




Computers and Stuff.


Sam Houliston.

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Run the Command Prompt as Administrator.

A lot of commands you want to perform on your PC computer will only work if you tell the computer you are the administrator. You can open a Command Prompt (used to be called the Dos Prompt and it looks like this: **C:\>**) both as a normal user and as the Administrator (which is also called the Elevated Command Prompt) quite easily under Windows 10 machines, all you do is **right** click the old start button down the bottom left (Now which looks like this ) and up will pop the window at right, you just then select the one you want. Simple!!

Windows XP, 7 and Vista is a little bit different, though just as easy. First up, click on the Start button (bottom left) click **All Programs**, then **Accessories**, right click **Command Prompt** then left click **Run as Administrator**.

Windows 8 is different again but just as easy. Hold down the Win Key  and press **X**. This will open a window from which you can select either Command Prompt or Command Prompt (Admin).



Take my advice — I'm not using it.

What's the difference between FAT32, exFAT, and NTFS?

If you're a PC user and you're formatting an



internal drive, external drive, USB flash drive, or SD card, Windows will give you the choice of using either NTFS, FAT32, or exFAT.

What does all that mean?

FAT32 is an older file system that's largely relegated to USB flash drives and other external drives. Windows now uses NTFS for its system drive and it's also ideal for other internal drives. exFAT is a modern replacement for FAT32, and more devices support it than do NTFS, although it's not as widespread as FAT32.

(FAT stands for File Allocation Table, exFAT stands for Extended File Allocation Table while NTFS stands for New Technology File System.)

FAT32

FAT32 is the oldest file system of the three. It was introduced all the way back in Windows 95 to replace the older FAT16 file system. This file system's age has advantages and disadvantages. Because it's so old, it's the de-facto standard. Flash drives you purchase will often come formatted with FAT32 for maximum compatibility. FAT works with all versions of Windows, Mac, Linux, game consoles and practically anything with a USB port.

Limitations come with that age, however. Individual files on a FAT32 drive can't be over 4 GB in size — that's the maximum. A FAT32 partition must also be less than 8 TB, which, although is less of a limitation, it is still a noticeable one if you have a new, high-capacity mechanical drive. While this file system is okay for USB flash drives and other external media, you won't want to use it for an internal drive. It lacks the permissions and other security features built into the more modern NTFS file system. Modern versions of Windows can no longer be installed to FAT32, and must be installed onto drives formatted with NTFS.



ExFat

exFAT is a file system optimized for large flash memory such as USB flash drives and SD cards. exFAT can be used where the NTFS file system is not a feasible solution yet the file size limit of the standard FAT32 file system is unacceptable. exFAT has been adopted by the SD Card Association as the default file system for SDXC cards larger than 32 GB.

It was introduced in 2006 as part of Windows CE 6.0, an embedded Windows operating system targeted to operate specific tools such as industrial controllers and consumer electronics devices like digital cameras, modern flat panel TVs, media centres, and portable media players.

The entire File Allocation Table (FAT) family, exFAT included, is used for embedded systems because it is lightweight and is better suited for solutions that have low memory and low power requirements. As exFAT allows individual files larger than 4 GB, it allows long continuous recording of HD video which can exceed the 4 GB limit in less than an hour. Current digital cameras using FAT32 break the video files into multiple segments of approximately 2 or 4 GB. With the increase of capacity and the increase of data being transferred, the write operation needs to be made more efficient.

NTFS

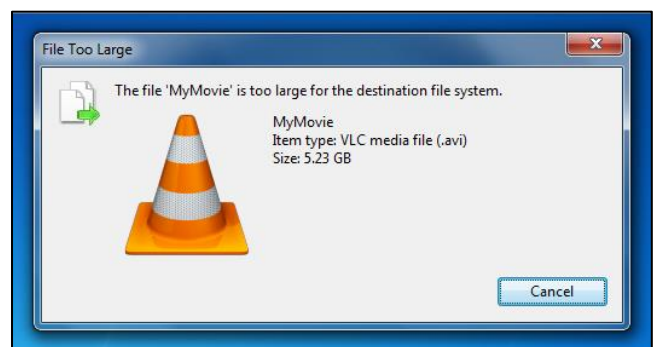
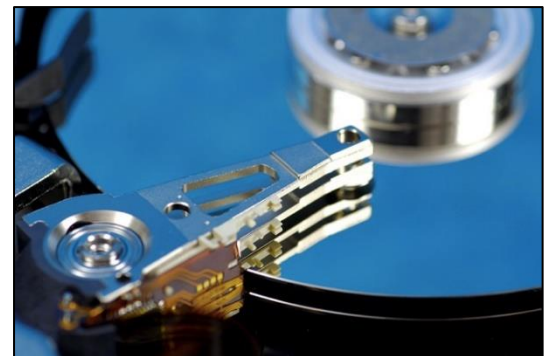
NTFS is the modern file system Windows likes to use and first appeared in consumer versions of Windows with Windows XP. Today when you install Windows, it formats your system drive with the NTFS file system which has file size and partition size limits that are so theoretically huge you won't run up against them.

Aside from these limitations, NTFS is packed with other modern features. It supports file permissions for security, a change journal that can help quickly recover errors if your computer crashes, shadow copies for backups, encryption, disk quota limits, hard links, and other various features. Many of these are crucial for an operating system drive, especially file permissions. Your Windows system partition must be NTFS. If you have a secondary drive alongside Windows and you plan on installing programs to it, you should probably go ahead and make it NTFS, too.

However, NTFS just isn't as compatible with other operating systems. It'll work with all recent versions of Windows, all the way back to Windows XP, but it has limited compatibility with other operating systems. By default, Mac OS X can only read NTFS drives, not write to them. Some Linux distributions may enable NTFS writing support, but some may be read-only. None of Sony's PlayStation consoles support NTFS. Even Microsoft's own Xbox 360 can't read NTFS drives, although the new Xbox One can. Other devices are even less likely to support NTFS.

Microsoft created NTFS to improve on FAT32 in a variety of different ways. To understand why Windows uses NTFS, we have to look at the problems with FAT32 and how NTFS fixed them:

FAT32 only supported individual files up to 4GB in size and volumes up to 2TB in size. For



example, if you had a large video file over 4GB in size, you just couldn't save it on the FAT32 file system. If you try, you'll get an error like this.

If you had a 3TB drive and they are becoming common these days, there is no way you can format it as a single FAT32 partition. And another thing! FAT32 isn't a journaling file system, which means that file system corruption can happen much more easily. NTFS changes, on the other hand, are logged to a "journal" on the drive before they're actually made. If the computer loses power in the middle of a file being written, the system won't need a long scandisk operation to recover – and that's a big improvement.

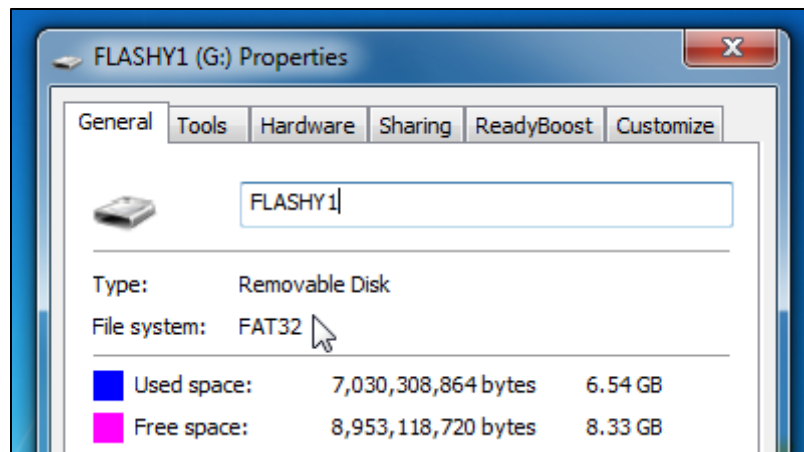
So, if Microsoft's Windows XP started using the NTFS file system by default for its internal drives back in 2001, why now 15 years later, are USB sticks, and SD cards, and other removable drives still using FAT32? While you can format these drives with a different file system like NTFS, you'll probably want to leave them formatted with FAT32.

Here's why!

- Your USB stick or SD card will definitely be under 2TB in size, so you don't need to worry about the upper limit. You may occasionally want to copy a file over 4GB in size to the drive — that's the one situation where you might want to format the drive as NTFS.
- Your removable drive doesn't need journaling like a system drive does. In fact, journaling could just result in additional writes that could reduce the life of the drive's flash memory.
- The device doesn't need file permissions either. In fact, these can cause problems when moving removable devices between different machines. For example, the files might be set to only be accessible by a specific user ID number. This would work fine if the drive stayed inside your computer, however, if this was a removable hard drive that you moved to another computer, anyone with that user ID on the other computer could then access the files. In this case, file permissions don't really add security — just additional complexity.

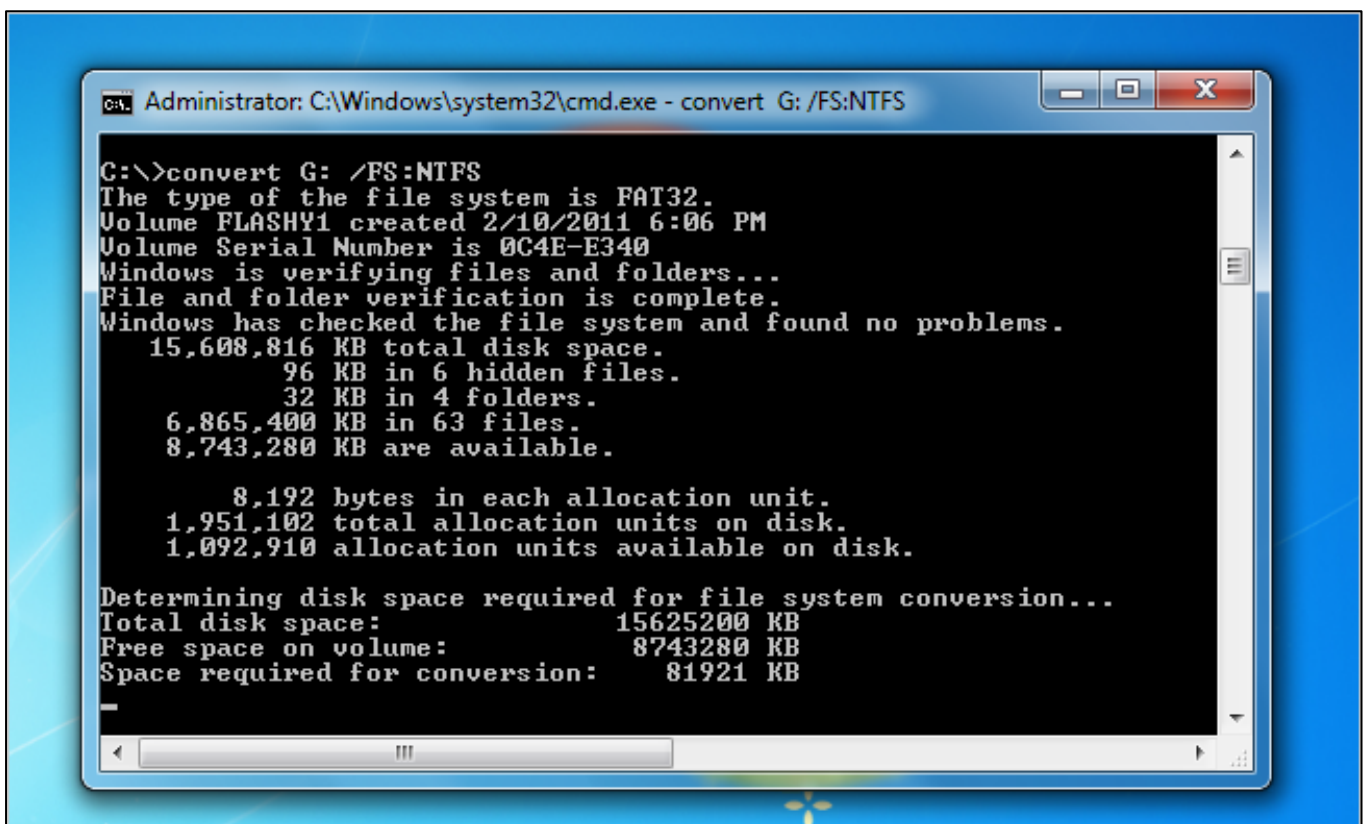
How to Convert a Hard Drive or Flash Drive from FAT32 to NTFS Format

If you've got an older computer which is still running FAT32 file system and which you've updated to the Windows 7 operating system (if it's too old you won't get 10 to run on it) you really should upgrade the file system from FAT32 to NTFS. It's



relatively easy to do and quite safe – here's how.

If you've already got a ton of files on the drive and don't have the free space to move them around, you can convert the file system directly from FAT32 to NTFS. Just open up an Administrator mode command prompt (see above) and then type **Convert G: /FS:NTFS** (in our example, the drive letter is G):



```
Administrator: C:\Windows\system32\cmd.exe - convert G: /FS:NTFS

C:\>convert G: /FS:NTFS
The type of the file system is FAT32.
Volume FLASHY1 created 2/10/2011 6:06 PM
Volume Serial Number is 0C4E-E340
Windows is verifying files and folders...
File and folder verification is complete.
Windows has checked the file system and found no problems.
 15,608,816 KB total disk space.
   96 KB in 6 hidden files.
   32 KB in 4 folders.
 6,865,400 KB in 63 files.
 8,743,280 KB are available.

   8,192 bytes in each allocation unit.
 1,951,102 total allocation units on disk.
 1,092,910 allocation units available on disk.

Determining disk space required for file system conversion...
Total disk space:          15625200 KB
Free space on volume:      8743280 KB
Space required for conversion: 81921 KB
```

The conversion process might take a while, especially if you've got a really large drive.

I hate it when people use big words just to make themselves sound perspicacious.

File Permissions.

Up until Windows 7, Microsoft had a system of protecting its files which it called "Attributes". From Windows 95, all Windows files were either catalogued as below:



- **Archive:** When set, it indicates that the hosting file has changed since the last backup operation. Windows' file system sets this attribute on any file that has changed. Backup software then has the duty of clearing it upon a successful backup.
- **Hidden:** When set, indicates that the hosting file is hidden. MS-DOS commands like DIR and Windows apps like File Explorer do not show hidden files by default, unless asked to do so.
- **System:** When set, indicates that the hosting file is a critical system file that is necessary for the computer to operate properly. MS-DOS and Microsoft Windows use it to mark important system files. MS-DOS commands like DIR and Windows apps like File Explorer do not show system files by default even when hidden files are shown, unless asked to do so.
- **Read-only:** When set, indicates that a file should not be altered. Upon opening the file, the file system application programming interface ([API](#)) usually does not grant write permission to the requesting application, unless the application explicitly requests it. Read-only attributes on folders are usually ignored.

```
C:\>ATTRIB C:\FOLDER\TEST.TXT
A HR C:\FOLDER\Test.txt
C:\>_
```

As new versions of Windows came out, Microsoft has added to the inventory of available attributes on the NTFS file system, including but not limited to:

- **Compressed:** When set, Windows compresses the hosting file upon storage. For more information, see [NTFS § File compression](#).
- **Encrypted:** When set, Windows [encrypts](#) the hosting file upon storage to prevent unauthorized access. For more information, see [NTFS § Encryption](#).
- **Indexed:** When set, Indexing Service or Windows Search do not include the hosting file in their indexing operation.

In the old system, used by DOS, Windows 95, Windows 98, Windows 98 SE, and Windows Me there was a read-only attribute (R), but it could be set or unset on a file by any user or program, and therefore did not prevent him/her/it from changing/deleting the file. There was no permission in these systems which would prevent a user from reading a file.

With NTFS, Windows introduced use access control lists (ACLs) to administer a more complex and varied set of permissions. There are four categories (System, Owner, Group, and World) and four types of access permissions (Read, Write, Execute and Delete).

Hospitality is the art of making guests feel like they're at home when you wish they were.

To set, view, change, or remove permissions on files and folders.

- Right-click the file or folder for which you want to set permissions, click Properties, and then click the Security tab.
- Click Edit to open the Permissions for <Object> dialog box.

Do one of the following:

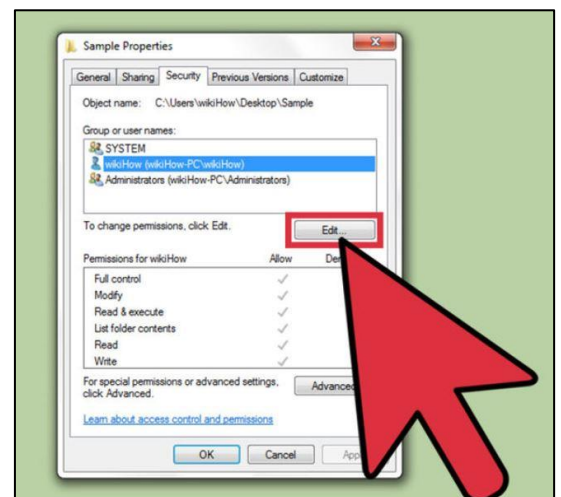
- To set permissions for a group or user that does not appear in the Group or user names box, click Add. Type the name of the group or user you want to set permissions for, and then click OK.
- To change or remove permissions from an existing group or user, click the name of the group or user.

Do one of the following:

- To allow or deny a permission, in the Permissions for <User or Group> box, select the Allow or Deny check box.
- To remove the group or user from the Group or user names box, click Remove.

Additional considerations

- For a description of all permissions, see [HERE](#).
- Performing this procedure might require you to elevate permissions through User Account Control.
- To open Windows (File) Explorer, click Start, point to All Programs, click Accessories, and then click Windows (File) Explorer.
- You can set file and folder permissions only on drives formatted to use NTFS.
- To change permissions, you must be the owner or have been granted permission to do so by the owner.
- Groups or users that are granted Full Control permission for a folder can delete files and subfolders within that folder, regardless of the permissions that protect the files and subfolders.
- If the check boxes under Permissions for <User or Group> are shaded or if the Remove button is unavailable, the file or folder has inherited permissions from the parent folder.
- When adding a new user or group, by default, this user or group will have Read & Execute, List Folder Contents, and Read permissions.





OneDrive, Dropbox, Google Drive and Box: Which cloud storage service is right for you?



Storing your files in the cloud has many advantages. You can view your files from any phone, tablet or computer that's connected to the Internet and the cloud can also provide backup for files so they'll never disappear if your phone gets lost or your computer crashes. Using the cloud is a no-brainer, but picking which service to use is a bit more difficult.

Following is a guide to the most popular cloud storage services, covering how they work and their strengths and weaknesses. There are also some lesser-known options if you want to get away from the mainstream.

Cloud storage comparison.

	OneDrive	Dropbox	Google Drive	Amazon Cloud Drive
File size restrictions?	10GB	10GB with website, none with Dropbox apps	5TB	2GB*
Free storage?	5GB**	2GB	15GB	No***
Can I earn extra free storage?	No**	Yes	No	No
Paid plans	\$2/month for 50GB**	\$10/month for 1TB	\$2/month 100GB, \$10/month for 1TB	\$12/year for unlimited photos, \$60/year for unlimited files
OS's supported	Windows, Mac, Android, iOS, Windows Phone	Windows, Mac, Linux, Android, iOS, Windows Phone, BlackBerry, Kindle Fire	Windows, Mac, Android, iOS	Windows, Mac, Android, iOS, Kindle Fire

* There is no file size limit with desktop apps.

** Microsoft will change its free storage from 15GB to 5GB and offer a \$2 per month for 50GB paid plan instead of its earlier offerings. It will also no longer let you earn free storage.

*** Amazon Cloud Drive offers limited free storage with an Amazon Prime subscription.



Apple's iCloud Drive is not included as the service is not available for Android and it's really meant to be used within the Apple ecosystem, meaning if you use Mac computers and iOS devices together. If you do use mostly Apple products, it's a solid choice for cloud storage. For a full run-down of its features, pricing and availability, click [HERE](#).

OneDrive.

First up is OneDrive, Microsoft's storage option. Those who use Windows 8 and 10 have OneDrive built into their operating system, where it shows up in the file explorer next to all of the files on your computer's hard drive. However, anyone can use it on the Web, by downloading a desktop app for Mac and earlier versions of Windows, or the OneDrive Android, iOS, Windows Phone and Xbox apps.



You can store any kind of file in the service, including photos, video and documents, and then access them from any of your Windows PCs or mobile devices. The service organizes your files by type for you, so it's easy to find what you need.

The Android, iOS and Windows Phone apps all have automatic photo uploads, meaning that when you shoot a photo with your phone, it's automatically saved to your account. OneDrive's biggest strength is that it works closely with Microsoft Office apps, such as Word or PowerPoint, so when you launch one of those applications you'll see a list of recent documents saved to OneDrive. If you have an Office 365 subscription and open a document saved in OneDrive, you can collaborate on it in real time with other people. You'll even be able to see the changes they make as they make them.

Microsoft is hoping that OneDrive will be the place where you store your photos, and the company is working on technology that will eventually sort all of the photos you take based on how important and meaningful they are. For instance, if you take a photo of your kids, a picture of a special meal and a shot of your parking space so you can find your car later, OneDrive would be able to understand the importance of each picture, save the ones it thinks are the most useful, and trash the rest. That's still big-picture stuff for OneDrive, but it gives you an idea of the direction Microsoft is moving in.

In late 2015, Microsoft made an announcement that it would no longer offer unlimited cloud storage to Office 365 subscribers. Instead, they are limited to 1TB. Additionally, beginning in early 2016, the 100GB and 200GB paid storage plans will be discontinued, replaced with a 50GB for \$1.99 per month plan. You will no longer get extra space if you allow the OneDrive apps to automatically backup photos on your phone. Finally, anyone with a Microsoft account will only get 5GB of free storage, instead of 15GB.

Where it excels:

- Works seamlessly with Windows devices because it's built in to the Windows operating system.
- It's easy to open and edit files from OneDrive in Microsoft's other applications, such as Word or Excel.

Signing up for OneDrive gets you a Microsoft account, which gives you access to Outlook, Xbox Live, and other Microsoft services.

Where it falls flat.

- OneDrive's automatic file organization doesn't always put files in the correct folders.

Best for:

- If you have a Windows PC, tablet and phone, and need to get to your files from any device with little effort.

Never tell your problems to anyone, because 20 percent don't care and the other 80 percent are glad you have them.

Dropbox.

Dropbox is a favourite in the cloud storage world because it's reliable, easy to use, and a breeze to set up. Your files live in the cloud and you can get to them at any time from Dropbox's website, desktop applications for Mac, Windows and Linux (Ubuntu, Debian, Fedora or compile your own), or the iOS, Android, BlackBerry and Kindle Fire mobile apps.

You can store any kind of file in Dropbox, by either uploading to the website or adding it with the desktop apps. Those apps live in your file system so that you can easily move files from your computer to the cloud and vice versa by dragging and dropping them into your Dropbox folder. The service automatically and quickly syncs your files across all of your devices, so you can access everything, everywhere. There is no size limit on files you upload to Dropbox with the desktop or mobile apps, but larger files can take several hours to upload, depending on your connection speed.



Dropbox gets a lot of praise for its clean design, and rightfully so though its website is very basic and it doesn't give you many options to view and organize your files, its mobile apps and desktop apps are beautiful and easy to navigate.



Dropbox gives its users plenty of opportunities to get extra storage to beef up the paltry 2GB you get when you sign up. If you participate in the quick Getting Started tutorial, you get 250MB. Turn on the automatic photo upload feature on any of the mobile apps to get 3GB of extra space (you can get only 3GB total, not per device). You can earn 500MB for each friend you refer to Dropbox who actually signs up for the service, up to 16GB total, or 32 referrals.

Where it excels.

- Dropbox works equally well on PCs and Macs, Android and iOS.
- The service is so simple and elegantly designed, that it's easy for anyone to master.
- Its desktop applications seamlessly blend with your computer's file system.

Where it falls flat

- Dropbox's website doesn't let you control how your files are displayed.

Best for:

Simple sharing when you use tons of different kinds of devices.

Google Drive.

Google combines a complete set of office tools with cloud storage in Drive. You get a little bit of everything with this service, including a word processor, spreadsheet application, and presentation builder, plus 15GB of free storage space.

If you already have a Google account, you can already access Google Drive. You just have to head to drive.google.com and enable the service. You get 15GB of storage for anything you upload to Drive, including photos, videos, documents, Photoshop files and more. However, you have to share that 15GB with your Gmail account, photos you upload to Google+, and any documents you create in Google Drive.



While you can access any of your files from the Drive Web site, you can also download the Drive desktop app for Mac and PC to manage your files from your computer. You can organize all of your files in the desktop app, and they'll sync with the cloud so you can get to them anywhere. Drive is built into Google's Web-based operating system Chromium, so if you have a Chromebook, Google Drive is your best cloud storage option. Like other cloud storage services, Drive has apps for iOS and Android for viewing and managing your files from your phone.



Google Drive has the benefit of a built-in office suite, where you can edit documents, spreadsheets, and presentations, even if you created the document in another program. The service also has a large collection of extras, such as third-party apps that can send faxes or sign documents.

Google also recently introduced [Google Photos](#), an online photo locker, where you can organize photos into albums. Google Photos is built into Drive in a separate tab, but you're really better off going straight to [googlephotos.com](#) to see and organize photos. However, you don't need to download the Google Photos app on your phone or tablet to backup pictures you take there. The Google Drive app can take care of that.

One excellent feature of Google Drive is that you can drag and drop files into the Drive Web site and they'll be uploaded automatically. You can also preview attachments from Gmail in Google Drive, and save those files to your cloud.

Where it excels:

- Google Drive requires very little setup if you already have a Google account.
- If you use Gmail, it's easy to save attachments from your e-mail directly to Drive with just a few clicks.
- The app can automatically back up your photos on its own, without the need for the separate Google Photos app.

Where it falls flat:

- If you use Google Drive's tools to create documents, spreadsheets or presentations, you must export those files to edit them in another program.
- You have to share your storage space with Gmail, so if your inbox is overflowing, you'll get less cloud storage space.

Best for:

- Google diehards, or anyone who wants a few office tools with their cloud storage.

I'll bet you \$4,567 you can't guess how much I owe my bookie.

Amazon Cloud Drive

Amazon already sells you nearly anything under the sun, and it wants to be the place you store all of your music, photos, videos and other files too. Amazon Cloud Drive has been around for a few years, but the company introduced new storage plans in March 2015; one just for photos



and one for all other kinds of files. Neither plan is free, but both have three-month trials. Unlimited Photos is available for free for all Amazon Prime members or anyone with a Fire device. If you don't have a Prime subscription or a Fire phone or tablet, you'll need to pay \$12 per month for the storage.

True to its name, Unlimited Photos gets you unlimited storage for your photos (GIF, JPEG, BMP, TIFF and so on) and 5GB of free storage for other file types, including videos, PDFs and documents. Unlimited Everything gets you storage for an unlimited number of files of any type, for \$60 per year. There is no limit for how many files you can upload, but each file needs to be under 2GB unless you use the Cloud Drive desktop apps. The Cloud Drive desktop apps are available for PC and Mac, and let you upload or download files. However, unlike other cloud storage services, the Amazon Cloud Drive app doesn't let you view your files from a folder on your computer. You can upload individual files and download your entire library, but if you want to view them or make changes, you'll need to go to Amazon's website.



Amazon Cloud Drive has apps for iOS and Android with automatic upload so videos and photos you take with your phone get saved to the cloud right after you shoot them. The service is also baked into Amazon's Fire tablets and phone.

Where it excels:

- If you already have an Amazon account, you don't need to sign up for a new service, you can simply sign into Cloud Drive.

Where it falls flat:

- The desktop app doesn't work with your file system, you can only use it upload or download files.
- You can only view and manage files from the Cloud Drive website, but you cannot upload files larger than 2GB there.

Best for:

- Anyone with an Amazon Fire tablet or Fire phone, because it's part of the operating system.
- Unlimited Photos is good for Amazon Prime members, because you get it for free as part of that subscription.

Extra cloud options:

Of course, OneDrive, Dropbox, Google Drive and Amazon aren't your only options for cloud storage. Another is [SugarSync](#), a Dropbox-like alternative with apps for every mobile platform. The catch is that after your 90-day free trial, where you can play around with 5GB of storage, you need to pay at \$7.50 per month for 60GB to keep using the service (you can upgrade to more storage for extra money).

There's also [Space Monkey](#), which has an entirely different take on cloud storage. For \$200, you buy a 2-terabyte (TB) hard drive from the company. You get to use 1TB of the drive's space to store any and all of your files as a local backup. Your files also get encrypted and broken into bits that are sent to other Space Monkey users' hard drives, so that you can access your files from another computer or mobile device. That's where that extra 1TB of space on your drive comes in -- it's used to store bits of other people's files. The service is free for the first year, then costs \$49 per year to keep storing your files in the cloud.



Nokia.

Did you know that after the second world war, the Finnish navy was prohibited from having submarines because of Russian concerns, that hasn't changed, but now Finland owns 12 submarines, and it's something to do with Microsoft.

People often think that Nokia, a Finnish company, was bought out by Microsoft, but that's not true. What happened was that Nokia sold its mobile handset business to Microsoft for a lot of money. But there's more to mobile phones than handsets, and Nokia is still a very big player in supporting the mobile phone networks with hardware and software (this blog mentions 5G development and ongoing efforts to improve 3G for example: see [HERE](#)). Subsequently, after getting all this money from Microsoft, Nokia took over Alcatel-Lucent who operate in the same sort of area. But Alcatel-Lucent were also into submarine communication cables and had 12 submarines for work in this area. Hence, via Nokia, Finland now has 12 submarines.



Hope the Russians aren't too cross!

Apple releases update to secure iOS: Alert Priority High.

Apple has released a security update to protect users against a range of vulnerabilities in its iOS mobile operating system.

The update is available for iPhone 4s and later, iPad 2 and later, and iPod Touch 5th generation and later. You are advised to review the relevant Apple security page [HERE](#) and apply the update.

Updates close vulnerabilities in computer systems that remote attackers can otherwise use to gain access to systems or information (such as online banking details). A vulnerability is a weakness that can leave a computer and its systems open to attack. Attacks can be carried out a number of ways, including through malicious software (malware) such as viruses and spyware that can monitor a users' activity on a computer and stop systems operating properly.

Behind every great man is a woman rolling her eyes.

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& EX-RAAF PEOPLE & OTHERS



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