Fil system

NTFS

FAT

**HFS+**

This is the principal file system of Mac OS X. It is a journalled, relatively modern file system that supports [POSIX](http://guides.macrumors.com/index.php?title=POSIX&action=edit) permissions, and features at least limited automatic defragmenting of files. Mac OS X is capable of mounting these volumes for reading and writing, and has full capabilities to utilize them. Mac OS X systems can also only boot from hard disks formatted in this system (as well as bootable optical media). [Windows](http://guides.macrumors.com/Windows) has no native support for this format, but third party tools such as [MacDrive](http://www.mediafour.com/products/macdrive6/) allow for limited read/write support on Windows systems.

[[edit](http://guides.macrumors.com/index.php?title=File_systems&action=edit&section=3)]

**NTFS**

This is the current preferred file system of Windows (beginning predominance circa Windows NT 4.0 and Windows 2000, and including Windows XP). Most Windows systems use principle partitions with this file system. This is a journalled file system with good support for large files. It should be noted that it does NOT support POSIX permissions or ownership. Mac OS X has read only support for this format. It has no capabilities to write to an NTFS drive. Windows has complete read/write capabilities for this format.

[[edit](http://guides.macrumors.com/index.php?title=File_systems&action=edit&section=4)]

**FAT32**

FAT32 is a legacy file system in the Windows world. However, it is still widely used as almost all Flash-based drives use this format. Mac OS X supports this format for both reading and writing, as does Windows. It has notable limitations, including difficulties with files of size larger than 4 GB. Also, as with NTFS, this file system does not support POSIX and permission / ownership errors could arise when files are moved back and forth between this file system and a POSIX-compliant file system.

[[edit](http://guides.macrumors.com/index.php?title=File_systems&action=edit&section=5)]

**ext2**

[Ext2](http://en.wikipedia.org/wiki/Ext2%22%20%5Co%20%22http%3A//en.wikipedia.org/wiki/Ext2) is a relatively modern filesystem that is used primarily in Linux environments. It features many of the same creature comforts as OS X, including a journal and the ability to use large files (e.g. bigger than the 4 GB limit in FAT32). This file system is not natively supported in either OS X or Windows, but free extensions are available for both operating systems that allow basically full read/write utilization of this filesystem on both OS X and Windows. The Mac OS implementation is available at [Sourceforge](http://sourceforge.net/projects/ext2fsx); the Windows implementation is available [here](http://www.fs-driver.org/).

Another important distinction that should be noted is that all of the above is based on disks mounted under the given operating system. Limitations can be bypassed by serving a disk from a server for which the format is native. For instance, a Windows client that is accessing a served HFS+ disk that is served from a Mac OS X computer (a "shared" disk across the network) can write to that disk if the server has granted permission. Likewise, while a Mac OS computer cannot write to an NTFS volume it mounts itself, it *can* write to an NTFS volume being served by a Windows computer.

One important question that gets asked frequently at MacRumors is: how should I format my external device? Here are some suggestions, based on the above limitations of each filesystem.

1. If the device will only be used on a Mac OS X computer, **use HFS+**. This will offer the most complete support for Mac OS X features.
2. If the device will only be used in Windows, **use NTFS**, for the same rationale.
3. If the device will be *mounted* on both Windows and Mac computers, and you will not be using very large files (all files <4 GB) **use FAT32**. Alternatively, if possible, mount the device on a computer on the network which is always turned on, and format it in the native format of that computer. Then use that computer as a server to **share that volume** with other computers. For this purpose, it may be slightly advantageous to make the server a Mac OS X computer, so that the file system complies with POSIX.
4. If the device is to be mounted on both Windows and OS X computers, and the user has sufficient privileges on all computers with which it will be used to install the EXT2FS extensions discussed above, then finally, **EXT2FS may be an excellent solution**. Note however that, should this drive be taken to other Windows or OS X computers, **it will not work without installation of the extensions**.
5. If you are using an Intel Mac, one configuration that is very popular is to create a three partition system. This system consists of boot partitions in HFS+ and NTFS for Mac OS X and Windows, respectively, plus a third partition in FAT32. All documents are then placed on the FAT32 partition, where they are accessible to both operating systems. While this does have limitations, based on the limitations of FAT32, it may be a good compromise solution for many users.
6. Current [iPods](http://guides.macrumors.com/iPod) come formatted by default in a format which can be read by both systems (FAT32) and should probably be left this way unless specific needs exist with respect to alternate usage (e.g. as a drive for sharing files). While earlier iPods were formatted in HFS+ and this system confers some advantages in Mac-only environments, this is probably not something you should worry about unless you already know what you are doing. Likewise, Flash drives should NOT be reformatted and should be left in FAT32.