

Cloud Computing For Beginners



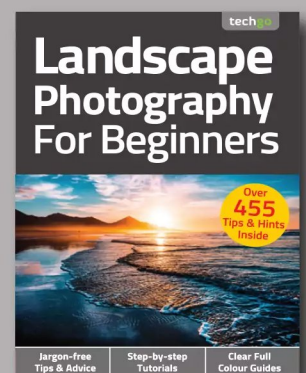
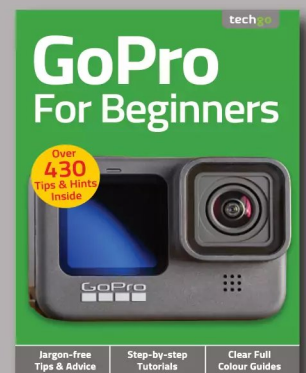
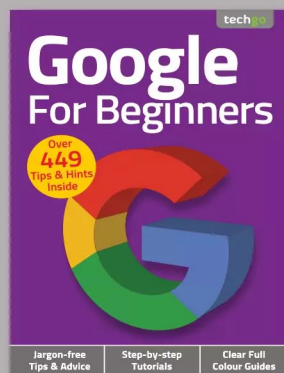
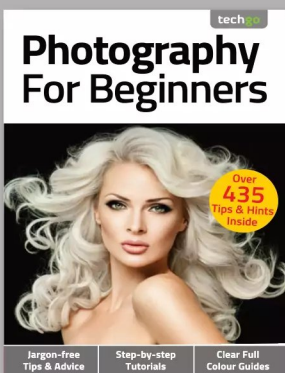
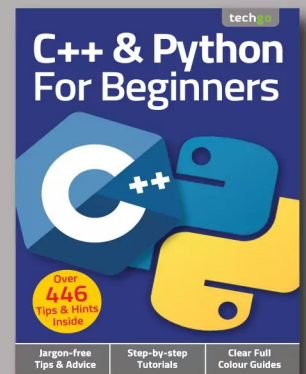
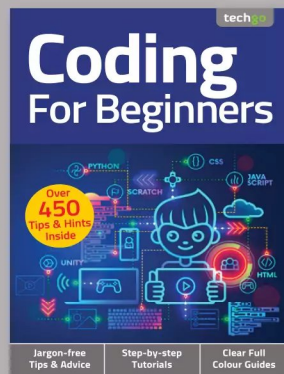
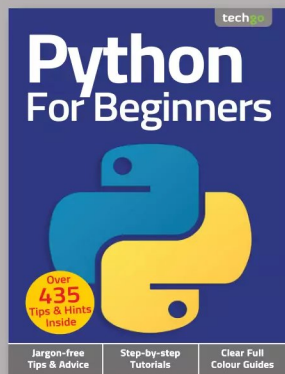
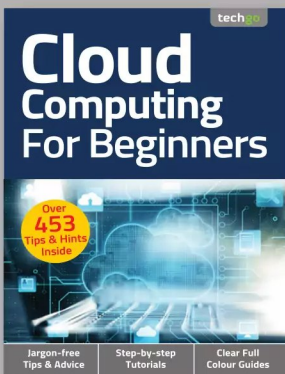
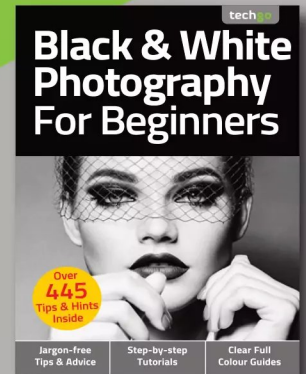
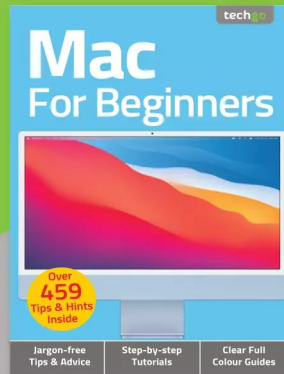
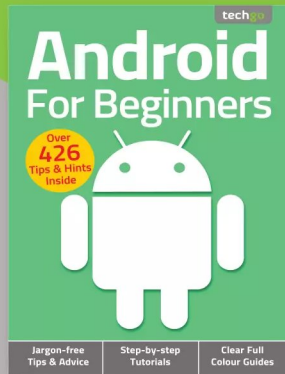
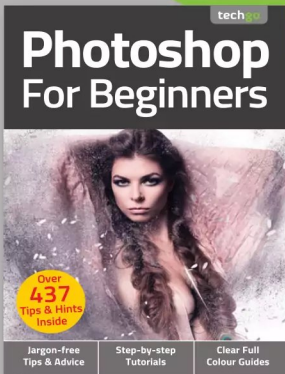
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Cloud Computing For Beginners

Starting something new can be daunting. Learning a skill or mastering a new piece of hardware is tough. Even tougher if you have no-one at hand to help. Conversely as the complexity of our consumer technology increases, the size of the requisite instruction manual decreases or in some cases it simply disappears. At numerous times in our lives we have all been “beginners”, there is no shame in that fact and rightly so. How many times have you asked aloud, “What does this button do?”. “Why doesn’t that work?”. “What do you mean it doesn’t do that?”. “HELP!”. At the start of any new journey or adventure we are all beginners but fortunately for you we are here to stand beside you at every stage.

Over this extensive series of titles we will be looking in great depth at the latest consumer electronics, software, hobbies and trends out of the box! We will guide you step-by-step through using all aspects of the technology that you may have been previously apprehensive at attempting. Let our expert guide help you build your technology understanding and skills, taking you from a novice to a confident and experienced user.

Over the page our journey begins. We would wish you luck but we’re sure with our support you won’t need it.



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“In this book you’ll discover what the cloud is, how it works, and how it can benefit you can your business. We look at the major players in cloud the storage market, and reveal in-depth analysis of key features. There’s guides on how to create your own cloud, how to use Google’s Home devices, and tons of information that will get you up to date with the latest in cloud terminology and technology.”



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What is Cloud Computing?

The way we use technology is ever changing. It's an evolution of how and where we access our private, personal and work-related data. From the earliest days of the home computer, accessing data and entertainment from cassettes, to the rise of the Internet and terabytes of storage, technology has revolutionised the way we interact with the world around us.

One form of this technological evolution is the cloud. The cloud is a term used often without knowing exactly what 'the cloud' is, what it does, how it works and what it can offer both the home and business user. The cloud offers many great benefits for those who use it. Storage, email, development, collaboration, sharing, streaming; the list goes on.

The future of work and entertainment lies in the cloud. So let's see what silver linings cast a gleam on this modern way of life.



The Definition of the Cloud

What is the cloud? Where is it? What can you do with it? How does it work? These are questions that both home and business users ask regularly. The term 'cloud computing' has been bandied about for so long, it's become just another technology phrase. But what does it really mean?



SILVER LININGS

The meaning of the cloud has changed somewhat in recent years, more as it became the new buzzword that pundits and marketing executives liked to throw about. In its most basic, layman's terms, cloud computing is simply accessing a form of digital resource, or service, that isn't installed locally on your computer.

For the home, consumer user, that could mean accessing Gmail, Google Drive, Dropbox, or, in some circumstances, even viewing content through the likes of Netflix or listening to music via Spotify. It's a loose interpretation of what a cloud is, but essentially, it's the same.

From the Small Medium Business (SMB), or Small Medium Enterprise's (SME) point of view, it's a way of consolidating your digital resources and mission-critical content into an always-available, online and accessible solution. This way, mobile workers and clients can access the company content, and you don't need to employ technical expertise to maintain the company servers and hardware continually. The ability to offer those shared resources without the technical or financial impact of setting it up, or keeping it maintained, is one of the main draws of using cloud computing over the more traditional setup of an air-conditioned room full of servers; therefore making it a more appealing proposition to both consumer and SMB/SME users.

In 2011, the National Institute of Standards and Technology (NIST) brought together a final definition of the term cloud

computing. "Cloud computing is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications and services). It can be rapidly provisioned and released with minimal management effort or service provider interaction."

The NIST went on to list five essential characteristics of cloud computing: on-demand self-service, broad network access, resource pooling, rapid elasticity or expansion, and measured service. Furthermore, there are three listed Service Models: software, platform and infrastructure, and four Deployment Models: public, community, hybrid and private.

The cloud, therefore, has quite a broad definition, encompassing pretty much everything we do and interact with on a daily basis. Throughout this book, we'll take a more in-depth look into the cloud. We'll discover what it consists of, how it works for you as an individual or business user, and how we can build our own cloud service.



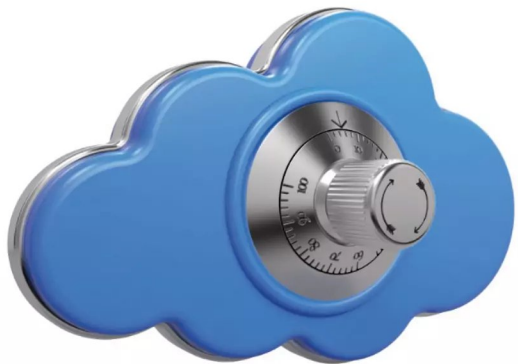
CLOUD BENEFITS

In brief, here are some of the main benefits a company or an individual can expect from cloud computing technologies and services.

PAY AS YOU GO



SECURITY AND DISASTER ASSISTANCE



OFF-SITE DATA STORAGE



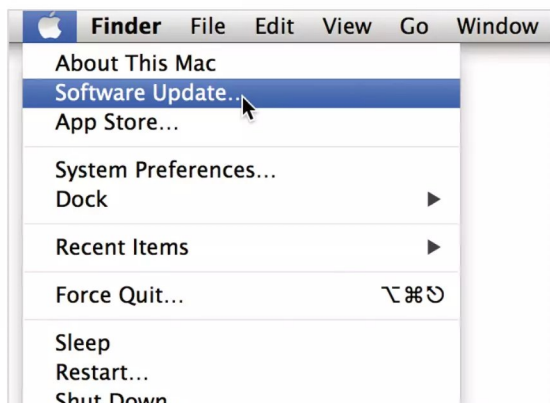
LOWER COST OF OWNERSHIP



ACCESS FROM ANYWHERE



AUTOMATIC AND EASILY UPGRADED





History of the Cloud

Despite the cloud being a fairly new technological term, you may be surprised to discover that the concept behind it can be traced back almost to the very beginnings of the modern computer age.

FROM CUMULUS TO CIRRUS

The considered and accepted evolution of the cloud, from concept to daily use, starts as far back as the 1950s.

1955

According to a popular myth, John McCarthy, the computer scientist who coined the term 'artificial intelligence', dreamed up the concept of computing time-sharing. In those days, computing cost millions of dollars, so McCarthy came up with the idea of renting time-shared computing resources to companies who couldn't afford the technology. This moment is regarded as the beginning of the cloud concept.



1972

IBM developed its mainframe VM/370, or Virtual Machine Facility/370, system in 1972. Using the Hercules Emulator program, scientists were able to access the VM/370 in multiple virtual machine states all from a single system.



1969

J.C.R Licklider developed ARPANET (Advanced Research Projects Agency Network), a network that eventually became the basis of the Internet. Using McCarthy's initial concept, Licklider's vision was "for everyone on the globe to be interconnected and accessing programs and data at any site, from anywhere".



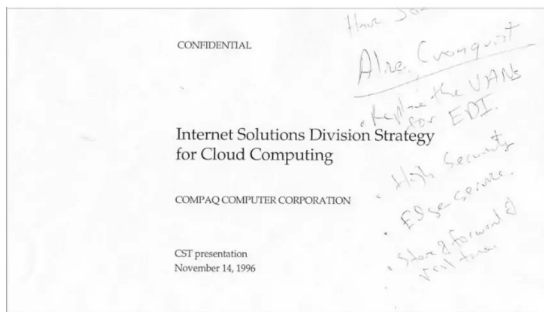
1980-1989

Throughout the 80s, the home computer boom and improved communications technology saw consumers and business users accessing remote resources via 300 bits-per-second modems. Ethernet was standardised, and through MS-DOS, Novell and other companies, resources housed on servers elsewhere in the world became accessible to all through Bulletin Boards and the like.



**1990 - 1998**

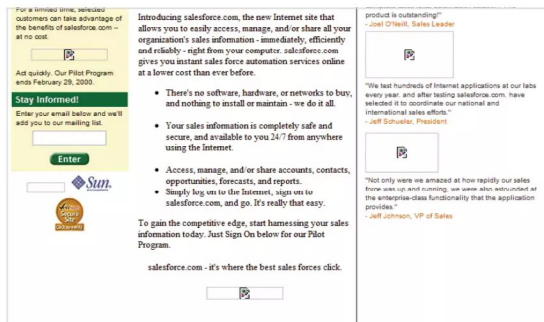
The Internet grew exponentially throughout the 90s. As a result, the first instance of the term 'cloud computing' was used by a group of Compaq Computer engineers. It was in a 1996 presentation entitled 'Internet Solution Division Strategy for Cloud Computing', and was a vision for the company's future business model.

**2006**

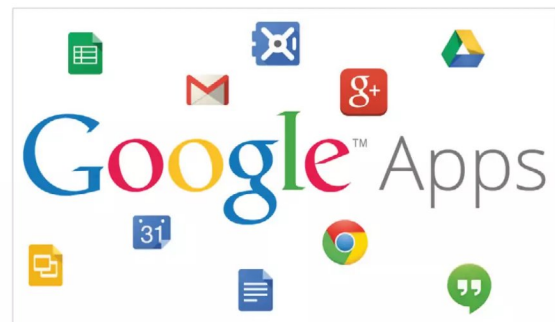
Expanding on the Web Services model, Amazon launched its Elastic Compute Cloud (EC2) in 2006. EC2 was designed to provide scalable resources in the cloud and provided the users the ability to configure the service with minimal management.

**1999**

In 1999, the cloud computing concept began in earnest with the launch of Salesforce.com. Salesforce used the now maturing Internet to offer shared sales information for a company, along with collaboration, storage and reporting through a web-based portal. This initiative paved the way for other companies to deliver both apps and enhanced content over the Internet.

**2006 - 2012**

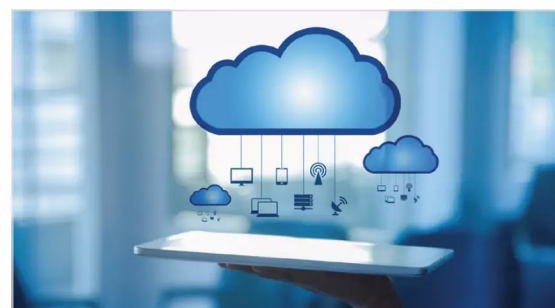
Google's growth and domination of the Internet saw the company releasing its Google Apps cloud-based services in 2006. Later, in 2011, Apple announced its own cloud storage solution, Apple iCloud. And in 2012, Google Drive was launched, bringing together all the cloud definitions under a single service.

**2002**

Another significant milestone in the cloud's history is the launch of Amazon Web Services in 2002. This service provided a cloud-based suite of resources that ticked every aspect of the cloud definition. It offered storage, computation, and virtualisation and was quickly expanded.

**2012 - 2017**

The use of more powerful mobile devices, better networks and faster access to the Internet has resulted in a considerable cloud boom in recent years. Estimations put the money spent on cloud services, at the end of 2016, in the region of \$1.4 trillion and that growth isn't looking to slow down anytime soon.





THE CLOUD IN NUMBERS

The cloud and all the services relating to cloud technologies have some pretty big numbers associated with them. Here are some interesting factoids about the cloud.

\$500bn

Public cloud spending will grow to nearly \$500 billion by 2023.

An estimated **80%** of all companies will be using a cloud service by the end of 2021.

2020

60-70%

It is estimated that 60-70% of all IT enterprises will be investing in cloud-based solutions by the end of 2020.

85%

85% of all new software developed in 2020 will be for cloud delivery.

95%

It is estimated that by the end of 2020, 95% of all workloads will be cloud-based.

14% of all companies that have fully adopted cloud solutions have downsized their IT workforce.



14%

20%



However, 20% have hired more IT staff since adopting a full cloud solution.

Notes

There are 2.71 billion smartphone users in the world, all of which use some form of cloud technology.



ENTERPRISE COMPANIES WILL SPEND **33% MORE** ON CLOUD SERVICES AND SOLUTIONS IN 2020 OVER 2019.

ACCORDING TO STATISTICS, USING CLOUD TECHNOLOGIES OVER TRADITIONAL SERVERS CAN CUT COMPANY IT COSTS BY UP TO **65%.**

52% OF ALL ENTERPRISES SPEND MORE THAN **\$1.2 MILLION PER YEAR** ON CLOUD SERVICES.



It is estimated that globally, over \$25 billion was spent on Amazon Web Services in 2019.



Every 0.5 of a second, an IT service is delivered through the cloud.



58% of all businesses that utilise the cloud do so as a Hybrid cloud solution.



Global IT spending on cloud solutions will grow by 3.7% in 2020.

57% of all cloud services are taken up by web apps.

31% of all cloud usage is storage.

28% Some companies state that they've seen increased profits of up to 28% from using cloud services.

21% of all files stored in the cloud contain sensitive or personal data.



35% of all current companies express concern over cloud security.

Sources:
IDC, Gartner, Ovum, Bain & Company, KPMG, Datasharp, IBM



Types of Cloud Services

The cloud offers different services based on what the user or company demands. Its most basic use is simple storage, as seen in Google Drive, Dropbox etc. Its design, however, also means that the technology can become remarkably complex the more you delve into it.

ON-DEMAND AVAILABILITY

Cloud services come in many guises and bewildering acronyms. Here are ten of the more popular cloud services and what they mean exactly.

GAAS

GAAS (Gaming As A Service) is set to take more of a foothold in 2020, with the launch of Google Stadia and Microsoft's Project xCloud; enabling the player to launch any title in the company's library and play them on various devices (PC, tablet, phone etc.) over their Internet connection. It's said that if GAAS works well beyond 2020, the console could become obsolete.



DAAS

DAAS (Desktop As A Service) enables the worker to use their main desktop from any device anywhere in the world. This is desktop virtualisation; you access your Windows, Mac, or Linux desktop via the cloud, along with all your icons, work, shortcuts, etc.



CAAS

CAAS (Communications As A Service) sounds more complicated than it actually is. Simply put, CAAS is a cloud-based telecoms, messaging and video conferencing solution that uses a company mobile phone plan, with cloud integration to the company's resources. Skype is another remote video calling service and, at a push, so are Facebook and Twitter.



DBAAS

DBAAS (Database As A Service) leaves the administration of a company database to the cloud service provider. Instead, workers can concentrate on using the database, while companies can cut out the DB admin overhead.



**HAAS**

HAAS (Hardware As A Service), although somewhat different from other cloud-based solutions, allows a company to rent all of its hardware from the provider; computers, printers, phones, tablets, etc. are all under lease from the supplier.

**PAAS**

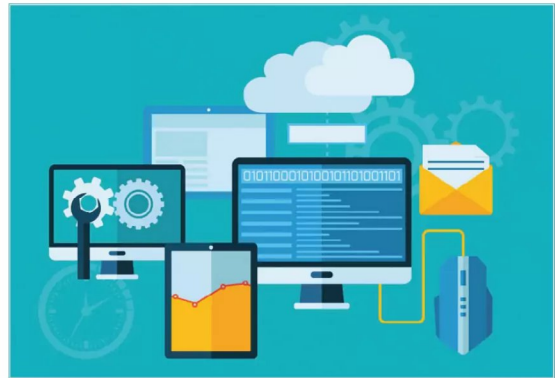
PAAS (Platform As A Service) is the combination of both hardware and software development. This service offers developers a platform to code and test their software on various hardware and operating system models.

**IDAAS**

IDAAS (Identity As A Service) is a cloud-based identity and user management service that can help secure access to both virtual and physical resources through various layers of security. For example, thumbprint reader software and iris detection access are handled via IDAAS.

**SAAS**

SAAS (Software As A Service) covers the likes of Gmail, YouTube and even Netflix. It gives access to a full service housed in the cloud; the company needs to either populate it or simply pay for what they want. Essentially, it's the entire cloud setup under a single title.

**IAAS**

IAAS (Infrastructure As A Service) covers servers and networking in the cloud. A company can have all, or part, of its core network based in the cloud, offering different resources to different users.

**STAAS**

STAAS (Storage As A Service) is where you simply buy cloud-based storage. For example, a company could provide STAAS for all its workers, allowing them access to cloud storage as opposed to the company's in-house storage. Google Drive and Dropbox are examples of STAAS.





Cloud Problems

While the cloud may sound like the ideal solution to any company, or individuals', technology needs, it isn't without its concerns. Due to the nature of the cloud, an issue with just a single element could effectively reduce your business to a virtual standstill.

CONCERNS IN THE CLOUD

With the responsibility of entire company fortunes and user's private data, cloud providers do their best to limit problems; but they do appear from time to time.

UPGRADES

While unquestionably beneficial, automatic upgrades in the cloud can have a negative effect too. For example, in 2011, Amazon's EC2 suffered a huge outage as a planned upgrade went horribly wrong. Storage went off-line and, in extreme cases, some customers lost data.



NOT ALWAYS ONLINE

Working from the cloud is all fine and well, but what happens when the connection goes down? A lack of Internet access can leave entire companies with employees staring at blank screens.



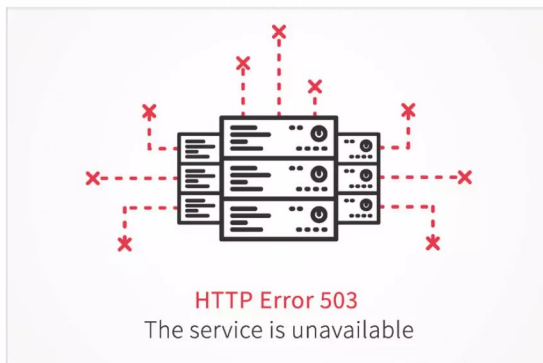
MOUNTING COSTS

Although the initial cost of cloud ownership is much cheaper than a traditional on-site solution, as the service grows, so can the cost to the company. Social gaming company Zynga moved away from using cloud-based services when the costs started to rise beyond \$150 million.



CLOUD PROVIDER OUTAGE

Similarly, what would happen should the cloud provider's access to the outside world fail? Thankfully, due to geo-redundancy, it doesn't happen too often. However, even big names such as Microsoft, Google and Amazon have lost connection to cloud servers in the past.





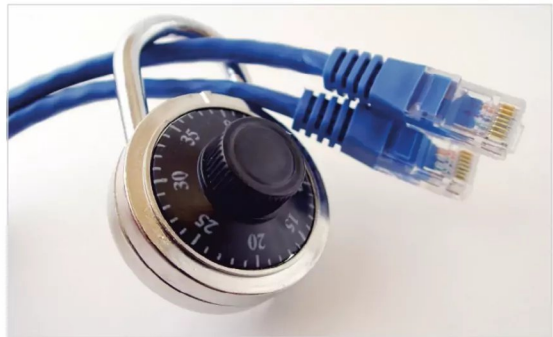
CONTRACT WOES

Although the situation is getting better, you, as a company or user, are at the mercy of the cloud providers' terms and conditions. If you need cloud access 99% of the time, but the provider only offers 80%, then you're stuck with the contract, or you'll need to look elsewhere.



LOCKED INTO THE CLOUD

The cloud model presents a valid case for many businesses, what happens, however, when you want to scale back to an in-house solution? The costs of migrating data, buying equipment, hiring staff and suchlike can quickly mount.



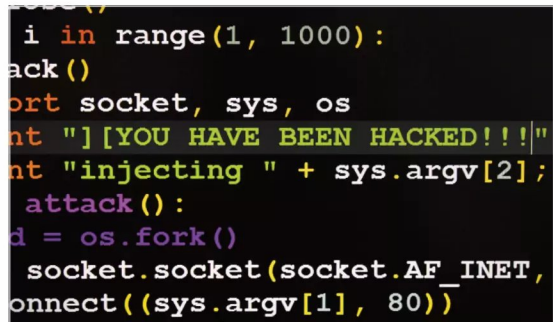
GOVERNMENT ACCESS

New snooping and anti-privacy laws in many countries mean that, at the government level, it is possible to access your cloud data. Naturally, the government in question requires a warrant, but, once issued, many cloud providers are powerless to do anything. Microsoft, for example, moved some services to different jurisdictions to avoid U.S. Government intervention.



HACKING

Cloud computing is very secure, but sometimes there are examples where data is hacked and presented to the world. The infamous Frappening incident, where personal pictures of numerous celebrities were leaked from hacked Apple iCloud accounts, is one that still haunts the media and the users to this day.



ONLINE HELPDESK

Cutting down on in-house IT and technical staff may sound like a great cost-cutting exercise as using a cloud provider means all your technical needs are handled elsewhere. However, it's not always the best solution. Having technical staff on the ground is always superior to phoning about an issue or request.



CHANGE ISN'T ALWAYS GOOD

Alterations to cloud-based applications, front-end web pages, portals and other elements in constant use, can be damaging. People do tend to fear significant changes in technology; take Windows 7 to Windows 8.1, or different Office versions, for example. Retraining and firefighting technical issues can be costly in both time and expertise.





Why Cloud?

Why should you use a cloud computing solution when having your own in-house IT setup is more traditional? What is it that makes using a cloud provider more logical in today's interconnected world?

AHEAD IN THE CLOUD

We've touched on a few areas and benefits of using a cloud provider for your business and home use, so let's break these down a little more.

FLEXIBILITY

Cloud-based solutions are incredibly flexible in their design. They can grow as your business needs increase and they can be scaled back, should you ever require it. It's this level of operational agility, or elasticity, that makes a cloud solution perfect for the business and consumer IT model.



AUTOMATIC UPDATES

Updating a server is a time-consuming and comparatively stressful affair. Making sure the relevant security patch is in place and that, once applied, everything works the same way as it did previously takes considerable planning. Using a cloud, on the other hand, removes that stress, as the engineers off-site handle the cloud's servers.



DISASTER RECOVERY

Both businesses, of any size, and home users should be concerned with building a robust disaster recovery solution. In the event of a localised catastrophe, the loss of personal files or critical business data is a nightmare situation. However, recovering it can be quick and easy if it's stored in a remote cloud location.



REDUCED COSTS

Cloud computing is a pay-as-you-go model, in that you simply invest in what you need at that particular point. Using this, in conjunction with the elasticity of a cloud, means that you'll only pay for additional services or storage as you and your business grow.





COLLABORATION

Using the cloud means that you and your co-workers can gain access to the company's data as a single unit. This makes collaborating on a project with remote workers, or teams on the other side of the planet, far easier. Data updates are in real-time, and the workflow is far less confusing.



SECURITY

Although there are incidents of cloud hacking, keeping data in the cloud is regarded as being far more secure than having it available locally. Lost laptops, USB flash drives, hard drives recovered from old computers can all be a huge security risk, with each containing data, bank details and images.



ACCESS FROM ANYWHERE

As long as an employee, or individual, has access to the Internet, they can access the cloud solution behind the company. This allows the utilisation of expertise from around the world without the expense of relocation. Home users can also upload images and documents from any Internet available device.



COMPETITIVENESS

Potentially, using a cloud model to run your business can significantly improve your competitiveness in the marketplace. You'll have access to 24/7 servers, cutting edge applications, and you can keep the costs down by only paying for what you use.



DOCUMENT CONTROL

When you have numerous users all working off a single document, you'll eventually come across conflicting copies and formats. By using a cloud model, document control is kept in line by all users working from a single, stored document source. Also, the digital storage cost of multiple documents emailed to, and from, users is drastically reduced.



GREEN COMPUTING

The datacentres that house cloud services are vast, energy-hungry places. However, since you only use the computing resources for which you pay, as does everyone else in the cloud, the overall energy required by the datacentre is as minimal as possible. No wasted power makes for a greener carbon footprint than a traditional server room setup.





Anatomy of the Cloud

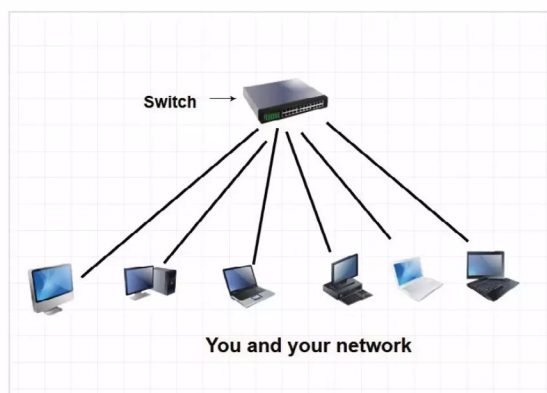
Talking about connected technologies, all accessing a central cloud infrastructure across several geo-redundant datacentres can be a little difficult to visualise. How is it all connected, where do you and your computer or device fit into the big picture?

CLOUD STRUCTURES

Let's take a moment to build the anatomy of the cloud from the ground up. Starting with you, the user, sat in front of your computer or device.

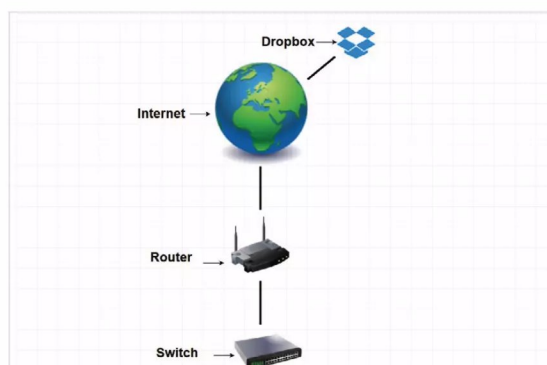
STEP 1

While connecting to a cloud resource may seem seamless, there's actually a lot going on in between you and where the actual item you're viewing is stored. Starting with you, either as a home user or in the workplace, there's the PCs, Macs, tablets and so on all connected to a home or work network via a switch.



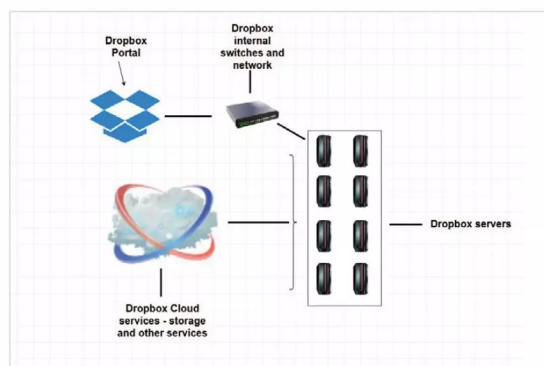
STEP 2

The switch, or switches, are connected to a router, which in turn provides the link to the Internet via an ISP (Internet Service Provider). We'll view the Internet here as a separate connection, where you'll browse for websites and such. Connection to a cloud service is usually through a portal or website; let's use Dropbox as an example here.



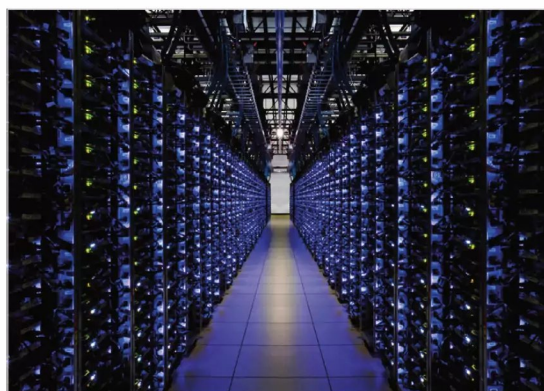
STEP 3

Dropbox is naturally also connected to the Internet, through a similar sort of process (although it's a little more complex for something as big as Dropbox). The Dropbox portal, to put it simply, connects to the Dropbox internal network of servers, which, through various layers of software, all combine to form the cloud resource you're accessing.



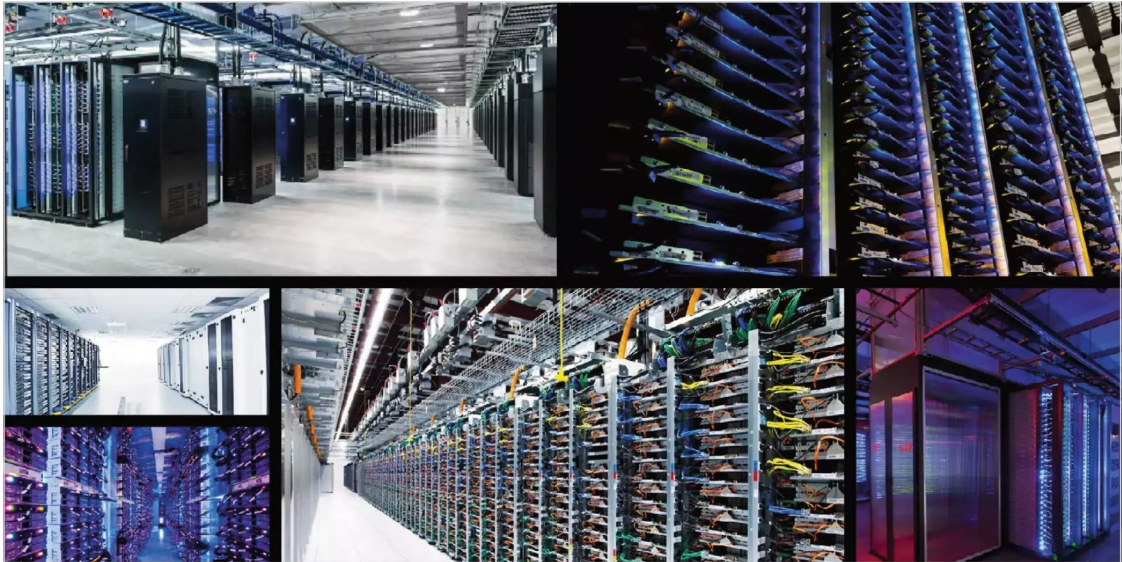
STEP 4

Essentially, each of those Dropbox servers combines to form a huge cluster of available storage and computing power. The software that the Dropbox servers run to the user, via the portal front end, is what makes up the cloud. These clusters of servers can be anywhere in the world.

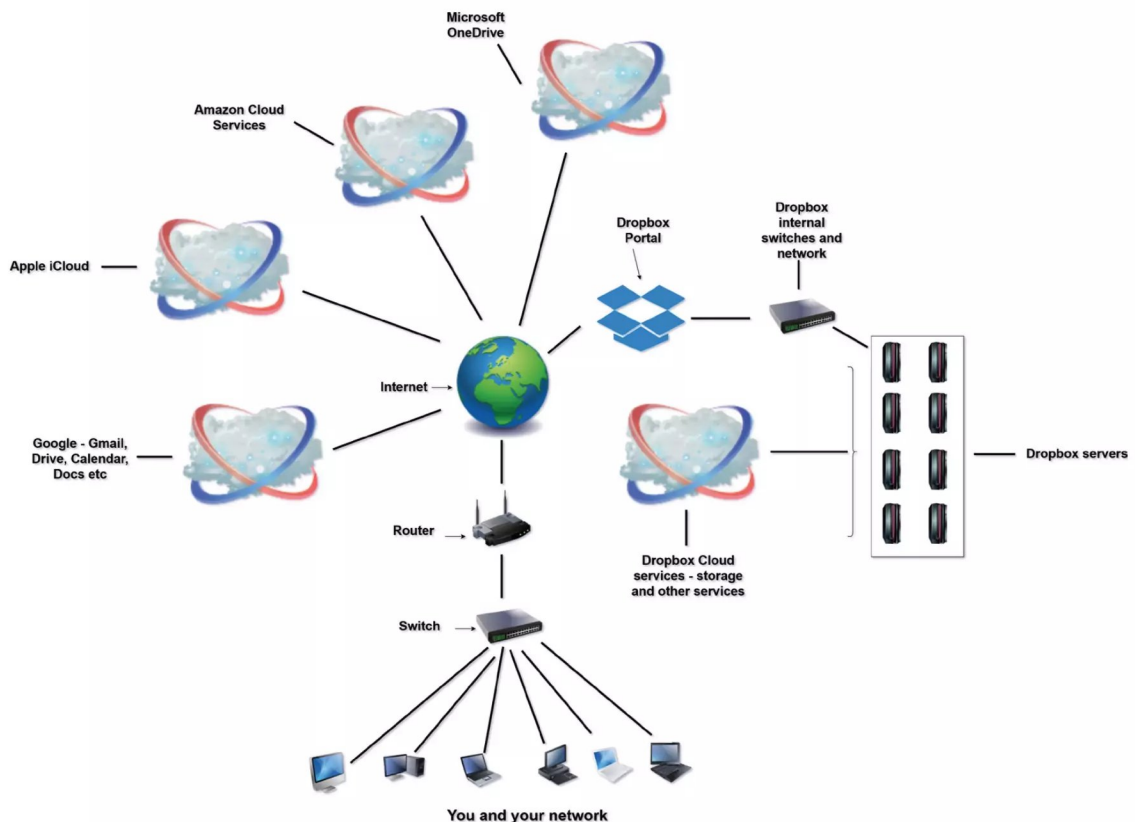


**STEP 5**

Although the technology used in each of the cloud services you'll access is a complex system of security, access, scanning, load balancing and performance, the basic principle is the same. Any cloud service is simply a datacentre with hundreds of connected servers providing storage and processing power, designed for easy access to the public and businesses.

**STEP 6**

Now take the basic anatomy of the entire structure and times that by several million. This is, to a certain degree, the entire make-up of the world's cloud services; each cloud provider offering space on its cluster of servers for storage, virtualisation, telecoms, email and all other types of cloud services available.





Basic Consumer Cloud Services

The cloud focuses a lot on businesses, and what a company can get from it to make itself more successful, with often minimal regard to what the home user can get. Thankfully, the consumer isn't left out in the cold where the cloud is concerned.

HOME CLOUDS

Agile business models and elaborate disaster recovery plans aren't always at the forefront of what the average user wants from a cloud service. So what can the consumer expect?

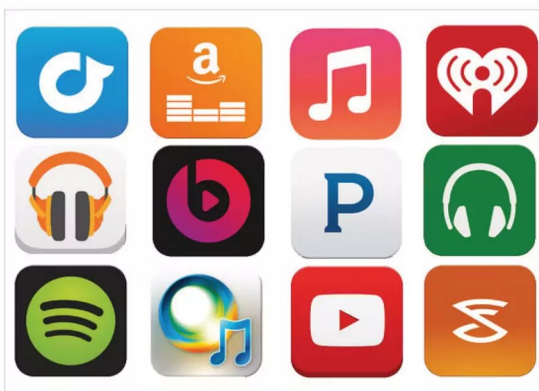
STORAGE

The most significant section of the consumer cloud market is undoubtedly online storage. The likes of Dropbox, Google, Microsoft and Apple all cater for the home user with 5GB, 100GB or more, in some circumstances, of storage available. And it's all accessed via a friendly, and easy to use, portal that integrates all your devices.



MUSIC STREAMING

Thanks to cloud services we no longer have to physically own the music to which we listen. Music streaming services, such as Spotify and iTunes, all offer the ability to push your musical choices to any device that's connected to the company portal.



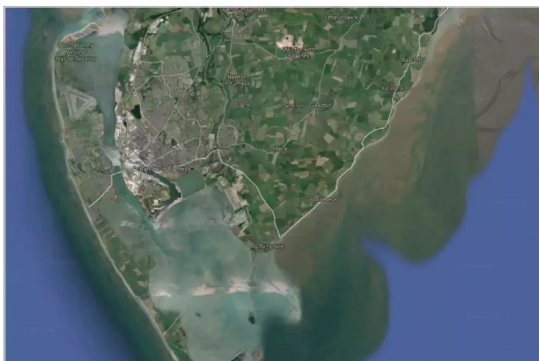
EMAIL ACCESS

The second biggest consumer cloud service is email. Webmail has taken off in the last decade or so, moving away from traditional ISP or work-based email, to offer the user an area where space is plenty and very few restrictions apply.



MAPPING AND GPS

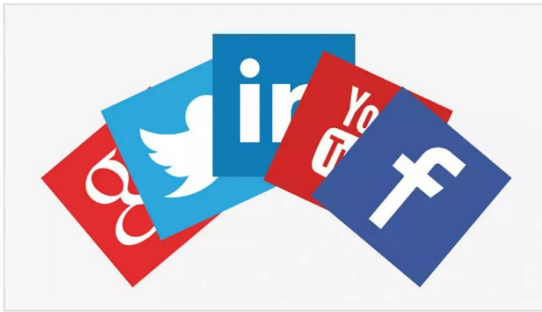
Looking for a new house? Most users will automatically open up Google Maps, Bing Maps, or Apple Maps to view their potential new home - and see just how big the back garden really is. Likewise, GPS from such sources as Here, Waze and OpenStreetMap are helping the consumer find their way around.





SOCIAL MEDIA

We're all familiar with social networking, but it doesn't always strike people that social media is a cloud-delivered service. Loosely speaking, it's a cloud communications service (CAAS), where users connect to others and share information via a central service or portal - such as Facebook, Twitter, etc.



REMOTE ACCESS

Being able to access your, or someone else's, desktop remotely is a great help to those who need to share a screen or assist a family member with a problem. The likes of TeamViewer and other companies make this easy through its cloud-based services.



VIDEO STREAMING

Netflix is by far the most popular of the video streaming, cloud-based services. In 2015, the company shut down its last datacentre and now adopts a 100% cloud-based structure, being wholly reliant on Amazon's Web Services.



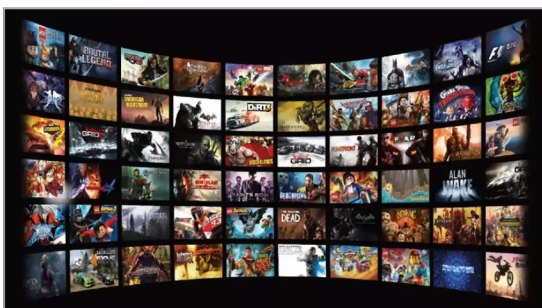
ANONYMITY

Gaining in popularity is VPNAAS (Virtual Private Networking As A Service), where a cloud-based service is used to hide a user's IP address, allowing them to gain access to content held in other countries. It's still early days, but the service is growing.



GAMING

Since cloud computing has become significantly more powerful, it's now possible to enjoy gaming over the cloud. GAAS, or Gaming As A Service, is a fast-growing market where you'll be able to play anything from triple-A titles to past classics; all from within a cloud service and streamed to PCs, tablets and even phones.



PRINTING

Cloud printing is a service that allows you to print over the Internet from anywhere, on any device. You can add and share your printers, and you can print from any type of application. Google Cloud Print is one such example, with the likes of HP following suit.







Top Cloud Storage Providers

Cloud storage is the technology's most utilised service, from individuals to enterprise-sized companies. There are hundreds of cloud storage solutions available, some are fantastic, offering the user or company a wealth of features for a very reasonable price. Others, though, aren't so good. But which to use, subscribe to, or avoid?

Throughout this section we take an in-depth look at a collection of the top-rated cloud storage solutions, and see which are as good as they claim, and which could do with a bit more work.





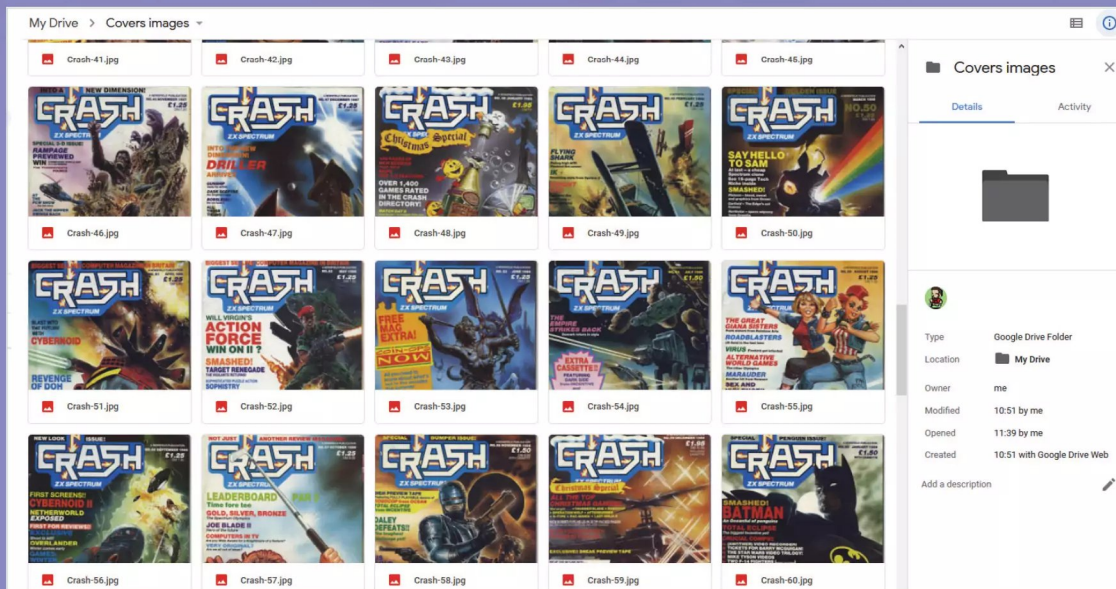
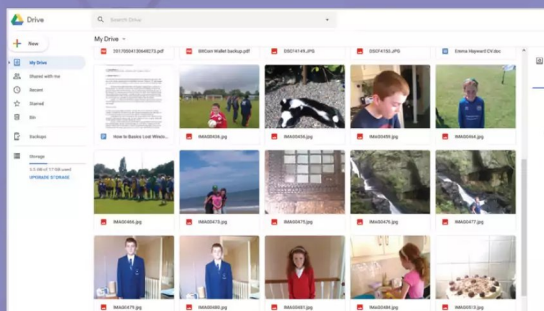
Google Drive



Google Drive was launched on April 24th 2012, which makes it one of the longest-running cloud storage solutions. It's cross-platform, easily implemented into Google's other apps, and offers the user a choice of storage capacities; from the free 15GB through to 30+ terabytes, via optional payment plans.

There's no escaping the fact Google has pretty much become a synonym for the Internet; with over 2.5 billion active accounts recorded in 2019, the service is set to grow considerably over the coming years.

Google's storage solution, Drive, is just one element of the company's cloud services, but it sits at the core of everything. Back in 2018, Google announced that Drive had stored over 2 trillion files, in 2019, the company was a little vague with its numbers, but it did report that, according to StatCounter, Drive now hosts nearly 10 trillion files; which is an impressive amount. However, it hasn't always been sunshine and roses for Google.





IN THE BEGINNING...

When the service launched back in 2012, criticisms were aimed at the company's storage policy and Terms of Service. Essentially, the language used granted Google the rights to reproduce, use and create derivative works from the content stored within Google Drive. It's worth noting that the policy accepts that the original user retains intellectual property rights. The privacy community and many others raised concerns over Google's rights to use the information and data to create advertising and other services.

However, the case didn't go far. It was later revealed that Google's online cloud storage policies weren't as bad as some from other companies. And Google did clarify that, despite the language used in the policy, the rights were in place to allow it to: move the files around its farms of geolocated servers, cache the data for easy access to the users, and make image thumbnails when viewing the files. Obviously, since there are 'nearly 10 trillion files' now allegedly stored on Drive, the policy hasn't affected those using the service.

MOVING ON

The service launched with support for Android, Windows, and macOS as a web interface. Initially, there was mediocre support for Linux, and although there was an app that could sync, upload and so on to Drive from Linux computers, sadly the app wasn't further developed and as such it stopped functioning once Google started to update the Drive service.

2014 saw an overhaul of the web interface version of Google Drive, with a new look and significantly improved performance. It also simplified a lot of the common tasks, such as a drag-and-drop feature within Drive that enabled users to move files within folders and such. The functionality to download files locally from Google Drive was also drastically improved; allowing large files to be downloaded as multiple 2GB compressed files with improved naming structures.

STORAGE

The amount of storage available on Google Drive was initially one of its best selling points. When first unleashed to the public, Google Drive's free 5GB of storage was significantly better than the competition, but it didn't take long for other cloud storage providers to latch on to the 5GB free model.

As the service matured, Google offered its users an unlimited number of photos at a maximum of 16 megapixels, and videos at a maximum resolution of 1080p, for free, using the High-Quality setting in Google Photos - which is shared space from Google Drive and Gmail. If a user reverted to the Original-Quality setting, then the Google Drive quota would start counting the megabytes used.

You can, for a price, increase the storage available. 15GB for free is still reasonably okay, but if you're using Google Drive for active backups, and storing lots of Gmail content, you're likely to start reaching the limits.

For the princely sum of around \$299.99 per month, though, you can opt for the maximum consumer storage limit of 30TB (terabytes), which should keep the average user happy for quite some time.

Plan	Storage	Price	Includes
Free	15 GB	Free	15 GB storage
Recommended	100 GB	£1.59/month Or prepay annually (save 16%): £15.99/year	100 GB storage Access to Google experts Option to add your family Extra member benefits
	200 GB	£2.49/month Or prepay annually (save 16%): £24.99/year	200 GB storage Access to Google experts Option to add your family 3% back in the Google Store Extra member benefits

Conclusion

Google Drive has been around for some time, and it's still considered the go-to consumer cloud storage service. It's easy to see why though, with its Internet presence, huge geolocation server farm capacities, massive user base, and continuous improvements, it's little wonder that Google Drive remains the top consumer cloud option.



MediaFire



Launched in 2006 as an Online Backup Service, and based in Texas, MediaFire has proved itself to be one of the founding cloud storage providers. Now with over 150 million users storing files on the MediaFire servers, the company is continually adapting and improving its services.

On launch, it was available for iPhone, android, macOS, Windows, and as a web interface, MediaFire's free cloud storage solution is certainly one to watch. There's a level of simplicity that makes MediaFire one to check out if you're thinking of moving on from the likes of Google or you just want another solution in place.



SHARE

Share through email, link, or social network. Unlimited ad-supported downloads with no wait times.



COLLABORATE

Store and share any file type. Share folders of project files. Easily email large files.



STORE

10GB for free. Up to 50GB free with bonuses. Store all your photos, audio, and videos.



ACCESS

Always have your important files with you. Never forget your work at home. View, manage, and share from anywhere.



SIMPLE BUT EFFECTIVE

Essentially, MediaFire offers a barebones approach to its cloud storage solution. There's a 10GB free plan available, but with some referral options, such as Tweeting the service, you can upgrade the amount of free storage to 50GB.

Upload speeds are very fast, mainly due to the company using geolocation servers, but also the fact that it's not as congested as Google Drive or Dropbox – despite the big companies having more servers available worldwide.

The company started with a desktop client that could upload, sync, download and so on. However, support for the app became costly, so now it uses a mobile and web client to access the user's files. Nevertheless, a desktop app isn't a deal-

breaker; many users prefer to opt for a simple web interface, or mobile, over something installed on their desktop.

The mobile app lets you automatically upload, and backup, photos and videos to the MediaFire servers, after which you're able to preview them. The maximum upload file size is a decent 20GB, so unless you've got a sizeable video file in higher resolutions, you should be good to go.

However, it's worth mentioning that the service doesn't include any form of online office suite, such as with Microsoft's OneDrive and Google Drive. And it lacks third-party integration with other apps, so you'll need to manually upload any files created through an office suite.

PRICING

The initial 10GB is free, but there are Pro and Business options available. The Pro option features 1TB of storage, the ability to download entire folders, share files, password protection and more, and is available for \$3.75 per month.

The Business option is quite surprising, as it offers up to 100TB of storage for a maximum of 100 users and costs just \$40 per month. For this, you get all the features that Pro offers plus the additional 100 users, customisable branding and a detailed security log.

PRO	BUSINESS	BASIC
1 user	100 user	
1 TB (1000 GB)	Up to 100TB	10GB
\$3.75/month	\$40/month	
billed annually or \$5 month-to-month	billed quarterly or \$20 month-to-month	
GET PRO	GET BUSINESS	GET BASIC
✓ Download entire folders ✓ Ad-free sharing and downloads ✓ 1TB (1000GB) of space ✓ 20GB per file ✓ Long-term storage ✓ No captcha codes ✓ Direct links to files ✓ Upload from any website ✓ Priority support ✓ Password protected files ✓ One Time Links ✓ FileDrop	✓ Download entire folders ✓ Ad-free sharing and downloads ✓ Up to 100TB ✓ 20GB per file ✓ Long-term storage ✓ No captcha codes ✓ Direct links to files ✓ Upload from any website ✓ Priority support ✓ Password protected files ✓ One Time Links ✓ FileDrop ✓ Fully customisable branding ✓ Detailed security log ✓ 100+ additional users	Ad-supported downloads

Conclusion

MediaFire may not have the feature-rich capabilities of Google Drive, or some of the other cloud storage service available; however, it's cheap and straightforward to use.

If you're looking for a service that doesn't have all the bells and whistles, is easy to use from mobile or web, and has good consistent upload speeds, then MediaFire is certainly worth exploring.

The bad points are: mediocre collaboration options, built-in office suite, desktop client, and limited sharing capabilities – and the free version does contain adverts. Although there are misses, with a little work, you're able to get 50GB of free storage as a backup, using this simple but effective cloud service.



Sync.com

Sync.com is a Canadian company that was founded in 2011 by Thomas Savundra, Suhan Shan and Darius Anita, and advertises itself as a privacy-friendly, easy to use cloud storage solution. The base solution offers 5GB of storage alongside sharing and collaboration, real-time backup and sync, and the ability to access the service from anywhere.



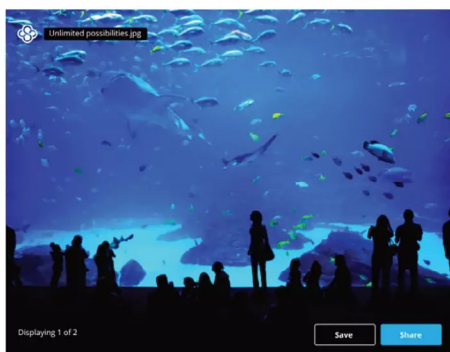
The focus with Sync.com was to create a functioning cloud storage solution, while offering the user a complete package protected behind the company's unique end-to-end encryption. The free option of 5GB isn't the best available, but it's adequate for storing essential, sensitive, or personal data within Sync's higher-level encryption cloud.

There's no upload or download limits on the free option, no third-party tracking, and file versions and recovery are limited to 30-days. You can additionally, password protect your files and create password protected sharing, along with two-factor authentication and the ability to create three team shared folders.

There's desktop integration available, along with mobile apps that include an automatic camera upload function. However, due to the company's tight approach to security, there's no API or third-party access to the cloud service. This means there's no integration with the likes of Microsoft Office, so you'll have to manually upload files and content created within these office suites to the Sync.com cloud.

Keep your files safe, secure and 100% private

Sync's encrypted cloud storage platform protects your privacy by ensuring that only you can access your data. Your confidential documents are completely safeguarded from unauthorized access, which is the only way you can truly trust the cloud.





SECURITY

The big selling point with Sync.com is the aforementioned heightened security. The service, incorporating the free option, includes At-Rest encryption and In-Transit encryption to the tune of AES 256-bit - meaning a brute force attack to gain access to the contents of the encrypted files would take a modern computer the current age of the universe to crack, around 13.9 billion years.

Added to that is the two-factor authentication, a company policy of zero-knowledge (no knowledge of what's stored in the service), and it benefits from Canadian privacy laws, so your data is protected by law and not allowed to be accessed by the likes of the Patriot Act, which is active in the U.S.

Another interesting feature is the service's versioning control, that will let you roll back any changes to a file for up to 30-days (more if you use the pay-for services). Any corruption to a file, either by accident or design (such as malware) can be reverted to a previous version if necessary.

PRICING

Higher grade storage solutions through Sync.com are available through different levels of pricing. There are Personal and Pro Solo options, for \$60 and \$96 per year respectively, that offer up to 200GB for the Personal and 2TB for the Pro Solo. Other advantages apply to the subscription plans, such as unlimited transfer limits, 120-day and 365-day file version control, and advanced sharing and collaboration features.

There's also a Sync Pro set of plans for business users: Solo at \$10 per month, Teams from \$5 per month (based on per user), and Enterprise from \$20 per month (again, based on per user). The storage limits increase dramatically with each plan, from 3TB for the Solo, up to 10TB for the Teams, and a Custom storage option for the Enterprise plan.

Needless to say, the business list of features includes everything the other payment plans offer and more; with core features such as 99.9% uptime, year-long or custom level file version and recovery, and increased levels of both live and phone support.

	Free	Personal	PRO Solo
Personal Cloud Secure file sync and sharing for personal and family use.	\$0 never expires	\$60 per year	\$96 per year
	Get started	Buy now	Buy now
Sync core features	Free	Personal	Pro Solo
🔗 Base storage	5 GB	200 GB	2 TB (2000 GB)
👤 Users	1	1	1
📁 Share transfer limits	5 GB	200 GB	Unlimited
🔗 Sharing and collaboration	✓	✓	✓

Conclusion

Sync.com is an interesting cloud storage solution. While it's not as all-consuming as Google, Microsoft, or Dropbox, it does have some excellent features that are well worth considering. For the personal consumer, the 5GB of storage may feel a little low, but the higher than normal levels of security and privacy make it worth exploring.

If you've got some valued files that you want to backup and protect, and keep away from potential prying eyes, then using Sync.com is a good option.



MEGA



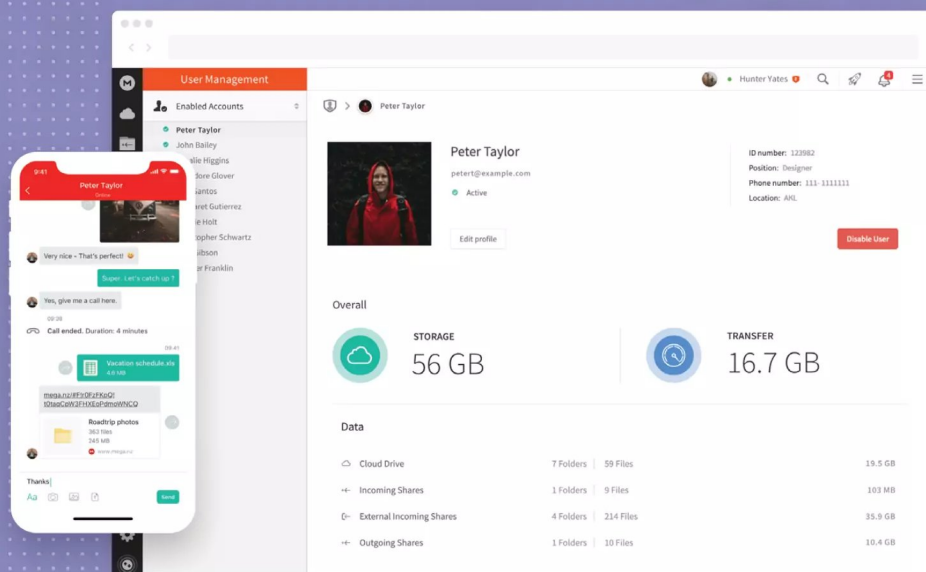
MEGA Storage was founded in 2013, by none other than the infamous Kim Dotcom after his MegaUpload range of servers were shut down due to copyright infringement accusations. Shortly after Dotcom severed ties with MEGA, and the company has moved on to become one of the more respected privacy-based cloud services available.

Despite its founder's notoriety, MEGA doesn't seem to have suffered any bad press since Dotcom split. In fact, it's quite the opposite, thanks to the service's policy of zero-knowledge of what's stored on its servers, heavy encryption, two-factor authentication and utilising the user's password as the root encryption key.

Details are difficult to obtain; however, the company has stated that over 125 million users enjoy the convenience of MEGA's enhanced security, as well as the other benefits and features the cloud storage service offers.

Primary on the list of features is a decent 50GB of free storage available; there are Pro and Business payment plans on offer, but more on them in a minute. MEGA offers speedy file transfers, with plenty of bandwidth for the user to upload large files and folders; there's a Chat function built-in, whereby a user can start a fully end-to-end encrypted chat session with any contacts they've added to MEGA; there's a MEGAbird add-on for Mozilla Thunderbird that enables you to send larger than normal files with full encryption, and there's even a MEGAcmd feature which is a command-line tool that'll allow you to create backups and other administrative scripts.

The list of features doesn't stop there. You're able to preview photos and play videos stored in your user area and there's a form of Versioning available; however, it'll only roll back to one previous version of the file. Unfortunately, that capability does not extend to documents and, like some other cloud storage services that feature better than average encryption, there's no integration with the likes of Microsoft Office, so you'll need to upload office-created documents to the cloud service manually.





ENCRYPTION & SECURITY

As we've mentioned, heightened levels of security and privacy are chief among the list of features that MEGA offers. As you would expect, from the service founder's point of view, privacy is something MEGA takes very seriously, and admittedly, it does a good job of it too.

Secured with AES 256-bit end-to-end encryption, all throughput between MEGA and its desktop app are private. The contents within your cloud storage area are fully encrypted, and therefore private. The user's password, being the root encryption key, is private – no one at MEGA has access to, or can access,

your password (if you lose your password, you've lost your stored data!). The chat function is fully encrypted, and there's the ability to create encrypted shared folders. If a user wishes to share data with another user, he encrypts the required encryption keys with the recipient's public key before transmitting them. Their key fingerprints can be verified through an independent channel to ensure the identity of the recipient. Any change triggers an alarm, eliminating the risk of impersonation through a post-verification man-in-the-middle attack. It may sound like something from a spy movie, but you have to applaud MEGA's use of enhanced privacy.

PRICING

There's up to 50GB available for free, providing you participate in an achievement program, and from there you can opt for varying levels of a Pro account for individuals. These start with Pro Lite at £4.28 per month, Pro I at £8.57/month, Pro II at £17.15/month, and Pro III at £25.73/month. Each Pro level increases the available storage and transfers from 200GB to 8TB.

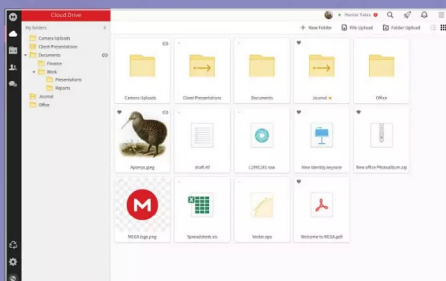
The Business plan offers a three-user license at £10 per user but with unlimited storage and transfers, together with more team sharing features and abilities built-in to the service.

PRO LITE	PRO I	PRO II	PRO III
£4.28*	£8.57*	£17.15*	£25.73*
GBP	GBP	GBP	GBP
4.99 €	9.99 €	19.99 €	29.99 €
/month	/month	/month	/month
200 GB STORAGE 1 TB TRANSFER	1 TB STORAGE 2 TB TRANSFER	4 TB STORAGE 8 TB TRANSFER	8 TB STORAGE 16 TB TRANSFER

* The price in your local currency is an estimate only. You will be charged the displayed price in Euros for all transactions.

Conclusion

There's a lot to like about MEGA, but there are also some questionable elements to take into consideration. The first is the association, or rather former association, with Kim Dotcom. If you side with the authorities, then you're less likely to want to sign up to a cloud storage service that was initiated by him for the sake of higher privacy. On the other hand, if you don't really care about Mr Dotcom and whatever he was/is accused of, then you're getting a reasonable deal.



There's also an issue with free storage. According to some sources, the free storage option drops to 15GB after a few months, even if you've participated in the achievement program. Our 50GB was available, but that could be due to us having our account before this became a policy – one to look out for, though.

On the whole, MEGA is a good cloud storage service with excellent levels of encryption and privacy. There are cheaper alternatives but at the cost of lower privacy.



Dropbox



Headquartered in San Francisco, Dropbox was formed back in 2007 by MIT students Drew

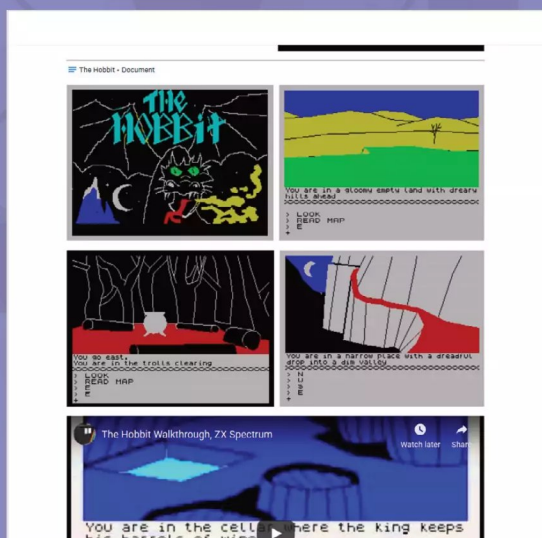
Houston and Arash Ferdowsi, and has seen many changes in its time. Now valued at well over \$10 billion, and with a user base of over 500 million, together with over 600 billion pieces of content uploaded, Dropbox has become one of the top cloud storage services in the world.

There's said to be over 2.2 billion files uploaded to Dropbox daily, which is probably why it's considered as one of the best cloud storage solutions available today. However, it's been something of a rocky road for the company since it was founded all those years ago.

The problems mainly stem from Dropbox's lack of security, which includes several high-level breaches in the past, and the fact that it doesn't employ a zero-knowledge policy. It's not the most privacy-friendly cloud service, it's been blocked in China since 2014, and it's not the cheapest or best cloud service available. So why do so many people use it?

The main draw to using Dropbox is its ease of use. Many of its users feel quite at home with both the web interface, desktop app and even the mobile apps. It integrates well into Microsoft Office, there are extensions available for other office suites, and it has excellent sync options. In short, it works well, and when a product works well on the front line, many users tend to overlook things like privacy and security.

Collaboration is a big hit for Dropbox's business side of the service, and its recent extension of features and abilities has concreted the company's goal of becoming the go-to business cloud storage solution.



PRICING

	Basic Free	Plus \$7.99 / mo	Professional £16.58 / mo
Storage & access			
Storage	2 GB	2 TB (2,048 GB)	3 TB (3,072 GB)
Anywhere access	✓	✓	✓
Dropbox Smart Sync	✗	✓	✓
Full-text search	✗	Coming soon	✓
AutoOCR	✗	✗	✓
Mobile offline folders	✗	✓	✓
Camera upload	✓ (with desktop client installed)	✓	✓
Document scanning	✓	✓	✓

Dropbox's prices can vary, but essentially, you get 2GB of free storage, with the ability to upgrade to plus at 2TB for £7.99 per month, and to Professional at 3TB for £16.58 per month. The business options range from Standard at 5TB for £12.50 per month, to Advanced at custom storage for £15.49 per month, and finally Enterprise, which is where you'll need to contact Dropbox for pricing.

It's not the best pricing around, but it's also not too bad either. With these plans, you get encryption, sharing, Paper and other features, and they're gradually increased with each plan as the price increases.



FEATURES

Dropbox underwent a bit of a facelift a year or so ago, dropping some of its older features, and hiding others behind renamed elements or within obscure corners of its service. What you're left with now are some finely-tuned features that present your work in the best light, and allow it to be shared and worked on throughout your teams and colleagues.

Dropbox Files is the main storage area, where you as an individual and a company will 'drop' all your files and folders. Back in 2017, Dropbox withdrew the ability to drag and drop entire folders from its web interface, which meant you'd have to create a folder on the web interface, then drag and drop the files from your computer into the newly created folder. The other alternative was to use the desktop client. But, due to overwhelming feedback, the company reinstated the feature later in 2018, so now you can drag and drop folders to the web interface, but only one folder at a time.

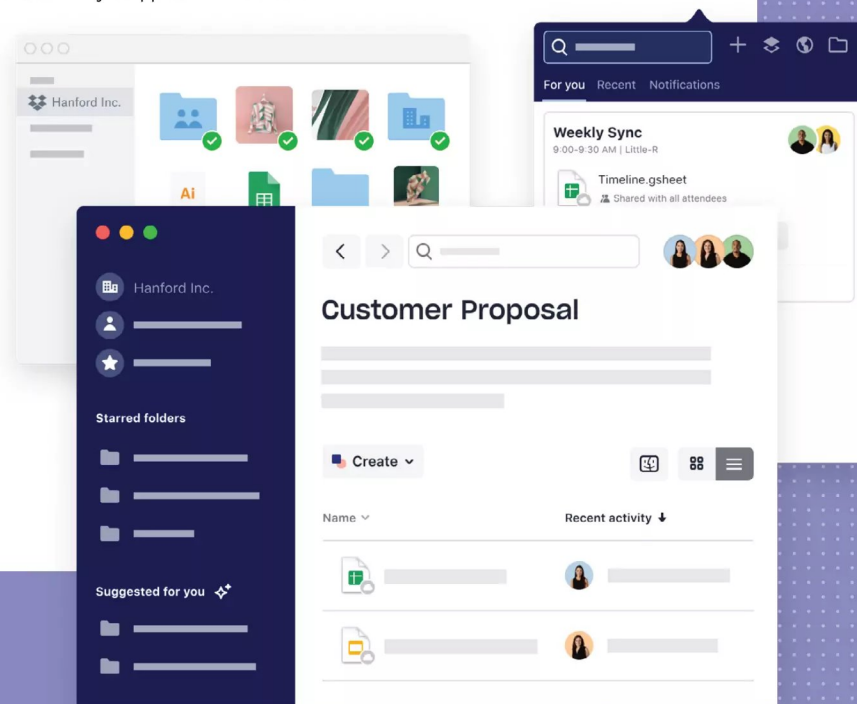
Dropbox Photos was another feature that was subtly dropped in the big 2018 update and is still sorely missed by users today. The ability to view albums, individual images and pictures and reveal timelines of images was one that we, and many other users, really liked about Dropbox. The service has since been integrated into the Files section but has lost its viewing and timeline elements.

Dropbox Paper is the next biggest feature of the service and one that was present in the past but pushed to the back. Since 2018, Paper has been thrust forward and has become one of the service's best collaboration tools. Paper is a lightweight, cloud-based collaboration space, a flexible workspace for teams to create, review

and manage documents and ideas. A kind of shared word processor, where you can create meeting notes and project templates. It works exceedingly well and is one of the most used features of the entire service.

Transfer is a feature that allows you to send large files that don't require any collaboration. For example, if you have a file too large for email to send to a remote colleague, you can upload it to Transfer, set an expiry date, then copy the generated link to email to the colleague. The colleague can then quickly gain access to the Transfer service and download the file themselves. After the specified time, the file is deleted.

The last feature is Showcase, where you can share your work with partners and clients on a single page. You can guide people through your content, add your own branding, and automatically keep track of who views, downloads, and comments.



Conclusion

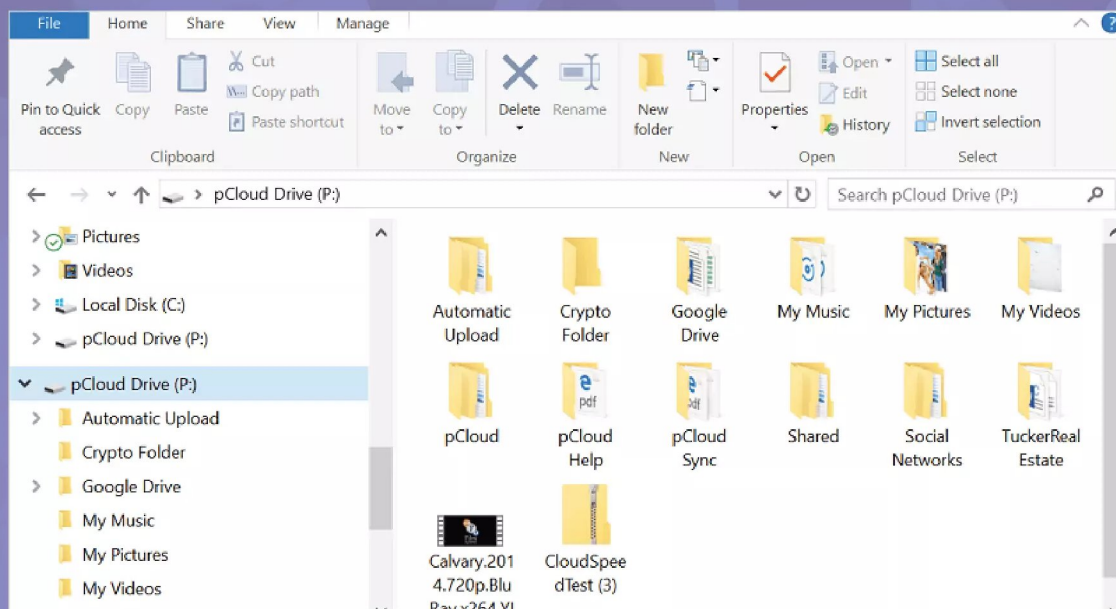
Despite the drawbacks of Dropbox, it's really one of the best services you can get. Team collaborations are excellent, the clients (both on the desktop and mobile) are well designed and easy to use - there's also a new client coming in early 2020 - and the feature list is impressive too. True, the free option could do with a few more GB to lure in the individual, but on the whole, it's a superb cloud storage service.



pCloud



Founded in 2013 this Swiss-based cloud service has fast become one of the most highly rated in the market. It's easy to use, has a large, initial, free storage capacity, and some great multimedia features alongside excellent security.



According to pCloud, over 10 million users have switched to them from their former cloud services. People who work at the likes of Instagram, Twitter, Nike, LinkedIn, and many more big names use the company; and it's quite easy to see why.

pCloud is designed for ease of use. Its web interface looks similar to that of Windows Explorer, and it's incredibly quick to browse around as well as upload and download. Otherwise, it offers an enhanced backup and storage area for you to drop your files and folders with unlimited file sizes and unlimited upload and download bandwidth.

In addition, there's also the pCloud Drive software that's available for Windows, macOS, Linux, iOS, Android and as an add-on for Firefox - and even a Lightroom Plug-in. pCloud Drive works in much the same way as the Dropbox client; it

creates a virtual area within the system's file manager and acts as a type of network drive to keep everything in sync with the cloud area.

There's a lot of other good features too, such as file versioning that'll keep your file history for up to 15-days in the free model, and 30-days in the paid subscription models; with the option to extend file versioning to 365-days. File sharing is available for individual files and folders, and you're able to manage the shares you've created from the desktop client, or from mobile devices.

Security is handled via TLS/SSL encryption both to and from you and the pCloud servers. Plus, the content you upload to pCloud is stored on at least three, separate server locations to provide geo-redundancy. The only downside to security is



PRICING

pCloud's pricing is very reasonable and offers something we don't often see from a cloud service provider. You get 10GB of storage available for free when you sign up, but you can upgrade that to the Premium 500GB plan for £3.99 per month. Alternatively, there's a Premium Plus plan available for £7.99 per month that offers 2TB of storage.

But hold on, pCloud also offer a Lifetime plan with a saving of 65% across both of the subscription models. For a £175 one-time payment, you can have 500GB of storage, and for a £350 one-time payment, you can have the 2TB plan. There's also a pCloud Family option, that'll give up to five users access to the 2TB storage for a one-off payment of £500. Finally, there's a business plan, but you'll need to contact the pCloud sales division to chat about your requirements and payment.

With regards to the pCloud Crypto added extra; you're looking at a monthly fee of £4.99, or a lifetime on-off payment of £125.

Plan	Storage	One-time Payment	Annual Price	Discount
Premium 500 GB	500 GB	£175	£480	65%
Premium Plus 2 TB	2 TB	£350	£980	65%

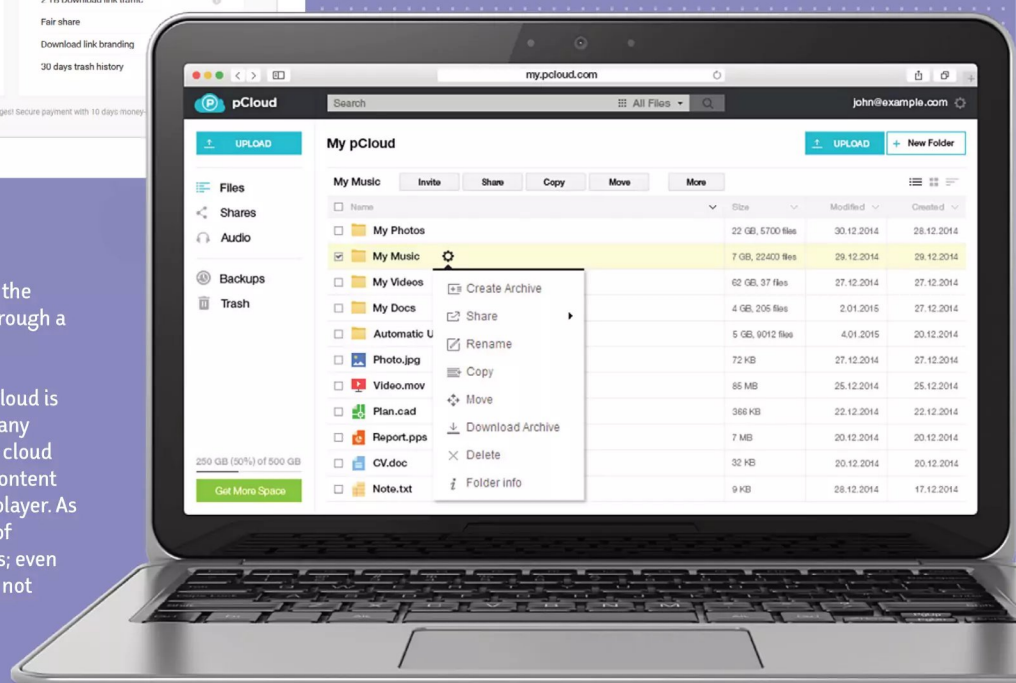
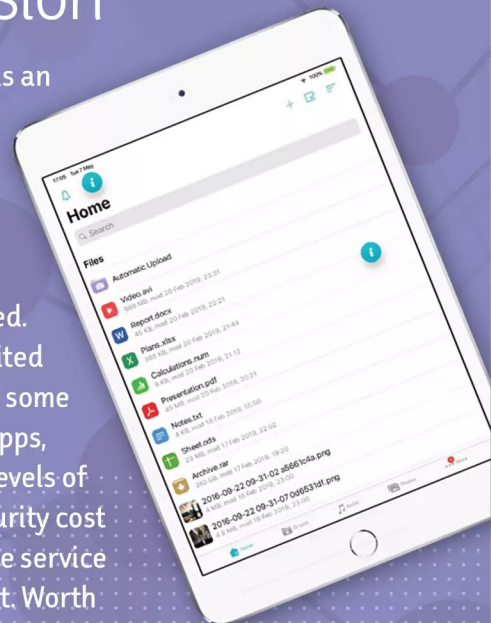
Prices are final. No setup fees or other hidden charges! Secure payment with 10 days money-back guarantee.

that you're required to pay for the higher-levels of encryption through a service called pCloud Crypto.

The multimedia element of pCloud is excellent, though. If you have any music or videos stored in your cloud area, you're able to playback content through the service's built-in player. As far as we can tell, it's capable of handling most media file types; even H.265 encoded files. However, not all media files are created equally, so it's best to test the file before committing to anything.

Conclusion

Overall, pCloud is an excellent service that offers some unique features and is reasonably priced. True, there's limited integration with some of the popular apps, and the added levels of privacy and security cost you more, but the service itself is excellent. Worth considering if you're after something a little different or for some free 10GB of storage as another backup location.





OneDrive



Microsoft's OneDrive started life as Windows Live Folders back in 2007 but was renamed

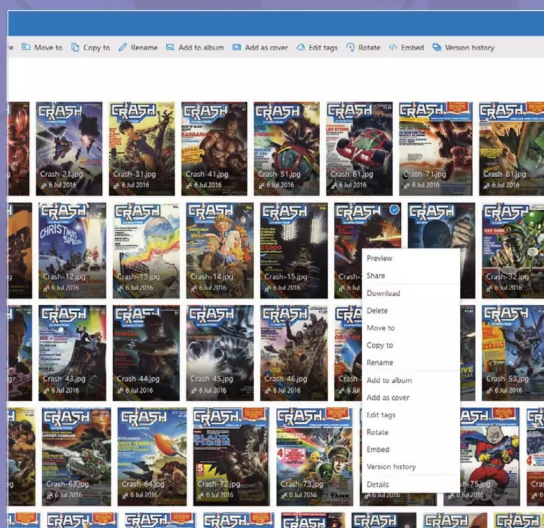
shortly after to Windows Live SkyDrive. The service has seen many facelifts over the following years, adding new features and integrating itself seamlessly with Office while improving its overall UI.

The SkyDrive name was dropped in 2014 due to a lawsuit involving BskyB, for using the word Sky. The high court ruled that Microsoft had breached BskyB's trademark, and as such, the Redmond Company redesigned its cloud service together with a new name: OneDrive.

Initially, Microsoft offered its free users 10GB of storage, increasing it to as much as 25GB in 2008, but when it was redesigned in 2015, the amount dropped to 5GB of storage for free use. In addition, a number of other plans were also changed as the service began to incorporate the entire Office 365 suite of apps and services.

Despite the drop in storage, OneDrive has matured to become possibly the best cloud storage service available. There are plenty of features associated with OneDrive on its own, but when you factor in Office 365, you get one of the most comprehensive cloud solutions we've ever seen.

The web interface is easy to use and fast to respond. Uploading content, files and folders is seamless, and navigating through the files once you've uploaded them is much like browsing through Windows Explorer. The Photos section lets you browse all the images in your cloud area, detailing them as a timeline by default but with the option to view as Albums; you can even view the images and photos as



Tags, which uses AI to separate each image into sections like people, buildings, food, technology, animals and so on.

Sharing is a simple process of right-clicking a file or folder and selecting the Share option. From there, you simply add the email address of the recipient and OneDrive will send them an email with the link provided. Managing access to the share is also easy, so you can collaborate more effectively with individuals and teams.

Thanks to the integration with Office 365, you're able to right-click anywhere within the OneDrive area and create new Microsoft Office content including: Word, Excel, PowerPoint, OneNote, and even Forms and plain text documents. Picking one of the Office apps will open an online version of the software, which will automatically save to OneDrive, so you don't even need to have Office installed on your machine.

A new feature to OneDrive is the Personal Vault, a highly encrypted and privacy protected area of OneDrive where you're able to store personal documents. There's two-factor authentication in place here, alongside other security processes, and for free users, you're able to store a maximum of three files - whereas that number is unlimited for subscription users.

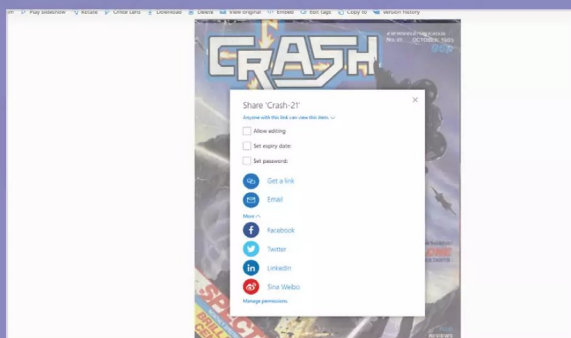
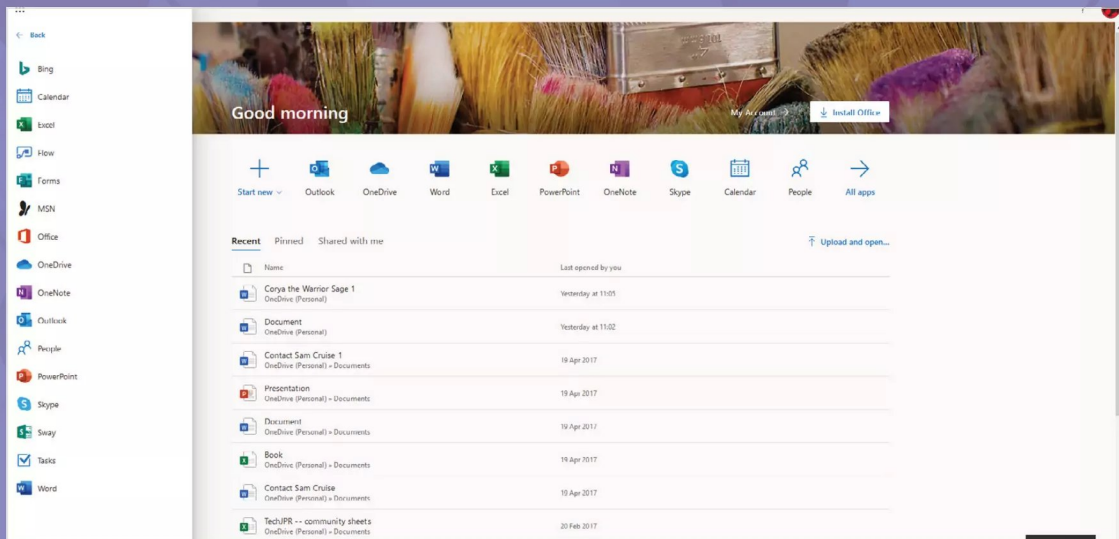


PRICING

As stated, you get 5GB free storage only initially. That can be upgraded to 100GB for £1.99 per month, but you won't get an Office 365 license with those options. On the flip side, you do get access to Office for the web, which means you'll still be able to use Word, Excel and so on from within OneDrive and from office.com - and it's worth noting that the online versions of Word etc. are only missing a few

features over their installed counterparts.

For £59.99 per year, you get Office 365 Personal, which gives you 1TB of storage on OneDrive, plus a licence for Office 365 for Windows or macOS, as well as improved features beyond the free option. Moving up, for £79.99 per year there's Office 365 Home, which allows up to six users to install and use Office 365 while also giving them 1TB of storage in OneDrive each.



Conclusion

Microsoft gets a lot of bad press, some of which is unnecessary, but also to be expected since it's the most used operating system and service in the world. Whatever you may think about the Redmond Company, or of its actions in the past, you must admit that the OneDrive service is excellent.

It would be good to have slightly more free storage available, that may entice more users to the service and ultimately opt for the subscription plans, but on the whole, we think OneDrive is the best cloud storage service you can get.



iCloud



Apple's iCloud was launched in October 2011 as the successor to the company's

previous subscription-based service, MobileMe. Thanks to Apple's inspirational idea of integrating iCloud into the entire Apple operating system line of products, the service was boasting a user base of over 20 million after just one week of becoming live.

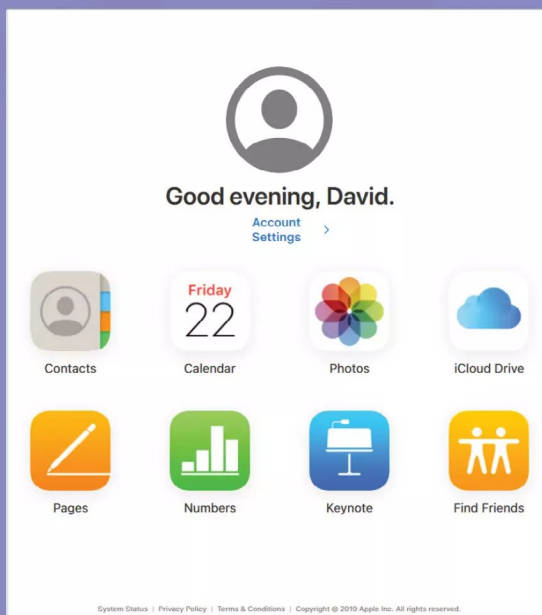
You've got to hand it to Apple, when it does something innovative, it works like a charm and becomes the benchmark for other companies to try and attain. iCloud is one of technology's greatest success stories, and it's not difficult to see why. After all, if you're already producing an operating system that runs on some of the world's most expensive computers, why not seamlessly incorporate a cloud service that quickly becomes a necessity.

The big step for iCloud came when Apple made it available to use via an iTunes update, which quickly led to tens of millions of users within days of the launch. As a consequence, alongside the continuing rise of fortunes for Apple, the company was able to pour vast amounts of money and resources into the service, making it one of the most comprehensive in the world.

The service has seen several important updates over the years and has since settled on a look that, like much of Apple's world, greatly resembles iOS. Another good move by Apple, keep everything looking more or less the same and the userbase won't get confused when they see something different.

Naturally, the main feature of iCloud is storage. Users are offered 5GB of free storage, and you can upload via the web interface or through the iCloud Drive folder on your Apple device. However, the power of iCloud doesn't end with storage; the service has many other features built-in, such as Find my Mac or find my iPhone. iCloud Photos allows you to instantly upload and sync from your iPhone, Mac and other i-Devices, and you can share any file or folder within iCloud by right-clicking and selecting Share, where you can opt to send a link via email, message and so on. Messages are synced over iCloud and you can share and back up all your information, bookmarks and history from Safari to iCloud.

Non-Apple users could be forgiven for thinking that iCloud is only available for Apple devices, however, the Cupertino Company realised a version of iCloud for Windows in mid-2019, which is now available from the Windows 10 Store.





PRICING

iCloud doesn't offer much in the way of services beyond storage, such as with OneDrive offering Office 365 with increasing subscription models. However, Apple's iCloud payment plans are very reasonable.

There's 5GB of space on iCloud for free, beyond that expect to pay 79p per month for 50GB, then £2.49 per month for 200GB, and finally £6.99 per month for 2TB of storage.

Upgrade iCloud Storage

Current Plan:

5 GB

Free



Choose Upgrade

50 GB

£0.79 per month

200 GB

£2.49 per month

Can be shared with your family

2 TB

£6.99 per month

Can be shared with your family

Prices include VAT (where applicable)

Your storage plan will automatically renew. You can cancel at any time.

[Learn more](#)

Next



Conclusion

Whereas OneDrive still feels like a separate entity, despite being integrated into Office 365, Apple's iCloud has become one of the most important features of the company's line of operating systems. It's as much a part of the core Apple OS as the file manager.

iCloud is, without doubt, one of the finest cloud storage services available. It may appear to alienate non-Apple users, but that's only the perception of those who don't use it regularly or have bothered to access the free service. To Apple users, though, it's cloud storage at its finest.



Amazon Drive



Amazon's cloud services are the stuff of legend in the technology world. Acres of humming servers, petabytes of potential storage, and teraflops of computing power that's within the top 50 fastest supercomputers in the world, is an IT enthusiast's dream come true. However, beyond all that, the company offers a more personal approach to cloud storage: Amazon Drive.

Amazon Drive launched in 2011 and since then has undergone a huge amount of changes, both in its user interface and the number of features on offer. The changes Amazon has implemented haven't always gone down too well with the users. Confusion over what's available and what's not, what can only be done with the Prime account and what can't, and whether it's a photo storing service or not, are chief among the concerns raised by a few of the millions of users.

The problems stem from the company dropping or reinstating features across different countries. For example, China and Brazil have different Amazon Drive features to the rest of the world, and the pricing model seems a bit random too, with UK customers paying more for the same subscription service than U.S. customers. It just seems a little fragmented.

The initial, free account offers you 5GB of storage; that seems to be the case for most of the world (but we could be wrong). You get a simple, drag and drop web interface, a downloadable client confusingly called Amazon Photos, the ability to share files, a recycle bin and an Amazon Photos area for displaying your images in various styles.

Transfers to and from the web interface are quick; better than Dropbox but slower than OneDrive or iCloud. The storage area is split into three folders by default: Documents, Pictures and Videos. Click on one of the folders to view its contents, and you can synchronise with the client, or view the content via the website. Simple and effective.

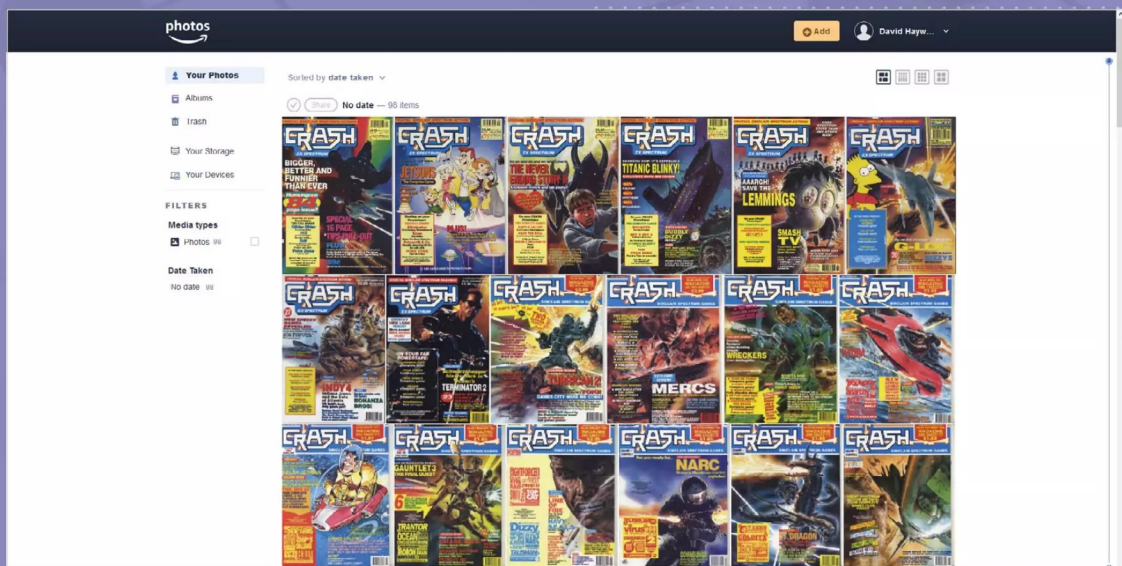
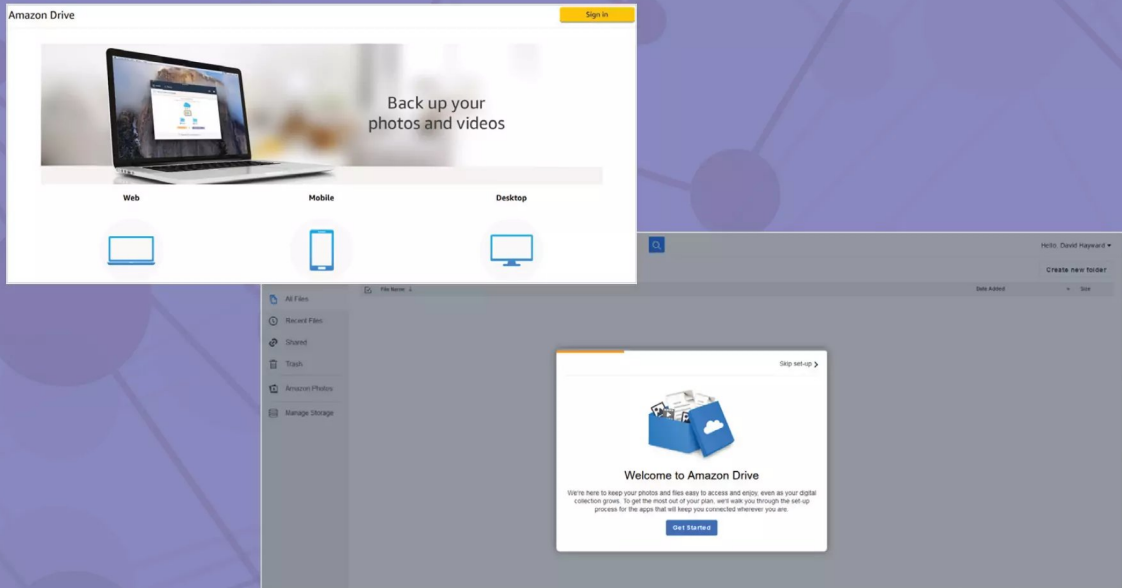
Sharing can be done by individual file, groups of files, or entire folders. It's a case of highlighting the files/folders in question and clicking the Share button at the top of the screen. From there, you can generate a link, email the recipient, or share it through Facebook or Twitter.

You can view your current storage use, and the devices you've set up to access Amazon Drive. Beyond that, there's not much else to add concerning the main storage area. The Amazon Photos section is a confusing element, though.

Amazon Photos, as listed in the web interface, appears as a separate entity to the other storage features, making you think that it somehow has a different set of options; it doesn't. Clicking on Amazon Photos opens a separate storage area, with no way back to the original other than the back button on the browser. In here are all the images you've uploaded to your area as a gallery. By clicking through four different options, they can be viewed in different styles: a collage-type view, small thumbnails, slightly bigger thumbnails, and even bigger thumbnails. You can highlight the images, look at them through a slideshow and share them, and that's it. There's nothing else. It seems like Amazon had plans for the Photos area, but never bothered to implement them.

PRICING

The pricing structure for Amazon Drive is quite good, but a little odd at the same time. Beyond the free 5GB per Amazon user, you can buy 100GB for £16.99 per year, and 1TB for £79.99 per year. But anything more will cost you an additional £79.99 per terabyte, so 2TB of storage will set you back £159.98, and if you wanted 30TB, then you're looking at £2399.70 per year.



Conclusion

While the 5GB is the average, free storage across most cloud services, and the fact that a lot of people are already Amazon users (and probably don't realise they've got 5GB of cloud storage available), there's something about Amazon Drive that doesn't feel complete.

Sure, the service works. You can drag and drop files and folders, store them and share them, but it's not as complete a service as most of the others we've come across.



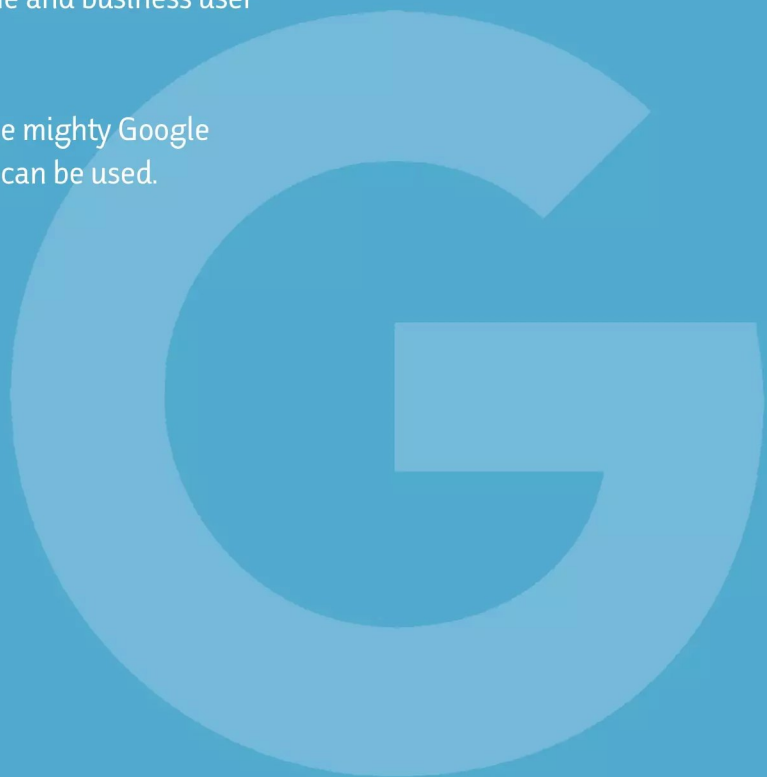


Google Cloud – In Focus

There's no denying Google's impact on both the evolution of the Internet and how we work online.

The cloud services offered by the technology giant are, without doubt, some of the best you can use; from both home and business user points of view.

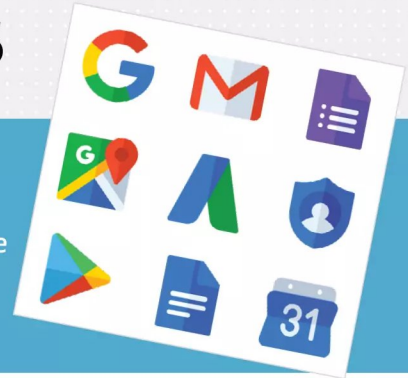
Here's a look at what the mighty Google has to offer, and how it can be used.



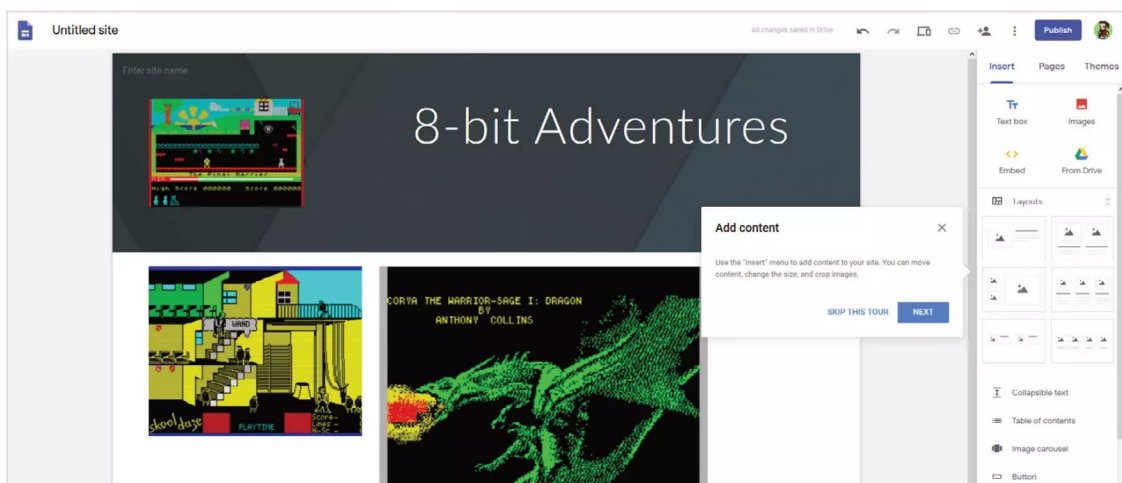
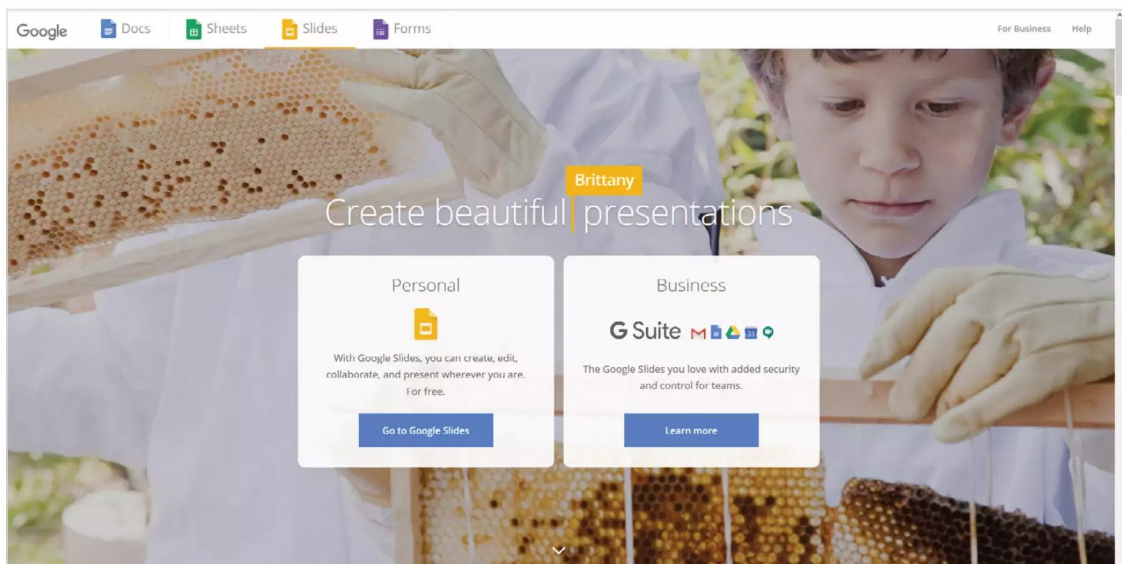


Google's Cloud Apps

Google has invested billions into building and delivering a range of cloud-based services and apps for the home and office. Email, document editing, spreadsheet creation, website building, storage and collaborations are all covered with an easy to use and familiar interface.



Google is famous, or rather infamous, for pumping millions into the next big project only to drop it after a few years, or even less in some circumstances. Take Google+ for example, a service that was to be Google's answer to Facebook. While good, it never really enjoyed the kind of virtual footfall that Facebook ever did, and as such Google closed it down mid-2019. Imagine if you'd invested time and effort to create a personal, or work-based Google+ page only to have the rug pulled out from under you?



**EMAIL**

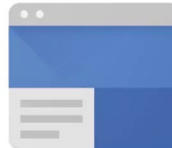
Gmail is one of the most popular web-based, cloud email solutions available today. With everything from custom themes to cross-platform compatibility, it's little wonder that there are over one billion active Gmail accounts.

**CALENDAR**

Google Calendar is a feature-rich, cloud-based app that allows you to add events and share them with your friends, family, or co-workers. You can import pre-defined calendar templates, international holidays and celebrations, create email-based agendas and much more.

**DRIVE**

Google Drive is the company's mass cloud storage solution. With 15GB of free storage available and solutions for up to 30TB, for a considerable monthly fee, Drive is considered one of the better SAAS for both home and SMB use.

**SITES**

Although not quite as popular as it once was, Google Sites has seen an upgrade in recent years to bring it in line with the other Google cloud apps. The web page creation app is now far easier to use and manage, and the integration of other Google apps is simplified.

**DOCS**

With Google Docs, you're able to write, edit and collaborate with anyone. This cloud app is accessible from any connected device, and the documents can be saved as Microsoft Word, Rich Text, Plain Text, ePub, or even as a web page.

**HANGOUTS**

Described as a unified, cloud-based communications service, Google Hangouts is where you can participate in text, voice, or video chats with other individuals or groups. It's built into both Gmail and Google+ and is also available in mobile versions.

**SHEETS**

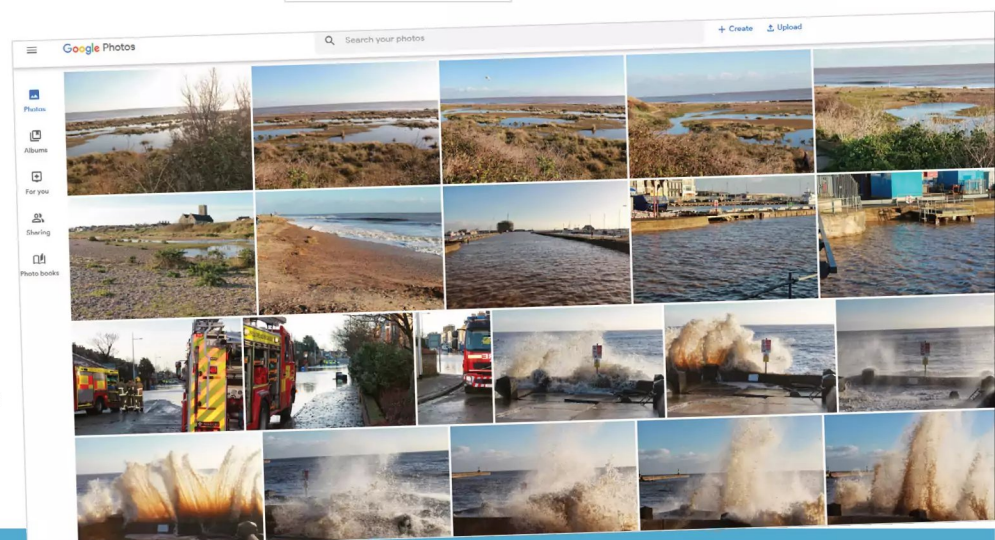
Together with the ability to create documents, Google has offered us the capacity to create, edit and collaborate with online spreadsheets. Sheets works very much the same as Docs, in that it's a cloud-based app available from any online device that allows you to save in the, popular, office formats.

**PHOTOS**

Google Photos is a photo and video sharing cloud service that launched mid-2015. With it, you can auto-backup all your images from your Google account enabled devices, as well as edit and share your content.

**SLIDES**

As you can well imagine, Slides completes the more popular office-based productivity apps with an online presentation cloud app. There are numerous templates available, and, as before, you can save the presentation in a variety of different formats.





Google Drive

There's no shortage of features to Google Drive, and the company actively adds more frequently enough to keep the service alive and well. It's not all about the amount of storage we have available, sometimes it's the features that lure us to one cloud storage service or another.

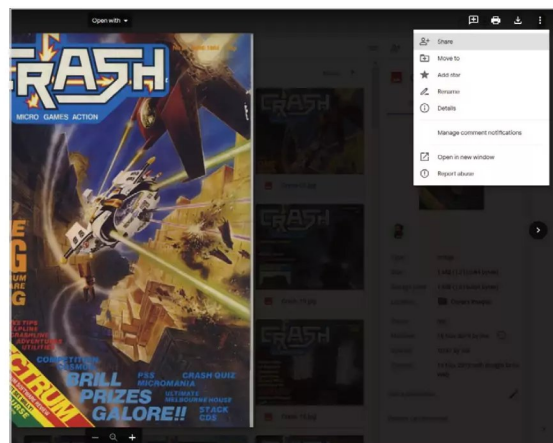
STORAGE

15GB of free space is very good, even by today's high volume standards. If you need more though, then you can upgrade to 100GB for just £1.59 per month or 2TB of storage for a mere £7.99 per month. For the SMB user, you can even go up to 30TB for £239.99 per month.

15 GB	100 GB	200 GB
Free	£1.59/month	£2.99/month
Get 15 GB free	Get 100 GB free	Get 200 GB free
Includes:	Includes:	Includes:
✓ 15 GB storage	✓ 100 GB storage	✓ 200 GB storage
✓ Access to Google apps	✓ Access to Google apps	✓ Access to Google apps
✓ Option to add your family	✓ Option to add your family	✓ Option to add your family
✓ 15 GB space in the Google Drive	✓ 100 GB space in the Google Drive	✓ 200 GB space in the Google Drive
✓ Extra member benefits	✓ Extra member benefits	✓ Extra member benefits
2 TB	10 TB	20 TB
£7.99/month	£79.99/month	£239.99/month
Get 15 GB free	Get 100 GB free	Get 200 GB free
Includes:	Includes:	Includes:
✓ 2 TB storage	✓ 10 TB storage	✓ 20 TB storage
✓ Access to Google apps	✓ Access to Google apps	✓ Access to Google apps
✓ Option to add your family	✓ Option to add your family	✓ Option to add your family
✓ 10 TB space in the Google Drive	✓ 100 TB space in the Google Drive	✓ 200 TB space in the Google Drive
✓ Extra member benefits	✓ Extra member benefits	✓ Extra member benefits
30 TB		
£239.99/month		
Get 15 GB free		
Includes:		
✓ 30 TB storage		
✓ Access to Google apps		
✓ Option to add your family		
✓ 30 TB space in the Google Drive		
✓ Extra member benefits		

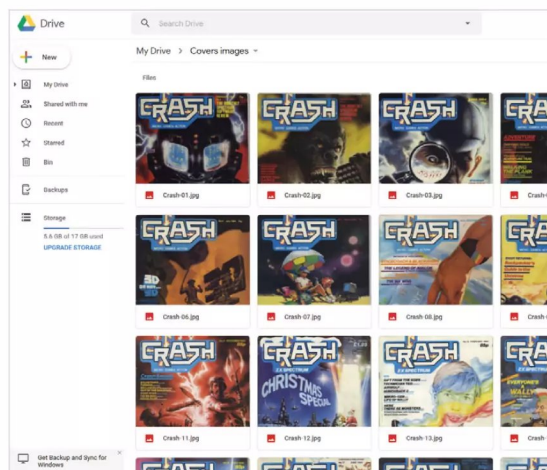
COLLABORATION

Collaboration is one of them most important aspects, and features, of the modern cloud storage service. Google Drive's contents are private until you opt to share them either individually, or as a group. You can even create a publicly accessed share for your Drive contents.



FILE TYPES

You can upload any kind of file type into Google Drive, be it a Microsoft Office created file, PDF, image, video or audio. You can even view the contents of Adobe and Microsoft-based file types, as well as archive and text files, from within Drive.



SECURITY

Security is always at the forefront of most user's minds when it comes to cloud computing. Google Drive is, thankfully, a pretty secure service. It uses a military standard 256-bit AES encryption cipher, and a two-step verification process that can interact with your phone's security.





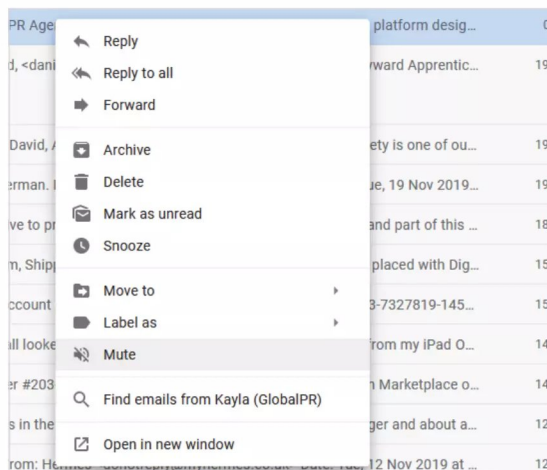
Gmail

Gmail is one of the best webmail services available for the home and business user. While it may lack some of the advanced features that an in-house email server can offer, there's still a lot you can do with Gmail's easy to use interface.

GROUPS

Group emails are great, but they can become a distraction when you're trying to work.

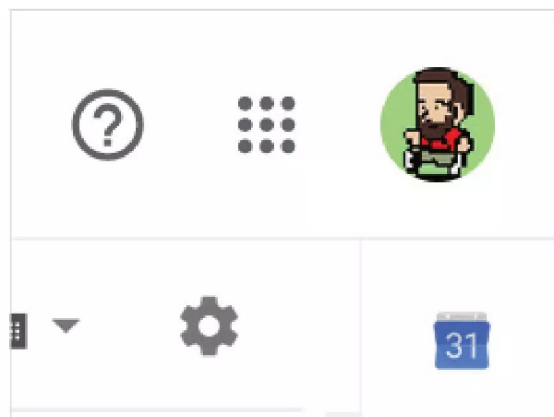
Clicking on the More button in a group-wide email and selecting Mute will let you get the message conversations but without the notifications.



ACCOUNTS

You can easily switch between multiple Gmail accounts by clicking on your profile image in the top-right corner of the Gmail interface.

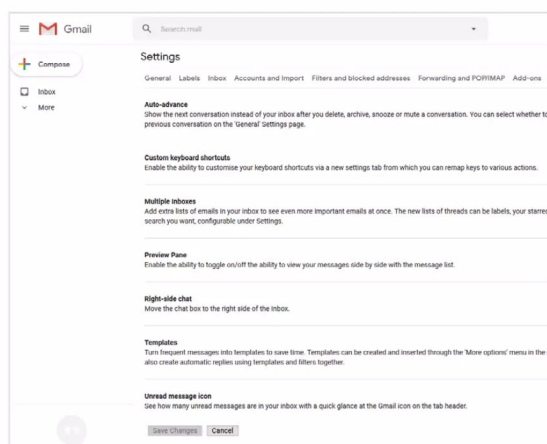
However, you can also quickly change by entering a number into the Gmail address. For example: <https://mail.google.com/mail/u/0/#inbox>, for one account, <https://mail.google.com/mail/u/1/#inbox>, for another, and so on.



SETTINGS

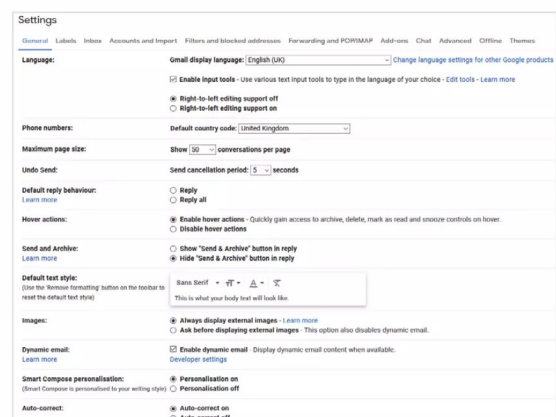
Gmail Labs were once one of the best elements to the company's email service, but they've been replaced with the

Advanced tab now. Click on Settings and then the Advanced tab. In here are numerous features, such as Preview Pane and Custom Shortcuts.



EXTRAS

Clicking on the cog icon followed by Settings will present you with a bewildering number of features that you can activate and use within Gmail. Add a signature, Desktop Notifications, Personal Level Indicators, create Labels, use a new Theme, send mail as another account, create filters and block addresses, and even alter the default text style, there's plenty to include.



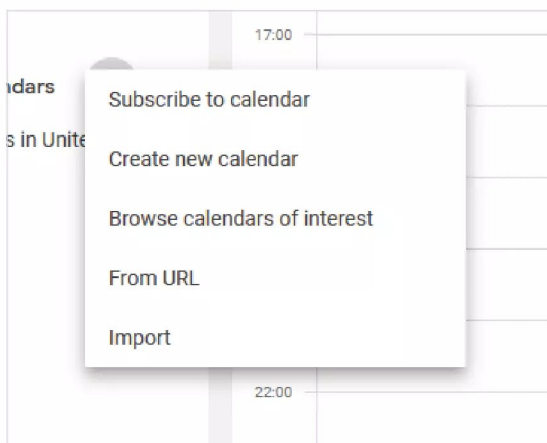


Calendar

Google's Calendar cloud app can do far more than simply letting you know when your doctor's appointment is due. With it, you can share multiple calendars, create countdown timers, receive daily agendas to your inbox and much more.

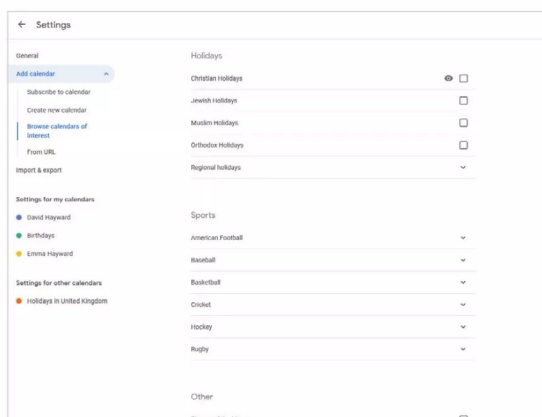
ADD CALENDARS

You can add another Google account user's Calendar to your views easily by clicking on the 'Add a Friend's Calendar' box, under the Other Calendars option. This launches a separate window, which sends a message to the other user's mail account requesting permission.



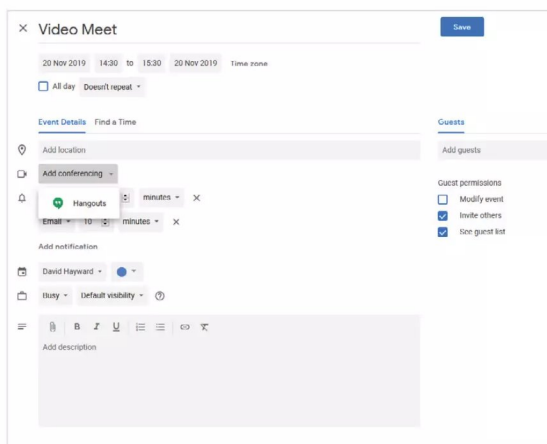
IMPORT CALENDARS

You can import all sorts of Interesting Calendars by clicking on the down arrow, next to **Other Calendars**, and choosing **Browse Calendars of Interest** from the menu. You can now subscribe to calendars displaying international holidays, sporting events, phases of the moon, sunrise and sunset times for your locale and more.



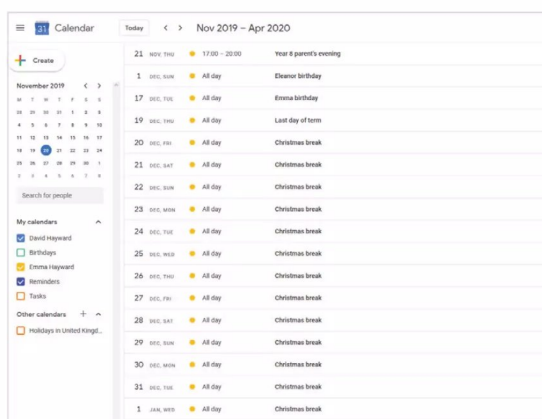
VIDEO CALLS

It's surprisingly easy to add a video call to any Calendar appointment. All you need to do is click on the Create button in Calendar, set up the event, and click **Add Video Call**. When the invitees receive their Calendar event email, there'll be a link to a Google Hangouts video chat session.



VIEWS

The various Calendar views: Day, Week, Month, and 4 Days are fairly self-explanatory. The Schedule view, though, lists your events or appointments in chronological order, with the ability to expand and edit each event accordingly. If you have the Birthdays options enabled in My Calendars, you'll even have your Google contacts' birthdays included.





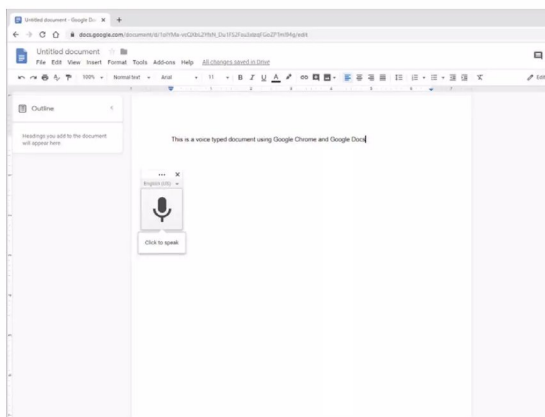
Docs

On the surface, Google docs might appear to be just another, simplistic word processor; albeit one that's online and cloud-based. However, dig a little deeper and you'll come across some surprisingly powerful features.

VOICE TYPING

The days of using the keyboard for entering text are seriously numbered. If you use Google

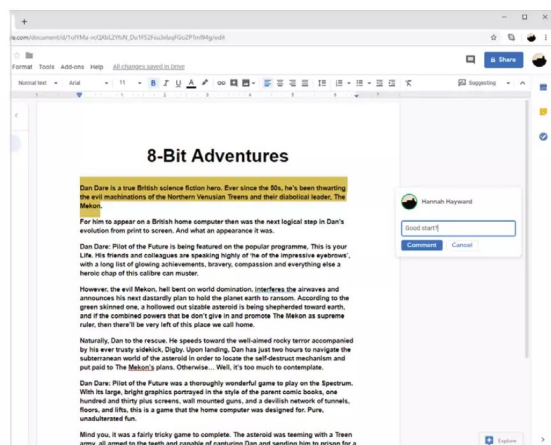
Chrome, and you have a microphone attached to your system, click the **Tools** option in the Docs menu, followed by **Voice Typing**. Make sure the microphone is working, and click the Mic icon to start talking. Click the icon again to stop Voice Typing.



TRACK CHANGES

When you're collaborating on a document with numerous people, it can be difficult to track

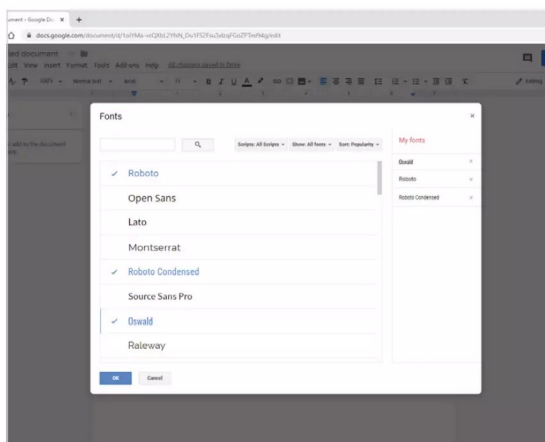
changes. Click on the Pencil icon in the upper right corner of the Docs interface and select **Suggesting**. This tracks changes, and allows other collaborators to accept or reject the edit.



FONTS

Docs has a good number of fonts from which to choose when creating a new document.

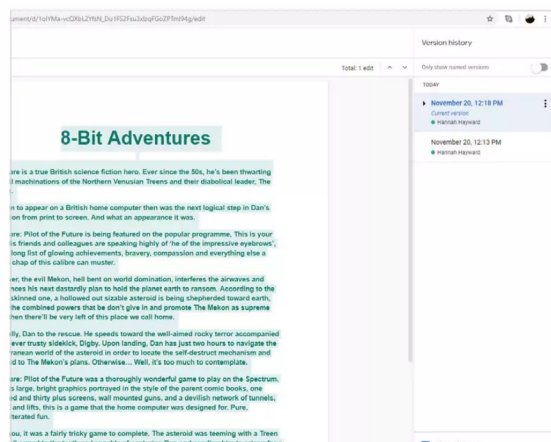
If you want, though, simply click on the fonts box, followed by **More Fonts**. This brings up a new window displaying hundreds more from which to choose. Just click the font to start using it.



VERSION HISTORY

While collaborating, keeping track of a document's revision history is as important

as tracking its on-the-fly changes. Click on **File**, followed by **See Version History**, to view the entire history of the chosen document.



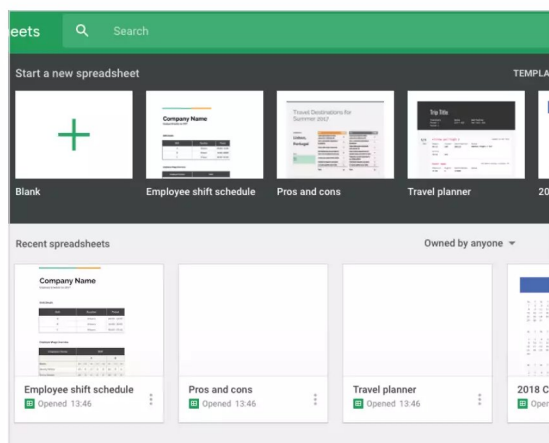


Sheets

Google Sheets is another element to Google's online office suite, this time as a lightweight spreadsheet app. It works in much the same way as Microsoft's Excel, however without the more heavy-duty features.

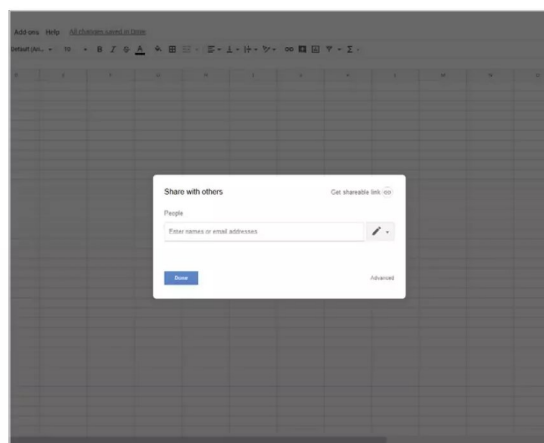
TEMPLATES

There are different ways of getting started with Google Sheets. You can create a new spreadsheet, upload an existing spreadsheet from a computer, or use a template from the Templates Gallery, to create a spreadsheet with a specific purpose.



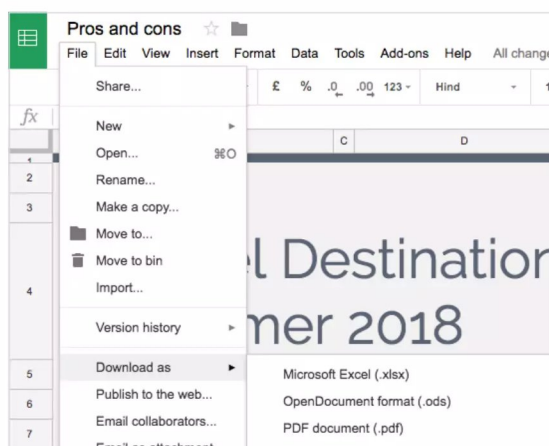
SHARING

Sharing and collaboration within Sheets is easy. Simply click the Share button in the corner of the screen, then add the Email collaborators and enter the details of those with whom you wish to share the file. This allows you to edit and collaborate on the Google Sheet document online.



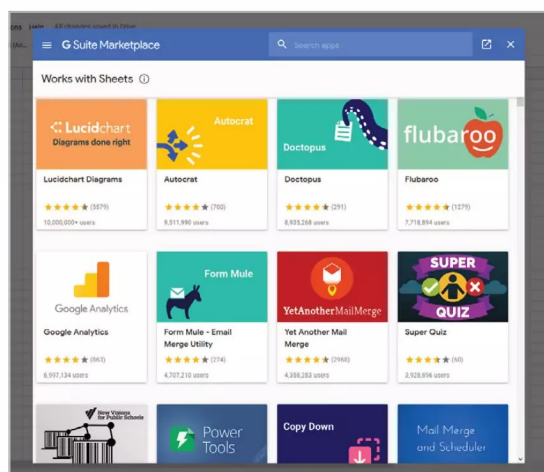
CONVERSIONS

When you upload a spreadsheet into Google Drive, you have the choice to keep your spreadsheet in the original format or convert it into the Google Docs format. If you don't convert the spreadsheet, you may not be able to access it collaboratively within your teams.



ADD-ONS

There are some interesting Add-Ons available for Sheets, which can be found within the Add-Ons menu options (along the top of the main Sheets window). These include functions such as mail merge, Google Analytics and more.



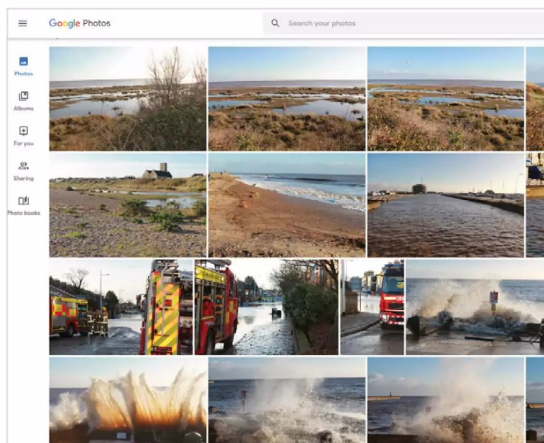


Photos

We live in a world where most of us now carry around a reasonably powerful digital camera. Our smartphones are regularly used to take images of events and important times in our lives. It's important, then, that they are backed up to a cloud service.

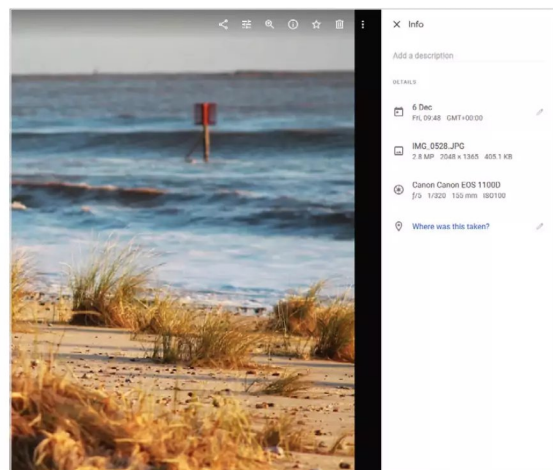
BACKUPS

Automatic backups are important to many users, particularly of their images. Imagine taking an important picture, only to drop your device into the sea moments later. Providing you have a good connection, that image is backed-up and categorised with a time and date stamp.



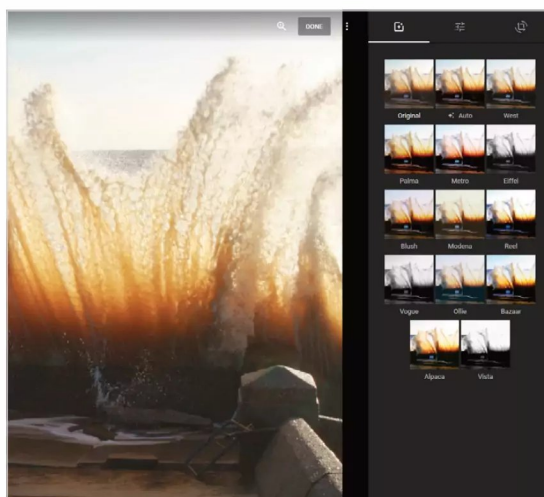
METADATA

You can even upload images that haven't been taken by a smartphone. What's more, if you click on the Info button for a non-smartphone image, it tells you which device took the picture and that device's settings at the time.



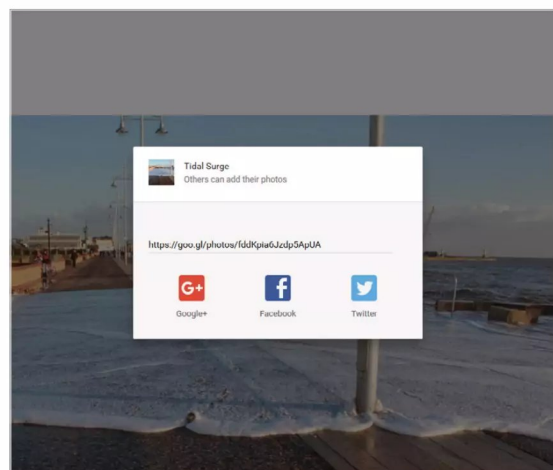
EDITING

Each image stored in Photos is editable with a number of filters, along with altering the contrast and colours and rotating. The effects are minimal, but with the right image, they can be quite stunning.



SHARED ALBUMS

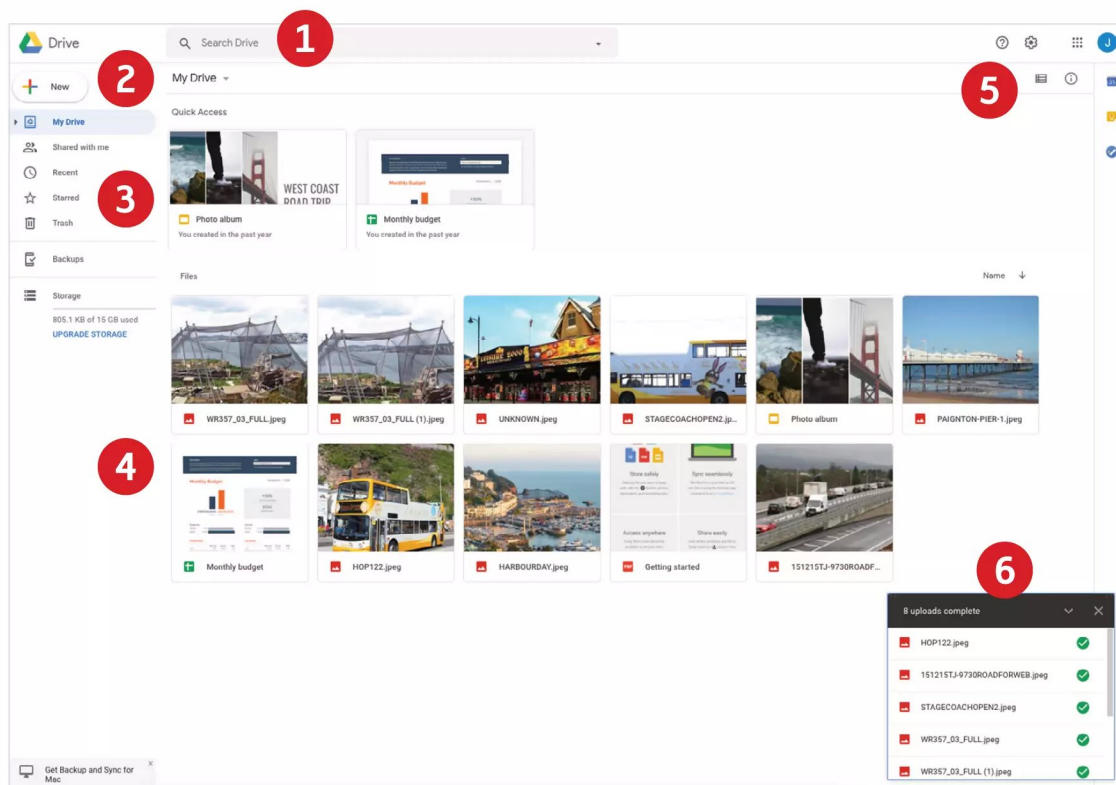
You can easily share your images by creating a Shared Album or by sharing individual images with your Gmail contacts. You can even post the image to other sites such as Facebook or Twitter.





How to Use Google Drive

Google Drive is a free storage service which allows you to store images, folders and documents in the Cloud. These files and documents can then be accessed from any tablet, phone or computer via the Google Drive software. Not only is this a great way to free up space on your devices, it also lets you access your files from almost anywhere.



1 SEARCH

You can search Google Drive in the same way that you can search Gmail or one of the other Google products.

2 NEW

Click the New button to open a new document, spreadsheet, presentation, form or drawing.

3 FOLDERS

Your preset Google Drive folders are shown here, along with any that you have created. Click More to see Labels.

4 CURRENT FOLDER

The contents of the currently selected folder are shown here. You can change how items are displayed (List or Grid).

5 DISPLAY CONTROLS

Change how items in your folders are displayed and how they are sorted. The gear icon lets you access the G Drive settings.

6 UPLOAD LIST

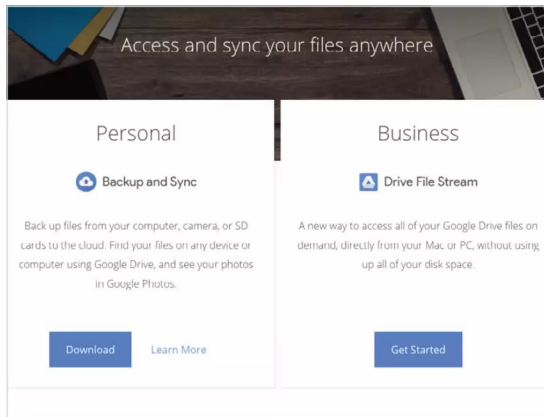
When you upload multiple items to Google Drive, the Upload box appears, to show you the progress of each item.



INSTALLING BACKUP AND SYNC - PC/MAC

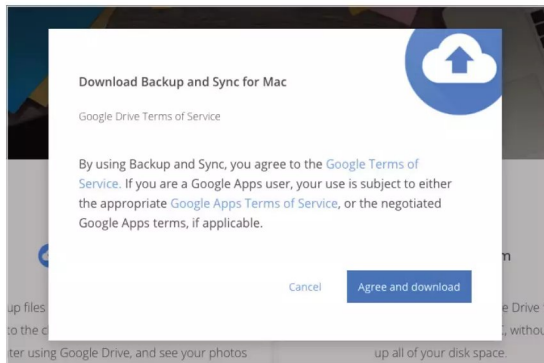
STEP 1

The first thing you need to do is check your Google Drive access status. You can do this at drive.google.com/start. If you have access, you will see a blue Download button.



STEP 2

Click on the Download button and when asked to, Agree to the Google Terms of Service. You must do this before you start the download.

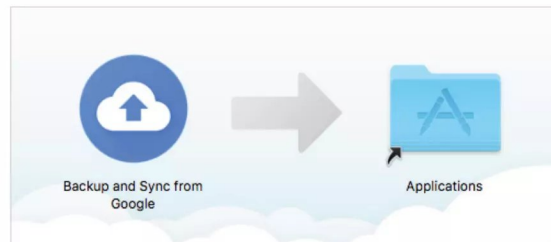


FREE GOOGLE STORAGE

Google Drive, Google+ Photos and Gmail give you storage space for nothing so you can keep your files, emails and photos accessible from any device, anywhere. If you reach the free storage limit, everything in Google Drive, Google+ Photos, and Gmail will still be accessible but you won't be able to create or add anything new. You'll still be able to create Google Docs, since they don't take up any storage space. For G+ Photos, you will only be able to upload new photos and videos under certain size limits.

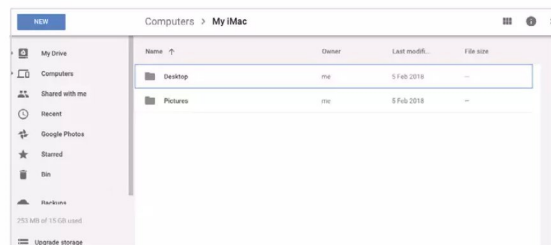
STEP 3

Click on Download Backup and sync and follow the instructions to install the software on your computer. The site will automatically detect whether it is PC or Mac.



STEP 4

You will be asked to sign in again and will then be asked to sync. This creates a new folder on your computer which is used as the storage folder.

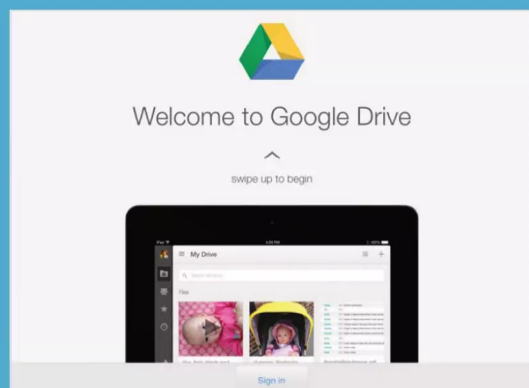


GOOGLE DRIVE ON ANDROID AND IOS

You can download the Google Drive app for mobile devices free of charge, from the Play Store or App Store. This allows you to both view and edit files in your Google Drive folders.

Once downloaded, the app should automatically sign in using the same Google account details you entered on your computer (which is also, hopefully, the one with which you set up your Android or iOS device).

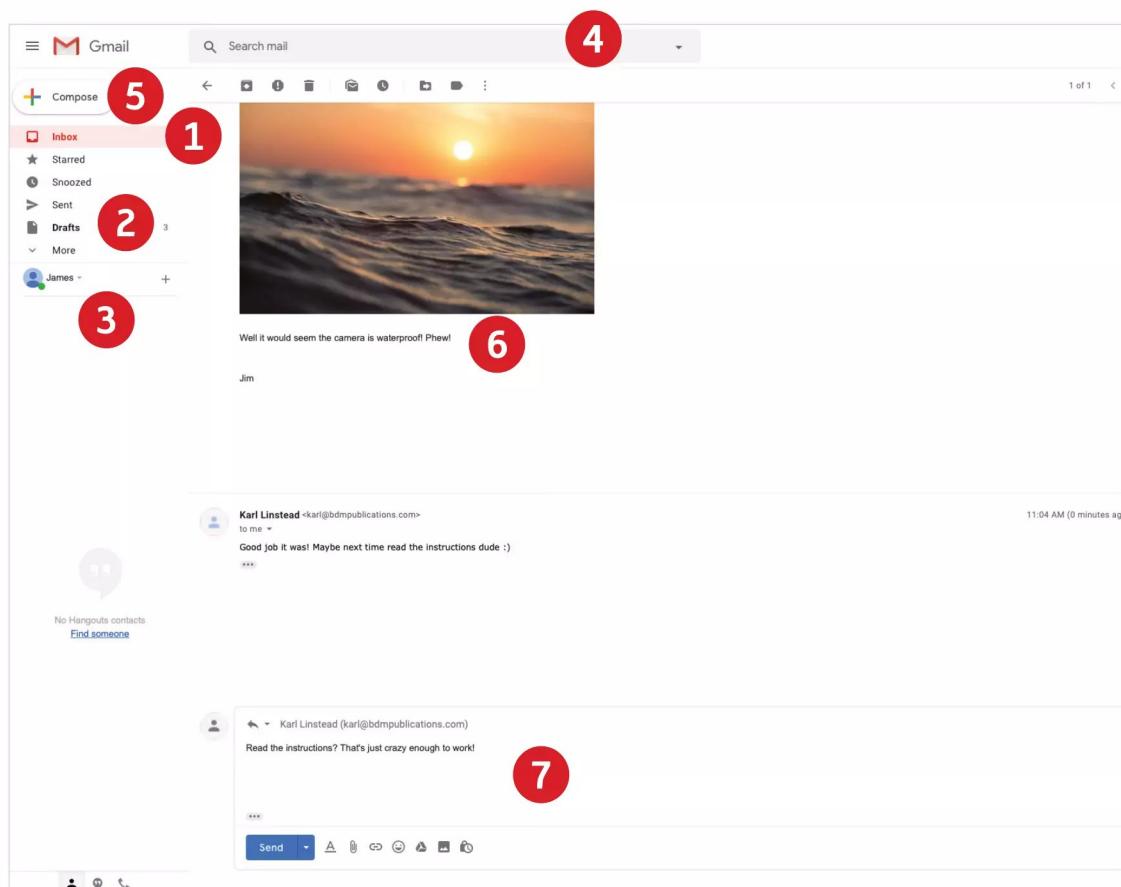
You will now be able to see any files you placed in the Google Drive folder on your computer. If you had the Google Docs app installed, this will now be replaced by Google Drive. To create a new doc, tap Menu > New > Document, or Spreadsheet, etc.





How to Use Gmail

Gmail is an integral element of the Google app suite, an email platform that works seamlessly on whichever OS you use, quickly becoming a key part of your daily routine.



1 MAILBOXES

These links let you display the messages in those mailboxes. A number next to any mailbox shows the amount of unread messages, rather than the total amount in the mailbox.

2 LABELS

Labels allow you to categorise your messages into various pre-set or custom folders. You can save messages under more than one label for better cross-referencing.

3 CHAT CONTROLS

This section shows a list of your available Chat contacts, as well as containing the various chat controls: Add Contact, Status Update, etc. You can read more about Gmail Chat later in this section.

CREATING A GMAIL ACCOUNT

You can either connect a Gmail account to your main Google account or you can create a completely new account from scratch. If you connect an account, you will be able to use your new Gmail address or your original Google account email to sign in.



4 SEARCH BOX

Search for any message or contact in your Gmail inbox. Clicking on the small arrow at the end of the search box allows you to refine your search in several different ways.

5 MESSAGE CONTROLS

This set of buttons only appears when viewing a message. They allow you to archive, delete or report the message as spam, as well as letting you move the message to a particular mailbox or apply a label. The More button reveals even more controls.

6 CONVERSATION

Gmail displays multiple messages from a contact in a conversation format. If someone replies to your message, both the reply and the original message are shown stacked in the window. You can expand the conversation to make it easier to read.

7 QUICK REPLY

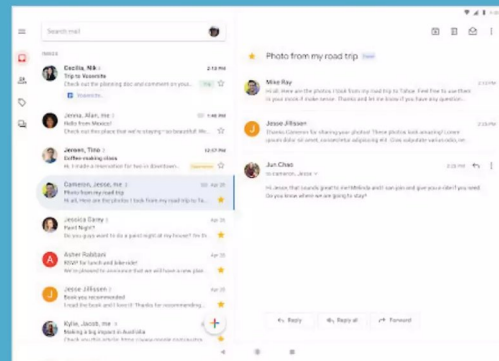
Click anywhere in this box to start a quick reply to the last message in the conversation. To Forward a message, click the Forward tab in the quick reply window that opens. Quick reply offers the same formatting options as creating a new message does.

EMAIL ON ANDROID & IOS

You can download the Gmail app for mobile devices, free of charge, from the Play Store or App Store. This allows you to use Gmail on the go.

Once downloaded, the app should automatically sign in using the same Google account details you entered on your computer (hopefully, this is also the one with which you set up your Android or iOS device).

You will now be able to see all of the folders and emails you use and have sent/received on your computer, albeit on your smartphone or tablet.

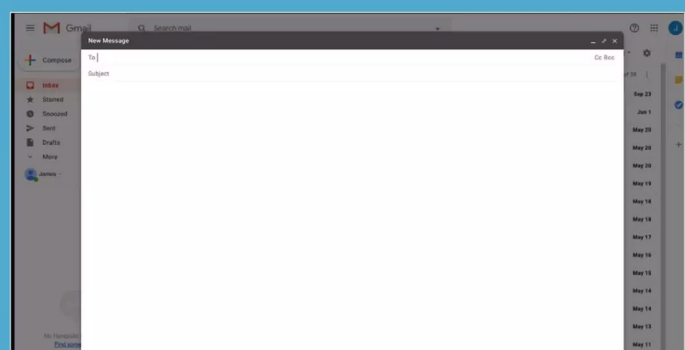
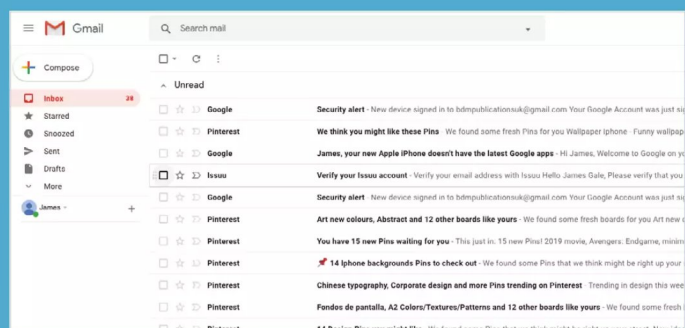


HOW TO COMPOSE A NEW EMAIL

Google has incorporated a unique way to compose a message in Gmail which allows you to retain on screen whatever you were looking at, inbox, a message, etc. while composing a new message in a separate window. At the time of writing, this was still an optional feature but could be made standard at any time.

To activate this compose window, click the Compose button and a new window will open at the bottom right of the Gmail window. Whatever you were viewing before you clicked Compose will remain on screen but you can click through into a different mailbox or open a message without the compose window disappearing.

The new compose window contains many of the options. Click in the To field and start to type a name or email address to see a list of known contacts. The icons at the bottom let you control formatting and attachments. If you want to switch back to the old compose method, click the Send icon at the bottom of the window.





Cloud Technologies: The Environment

To paraphrase Morpheus from the film, *The Matrix*, "The cloud is everywhere; it is all around us". While that may sound sinister, it simply means that cloud technologies have become such a huge part of our everyday lives that it's difficult to find areas where they aren't involved. But rather than focusing on how all-consuming and nefarious the cloud sounds, let's look at how the cloud has helped push technology past previous limits and into a brighter future.

When we look at cloud technologies, we normally think of how it enables collaboration, reduces the cost of digital ownership, ease of access, simplified management and the ability to securely store content. One aspect, however, that's often overlooked is the environmental impact cloud technologies have on our world.

GREEN CLOUDS

Global warming is a, excuse the pun, hot topic at the moment. The arguments for and against; those who believe our climate is changing rapidly, due to our industry, versus those who don't, and the impact of pollution over cost have been ongoing for a while. However, the problem isn't going away, in fact, depending on to whom you listen, it's possibly going to get a lot worse very quickly.

Using cloud solutions to help reduce the environmental impact of modern technology may seem somewhat counterproductive. After all, a cloud service runs on an extensive cluster farm of many, powerful servers inside a datacentre, all requiring a large amount of energy to run. However, that's quite the opposite way of thinking.

Consider a scenario involving a thousand different companies, all of which have server rooms filled with several servers and other equipment. The total energy requirements to keep these thousand server rooms up and running, are quite substantial. But what if all those companies decided to adopt a cloud approach to their technology needs and, instead, used virtualisation technology within a cloud service. The service could essentially house all of those thousand companies'

needs within the resource limitations of just a fraction of the datacentre's cluster.

Cloud service providers are, in fact, the leading drivers in emissions savings, while reducing technology's impact on the environment through resource virtualisation, and data centres utilising renewable energy sources. These solutions can include security systems, computing technology and storage efficiencies, to name but a few. Energy is typically lost due to a company's server underuse, causing servers to sit idle and building what's known as e-waste. Datacentres that utilise cloud technologies require less equipment to monitor systems and manage workflows; freeing up the energy typically consumed by machines and reducing the total physical server footprint. Furthermore, such environments provide the flexibility to expand a company's technology infrastructure as its available funds increase.

In essence, a cloud technology datacentre is capable of housing the virtual server rooms of tens, if not hundreds of thousands, of individual companies. Each virtual server room saves the individual company money, as well as cutting down on the eco-footprint a server room generates through power use, air-condition and so on.

AIR MILES

It is said that an economy flight from London to New York emits an estimated 0.67 tonnes of CO₂ per passenger, which is roughly the equivalent to 11% of the average, annual emissions for someone living in the UK.

In total, aviation contributes to about 2% of the world's global carbon emissions, and that doesn't include the emissions generated in the production of the aircraft or the making of its fuel. In short, although 2% doesn't sound like much, it's

something that can easily be removed from the equation.

Cloud technologies already exist and have done for quite some time. They enable individuals and teams, spread across the globe, to meet face to face in virtual spaces. This saves the companies involved money and time, saves each individual involved the hassle of travelling across the world and saves the impact on the environment.

While it's not always possible to meet over a virtual space, it's a solution that can, with relative ease, be adopted by companies.



RENEWABLE ENERGY

Using renewable energy sources is a worldwide goal for most companies these days. However, it's not easy for smaller businesses to adopt. Datacentres require a lot of power to run; but, you'll be surprised to discover that, overall, they are far more efficient than most mid-sized, inner-city company buildings.

Google, for example, recently announced that it's the first large-scale datacentre to achieve 100% renewable energy two years running. "Our first priority is to use as little energy as possible, operating our offices and facilities sustainably, with a strong focus on our data centres," said Neha Palmer, Director of Operations, Energy and Location Strategy, Google.

The company utilises a number strategies to ensure it's energy efficient; through better server designs and advances in artificial intelligence, a Google datacentre is now seven times more energy-efficient than it was just five years ago.

Plus, Google also ensures that the energy it uses comes from wind or solar farms built near the facilities and that 100%



of the heat waste from the servers is recycled back into the system for use elsewhere. And it's not just Google that's on board with energy-saving, most, if not all, datacentres now adhere to strict environmental guidelines and policies, ensuring they are between 90 to 100% energy efficient.

MONEY

One of the main draws for any company to opt for a cloud approach is cost reduction. Cloud computing not only allows firms to reduce capital and operational costs but also presents an opportunity to streamline IT management and focus on more revenue-generating projects; rather than daily IT tasks and issues. What does this mean moving forward? The green case for the cloud unveils a compelling opportunity to contribute to something much bigger than the current shaky business climate. Cloud computing presents firms with the ability to help mitigate the consumption of energy, reduce their carbon footprint and move toward a greener, smarter future.

Moreover, the Smart 2020 report estimates that, within five years, information technology-enabled energy efficiency translates into approximately \$946.5 billion worth of cost savings when companies adopt a cloud technology approach.

THE FUTURE

Global IT energy consumption equates to around 9% of the total environmental CO2 impact, of which a traditional datacentre was only a small fraction. These days, the datacentre's emissions barely scrape the surface, but overall IT emissions are still high.

Some companies won't be able to initialise a total move into the cloud, but for those that can, the reduction in both cost and environmental impact will make a significant difference to the future. But it's not just IT alone, take into consideration the travel impact, the environmental cost of commuting daily. Perhaps in the future, we can all work from home, in the cloud, connected to our workplaces?



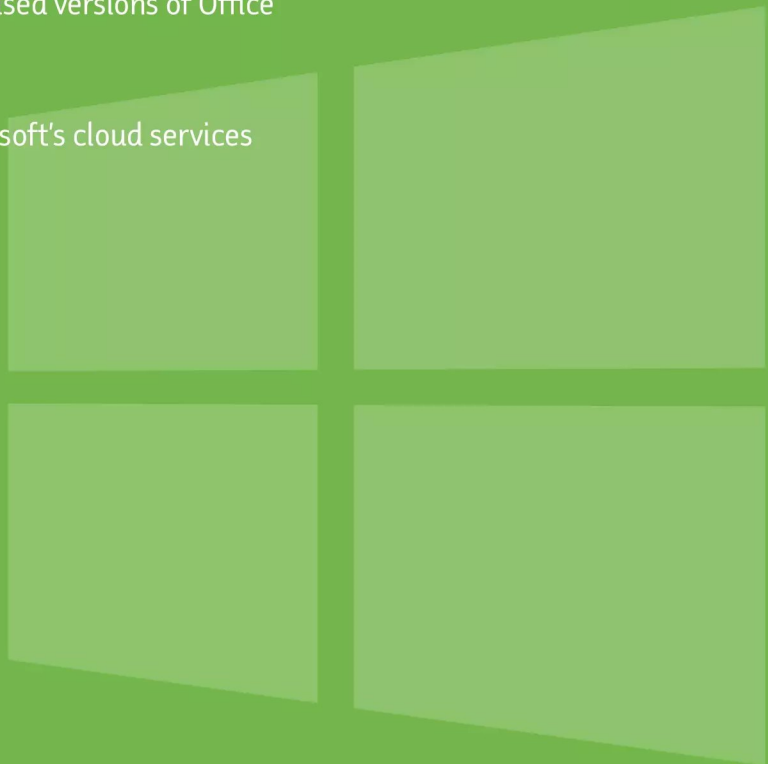


Microsoft Cloud – In Focus

Microsoft's involvement with consumer-level cloud services is as equally impressive as that of Google.

Not only does the Redmond company offer all the usual storage, email and sharing services normally associated with cloud computing, but it also includes cloud-based versions of Office and other apps.

For the consumer, Microsoft's cloud services are invaluable.





What are Microsoft's Cloud Apps?

Like Google, Microsoft has invested a considerable sum bringing its cloud foundations to the end-user and SMB, as well as much bigger enterprise clients. OneDrive is the more prominent cloud service that the company offers, but Microsoft has also unleashed its Office apps to the cloud.

OFFICE IN THE CLOUDS

There are quite a lot of cloud services on offer from the Redmond Company, but for the sakes of the consumer end-user, these are by far the most utilised.

ONEDRIVE

OneDrive is Microsoft's answer to cloud storage for both consumers and business users alike. The basic plan comes in with a free 5GB of storage available, but you can soon expand that to 50GB or 1TB, all for a fairly reasonable monthly fee.



EXCEL ONLINE

As you expect, it's not just word processing that Microsoft has exported to its cloud servers. Excel is also available through the Office Online portal, and you can use a fully functional, modern version of the popular spreadsheet app via your Microsoft account.



WORD ONLINE

You may not be aware of this, but the world's most used word processor is available as a cloud application. We are, of course, talking about MS Word. Using its latest version, you can log in to your Microsoft account and use the online version of Word in your browser as you would the desktop version.



POWERPOINT ONLINE

Often ridiculed as the bane of the office meeting, Microsoft's PowerPoint gets a bad reputation. You can't deny though what a powerful, and well-used resource it actually is. If you don't have a locally installed version, then the company's new cloud-based app will suit you just as well.





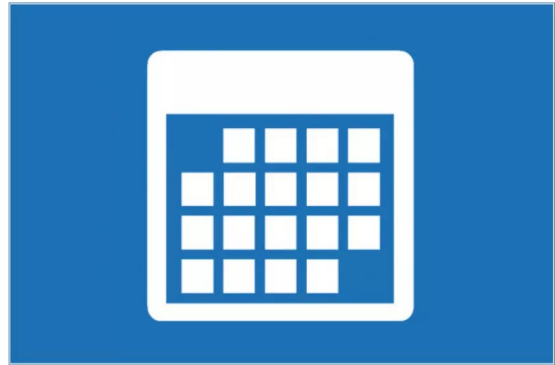
ONENOTE ONLINE

Microsoft's OneNote may not be used quite as much by the consumer as its other Office apps, but it's still a remarkably handy tool. You can share notes with multiple users, drawings, screen clippings and audio commentaries, all with this digital notebook.



CALENDAR

MS Calendar Online is a pretty self-explanatory app. If you use the desktop version with Windows 8.1 and 10, then you'll be able to get to all your appointments and events via the online, cloud app version.



SWAY

Microsoft Sway is described as a digital storytelling app. It's designed for creating presentations in an easier-to-view format than that of PowerPoint; in fact, think of it as an alternative to PowerPoint. There's a lot you get from it, and it's certainly worth exploring.



SKYPE

Launched in 2003 and purchased by Microsoft in 2011 for the princely sum of \$8.5 billion, Skype is one of the Internet's most prominent success stories. With an estimated 300 million monthly active users, it's little wonder Microsoft brought Skype into its cloud services.



MAIL

Microsoft has had some version of an email client since its early Windows 3.11 days. Outlook replaced MS Mail in later life, and although the company has re-adopted the Mail name once more, it is still essentially Outlook. Mail is the company's cloud-based app that interacts with its cloud-based email solution.



OFFICE 365

Office 365 is a slightly different version of a cloud-based service. It's a locally installed suite of Office programs, but it's sold through a subscription model and updates itself as long as you've paid for the subscription. It's designed to interact with Microsoft's cloud services far more seamlessly than the traditional desktop Office; in many ways, it's a hybrid cloud service.





OneDrive

Microsoft's OneDrive is the company's cloud-based storage service for its users; both business and home. It doesn't offer as much free storage out-of-the-box as Google's service, but the pricing for expansion is quite competitive.

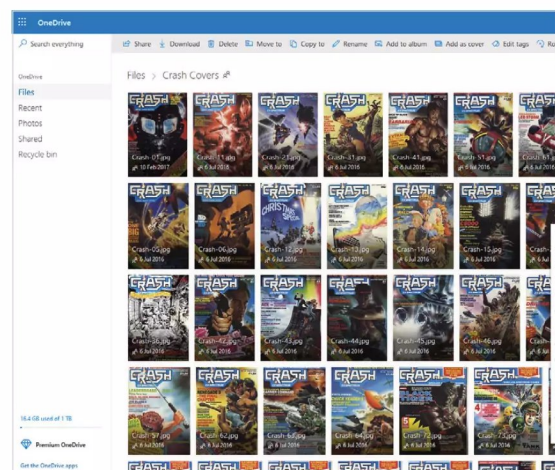
STORAGE

Although there's only 5GB of storage available (which is still quite a lot for most folks), you can easily upgrade to 100GB for just £1.99 per month. Beyond 100GB you can move up to 1TB of storage for just £59.99 per year, or opt for the more comprehensive solution of adding more users (six, with 1TB available each).

Office 365 Home	Office 365 Personal	OneDrive 100 GB	OneDrive Basic 5 GB
Premium OneDrive Features £79.99/year	Premium OneDrive Features £59.99/year	Storage only Free	Storage only Free
Get Premium	Get Premium	Buy for £1.99/month	Sign up
Try for free	Or buy for £5.99/month		
Or buy for £7.99/month			
6 TB total (1,000 GB each for 6 users)	1 TB (1,000 GB)	100 GB	5 GB
✓	✓		
Multiple PCs/Macs, tablets and phones, including Windows, iOS and Android	Multiple PCs/Macs, tablets and phones, including Windows, iOS and Android		

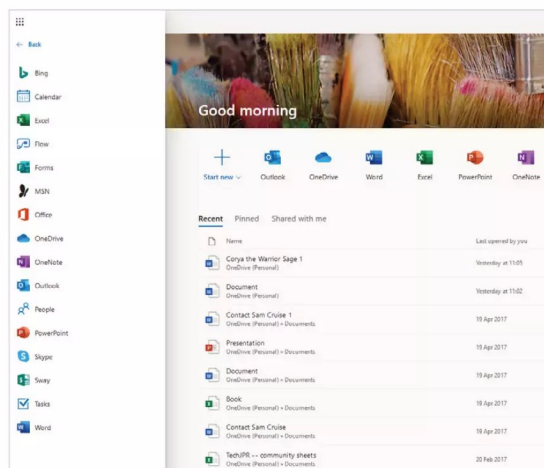
PHOTOS

Photos stored on your OneDrive account can be easily navigated and explored through the All Photos options from the main OneDrive menu. You'll also be able to create Albums, Tags and share them with others.



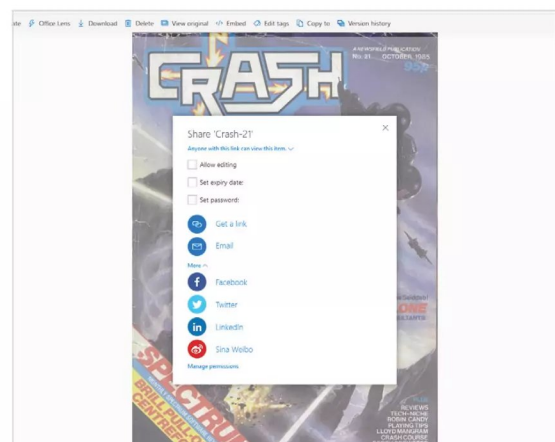
SECURE VAULT

A great feature of OneDrive is its newly added Personal Vault. Here you can store sensitive files in a heightened secure environment, complete with two-step verification, which auto-locks after twenty minutes of inactivity.



SHARED CONTENT

Sharing content from your OneDrive account is exceptionally easy. You can create links to the shared folder, email the people with whom you're sharing it, or even post the share to any of the popular social media platforms.





Office 365

Office 365 is a hybrid solution, in that it's cloud-based while still being installed on your computer; think of it as offering the best of both worlds. It's the most-used productivity suite in the world, which the company strives, constantly, to improve and modernise for the current generation of mobile users.

PRICING

As Microsoft Office 365 is subscription-based, it means that your versions of the individual apps: Word, Excel, PowerPoint, and so on, are always going to be updated to the latest release. So there's no concern over compatibility, across versions, with other Office 365 users.

COLLABORATE

As Office 365 is partly cloud-based, you can set up better collaborations with other users than with previous Office versions. In Word, Excel, or PowerPoint, it's possible to have multiple people editing a document at the same time.

SUBSCRIPTIONS

What's more, with the Home Subscription you get Office 365 for PC, Mac, tablets and phones (for up to five users in your home) plus, with the company's OneDrive cloud service, 1TB of storage. You can even try it for free for a limited time.

The business apps you know and love, with all the benefits of the cloud.

SKYPE SESSIONS

Collaboration is one of the many benefits of working with a cloud-based service. To be able to have multiple people working on the same project from around the world, in real-time, is singularly impressive. Office 365 takes the collaboration element a step further, allowing you to launch a Skype session from within a working document.



How to Use OneDrive

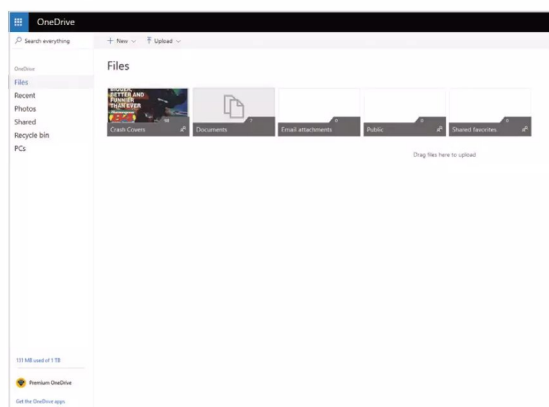
Microsoft's OneDrive may seem like a new concept but it's been available for the last nine years or so; having formally been known as SkyDrive and Windows Live folders. It has seen many upgrades during that time though and is now a far more capable cloud solution.

DO MORE WITH ONEDRIVE

To start using OneDrive you need a Microsoft account. Head on over to www.onedrive.live.com and click the Sign Up For Free button to begin.

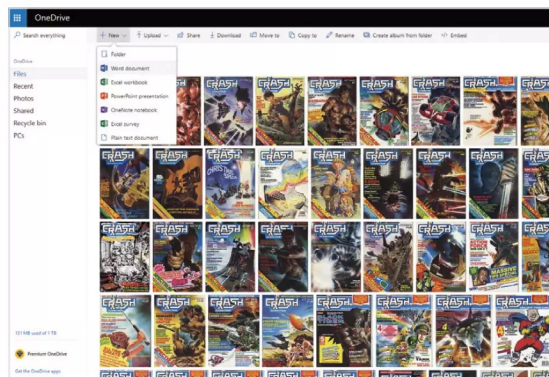
STEP 1

Once you've signed into your OneDrive account you'll be presented with the default Files view. From here you can drag and drop any files and content into your OneDrive window to populate it. You can also click the Upload link at the top of the screen to open your OS File Manger to browse for files or folders.



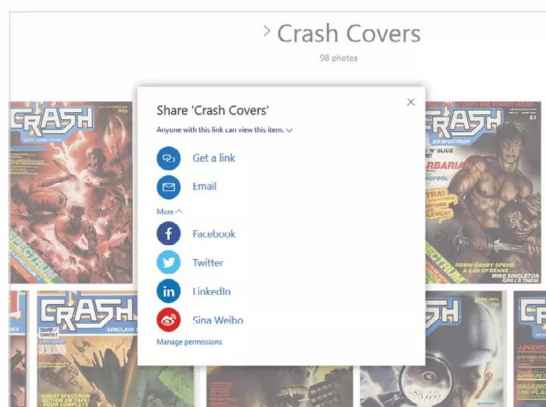
STEP 2

You can create folders within OneDrive by clicking on the New link followed by Folder. You'll then be able to click to enter the new folder and drag files into it, or use the Upload link. You'll also notice that you can create a new Word, Excel, PowerPoint or Plain Text Document, using Office Online.



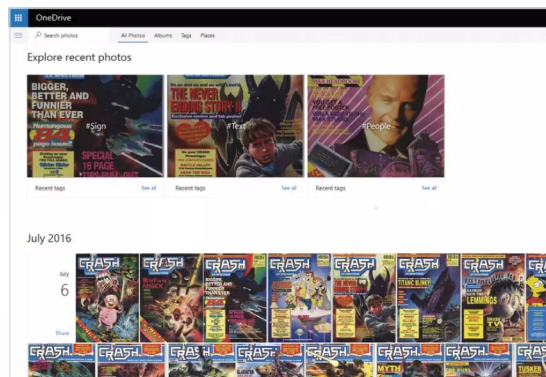
STEP 3

Clicking on the Share link within the new folder will allow you to create a link, email or social media post that will enable other people to access and view or edit the contents of the shared folder. You can manage permissions of the other users, as well as retrieve information regarding the contents and set alerts for any edited changes.



STEP 4

The Photos section allows you to view all the uploaded images in your OneDrive account according to date added and by certain tags, such as people, signs or text. This allows you to group and search for any images; handy when you have 1TB of photos to sift through.



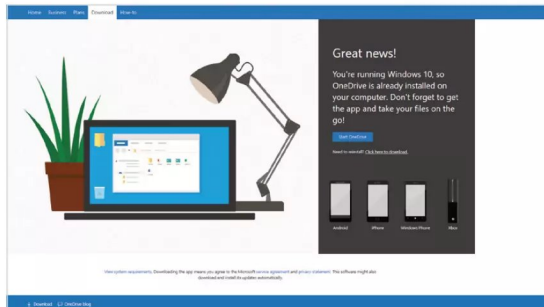


ONEDRIVE DESKTOP

OneDrive is available as a desktop and mobile app. There are some great features on offer, especially with the desktop version.

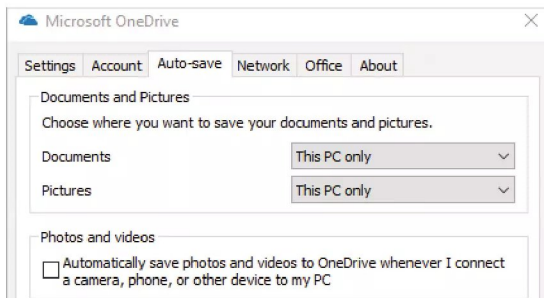
STEP 1

Windows 8.1 and 10 users will automatically have the OneDrive installed with their system; just search for OneDrive after clicking the Windows Start button. Users of earlier Windows versions will need to go to www.onedrive.live.com/about/en-GB/download to get hold of a copy.



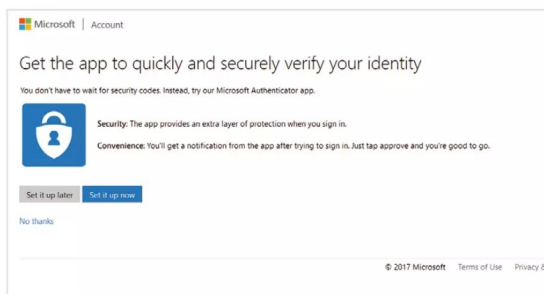
STEP 2

Once installed, OneDrive will automatically set up a folder in your C:\Users\ area, with an icon in the taskbar. Opening the icon will display the amount of storage left on your OneDrive account, which folders you want to automatically backup from your PC to OneDrive, any collaborations with Office 2016/365 and the Fetch feature.



STEP 3

From the Settings tab, under General, within the OneDrive taskbar icon, you'll notice a tick box labelled 'Let me use OneDrive to fetch any of my files on this PC'. Tick this and follow the on-screen instructions to set up the PC and link the security between OneDrive and your computer.



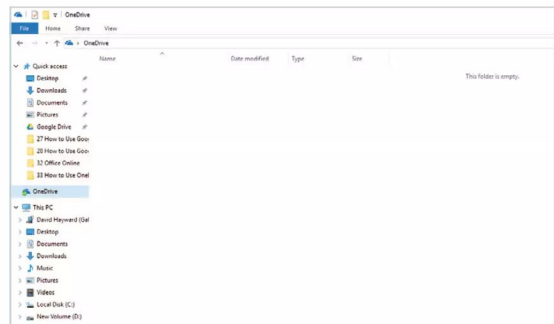
STEP 4

Once you've set your security, return to the web-based version of OneDrive and click on the PCs link in the sidebar. This should open a list of all the computers that have been authenticated and checked by OneDrive. Click on the computer you've just added and you'll be able to browse its hard drives and files.



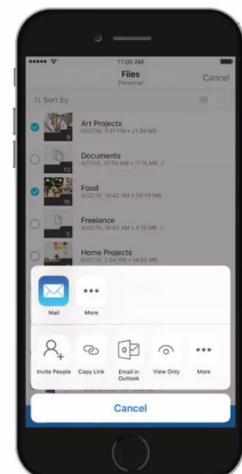
STEP 5

The backup side of the OneDrive desktop app works in much the same way as Google's Drive. All you need to do is copy any files or folders into the OneDrive link in Windows Explorer and they will automatically be uploaded to the OneDrive cloud.



STEP 6

The Android and iOS apps work in the same manner, allowing you to backup any documents, photos and so on, as well as share content with others. You can even edit any existing Office documents with Office Mobile.





How to Use Office Online

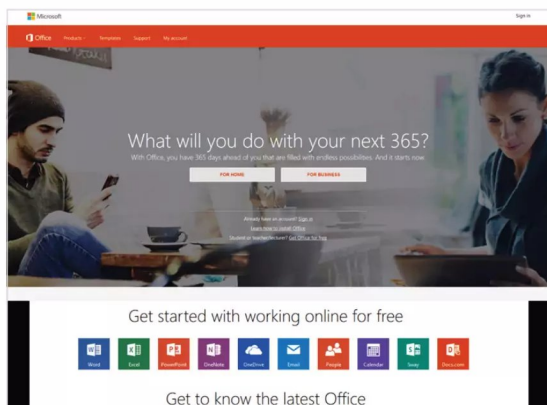
If you're out of the office or home and need to edit an existing Office document, or create a new one, then Office Online gets you working for free. These versions of Word, Excel, PowerPoint and more are extremely handy, and all you need is a Microsoft account.

OFFICE FOR EVERYONE

Take a moment to sign up for a Microsoft account, then head over to office.live.com. You'll notice a range of Office icons, click one to get started.

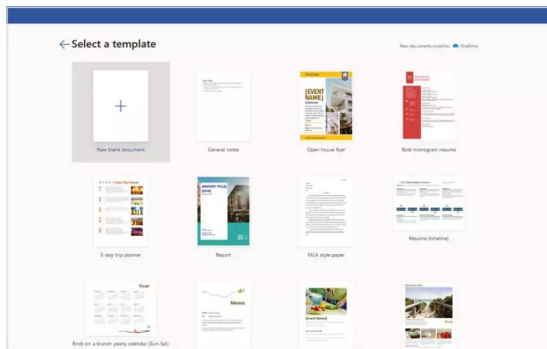
STEP 1

There are ten Office cloud options available from the office.live.com site. The familiar, and well used, Word, Excel and PowerPoint take the first three places, with OneNote, access to your OneDrive account, Mail, and so on after that. The last option is Docs.com, the Microsoft collaborative portal; similar to that of Google Docs.



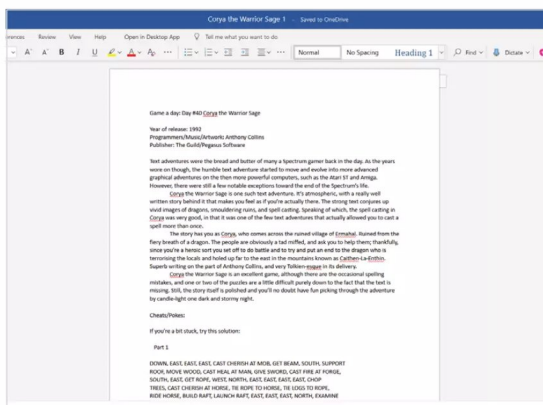
STEP 2

Clicking on each of the Office cloud icons will launch the product, asking you to sign in to your Microsoft account and linking the cloud app with your OneDrive account. There are numerous templates within each of the main Office apps from which to choose, or you can load up one already in your OneDrive account, or upload from a local source.



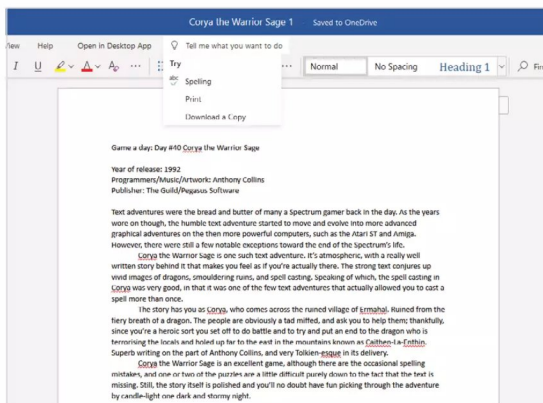
STEP 3

The layout of the individual Office cloud apps is similar to the latest version of Office, removing the necessity to re-learn how to use a particular app. Compatibility across older versions of Office is covered too, allowing you to load up content from Word 2003 and work with it in a Docx format.



STEP 4

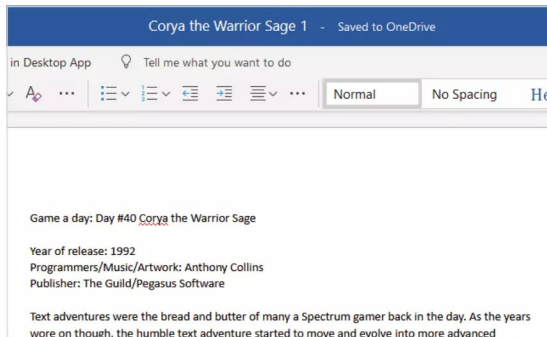
In addition to the usual Ribbon menus, Office Online also incorporates the latest help features from Office 2016 and 365. There's a 'Tell me what you want to do' section in the top menu, which, when clicked reveals several suggestions to start you off.





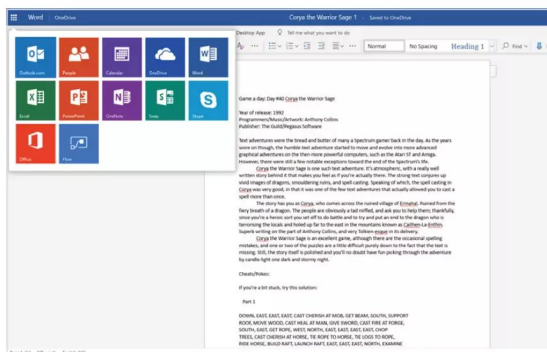
STEP 5

Clicking the 'Open in Desktop App' link launches the locally-installed version of 365, allowing you to continue working on the file from the desktop-installed app; as opposed to the online version. Handy if the file requires the use of a feature that isn't available in the online version.



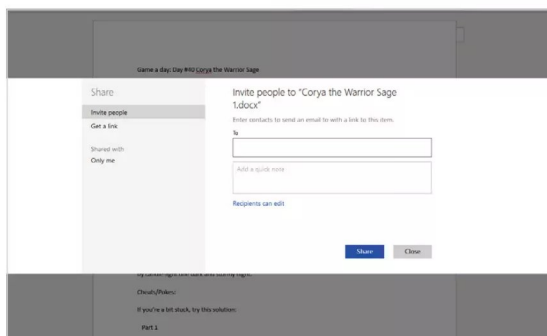
STEP 6

In all the Office Online apps, clicking the box of nine squares, in the upper left of the app screen, opens a quick-launch area from where you can access the other cloud apps; known as the App Launcher. This way, you don't need to keep returning to the main office.live.com page to launch each app.



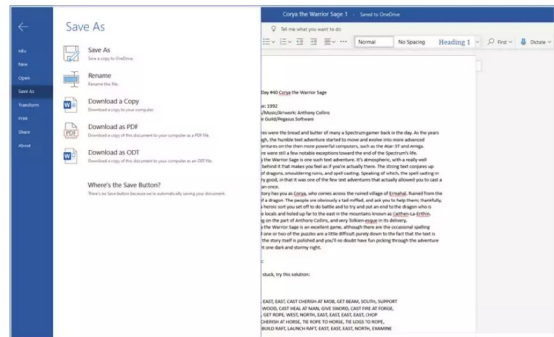
STEP 7

Sharing a file from within the Office Online apps is particularly easy. Just click on the Share button, in the upper right of the app's interface, and you'll be asked to enter the contacts of those you want to grant access. You can also generate a link for the file, and alter the permissions of each collaborator.



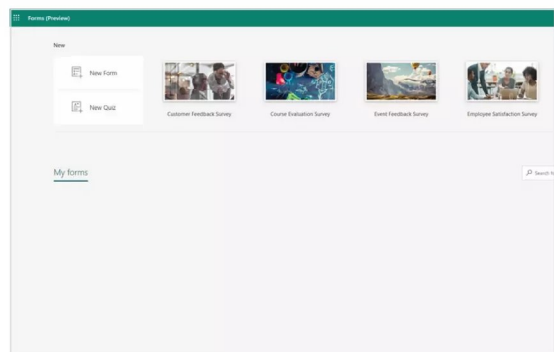
STEP 8

Any of the files you create within the Office Online cloud apps can be saved to the local system, or a USB stick if you're working off a public computer. You can download and save them as the Office format document in which they're created, or you can opt to save them as a PDF or an Open Document file, ODT.



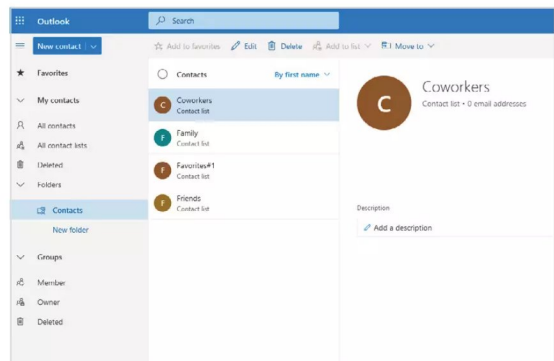
STEP 9

Forms is an interesting cloud app from the Office Online suite. Once signed in, you can create customer feedback forms, course evaluations, event registration and much more. There are loads of templates available, and you're able to create your own, unique, forms and even quizzes.



STEP 10

The People app links to your Microsoft Outlook account and displays your contacts therein. With it, you can create new contacts and connect to social networks such as Twitter, Google, LinkedIn, and so on.







Dropbox Cloud – In Focus

Dropbox is one of the go-to cloud storage services for consumers on the Internet.

It's easy to use, easy to manage and lets you instantly share content with anyone who has Internet access.

It's little wonder then that it's so popular, and it has a lot more to offer the home user.





What are Dropbox Cloud Apps?

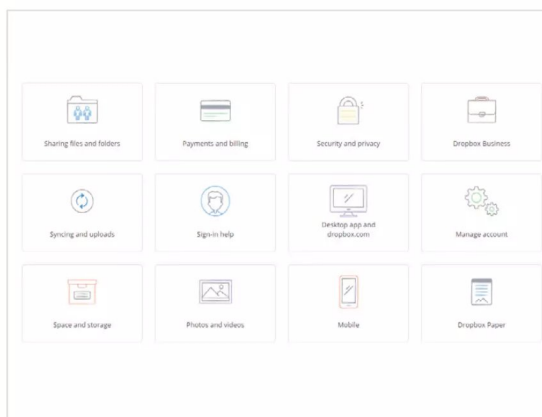
The San Francisco based Dropbox started life back in 2007 as a start-up company developed by a couple of MIT students. Since its release to the public in 2009, the company has grown to be one of the most used cloud services in the world.

BOXED CLOUDS

Dropbox has a worth somewhere in the region of \$10 billion and a user base of over 500 million. Thanks to its newly implemented features and ease of use, it's not difficult to see why.

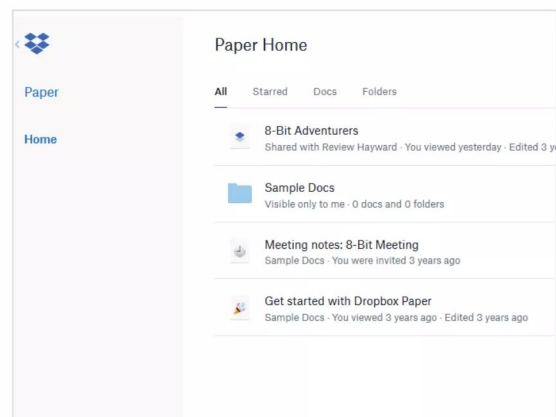
FILES

The most used feature of Dropbox, and its primary purpose, is the cloud storage functionality. You get 2GB free when signing up for an account, but, with various incentives, you're able to gain some more free space, up to 16GB is available through referrals.



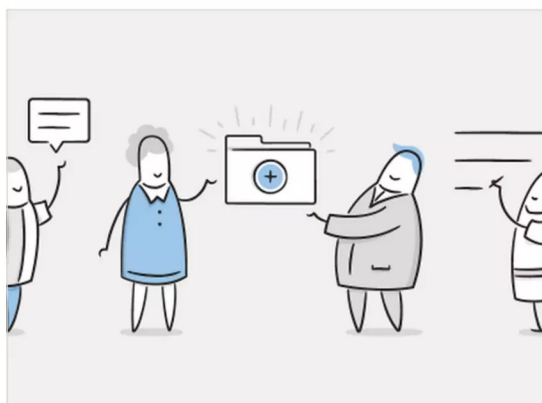
PAPER

Dropbox Paper is where you go to create collaborative documents. It's designed as a flexible workspace where you can write text, create task lists, or write code. You can embed images, audio and video, and then share the contents with others.



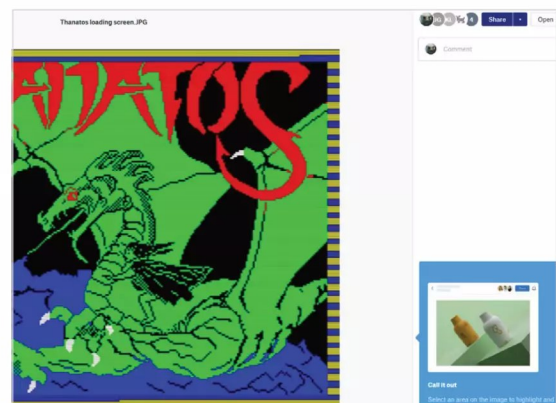
SHARING

Sharing allows you to create shared files and folders, which you can invite and set up others to access. You can share content, collaborate in a single environment, create groups of team members and organise a shared resource more efficiently.



PHOTOS

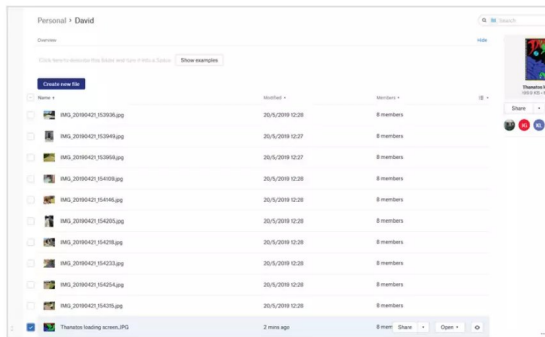
Sadly, Dropbox ceased its Photos service a while back, a decision that left something of a bad taste in a lot of user's mouths. However, you're still able to view individual photos and images via the Files area; just not without the gallery options.





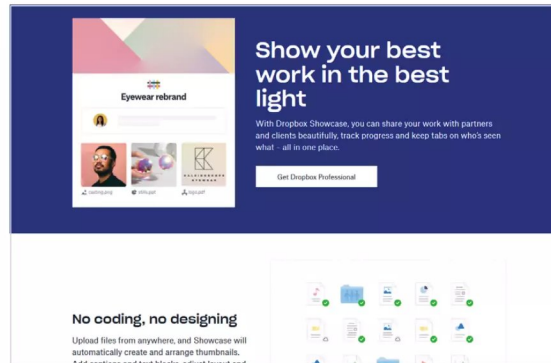
FOLDER SHARING

As with other cloud-based storage services, Dropbox's emphasis on sharing and creating shared folders is the backbone of the business. Considerable work has been done with Dropbox's new interface and controls to make it easy to create shared folders rapidly.



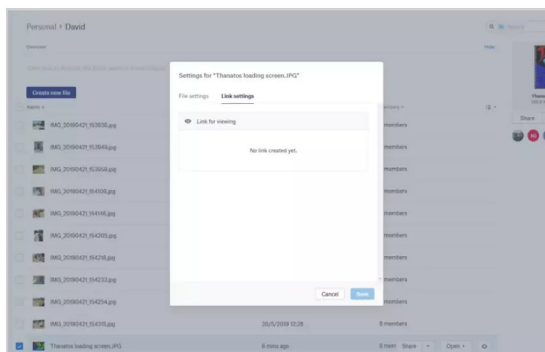
APPS

One of Dropbox's newest services, it allows you to share your work in a presentation, or web page look, that displays it in the best form possible. You're also able to track who has seen your Showcase, and Dropbox will automatically create the presentation for you.



LINKS

Links allows you to create dynamic links to any files or folders within your Dropbox storage and share them with other users, including those who don't have a Dropbox account. Sharing content outside of a project, or sending to friends, family and clients, has never been easier.



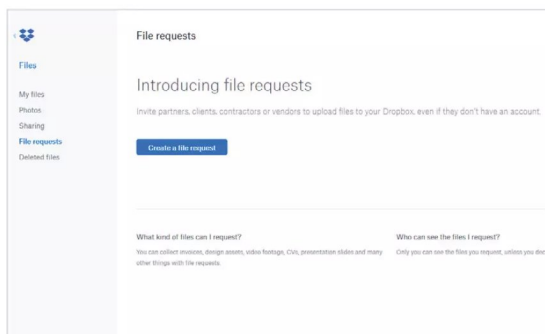
SECURITY

Dropbox uses the latest AES 256-bit, military-grade encryption on its storage, along with SSL to transfer files to and from your computer and devices. The company previously used Amazon's S3 storage system, but now maintains its own server hardware.



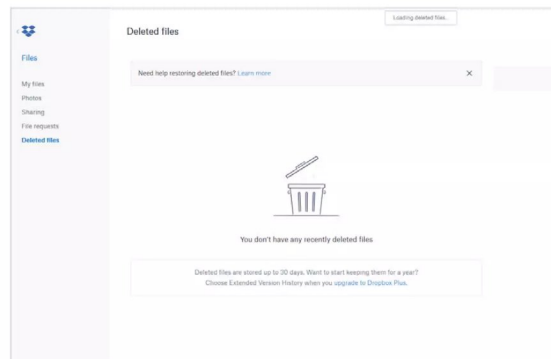
FILE REQUESTS

A relatively new Dropbox feature that creates invites which other people use to upload files to your Dropbox account; even those who don't have a Dropbox account. Teachers can send homework assignments to students, as well as family photos.



RECOVERY

With Dropbox it's easy to recover any deleted files, up to 30-days old for Basic Plan users. Business users can also recover deleted files from further back and even get an extended version history and more options.



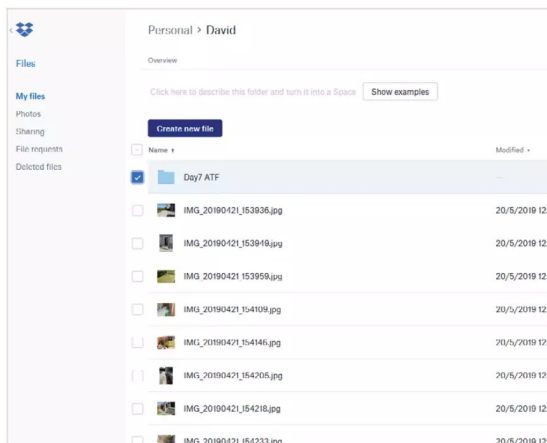


Dropbox Files

Dropbox Files is essentially the main area of the service. It's to where all your individual files and folders can be uploaded, or created. The files are arranged according to your preferences, and can be shared with ease.

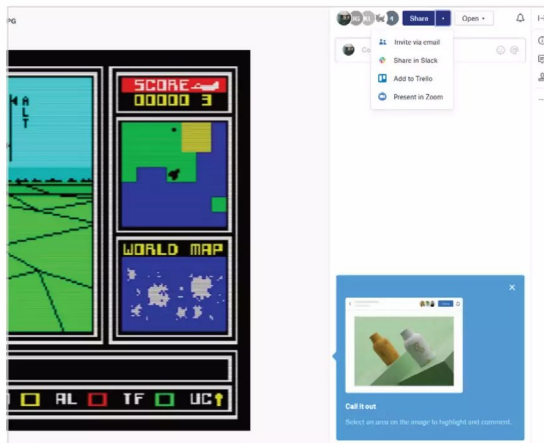
DRAG 'N DROP

Thanks to a recent update, Dropbox reintroduced the ability to drag and drop folders from your computer to the Files area in Dropbox. Naturally, you can use the desktop client, but if you, like us, dislike installing yet another third-party app in the background, the web interface now works much better.



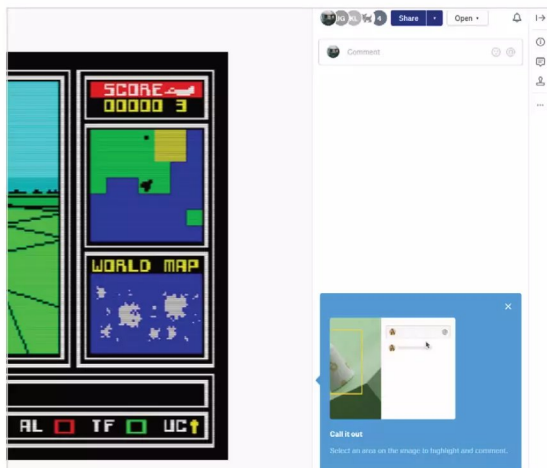
CONTACTS

Sharing content works in much the same way as the other cloud storage solutions. You enter a user's email address; if you've logged into Dropbox via Google, it uses your Google Contacts. From there, you're able to generate a link, have an automatic email sent, and change the user permissions.



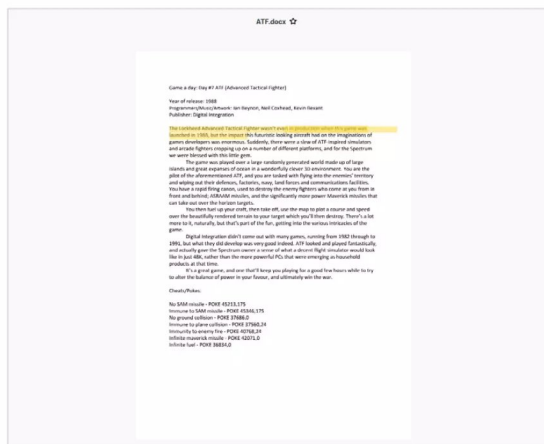
SHARING

Once you've uploaded files, images, or documents, for example, you can click them to view the contents. You're also able to share any of the folders and individual files with others by clicking on the content in question, followed by the Share button.



COMMENTING

You, or any of the other members of the share/team, can comment on any shared documents in Dropbox. You can highlight sections or the entire document, and add any comments you want. All comments by you and the team members are listed to the right of the document.





Dropbox Photos

Dropbox Photos is a shadow of its former self. Where it once had a ton of features, there's very little now; it was even removed from Dropbox at one point. However, it's still available, and here's what you can do with it.

PHOTOS

Dropbox Photos can be found by navigating through the Files area, then clicking on the Photos link on the menu to the left of the main area. Note, if you're currently uploading content via the web interface, you won't be able to change locations within Dropbox without cancelling the upload.

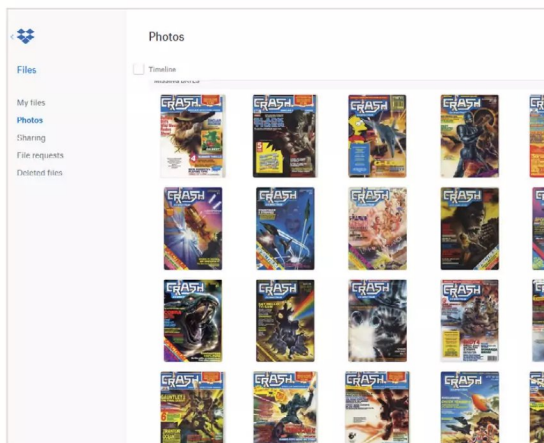
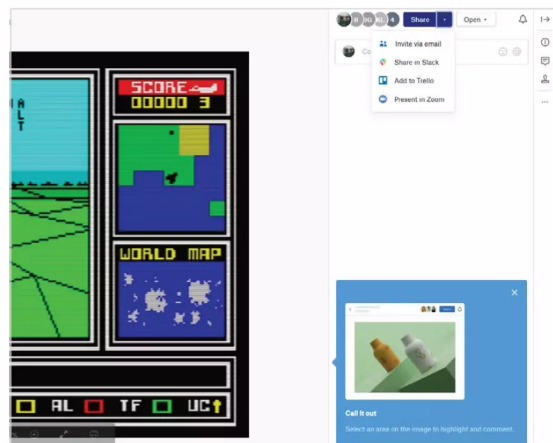


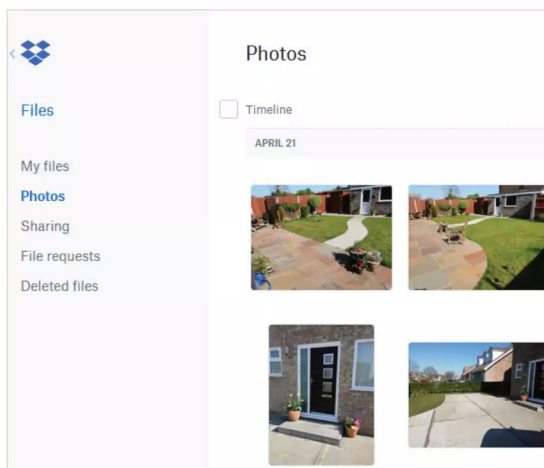
PHOTO SHARE

As with any other part of Dropbox, you're able to share your photos by clicking on the photo, or ticking the box to block select multiple images, then click the Share button. From there you can enter the email address of the person you want to share with.



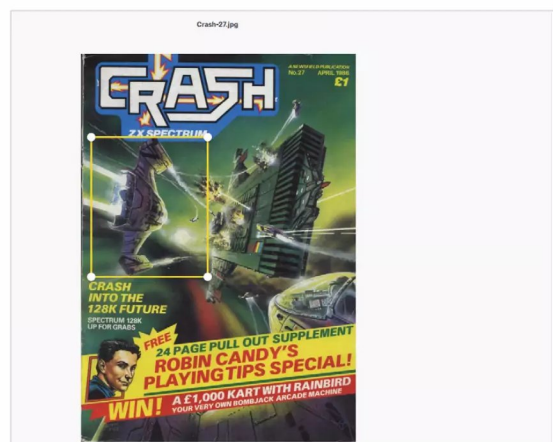
TIMESTAMPS

The Photos in your Dropbox storage are listed according to the timestamp on the image or photo itself, with the most recent date and date displayed first followed by older images as you scroll through the Photo area's timeline.



TEAMWORK

Click on any of the images, and you're able to use the mouse to draw a square around sections. This can be used to comment on any area of the image, and will appear as would a comment within a document, along with any comments from those you've shared the image with.





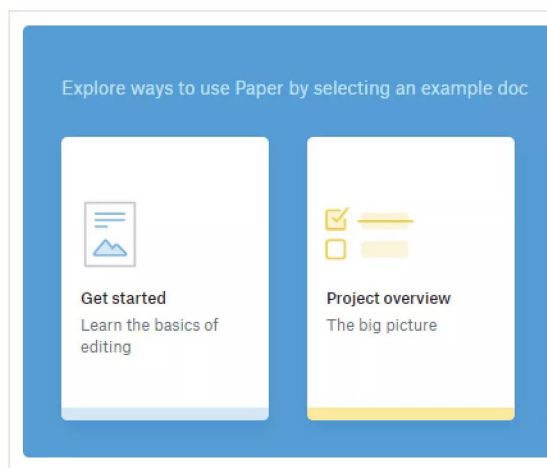
Dropbox Paper

Dropbox Paper launched in 2015 and, to quote Dropbox itself, "is more than a doc, Dropbox Paper is a flexible workspace that brings people and ideas together". It's where you can create content to share and work with others.

TEMPLATES

You can create a new blank document from within Dropbox Paper or opt for one of three, already available, templates:

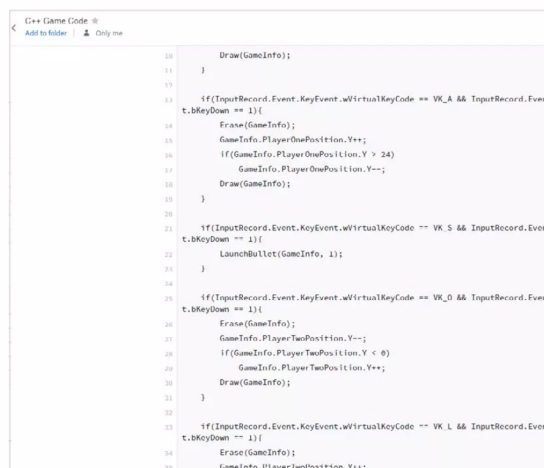
Brainstorm, Project Overview and Meeting Notes. All documents are personal until you choose to share them.



AUTO LAYOUT

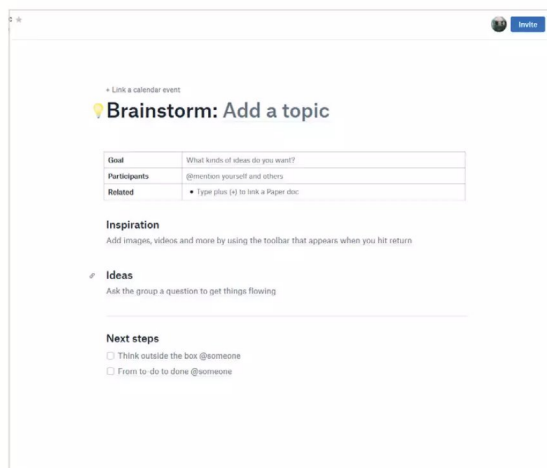
Depending on what content you enter, Dropbox Paper can automatically change its layout. For example,

entering C++ code will start line numbers, colour coding for variables, and so on.



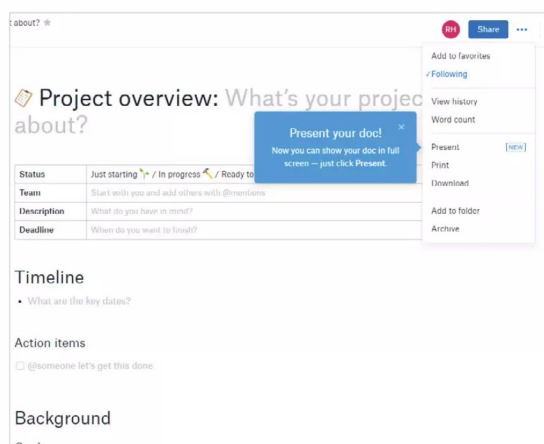
TOPICS

The Templates are nicely laid out and easy to follow. Depending on the one you've launched, it's just a matter of editing the content that's already present and substituting it with your own words and ideas.



DOCUMENT HISTORY

Dropbox Paper can: keep a history of any documents you, or others, have added, display the word count for individual documents, download them to your computer or device, and even open them in a Presentation mode.



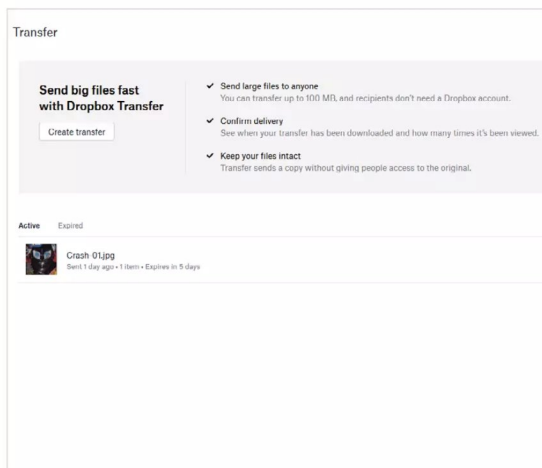


Dropbox Transfer

Having come out of beta testing in November 2019, Dropbox's new service Transfer is still quite a fresh-faced service. It's a sharing tool, but in the same sense as the other collaboration examples that Dropbox offers.

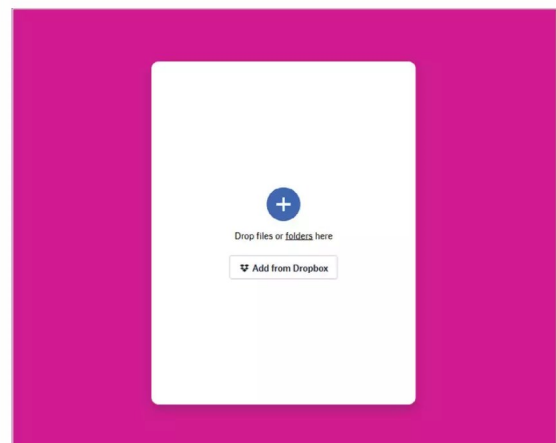
START

You'll obtain Transfer from the root level of the main Dropbox menu, on the left side of the screen. If you can't see it, click the Dropbox icon to go to the root level where you can find and click on the Transfer link.



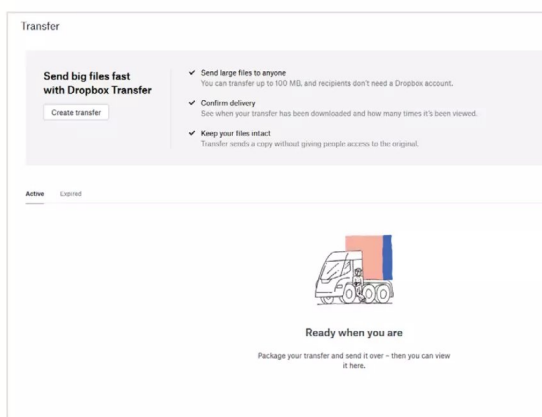
TRANSFER

You can start a Transfer by clicking on the Create Transfer button to the right of the main area. This opens a lurid pink screen where you can drop files or folders, or add them from existing content already stored within your Dropbox area. The design of the Transfer can be changed, but only for Pro users.



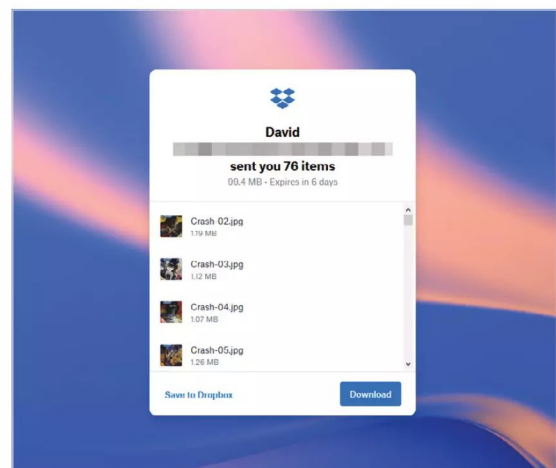
FILES

Transfer allows Dropbox users to send a copy of files. Recipients won't need a Dropbox account to receive Transfers, and alterations made by recipients won't change the original file. Dropbox says it's "designed for times when you need to turn over large collections of final files to clients and people outside your company."



LIMITS

You have 100MB limited with the free, personal version of Dropbox, but with the Pro version, you're able to transfer up to 100GB of files and folders. When you create your Transfer, you're given a link to a preview of what your recipients see when they view the content.





How to Use Dropbox Storage

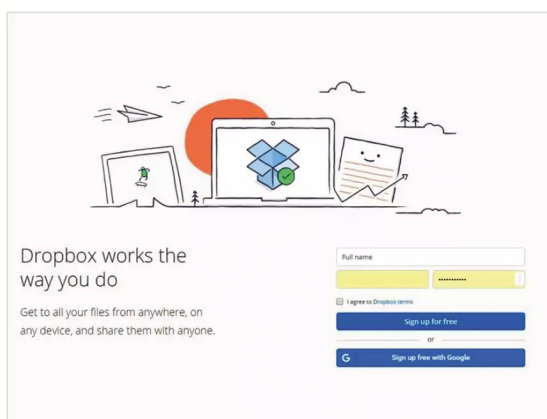
Dropbox is an excellent cloud storage service. It's simple to use, looks good, works well and can be extremely effective and quick. Google's cloud-based services may encompass the entire user package but Dropbox is a far more lightweight option for any user type.

USING DROPBOX

Getting up and running with Dropbox's Basic Plan doesn't require much computing legwork. All you need to do is sign-in to www.dropbox.com.

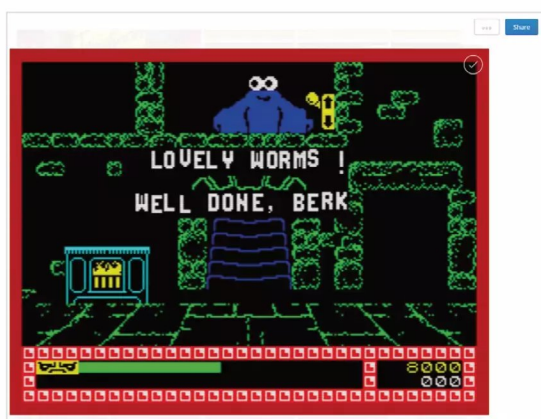
STEP 1

You can sign up with Dropbox either as a separate account or through your existing Google account. It doesn't matter which you opt for, as any alerts, notifications and so on are automatically emailed to the account you use.



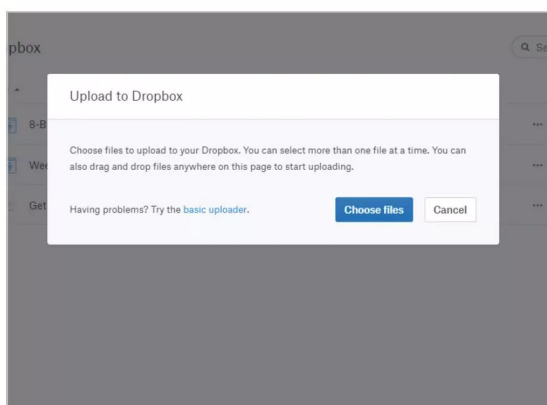
STEP 3

Once you've uploaded files, images or documents for example, you can click them to view the contents. You will also be able to share any of the folders and individual files with others, by clicking on the content in question followed by the Share button.



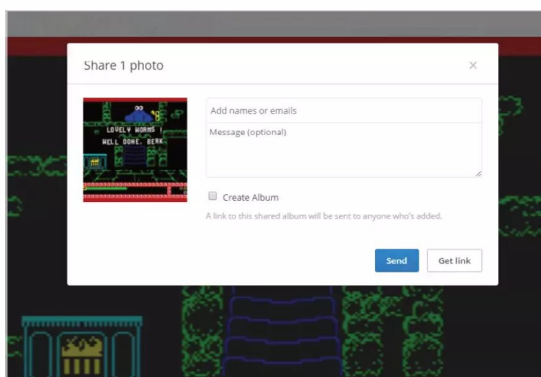
STEP 2

Getting content into your Dropbox account can be done either by dragging and dropping the files and folders from your OS File Manager or by clicking on the blue coloured links to the right of the interface.



STEP 4

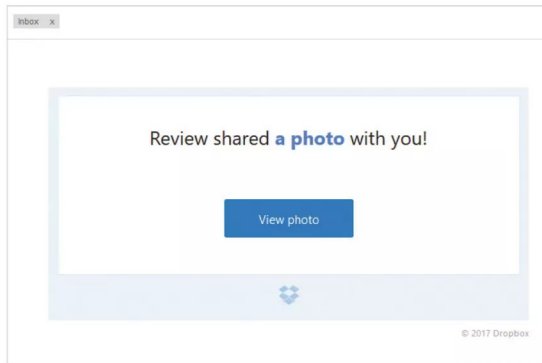
Sharing content works in the same way as the other cloud storage solutions available. You enter a user's email address; if you've logged into Dropbox via Google then it uses your Google Contacts. From there you'll be able to generate a link, have an automatic email sent and change the user permissions.





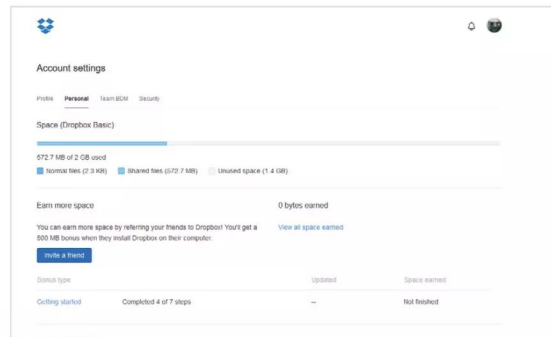
STEP 5

The shared user will receive an email in their inbox, detailing the name of the shared files or folders. All they will need to do is click on the Go To Folder, or View button to have their browser redirect them to the newly created share.



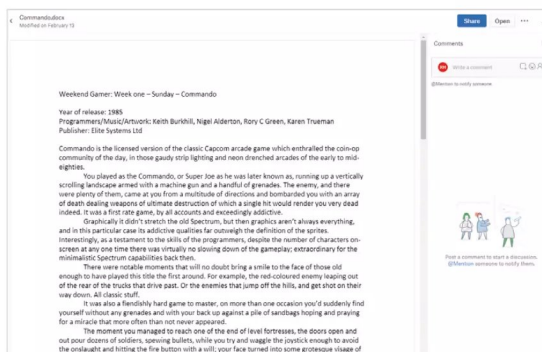
STEP 8

By completing seven simple steps, you're able to earn an extra 250MB of space. Follow Dropbox on Twitter and give the company some feedback and you can earn another 250MB. Finally, refer a friend to Dropbox and for each new member signed up thanks to you, Dropbox gives you 500MB.



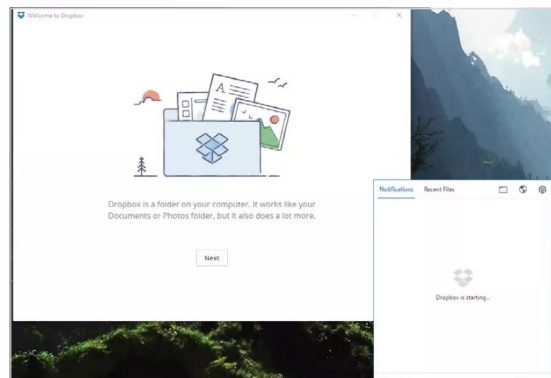
STEP 6

Once connected, the other users with access to the shared files can then make notes and comment on the documents that are currently present. You can highlight select areas of text to comment or you can create a document-wide comment, using the '@' symbol to mention individuals by name.



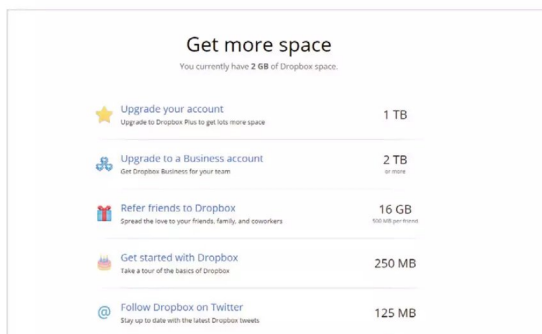
STEP 9

The Dropbox desktop app works in much the same way as Google Drive and Microsoft's OneDrive. It creates a folder on your system, putting the shortcut in Windows Explorer, adding an icon in the taskbar and even a right-click context menu.



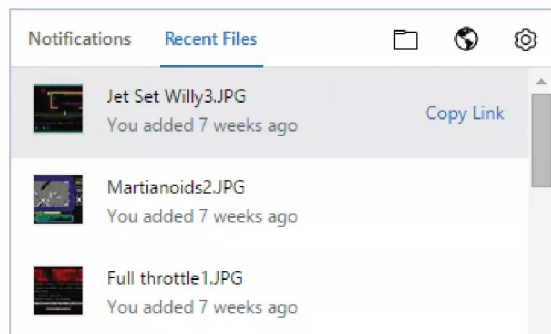
STEP 7

If you find yourself running low on space, head over to www.dropbox.com/getspace. This page will detail the amount of storage space you have and how you can earn more. Earning extra space doesn't always mean signing up and paying for the business account. There are some bonuses you can earn.



STEP 10

The Dropbox icon in the taskbar is able to display any notifications, the files within your area or shared folders and it can take you directly to the local Dropbox folder or the web-based portal. You can even upgrade and create links to individual files from within it.





How to Use Dropbox Sharing

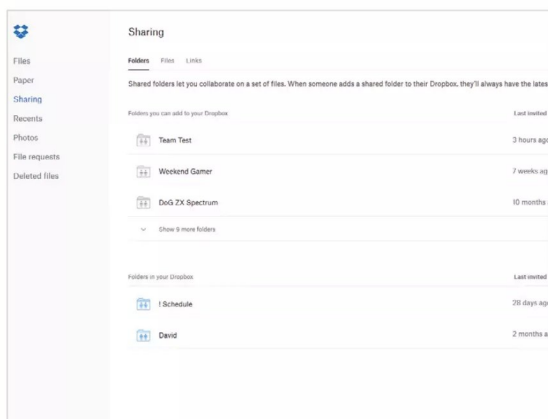
Cross organisation projects and sharing files and folders with friends and family members is one of Dropbox's key features. It's something that Dropbox has worked on to make as easy as possible; removing the previous Team link and focusing instead on consumer-level sharing.

TEAM CLOUDS

Using Dropbox Sharing is remarkably easy. It's quick to set up, simple to understand and implement and yet can be quite powerful when used with other members.

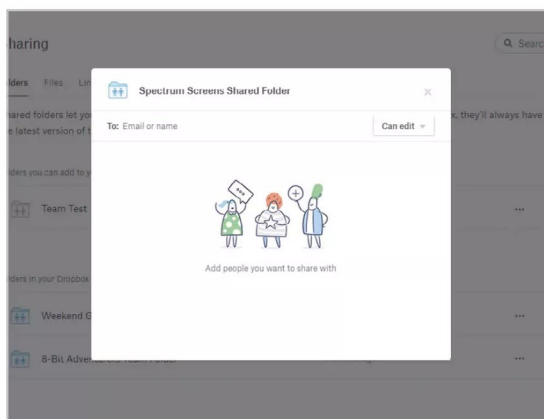
STEP 1

To get started with Dropbox Sharing, locate and click on the Sharing link in the Dropbox interface sidebar. This will launch the currently shared files and folders set up page, with some brief but handy feature information.



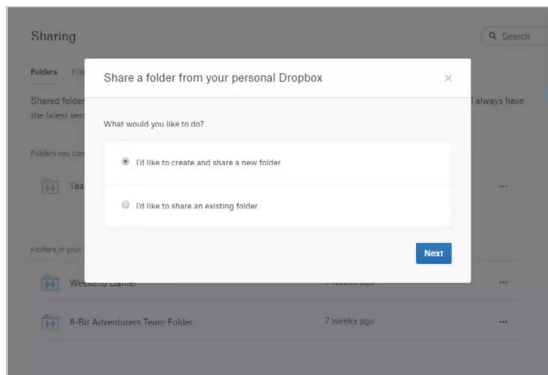
STEP 3

You'll need to name the new folder to begin with. Remember to give it a logical name, as others who you share with will be able to identify it when the email comes through telling them that they're now a part of a shared folder group.



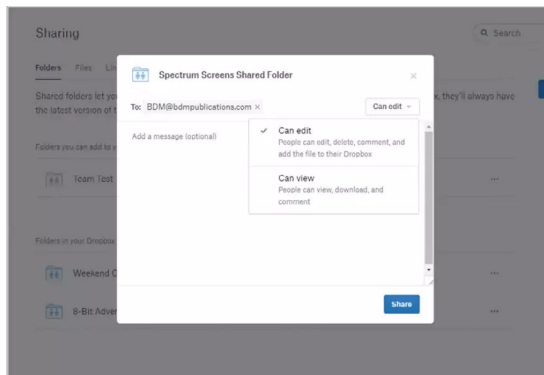
STEP 2

Let's start by creating a new folder that will be shared with others. Click the blue button to the right of the screen labelled Create Shared Folder. This will open a pop-up box offering two options, 'Create and share a new folder' and 'Share an existing folder'. For now, make sure the first option is highlighted and select Next.



STEP 4

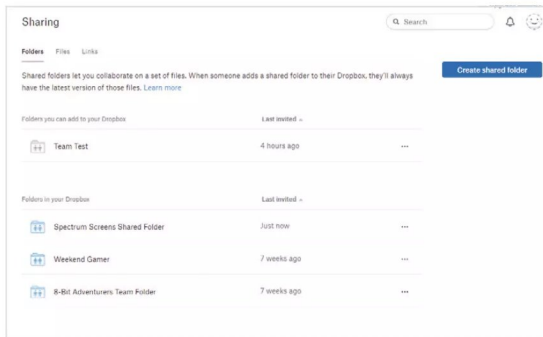
Under the folder name, enter the email addresses of the people who you want to share the folder with; you can also just enter their names if you've signed up for Dropbox via Google, as it will use your Google account address book. You can also click the Can Edit button to the side and detail the user's access levels.





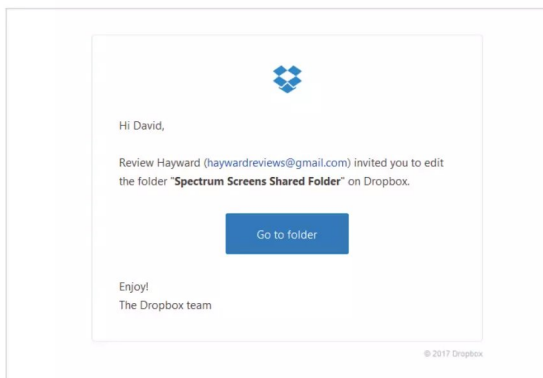
STEP 5

If you want you can enter a message in the lower section of the folder creation window; it's not necessary but courteous to those you're inviting to share it with. When you're done, click the Share button to create the folder and automatically let Dropbox send off the email invitations.



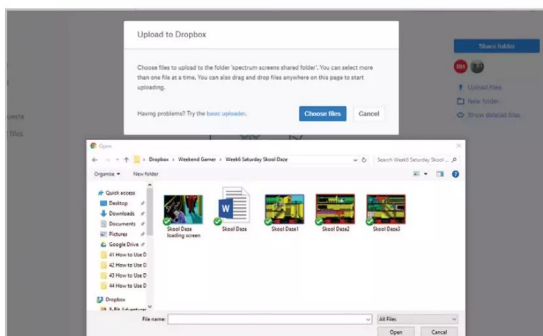
STEP 6

Members that you've chosen to be a part of the shared folder will now receive their invitation email. It will state who created the share and its name and add a button for them to click to be redirected in a new browser tab to the shared folder location.



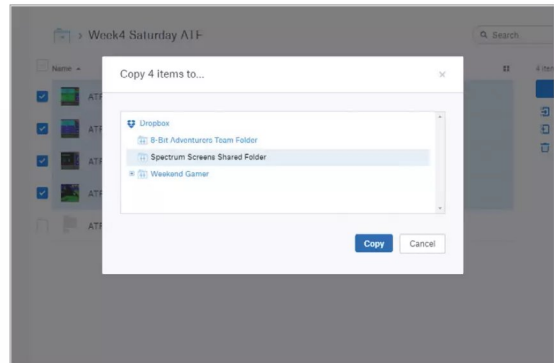
STEP 7

Now everyone has access, you can begin to populate the new folder. You can drag and drop, or use the Upload files option to the right of the screen to add content. Likewise, the other members of the shared folder can do the same, although not those who have only been selected with View access levels.



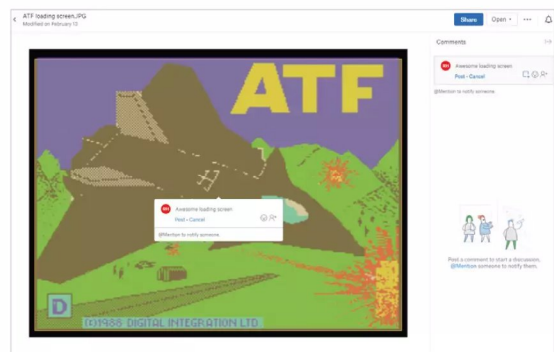
STEP 8

If you have any existing files or folders in your Dropbox store, you can tick the boxes next to them followed by the Copy link to the right. Then, highlight the newly created shared folder and the Copy button to transfer the selected content to the shared folder.



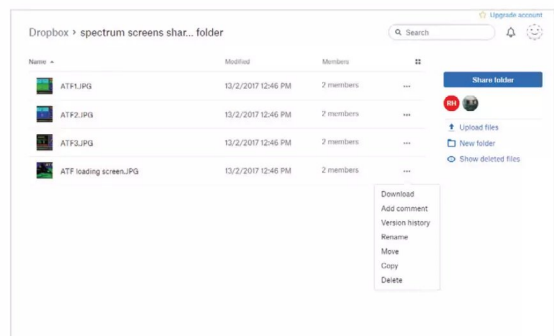
STEP 9

Obviously the great benefit of sharing files and folders is that you and your colleagues are able to collaborate on the content. For example, click on the files you've copied into your new shared folder. To the right you can enter Comments for sections of words, or even on images.



STEP 10

To assist those who frequently view and edit files within a shared folder, you can click the three full stops to the right of a file and then you're able to view the file's Version History. This will give you a breakdown of what edits, comments and alterations have been applied since the file was uploaded to the folder.







Apple iCloud – In Focus

The Cupertino company has invested countless millions into bringing one of the best cloud-based services to the consumer. Apple's cloud technology and integration, with its operating systems and devices, is really quite remarkable.

Here's how to use some of the great features available to Apple owners.





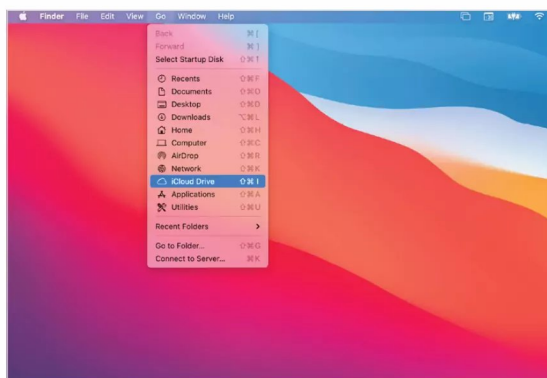
The iCloud Service for Storage & Syncing

iCloud is Apple's foothold in the modern cloud services market. It's robust, features excellent georedundancy (meaning if an iCloud server goes down, there's another somewhere in the world to pick up) and is more than capable to handle the average user's needs.

STORING YOUR DOCUMENTS IN iCloud

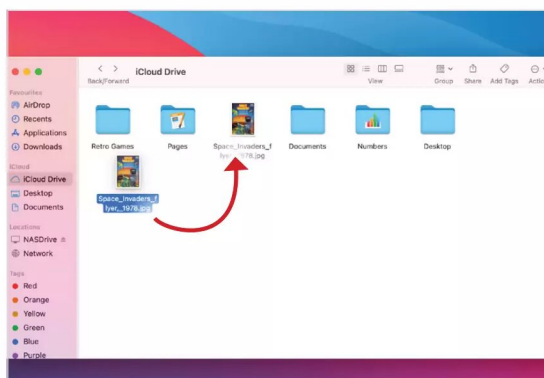
STEP 1

Click on your desktop to open Finder, then open iCloud Drive from the Go menu. You may need to log into iCloud using your Apple ID. You'll see a Finder window showing the contents of your iCloud drive folder, with folders for some apps that store output in iCloud.



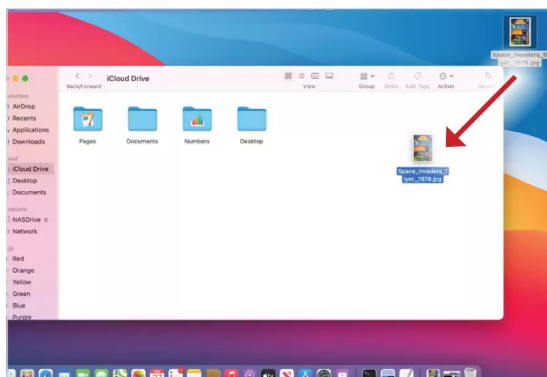
STEP 3

You can organise your iCloud folder like any other folder, including creating new folders within it. To move files into a new folder in your iCloud Drive, just drag and drop them to where you want them, just like you would with any other Finder folder.



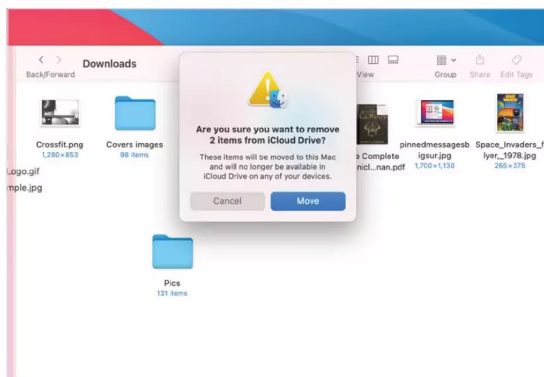
STEP 2

To save files of any type into your iCloud Drive folder, simply drag them from their current location (in this screenshot, that's the desktop) and drop them in the open iCloud window. They are now stored remotely and accessible from any connected Apple device.



STEP 4

To move files out of iCloud storage and back to your hard drive, drag them out of the iCloud folder and onto your desktop or into a folder that isn't in your iCloud Drive. Confirm the move when you're asked to and the files are removed from your iCloud storage.

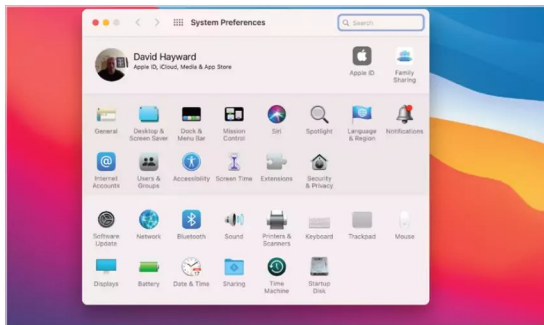




FIND MY MAC

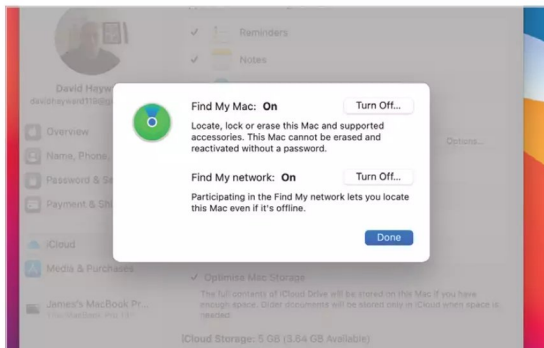
STEP 1

Find My Mac is an excellent feature that could help you find a lost or stolen Mac, as long as it has recently been connected to the Internet. First of all, you must set it up. Open System Preferences, either from the Apple menu, Dock or Launchpad.



STEP 2

Click the Apple ID preference pane and then the iCloud option in the left-hand toolbar. If you aren't already signed in, do so now. In the right-hand column, make sure the Find My Mac option is ticked. Click Options and make sure Find My Mac and Find My Network are both on.



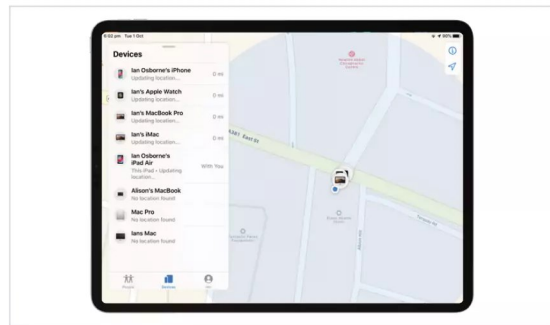
STEP 3

To locate a stolen or mislaid Mac using an iPhone or iPad, open the Find My app, or Find My iPhone if you're using iOS 12 or earlier. Again, you need to be signed into iCloud, with the same ID as the Mac you're trying to locate. You can use this app to find other types of Apple devices too.



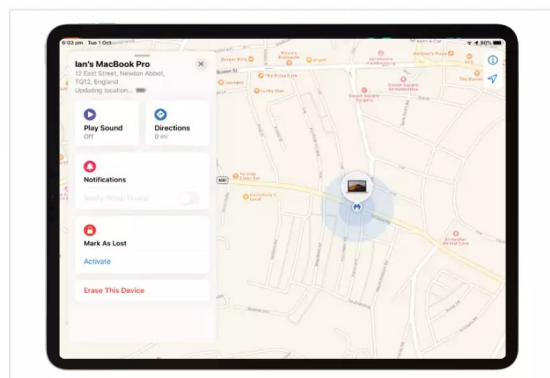
STEP 4

Tap the Devices icon in the bottom left corner and you're shown a list of Apple devices signed into the same Apple ID as the device you're using. The list is shown down the left-hand side. Tap an item to show its current location on the map.



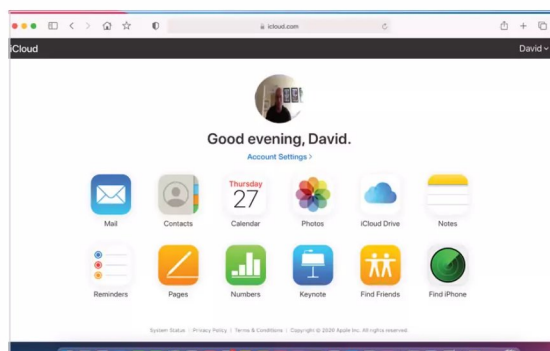
STEP 5

Tap a device on the map for more options. Tapping a device that can't be located in the sidebar also gives you these options. You can make the device play a sound, lock it or wipe it remotely. If it's not located, you can get a notification next time it goes online.



STEP 6

You can also use Find My Mac from any device with a web browser and an Internet connection. Just go to www.icloud.com and sign in with your Apple ID. On the menu screen click on Find My iPhone and then use it just like you do on your iOS devices.

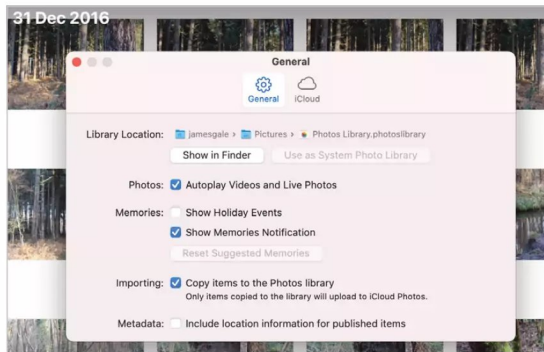




iCLOUD PHOTOS

STEP 1

To enable iCloud Photo Library on your Mac, first of all, open the Photos app and in the Photos pull-down menu, select Preferences as shown, to get the Preferences window.



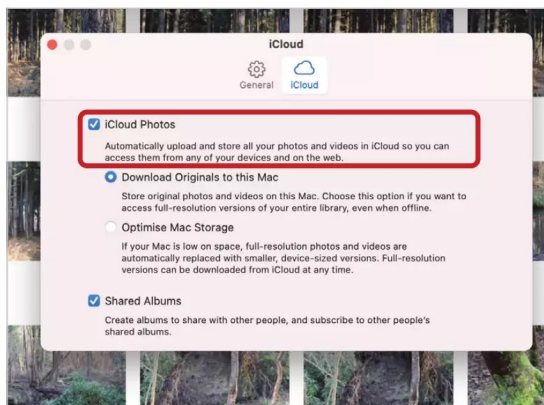
STEP 3

You can choose between 'Download Originals to this Mac', to keep a backup copy of your library on your Mac, and 'Optimise Mac Storage' to leave it all on the cloud.



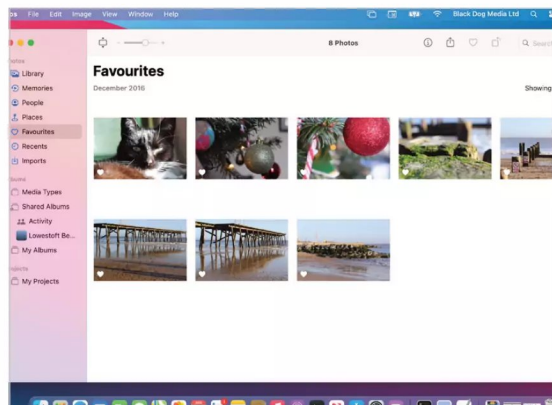
STEP 2

In the Preferences window, click on iCloud and then check the box labelled iCloud Photos. Your photos are uploaded to your iCloud. This may take some time.



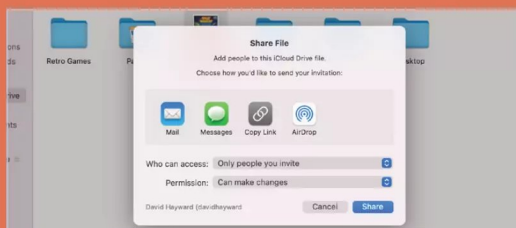
STEP 4

Now do the same on any other Macs you have. Any duplicates should be resolved by iCloud as you go. Naturally, you only need a backup of your library on one Mac.



SHARING AN iCLOUD FILE

You can share a file in your iCloud Drive just by sending someone a link. Right or Ctrl-Click on the file and select Share > Add People. From the window that pops up, choose a means of sending the link. You can select whether the people to whom you send the link can make changes to the file, or only view it.



STEP 5

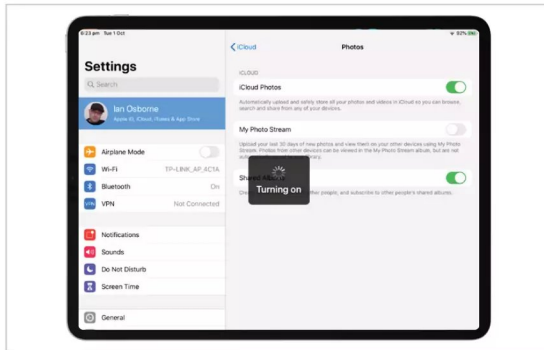
To sync your iOS device's Photos app with your iCloud Photo Library, first open the Settings app from the Home screen. It's the one that looks like a machine cog.





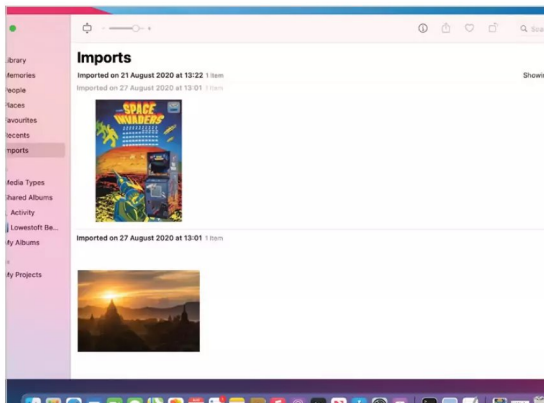
STEP 6

Click your name at the top of the left column, then iCloud in the right. Click Photos, and switch on iCloud Photo Library to enable syncing, and upload your device's photos to iCloud.



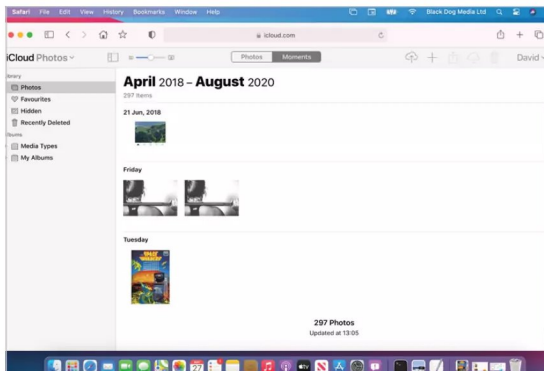
STEP 7

All your photos are shown as thumbnails and you can select and import them. Here you can see a collection of photos imported to our Mac using iCloud Photo Library.



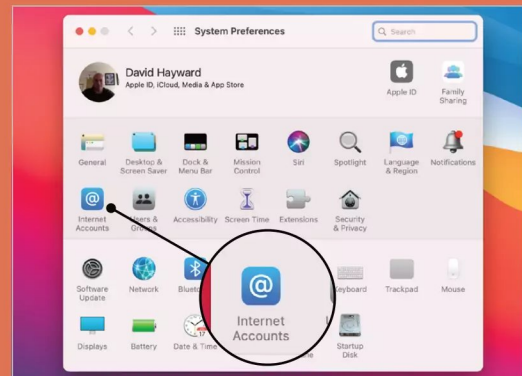
STEP 8

You can also review your photos from any computer with a web browser. Just go to www.icloud.com, log into your iCloud account and open the Photos web application.

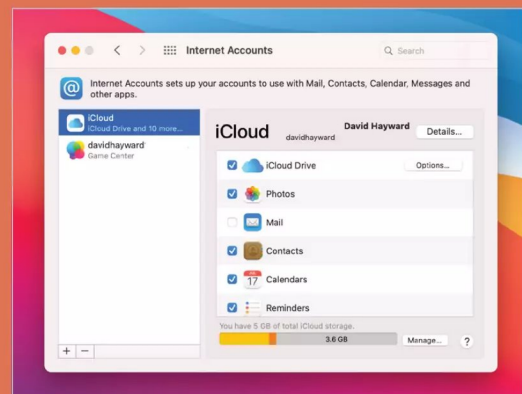


SYNCING APPS IN iCloud

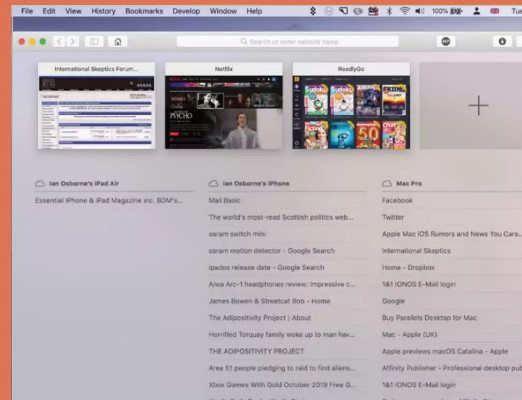
You can sync apps such as Mail, Contacts and Notes in iCloud, so edits made on one device also appear on others.



Open System Preferences, through the Apple menu, the Dock or the Applications Folder. It doesn't matter which. Click on Internet Accounts, which is next to the iCloud icon.



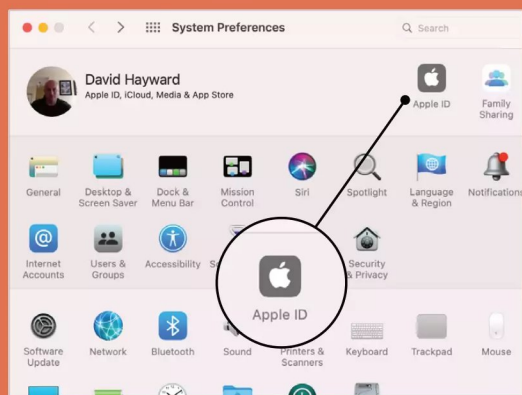
Click on the iCloud option in the left sidebar to see which apps are currently set to sync via your iCloud account. If any are unticked that you want to sync, tick them.



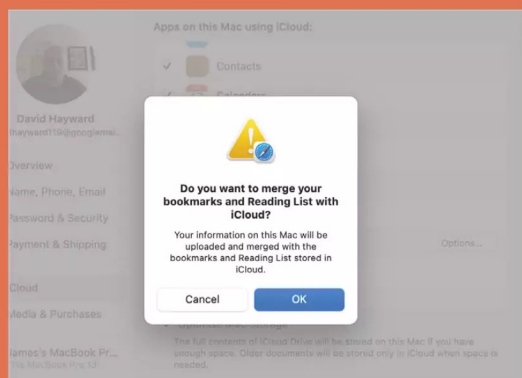
Your chosen apps are now synchronised across all your Apple devices signed into the same iCloud account, as long as those devices are also set to sync the same data.



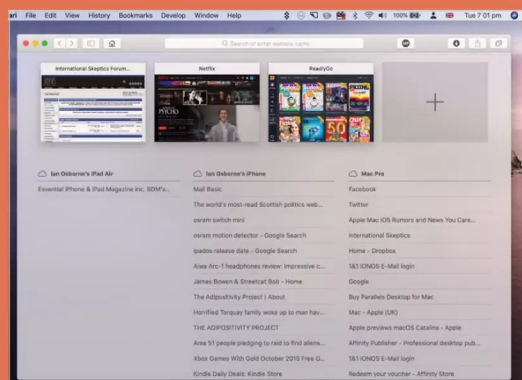
SAFARI IN iCloud



To let iCloud share all your information from Safari across your devices, first of all, open System Preferences and click on the Apple ID icon in the top row. Now click on iCloud in the left-hand sidebar.



Find Safari and check its checkbox. You can now access your bookmarks and reading list on your other Apple devices, as long as they're linked to the same iCloud account and also have Safari ticked. Click OK to merge information, should the box appear.

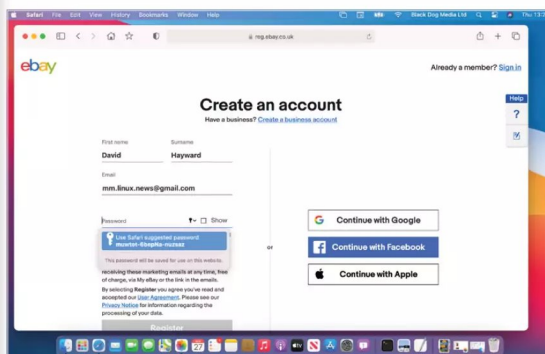


If you have tabs open in Safari on another Mac or iOS device, you can access them on your Mac via the cloud. In Safari, click the tabs icon (top right) and scroll down to see your other devices' open tabs.

iCLOUD KEYCHAIN

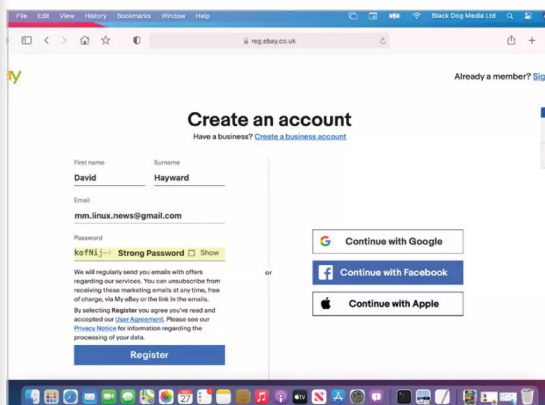
STEP 1

When you sign up for an account on a website in Safari, maybe to join a forum or register for a newsletter, Safari suggests a password to use. You can use that password at the click of a button.



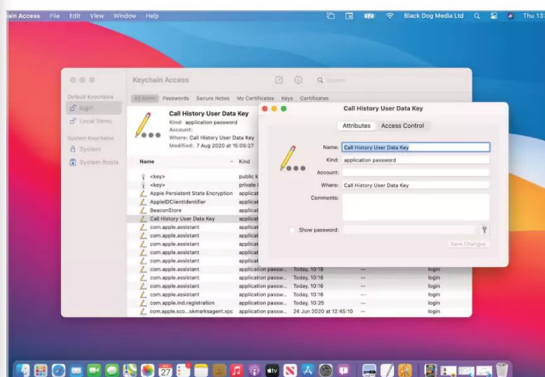
STEP 2

It's then saved to your iCloud Keychain and synced across your Apple devices. If you ever need to see your password, open the Keychain Access app (it's in the Applications > Utilities folder).



STEP 3

Find and double-click on the account you wish to view, then in the pop-up window, click the Show Password box. Type your admin password in the next window and the password is shown.

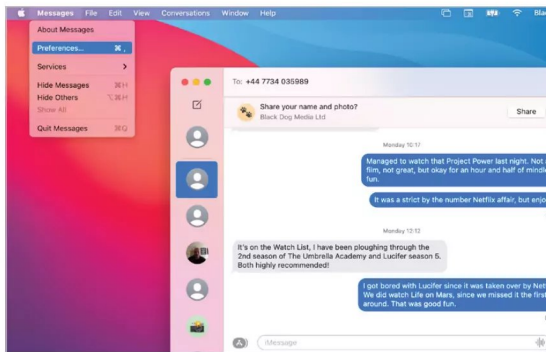




MESSAGES IN iCloud

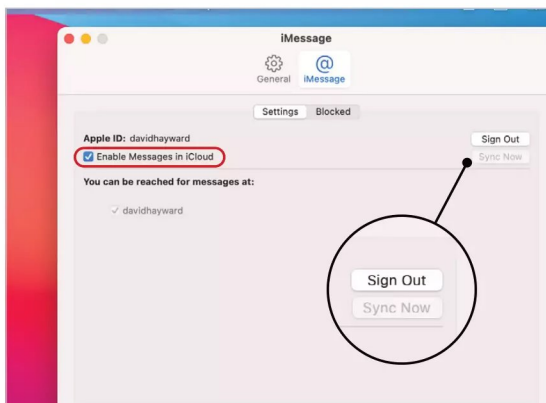
STEP 1

Since macOS Catalina and the newest iPad's operating system, Messages can be synced over iCloud. To activate this on your Mac, open Messages. Under the Messages menu, select Preferences.



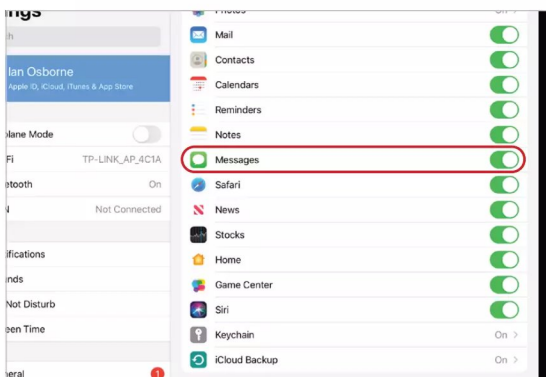
STEP 2

In the Preferences window, click on the Accounts tab at the top of the window. Make sure Enable Messages in iCloud is checked. You can sync your messages from here by pressing the Sync Now button.

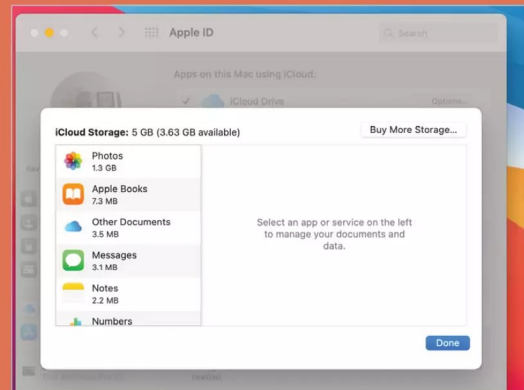


STEP 3

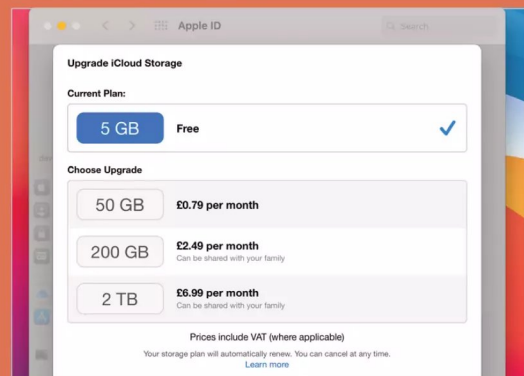
On an iPad or iPhone, go to Settings > [Your name] > iCloud, and make sure Messages is switched on. Your messages are now stored on iCloud and synced between all your Macs and iOS devices.



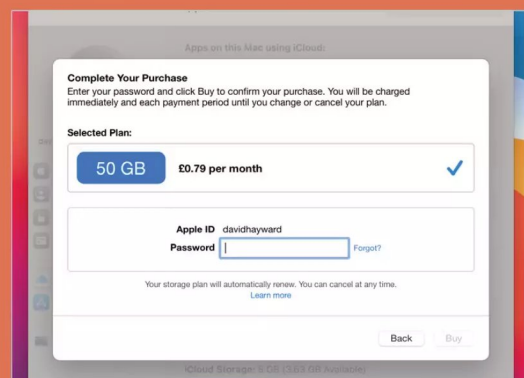
UPGRADE YOUR iCloud DRIVE



To upgrade your iCloud storage, go to System Preferences > Apple ID > iCloud. Click the Manage button (bottom right). From the next screen, you can delete documents and data from your iCloud if you wish.



Click Buy More Storage, in the top right. On the next screen, you're shown your current plan and options to upgrade for a higher monthly fee. Click on one to choose and click Next.



You'll need to ensure that the amount per month is available from your Apple account or else you may end up losing access to the newly purchased storage plan.

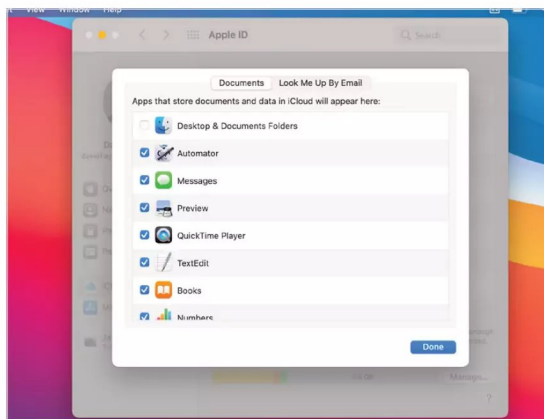


iCloud Desktop Documents & Folders

With macOS, iOS and iPadOS, you can not only store your documents on iCloud but also files and folders that are found on your desktop. It's done automatically, so a file on your Mac's desktop is accessible from your mobile device and other Macs.

STEP 1

To switch on iCloud Desktop Documents and Folders on your Mac, open System Preferences and click on Apple ID > iCloud. Click on the Options button next to iCloud Drive and then check the box next to Desktop & Documents Folders. It may take time to set up.



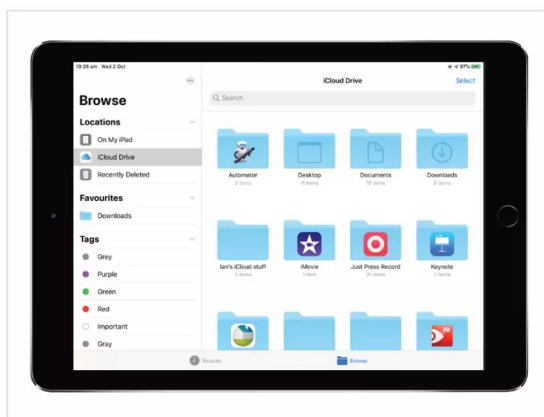
STEP 3

Documents and data on your Mac's desktop can now be accessed through the iCloud Drive folder of any Mac, iPad or iOS device signed into the same iCloud account. All Macs must be running at least High Sierra and all iOS devices must have iOS 10 or later.



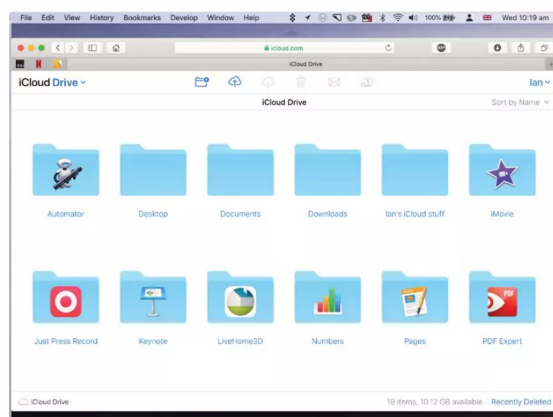
STEP 2

On iPadOS or iOS open the Files app, or the iCloud Drive app if you're using an old version of iOS. Under the iCloud Drive option, there are folders called Desktop and Documents. These contain all files currently stored on your Mac's desktop or Documents folder.



STEP 4

You can also access your Desktop documents and folders using the website. Just point your browser at www.icloud.com and sign in. Open the iCloud Drive and the Desktop folder is there. You can do this on any Internet-capable device.





The Future of iCloud

Apple's iCloud has improved significantly over the years and is now considered one of the leading examples of cloud technologies. As we've already seen, the service encompasses everything an Apple user does, but what could be in store for iCloud in the coming years?

Apple is going to be investing a considerable amount of time throughout 2020, upgrading its leading products, including the likes of tvOS 14 and newer versions of macOS. The iPhone 12, due for release later in 2020, will see significant improvements in AR experiences, and more. There's also the rumour of an updated Apple TV, or Set-Top Box, which would make for some interesting predictions of how iCloud will function in the future.



APPLE TV AND iCloud

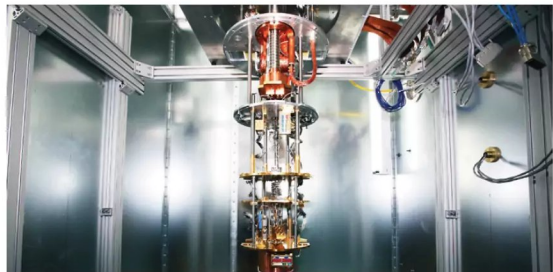
Launched in November 2019, Apple TV Plus is Apple's video-on-demand service equivalent to Netflix. The launch of Disney+ around the same time did put something of a dampener on the Apple TV Plus launch, but the service is strong enough to compete, and there's some exciting content already available.



Of course, all this content is coming from the Apple cloud servers, streaming via the company's former Project Pie servers that are designed for increased speed and operated more directly by Apple - despite most of the iCloud content being hosted on Amazon Web Services and Microsoft Azure platforms.

Now based in Foulum in Denmark, Apple's newest datacentre outside of the U.S. is helping to boost the content of not just Apple TV Plus, but also host millions of iCloud user's data. It's also worth noting that the main draw of the energy requirement for Apple's server farms comes from renewable energy sources, such as wind farms off the coast of Denmark, with more renewable sources being part-funded by Apple for Denmark in 2030.

QUANTUM COMPUTING



It's also rumoured that Apple is looking into the newest wave of quantum computing experiments. A recent announcement from a leaked Google paper indicated it had performed a form of calculation previously thought impossible on even the most powerful modern supercomputer.

Researchers achieved Quantum Supremacy, which, in layman's terms, means a calculation that would have taken a supercomputer 10,000 years to perform, took a new generation quantum computer just 200 seconds.

Apple's interest, therefore, is justified. If the new generation of quantum computing servers can handle these kinds of calculations, then sorting and shifting data to millions of users, as well as containing and serving next-gen Augmented Reality, is a cinch.



Cloud Technologies: Artificial Intelligence

AI, Artificial Intelligence, has evolved significantly over the last decade. Where once it was perceived as something we'd probably only achieve in the next hundred years or so, it's now believed that true AI is, in all likelihood, just a few years away. And despite that scaring the socks off many futurists, it may astonish you to discover that AI is already here.

If you're able, pick up your phone, activate it, and ask either Siri or the Google Assistant a simple question. Now ask it a more complicated question. You've just talked to an AI system designed to listen out for your voice, analyse what's being asked and respond to it in an appropriate fashion. Significantly, it also learns from what's being asked.

The Google Assistant, Siri, Cortana, Alexa, and whatever else is available now, are all cloud-based natural language intelligent bots that use the complex computing capabilities of the cloud to provide a personalised consumer experience.

There are two sides to the AI coin: the intelligence side that, when asked something, knows what to do or can work out what needs to be done, and the learning side, that will actively retain knowledge and learn from each interaction with you. Both of these aspects are inherent to every intelligence bot, regardless of on which system they work. But AI is not limited to just chatbots who interface with you.

THE LEARNING MACHINE

Consider any search you conduct via the Internet or some form of database. Regardless of whether it's a search for artists on Spotify; the latest fashion from the website of a high street store, or electrical goods from Amazon, each search employs a level of AI to help form the results. Machine learning is also employed to predict further what you might require, and present advertising for products in which you may be interested based on your past views and searches.

Facebook and YouTube are at the forefront of this type of AI, a search in YouTube for Christmas adverts from the 80s, brings up suggestions for past episodes of popular TV programs from the 70s and 80s. While random searches through a friend's timeline can result in Facebook displaying a list of potential friends, or even products, that your friends

have looked up via the Facebook Marketplace.

It's all about using data analytics to create a prediction profile for a user. Whether that customer uses a set of recurring websites, buys the same products from the supermarket, or watches the same content day in and day out. AI can build a profile of that customer, then target other sites, products, music, videos and so on that's not too dissimilar from what they're used to consuming. Occasionally, the AI spits out something new that's outside of the user's regular requests, to gauge how the user responds. A positive response builds on the profile and leads to more areas of advertising and suggestion, whereas a negative response forces the AI to rethink and perhaps include something else further down the line.





CLOUD AI

The problem for companies who sell products, or monitor customers, is that the data sets created by billions of users worldwide are simply too large to manage. This is where the cloud comes in. Thanks to the data-intensive workloads a cloud service can handle, it's relatively easy for a company to design an AI report on its userbase, as combining the programming of the AI with the power of the cloud will enable the vast volume of information to become readable.

In fact, the global AI market is expected to grow to over \$200 billion by 2025, making it one of the fastest-growing markets in the world. Integrating AI into such a workflow is a challenge, but, with such growth, it's quickly becoming a market that appeals to programmers for offering better and more accurate AI solutions for companies.

IT'S NOT ALL BAD

Considering AI in light of gathering consumer data, it does come across somewhat ominous; like an all-seeing eye pervading everything we do, buy, look at, or interact with. Nevertheless, AI does help simplify a lot of tasks that would have taken months for a team of people to sift through.

Many of these AI projects include environmental issues, science and technology, engineering, education, and manufacturing. AI doesn't just worm its way into our lives and peep at our every move; it's also involved in helping to further technology and create a better environment.

Of course, we won't mention the two cloud-based AI created bots that went on to plan the demise of humanity before they were shut down.





Glossary of Cloud Terms

There are a number of confusing and bewildering terms used in technology, and, since the cloud became a real thing, those terms have expanded to encompass everything we do both online and in a cloud service.

CLEAR SKIES AHEAD

Here's a quick list of some of the terms you're likely to come across as you explore cloud technologies further. Needless to say, the industry loves its terminology, so expect many more as you delve deeper into this sphere.

AGILITY

Refers to the faster implementation of IT within a company, specifically cloud implementation; Often referenced when a company moves from in-house to cloud technologies particularly quickly.

AIRFRAME

An open-source cloud platform that targets businesses in the thinking stage of adopting a private cloud service model.

BACKUP AS A SERVICE

Another form of online mass storage; whereby a company can effectively back up its entire system's data to the cloud. This service is of interest to audits, as off-site backups are secure and safe from accidental damage.

BPaaS

Business Processes as a Service. The complete business process including HR, accounts, payroll, advertising, and so on, in a single cloud package from a Cloud Service Provider.

CLOUD

The Cloud, an online set of globally connected services, with which individuals and businesses can interact.

CLOUD BACKUP

Being able to back up your data to a cloud storage service; used by both consumer and businesses alike. Offers support for multiple platforms, operating systems (from computers to mobile devices) and even games consoles.

CLOUD BROKER

A company that liaises between several cloud service providers and clients to help find the best solution.

CLOUD BURST

A hybrid cloud-deployment feature, whereby a private cloud is able to utilise public cloud resources when demand for computing tasks spikes.

CLOUD INFRASTRUCTURE

The physical hardware, software and connectivity that makes up a cloud-based datacentre. The servers, apps, networking and so on.

CLOUD PYRAMIDS

A visualisation of a cloud providers infrastructure that shows, usually via colour coding, the services it offers on different platforms.

CLOUD SERVICE

The solution that's offered from a remote cloud server that can be storage, email and so on. And categorised as Private, Public or Hybrid.

CLOUD SERVICE PROVIDER

The company that provides cloud-based solutions such as storage, email, virtualisation and more. The company may or may not own its datacentre and cloud infrastructure.

CLOUD STORAGE

Online mass storage, housed on servers in datacentres, with quotas set for those who utilise the storage.



**CLUSTER**

A group of linked computers that work together as if they were a single computer, for high availability and or load balancing.

COMMUNICATIONS AS A SERVICE

Cloud-based telecoms, messaging and video conferencing services. The likes of Skype, Facebook and Twitter come under the CAAS heading.

DESKTOP AS A SERVICE

A form of cloud-based remote working, whereby a user can access their desktop from any Internet connected device, regardless of the device's operating system.

DATABASE AS A SERVICE

Cloud housed and driven database, freeing up the company's investment in in-house hardware and significantly lowering power costs.

DATA CENTRE

A self-sufficient building with specialised climate control housing lines of servers. The servers work in a cluster to provide the various cloud services.

ELASTICITY

The ability for a cloud service to expand or retract its services, depending on the demand to its servers.

EC2

Amazon's Elastic Compute Cloud. A web service that provides Elasticity capacity in the cloud, designed to make working with web-scale computing easier for developers.

GAMING AS A SERVICE

Cloud-driven gaming servers that host games for multiple platforms: PC, PS4, Xbox, etc. and provide unique gamer-specific rewards, trophies and events.

HYBRID CLOUDS

A cloud service that uses public and private clouds, as well as in-house hardware, to provide cloud services.

HOSTED APPLICATIONS

A web-based application that runs on a remote server, hosted in the cloud. The same as Software as a Service.

INFRASTRUCTURE AS A SERVICE

A cloud model that provides users with a virtual server and network. The online server can be accessed from any Internet-connected device.

MOBILE CLOUD STORAGE

Simply a service designed to house mobile data storage for an individual or business.

NIST

National Institute of Standards and Technology. Founded in 1901, NIST provides standards for most electronic and digital services.

PLATFORM AS A SERVICE

A cloud model that provides developers with a coding platform to programme new apps. The platforms can be any operating system, offering greater scope for multi-OS app development.

PUBLIC CLOUD

A cloud service, available to everyone, that provides everything from email and storage, to virtualisation and collaboration.

PRIVATE CLOUD

A cloud service that's managed by a single business, providing the same duties as a public cloud but having exclusive access to the business only.

SOFTWARE AS A SERVICE

A cloud model that provides online access to software such as productivity apps, email etc.

SERVICE MIGRATION

The act of moving all your company, or individual, data from one cloud service to another. Can also mean moving from all in-house to a cloud-based service provider.

VIRTUALISATION

Creates an image of an operating system on virtual hardware. Users can create virtual machines for any hardware type, on which they can develop or test programs.

VPC

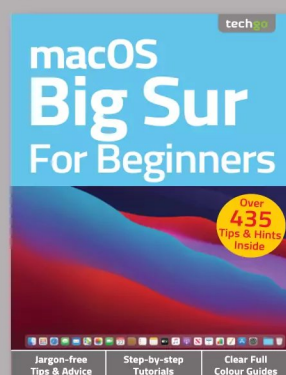
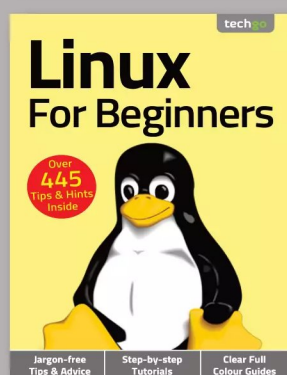
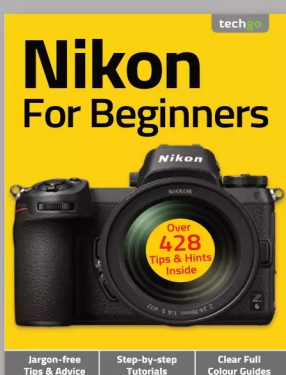
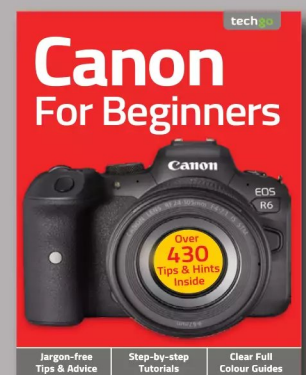
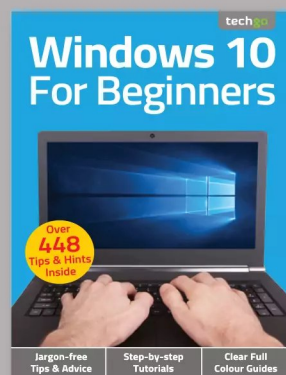
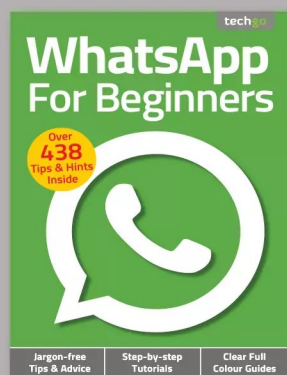
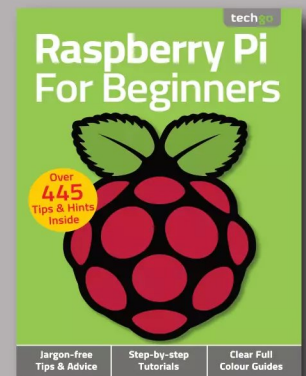
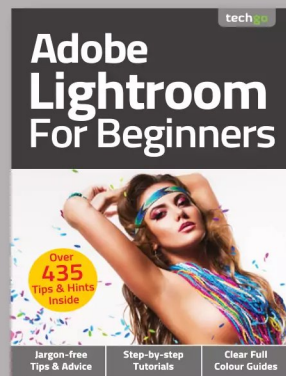
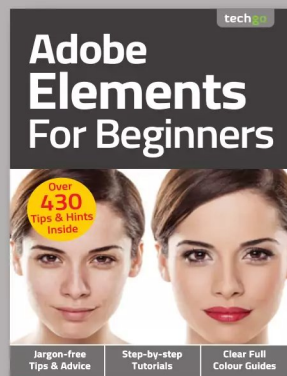
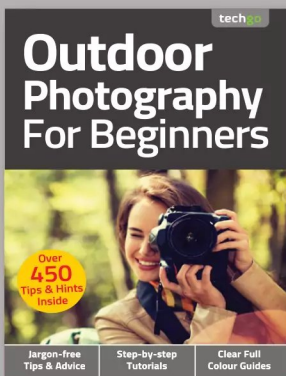
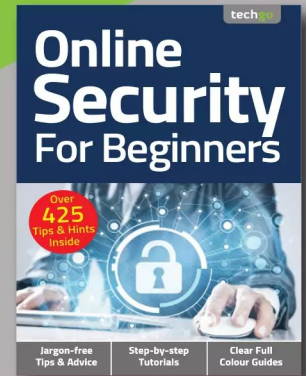
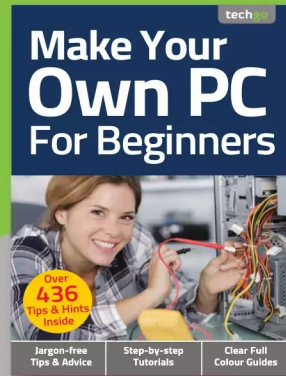
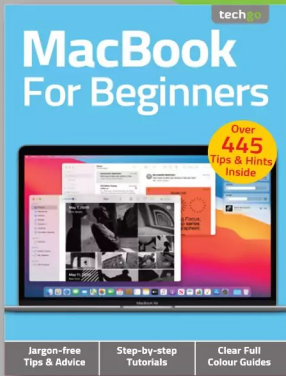
Virtual Private Cloud. A private cloud that exists within a shared or public cloud. Such as a company's private cloud hosted within Amazon's EC2.

Now you've got the basics down, you can improve and learn more essential skills in our next guide...

Cloud Computing Tricks and Tips

Coming soon!

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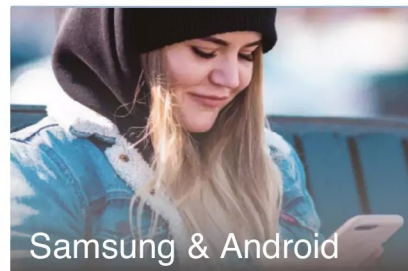
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