

# Re: FAT32 vs. NTFS

---

*Source:*

<http://www.tech-archive.net/Archive/WinXP/microsoft.public.windowsxp.general/2006-05/msg07411.html>

---

- *From:* "cquirke (MVP Windows shell/user)" <[cquirkenews@xxxxxxxxxxxxxxxxxx](mailto:cquirkenews@xxxxxxxxxxxxxxxxxx)>
  - *Date:* Sat, 20 May 2006 16:36:51 +0200
- 

On Wed, 17 May 2006 19:39:06 +0200, Alias

Abraham wrote:

For 30 and 40 gigabyte multi-partition hard drives, is there any advantage to using FAT32 vs. NTFS?

Forget about FAT32 forever.

Dumb answer.

See <http://cquirke.org/ntfs.htm>

I'll paste it...

Executive summary

NTFS is a better file system, but the available maintenance tools and options suck.

Either choice, you will win some and lose some.

Detail

FATxx is an old file system that is simple, well-documented, readable from a large number of OSs, and supported by a wide range of tools.

NTFS is a newer file system that is feature-rich, proprietary, undocumented at the raw bytes level, and subject to change – even within Service Packs of the same OS version.

Keeping NTFS proprietary allows Microsoft to root NT's security features deep within the file system itself, but it does cast doubts

## Re: FAT32 vs. NTFS

about the reliability and version-compatibility of third-party support. Without an official maintenance OS from Microsoft, one is forced to look to 3rd-party solutions, and the high stakes involved make FUD about accuracy of NTFS support a serious issue.

You are obliged to use FATxx if you need access from DOS mode or Win9x, e.g. in a dual-boot scenario.

You are obliged to use NTFS if you need support for files over 4G in size, hard drives over 137G in size, and/or you need to implement some of NT's security management that devolves down to NTFS.

Else, weigh up the pros and cons, and remember you can use multiple volumes, with different file systems for each. Even FAT16 has niche strengths (small FAT, large cluster size, easier data recovery) that may make it attractive for certain types of content.

More detail

NTFS may be faster...

- smaller RAM footprint as avoids large FAT held in RAM
  - indexed design more efficient for many files per directory
  - small file data embedded in dir level, avoids seek to data chain
  - above factors make fragmentation less onerous than for FATxx
  - 4k cluster size matches processor's natural paging size
- ....or slower...
- extra overhead of security checks, compression, encryption
  - small clusters may fragment data cluster chains

NTFS may be safer...

- transaction rollback cleanly undoes interrupted operations
  - file-level permissions can protect data against malware etc.
  - automatically "fixes" failing clusters on the fly (controversial)
- ....or more at risk...
- no interactive file system checker (a la Scandisk) for NTFS
  - no maintenance OS for NTFS
  - malware can drill right through NTFS protection, e.g. Witty
  - transaction rollback does not preserve user data
  - transaction rollback does not help other causes of corruption
  - more limited range of maintenance tools
  - automatically "fixes" failing clusters on the fly (controversial)

NTFS may be more space-efficient...

- smaller cluster size than FAT32 above 8G
  - may include data of small files within the directory level
  - NTFS's bitmap structure is smaller than FAT32's dual FAT
  - sparse files and compression can reduce data space usage
- ....or less so...
- NTFS has large MFT structure
  - larger per-file directory metadata space

I would use NTFS where:

Users have professional-grade IT admin, including backup  
Users need to hide data more than they need to salvage it  
Applications require files over 4G in size  
Hard drive exceeds the 137G barrier

But while NTFS has no maintenance OS from which...

Data can easily be recovered  
File system structure can be manually checked and repaired  
Malware can be scanned for and cleaned

...I would avoid the use of NTFS in consumer PCs

Since I wrote the above, it's possible to tackle malware via Bart PE  
CDR – do a Google( Bart PE ) – but there are still no manual file  
system repair or data recovery tools for NTFS.

---

Tip Of The Day:  
To disable the 'Tip of the Day' feature...

---