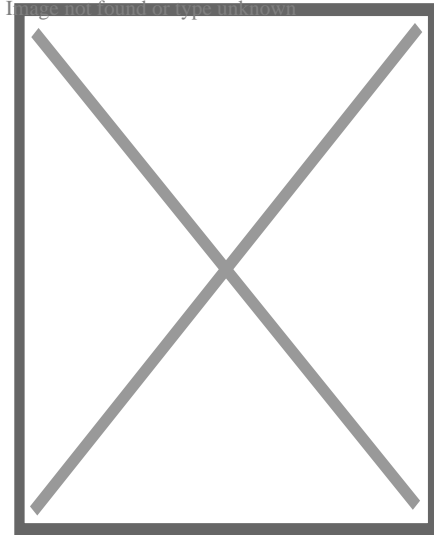
Main article: [Google Street View](#)



A Google Maps car at [Googleplex, Mountain View](#)

On May 25, 2007, Google released [Google Street View](#), a feature of Google Maps providing [360°](#) panoramic street-level views of various locations. On the date of release, the feature only included five cities in the U.S. It has since expanded to thousands of locations around the world. In July 2009, Google began mapping college campuses and surrounding paths and [trails](#).

Street View garnered much controversy after its release because of [privacy concerns](#) about the uncensored nature of the panoramic photographs, although the views are only taken on public streets.<sup>[70][71]</sup> Since then, Google has blurred faces and license plates through automated [facial recognition](#).<sup>[72][73][74]</sup>



Google Maps Street View Trekker backpack being implemented on the sidewalk of the Hudson River Greenway in New York City

In late 2014, Google launched Google Underwater Street View, including 2,300 kilometres (1,400 mi) of the Australian [Great Barrier Reef](#) in 3D. The images are taken by special cameras which turn 360 degrees and take shots every 3 seconds.<sup>[75]</sup>

In 2017, in both Google Maps and Google Earth, Street View navigation of the [International Space Station](#) interior spaces became available.

### 3D imagery

[\[edit\]](#)

Main article: [Google Earth § 3D imagery](#)

Google Maps has incorporated<sup>[*when?*]</sup> 3D models of hundreds of cities in over 40 countries from Google Earth into its satellite view. The models were developed using aerial [photogrammetry](#) techniques.<sup>[76][77]</sup>


















# Immersive View












[edit]

At the **I/O 2022** event, Google announced Immersive View, a feature of Google Maps which would involve composite 3D images generated from **Street View** and aerial images of locations using AI, complete with synchronous information. It was to be initially in five cities worldwide, with plans to add it to other cities later on.[78] The feature was previewed in September 2022 with 250 photorealistic aerial 3D images of landmarks,[79] and was full launched in February 2023.[80] An expansion of Immersive View to routes was announced at Google I/O 2023,[81] and was launched in October 2023 for 15 cities globally.[82]

The feature uses **predictive modelling** and **neural radiance fields** to scan Street View and aerial images to generate composite 3D imagery of locations, including both exteriors and interiors, and routes, including driving, walking or cycling, as well as generate synchronous information and forecasts up to a month ahead from historical and environmental data about both such as weather, traffic and busyness.

Immersive View has been available in the following locations:[citation needed]

Locations with Immersive View	
Country	Locations
 Argentina	Buenos Aires
 Australia	Melbourne, Sydney
 Austria	Vienna
 Belgium	Brussels
 Brazil	Brasília, Rio de Janeiro, São Paulo
 Canada	Calgary, Edmonton, Montreal, Ottawa, Toronto, Vancouver
 Chile	Santiago
 Czech Republic	Prague
 France	Nice, Paris
 Germany	Berlin, Cologne, Frankfurt, Munich
 Greece	Athens
 Hong Kong	Hong Kong
 Hungary	Budapest
 Italy	Florence, Milan, Rome, Venice
 Japan	Kyoto, Nagoya, Osaka, Tokyo
 Mexico	Guadalajara, Mexico City
 Netherlands	Amsterdam
 Norway	Oslo
 Poland	Warsaw

	Portugal	Lisbon, Porto
	Romania	Bucharest
	Singapore	Singapore
	South Africa	Cape Town, Johannesburg
	Spain	Barcelona, Madrid
	Sweden	Stockholm
	Switzerland	Zurich
	Taiwan	Taichung, Taipei
	United Kingdom	Edinburgh, London
	United States	Atlanta, Boston, Chicago, Detroit, Houston, Las Vegas, Los Angeles, Miami, New York City, Philadelphia, San Diego, San Francisco, Seattle
	Vatican City	Vatican City

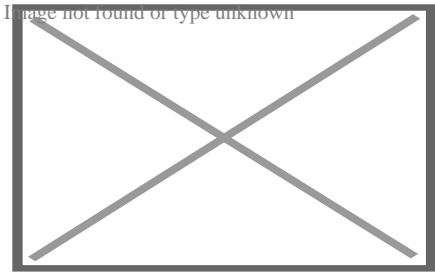
### Landmark Icons

[[edit](#)]

Google added icons of city attractions, in a similar style to [Apple Maps](#), on October 3, 2019. In the first stage, such icons were added to 9 cities.<sup>[83]</sup>

### 45° imagery

[[edit](#)]



An example of the [Leaning Tower of Pisa](#) in the 45° view

In December 2009, Google introduced a new view consisting of 45° angle aerial imagery, offering a "[bird's-eye view](#)" of cities. The first cities available were [San Jose](#) and San Diego. This feature was initially available only to developers via the Google Maps API.<sup>[84]</sup> In February 2010, it was introduced as an experimental feature in Google Maps Labs.<sup>[85]</sup> In July 2010, 45° imagery was made available in Google Maps in select cities in South Africa, the United States, Germany and Italy.<sup>[86]</sup>

### Weather

[[edit](#)]



In February 2024, Google Maps incorporated a small weather icon on the top left corner of the Android and iOS mobile apps, giving access to weather and [air quality index](#) details.<sup>[87]</sup>

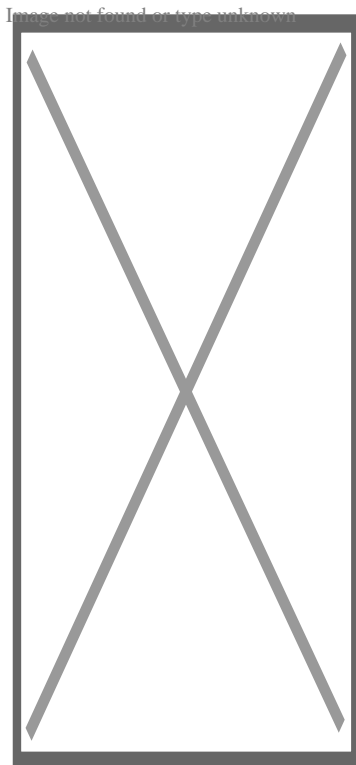
## Lens in Maps

[\[edit\]](#)

Previously called Search with Live View, Lens In Maps identifies shops, restaurants, transit stations and other street features with a phone's camera and places relevant information and a category pin on top, like closing/opening times, current busyness, pricing and reviews using AI and [augmented reality](#). The feature, if available on the device, can be accessed through tapping the Lens icon in the search bar. It was expanded to 50 new cities in October 2023 in its biggest expansion yet, after initially being released in late 2022 in Los Angeles, San Francisco, New York, London, and Paris.<sup>[88]</sup><sup>[89]</sup> Lens in Maps shares features with Live View, which also displays information relating to street features while guiding a user to a selected destination with virtual arrows, signs and guidance.<sup>[90]</sup>

## Business listings

[\[edit\]](#)



A business listing in Google Maps showing opening times, reviews and photos. This screenshot is from the Android mobile app.

Google collates business listings from multiple on-line and off-line sources. To reduce duplication in the index, Google's algorithm combines listings automatically based on address, phone number, or

geocode,[91] but sometimes information for separate businesses will be inadvertently merged with each other, resulting in listings inaccurately incorporating elements from multiple businesses.[92] Google allows business owners to create and verify their own business data through *Google Business Profile* (GBP), formerly *Google My Business* (GMB).[93] Owners are encouraged to provide Google with business information including address, phone number, business category, and photos.[94] Google has staff in India who check and correct listings remotely as well as support businesses with issues.[95] Google also has teams on the ground in most countries that validate physical addresses in person.[96] In May 2024, Google announced it would discontinue the chat feature in Google Business Profile. Starting July 15, 2024, new chat conversations would be disabled, and by July 31, 2024, all chat functionalities would end.[97]

Google Maps can be manipulated by businesses that are not physically located in the area in which they record a listing. There are cases of people abusing Google Maps to overtake their competition by placing unverified listings on online directory sites, knowing the information will roll across to Google (duplicate sites). The people who update these listings do not use a registered business name. They place keywords and location details on their Google Maps business title, which can overtake credible business listings. In Australia in particular, genuine companies and businesses are noticing a trend of fake business listings in a variety of industries.[98]

Genuine business owners can also optimize their business listings to gain greater visibility in Google Maps, through a type of search engine marketing called **local search engine optimization**. [99]

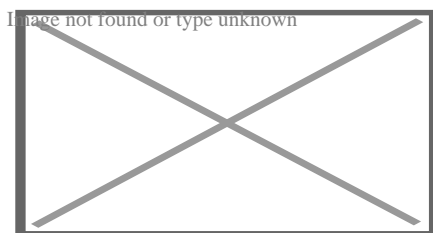
## Indoor maps

[edit]

In March 2011, indoor maps were added to Google Maps, giving users the ability to navigate themselves within buildings such as **airports**, **museums**, shopping malls, **big-box stores**, universities, **transit stations**, and other public spaces (including underground facilities). Google encourages owners of public facilities to submit floor plans of their buildings in order to add them to the service.[100] Map users can view different floors of a building or **subway station** by clicking on a level selector that is displayed near any structures which are mapped on multiple levels.

## My Maps

[edit]



Google My Maps

My Maps is a feature in Google Maps launched in April 2007 that enables users to create custom maps for personal use or sharing. Users can add points, lines, shapes, notes and images on top of Google Maps using a **WYSIWYG** editor.<sup>[101]</sup> An Android app for My Maps, initially released in March 2013 under the name Google Maps Engine Lite, was available until its removal from the **Play Store** in October 2021.<sup>[102][103][104]</sup>

## Google Local Guides

<sup>[edit]</sup>

Google Local Guides is a volunteer program launched by Google Maps<sup>[105]</sup> to enable users to contribute to Google Maps when registered. It sometimes provides them additional perks and benefits for their collaboration. Users can achieve Level 1 to 10, and be awarded with badges. The program is partially a successor to **Google Map Maker** as features from the former program became integrated into the website and app.<sup>[106]</sup>

The program consists of adding reviews, photos, basic information, and videos; and correcting information such as **wheelchair accessibility**.<sup>[107][108]</sup> Adding reviews, photos, videos, new places, new roads or providing useful information gives points to the users.<sup>[109]</sup> The level of users is upgraded when they get a certain amount of points.<sup>[110][111]</sup> Starting with Level 4, a star is shown near the avatar of the user.<sup>[111]</sup>

## Timelapse

<sup>[edit]</sup>

Earth Timelapse, released in April 2021, is a program in which users can see how the earth has been changed in the last 37 years. They combined the 15 million satellite images (roughly ten quadrillion **pixels**) to create the 35 global cloud-free Images for this program.<sup>[112]</sup>

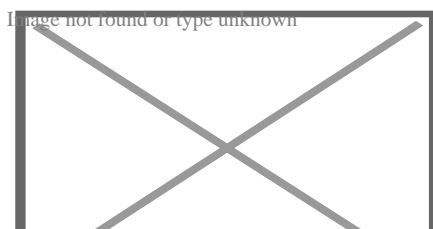
## Timeline

<sup>[edit]</sup>

If a user shares their location with Google, Timeline summarises this location for each day on a **Timeline map**.<sup>[113]</sup> Timeline estimates the mode of travel used to move between places and will also show photos taken at that location. In June 2024, Google started progressively removing access to the timeline on web browsers, with the information instead being stored on a local device.<sup>[114][115]</sup>

## Implementation

<sup>[edit]</sup>



A split-view screenshot of Google Maps. In the bottom half *Street Maps* is shown, while in the top half *Street View* is shown. A user can zoom in and out of either of them independently of the zoom level of each.

As the user drags the map, the grid squares are downloaded from the server and inserted into the page. When a user searches for a business, the results are downloaded in the background for insertion into the side panel and map; the page is not reloaded. A hidden [iframe](#) with form submission is used because it preserves browser history. Like many other Google web applications, Google Maps uses [JavaScript](#) extensively.<sup>[116]</sup> The site also uses protocol buffers for data transfer rather than [JSON](#), for performance reasons.

The version of [Google Street View](#) for classic Google Maps required [Adobe Flash](#).<sup>[117]</sup> In October 2011, Google announced MapsGL, a [WebGL](#) version of Maps with better renderings and smoother transitions.<sup>[118]</sup> Indoor maps use JPG, .PNG, .PDF, .BMP, or .GIF, for [floor plans](#).<sup>[119]</sup>

Users who are logged into a [Google Account](#) can save locations so that they are overlaid on the map with various colored "pins" whenever they browse the application. These "Saved places" can be organized into default groups or user named groups and shared with other users. "Starred places" is one default group example. It previously automatically created a record within the now-discontinued product [Google Bookmarks](#).

## Map data and imagery

[\[edit\]](#)

See also: [List of satellite map images with missing or unclear data](#)

The Google Maps terms and conditions<sup>[120]</sup> state that usage of material from Google Maps is regulated by Google Terms of Service<sup>[121]</sup> and some additional restrictions. Google has either purchased local map data from established companies, or has entered into lease agreements to use copyrighted map data.<sup>[122]</sup> The owner of the copyright is listed at the bottom of zoomed maps. For example, street maps in Japan are leased from [Zenrin](#). Street maps in China are leased from [AutoNavi](#).<sup>[123]</sup> Russian street maps are leased from Geocentre Consulting and [Tele Atlas](#). Data for [North Korea](#) is sourced from the companion project [Google Map Maker](#).

Street map overlays, in some areas, may not match up precisely with the corresponding satellite images. The street data may be entirely erroneous, or simply out of date: "The biggest challenge is the currency of data, the authenticity of data," said Google Earth representative [Brian McClendon](#). As a result, in March 2008 Google added a feature to edit the locations of houses and businesses.<sup>[124][125]</sup>

Restrictions have been placed on Google Maps through the apparent censoring of locations deemed potential security threats. In some cases the area of redaction is for specific buildings, but in other cases, such as Washington, D.C.,<sup>[126]</sup> the restriction is to use outdated imagery.

## Google Maps API



[edit]

Google Maps API, now called Google Maps Platform, hosts about 17 different APIs, which are themed under the following categories: Maps, Places and Routes.[127]

After the success of reverse-engineered mashups such as [chicagocrime.org](#) and [housingmaps.com](#), Google launched the Google Maps API in June 2005[128] to allow developers to integrate Google Maps into their websites. It was a free service that did not require an API key until June 2018 (changes went into effect on July 16), when it was announced that an API key linked to a Google Cloud account with billing enabled would be required to access the API.[129] The API currently does not contain ads, but Google states in their terms of use that they reserve the right to display ads in the future.[130]

By using the Google Maps API, it is possible to embed Google Maps into an external website, onto which site-specific data can be overlaid.[131] Although initially only a JavaScript API, the Maps API was expanded to include an API for Adobe Flash applications (but this has been deprecated), a service for retrieving static map images, and web services for performing geocoding, generating driving directions, and obtaining elevation profiles. Over 1,000,000[132] web sites use the Google Maps API, making it the most heavily used web application development API.[133] In September 2011, Google announced it would deprecate the Google Maps API for Flash.[134]

The Google Maps API was free for commercial use, provided that the site on which it is being used is publicly accessible and did not charge for access, and was not generating more than 25,000 map accesses a day.[135][136] Sites that did not meet these requirements could purchase the Google Maps API for Business.[137]

As of June 21, 2018, Google increased the prices of the Maps API and requires a billing profile.[138]

## Google Maps in China

[edit]

Due to restrictions on geographic data in China, Google Maps must partner with a Chinese digital map provider in order to legally show Chinese map data. Since 2006, this partner has been AutoNavi.[123]

Within China, the State Council mandates that all maps of China use the GCJ-02 coordinate system, which is offset from the WGS-84 system used in most of the world. [google.cn/maps](#) (formerly Google Ditu) uses the GCJ-02 system for both its street maps[139] and satellite imagery.[140] [google.com/maps](#) also uses GCJ-02 data for the street map, but uses WGS-84 coordinates for satellite imagery,[141] causing the so-called China GPS shift problem.

Frontier alignments also present some differences between [google.cn/maps](#) and [google.com/maps](#). On the latter, sections of the Chinese border with India and Pakistan are shown with dotted lines, indicating areas or frontiers in dispute. However, [google.cn](#) shows the Chinese frontier strictly according to Chinese claims with no dotted lines indicating the border with India and Pakistan. For

example, the **South Tibet** region claimed by China but administered by India as a large part of **Arunachal Pradesh** is shown inside the Chinese frontier by google.cn, with Indian highways ending abruptly at the Chinese claim line. Google.cn also shows Taiwan and the **South China Sea Islands** as part of China. Google Ditu's street map coverage of Taiwan no longer omits major state organs, such as the Presidential Palace, the **five Yuans**, and the Supreme Court.<sup>[142]</sup><sup>[additional citation(s) needed]</sup>

Feature-wise, google.cn/maps does not feature My Maps. On the other hand, while google.cn displays virtually all text in Chinese, google.com/maps displays most text (user-selectable real text as well as those on map) in English.<sup>[citation needed]</sup> This behavior of displaying English text is not consistent but intermittent – sometimes it is in English, sometimes it is in Chinese. The criteria for choosing which language is displayed are not known publicly.<sup>[citation needed]</sup>

## Criticism and controversies

[edit]

### Incorrect location naming

[edit]

There are cases where Google Maps had added out-of-date neighborhood monikers. Thus, in Los Angeles, the name "Brooklyn Heights" was revived from its 1870s usage<sup>[143]</sup> and "Silver Lake Heights" from its 1920s usage,<sup>[144]</sup> or mistakenly renamed areas (in Detroit, the neighborhood "Fiskhorn" became "Fishkorn").<sup>[145]</sup> Because many companies utilize Google Maps data, these previously obscure or incorrect names then gain traction; the names are often used by **realtors**, hotels, **food delivery** sites, **dating sites**, and **news organizations**.

Google has said it created its maps from third-party data, public sources, satellites, and users, but many names used have not been connected to any official record.<sup>[143]</sup><sup>[145]</sup> According to a former Google Maps employee (who was not authorized to speak publicly), users can submit changes to Google Maps, but some submissions are ruled upon by people with little local knowledge of a place, such as contractors in India. Critics maintain that names like "BoCoCa" (for the area in Brooklyn between Boerum Hill, Cobble Hill and Carroll Gardens), are "just plain puzzling" or simply made up.<sup>[145]</sup> Some names used by Google have been traced to non-professionally made maps with typographical errors that survived on Google Maps.<sup>[145]</sup>

## Potential misuse

[edit]

See also: **Google Street View privacy concerns** and **List of satellite map images with missing or unclear data**

In 2005 the **Australian Nuclear Science and Technology Organisation** (ANSTO) complained about the potential for terrorists to use the satellite images in planning attacks, with specific reference to the **Lucas Heights nuclear reactor**; however, the Australian Federal government did not support the organization's concern. At the time of the ANSTO complaint, Google had colored over some areas

for security (mostly in the U.S.), such as the rooftop of the [White House](#) and several other Washington, D.C. buildings.<sup>[146][147][148]</sup>

In October 2010, Nicaraguan military commander [Edén Pastora](#) stationed [Nicaraguan troops](#) on the [Isla Calero](#) (in the delta of the [San Juan River](#)), justifying his action on the border delineation given by Google Maps. Google has since updated its data which it found to be incorrect.<sup>[149]</sup>

On January 27, 2014, documents leaked by [Edward Snowden](#) revealed that the [NSA](#) and the [GCHQ](#) intercepted Google Maps queries made on smartphones, and used them to locate the users making these queries. One leaked document, dating to 2008, stated that "[i]t effectively means that anyone using Google Maps on a smartphone is working in support of a GCHQ system."<sup>[150]</sup>

In May 2015, searches on Google Maps for offensive racial epithets for African Americans such as "[nigger](#)", "nigger king", and "nigger house" pointed the user to the [White House](#); Google apologized for the incident.<sup>[151][152]</sup>

In December 2015, 3 Japanese [netizens](#) were charged with vandalism after they were found to have added an unrelated law firm's name as well as indecent names to locations such as "[Nuclear test site](#)" to the [Atomic Bomb Dome](#) and "Izumo [Satya](#)" to the [Izumo Taisha](#).<sup>[153][154]</sup>

In February 2020, the artist Simon Weckert<sup>[155]</sup> used 99 cell phones to fake a Google Maps traffic jam.<sup>[156]</sup>

In September 2024, several schools in Taiwan and Hong Kong were altered to incorrect labels, such as "[psychiatric hospitals](#)" or "[prisons](#)". Initially, it was believed to be the result of hacker attacks. However, police later revealed that local students had carried out the prank. Google quickly corrected the mislabeled entries. Education officials in Taiwan and Hong Kong expressed concern over the incident.<sup>[157][158][159]</sup>

## Misdirection incidents

[\[edit\]](#)

### Australia

[\[edit\]](#)

In August 2023, a woman driving from [Alice Springs](#) to the Harts Range Racecourse was stranded in the Central Australian desert for a night after following directions provided by Google Maps.<sup>[160][161]</sup> She later discovered that Google Maps was providing directions for the actual [Harts Range](#) instead of the rodeo. Google said it was looking into the naming of the two locations and consulting with "local and authoritative sources" to solve the issue.<sup>[160]</sup>

In February 2024, two German tourists were stranded for a week after Google Maps directed them to follow a dirt track through [Oyala Thumotang National Park](#) and their vehicle became trapped in mud.<sup>[162][163]</sup> [Queensland Parks and Wildlife Service](#) ranger Roger James said, "People should not trust Google Maps when they're travelling in remote regions of [Queensland](#), and they need to

follow the signs, use official maps or other navigational devices."<sup>[162]</sup>

## North America

<sup>[edit]</sup>

In June 2019, Google Maps provided nearly 100 **Colorado** drivers an alternative route that led to a dirt road after a crash occurred on **Peña Boulevard**. The road had been turned to mud by rain, resulting in nearly 100 vehicles being trapped.<sup>[164][161]</sup> Google said in a statement, "While we always work to provide the best directions, issues can arise due to unforeseen circumstances such as weather. We encourage all drivers to follow local laws, stay attentive, and use their best judgment while driving."<sup>[164]</sup>

In September 2023, Google was sued by a **North Carolina** resident who alleged that Google Maps had directed her husband over the Snow Creek Bridge in **Hickory** the year prior, resulting in him drowning. According to the lawsuit, multiple people had notified Google about the state of the bridge, which collapsed in 2013, but Google had not updated the route information and continued to direct users over the bridge.<sup>[165][166][161]</sup> At the time of the man's death, the barriers placed to block access to the bridge had been vandalized.<sup>[167][168]</sup>

In November 2023, a hiker was rescued by helicopter on the backside of **Mount Fromme** in **Vancouver**. **North Shore Rescue** stated on its Facebook page that the hiker had followed a non-existent hiking trail on Google Maps. This was also the second hiker in two months to require rescuing after following the same trail. The fake trail has since been removed from the app.<sup>[169][170]</sup>

Also in November 2023, Google apologized after users were directed through desert roads after parts of **Interstate 15** were closed due to a **dust storm**.<sup>[171]</sup> Drivers became stranded after following the suggested detour route, which was a "bumpy dirt trail".<sup>[172]</sup> Following the incident, Google stated that Google Maps would "no longer route drivers traveling between **Las Vegas** and **Barstow** down through those roads."<sup>[171]</sup>

## Russia

<sup>[edit]</sup>

In 2020, a teenage motorist was found frozen to death while his passenger was still alive but suffered from severe **frostbite** after using Google Maps, which had led them to a shorter but abandoned section of the **R504 Kolyma Highway**, where their **Toyota Chaser** became disabled.<sup>[173]</sup>

## India

<sup>[edit]</sup>

In 2024, three men from [Uttar Pradesh](#) died after their car fell from an under-construction bridge. They were using Google Maps for driving which misdirected them and the car fell into the [Ramganga](#) river.<sup>[174][175]</sup>

## Renaming of the Gulf of Mexico

[\[edit\]](#)

In February 2025, as a response to Donald Trump's [Executive Order 14172](#), the [Gulf of Mexico](#) was renamed to "Gulf of America" for US users and "Gulf of Mexico (Gulf of America)" elsewhere, except for Mexico itself where it remained the Gulf of Mexico. The decision received criticism, with Mexican president [Claudia Sheinbaum](#) asking Google to reconsider its decision.<sup>[176]</sup> Google subsequently blocked and deleted negative reviews of the gulf after the name change occurred.<sup>[177][178]</sup>

## Discontinued features

[\[edit\]](#)

### Google Latitude

[\[edit\]](#)

Main article: [Google Latitude](#)

Google Latitude was a feature that let users share their physical locations with other people. This service was based on Google Maps, specifically on mobile devices. There was an iGoogle widget for desktops and laptops as well.<sup>[179]</sup> Some concerns were expressed about the privacy issues raised by the use of the service.<sup>[180]</sup> On August 9, 2013, this service was discontinued,<sup>[181]</sup> and on March 22, 2017, Google incorporated the features from Latitude into the Google Maps app.<sup>[182]</sup>

### Google Map Maker

[\[edit\]](#)

Main article: [Google Map Maker](#)

In areas where Google Map Maker was available, for example, much of Asia, Africa, Latin America and Europe as well as the United States and Canada, anyone who logged into their Google account could directly improve the map by fixing incorrect driving directions, adding biking trails, or adding a missing building or road. General map errors in Australia, Austria, Belgium, Denmark, France, Liechtenstein, Netherlands, New Zealand, Norway, South Africa, Switzerland, and the United States could be reported using the Report a Problem link in Google Maps and would be updated by Google.<sup>[183]</sup> For areas where Google used [Tele Atlas](#) data, map errors could be reported using Tele Atlas map insight.<sup>[184]</sup>

If imagery was missing, outdated, misaligned, or generally incorrect, one could notify Google through their contact request form.<sup>[185]</sup>

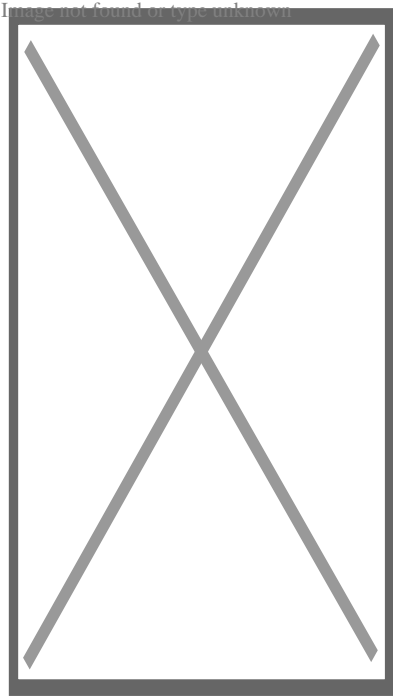


In November 2016, Google announced the discontinuation of Google Map Maker as of March 2017.<sup>[186]</sup>

Mobile app

[\[edit\]](#)

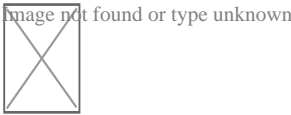
Screenshot



Screenshot of Google Maps on **Android 14**  
25.10.04 (Build 732665141) / 7 March 2025; 10 days ago<sup>[187]</sup><sup>[188]</sup>  
25.09.00 (Build 730474011) / 25 February 2025; 20 days ago<sup>[187]</sup><sup>[189]</sup>  
**iOS** 25.10.02 / 7 March 2025; 10 days ago<sup>[190]</sup>  
**Android Go**,<sup>[a]</sup> discontinued 161.1 / 13 October 2023; 17 months ago<sup>[191]</sup><sup>[192]</sup>

**Android (Beta)** 11.143.0303 / 20 August 2024; 6 months ago<sup>[193]</sup>

Google Maps



**Original author(s)** Google

**Initial release** 2006; 19 years ago

**Stable release(s)** [±]

**Preview release(s)** [±]

- Android
  - iOS
  - KaiOS Wear OS WatchOS Web Fitbit OS
- Operating system**

Formerly: Java ME, Symbian, Windows Mobile

Google Maps is available as a **mobile app** for the **Android** and **iOS** mobile operating systems. The first mobile version of Google Maps (then known as Google Local for Mobile) was launched in beta in November 2005 for mobile platforms supporting **J2ME**.<sup>[194][195][196]</sup> It was released as Google Maps for Mobile in 2006.<sup>[197]</sup> In 2007 it came preloaded on the **first iPhone** in a deal with Apple.<sup>[198]</sup> A version specifically for **Windows Mobile** was released in February 2007<sup>[199]</sup> and the **Symbian** app was released in November 2007.<sup>[200]</sup>

Version 2.0 of Google Maps Mobile was announced at the end of 2007, with a stand out *My Location* feature to find the user's location using the cell towers, without needing **GPS**.<sup>[201][202][203]</sup> In September 2008, Google Maps was released for and preloaded on Google's own new platform Android.<sup>[204][205]</sup>

Up until **iOS 6**, the built-in maps application on the **iOS** operating system was powered by Google Maps. However, with the announcement of iOS 6 in June 2012, **Apple** announced that they had created their own **Apple Maps** mapping service,<sup>[206]</sup> which officially replaced Google Maps when iOS 6 was released on September 19, 2012.<sup>[207]</sup> However, at launch, Apple Maps received significant criticism from users due to inaccuracies, errors and **bugs**.<sup>[208][209]</sup> One day later, *The Guardian* reported that Google was preparing its own Google Maps app,<sup>[210]</sup> which was released on December 12, 2012.<sup>[211][212]</sup> Within two days, the application had been downloaded over ten million times.<sup>[213]</sup>

## Features

[edit]

The Google Maps apps for iOS and Android have many of the same features, including **turn-by-turn navigation**, **street view**, and public transit information.<sup>[214][215]</sup> Turn-by-turn navigation was originally announced by Google as a separate beta testing app exclusive to Android 2.0 devices in October 2009.<sup>[216][217]</sup> The original standalone iOS version did not support the **iPad**,<sup>[215]</sup> but tablet support was added with version 2.0 in July 2013.<sup>[218]</sup> An update in June 2012 for Android devices added support for offline access to downloaded maps of certain regions,<sup>[219][220]</sup> a feature that was eventually released for iOS devices, and made more robust on Android, in May 2014.<sup>[221][222]</sup>

At the end of 2015 Google Maps announced its new offline functionality,<sup>[223]</sup> but with various limitations – downloaded area cannot exceed 120,000 square kilometers<sup>[224][225]</sup> and require a considerable amount of storage space.<sup>[226]</sup> In January 2017, Google added a feature exclusively

to Android that will, in some U.S. cities, indicate the level of difficulty in finding available parking spots,[227] and on both Android and iOS, the app can, as of an April 2017 update, remember where users parked.[228][229] In August 2017, Google Maps for Android was updated with new functionality to actively help the user in finding parking lots and garages close to a destination.[230] In December 2017, Google added a new two-wheeler mode to its Android app, designed for users in India, allowing for more accessibility in traffic conditions.[231][232] In 2019 the Android version introduced the new feature called live view that allows to view directions directly on the road thanks to **augmented reality**. [233] Google Maps won the 2020 Webby Award for Best User Interface in the category Apps, Mobile & Voice.[234] In March 2021, Google added a feature in which users can draw missing roads.[235] In June 2022, Google implemented support for toll calculation. Both iOS and Android apps report how much the user has to pay in tolls when a route that includes toll roads is input. The feature is available for roads in the US, India, Japan and Indonesia with further expansion planned. As per reports the total number of toll roads covered in this phase is around 2000.[236]

## Reception

[edit]

*USA Today* welcomed the application back to iOS, saying: "The reemergence in the middle of the night of a Google Maps app for the iPhone is like the return of an old friend. Only your friend, who'd gone missing for three months, comes back looking better than ever." [237] Jason Parker of *CNET*, calling it "the king of maps", said, "With its iOS Maps app, Google sets the standard for what mobile navigation should be and more." [238] Bree Fowler of the *Associated Press* compared Google's and Apple's map applications, saying: "The one clear advantage that Apple has is style. Like Apple devices, the maps are clean and clear and have a fun, pretty element to them, especially in 3-D. But when it comes down to depth and information, Google still reigns superior and will no doubt be welcomed back by its fans." [239] *Gizmodo* gave it a ranking of 4.5 stars, stating: "Maps Done Right". [240] According to *The New York Times*, Google "admits that it's [iOS app is] even better than Google Maps for Android phones, which has accommodated its evolving feature set mainly by piling on menus". [241]

Google Maps' **location tracking** is regarded by some as a threat to users' privacy, with Dylan Tweney of *VentureBeat* writing in August 2014 that "Google is probably logging your location, step by step, via Google Maps", and linked users to Google's location history map, which "lets you see the path you've traced for any given day that your smartphone has been running Google Maps". Tweney then provided instructions on how to disable location history. [242] The history tracking was also noticed, and recommended disabled, by editors at *CNET* [243] and *TechCrunch*. [244] Additionally, *Quartz* reported in April 2014 that a "sneaky new privacy change" would have an effect on the majority of iOS users. The privacy change, an update to the *Gmail* iOS app that "now supports sign-in across Google iOS apps, including Maps, *Drive*, YouTube and *Chrome*", meant that Google would be able to identify users' actions across its different apps. [245]

The Android version of the app surpassed five billion installations in March 2019. [246] By November 2021, the Android app had surpassed 10 billion installations. [247]

## Go version

[[edit](#)]

Google Maps Go, a version of the app designed for **lower-end devices**, was released in beta in January 2018.<sup>[248]</sup> By September 2018, the app had over 10 million installations.<sup>[249]</sup>

## Artistic and literary uses

[[edit](#)]

The German "geo-novel" ***Senghor on the Rocks*** (2008) presents its story as a series of spreads showing a Google Maps location on the left and the story's text on the right. Annika Richterich explains that the "satellite pictures in *Senghor on the Rocks* illustrate the main character's travel through the West-African state of **Senegal**".<sup>[250]</sup>

Artists have used Google Street View in a range of ways. **Emilio Vavarella's** *The Google Trilogy* includes glitchy images and unintended portraits of the drivers of the Street View cars.<sup>[251]</sup> The Japanese band **group inou** used Google Street View backgrounds to make a music video for their song EYE.<sup>[252]</sup> The Canadian band **Arcade Fire** made a customized music video that used Street View to show the viewer their own childhood home.<sup>[253][254]</sup>

## See also

[[edit](#)]

- icon**

**Internet portal**

Image not found or broken link known
- Azure Maps**
  - Apple Maps**
  - Bing Maps**
  - Comparison of web map services**
  - GeoGuessr**
  - Google Earth**
  - Google Maps Road Trip***, live-streaming documentary
  - Here WeGo**
  - MapQuest**
  - OpenStreetMap**
  - Terravision (computer program)**
  - Wikiloc**, a mashup that shows trails and waypoints on Google Maps
  - Wikimapia**, a mashup combining Google Maps and a **wiki** aimed at "describing the whole planet earth"
  - Yandex Maps**, popular in Russia and **CIS**

## Notes

[edit]

1. ^ Lite version for Android

## References

[edit]

1. ^ "Google Maps Metrics and Infographics". Google Maps for iPhone. Archived from the original on March 21, 2022. Retrieved April 1, 2021.
2. ^ "Our history in depth". Google Company. Archived from the original on April 6, 2016. Retrieved June 13, 2016.
3. ^ "Google Maps API". Google Developers. Archived from the original on April 20, 2012.
4. ^ Perez, Sarah (November 8, 2016). "Google to shut down Map Maker, its crowdsourced map editing tool". TechCrunch. Archived from the original on August 11, 2017. Retrieved June 23, 2017.
5. ^ "Blurry or outdated imagery". Google Earth Help. Archived from the original on October 24, 2013. Retrieved January 12, 2014.
6. ^ Anderson, Frank (October 18, 2011). "How Often is Google Maps and Google Earth Updated?". TechnicaMix. Archived from the original on December 3, 2013. Retrieved November 24, 2013.
7. ^ "Map Types – Google Maps JavaScript API v3 — Google Developers". Google Inc. July 27, 2012. Archived from the original on January 15, 2013. Retrieved January 3, 2013.
8. ^ "Google+ Smartphone App Popularity". Business Insider. Archived from the original on September 6, 2013. Retrieved September 6, 2013.
9. ^ "Google mapper: Take browsers to the limit". CNET. Archived from the original on October 26, 2012. Retrieved January 3, 2013.
10. ^ Kiss, Jemima (June 17, 2009). "Secrets of a nimble giant". London: Guardian. Archived from the original on February 19, 2014. Retrieved October 30, 2010.
11. ^ Orlowski, Andrew (October 28, 2004). "Google buys CIA-backed mapping startup". The Register. Archived from the original on February 11, 2017. Retrieved April 27, 2017.
12. ^ Bazeley, Michael (March 30, 2005). "Google acquires traffic info start-up Zipdash". SiliconBeat. Archived from the original on January 2, 2008. Retrieved January 8, 2008.
13. ^ Taylor, Bret (February 8, 2005). "Mapping your way". Official Google Blog. Archived from the original on May 25, 2010. Retrieved January 12, 2010.
14. ^ "Google accused of airbrushing Katrina history". NBC News. The Associated Press. March 30, 2007. Archived from the original on November 3, 2020. Retrieved April 17, 2020.
15. ^ Claburn, Thomas (April 2, 2007). "Google Restores Katrina's Scars To Google Earth". Information Week. Archived from the original on August 19, 2009.
16. ^ "Google Maps User Guide". Google Maps. Archived from the original on November 5, 2007. Retrieved November 21, 2021.
17. ^ "Google Announces Launch of Google Maps for Mobile With "My Location" Technology". News from Google. November 28, 2007. Archived from the original on April 26, 2017. Retrieved April 25, 2017.
18. ^ a b Marshall, Matt (November 28, 2007). "Google releases useful "my location" feature for cellphones". VentureBeat. Archived from the original on April 25, 2017. Retrieved April 25,



2017.

19. ^ **a b** Schonfeld, Erick (November 28, 2007). *"Google Mobile Maps PinPoints Your Location Without GPS"*. *TechCrunch*. AOL. *Archived* from the original on April 26, 2017. Retrieved April 25, 2017.
20. ^ Ray, Bill (November 29, 2007). *"Google Maps Mobile knows where you are"*. *The Register*. Situation Publishing. *Archived* from the original on October 25, 2020. Retrieved April 25, 2017.
21. ^ Mills, Elinor (November 28, 2007). *"Google Maps for Mobile adds 'My Location' feature"*. *CNET*. CBS Interactive. *Archived* from the original on October 29, 2020. Retrieved April 25, 2017.
22. ^ Overbo, Mike (November 28, 2007). *"Google Maps: My Location"*. iMore. *Archived* from the original on April 26, 2017. Retrieved April 25, 2017.
23. ^ Vanlerberghe, Mac (September 23, 2008). *"Google on Android"*. Google Mobile Blog. *Archived* from the original on December 7, 2017. Retrieved April 30, 2017.
24. ^ Tseng, Erick (September 23, 2008). *"The first Android-powered phone"*. Official Google Blog. *Archived* from the original on December 7, 2017. Retrieved April 30, 2017.
25. ^ *"Google Replaces Tele Atlas Data in US with Google StreetView Data"*. blumenthals.com. October 12, 2009. *Archived* from the original on October 15, 2009.
26. ^ *"France Convicts Google for Its Free(dom)"*. NBC San Diego. February 3, 2012. *Archived* from the original on October 18, 2014. Retrieved October 13, 2014.
27. ^ *"France: Google wins court decision vs Evermaps"*. November 29, 2015. *Archived* from the original on October 22, 2020. Retrieved November 21, 2018.
28. ^ *"Google begins mapping UK rivers"*. The Daily Telegraph. June 19, 2012. *Archived* from the original on June 19, 2012. Retrieved June 20, 2012.*cite web: CS1 maint: bot: original URL status unknown (link)*
29. ^ *"Google Maps for iOS Hits Apple App Store"*. PCMag. *Archived* from the original on December 16, 2012. Retrieved December 12, 2012.
30. ^ Sieczkowski, Cavan (January 29, 2013). *"Google Maps North Korea: Prison Camps, Nuclear Complexes Pinpointed In New Images (PHOTOS)"*. The Huffington Post. *Archived* from the original on February 9, 2013. Retrieved May 20, 2013.
31. ^ *"Google changes Palestinian location from 'Territories' to 'Palestine'"*. Fox News. Associated Press. May 3, 2013. *Archived* from the original on May 21, 2013. Retrieved May 20, 2013.
32. ^ *Google Maps Drops Wikipedia Layer Archived* October 6, 2013, at the *Wayback Machine*. Search Engine Roundtable. (September 10, 2013)
33. ^ *"Google Maps Displays Crimean Border Differently In Russia, U.S."* NPR.org. April 12, 2014. *Archived* from the original on November 26, 2014. Retrieved December 4, 2014.
34. ^ Hern, Alex (April 24, 2015). *"Google Maps hides an image of the Android robot urinating on Apple"*. The Guardian. *Archived* from the original on May 17, 2015. Retrieved May 22, 2015.
35. ^ Kanakarajan, Pavithra (May 22, 2015). *"Map Maker will be temporarily unavailable for editing starting May 12, 2015"*. Google Product Forums. *Archived* from the original on December 3, 2018. Retrieved May 10, 2015.
36. ^ *"Google Is Getting Rid of Classic Maps for Good (Ugh.)"*. April 29, 2015. *Archived* from the original on May 15, 2015. Retrieved May 14, 2015.
37. ^ *"Google Maps alters disputed South China Sea shoal name"*. BBC News. July 14, 2015. *Archived* from the original on July 14, 2015. Retrieved July 14, 2015.

38. ^ Meyer, Robinson (June 27, 2016). "Google's Satellite Map Gets a 700-Trillion-Pixel Makeover". *The Atlantic*. Archived from the original on June 27, 2016. Retrieved June 27, 2016.
39. ^ Heater, Brian (September 16, 2016). "Google Maps picks up mapping analytics and visualization startup Urban Engines". TechCrunch. Archived from the original on September 17, 2016. Retrieved September 16, 2016.
40. ^ Badalge, Keshia; Fairchild, Cullen (February 26, 2018). "One thing North Korea has that the South doesn't: Google Maps". *Asia Times*. Archived from the original on January 25, 2024. Retrieved March 4, 2021.
41. ^ Marquardt, Stafford (October 16, 2017). "Space out with planets in Google Maps". Blog.Google. Archived from the original on October 16, 2017. Retrieved October 17, 2017.
42. ^ Lardinois, Frederic (October 16, 2017). "Google Maps now lets you explore your local planets and moons". TechCrunch. Archived from the original on October 16, 2017. Retrieved October 17, 2017.
43. ^ Protalinski, Emil (May 2, 2018). "Google Maps Platform arrives with pay-as-you-go billing, free support, and Cloud requirement starting June 11". VentureBeat. Archived from the original on December 4, 2018. Retrieved April 3, 2019.
44. ^ Singh, Ishveena (May 3, 2018). "Developers up in arms over Google Maps API 'insane' price hike". Geoawesomeness. Archived from the original on August 8, 2020. Retrieved August 7, 2020.
45. ^ "Google Maps now depicts the Earth as a globe". The Verge. Archived from the original on November 11, 2020. Retrieved August 6, 2018.
46. ^ "Speed trap warnings begin rolling out to some Google Maps users". Android Central. January 16, 2019. Archived from the original on October 22, 2020. Retrieved January 16, 2019.
47. ^ "Google Maps shows you how fast you're driving. Here's how". CNET. June 9, 2019. Archived from the original on November 23, 2020. Retrieved June 10, 2019.
48. ^ "New ways to report driving incidents on Google Maps". Google. October 17, 2019. Archived from the original on October 22, 2020. Retrieved April 20, 2020.
49. ^ "Updates to Incognito mode and your Timeline in Maps". Google. December 9, 2019. Archived from the original on January 24, 2021. Retrieved April 20, 2020.
50. ^ "Google Maps is turning 15! Celebrate with a new look and features". Google. February 6, 2020. Archived from the original on January 10, 2021. Retrieved April 20, 2020.
51. ^ "Navigate safely with new COVID data in Google Maps". Google. September 23, 2020. Archived from the original on December 3, 2020. Retrieved September 23, 2020.
52. ^ Valinsky, Jordan (January 25, 2021). "Google Maps will soon display Covid-19 vaccination sites". CNN. Archived from the original on January 25, 2021. Retrieved January 25, 2021.
53. ^ Bogdan, Popa (January 28, 2021). "Google Releases Big Google Maps Update for a Next-Generation Driving Experience". autoevolution. Archived from the original on January 28, 2021. Retrieved January 28, 2021.
54. ^ "How to use Google Maps to see air quality?". MARCA. June 13, 2022. Archived from the original on June 16, 2022. Retrieved June 16, 2022.
55. ^ Schoon, Ben (October 26, 2022). "Google Maps has removed its COVID-19 layer". 9to5Google. Archived from the original on April 10, 2023. Retrieved April 10, 2023.
56. ^ Luckerson, Victor (February 9, 2015). "10 Google Maps Tricks You Need to Know". Time. Archived from the original on February 9, 2015. Retrieved December 7, 2017.

57. ^ ["Get directions and show routes"](#). Google Maps Help. Google Inc. *Archived* from the original on July 2, 2016. Retrieved December 7, 2017.
58. ^ Brown, Jessica (September 26, 2017). ["Google Maps must improve if it wants cyclists to use it"](#). The Guardian. *Archived* from the original on December 21, 2020. Retrieved July 12, 2018.
59. ^ ["The Case for Unshackling Transit Data"](#). CityLab. Archived from *the original* on January 20, 2021. Retrieved July 12, 2018.
60. ^ ["Google Maps may soon get a dark mode and ability to star transit lines"](#). xda-developers. October 10, 2019. *Archived* from the original on October 20, 2020. Retrieved October 11, 2019.
61. ^ ["Google Maps rolls out end-to-end directions for bikeshare users"](#). TechCrunch. July 20, 2020. *Archived* from the original on January 26, 2021. Retrieved July 24, 2020.
62. ^ Li, Abner (February 27, 2024). ["Google Maps adds 'Glanceable directions while navigating' setting"](#). 9to5Google. *Archived* from the original on March 3, 2024. Retrieved May 2, 2024.
63. ^ Weatherbed, Jess (February 28, 2024). ["Google Maps is finally rolling out glanceable directions"](#). The Verge. *Archived* from the original on May 2, 2024. Retrieved May 2, 2024.
64. ^ Wang, David (February 28, 2007). ["Stuck in traffic?"](#). *Archived* from the original on February 12, 2017. Retrieved February 13, 2014.
65. ^ ["Real time traffic information with Google Maps"](#). CrackBerry. March 22, 2007. *Archived* from the original on July 5, 2014. Retrieved June 23, 2014.
66. ^ Matthews, Susan E. (July 3, 2013). ["How Google Tracks Traffic"](#). The Connectivist. Archived from *the original* on February 22, 2014.
67. ^ Barth, Dave (August 25, 2009). ["The Bright Side of Sitting in Traffic: Crowdsourcing Road Congestion Data"](#). Official Google Blog. *Archived* from the original on February 4, 2018. Retrieved April 3, 2019.
68. ^ Matthews, Susan E. (July 3, 2013). ["How Google Tracks Traffic"](#). The Connectivist. Archived from *the original* on February 22, 2014. Retrieved February 13, 2014.
69. ^ ["Help Google Maps find my location"](#). Google Inc. *Archived* from the original on October 24, 2020. Retrieved December 8, 2016.
70. ^ ["The Google 'ick' factor"](#). July 15, 2007. Archived from *the original* on August 17, 2009. Retrieved July 9, 2009.
71. ^ Poulsen, Kevin (July 15, 2007). ["Want Off Street View?"](#). Wired. *Archived* from the original on June 18, 2007.
72. ^ Petronzio i, Matt (August 22, 2012). ["11 Fascinating Facts About Google Maps"](#). Mashable. *Archived* from the original on April 10, 2015. Retrieved April 3, 2015. "Google employs automatic face and license plate blurring technology to protect people's privacy in Street View, and users can even request additional blurring. Aerial imagery provides much less detail and resolution."
73. ^ ["Google begins blurring faces in Street View"](#). May 13, 2008. *Archived* from the original on June 26, 2011. Retrieved June 11, 2020.
74. ^ ["How Google Street View Became An Art Form"](#). Fast Company. May 25, 2017. *Archived* from the original on November 25, 2020. Retrieved July 12, 2018.
75. ^ ["Google Launches Underwater Street View"](#). November 16, 2014. *Archived* from the original on November 29, 2014.
76. ^ ["Explore the world with tour guide and 3D imagery in Google Earth 7"](#). Google LatLong Blog. *Archived* from the original on January 28, 2016. Retrieved July 24, 2016.



77. ^ ["Google Earth adds new 3D imagery in 21 cities to its 11,000 guided tours of our planet"](#). November 2012. [Archived](#) from the original on February 21, 2019. Retrieved July 24, 2016.
78. ^ ["Immersive view coming soon to Maps — plus more updates"](#). May 11, 2022. [Archived](#) from the original on May 13, 2022. Retrieved May 13, 2022.
79. ^ ["4 new updates that make Maps look and feel more like the real world"](#). Google. September 28, 2022. [Archived](#) from the original on December 27, 2023. Retrieved December 27, 2023.
80. ^ ["New ways Maps is getting more immersive and sustainable"](#). Google. February 8, 2023. [Archived](#) from the original on December 27, 2023. Retrieved December 27, 2023.
81. ^ ["New ways AI is making Maps more immersive"](#). Google. May 10, 2023. [Archived](#) from the original on December 27, 2023. Retrieved December 27, 2023.
82. ^ ["New Maps updates: Immersive View for routes and other AI features"](#). Google. October 26, 2023. [Archived](#) from the original on December 18, 2023. Retrieved December 27, 2023.
83. ^ ["Google Maps Adds Apple-Style Landmark Icons"](#).[\[permanent dead link\]](#)
84. ^ Wilson, Randy (December 8, 2009). ["Google LatLong: Changing your perspective"](#). Google-latlong.blogspot.com. [Archived](#) from the original on October 17, 2010. Retrieved September 18, 2010.
85. ^ Schroeder, Stan (February 12, 2010). ["Google Maps Get Labs With 9 Cool New Features"](#). Mashable. [Archived](#) from the original on February 16, 2017. Retrieved April 3, 2019.
86. ^ Axon, Samuel (July 11, 2010). ["Google Maps Adds 45° Aerial Imagery For All Users"](#). Mashable. [Archived](#) from the original on December 17, 2017. Retrieved April 3, 2019.
87. ^ ["How to check weather & air quality details on Google Maps"](#). The Indian Express. February 7, 2024. [Archived](#) from the original on February 8, 2024. Retrieved February 9, 2024.
88. ^ Li, Abner (November 17, 2022). ["Google Maps getting Live View AR search in these cities as Lens adds 'near me' food lookup"](#). 9to5Google. [Archived](#) from the original on March 30, 2023. Retrieved January 14, 2024.
89. ^ ["New Maps updates: Lens in Maps and other AI features"](#). Google. October 26, 2023. [Archived](#) from the original on January 14, 2024. Retrieved January 14, 2024.
90. ^ ["Use Live View on Google Maps - Android - Google Maps Help"](#). support.google.com. [Archived](#) from the original on January 14, 2024. Retrieved January 14, 2024.
91. ^ ["The Google Local map results have "merged" our listing with another in the same building – Maps Help"](#). April 22, 2009. [Archived](#) from the original on January 2, 2021. Retrieved January 13, 2010.
92. ^ ["Google Maps Merging Mania Due to Algo-Change"](#). April 29, 2009. [Archived](#) from the original on May 3, 2009.
93. ^ Madrigal, Matt (November 4, 2021). ["Connect with local holiday shoppers"](#). Google Ads & Commerce Blog. Google. [Archived](#) from the original on January 3, 2018. Retrieved November 4, 2021.
94. ^ ["How to Put Your Business on Google Maps"](#). Spark SEO. June 8, 2020. [Archived](#) from the original on October 22, 2020. Retrieved June 23, 2020.
95. ^ Steele, Adam (April 12, 2020). ["How To Contact Google My Business Support Online & By Phone"](#). Loganix. [Archived](#) from the original on October 20, 2020. Retrieved June 23, 2020.
96. ^ Helft, Miguel (November 17, 2009). ["Online Maps: Everyman Offers New Directions"](#). *New York Times*. [Archived](#) from the original on March 12, 2017. Retrieved April 27, 2017.
97. ^ ["Changes to Google Business Profile chat - Google Business Profile Help"](#). support.google.com. [Archived](#) from the original on May 29, 2024. Retrieved May 29, 2024.

98. ^ Revell, Timothy (April 7, 2017). "Thousands of fake companies added to Google Maps every month". New Scientist. Archived from the original on April 16, 2017. Retrieved April 15, 2017.
99. ^ Widewail. "Improve Local SEO With Google Reviews | Widewail". www.widewail.com. Archived from the original on October 30, 2023. Retrieved October 24, 2023.
100. ^ "Inside Google's Fascinating Stash of 10,000 Indoor Maps". WIRED. Archived from the original on November 12, 2020. Retrieved July 12, 2018.
101. ^ Marshall, Matt (April 5, 2007). "Google releases My Maps". VentureBeat. Archived from the original on April 4, 2019. Retrieved April 4, 2019.
102. ^ Lardinois, Frederic (March 27, 2013). "Google Launches Maps Engine Lite, Makes It Easy To Create Advanced Custom Maps". TechCrunch. Archived from the original on April 4, 2019. Retrieved April 4, 2019.
103. ^ Pratap, Ketan (September 17, 2014). "Google Rebrands Maps Engine to 'My Maps', Adds Improved Search and More". NDTV Gadgets 360. Archived from the original on April 4, 2019. Retrieved April 4, 2019.
104. ^ "Deprecation of My Maps for Android - My Maps Help". support.google.com. Archived from the original on August 3, 2022. Retrieved August 3, 2022.
105. ^ "Local Guides". Google. Archived from the original on April 8, 2023. Retrieved August 3, 2023.
106. ^ "Google Map Maker has closed". Google Map Maker help. Archived from the original on June 19, 2016. Retrieved August 3, 2018.
107. ^ "Google Testing Video Reviews in Maps". NDTV Gadgets360.com. Archived from the original on October 24, 2020. Retrieved June 20, 2018.
108. ^ "Google calls on Local Guides to add wheelchair info to Maps". SlashGear. September 7, 2017. Archived from the original on October 26, 2020. Retrieved July 12, 2018.
109. ^ Southern, Matt G. (May 13, 2022). "Google Local Guides Program: How To Earn Points & Badges". Search Engine Journal. Archived from the original on January 21, 2023. Retrieved January 21, 2023.
110. ^ "Local Guides". maps.google.com. Archived from the original on February 7, 2019. Retrieved January 21, 2023.
111. ^ **a b** "Points, levels, and badging - Local Guides Help". support.google.com. Archived from the original on January 21, 2023. Retrieved January 21, 2023.
112. ^ "Google Earth's new time travel feature is a gigantic bummer". Trusted Reviews. April 15, 2021. Archived from the original on April 16, 2021. Retrieved April 16, 2021.
113. ^ Antonelli, William (November 26, 2021). "How to check your Google Maps timeline and see every place you've traveled". Business Insider. Archived from the original on July 3, 2023. Retrieved June 20, 2024.
114. ^ "Update Google Maps to use Timeline on your device - Computer - Google Maps Help". support.google.com. Archived from the original on June 15, 2024. Retrieved June 15, 2024.
115. ^ "Google Maps gets rid of another feature on Web". Yahoo Tech. June 5, 2024. Archived from the original on June 15, 2024. Retrieved June 15, 2024.
116. ^ Gautham, A. S. "Google Revises Their Map, Adds Offline Version and 3D Imaging". TechGau.org. Archived from the original on June 13, 2012. Retrieved June 9, 2012.
117. ^ Arthur, Charles (March 20, 2009). "Where the streets all have Google's name". The Guardian. Archived from the original on March 5, 2017. Retrieved April 27, 2017.



118. ^ McClendon, Brian (October 13, 2011). *"Step inside the map with Google MapsGL"*. Official Google Blog. Archived from the original on April 10, 2012. Retrieved April 25, 2012.
119. ^ *"Use indoor maps to view floor plans – Computer"*. Google Maps Help. Archived from the original on February 27, 2017.
120. ^ *"Google Maps/Google Earth Additional Terms of Service"*. Google Maps. Archived from the original on February 8, 2010. Retrieved January 13, 2010.
121. ^ *"Google Terms of Service"*. Google. Archived from the original on January 25, 2012. Retrieved January 13, 2010.
122. ^ *"Legal Notices for Google Maps/Google Earth and Google Maps/Google Earth APIs"*. Google. Archived from the original on January 19, 2021. Retrieved October 3, 2019.
123. ^ **a b** Lee, Mark (July 5, 2012). *"Apple Shares Google China Map Partner in Win for Autonavi"*. Bloomberg News. Archived from the original on October 18, 2014.
124. ^ *"Improve information in Google Maps for the world to see"*. Google Maps. Archived from the original on December 12, 2007.
125. ^ Balakrishnan, Ramesh (March 18, 2008). *"Google LatLong: It's your world. Map it"*. Google-latlong.blogspot.com. Archived from the original on December 30, 2009. Retrieved January 13, 2010.
126. ^ Johnson, Jenna (July 22, 2007). *"Google's View of D.C. Melds New and Sharp, Old and Fuzzy"*. The Washington Post. Archived from the original on February 13, 2011. Retrieved May 3, 2010.
127. ^ *"Google Maps Platform Documentation"*. Google for Developers. Archived from the original on January 28, 2021. Retrieved June 23, 2020.
128. ^ Taylor, Bret (June 29, 2005). *"The world is your JavaScript-enabled oyster"*. Official Google Blog. Archived from the original on September 30, 2009.
129. ^ *"User Guide | Google Maps Platform"*. Google Cloud. Archived from the original on November 12, 2020. Retrieved July 10, 2018.
130. ^ *"Google Maps API – Terms of use"*. Google. Archived from the original on December 24, 2013.
131. ^ Rose, Ian (February 12, 2014). *"PHP and MySQL: Working with Google Maps"*. Syntaxxx. Archived from the original on October 18, 2014. Retrieved October 13, 2014.
132. ^ Hoetmer, Ken (May 15, 2013). *"A fresh new look for the Maps API, for all one million sites"*. Google Maps Platform. Archived from the original on November 28, 2013.
133. ^ *"APIs Dashboard"*. ProgrammableWeb. Archived from the original on April 30, 2016. Retrieved May 4, 2016.
134. ^ Eustace, Alan (September 2, 2011). *"A fall spring-clean"*. Official Google Blog. Archived from the original on September 7, 2011. Retrieved September 2, 2011.
135. ^ *"Google Maps API FAQ"*. Google for Developers. Archived from the original on January 16, 2014.
136. ^ *"Google Maps API FAQ Usage Limits"*. Google for Developers. Archived from the original on January 16, 2014.
137. ^ *"Google Maps for Business"*. Google. Archived from the original on December 24, 2013.
138. ^ *"Introducing Google Maps Platform"*. Google. May 2, 2018. Archived from the original on September 14, 2022. Retrieved September 14, 2022.
139. ^ *Monument to the People's Heroes. "Google China street map uses GCJ-02 coordinates"*. Archived from the original on May 25, 2017. Retrieved April 8, 2015.

140. ^ Monument to the People's Heroes. "Google China satellite imagery uses GCJ-02 coordinates". Archived from the original on May 25, 2017. Retrieved April 8, 2015.
141. ^ Monument to the People's Heroes. "Google.com satellite imagery uses WGS-84 coordinates". Archived from the original on November 18, 2015. Retrieved April 8, 2015.
142. ^ "Where We've Been & Where We're Headed Next". Archived from the original on September 28, 2017. Retrieved January 2, 2018.
143. ^ a b Martin, Brittany (September 12, 2018). "Why Is Google Maps Using a 19th Century Name for an L.A. Neighborhood?". Los Angeles. Archived from the original on January 26, 2023. Retrieved January 26, 2023.
144. ^ "Google Maps' Phantom Neighborhoods Are Confusing Southern Californians. Help Us Keep Track Of Them". September 12, 2018. Archived from the original on January 26, 2023. Retrieved January 26, 2023.
145. ^ a b c d Nicas, Jack (August 2, 2018). "As Google Maps Renames Neighborhoods, Residents Fume". The New York Times. Archived from the original on January 31, 2023. Retrieved January 24, 2023.
146. ^ "Blurred Out: 51 Things You Aren't Allowed to See on Google Maps". Archived from the original on July 21, 2009.
147. ^ "Google Maps: The White House — Elliott C. Back". Elliottback.com. Archived from the original on December 1, 2008. Retrieved August 27, 2010.
148. ^ Barlow, Karen (August 8, 2005). "Google Earth prompts security fears". ABC News Online. Archived from the original on June 16, 2009. Retrieved November 4, 2013.
149. ^ Sutter, John D. (November 5, 2010). "Google Maps border becomes part of international dispute". CNN. Archived from the original on May 8, 2012. Retrieved April 25, 2012.
150. ^ Ball, James (January 28, 2014). "Angry Birds and 'leaky' phone apps targeted by NSA and GCHQ for user data". The Guardian. Archived from the original on March 2, 2014. Retrieved March 3, 2014.
151. ^ Gibbs, Samuel. Google says sorry over racist Google Maps White House search results Archived April 14, 2022, at the Wayback Machine. The Guardian. Retrieved on 15 April 2022
152. ^ Fung, Brian (December 6, 2021). "If you search Google Maps for the N-word, it gives you the White House". Washington Post. ISSN 0190-8286. Archived from the original on April 23, 2022. Retrieved September 22, 2023.
153. ^  
"ÃfÂ£Äçâ,-ÃjÃ,Â°ÃfÂ£Ätâ€™Ã,Ã¼ÃfÂ£Äçâ,-ÃjÃ,Â°ÃfÂ£Ätâ€™Ã,Ã«ÃfÂ£Ätâ€™Ã...Ã¾ÃfÂ£Ä  
ÃfÂ!Ã,Ã¶Ã,Ã-  
ÃfÂ¬Ãçâ,-Ã¹Ãçâ€ŽÃçÃfÂ¬Ã,Ã!Ã,Ã~ÃfÂ¬Ã,Ã®Ã,Ã³ÃfÂ¬Ã,Ã®Ã,Ã¹ÃfÂ\$Ãçâ,-ãœÃçâ,-Ëœ." *Asahi Shimbun*. March 2, 2024. Archived from the original on December 1, 2015. Retrieved March 2, 2024.
154. ^  
"ÃfÂ£Äçâ,-ÃjÃ,Â°ÃfÂ£Ätâ€™Ã,Ã¼ÃfÂ£Äçâ,-ÃjÃ,Â°ÃfÂ£Ätâ€™Ã,Ã«ÃfÂ£Ätâ€™Ã...Ã¾ÃfÂ£Ä  
ÃfÂ¬Ã,Ã•Ã,Ã•ÃfÂ£Äçâ,-ÃjÃçâ,-ã,,çÃfÂ¬Ãçâ,-Ã¹Ã,Ã•ÃfÂ!Ãçâ,-Ã°çâ,-Ã¹ÃfÂ£Ä,Ã•Ã,Ã«ÃfÂ!Ãçâ,  
ÃfÂ¬Ã,Ã®Ã,Ã\$ÃfÂ¬Ã,Ã-  
Ã,Ã!ÃfÂ\$Ãçâ,-Ã•Ã...Ã,ÃfÂ£Äçâ,-ÃjÃçâ,-Ã³ÃfÂ¬Ã,Ã°Ã,Ã°ÃfÂ!Ãçâ,-Ã°Ã,Ã,ÃfÂ©Ã,ÃjÃ...Ã¾ÃfÂ  
. FNN Prime Online. December 1, 2015. Archived from the original on December 4, 2015. Retrieved March 2, 2024.
155. ^ "Google Maps Hacks". Simon Weckert. Archived from the original on August 6, 2024. Retrieved July 31, 2024.

156. ^ "An Artist Used 99 Phones to Fake a Google Maps Traffic Jam". *Wired*. ISSN 1059-1028. Archived from the original on January 17, 2021. Retrieved February 4, 2020.
157. ^ Liu, Oscar (September 19, 2024). "Hong Kong officials concerned over pranksters renaming schools on Google Maps". *South China Morning Post*. Archived from the original on November 22, 2024. Retrieved November 18, 2024.
158. ^ Thomson, Jono (September 23, 2024). "Google says spoofed Taiwan school names being fixed". *Taiwan News*. Archived from the original on November 29, 2024. Retrieved November 18, 2024.
159. ^ *Google Maps spoofed Taiwan school names being fixed*. Archived from the original on December 31, 2024. Retrieved November 18, 2024. (Chinese).
160. ^ **a b** Allison, Charmayne; Robinson, Lee; Goetze, Eliza (August 15, 2023). "A student nurse was left stranded in the desert with just an esky of beers after Google Maps led her astray". *ABC News Australia*. Archived from the original on September 22, 2023. Retrieved September 22, 2023.
161. ^ **a b c** "Google sued after man drove off collapsed bridge following map directions". *Al Jazeera*. September 21, 2023. Archived from the original on January 25, 2024. Retrieved September 22, 2023.
162. ^ **a b** Meacham, Savannah (February 21, 2024). "'I wouldn't want to live this again': Tourists lost for a week after Google Maps mishap". *The Sydney Morning Herald*. *Australian Associated Press*. Archived from the original on February 27, 2024. Retrieved February 29, 2024.
163. ^ Lagan, Bernard (February 29, 2024). "Google Maps stranded us with crocodiles and snakes in the outback". *The Times*. ISSN 0140-0460. Archived from the original on February 23, 2024. Retrieved February 29, 2024.
164. ^ **a b** Lou, Michelle (June 26, 2019). "Nearly 100 drivers followed a Google Maps detour – and ended up stuck in an empty field". *CNN*. Archived from the original on December 13, 2023. Retrieved February 29, 2024.
165. ^ Brodtkin, Jon (September 21, 2023). "Google sued over fatal Google Maps error after man drove off broken bridge". *Ars Technica*. Archived from the original on September 22, 2023. Retrieved September 22, 2023.
166. ^ Lynch, Jamiel (September 21, 2023). "Family sues Google alleging its Maps app led father to drive off collapsed bridge to his death, attorneys say". *CNN*. Archived from the original on January 25, 2024. Retrieved September 22, 2023.
167. ^ Ritter, Moira (September 20, 2023). "Dad of 2 died after driving off collapsed bridge, family says. Now, Google being sued". *The Charlotte Observer*. Archived from the original on January 18, 2024. Retrieved January 25, 2024.
168. ^ Matza, Max (September 21, 2023). "Google accused of directing motorist to drive off collapsed bridge". *BBC News*. Archived from the original on January 20, 2024. Retrieved January 25, 2024.
169. ^ Roy, Adam (November 8, 2023). "A Hiker Is Lucky to Be Alive After Following a Fake Trail on Google Maps". *Backpacker*. Archived from the original on November 10, 2023. Retrieved November 12, 2023.



170. ^ Holpuch, Amanda (November 12, 2023). "Hikers Rescued After Following Nonexistent Trail on Google Maps". *The New York Times*. Archived from the original on January 10, 2024. Retrieved February 29, 2024.
171. ^ **a b** Wilson, Madeline (November 29, 2023). "Google Maps Is Sorry for Sending L.A.-Bound Drivers on Nightmare Desert Detour". *Los Angeles*. Archived from the original on December 15, 2023. Retrieved November 29, 2023.
172. ^ Wu, Daniel (November 28, 2023). "Google apologizes after map led drivers down dirt path into the desert". *The Washington Post*. Archived from the original on November 29, 2023. Retrieved November 29, 2023.
173. ^ Stewart, Will (December 11, 2020). "Man frozen to death after Google Maps wrong turn". *news.com.au*. Archived from the original on July 8, 2021. Retrieved March 2, 2024.
174. ^ "Google Maps leads three men to death as car plunges from incomplete bridge into river in Bareilly, UP". *The Economic Times*. November 25, 2024. ISSN 0013-0389. Archived from the original on November 25, 2024. Retrieved November 25, 2024.
175. ^ "UP News: Google Map Route Leads To Death Of 3, Car Falls Into Ramganga River in Bareilly". *English Jagran*. November 24, 2024. Archived from the original on November 24, 2024. Retrieved November 25, 2024.
176. ^ Hauari, Gabe (January 31, 2025). "Mexico's president asks Google not to rename Gulf of Mexico". *USA TODAY*. Retrieved February 13, 2025.
177. ^ McMahon, Liv (February 13, 2025). "Google Maps blocks Gulf of America reviews after rename criticism". *BBC News*. Archived from the original on February 15, 2025. Retrieved February 21, 2025.
178. ^ Dellinger, A. J. (February 13, 2025). "Google Maps Won't Let You Leave Negative Reviews on the Gulf of America". *Gizmodo*. Archived from the original on February 15, 2025. Retrieved February 21, 2025.
179. ^ "See where your friends are with Google Latitude". February 4, 2009. Archived from the original on December 30, 2009.
180. ^ "Privacy fears over Google tracker". *BBC News*. February 5, 2009. Archived from the original on February 17, 2009. Retrieved February 16, 2009.
181. ^ Rodriguez, Salvador (July 11, 2013). "Google Latitude joins long list of products axed by the Web giant". *Los Angeles Times*. Archived from the original on October 16, 2021. Retrieved March 7, 2024.
182. ^ "Google Maps will let you share your location with friends and family for a specific period of time". *techcrunch.com*. March 22, 2017. Archived from the original on March 22, 2017. Retrieved March 22, 2017.
183. ^ "Fix an error on Google Maps". *Google Inc.* Archived from the original on October 22, 2020. Retrieved August 11, 2011.
184. ^ "Tele Atlas Map Insight map feedback". *Tele Atlas*. Archived from the original on January 12, 2021. Retrieved August 11, 2011.
185. ^ "Google contact request form". Archived from the original on July 4, 2014. Retrieved October 4, 2014.
186. ^ "Google Map Maker graduates to Google Maps". *Google Map Maker forum*. November 8, 2016. Archived from the original on December 3, 2018. Retrieved April 16, 2017.
187. ^ **a b** "Google Maps". *Google Play*. Retrieved March 10, 2025.
188. ^ "Google Maps 25.10.04.732665141". *APKMirror*. March 7, 2025. Retrieved March 10, 2025.

189. ^ ["Google Maps \(Wear OS\) 25.09.00.730474011.W"](#). APKMirror. February 21, 2025. Retrieved March 10, 2025.
190. ^ ["Google Maps"](#). App Store. Retrieved March 10, 2025.
191. ^ ["Google Maps Go"](#). Google Play. Retrieved March 10, 2025.
192. ^ ["Google Maps Go 161.1"](#). APKMirror. October 13, 2023. Retrieved March 10, 2025.
193. ^ ["Google Maps 11.143.0303 beta"](#). APKMirror. August 20, 2024. Retrieved August 24, 2024.
194. ^ Team, PhoneArena (November 10, 2005). ["Google local for Mobile announced"](#). PhoneArena. Archived from the original on October 5, 2023. Retrieved October 4, 2023.
195. ^ Gohring, Nancy (November 7, 2005). ["Google launches downloadable mobile application"](#). Computerworld. Archived from the original on October 5, 2023. Retrieved October 4, 2023.
196. ^ ["Google Local for Mobile"](#). All About Symbian. February 16, 2006. Archived from the original on June 19, 2023. Retrieved October 4, 2023.
197. ^ ["Google Maps"](#). October 16, 2006. Archived from the original on October 16, 2006. Retrieved October 4, 2023.
198. ^ Welch, Chris (September 29, 2012). ["Steve Jobs added Google Maps to the original iPhone just weeks before unveiling"](#). The Verge. Archived from the original on October 30, 2023. Retrieved October 24, 2023.
199. ^ ["Google Maps for now available on Windows Mobile devices"](#). Engadget. July 19, 2019. Archived from the original on October 30, 2023. Retrieved October 24, 2023.
200. ^ ["New native S60 Google Maps for Mobile with GPS support"](#). All About Symbian. October 12, 2007. Archived from the original on October 30, 2023. Retrieved October 24, 2023.
201. ^ ["Google Announces Launch of Google Maps for Mobile With "My Location" Technology"](#). News from Google. November 28, 2007. Archived from the original on April 26, 2017. Retrieved April 25, 2017.
202. ^ Marshall, Matt (November 28, 2007). ["Google releases useful "my location" feature for cellphones"](#). VentureBeat. Archived from the original on April 25, 2017. Retrieved April 25, 2017.
203. ^ Schonfeld, Erick (November 28, 2007). ["Google Mobile Maps PinPoints Your Location Without GPS"](#). TechCrunch. AOL. Archived from the original on April 26, 2017. Retrieved April 25, 2017.
204. ^ Vanlerberghe, Mac (September 23, 2008). ["Google on Android"](#). Google Mobile Blog. Archived from the original on December 7, 2017. Retrieved April 30, 2017.
205. ^ Tseng, Erick (September 23, 2008). ["The first Android-powered phone"](#). Official Google Blog. Archived from the original on December 7, 2017. Retrieved April 30, 2017.
206. ^ Gates, Sara (June 11, 2012). ["Apple Maps App Officially Debuts, Google Maps Dropped \(PHOTOS\)"](#). HuffPost. AOL. Archived from the original on August 7, 2020. Retrieved April 30, 2017.
207. ^ Chen, Brian X.; Wingfield, Nick (September 19, 2012). ["Apple's iPhone Update Leaves Out Google's Maps"](#). The New York Times. Archived from the original on December 11, 2020. Retrieved April 30, 2017.
208. ^ ["New Apple maps app under fire from users"](#). BBC. September 20, 2012. Archived from the original on December 4, 2016. Retrieved April 30, 2017.
209. ^ Patel, Nilay (September 20, 2012). ["Wrong turn: Apple's buggy iOS 6 maps lead to widespread complaints"](#). The Verge. Vox Media. Archived from the original on December 10, 2016. Retrieved April 30, 2017.



210. ^ Arthur, Charles (September 20, 2012). "Apple's self-inflicted maps issue is a headache – but don't expect an apology". *The Guardian*. Archived from the original on November 11, 2020. Retrieved April 30, 2017.
211. ^ Olanoff, Drew (December 12, 2012). "Google Launches Native Maps For iOS, And Here's The Deep Dive On Navigation, Info Sheets And More". *TechCrunch*. AOL. Archived from the original on November 12, 2020. Retrieved April 30, 2017.
212. ^ Bohn, Dieter (December 12, 2012). "Google Maps for iPhone is here: how data and design beat Apple". *The Verge*. Vox Media. Archived from the original on November 11, 2020. Retrieved April 30, 2017.
213. ^ Keizer, Gregg (December 18, 2012). "Google Maps snares 10M downloads on iOS App Store". *Computerworld*. International Data Group. Archived from the original on October 22, 2020. Retrieved April 30, 2017.
214. ^ Musil, Steven (December 12, 2012). "Google Maps returns to iOS as an app after Apple's removal". *CNET*. CBS Interactive. Archived from the original on November 12, 2020. Retrieved April 30, 2017.
215. ^ **a b** Rodriguez, Salvador (December 13, 2012). "Google Maps returns to iPhone; iPad app coming soon". *Los Angeles Times*. Archived from the original on June 29, 2017. Retrieved April 30, 2017.
216. ^ Arrington, Michael (October 28, 2009). "Google Redefines GPS Navigation Landscape: Google Maps Navigation For Android 2.0". *TechCrunch*. AOL. Archived from the original on October 22, 2020. Retrieved April 30, 2017.
217. ^ Schroeder, Stan (October 28, 2009). "Google Maps Navigation Becomes Reality on Android". *Mashable*. Archived from the original on November 9, 2020. Retrieved April 30, 2017.
218. ^ Fingas, Jon (July 16, 2013). "Google Maps 2.0 for iOS starts rolling out with iPad support, indoor maps (update: offline maps too)". *Engadget*. AOL. Archived from the original on October 23, 2020. Retrieved April 30, 2017.
219. ^ Ingraham, Nathan (June 27, 2012). "Google Maps for Android now supports saving maps for offline use". *The Verge*. Vox Media. Archived from the original on November 11, 2020. Retrieved April 30, 2017.
220. ^ Lawler, Richard (June 27, 2012). "Google Maps offline for Android is available today in version 6.9, also Compass Mode for Street View". *Engadget*. AOL. Archived from the original on November 12, 2020. Retrieved April 30, 2017.
221. ^ Kastrenakes, Jacob (May 6, 2014). "Google Maps for iOS and Android add offline support, lane guidance, and Uber integration". *The Verge*. Vox Media. Archived from the original on November 11, 2020. Retrieved April 30, 2017.
222. ^ Siegal, Jacob (May 6, 2014). "Google Maps just got a huge update – here are the 5 best new features". *BGR*. Penske Media Corporation. Archived from the original on November 8, 2020. Retrieved April 30, 2017.
223. ^ Pierson, David (November 11, 2015). "Google Maps Now Available Offline". *Government Technology*. Los Angeles Times. Archived from the original on October 30, 2020. Retrieved November 19, 2016.
224. ^ "Download areas and navigate offline – iPhone & iPad". *Google Maps Help*. Archived from the original on December 19, 2020. Retrieved November 19, 2016.
225. ^ Bolton, Doug (January 25, 2016). "How to use Google Maps on your smartphone when you don't have a connection". *The Independent*. Archived from the original on October 22, 2020.

Retrieved June 29, 2018.

226. ^ McCourt, David (May 30, 2019). "How to use Google Maps offline". AndroidPIT. Archived from the original on October 23, 2020. Retrieved November 19, 2016.
227. ^ Welch, Chris (January 26, 2017). "Google Maps now tells you how hard it is to park in some cities". The Verge. Vox Media. Archived from the original on November 12, 2020. Retrieved December 7, 2017.
228. ^ Haselton, Todd (April 26, 2017). "How to use a new Google Maps feature to help you find your parked car". CNBC. NBCUniversal News Group. Archived from the original on November 11, 2020. Retrieved December 7, 2017.
229. ^ Sawers, Paul (April 26, 2017). "Google Maps now makes it easier to remember where you parked your car". VentureBeat. Archived from the original on November 11, 2020. Retrieved December 7, 2017.
230. ^ Gartenberg, Chaim (August 29, 2017). "Google Maps will now help you find parking". The Verge. Vox Media. Archived from the original on November 11, 2020. Retrieved December 7, 2017.
231. ^ Ghoshal, Abhimanyu (December 5, 2017). "Google Maps' new two-wheeler mode shows faster routes for beating traffic on your bike". The Next Web. Archived from the original on December 7, 2020. Retrieved December 7, 2017.
232. ^ Jonnalagadda, Harish (December 5, 2017). "Google Maps gets a dedicated two-wheeler mode in India". Android Central. Mobile Nations. Archived from the original on December 7, 2017. Retrieved December 7, 2017.
233. ^ "Google Maps AR directions released". CNBC. February 21, 2020. Retrieved February 21, 2020.[dead link ]
234. ^ Kastrenakes, Jacob (May 20, 2020). "Here are all the winners of the 2020 Webby Awards". The Verge. Archived from the original on May 21, 2020. Retrieved May 22, 2020.
235. ^ "Google Maps update will let you draw in missing roads". Trusted Reviews. March 11, 2021. Archived from the original on March 31, 2021. Retrieved March 30, 2021.
236. ^ Mehta, Ivan (June 14, 2022). "Google Maps will now show you info about toll pricing on your route". TechCrunch. Archived from the original on June 14, 2022. Retrieved June 14, 2022.
237. ^ "Baig: Google Maps app – welcome return of an old friend". USA Today. Gannett Company. December 13, 2012. Archived from the original on November 25, 2020. Retrieved April 30, 2017.
238. ^ Parker, Jason (November 6, 2014). "Google Maps for iOS review". CNET. CBS Interactive. Archived from the original on October 22, 2020. Retrieved April 30, 2017.
239. ^ Fowler, Bree (December 16, 2012). "App review: Google Maps on iOS is back with a bang". FirstPost. Archived from the original on October 9, 2019. Retrieved April 30, 2017.
240. ^ Diaz, Jesus (December 13, 2012). "Google Maps for iOS Review: Maps Done Right". Gizmodo. Univision Communications. Archived from the original on October 24, 2020. Retrieved April 30, 2017.
241. ^ Pogue, David (December 12, 2012). "Maps App for iPhone Steers Right". The New York Times. Archived from the original on November 12, 2020. Retrieved April 30, 2017.
242. ^ Tweney, Dylan (August 17, 2014). "Yes, Google Maps is tracking you. Here's how to stop it". VentureBeat. Archived from the original on October 2, 2017. Retrieved April 30, 2017.
243. ^ Elliott, Matt (April 20, 2017). "Is Google is tracking you? Find out here". CNET. CBS Interactive. Archived from the original on April 29, 2017. Retrieved April 30, 2017.

244. ^ Kumparak, Greg (December 18, 2013). *"Google's Location History Browser Is A Minute-By-Minute Map Of Your Life"*. *TechCrunch*. AOL. Archived from the original on May 11, 2017. Retrieved April 30, 2017.
245. ^ Mirani, Leo (April 3, 2014). *"Google's sneaky new privacy change affects 85% of iPhone users—but most of them won't have noticed"*. *Quartz*. Atlantic Media. Archived from the original on August 10, 2017. Retrieved April 30, 2017.
246. ^ El Khoury, Rita (March 9, 2019). *"Google Maps hits 5 billion downloads on the Play Store, does it after YouTube but before the Google app"*. *Android Police*. Archived from the original on October 8, 2019. Retrieved October 26, 2019.
247. ^ *"Google Maps navigates its way to 10 billion installs"*. *Android Police*. November 4, 2021. Archived from the original on January 25, 2022. Retrieved January 25, 2022.
248. ^ El Khoury, Rita (January 17, 2018). *"[Update: APK Download] Google Maps Go shows up on the Play Store for Go phones, but you can give it a try anyway"*. *Android Police*. Archived from the original on June 3, 2018. Retrieved October 26, 2019.
249. ^ Hager, Ryne (September 26, 2018). *"[Update: Maps Go too] Google Go hits 10 million installs on Play Store - an indicator of Android Go's success?"*. *Android Police*. Archived from the original on September 26, 2019. Retrieved October 26, 2019.
250. ^ Richterich, Annika (November 2011). *"Cartographies of Digital Fiction: Amateurs Mapping a New Literary Realism"*. *The Cartographic Journal*. **48** (4): 237–249. Bibcode: 2011CartJ..48..237R. doi:10.1179/1743277411Y.0000000021. ISSN 0008-7041. S2CID 131524536. Archived from the original on October 20, 2022. Retrieved October 16, 2022.
251. ^ *"THE GOOGLE TRILOGY - EMILIO VAVARELLA"*. April 18, 2013. Archived from the original on October 16, 2022. Retrieved October 16, 2022.
252. ^ group\_inou (April 14, 2016). *"EYE (music video)"*. YouTube. Archived from the original on October 16, 2022. Retrieved October 16, 2022.
253. ^ Arcade Fire; Milk, Chris (2011). *"The Wilderness Downtown"*. The Wilderness Downtown. Archived from the original on October 16, 2022. Retrieved October 16, 2022.
254. ^ Arcade Fire (2011). *"Video documentation of Wilderness Within video"*. YouTube. Archived from the original on October 16, 2022. Retrieved October 16, 2022.

## External links

[[edit](#)]

- [Official website](#)
  - [Official Google Maps blog](#)
  - [About Google Maps](#)
  - [Google Local Guides](#)
  - [Google Maps Platform](#)

- **v**
- **t**
- **e**

## Google Maps

- [Waze](#)
- [Arts & Culture](#)

### Related products

#### Discontinued

- [Latitude](#)
- [Maps Navigation](#)
- [Map Maker](#)
- [Mapathon](#)

### Views and mapping sites

- [Earth](#)
- [Street View](#)

### Street View

#### Coverage

- [Africa](#)
- [Antarctica](#)
- [Asia](#)
  - [Israel](#)
- [Europe](#)
- [North America](#)
  - [Canada](#)
  - [United States](#)
- [Oceania](#)
- [South America](#)
  - [Argentina](#)
  - [Chile](#)
  - [Colombia](#)

[link = Google Maps](#)

Image not found or type unknown

- [Privacy concerns](#)
- [Competing products](#)

### Other

- [Historypin](#)
- [Google Maps pin](#)
- [Google Maps Road Trip](#)
- [Argleton](#)

### Links to related articles

- **v**
- **t**
- **e**

Google

a subsidiary of **Alphabet**



## Company

### Divisions

- AI
- Area 120
- ATAP
- Brain
- China
- Cloud Platform
- Energy
- Google.org
  - Crisis Response
- Health
- Registry

### Active

- Security Operations
- DeepMind
- Fitbit
- ITA Software
- Jigsaw
- Looker
- Mandiant
- Owlchemy Labs

### Subsidiaries

### Defunct

- Actifio
- Adscape
- Akwan Information Technologies
- Anvato
- Apigee
- BandPage
- Bitium
- BufferBox
- Crashlytics
- Dodgeball
- DoubleClick
- Dropcam
- Endoxon
- Flutter
- Global IP Solutions
- Green Throttle Games
- GreenBorder
- Gridcentric
- ImageAmerica
- Impermium
- Invite Media
- Kaltix
- Marratech

## Development

- Accelerated Linear Algebra
- AMP
- *Actions on Google*
- ALTS
- American Fuzzy Lop
- *Android Cloud to Device Messaging*
- Android Debug Bridge
- Android NDK
- Android Runtime
- Android SDK
- Android Studio
- Angular
- *AngularJS*
- Apache Beam
- APIs
- App Engine
- App Inventor
- *App Maker*
- App Runtime for Chrome
- *AppJet*
- Apps Script
- AppSheet
- ARCore
- *Base*
- Bazel
- BeyondCorp
- Bigtable
- BigQuery
- Bionic
- Blockly
- *Borg*
- *Caja*
- Cameyo
- Chart API
- Charts
- *Chrome Frame*
- Chromium
  - Blink
- Closure Tools
- *Cloud Connect*
- Cloud Dataflow
- Cloud Datastore
- *Cloud Messaging*
- Cloud Shell
- Cloud Storage
- *Cloud SQL*

## A–C

## Software

- *Aardvark*
- *Account*
  - *Dashboard*
  - *Takeout*
- *Ad Manager*
- *AdMob*
- *Ads*
- *AdSense*
- *Affiliate Network*
- A** ○ *Alerts*
- *Allo*
- *Analytics*
- *Android Auto*
- *Android Beam*
- *Answers*
- *Apture*
- *Arts & Culture*
- *Assistant*
- *Attribution*
- *Authenticator*
- *BebaPay*
- *BeatThatQuote.com*
- *Blog Search*
- *Blogger*
- *Body*
- *Bookmarks*
- B** ○ *Books*
  - *Ngram Viewer*
- *Browser Sync*
- *Building Maker*
- *Bump*
- *BumpTop*
- *Buzz*
- *Calendar*
- *Cast*
- *Catalogs*
- *Chat*
- *Checkout*
- *Chrome*
- *Chrome Apps*
- *Chrome Experiments*
- C** ○ *Chrome Remote Desktop*
- *Chrome Web Store*

## Hardware

### Smartphones

### Pixel

- Pixel (2016)
- Pixel 2 (2017)
- Pixel 3 (2018)
- Pixel 3a (2019)
- Pixel 4 (2019)
- Pixel 4a (2020)
- Pixel 5 (2020)
- Pixel 5a (2021)
- Pixel 6 (2021)
- Pixel 6a (2022)
- Pixel 7 (2022)
- Pixel 7a (2023)
- Pixel Fold (2023)
- Pixel 8 (2023)
- Pixel 8a (2024)
- Pixel 9 (2024)
- Pixel 9 Pro Fold (2024)

### Smartwatches

- Pixel Watch (2022)
- Pixel Watch 2 (2023)
- Pixel Watch 3 (2024)

### Tablets

- Pixel C (2015)
- Pixel Slate (2018)
- Pixel Tablet (2023)

### Laptops

- Chromebook Pixel (2013–2015)
- Pixelbook (2017)
- Pixelbook Go (2019)

### Other

- Pixel Buds (2017–present)

### Smartphones

- Nexus One (2010)
- Nexus S (2010)
- Galaxy Nexus (2011)
- Nexus 4 (2012)
- Nexus 5 (2013)
- Nexus 6 (2014)
- Nexus 5X (2015)
- Nexus 6P (2015)

- **v**
- **t**
- **e**

## Litigation

- |                              |   |
|------------------------------|---|
| <b>Advertising</b>           | <ul style="list-style-type: none"> <li>○ <i>Feldman v. Google, Inc.</i> (2007)</li> <li>○ <i>Rescuecom Corp. v. Google Inc.</i> (2009)</li> <li>○ <i>Goddard v. Google, Inc.</i> (2009)</li> <li>○ <i>Rosetta Stone Ltd. v. Google, Inc.</i> (2012)</li> <li>○ <i>Google, Inc. v. American Blind &amp; Wallpaper Factory, Inc.</i> (2017)</li> <li>○ Jedi Blue</li> </ul>   |
| <b>Antitrust</b>             | <ul style="list-style-type: none"> <li>○ European Union (2010–present)</li> <li>○ <i>United States v. Adobe Systems, Inc., Apple Inc., Google Inc., Intel Corporation, Intuit, Inc., and Pixar</i> (2011)</li> <li>○ <i>Umar Javeed, Sukarma Thapar, Aaqib Javeed vs. Google LLC and Ors.</i> (2019)</li> <li>○ <i>United States v. Google LLC</i> (2020)</li> <li>○ <i>United States v. Google LLC</i> (2023)</li> </ul>   |
| <b>Intellectual property</b> | <ul style="list-style-type: none"> <li>○ <i>Perfect 10, Inc. v. Amazon.com, Inc.</i> (2007)</li> <li>○ <i>Viacom International Inc. v. YouTube, Inc.</i> (2010)</li> <li>○ <i>Lenz v. Universal Music Corp.</i> (2015)</li> <li>○ <i>Authors Guild, Inc. v. Google, Inc.</i> (2015)</li> <li>○ <i>Field v. Google, Inc.</i> (2016)</li> <li>○ <i>Google LLC v. Oracle America, Inc.</i> (2021)</li> <li>○ Smartphone patent wars</li> </ul>   |
| <b>Privacy</b>               | <ul style="list-style-type: none"> <li>○ <i>Rocky Mountain Bank v. Google, Inc.</i> (2009)</li> <li>○ <i>Hibnick v. Google, Inc.</i> (2010)</li> <li>○ <i>United States v. Google Inc.</i> (2012)</li> <li>○ Judgement of the German Federal Court of Justice on Google's autocomplete function (2013)</li> <li>○ <i>Joffe v. Google, Inc.</i> (2013)</li> <li>○ <i>Mosley v SARL Google</i> (2013)</li> <li>○ <i>Google Spain v AEPD and Mario Costeja González</i> (2014)</li> <li>○ <i>Frank v. Gaos</i> (2019)</li> </ul> |
| <b>Other</b>                 | <ul style="list-style-type: none"> <li>○ <i>Garcia v. Google, Inc.</i> (2015)</li> <li>○ <i>Google LLC v Defteros</i> (2020)</li> <li>○ <i>Epic Games v. Google</i> (2021)</li> <li>○ <i>Gonzalez v. Google LLC</i> (2022)</li> </ul>   |



## Related

- Beauty YouTuber
- BookTube
- BreadTube
- "Don't be evil"
- Gayglers
- *Google* as a verb
- Google bombing
  - 2004 U.S. presidential election
- Google effect
- Googlefight
- Google hacking
- Googleshare
- Google tax
- Googlewhack
- Googlization
- Illegal flower tribute
- Objectives and key results
- Rooting
- Search engine manipulation effect
- Side project time
- Sitelink
- Site reliability engineering
- StudyTube
- VTuber
- YouTube Poop
- YouTuber
  - list

## Concepts

### Android

- Booting process
- Custom distributions
- Features
- Recovery mode
- Software development

### Street View coverage

- Africa
- Antarctica
- Asia
  - Israel
- Europe
- North America
  - Canada
  - United States
- Oceania
- South America

*Italics* denote discontinued products.

-  Category
-  Outline

- **v**
- **t**
- **e**

Alphabet Inc.



People	Executives	Current	<ul style="list-style-type: none"> <li>○ Sundar Pichai (CEO)</li> <li>○ Ruth Porat (president and CIO)</li> <li>○ Anat Ashkenazi (CFO)</li> </ul>
		Former	<ul style="list-style-type: none"> <li>○ Larry Page (CEO)</li> <li>○ Sergey Brin (President)</li> <li>○ David Drummond (CLO)</li> </ul>
	Board of directors	Current	<ul style="list-style-type: none"> <li>○ Frances Arnold</li> <li>○ Sergey Brin</li> <li>○ R. Martin Chavez</li> <li>○ John Doerr</li> <li>○ John L. Hennessy</li> <li>○ Ann Mather</li> <li>○ Larry Page</li> <li>○ Sundar Pichai</li> <li>○ Ram Shriram</li> <li>○ Roger W. Ferguson Jr.</li> </ul>
		Former	<ul style="list-style-type: none"> <li>○ Diane Greene</li> <li>○ Alan Mulally</li> <li>○ Eric Schmidt</li> </ul>
	Others		<ul style="list-style-type: none"> <li>○ Andrew Conrad</li> <li>○ Tony Fadell</li> <li>○ Arthur D. Levinson</li> <li>○ David Krane</li> <li>○ Astro Teller</li> </ul>

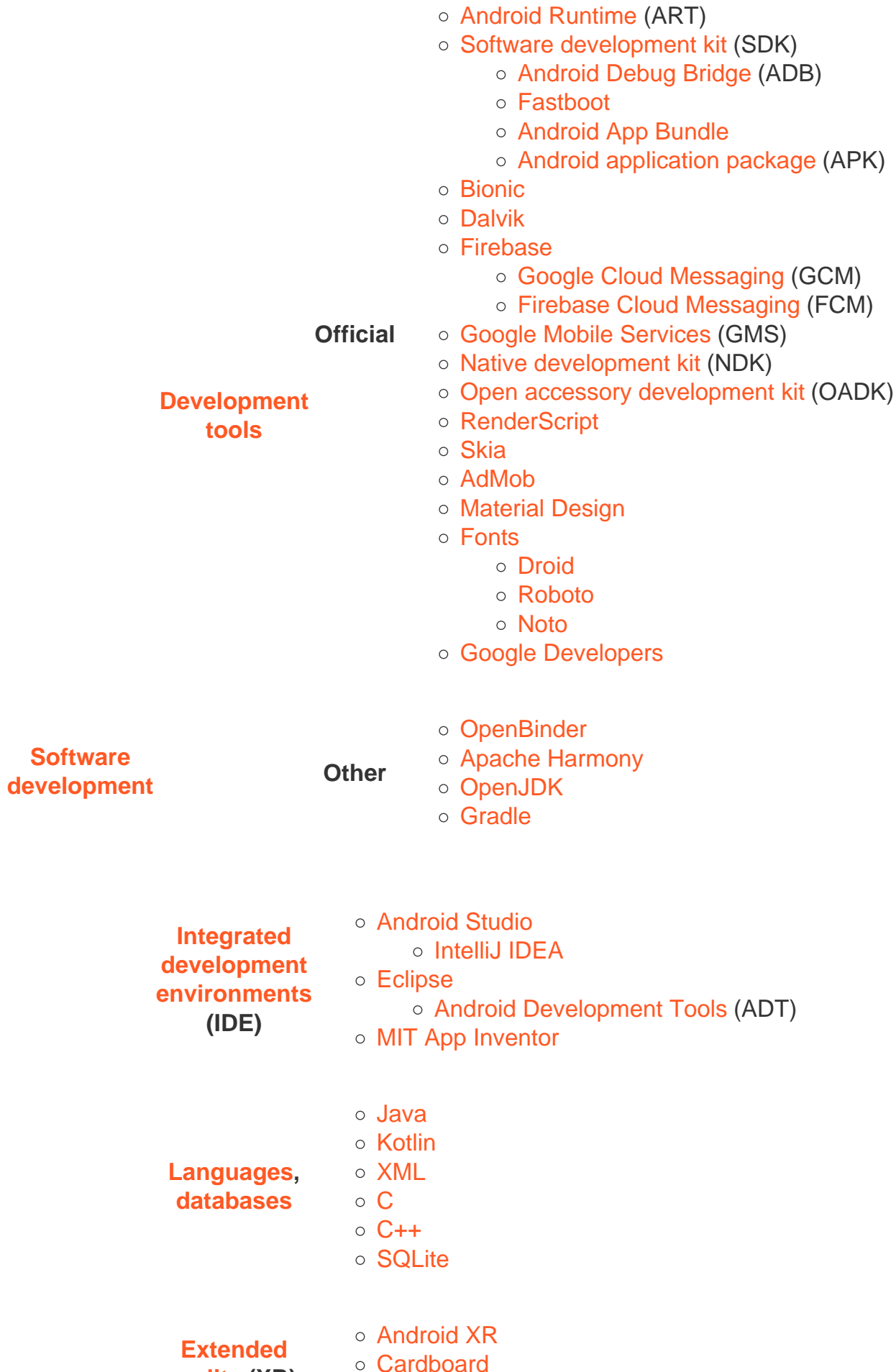
-  Category
-  Companies portal
-  icon Internet portal

- **v**
- **t**
- **e**

## Android

- Android Go
  - Comparison of products





## Releases

- Cupcake (1.5)
- Donut (1.6)
- Eclair (2.0–2.1)
- Froyo (2.2)
- Gingerbread (2.3)
- Honeycomb (3.x)
- Ice Cream Sandwich (4.0)
- Jelly Bean (4.1–4.3)
- KitKat (4.4)
- Lollipop (5.x)
- Marshmallow (6.0)
- Nougat (7.x)
- Oreo (8.x)
- Pie (9)
- 10
- 11
- 12
- 13
- 14
- 15
- 16

## Derivatives

- Android Automotive
- Android Things
- TV
  - devices
- Android XR
- Wear OS

## Devices

### Pixel

- C
- Pixel & Pixel XL
- 2 & 2 XL
- 3 & 3 XL
  - 3a & 3a XL
- 4 & 4 XL
  - 4a & 4a (5G)
- 5
  - 5a
- 6 & 6 Pro
  - 6a
- 7 & 7 Pro
  - 7a
- Fold
- Tablet
- 8 & 8 Pro
  - 8a
- 9, 9 Pro & 9 Pro XL
  - 9 Pro Fold

### Nexus

- One
- S
- Galaxy Nexus
- 4
- 10
- Q
- 5
  - 5X
- 6
  - 6P
- 7
  - 2012
  - 2013
- 9
- Player

### Play edition

- HTC One (M7)
- HTC One (M8)
- LG G Pad 8.3
- Moto G
- Samsung Galaxy S4
- Sony Xperia Z Ultra

- Android One
- other smartphones

## Custom distributions



- AliOS
- Android-x86
  - Remix OS
- AOKP
- Baidu Yi
- Barnes & Noble Nook
- CalyxOS
- ColorOS
  - realme UI
- CopperheadOS
- EMUI
  - Magic UI
- Fire OS
- Flyme OS
- GrapheneOS
- Xiaomi HyperOS
  - MIUI
  - MIUI for Poco
- LeWa OS
- LineageOS
  - /e/
  - CrDroid
  - CyanogenMod
  - DivestOS
  - iodéOS
  - Kali NetHunter
- LiteOS
- Meta Horizon OS
- MicroG
- Nokia X software platform
- OmniROM
- OPhone
- OxygenOS
- PixelExperience
- Pixel UI
- Replicant
- Resurrection Remix OS
- SlimRoms
- TCL UI
- Ubuntu for Android
- XobotOS
- ZUI

<b>Booting and recovery</b>	<ul style="list-style-type: none"><li>○ Booting process</li><li>○ Recovery mode<ul style="list-style-type: none"><li>○ TWRP</li><li>○ ClockworkMod</li></ul></li><li>○ Fastboot</li></ul>
<b>APIs</b>	<ul style="list-style-type: none"><li>○ Google Maps</li><li>○ Google Play Services<ul style="list-style-type: none"><li>○ SafetyNet</li></ul></li><li>○ Google Search</li></ul>
<b>Alternative UIs</b>	<ul style="list-style-type: none"><li>○ Asus ZenFone</li><li>○ Cherry OS</li><li>○ ColorOS</li><li>○ EMUI</li><li>○ Funtouch OS</li><li>○ Flyme OS</li><li>○ HiOS</li><li>○ Hive UI (XOLO Hive)</li><li>○ HTC Sense</li><li>○ LG UX<ul style="list-style-type: none"><li>○ Optimus UI</li></ul></li><li>○ Motoblur</li><li>○ One UI</li><li>○ Origin OS<ul style="list-style-type: none"><li>○ Experience</li><li>○ TouchWiz</li></ul></li><li>○ OxygenOS</li><li>○ Pixel UI</li><li>○ XOS</li><li>○ Xperia UI</li></ul>
<b>Rooting</b>	<ul style="list-style-type: none"><li>○ SuperSU</li><li>○ Magisk</li><li>○ Kingo Root</li></ul>
<b>Lists</b>	<ul style="list-style-type: none"><li>○ Custom distributions</li><li>○ Features</li><li>○ Free and open-source applications</li><li>○ Google apps</li><li>○ Launchers</li></ul>



**Related topics**

- [Index of articles](#)
- [Androidland](#)
- [Chromecast](#)
- [Google](#)
- [Java vs. Android API](#)
- [Lawn statues](#)
- [BlueStacks](#)
- [Legal issues](#)
  - [Google v. Oracle](#)
  - [smartphone patent wars](#)

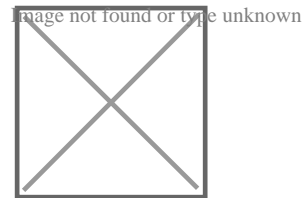
-  [Category:Android development](#)
-  [Category:Mobile telecommunications](#)
-  [Software portal](#)
-  [Telecommunication portal](#)

- [v](#)
- [t](#)
- [e](#)

[OpenStreetMap](#)

**Organisations**

- [Geochicas?](#)
- [Humanitarian OpenStreetMap Team](#)
- [Mapbox](#)
- [MapTiler](#)
- [Mapzen](#)
- [Missing Maps](#)
- [OpenStreetMap Foundation](#)
- [Ramani Huria](#)
- [Wikimedia Italia](#)



Software	Editing	<ul style="list-style-type: none"> <li>o <a href="#">iD</a></li> <li>o <a href="#">JOSM</a></li> <li>o <a href="#">KartaView</a></li> <li>o <a href="#">Mapillary</a></li> <li>o <a href="#">OpenDroneMap</a></li> <li>o <a href="#">Potlatch</a></li> <li>o <a href="#">StreetComplete</a></li> </ul>
	Visualisation	<ul style="list-style-type: none"> <li>o <a href="#">Leaflet</a></li> <li>o <a href="#">Mapnik</a></li> <li>o <a href="#">Marble</a></li> <li>o <a href="#">OpenLayers</a></li> <li>o <a href="#">OpenRailwayMap</a></li> <li>o <a href="#">OpenSeaMap</a></li> </ul>
	Navigation	<ul style="list-style-type: none"> <li>o <a href="#">GNOME Maps</a></li> <li>o <a href="#">GraphHopper</a></li> <li>o <a href="#">Karta GPS</a></li> <li>o <a href="#">Komoot</a></li> <li>o <a href="#">Locus Map</a></li> <li>o <a href="#">Maps.me</a></li> <li>o <a href="#">Navit</a></li> <li>o <a href="#">Neshan</a></li> <li>o <a href="#">Open Source Routing Machine</a></li> <li>o <a href="#">Organic Maps</a></li> <li>o <a href="#">OsmAnd</a></li> <li>o <a href="#">Wheelmap.org</a></li> </ul>
Derivations		<ul style="list-style-type: none"> <li>o <a href="#">FOSM</a></li> <li>o <a href="#">OpenGeofiction</a></li> <li>o <a href="#">OpenHistoricalMap</a></li> <li>o <a href="#">Overture Maps</a></li> </ul>
People		<ul style="list-style-type: none"> <li>o <a href="#">Steve Coast</a></li> <li>o <a href="#">Allan Mustard</a></li> </ul>

## International

- [VIAF](#)
- [FAST](#)

## National

- [Germany](#)
- [United States](#)
- [France](#)
- [BnF data](#)
- [Israel](#)

## Other

- [IdRef](#)

## About World Wide Web

This article is about the global system of pages accessed via HTTP. For the worldwide computer network, see [Internet](#). For the web browser, see [WorldWideWeb](#).

"WWW" and "The Web" redirect here. For other uses, see [WWW \(disambiguation\)](#) and [The Web \(disambiguation\)](#).

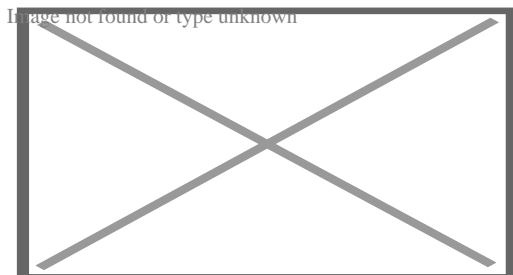
## World Wide Web

### Abbreviation WWW

**Year started** 1989; 36 years ago by [Tim Berners-Lee](#)

**Organization**

- [CERN](#) (1989–1994)
- [W3C](#) (1994–current)



A [web page](#) from [Wikipedia](#) displayed in [Google Chrome](#)

The **World Wide Web** (**WWW** or simply **the Web**) is an [information system](#) that enables [content](#) sharing over the [Internet](#) through user-friendly ways meant to appeal to users beyond [IT](#) specialists and hobbyists.<sup>[1]</sup> It allows documents and other [web resources](#) to be accessed over the Internet

according to specific rules of the [Hypertext Transfer Protocol](#) (HTTP).[2]

The Web was invented by English computer scientist [Tim Berners-Lee](#) while at [CERN](#) in 1989 and opened to the public in 1993. It was conceived as a "universal linked information system".[3][4][5] Documents and other media content are made available to the network through [web servers](#) and can be accessed by programs such as [web browsers](#). Servers and resources on the World Wide Web are identified and located through character strings called [uniform resource locators](#) (URLs).

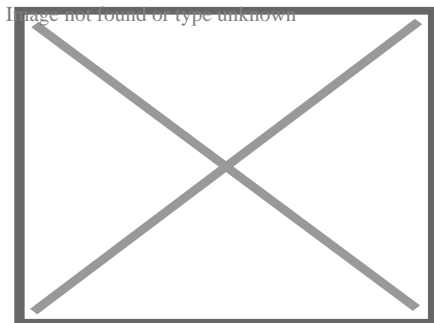
The original and still very common document type is a [web page](#) formatted in [Hypertext Markup Language](#) (HTML). This markup language supports [plain text](#), [images](#), embedded [video](#) and [audio](#) contents, and [scripts](#) (short programs) that implement complex user interaction. The HTML language also supports [hyperlinks](#) (embedded URLs) which provide immediate access to other web resources. [Web navigation](#), or web surfing, is the common practice of following such hyperlinks across multiple websites. [Web applications](#) are web pages that function as [application software](#). The information in the Web is transferred across the Internet using HTTP. Multiple web resources with a common theme and usually a common [domain name](#) make up a [website](#). A single web server may provide multiple websites, while some websites, especially the most popular ones, may be provided by multiple servers. Website content is provided by a myriad of companies, organizations, government agencies, and [individual users](#); and comprises an enormous amount of educational, entertainment, commercial, and government information.

The Web has become the world's dominant [information systems platform](#).[\[6\]\[7\]\[8\]\[9\]](#) It is the primary tool that billions of people worldwide use to interact with the Internet.[\[2\]](#)

## History

[\[edit\]](#)

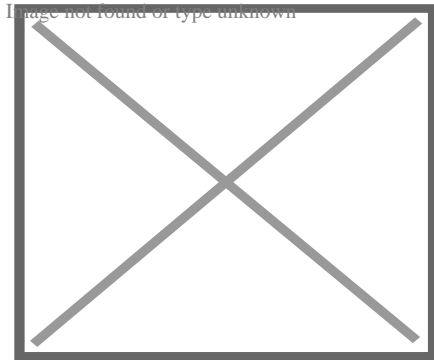
Main article: [History of the World Wide Web](#)



This [NeXT Computer](#) was used by [Sir Tim Berners-Lee](#) at [CERN](#) and became the world's first [Web server](#).

The Web was invented by English computer scientist [Tim Berners-Lee](#) while working at [CERN](#).[\[10\]\[11\]](#) He was motivated by the problem of storing, updating, and finding documents and data files in that large and constantly changing organization, as well as distributing them to collaborators outside CERN. In his design, Berners-Lee dismissed the common [tree structure](#) approach, used for instance in the existing CERNDoc documentation system and in the [Unix filesystem](#), as well as approaches that relied in tagging files with [keywords](#), as in the VAX/NOTES system. Instead he

adopted concepts he had put into practice with his private **ENQUIRE** system (1980) built at CERN. When he became aware of **Ted Nelson's hypertext** model (1965), in which documents can be linked in unconstrained ways through **hyperlinks** associated with "hot spots" embedded in the text, it helped to confirm the validity of his concept.[12][13]



The historic World Wide Web logo, designed by **Robert Cailliau**. Currently, there is no widely accepted logo in use for the WWW.

The model was later popularized by **Apple's HyperCard** system. Unlike Hypercard, Berners-Lee's new system from the outset was meant to support links between multiple databases on independent computers, and to allow simultaneous access by many users from any computer on the Internet. He also specified that the system should eventually handle other media besides text, such as graphics, speech, and video. Links could refer to mutable data files, or even fire up programs on their server computer. He also conceived "gateways" that would allow access through the new system to documents organized in other ways (such as traditional computer **file systems** or the **Usenet**). Finally, he insisted that the system should be decentralized, without any central control or coordination over the creation of links.[4][14][10][11]

Berners-Lee submitted a proposal to CERN in May 1989, without giving the system a name.[4] He got a working system implemented by the end of 1990, including a browser called **WorldWideWeb** (which became the name of the project and of the network) and **an HTTP server** running at CERN. As part of that development he defined the first version of the HTTP protocol, the basic URL syntax, and implicitly made HTML the primary document format.[15] The technology was released outside CERN to other research institutions starting in January 1991, and then to the whole Internet on 23 August 1991. The Web was a success at CERN, and began to spread to other scientific and academic institutions. Within the next two years, **there were 50 websites created**.[16][17]

CERN made the Web protocol and code available royalty free in 1993, enabling its widespread use.[18][19] After the **NCSA** released the **Mosaic web browser** later that year, the Web's popularity grew rapidly as **thousands of websites** sprang up in less than a year.[20][21] Mosaic was a graphical browser that could display inline images and submit **forms** that were processed by the **HTTPd server**.[22][23] **Marc Andreessen** and **Jim Clark** founded **Netscape** the following year and released the **Navigator browser**, which introduced **Java** and **JavaScript** to the Web. It quickly became the dominant browser. Netscape **became a public company** in 1995 which triggered a frenzy for the Web and started the **dot-com bubble**.[24] Microsoft responded by developing its own browser, **Internet Explorer**, starting the **browser wars**. By bundling it with Windows, it became the dominant browser for 14 years.[25]



Berners-Lee founded the **World Wide Web Consortium** (W3C) which created **XML** in 1996 and recommended replacing HTML with stricter **XHTML**.<sup>[26]</sup> In the meantime, developers began exploiting an IE feature called **XMLHttpRequest** to make **Ajax** applications and launched the **Web 2.0** revolution. **Mozilla**, **Opera**, and Apple rejected XHTML and created the **WHATWG** which developed **HTML5**.<sup>[27]</sup> In 2009, the W3C conceded and abandoned XHTML.<sup>[28]</sup> In 2019, it ceded control of the HTML specification to the WHATWG.<sup>[29]</sup>

The World Wide Web has been central to the development of the **Information Age** and is the primary tool billions of people use to interact on the **Internet**.<sup>[30][31][32][9]</sup>

## Nomenclature

[\[edit\]](#)



**This section needs additional citations for verification.** Please help **improve this article** by **adding citations to reliable sources** in this section. Unsourced material may be challenged and removed. *(August 2023)* (*[Learn how and when to remove this message](#)*)

Tim Berners-Lee states that *World Wide Web* is officially spelled as three separate words, each capitalised, with no intervening hyphens.<sup>[33]</sup> Nonetheless, it is often called simply *the Web*, and also often *the web*; see **Capitalization of Internet** for details. In Mandarin Chinese, *World Wide Web* is commonly translated via a **phono-semantic matching** to *wàn wéi wǎng* (万维网), which satisfies *www* and literally means "10,000-dimensional net", a translation that reflects the design concept and proliferation of the World Wide Web.

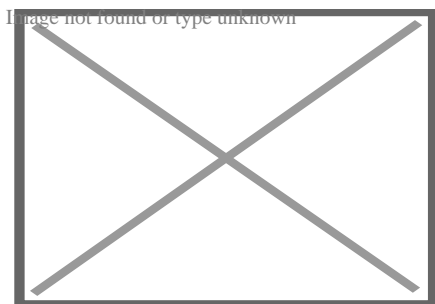
Use of the *www* prefix has been declining, especially when **web applications** sought to brand their domain names and make them easily pronounceable. As the **mobile Web** grew in popularity, <sup>*[citation needed]*</sup> services like **Gmail.com**, **Outlook.com**, **Myspace.com**, **Facebook.com** and **Twitter.com** are most often mentioned without adding "*www.*" (or, indeed, "*.com*") to the domain.<sup>[34]</sup>

In English, *www* is usually read as *double-u double-u double-u*.<sup>[35]</sup> Some users pronounce it *dub-dub-dub*, particularly in New Zealand.<sup>[36]</sup> **Stephen Fry**, in his "Podgrams" series of podcasts, pronounces it *wuh wuh wuh*.<sup>[37]</sup> The English writer **Douglas Adams** once quipped in *The Independent on Sunday* (1999): "The World Wide Web is the only thing I know of whose shortened form takes three times longer to say than what it's short for".<sup>[38]</sup>

## Function

[\[edit\]](#)

Main articles: **HTTP** and **HTML**



The World Wide Web functions as an **application layer protocol** that is run "on top of" (figuratively) the Internet, helping to make it more functional. The advent of the **Mosaic** web browser helped to make the web much more usable, to include the display of images and moving images (**GIFs**).

The terms *Internet* and *World Wide Web* are often used without much distinction. However, the two terms do not mean the same thing. The Internet is a global system of **computer networks** interconnected through telecommunications and **optical networking**. In contrast, the World Wide Web is a global collection of documents and other **resources**, linked by hyperlinks and **URIs**. Web resources are accessed using **HTTP** or **HTTPS**, which are application-level Internet protocols that use the Internet transport protocols.[2]

Viewing a **web page** on the World Wide Web normally begins either by typing the **URL** of the page into a web browser or by following a hyperlink to that page or resource. The web browser then initiates a series of background communication messages to fetch and display the requested page. In the 1990s, using a browser to view web pages—and to move from one web page to another through hyperlinks—came to be known as 'browsing,' 'web surfing' (after **channel surfing**), or 'navigating the Web'. Early studies of this new behaviour investigated user patterns in using web browsers. One study, for example, found five user patterns: exploratory surfing, window surfing, evolved surfing, bounded navigation and targeted navigation.[39]

The following example demonstrates the functioning of a web browser when accessing a page at the URL `http://example.org/home.html`. The browser resolves the server name of the URL ( `example.org` ) into an **Internet Protocol address** using the globally distributed **Domain Name System** (DNS). This lookup returns an IP address such as `203.0.113.4` or `2001:db8:2e::7334`. The browser then requests the resource by sending an **HTTP** request across the Internet to the computer at that address. It requests service from a specific TCP port number that is well known for the HTTP service so that the receiving host can distinguish an HTTP request from other network protocols it may be servicing. HTTP normally uses **port number 80** and for HTTPS it normally uses **port number 443**. The content of the HTTP request can be as simple as two lines of text:

```
GET /home.html HTTP/1.1  
Host: example.org
```

The computer receiving the HTTP request delivers it to web server software listening for requests on port 80. If the web server can fulfil the request it sends an HTTP response back to the browser indicating success:

```
HTTP/1.1 200 OK  
Content-Type: text/html; charset=UTF-8
```

followed by the content of the requested page. Hypertext Markup Language (HTML) for a basic web page might look like this:

```
<html>
  <head>
    <title>Example.org – The World Wide Web</title>
  </head>
  <body>
    <p>The World Wide Web, abbreviated as WWW and commonly known ...</p>
  </body>
</html>
```

The web browser **parses** the HTML and interprets the markup (<title>, <p> for paragraph, and such) that surrounds the words to format the text on the screen. Many web pages use HTML to reference the URLs of other resources such as images, other embedded media, **scripts** that affect page behaviour, and **Cascading Style Sheets** that affect page layout. The browser makes additional HTTP requests to the web server for these other **Internet media types**. As it receives their content from the web server, the browser progressively **renders** the page onto the screen as specified by its HTML and these additional resources.

## HTML

[[edit](#)]

Main article: [HTML](#)

Hypertext Markup Language (HTML) is the standard **markup language** for creating **web pages** and **web applications**. With **Cascading Style Sheets** (CSS) and **JavaScript**, it forms a triad of **cornerstone** technologies for the World Wide Web.<sup>[40]</sup>

**Web browsers** receive HTML documents from a **web server** or from local storage and **render** the documents into multimedia web pages. HTML describes the structure of a web page **semantically** and originally included cues for the appearance of the document.

**HTML elements** are the building blocks of HTML pages. With HTML constructs, **images** and other objects such as **interactive forms** may be embedded into the rendered page. HTML provides a means to create **structured documents** by denoting structural **semantics** for text such as headings, paragraphs, lists, **links**, quotes and other items. HTML elements are delineated by *tags*, written using **angle brackets**. Tags such as <img /> and <input /> directly introduce content into the page. Other tags such as <p> surround and provide information about document text and may include other tags as sub-elements. Browsers do not display the HTML tags, but use them to interpret the content of the page.

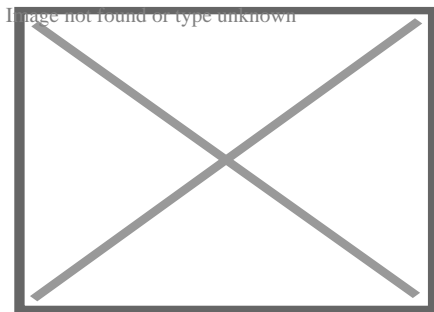
HTML can embed programs written in a **scripting language** such as **JavaScript**, which affects the behaviour and content of web pages. Inclusion of CSS defines the look and layout of content. The **World Wide Web Consortium** (W3C), maintainer of both the HTML and the CSS standards, has

encouraged the use of CSS over explicit presentational HTML since 1997.[41]

## Linking

[edit]

Most web pages contain hyperlinks to other related pages and perhaps to downloadable files, source documents, definitions and other web resources. In the underlying HTML, a hyperlink looks like this: `<a href="http://example.org/home.html">Example.org Homepage</a>`.



Graphic representation of a minute fraction of the WWW, demonstrating **hyperlinks**

Such a collection of useful, related resources, interconnected via hypertext links is dubbed a *web* of information. Publication on the Internet created what Tim Berners-Lee first called the *WorldWideWeb* (in its original **CamelCase**, which was subsequently discarded) in November 1990.[42]

The hyperlink structure of the web is described by the **webgraph**: the nodes of the web graph correspond to the web pages (or URLs) the directed edges between them to the hyperlinks. Over time, many web resources pointed to by hyperlinks disappear, relocate, or are replaced with different content. This makes hyperlinks obsolete, a phenomenon referred to in some circles as link rot, and the hyperlinks affected by it are often called "**dead**" **links**. The ephemeral nature of the Web has prompted many efforts to archive websites. The **Internet Archive**, active since 1996, is the best known of such efforts.

## WWW prefix

[edit]

Many hostnames used for the World Wide Web begin with *www* because of the long-standing practice of naming **Internet** hosts according to the services they provide. The **hostname** of a **web server** is often *www*, in the same way that it may be *ftp* for an **FTP server**, and *news* or *nntp* for a **Usenet news server**. These hostnames appear as Domain Name System (DNS) or **subdomain** names, as in *www.example.com*. The use of *www* is not required by any technical or policy standard and many websites do not use it; the first web server was *nxoc01.cern.ch*. [43] According to Paolo Palazzi, who worked at CERN along with Tim Berners-Lee, the popular use of *www* as subdomain was accidental; the World Wide Web project page was intended to be published at *www.cern.ch* while *info.cern.ch* was intended to be the CERN home page; however the DNS

records were never switched, and the practice of prepending *www* to an institution's website domain name was subsequently copied.<sup>[44]</sup><sup>*better source needed*</sup> Many established websites still use the prefix, or they employ other subdomain names such as *www2*, *secure* or *en* for special purposes. Many such web servers are set up so that both the main domain name (e.g., *example.com*) and the *www* subdomain (e.g., *www.example.com*) refer to the same site; others require one form or the other, or they may map to different web sites. The use of a subdomain name is useful for **load balancing** incoming web traffic by creating a **CNAME record** that points to a cluster of web servers. Since, currently<sup>*as of?*</sup>, only a subdomain can be used in a CNAME, the same result cannot be achieved by using the bare domain root.<sup>[45]</sup><sup>*dubious – discuss*</sup>

When a user submits an incomplete domain name to a web browser in its address bar input field, some web browsers automatically try adding the prefix "www" to the beginning of it and possibly ".com", ".org" and ".net" at the end, depending on what might be missing. For example, entering "microsoft" may be transformed to *http://www.microsoft.com/* and "openoffice" to *http://www.openoffice.org*. This feature started appearing in early versions of **Firefox**, when it still had the working title 'Firebird' in early 2003, from an earlier practice in browsers such as **Lynx**.<sup>[46]</sup> <sup>*unreliable*</sup> It is reported that Microsoft was granted a US patent for the same idea in 2008, but only for mobile devices.<sup>[47]</sup>

## Scheme specifiers

<sup>[*edit*]</sup>

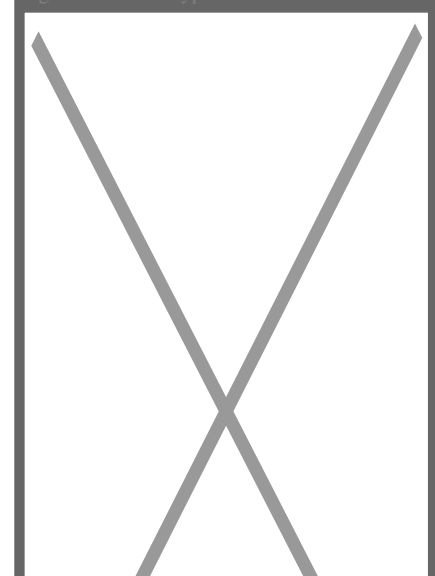
The scheme specifiers *http://* and *https://* at the start of a web **URI** refer to **Hypertext Transfer Protocol** or **HTTP Secure**, respectively. They specify the communication protocol to use for the request and response. The HTTP protocol is fundamental to the operation of the World Wide Web, and the added encryption layer in HTTPS is essential when browsers send or retrieve confidential data, such as passwords or banking information. Web browsers usually automatically prepend *http://* to user-entered URIs, if omitted.

## Pages

<sup>[*edit*]</sup>

Main article: **Web page**

Image not found or type unknown



A screenshot of the home page of Wikimedia Commons

A *web page* (also written as *webpage*) is a document that is suitable for the World Wide Web and **web browsers**. A web browser displays a web page on a **monitor** or **mobile device**.

The term *web page* usually refers to what is visible, but may also refer to the contents of the **computer file** itself, which is usually a **text file** containing **hypertext** written in **HTML** or a comparable **markup language**. Typical web pages provide **hypertext** for browsing to other web pages via **hyperlinks**, often referred to as *links*. Web browsers will frequently have to access multiple **web resource** elements, such as reading **style sheets**, **scripts**, and images, while presenting each web page.

On a network, a web browser can retrieve a web page from a remote **web server**. The web server may restrict access to a private network such as a corporate intranet. The web browser uses the **Hypertext Transfer Protocol** (HTTP) to make such requests to the **web server**.

A **static web page** is delivered exactly as stored, as **web content** in the web server's **file system**. In contrast, a **dynamic web page** is generated by a **web application**, usually driven by **server-side software**. Dynamic web pages are used when each user may require completely different information, for example, bank websites, web email etc.

## Static page

[**edit**]

Main article: **Static web page**

A *static web page* (sometimes called a *flat page/stationary page*) is a **web page** that is delivered to the user exactly as stored, in contrast to **dynamic web pages** which are generated by a **web application**.

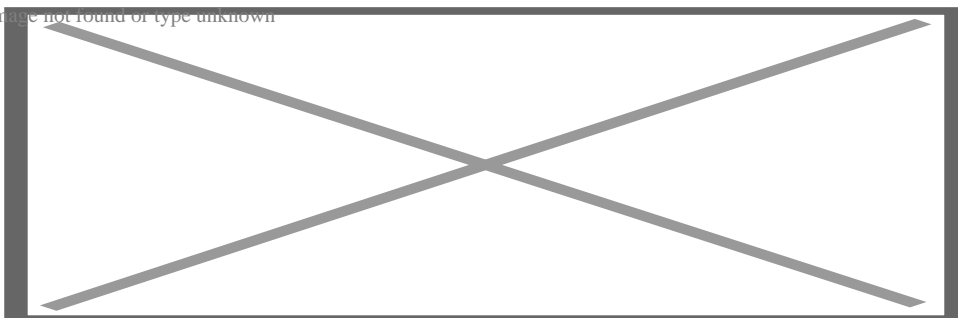
Consequently, a static web page displays the same information for all users, from all contexts, subject to modern capabilities of a **web server** to **negotiate content-type** or language of the document where such versions are available and the server is configured to do so.

## Dynamic pages

[**edit**]

Main articles: **Dynamic web page** and **Ajax (programming)**

Image not found or type unknown





Dynamic web page: example of server-side scripting (PHP and MySQL)

A *server-side dynamic web page* is a **web page** whose construction is controlled by an **application server** processing server-side scripts. In server-side scripting, **parameters** determine how the assembly of every new web page proceeds, including the setting up of more client-side processing.

A *client-side dynamic web page* processes the web page using JavaScript running in the browser. JavaScript programs can interact with the document via **Document Object Model**, or DOM, to query page state and alter it. The same client-side techniques can then dynamically update or change the DOM in the same way.

A dynamic web page is then reloaded by the user or by a **computer program** to change some variable content. The updating information could come from the server, or from changes made to that page's DOM. This may or may not truncate the browsing history or create a saved version to go back to, but a *dynamic web page update* using **Ajax** technologies will neither create a page to go back to nor truncate the **web browsing history** forward of the displayed page. Using Ajax technologies the end **user** gets *one dynamic page* managed as a single page in the **web browser** while the actual **web content** rendered on that page can vary. The Ajax engine sits only on the browser requesting parts of its DOM, *the* DOM, for its client, from an application server.

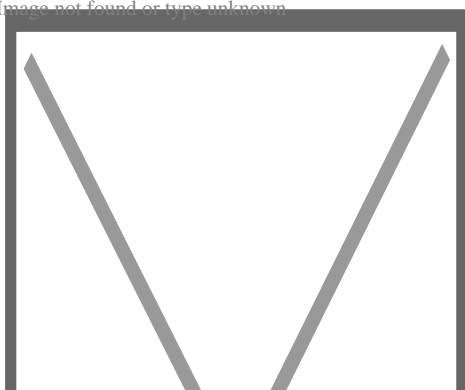
Dynamic HTML, or DHTML, is the umbrella term for technologies and methods used to create web pages that are not **static web pages**, though it has fallen out of common use since the popularization of **AJAX**, a term which is now itself rarely used.<sup>[*citation needed*]</sup> Client-side-scripting, server-side scripting, or a combination of these make for the dynamic web experience in a browser.

**JavaScript** is a **scripting language** that was initially developed in 1995 by **Brendan Eich**, then of **Netscape**, for use within web pages.<sup>[48]</sup> The standardised version is **ECMAScript**.<sup>[48]</sup> To make web pages more interactive, some web applications also use JavaScript techniques such as **Ajax** (**asynchronous** JavaScript and **XML**). **Client-side script** is delivered with the page that can make additional HTTP requests to the server, either in response to user actions such as mouse movements or clicks, or based on elapsed time. The server's responses are used to modify the current page rather than creating a new page with each response, so the server needs only to provide limited, incremental information. Multiple Ajax requests can be handled at the same time, and users can interact with the page while data is retrieved. Web pages may also regularly **poll** the server to check whether new information is available.<sup>[49]</sup>

## Website

[**edit**]

Image not found or type unknown



The [usap.gov](https://www.usap.gov) website

Main article: [Website](#)

A *website*<sup>[50]</sup> is a collection of related web resources including [web pages](#), [multimedia](#) content, typically identified with a common [domain name](#), and published on at least one [web server](#). Notable examples are [wikipedia.org](https://www.wikipedia.org), [google.com](https://www.google.com), and [amazon.com](https://www.amazon.com).

A website may be accessible via a public [Internet Protocol](#) (IP) network, such as the [Internet](#), or a private [local area network](#) (LAN), by referencing a [uniform resource locator](#) (URL) that identifies the site.

Websites can have many functions and can be used in various fashions; a website can be a [personal website](#), a corporate website for a company, a government website, an organization website, etc. Websites are typically dedicated to a particular topic or purpose, ranging from entertainment and [social networking](#) to providing news and education. All publicly accessible websites collectively constitute the World Wide Web, while private websites, such as a company's website for its employees, are typically a part of an [intranet](#).

Web pages, which are the building blocks of websites, are [documents](#), typically composed in [plain text](#) interspersed with [formatting instructions](#) of Hypertext Markup Language ([HTML](#), [XHTML](#)). They may incorporate elements from other websites with suitable [markup anchors](#). Web pages are accessed and transported with the [Hypertext Transfer Protocol](#) (HTTP), which may optionally employ encryption ([HTTP Secure](#), HTTPS) to provide security and privacy for the user. The user's application, often a [web browser](#), renders the page content according to its HTML markup instructions onto a [display terminal](#).

[Hyperlinking](#) between web pages conveys to the reader the [site structure](#) and guides the navigation of the site, which often starts with a [home page](#) containing a directory of the site [web content](#). Some websites require user registration or [subscription](#) to access content. Examples of [subscription websites](#) include many business sites, news websites, [academic journal](#) websites, gaming websites, file-sharing websites, [message boards](#), web-based [email](#), [social networking](#) websites, websites providing real-time price quotations for different types of markets, as well as sites providing various other services. [End users](#) can access websites on a range of devices, including [desktop](#) and [laptop computers](#), [tablet computers](#), [smartphones](#) and [smart TVs](#).

## Browser

[\[edit\]](#)

Main article: [Web browser](#)

A *web browser* (commonly referred to as a *browser*) is a [software user agent](#) for accessing information on the World Wide Web. To connect to a website's [server](#) and display its pages, a user needs to have a web browser program. This is the program that the user runs to download, format, and display a web page on the user's computer.

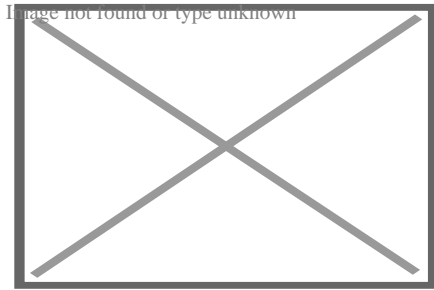
In addition to allowing users to find, display, and move between web pages, a web browser will usually have features like keeping bookmarks, recording history, managing cookies (see below), and home pages and may have facilities for recording passwords for logging into websites.

The most popular browsers are [Chrome](#), [Safari](#), [Edge](#), [Samsung Internet](#) and [Firefox](#).<sup>[51]</sup>

## Server

[\[edit\]](#)

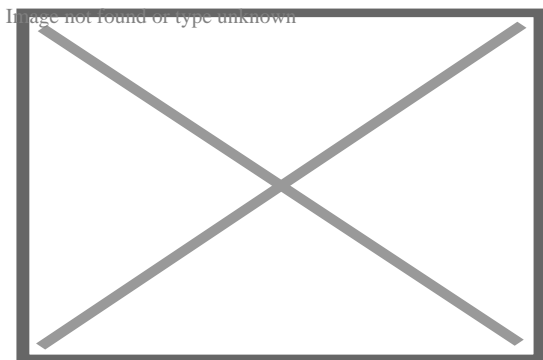
Main article: [Web server](#)



The inside and front of a [Dell PowerEdge](#) web server, a computer designed for [rack mounting](#)

A *Web server* is [server software](#), or hardware dedicated to running said software, that can satisfy World Wide Web client requests. A web server can, in general, contain one or more websites. A web server processes incoming network requests over [HTTP](#) and several other related protocols.

The primary function of a web server is to store, process and deliver [web pages](#) to [clients](#).<sup>[52]</sup> The communication between client and server takes place using the [Hypertext Transfer Protocol \(HTTP\)](#). Pages delivered are most frequently [HTML documents](#), which may include [images](#), [style sheets](#) and [scripts](#) in addition to the text content.



Multiple web servers may be used for a high traffic website; here, [Dell](#) servers are installed together to be used for the [Wikimedia Foundation](#).

A [user agent](#), commonly a [web browser](#) or [web crawler](#), initiates communication by making a [request](#) for a specific resource using HTTP and the server responds with the content of that resource or an [error message](#) if unable to do so. The resource is typically a real file on the server's [secondary storage](#), but this is not necessarily the case and depends on how the webserver is

implemented.

While the primary function is to serve content, full implementation of HTTP also includes ways of receiving content from clients. This feature is used for submitting **web forms**, including **uploading** of files.

Many generic web servers also support **server-side scripting** using **Active Server Pages** (ASP), **PHP** (Hypertext Preprocessor), or other **scripting languages**. This means that the behaviour of the webserver can be scripted in separate files, while the actual server software remains unchanged. Usually, this function is used to generate HTML documents **dynamically** ("on-the-fly") as opposed to returning **static documents**. The former is primarily used for retrieving or modifying information from **databases**. The latter is typically much faster and more easily **cached** but cannot deliver **dynamic content**.

Web servers can also frequently be found **embedded** in devices such as **printers**, **routers**, **webcams** and serving only a **local network**. The web server may then be used as a part of a system for monitoring or administering the device in question. This usually means that no additional software has to be installed on the client computer since only a web browser is required (which now is included with most **operating systems**).

## Optical Networking

[edit]

**Optical networking** is a sophisticated infrastructure that utilizes optical fiber to transmit data over long distances, connecting countries, cities, and even private residences. The technology uses optical microsystems like **tunable lasers**, filters, **attenuators**, switches, and wavelength-selective switches to manage and operate these networks.[53][54]

The large quantity of optical fiber installed throughout the world at the end of the twentieth century set the foundation of the Internet as it's used today. The information highway relies heavily on optical networking, a method of sending messages encoded in light to relay information in various telecommunication networks.[55]

The **Advanced Research Projects Agency Network** (ARPANET) was one of the first iterations of the Internet, created in collaboration with universities and researchers 1969.[56][57][58][59] However, access to the ARPANET was limited to researchers, and in 1985, the **National Science Foundation** founded the **National Science Foundation Network** (NSFNET), a program that provided supercomputer access to researchers.[59]

Limited public access to the Internet led to pressure from consumers and corporations to privatize the network. In 1993, the US passed the **National Information Infrastructure Act**, which dictated that the National Science Foundation must hand over control of the optical capabilities to commercial operators.[60][61]

The privatization of the Internet and the release of the World Wide Web to the public in 1993 led to an increased demand for Internet capabilities. This spurred developers to seek solutions to reduce

the time and cost of laying new fiber and increase the amount of information that can be sent on a single fiber, in order to meet the growing needs of the public.[62][63][64][65]

In 1994, Pirelli S.p.A.'s optical components division introduced a wavelength-division multiplexing (WDM) system to meet growing demand for increased data transmission. This four-channel WDM technology allowed more information to be sent simultaneously over a single optical fiber, effectively boosting network capacity.[66][67]

Pirelli wasn't the only company that developed a WDM system; another company, the **Ciena Corporation** (Ciena), created its own technology to transmit data more efficiently. **David Huber**, an optical networking engineer and entrepreneur **Kevin Kimberlin** founded Ciena in 1992.[68][69][70] Drawing on laser technology from **Gordon Gould** and William Culver of **Optelecom, Inc.**, the company focused on utilizing optical amplifiers to transmit data via light.[71][72][73] Under chief executive officer Pat Nettles, Ciena developed a dual-stage optical amplifier for dense wavelength-division multiplexing (DWDM), patented in 1997 and deployed on the Sprint network in 1996.[74][75][76][77][78]

## Cookie

[edit]

Main article: **HTTP cookie**

An *HTTP cookie* (also called *web cookie*, *Internet cookie*, *browser cookie*, or simply *cookie*) is a small piece of data sent from a website and stored on the user's computer by the user's **web browser** while the user is browsing. Cookies were designed to be a reliable mechanism for websites to remember **stateful** information (such as items added in the shopping cart in an online store) or to record the user's browsing activity (including clicking particular buttons, **logging in**, or recording which pages were visited in the past). They can also be used to remember arbitrary pieces of information that the user previously entered into form fields such as names, addresses, passwords, and credit card numbers.

Cookies perform essential functions in the modern web. Perhaps most importantly, *authentication cookies* are the most common method used by web servers to know whether the user is logged in or not, and which account they are logged in with. Without such a mechanism, the site would not know whether to send a page containing sensitive information or require the user to authenticate themselves by logging in. The security of an authentication cookie generally depends on the security of the issuing website and the user's **web browser**, and on whether the cookie data is encrypted. Security vulnerabilities may allow a cookie's data to be read by a **hacker**, used to gain access to user data, or used to gain access (with the user's credentials) to the website to which the cookie belongs (see **cross-site scripting** and **cross-site request forgery** for examples).[79]

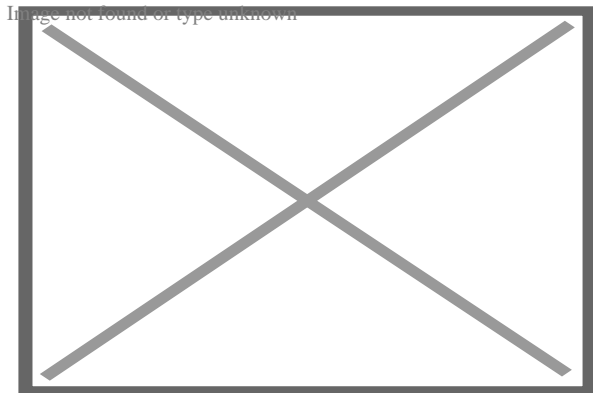
Tracking cookies, and especially third-party tracking cookies, are commonly used as ways to compile long-term records of individuals' browsing histories – a potential **privacy concern** that prompted European[80] and U.S. lawmakers to take action in 2011.[81][82] European law requires that all websites targeting **European Union** member states gain "informed consent" from users before storing non-essential cookies on their device.

Google [Project Zero](#) researcher Jann Horn describes ways cookies can be read by [intermediaries](#), like [Wi-Fi](#) hotspot providers. When in such circumstances, he recommends using the browser in [private browsing](#) mode (widely known as [Incognito mode](#) in Google Chrome).<sup>[83]</sup>

## Search engine

[\[edit\]](#)

Main article: [Search engine](#)



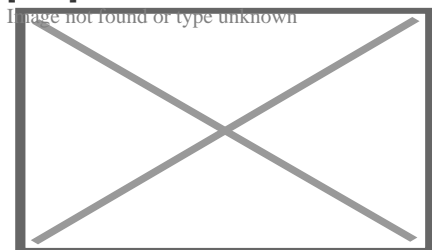
The results of a search for the term "lunar eclipse" in a web-based [image search](#) engine

A *web search engine* or *Internet search engine* is a [software system](#) that is designed to carry out *web search* (*Internet search*), which means to search the World Wide Web in a systematic way for particular information specified in a [web search query](#). The search results are generally presented in a line of results, often referred to as [search engine results pages](#) (SERPs). The information may be a mix of [web pages](#), images, videos, infographics, articles, research papers, and other types of files. Some search engines also [mine data](#) available in [databases](#) or [open directories](#). Unlike [web directories](#), which are maintained only by human editors, search engines also maintain [real-time](#) information by running an [algorithm](#) on a [web crawler](#). Internet content that is not capable of being searched by a web search engine is generally described as the [deep web](#).

In 1990, [Archie](#), the world's first search engine, was released. The technology was originally an index of [File Transfer Protocol](#) (FTP) sites, which was a method for moving files between a client and a server network.<sup>[84][85]</sup> This early search tool was superseded by more advanced engines like [Yahoo!](#) in 1995 and [Google](#) in 1998.<sup>[86][87]</sup>

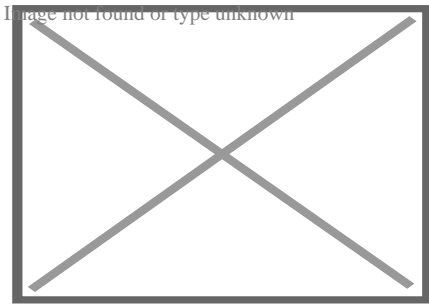
## Deep web

[\[edit\]](#)

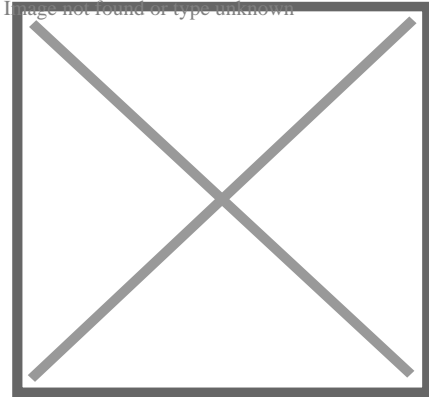


Deep web diagram





## Deep web vs surface web



## Surface Web & Deep Web

Main article: [Deep web](#)

The deep web,<sup>[88]</sup> *invisible web*,<sup>[89]</sup> or *hidden web*<sup>[90]</sup> are parts of the World Wide Web whose contents are not [indexed](#) by standard [web search engines](#). The opposite term to the deep web is the [surface web](#), which is accessible to anyone using the Internet.<sup>[91]</sup> [Computer scientist](#) Michael K. Bergman is credited with coining the term *deep web* in 2001 as a search indexing term.<sup>[92]</sup>

The content of the deep web is hidden behind [HTTP](#) forms,<sup>[93][94]</sup> and includes many very common uses such as [web mail](#), [online banking](#), and services that users must pay for, and which is protected by a [paywall](#), such as [video on demand](#), some online magazines and newspapers, among others.

The content of the deep web can be located and accessed by a direct [URL](#) or [IP address](#) and may require a password or other security access past the public website page.

## Caching

[\[edit\]](#)

A [web cache](#) is a server computer located either on the public Internet or within an enterprise that stores recently accessed web pages to improve response time for users when the same content is requested within a certain time after the original request. Most web browsers also implement a [browser cache](#) by writing recently obtained data to a local data storage device. HTTP requests by a browser may ask only for data that has changed since the last access. Web pages and resources may contain expiration information to control caching to secure sensitive data, such as in [online banking](#), or to facilitate frequently updated sites, such as news media. Even sites with highly

dynamic content may permit basic resources to be refreshed only occasionally. Web site designers find it worthwhile to collate resources such as CSS data and JavaScript into a few site-wide files so that they can be cached efficiently. Enterprise **firewalls** often cache Web resources requested by one user for the benefit of many users. Some **search engines** store cached content of frequently accessed websites.

## Security

[\[edit\]](#)

For **criminals**, the Web has become a venue to spread **malware** and engage in a range of **cybercrime**, including (but not limited to) **identity theft**, **fraud**, **espionage**, and **intelligence gathering**.<sup>[95]</sup> Web-based **vulnerabilities** now outnumber traditional computer security concerns,<sup>[96][97]</sup> and as measured by **Google**, about one in ten web pages may contain malicious code.<sup>[98]</sup> Most web-based **attacks** take place on legitimate websites, and most, as measured by **Sophos**, are hosted in the United States, China and Russia.<sup>[99]</sup> The most common of all malware **threats** is **SQL injection** attacks against websites.<sup>[100]</sup> Through HTML and URIs, the Web was vulnerable to attacks like **cross-site scripting** (XSS) that came with the introduction of JavaScript<sup>[101]</sup> and were exacerbated to some degree by **Web 2.0** and Ajax **web design** that favours the use of scripts.<sup>[102]</sup> In one 2007 estimate, 70% of all websites are open to XSS attacks on their users.<sup>[103]</sup> **Phishing** is another common threat to the Web. In February 2013, RSA (the security division of EMC) estimated the global losses from phishing at \$1.5 billion in 2012.<sup>[104]</sup> Two of the well-known phishing methods are Covert Redirect and Open Redirect.

Proposed solutions vary. Large security companies like **McAfee** already design governance and compliance suites to meet post-9/11 regulations,<sup>[105]</sup> and some, like **Finjan Holdings** have recommended active real-time inspection of programming code and all content regardless of its source.<sup>[95]</sup> Some have argued that for enterprises to see Web security as a business opportunity rather than a **cost centre**,<sup>[106]</sup> while others call for "ubiquitous, always-on **digital rights management**" enforced in the infrastructure to replace the hundreds of companies that secure data and networks.<sup>[107]</sup> **Jonathan Zittrain** has said users sharing responsibility for computing safety is far preferable to locking down the Internet.<sup>[108]</sup>

## Privacy

[\[edit\]](#)

Main article: **Internet privacy**

Every time a client requests a web page, the server can identify the request's **IP address**. Web servers usually log IP addresses in a **log file**. Also, unless set not to do so, most web browsers record requested web pages in a viewable *history* feature, and usually **cache** much of the content locally. Unless the server-browser communication uses HTTPS encryption, web requests and responses travel in plain text across the Internet and can be viewed, recorded, and cached by intermediate systems. Another way to hide **personally identifiable information** is by using a **virtual private network**. A VPN **encrypts** traffic between the client and VPN server, and masks the original IP address, lowering the chance of user identification.

When a web page asks for, and the user supplies, personally identifiable information—such as their real name, address, e-mail address, etc. web-based entities can associate current web traffic with that individual. If the website uses [HTTP cookies](#), username, and password authentication, or other tracking techniques, it can relate other web visits, before and after, to the identifiable information provided. In this way, a web-based organization can develop and build a profile of the individual people who use its site or sites. It may be able to build a record for an individual that includes information about their leisure activities, their shopping interests, their profession, and other aspects of their [demographic profile](#). These profiles are of potential interest to marketers, advertisers, and others. Depending on the website's [terms and conditions](#) and the local laws that apply information from these profiles may be sold, shared, or passed to other organizations without the user being informed. For many ordinary people, this means little more than some unexpected emails in their inbox or some uncannily relevant advertising on a future web page. For others, it can mean that time spent indulging an unusual interest can result in a deluge of further targeted marketing that may be unwelcome. Law enforcement, counterterrorism, and espionage agencies can also identify, target, and track individuals based on their interests or proclivities on the Web.

[Social networking](#) sites usually try to get users to use their real names, interests, and locations, rather than pseudonyms, as their executives believe that this makes the social networking experience more engaging for users. On the other hand, uploaded photographs or unguarded statements can be identified to an individual, who may regret this exposure. Employers, schools, parents, and other relatives may be influenced by aspects of social networking profiles, such as text posts or digital photos, that the posting individual did not intend for these audiences. [Online bullies](#) may make use of personal information to harass or [stalk](#) users. Modern social networking websites allow fine-grained control of the privacy settings for each posting, but these can be complex and not easy to find or use, especially for beginners.<sup>[109]</sup> Photographs and videos posted onto websites have caused particular problems, as they can add a person's face to an online profile. With modern and potential [facial recognition technology](#), it may then be possible to relate that face with other, previously anonymous, images, events, and scenarios that have been imaged elsewhere. Due to image caching, mirroring, and copying, it is difficult to remove an image from the World Wide Web.

## Standards

[\[edit\]](#)

Main article: [Web standards](#)

Web standards include many interdependent standards and specifications, some of which govern aspects of the [Internet](#), not just the World Wide Web. Even when not web-focused, such standards directly or indirectly affect the development and administration of websites and [web services](#). Considerations include the [interoperability](#), [accessibility](#) and [usability](#) of web pages and web sites.

Web standards, in the broader sense, consist of the following:

- *Recommendations* published by the [World Wide Web Consortium](#) (W3C)<sup>[110]</sup>
- "Living Standard" made by the [Web Hypertext Application Technology Working Group](#) (WHATWG)

- *Request for Comments* (RFC) documents published by the [Internet Engineering Task Force \(IETF\)](#)<sup>[111]</sup>
- *Standards* published by the [International Organization for Standardization \(ISO\)](#)<sup>[112]</sup>
- *Standards* published by [Ecma International](#) (formerly ECMA)<sup>[113]</sup>
- *The Unicode Standard* and various *Unicode Technical Reports* (UTRs) published by the [Unicode Consortium](#)<sup>[114]</sup>
- Name and number registries maintained by the [Internet Assigned Numbers Authority \(IANA\)](#)<sup>[115]</sup>

Web standards are not fixed sets of rules but are constantly evolving sets of finalized technical specifications of web technologies.<sup>[116]</sup> Web standards are developed by [standards organizations](#)—groups of interested and often competing parties chartered with the task of standardization—not technologies developed and declared to be a standard by a single individual or company. It is crucial to distinguish those specifications that are under development from the ones that already reached the final development status (in the case of [W3C](#) specifications, the highest maturity level).

## Accessibility

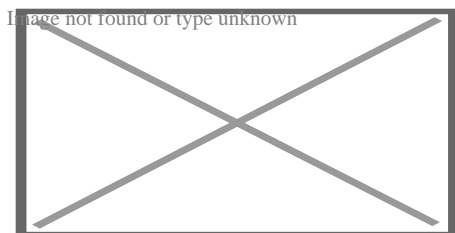
[\[edit\]](#)

Main article: [Web accessibility](#)

There are methods for accessing the Web in alternative mediums and formats to facilitate use by individuals with [disabilities](#). These disabilities may be visual, auditory, physical, speech-related, cognitive, neurological, or some combination. Accessibility features also help people with temporary disabilities, like a broken arm, or ageing users as their abilities change.<sup>[117]</sup> The Web is receiving information as well as providing information and interacting with society. The World Wide Web Consortium claims that it is essential that the Web be accessible, so it can provide equal access and [equal opportunity](#) to people with disabilities.<sup>[118]</sup> Tim Berners-Lee once noted, "The power of the Web is in its universality. Access by everyone regardless of disability is an essential aspect."<sup>[117]</sup> Many countries regulate web accessibility as a requirement for websites.<sup>[119]</sup> International co-operation in the W3C [Web Accessibility Initiative](#) led to simple guidelines that web content authors as well as software developers can use to make the Web accessible to persons who may or may not be using [assistive technology](#).<sup>[117][120]</sup>

## Internationalisation

[\[edit\]](#)



A global map of the [Web Index](#) for countries in 2014

The W3C **Internationalisation** Activity assures that web technology works in all languages, scripts, and cultures.[121] Beginning in 2004 or 2005, **Unicode** gained ground and eventually in December 2007 surpassed both **ASCII** and Western European as the Web's most frequently used **character map**.<sup>[122]</sup> Originally **RFC 3986** allowed resources to be identified by **URI** in a subset of US-ASCII.

**RFC 3987** allows more characters—any character in the **Universal Character Set**—and now a resource can be identified by **IRI** in any language.<sup>[123]</sup>

## See also

[**edit**]

-  **Engineering portal**
-  **Internet portal**
-  **World portal**

- **Decentralized web**
- **Electronic publishing**
- **Gopher (protocol)**, an early alternative to the WWW
- **Internet metaphors**
- **Internet security**
- **Lists of websites**
- **Minitel**, a predecessor of the WWW
- **Streaming media**
- **Web 1.0**
- **Web 2.0**
- **Web 3.0**
- **Web3**
- **Web3D**
- **Web development tools**
- **Web literacy**

## References

[**edit**]

- <sup>^</sup> **Wright, Edmund**, ed. (2006). *The Desk Encyclopedia of World History*. New York: **Oxford University Press**. p. 312. **ISBN 978-0-7394-7809-7**.
- <sup>^</sup> **a b c** "**What is the difference between the Web and the Internet?**". **W3C Help and FAQ**. **W3C**. 2009. *Archived from the original on 9 July 2015*. Retrieved 16 July 2015.
- <sup>^</sup> "**World Wide Web (WWW) launches in the public domain | April 30, 1993**". **HISTORY**. Retrieved 21 January 2025.



4. ^ **a b c** Berners-Lee, Tim. *"Information Management: A Proposal"*. w3.org. The World Wide Web Consortium. *Archived* from the original on 1 April 2010. Retrieved 12 February 2022.
5. ^ *"The World's First Web Site"*. HISTORY. 30 August 2018. *Archived* from the original on 19 August 2023. Retrieved 19 August 2023.
6. ^ Bleigh, Michael (16 May 2014). *"The Once And Future Web Platform"*. TechCrunch. *Archived* from the original on 5 December 2021. Retrieved 9 March 2022.
7. ^ *"World Wide Web Timeline"*. Pews Research Center. 11 March 2014. *Archived* from the original on 29 July 2015. Retrieved 1 August 2015.
8. ^ Dewey, Caitlin (12 March 2014). *"36 Ways The Web Has Changed Us"*. The Washington Post. *Archived* from the original on 9 September 2015. Retrieved 1 August 2015.
9. ^ **a b** *"Internet Live Stats"*. internetlivestats.com. *Archived* from the original on 2 July 2015. Retrieved 1 August 2015.
10. ^ **a b** Quittner, Joshua (29 March 1999). *"Network Designer Tim Berners-Lee"*. Time Magazine. *Archived* from the original on 15 August 2007. Retrieved 17 May 2010. "He wove the World Wide Web and created a mass medium for the 21st century. The World Wide Web is Berners-Lee's alone. He designed it. He set it loose it on the world. And he more than anyone else has fought to keep it an open, non-proprietary and free."<sup>[*page needed*]</sup>
11. ^ **a b** McPherson, Stephanie Sammartino (2009). *Tim Berners-Lee: Inventor of the World Wide Web*. Twenty-First Century Books. ISBN 978-0-8225-7273-2.
12. ^ Rutter, Dorian (2005). *From Diversity to Convergence: British Computer Networks and the Internet, 1970-1995* (PDF) (Computer Science thesis). The University of Warwick. *Archived* (PDF) from the original on 10 October 2022. Retrieved 27 December 2022.
13. ^ Tim Berners-Lee (1999). *Weaving the Web*. Internet Archive. HarperSanFrancisco. pp. 5–6. ISBN 978-0-06-251586-5.
14. ^ Berners-Lee, T.; Cailliau, R.; Groff, J.-F.; Pollermann, B. (1992). *"World-Wide Web: The Information Universe"*. Electron. Netw. Res. Appl. Policy. 2: 52–58. doi:10.1108/eb047254. ISSN 1066-2243. *Archived* from the original on 27 December 2022. Retrieved 27 December 2022.
15. ^ W3 (1991) *Re: Qualifiers on Hypertext links Archived* 7 December 2021 at the *Wayback Machine*
16. ^ Hopgood, Bob. *"History of the Web"*. w3.org. The World Wide Web Consortium. *Archived* from the original on 21 March 2022. Retrieved 12 February 2022.
17. ^ *"A short history of the Web"*. CERN. *Archived* from the original on 17 April 2022. Retrieved 15 April 2022.
18. ^ *"Software release of WWW into public domain"*. CERN Document Server. CERN. 30 January 1993. *Archived* from the original on 17 February 2022. Retrieved 17 February 2022.
19. ^ *"Ten Years Public Domain for the Original Web Software"*. Tenyears-www.web.cern.ch. 30 April 2003. *Archived* from the original on 13 August 2009. Retrieved 27 July 2009.
20. ^ Calore, Michael (22 April 2010). *"April 22, 1993: Mosaic Browser Lights Up Web With Color, Creativity"*. Wired. *Archived* from the original on 24 April 2018. Retrieved 12 February 2022.
21. ^ Couldry, Nick (2012). *Media, Society, World: Social Theory and Digital Media Practice*. London: Polity Press. p. 2. ISBN 9780745639208. *Archived* from the original on 27 February 2024. Retrieved 11 December 2020.
22. ^ Hoffman, Jay (21 April 1993). *"The Origin of the IMG Tag"*. The History of the Web. *Archived* from the original on 13 February 2022. Retrieved 13 February 2022.



23. ^ Clarke, Roger. *"The Birth of Web Commerce"*. Roger Clarke's Web-Site. XAMAX. Archived from the original on 15 February 2022. Retrieved 15 February 2022.
24. ^ McCullough, Brian. *"20 YEARS ON: WHY NETSCAPE'S IPO WAS THE 'BIG BANG' OF THE INTERNET ERA"*. www.internethistorypodcast.com. INTERNET HISTORY PODCAST. Archived from the original on 12 February 2022. Retrieved 12 February 2022.
25. ^ Calore, Michael (28 September 2009). *"Sept. 28, 1998: Internet Explorer Leaves Netscape in Its Wake"*. Wired. Archived from the original on 30 November 2021. Retrieved 14 February 2022.
26. ^ Daly, Janet (26 January 2000). *"World Wide Web Consortium Issues XHTML 1.0 as a Recommendation"*. W3C. Archived from the original on 20 June 2021. Retrieved 8 March 2022.
27. ^ Hickson, Ian. *"WHAT open mailing list announcement"*. whatwg.org. WHATWG. Archived from the original on 8 March 2022. Retrieved 16 February 2022.
28. ^ Shankland, Stephen (9 July 2009). *"An epitaph for the Web standard, XHTML 2"*. CNet. Archived from the original on 16 February 2022. Retrieved 17 February 2022.
29. ^ *"Memorandum of Understanding Between W3C and WHATWG"*. W3C. Archived from the original on 29 May 2019. Retrieved 16 February 2022.
30. ^ In, Lee (30 June 2012). *Electronic Commerce Management for Business Activities and Global Enterprises: Competitive Advantages: Competitive Advantages*. IGI Global. ISBN 978-1-4666-1801-5. Archived from the original on 21 April 2024. Retrieved 27 September 2020.
31. ^ Misiroglu, Gina (26 March 2015). *American Countercultures: An Encyclopedia of Nonconformists, Alternative Lifestyles, and Radical Ideas in U.S. History: An Encyclopedia of Nonconformists, Alternative Lifestyles, and Radical Ideas in U.S. History*. Routledge. ISBN 978-1-317-47729-7. Archived from the original on 21 April 2024. Retrieved 27 September 2020.
32. ^ *"World Wide Web Timeline"*. Pew Research Center. 11 March 2014. Archived from the original on 29 July 2015. Retrieved 1 August 2015.
33. ^ *"Frequently asked questions - Spelling of WWW"*. W3C. Archived from the original on 2 August 2009. Retrieved 27 July 2009.
34. ^ Castelluccio, Michael (1 October 2010). *"It's not your grandfather's Internet"*. Strategic Finance. Institute of Management Accountants. Archived from the original on 5 March 2016. Retrieved 7 February 2016 – via The Free Library.
35. ^ *"Audible pronunciation of 'WWW'"*. Oxford University Press. Archived from the original on 25 May 2014. Retrieved 25 May 2014.
36. ^ Harvey, Charlie (18 August 2015). *"How we pronounce WWW in English: a detailed but unscientific survey"*. charlieharvey.org.uk. Archived from the original on 19 November 2022. Retrieved 19 May 2022.
37. ^ *"Stephen Fry's pronunciation of 'WWW'"*. Podcasts.com. Archived from the original on 4 April 2017.
38. ^ Simonite, Tom (22 July 2008). *"Help us find a better way to pronounce www"*. newscientist.com. New Scientist, Technology. Archived from the original on 13 March 2016. Retrieved 7 February 2016.
39. ^ Muylle, Steve; Moenaert, Rudy; Despont, Marc (1999). "A grounded theory of World Wide Web search behaviour". *Journal of Marketing Communications*. 5 (3): 143. doi: 10.1080/135272699345644.

40. ^ Flanagan, David. *JavaScript – The definitive guide* (6 ed.). p. 1. "JavaScript is part of the triad of technologies that all Web developers must learn: HTML to specify the content of web pages, CSS to specify the presentation of web pages, and JavaScript to specify the behaviour of web pages."
41. ^ "HTML 4.0 Specification – W3C Recommendation – Conformance: requirements and recommendations". World Wide Web Consortium. 18 December 1997. Archived from the original on 5 July 2015. Retrieved 6 July 2015.
42. ^ Berners-Lee, Tim; Cailliau, Robert (12 November 1990). "WorldWideWeb: Proposal for a HyperText Project". Archived from the original on 2 May 2015. Retrieved 12 May 2015.
43. ^ Berners-Lee, Tim. "Frequently asked questions by the Press". W3C. Archived from the original on 2 August 2009. Retrieved 27 July 2009.
44. ^ Palazzi, P (2011). "The Early Days of the WWW at CERN". Archived from the original on 23 July 2012.
45. ^ Fraser, Dominic (13 May 2018). "Why a domain's root can't be a CNAME – and other tidbits about the DNS". FreeCodeCamp. Archived from the original on 21 April 2024. Retrieved 12 March 2019.
46. ^ "automatically adding www.\_\_\_\_.com". mozillaZine. 16 May 2003. Archived from the original on 27 June 2009. Retrieved 27 May 2009.
47. ^ Masnick, Mike (7 July 2008). "Microsoft Patents Adding 'www.' And '.com' To Text". Techdirt. Archived from the original on 27 June 2009. Retrieved 27 May 2009.
48. ^ a b Hamilton, Naomi (31 July 2008). "The A-Z of Programming Languages: JavaScript". Computerworld. IDG. Archived from the original on 24 May 2009. Retrieved 12 May 2009.
49. ^ Buntin, Seth (23 September 2008). "jQuery Polling plugin". Archived from the original on 13 August 2009. Retrieved 22 August 2009.
50. ^ "website". *TheFreeDictionary.com*. Archived from the original on 7 May 2018. Retrieved 2 July 2011.
51. ^ www.similarweb.com <https://www.similarweb.com/browsers/>. Retrieved 15 February 2025.  
cite web: Missing or empty |title= (help)
52. ^ Patrick, Killelea (2002). *Web performance tuning* (2nd ed.). Beijing: O'Reilly. p. 264. ISBN 978-0596001728. OCLC 49502686.
53. ^ Liu, Xiang (20 December 2019). "Evolution of Fiber-Optic Transmission and Networking toward the 5G Era". *iScience*. **22**: 489–506. Bibcode:2019iSci...22..489L. doi:10.1016/j.isci.2019.11.026. ISSN 2589-0042. PMC 6920305. PMID 31838439.
54. ^ Marom, Dan M. (1 January 2008), Gianchandani, Yogesh B.; Tabata, Osamu; Zappe, Hans (eds.), "3.07 - Optical Communications", *Comprehensive Microsystems*, Oxford: Elsevier, pp. 219–265, doi:10.1016/b978-044452190-3.00035-5, ISBN 978-0-444-52190-3, retrieved 17 January 2025
55. ^ Chadha, Devi (2019). *Optical WDM networks: from static to elastic networks*. Hoboken, NJ: Wiley-IEEE Press. ISBN 978-1-119-39326-9.
56. ^ "The Computer History Museum, SRI International, and BBN Celebrate the 40th Anniversary of First ARPANET Transmission, Precursor to Today's Internet | SRI International". 29 March 2019. Archived from the original on 29 March 2019. Retrieved 21 January 2025.
57. ^ Markoff, John (24 January 1993). "Building the Electronic Superhighway". *The New York Times*. ISSN 0362-4331. Retrieved 21 January 2025.

58. ^ Abbate, Janet (2000). *Inventing the Internet*. Inside technology (3rd printing ed.). Cambridge, Mass.: MIT Press. ISBN 978-0-262-51115-5.
59. ^ a b www.merit.edu [http://web.archive.org/web/20241106150721/https://www.merit.edu/wp-content/uploads/2019/06/NSFNET\\_final-1.pdf](http://web.archive.org/web/20241106150721/https://www.merit.edu/wp-content/uploads/2019/06/NSFNET_final-1.pdf). Archived from the original (PDF) on 6 November 2024. Retrieved 21 January 2025. cite web: Missing or empty |title= (help)
60. ^ Rep. Boucher, Rick [D-VA-9 (14 September 1993). "*H.R.1757 - 103rd Congress (1993-1994): National Information Infrastructure Act of 1993*". www.congress.gov. Retrieved 23 January 2025.cite web: CS1 maint: numeric names: authors list (link)
61. ^ "*NSF Shapes the Internet's Evolution | NSF - National Science Foundation*". new.nsf.gov. 25 July 2003. Retrieved 23 January 2025.
62. ^ Radu, Roxana (7 March 2019), Radu, Roxana (ed.), "*Privatization and Globalization of the Internet*", *Negotiating Internet Governance*, Oxford University Press, pp. 75–112, doi: 10.1093/oso/9780198833079.003.0004, ISBN 978-0-19-883307-9, retrieved 23 January 2025
63. ^ "*Birth of the Commercial Internet - NSF Impacts | NSF - National Science Foundation*". new.nsf.gov. Retrieved 23 January 2025.
64. ^ Markoff, John (3 March 1997). "*Fiber-Optic Technology Draws Record Stock Value*". *The New York Times*. ISSN 0362-4331. Retrieved 23 January 2025.
65. ^ Paul Korzeniowski, "Record Growth Spurs Demand for Dense WDM -- Infrastructure Bandwidth Gears up for next Wave," *CommunicationsWeek*, no. 666 (June 2, 1997): T.40.
66. ^ Hecht, Jeff (1999). *City of light: the story of fiber optics*. The Sloan technology series. New York: Oxford University Press. ISBN 978-0-19-510818-7.
67. ^ "*Cisco to Acquire Pirelli DWDM Unit for \$2.15 Billion*". www.fiberopticonline.com. Retrieved 31 January 2025.
68. ^ Hirsch, Stacey (February 2, 2006). "Huber steps down as CEO of Broadwing". *The Baltimore Sun*.
69. ^ "*Dr. David Huber*". *History of the Internet*. Retrieved 3 February 2025.
70. ^ "*Internet Commercialization History*". *History of the Internet*. Retrieved 3 February 2025.
71. ^ "*May 17, 1993, page 76 - The Baltimore Sun at Baltimore Sun*". *Newspapers.com*. Retrieved 3 February 2025.
72. ^ Hall, Carla. "Inventor Beams over Laser Patents: After 30 Years, Gordon Gould Gets Credit He Deserves." *Los Angeles Times*, Los Angeles Times, 17 Dec. 1987.
73. ^ Chang, Kenneth (20 September 2005). "*Gordon Gould, 85, Figure in Invention of the Laser, Dies*". *The New York Times*. ISSN 0362-4331. Retrieved 3 February 2025.
74. ^ Carroll, Jim (12 December 2024). "*Patrick Nettles Steps Down as Executive Chair of Ciena*". *Converge Digest*. Retrieved 3 February 2025.
75. ^ US5696615A, Alexander, Stephen B., "Wavelength division multiplexed optical communication systems employing uniform gain optical amplifiers", issued 1997-12-09
76. ^ Hecht, Jeff (2004). *City of light: the story of fiber optics*. The Sloan technology series (Rev. and expanded ed., 1. paperback [ed.] ed.). Oxford: Oxford Univ. Press. ISBN 978-0-19-510818-7.
77. ^ "*Optica Publishing Group*". opg.optica.org. Retrieved 3 February 2025.
78. ^ "*Sprint boots some users off 'Net - ProQuest*". www.proquest.com. ProQuest 215944575. Retrieved 3 February 2025.
79. ^ Vamosi, Robert (14 April 2008). "*Gmail cookie stolen via Google Spreadsheets*". *News.cnet.com*. Archived from the original on 9 December 2013. Retrieved 19 October 2017.



80. ^ "What about the "EU Cookie Directive"?". WebCookies.org. 2013. Archived from the original on 11 October 2017. Retrieved 19 October 2017.
81. ^ "New net rules set to make cookies crumble". BBC. 8 March 2011. Archived from the original on 10 August 2018. Retrieved 18 February 2019.
82. ^ "Sen. Rockefeller: Get Ready for a Real Do-Not-Track Bill for Online Advertising". Adage.com. 6 May 2011. Archived from the original on 24 August 2011. Retrieved 18 February 2019.
83. ^ Want to use my wifi? Archived 4 January 2018 at the Wayback Machine, Jann Horn accessed 5 January 2018.
84. ^ Nguyen, Jennimai (10 September 2020). "Archie, the very first search engine, was released 30 years ago today". Mashable. Retrieved 4 February 2025.
85. ^ "What is File Transfer Protocol (FTP) meaning". Fortinet. Retrieved 4 February 2025.
86. ^ "Britannica Money". www.britannica.com. 4 February 2025. Retrieved 4 February 2025.
87. ^ Clark, Andrew (1 February 2008). "How Jerry's guide to the world wide web became Yahoo". The Guardian. ISSN 0261-3077. Retrieved 4 February 2025.
88. ^ Hamilton, Nigel (13 May 2024). "The Mechanics of a Deep Net Metasearch Engine". IADIS Digital Library: 1034–1036. ISBN 978-972-98947-0-1.
89. ^ Devine, Jane; Egger-Sider, Francine (July 2004). "Beyond google: the invisible web in the academic library". The Journal of Academic Librarianship. **30** (4): 265–269. doi: 10.1016/j.acalib.2004.04.010.
90. ^ Raghavan, Sriram; Garcia-Molina, Hector (11–14 September 2001). "Crawling the Hidden Web". 27th International Conference on Very Large Data Bases. Archived from the original on 17 August 2019. Retrieved 18 February 2019.
91. ^ "Surface Web". Computer Hope. Archived from the original on 5 May 2020. Retrieved 20 June 2018.
92. ^ Wright, Alex (22 February 2009). "Exploring a 'Deep Web' That Google Can't Grasp". The New York Times. Archived from the original on 1 March 2020. Retrieved 23 February 2009.
93. ^ Madhavan, J., Ko, D., Kot, A., Ganapathy, V., Rasmussen, A., & Halevy, A. (2008). Google's deep web crawl. Proceedings of the VLDB Endowment, 1(2), 1241–52.
94. ^ Shedden, Sam (8 June 2014). "How Do You Want Me to Do It? Does It Have to Look like an Accident? – an Assassin Selling a Hit on the Net; Revealed Inside the Deep Web". Sunday Mail. Archived from the original on 1 March 2020. Retrieved 5 May 2017.
95. ^ a b Ben-Itzhak, Yuval (18 April 2008). "Infosecurity 2008 – New defence strategy in battle against e-crime". ComputerWeekly. Reed Business Information. Archived from the original on 4 June 2008. Retrieved 20 April 2008.
96. ^ Christey, Steve & Martin, Robert A. (22 May 2007). "Vulnerability Type Distributions in CVE (version 1.1)". MITRE Corporation. Archived from the original on 17 March 2013. Retrieved 7 June 2008.
97. ^ "Symantec Internet Security Threat Report: Trends for July–December 2007 (Executive Summary)" (PDF). Symantec Internet Security Threat Report. **XIII**. Symantec Corp.: 1–2 April 2008. Archived from the original (PDF) on 25 June 2008. Retrieved 11 May 2008.
98. ^ "Google searches web's dark side". BBC News. 11 May 2007. Archived from the original on 7 March 2008. Retrieved 26 April 2008.
99. ^ "Security Threat Report (Q1 2008)" (PDF). Sophos. Archived (PDF) from the original on 31 December 2013. Retrieved 24 April 2008.

100. ^ ["Security threat report"](#) (PDF). Sophos. July 2008. [Archived](#) (PDF) from the original on 31 December 2013. Retrieved 24 August 2008.
101. ^ Jeremiah Grossman; Robert "RSnake" Hansen; Petko "pdp" D. Petkov; Anton Rager; Seth Fogie (2007). [Cross Site Scripting Attacks: XSS Exploits and Defense](#) (PDF). Syngress, Elsevier Science & Technology. pp. 68–69, 127. ISBN 978-1-59749-154-9. [Archived](#) (PDF) from the original on 15 November 2024. Retrieved 23 January 2025.
102. ^ O'Reilly, Tim (30 September 2005). ["What Is Web 2.0"](#). O'Reilly Media. pp. 4–5. [Archived](#) from the original on 28 June 2012. Retrieved 4 June 2008. and AJAX web applications can introduce security vulnerabilities like "client-side security controls, increased attack surfaces, and new possibilities for Cross-Site Scripting (XSS)", in Ritchie, Paul (March 2007). ["The security risks of AJAX/web 2.0 applications"](#) (PDF). Infosecurity. Archived from [the original](#) (PDF) on 25 June 2008. Retrieved 6 June 2008. which cites Hayre, Jaswinder S. & Kelath, Jayasankar (22 June 2006). ["Ajax Security Basics"](#). SecurityFocus. [Archived](#) from the original on 15 May 2008. Retrieved 6 June 2008.
103. ^ Berinato, Scott (1 January 2007). ["Software Vulnerability Disclosure: The Chilling Effect"](#). CSO. [CXO Media](#). p. 7. Archived from [the original](#) on 18 April 2008. Retrieved 7 June 2008.
104. ^ ["2012 Global Losses From phishing Estimated At \\$1.5 Bn"](#). FirstPost. 20 February 2013. [Archived](#) from the original on 21 December 2014. Retrieved 25 January 2019.
105. ^ Prince, Brian (9 April 2008). ["McAfee Governance, Risk and Compliance Business Unit"](#). eWEEK. Ziff Davis Enterprise Holdings. [Archived](#) from the original on 21 April 2024. Retrieved 25 April 2008.
106. ^ Preston, Rob (12 April 2008). ["Down To Business: It's Past Time To Elevate The Infosec Conversation"](#). InformationWeek. United Business Media. [Archived](#) from the original on 14 April 2008. Retrieved 25 April 2008.
107. ^ Claburn, Thomas (6 February 2007). ["RSA's Coviello Predicts Security Consolidation"](#). InformationWeek. United Business Media. [Archived](#) from the original on 7 February 2009. Retrieved 25 April 2008.
108. ^ Duffy Marsan, Carolyn (9 April 2008). ["How the iPhone is killing the 'Net'"](#). Network World. IDG. Archived from [the original](#) on 14 April 2008. Retrieved 17 April 2008.
109. ^ boyd, danah; Hargittai, Eszter (July 2010). ["Facebook privacy settings: Who cares?"](#). First Monday. **15** (8). doi:10.5210/fm.v15i8.3086.
110. ^ ["W3C Technical Reports and Publications"](#). W3C. [Archived](#) from the original on 15 July 2018. Retrieved 19 January 2009.
111. ^ ["IETF RFC page"](#). IETF. Archived from [the original](#) on 2 February 2009. Retrieved 19 January 2009.
112. ^ ["Search for World Wide Web in ISO standards"](#). ISO. [Archived](#) from the original on 4 March 2016. Retrieved 19 January 2009.
113. ^ ["Ecma formal publications"](#). Ecma. [Archived](#) from the original on 27 December 2017. Retrieved 19 January 2009.
114. ^ ["Unicode Technical Reports"](#). Unicode Consortium. [Archived](#) from the original on 2 January 2022. Retrieved 19 January 2009.
115. ^ ["IANA home page"](#). IANA. [Archived](#) from the original on 24 February 2011. Retrieved 19 January 2009.
116. ^ Sikos, Leslie (2011). [Web standards – Mastering HTML5, CSS3, and XML](#). Apress. ISBN 978-1-4302-4041-9. Archived from [the original](#) on 2 April 2015. Retrieved 12 March 2019.

117. ^ **a b c** *"Web Accessibility Initiative (WAI)". World Wide Web Consortium. Archived from the original on 2 April 2009. Retrieved 7 April 2009.*
118. ^ *"Developing a Web Accessibility Business Case for Your Organization: Overview". World Wide Web Consortium. Archived from the original on 14 April 2009. Retrieved 7 April 2009.*
119. ^ *"Legal and Policy Factors in Developing a Web Accessibility Business Case for Your Organization". World Wide Web Consortium. Archived from the original on 5 April 2009. Retrieved 7 April 2009.*
120. ^ *"Web Content Accessibility Guidelines (WCAG) Overview". World Wide Web Consortium. Archived from the original on 1 April 2009. Retrieved 7 April 2009.*
121. ^ *"Internationalization (I18n) Activity". World Wide Web Consortium. Archived from the original on 16 April 2009. Retrieved 10 April 2009.*
122. ^ Davis, Mark (5 April 2008). *"Moving to Unicode 5.1". Archived from the original on 21 May 2009. Retrieved 10 April 2009.*
123. ^ *"World Wide Web Consortium Supports the IETF URI Standard and IRI Proposed Standard" (Press release). World Wide Web Consortium. 26 January 2005. Archived from the original on 7 February 2009. Retrieved 10 April 2009.*

## Further reading

[[edit](#)]

- Berners-Lee, Tim; Bray, Tim; Connolly, Dan; Cotton, Paul; Fielding, Roy; Jeckle, Mario; Lilley, Chris; Mendelsohn, Noah; Orchard, David; Walsh, Norman; Williams, Stuart (15 December 2004). *"Architecture of the World Wide Web, Volume One". W3C. Version 20041215.*
- Berners-Lee, Tim (August 1996). *"The World Wide Web: Past, Present and Future". W3C.*
- Brügger, Niels, ed, *Web25: Histories from the first 25 years of the World Wide Web* (Peter Lang, 2017).
- Fielding, R.; Gettys, J.; Mogul, J.; Frystyk, H.; Masinter, L.; Leach, P.; Berners-Lee, T. (June 1999). *"Hypertext Transfer Protocol – HTTP/1.1". Request For Comments 2616. Information Sciences Institute.*
- Niels Brügger, ed. *Web History* (2010) 362 pages; Historical perspective on the World Wide Web, including issues of culture, content, and preservation.
- Polo, Luciano (2003). *"World Wide Web Technology Architecture: A Conceptual Analysis". New Devices.*
- Skau, H.O. (March 1990). *"The World Wide Web and Health Information". New Devices.*

## External links

[[edit](#)]



Wikimedia Commons has media related to **World Wide Web**.





Wikibooks has a book on the topic of: ***Nets, Webs and the Information Infrastructure***

- The first website
- Early archive of the first Web site
- Internet Statistics: Growth and Usage of the Web and the Internet
- Living Internet A comprehensive history of the Internet, including the World Wide Web
- World Wide Web Consortium (W3C)
- W3C Recommendations Reduce "World Wide Wait"
- World Wide Web Size Daily estimated size of the World Wide Web
- Antonio A. Casilli, Some Elements for a Sociology of Online Interactions
- The Erdős-Rényi Webgraph Server Archived 1 March 2021 at the Wayback Machine offers weekly updated graph representation of a constantly increasing fraction of the WWW
- The 25th Anniversary of the World Wide Web Archived 11 July 2021 at the Wayback Machine is an animated video produced by USAID and TechChange which explores the role of the WWW in addressing extreme poverty

- **v**
- **t**
- **e**

Telecommunications

## History

- Beacon
- Broadcasting
- Cable protection system
- Cable TV
- Communications satellite
- Computer network
- Data compression
  - audio
  - DCT
  - image
  - video
- Digital media
  - Internet video
  - online video platform
  - social media
  - streaming
- Drums
- Edholm's law
- Electrical telegraph
- Fax
- Heliographs
- Hydraulic telegraph
- Information Age
- Information revolution
- Internet
- Mass media
- Mobile phone
  - Smartphone
- Optical telecommunication
- Optical telegraphy
- Pager
- Photophone
- Prepaid mobile phone
- Radio
- Radiotelephone
- Satellite communications
- Semaphore
  - Phryctoria
- Semiconductor
  - device
  - MOSFET
  - transistor
- Smoke signals
- Telecommunications history
- Telautograph
- Telegraphy
- Teleprinter (teletype)
- Telephone
- *The Telephone Cases*
- Television

## Pioneers

- Nasir Ahmed
- Edwin Howard Armstrong
- Mohamed M. Atalla
- John Logie Baird
- Paul Baran
- John Bardeen
- Alexander Graham Bell
- Emile Berliner
- Tim Berners-Lee
- Francis Blake
- Jagadish Chandra Bose
- Charles Bourseul
- Walter Houser Brattain
- Vint Cerf
- Claude Chappe
- Yogen Dalal
- Donald Davies
- Daniel Davis Jr.
- Amos Dolbear
- Thomas Edison
- Philo Farnsworth
- Reginald Fessenden
- Lee de Forest
- Elisha Gray
- Oliver Heaviside
- Robert Hooke
- Erna Schneider Hoover
- Harold Hopkins
- Gardiner Greene Hubbard
- Bob Kahn
- Dawon Kahng
- Charles K. Kao
- Narinder Singh Kapany
- Hedy Lamarr
- Roberto Landell
- Innocenzo Manzetti
- Guglielmo Marconi
- Robert Metcalfe
- Antonio Meucci
- Samuel Morse
- Jun-ichi Nishizawa
- Charles Grafton Page
- Radia Perlman
- Alexander Stepanovich Popov
- Tivadar Puskás
- Johann Philipp Reis
- Claude Shannon
- Almon Brown Strowger
- Henry Sutton
- Charles Sumner Tinsley

## **Transmission media**

- Coaxial cable
- Fiber-optic communication
  - optical fiber
- Free-space optical communication
- Molecular communication
- Radio waves
  - wireless
- Transmission line
  - telecommunication circuit

## **Network topology and switching**

- Bandwidth
- Links
- Network switching
  - circuit
  - packet
- Nodes
  - terminal
- Telephone exchange

## **Multiplexing**

- Space-division
- Frequency-division
- Time-division
- Polarization-division
- Orbital angular-momentum
- Code-division

## **Concepts**

- Communication protocol
- Computer network
- Data transmission
- Store and forward
- Telecommunications equipment

## Types of network





- Cellular network
- Ethernet
- ISDN
- LAN
- Mobile
- NGN
- Public Switched Telephone
- Radio
- Television
- Telex
- UUCP
- WAN
- Wireless network

## Notable networks

- ARPANET
- BITNET
- CYCLADES
- FidoNet
- Internet
- Internet2
- JANET
- NPL network
- ToasterNet
- Usenet

## Locations

- Africa
- Americas
  - North
  - South
- Antarctica
- Asia
- Europe
- Oceania
- *Global telecommunications regulation bodies*

-  **Telecommunication portal**
-  **Category**
-  **Outline**
-  **Commons**

- **V**

- **t**
- **e**

Web syndication

## History

Blogging

Podcasting

Vlogging

Web syndication technology

## Types

- Art
- Bloggernacle
- Classical music
- Corporate
- Dream diary
- Edublog
- Electronic journal
- Fake
- Family
- Fashion
- Food
- Health
- Law
- Lifelog
- MP3
- News
- Photoblog
- Police
- Political
- Project
- Reverse
- Travel
- Warblog



Technology	General	<ul style="list-style-type: none"> <li>○ BitTorrent</li> <li>○ Feed URI scheme</li> </ul>
	Features	<ul style="list-style-type: none"> <li>○ Linkback</li> <li>○ Permalink</li> <li>○ Ping</li> <li>○ Pingback</li> <li>○ Reblogging</li> <li>○ Refback</li> <li>○ Rollback</li> <li>○ Trackback</li> </ul>
	Mechanism	<ul style="list-style-type: none"> <li>○ Thread</li> <li>○ Geotagging</li> <li>○ RSS enclosure</li> <li>○ Synchronization</li> </ul>
	Memetics	<ul style="list-style-type: none"> <li>○ Atom feed</li> <li>○ Data feed</li> <li>○ Photofeed</li> <li>○ Product feed</li> <li>○ RDF feed</li> <li>○ Web feed</li> </ul>
	RSS	<ul style="list-style-type: none"> <li>○ GeoRSS</li> <li>○ MRSS</li> <li>○ RSS TV</li> </ul>
	Social	<ul style="list-style-type: none"> <li>○ Inter-process communication</li> <li>○ Mashup</li> <li>○ Referencing</li> <li>○ RSS editor</li> <li>○ RSS tracking</li> <li>○ Streaming media</li> </ul>
	Standard	<ul style="list-style-type: none"> <li>○ OPML</li> <li>○ RSS Advisory Board</li> <li>○ Usenet</li> <li>○ World Wide Web</li> <li>○ XBEL</li> <li>○ XOXO</li> </ul>

- Audio podcast
- Enhanced podcast
- Mobilecast
- Narrowcasting
- Peercasting
- Screencast
- Slidecasting
- Videocast
- Webcomic
- Webtoon
- Web series

## Form

- Anonymous blogging
- Collaborative blog
- Columnist
- Instant messaging
- Liveblogging
- Microblog
- Mobile blogging
- Spam blog
- Video blogging
- Motovlogging

## Media

### Alternative media

- Carnivals
- Fiction
- Journalism
  - Citizen
  - Database
- Online diary
- Search engines
- Sideblog
- Software
- Web directory

### Micromedia

- Aggregation
  - News
  - Poll
  - Review
  - Search
  - Video
- Atom
- AtomPub
- Broadcatching
- Hashtag
- NewsML
  - 1
  - G2
- Social communication
- Social software
- Web Slice

### Related

- Blogosphere
- Escribitionist
- Glossary of blogging
- Pay per click
- Posting style
- Slashdot effect
- Spam in blogs
- Uses of podcasting

- **v**
- **t**
- **e**

# Semantic Web

## Background

- Databases
- Hypertext
- Internet
- Ontologies
- Semantics
- Semantic networks
- World Wide Web

## Sub-topics

- Dataspaces
- Hyperdata
- Linked data
- Rule-based systems

## Applications

- Semantic analytics
- Semantic broker
- Semantic computing
- Semantic mapper
- Semantic matching
- Semantic publishing
- Semantic reasoner
- Semantic search
- Semantic service-oriented architecture
- Semantic wiki
- Solid

## **Related topics**

- [Collective intelligence](#)
- [Description logic](#)
- [Folksonomy](#)
- [Geotagging](#)
- [Information architecture](#)
- [iXBRL](#)
- [Knowledge extraction](#)
- [Knowledge management](#)
- [Knowledge representation and reasoning](#)
- [Library 2.0](#)
- [Digital library](#)
- [Digital humanities](#)
- [Metadata](#)
- [References](#)
- [Topic map](#)
- [Web 2.0](#)
- [Web engineering](#)
- [Web Science Trust](#)

## Syntax and supporting technologies

- HTTP
- IRI
  - URI
- RDF
  - triples
  - RDF/XML
  - JSON-LD
  - Turtle
  - TriG
  - Notation3
  - N-Triples
  - TriX (no W3C standard)
- RRID
- SPARQL
- XML
- Semantic HTML

## Schemas, ontologies and rules

- Common Logic
- OWL
- RDFS
- Rule Interchange Format
- Semantic Web Rule Language
- ALPS
- SHACL

## Standards

### Semantic annotation

- eRDF
- GRDDL
- Microdata
- Microformats
- RDFa
- SAWSDL
- Facebook Platform

### Common vocabularies

- DOAP
- Dublin Core
- FOAF
- Schema.org
- SIOC
- SKOS

### Microformat vocabularies

- hAtom
- hCalendar
- hCard
- hProduct
- hRecipe
- hReview



## Authority control databases Image not found or type unknown [Edit this at Wikidata](#)

### International

- [FAST](#)

### National

- [Germany](#)
- [United States](#)
- [France](#)
- [BnF data](#)
- [Czech Republic](#)
- [Spain](#)
- [Latvia](#)
- [Israel](#)

### Other

- [NARA](#)

### Check our other pages :

- [Local SEO](#)
- [SEO service Sydney](#)
- [SEO company Sydney](#)
- [what SEO marketing](#)
- [SEO strategy](#)

## Frequently Asked Questions

### What does SEO mean for my business?

SEO, or search engine optimisation, means improving your website's structure, content, and overall performance to rank higher in search results. This leads to more organic traffic, increased brand visibility, and better conversion rates, ultimately supporting your business's growth.

## What is SEO marketing?

SEO marketing is the process of using search engine optimization techniques to enhance your online presence. By optimizing your website, creating relevant content, and building authority, you attract organic traffic from search engines, increase brand awareness, and drive conversions.

### Sydney SEO consulting

SEO Sydney

Phone : 1300 684 339

City : Sydney

State : NSW

Zip : 2000

[Google Business Profile](#)

[Google Business Website](#)

Company Website : <https://sydney.website/seo-sydney/>

### USEFUL LINKS

[SEO Website](#)

[SEO Services Sydney](#)

[Local SEO Sydney](#)

[SEO Ranking](#)

[SEO optimisation](#)

### LATEST BLOGPOSTS

[SEO community](#)

[SEO Buzz](#)

[WordPress SEO](#)

[SEO Audit](#)

[Sitemap](#)

[Privacy Policy](#)

[About Us](#)

[SEO Castle Hill](#) | [SEO Fairfield](#) | [SEO Hornsby](#) | [SEO Liverpool](#) | [SEO North Sydney](#) | [SEO Norwest](#) | [SEO Parramatta](#) | [SEO Penrith](#) | [SEO Strathfield](#) | [SEO Wetherill Park](#)

Follow us