

File System

Consistent

File system:

- o File system in OS provides a way to organize files and manage the drive. It specifies how data will be stored in the form of file and folders and provides the metadata about the files like name, permission, size and other attributes.
- o FAT32, exFAT and NTFS are file systems used by the windows OS.
- o FAT32 is the oldest one, exFAT is a replacement of FAT32. NTFS is the latest file system.

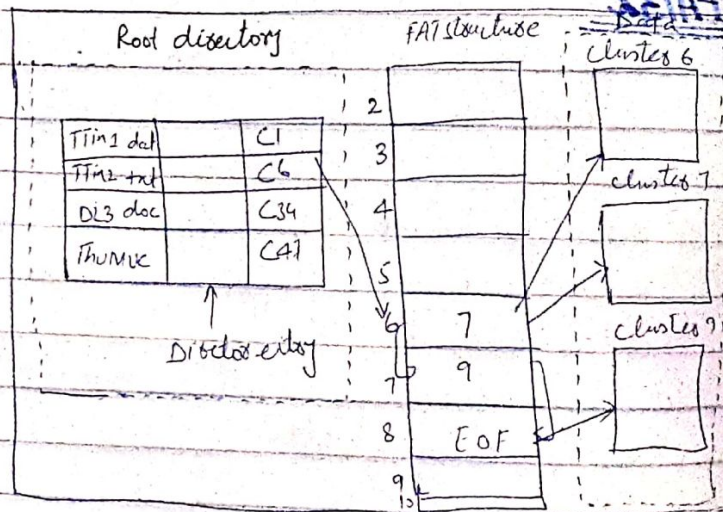
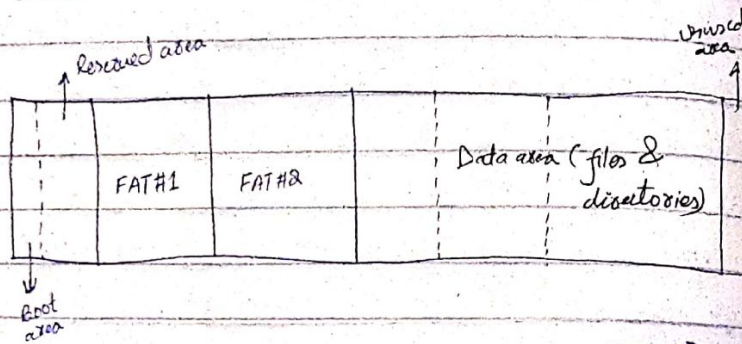
FAT32

- o FAT stands for file allocation table.
- o It is used to organize file on storage devices.
- o It uses hierarchical directory structure and a file allocation table to manage disk space allocation.
- o It is susceptible to file fragmentation & is compatible with all OS.

Features:

- Compatible with all OS after MS DOS 7.3
- It has file transfer speed up to 5 MB.
- Drive Capacity is 16TB and with 64KB clusters.
- File size ranging from 16 bytes to 4GB.

Structure:



Pros:

- Compatible with all internal and external storage devices.
- Supports all OS released in 1993.
- Perfect file system for creating and managing files in virtual machines.

Cons:

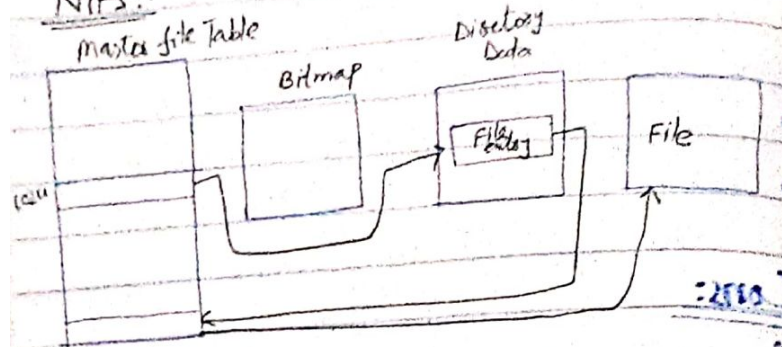
- Due to static memory allocation, the storage efficiency falls drastically.
- Slow to read & write data.
- Does not have native file encryption.

NTFS file system:-

NTFS stands for New Technology file system.

- It is a proprietary file system developed by Microsoft.
- It offers features such as:
 - File & folder permission
 - Compression
 - Encryption
 - Disk quotas
- NTFS is more robust, high performance logging file system with multi users access control.
- It is high...

NIFS:



	M		MFT	Directory	File
	F		micros		
	T				

Pros:

- Highly secure
- Less susceptible to fragmentation

Cons:

- Not extensively supported
- Performance is degraded under partitions of 400 MB.

FAT32

all name!

File allocation

File 32:

Release time

August 1996

Encryption:

no native

encryption

Developers:

Microsoft

Accessing speed

into S.M.B.s

to read & write

file compression

no option due

to static

allocation

NTFS

new technology

file system

First introduced

in 1993

current

version introduced

in 2012

Native support

of encryption

with EFS also

Support BitLocker

Microsoft

85 MB/s

Due to its bitmap

design native

support for this

ex-FAT

introduced for

allocation time

no native

encryption

Microsoft

15 MB/s

No native

compression

support

FAT32

NTFS

EXT4

Max size	File	File	File
file	2TB (Windows 7, Windows Server 2008 or earlier)	128PB	
0 8GB (without LFS)			
0 4GB (with LFS)			
0 856 GB (FAT32)	0 856TB (Windows 8, Windows Server 2012 or later)		
	0 8PB (Windows 10, Windows Server 2019 or later)		
<u>Supported OS</u>	MS-DOS 7.1 & Windows	Windows XP / CE Embedded	
NT/2000/XP/	95/ME/NT/XP/	6.0/Vista/7, 8, 10	
Vista/7/8/8.1	Vista/7/8/10	Server 2003/2008	
Windows Server 2008 & later	macOS, Linux & similar OS	macOS 10.6 & later	
<u>Ideal uses</u>			
0 Hard drives	0 Flash based drives such as Pen drives, SD cards, microSD cards,	0 SDHC cards, flash-based memory devices,	
0 flash drives, SSDs, digital cameras, phone internal	0 Smartphone internal storage	HDDs, SSDs	
	Services using Windows Server	Gaming consoles like Xbox, One, PS4, PSS & the stream	

Performance
good

Performance is better than FAT32

Built-in security

Allows files to be connected to host-only or networked.

Has built-in security mode that restricts file access only to administrators.

it can have backups

Security is better