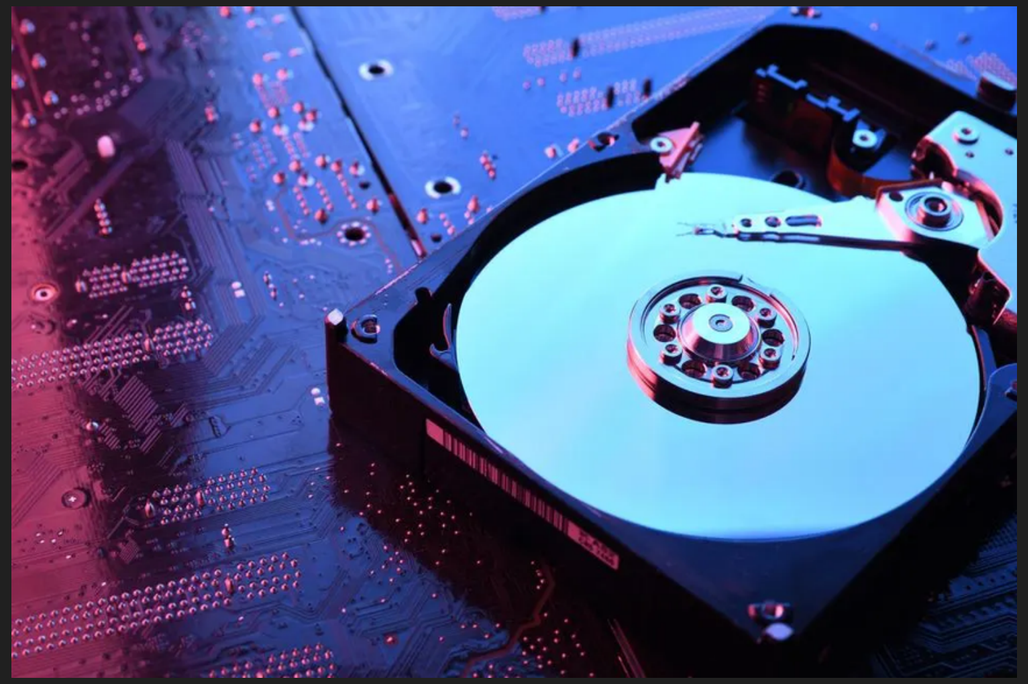
EXT4 & NTFS PRESENTATION

- 2501991536 - Vaustin
- 2501963822 -Josua Abraham
- 2502001441 - Ayubi Sholahudin
- 2502018480 - Carlson King
- 2502009412 - Ramadhana Khalaf

NTFS VS EXT4



74921 59300 4 18863 70782 0

NTFS

NTFS or the New Technology File System is the file system that the Windows operating system use for storing and retrieving files on Drives. It’s usage is mainly on Hard Disk Drives and Solid State Drives.

EXT 4

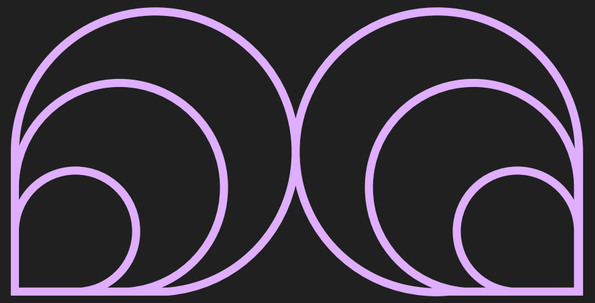
ext4, or fourth extended file system, is a journaling file system for Linux. It’s common use case is for formatting volumes, hard drives, and other computing storage solutions.

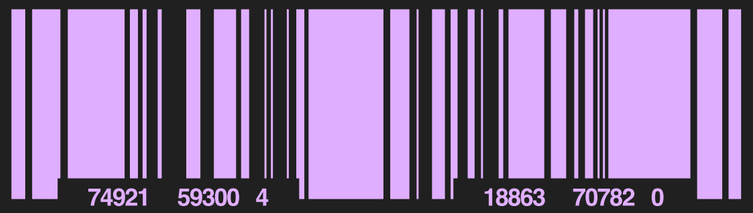
NTFS VS EXT4

Feature	Ext4	NTFS
Supported operating systems	Linux, Android, Chrome OS, Unix	Windows
Maximum file size	16 exabytes	256 terabytes
Maximum file system size	16 exabytes	256 terabytes
Support for large files and directories	Yes	Yes
Support for journaling	Yes	Yes
Support for encryption	Yes	Yes
Performance	Generally faster than NTFS for read and write operations	Generally slower than Ext4 for read and write operations
Maturity	Ext4 is a newer file system than NTFS	NTFS is a more mature file system than Ext4

OTHER KEY DIFFERENCES IN MIND

- Ext4 supports file system snapshots,which means it can make point-in-time copy of a file system. In which, can be used for Backing up data or data recovery
- Ext4 has a flexible layout . making it easier to optimize for a specific layout
- NTFS supports file system compression, which means that it could compress datas to save space.
- NTFS supports Large volumes than EXT4. Making it better for file creation and deletion.



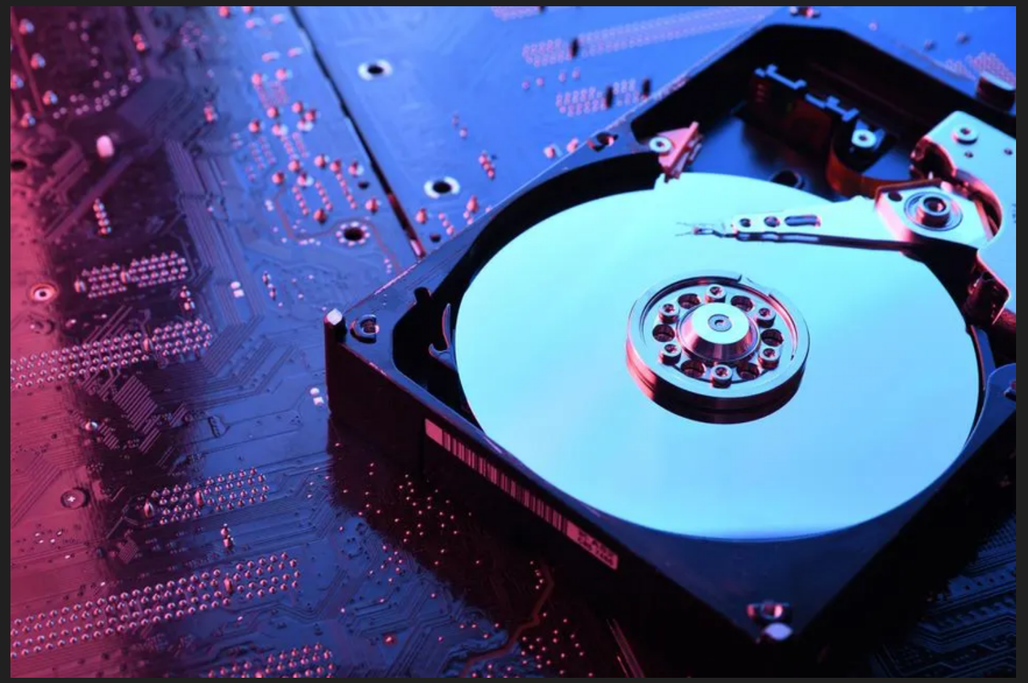


CREATION & DELETION

FILE CREATION: EXT4

There are Seven stages in file creation in Ext4, namely:

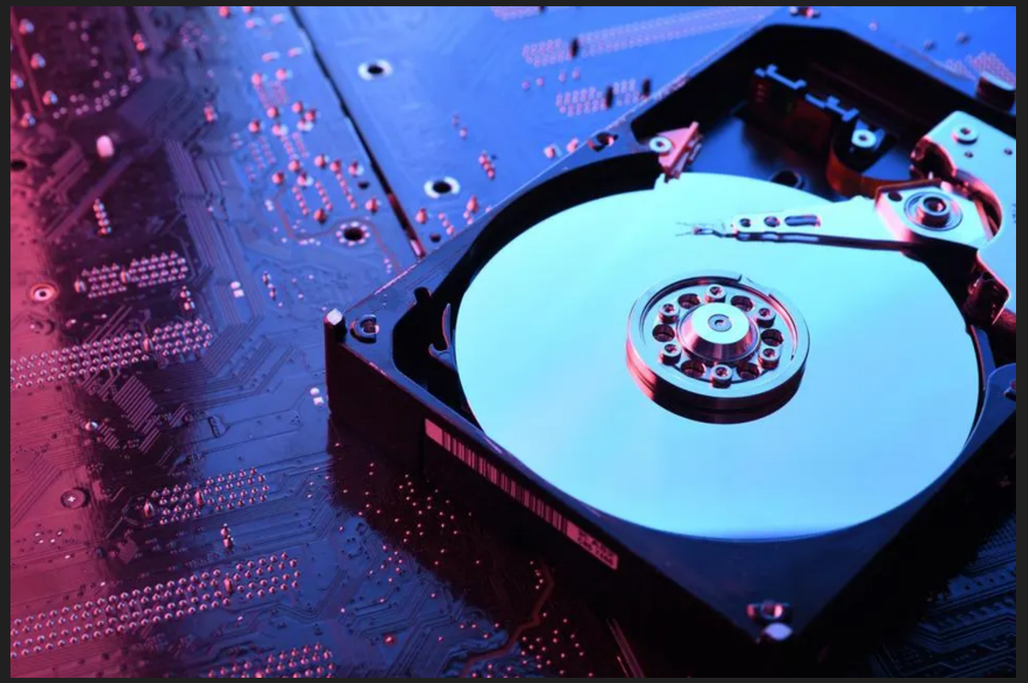
- Request for File Creation
- Inode Allocation
- Data Block Allocation
- File Metadata Setup
- Data Writing
- Update Directory Entry
- Metadata and Data Flushing

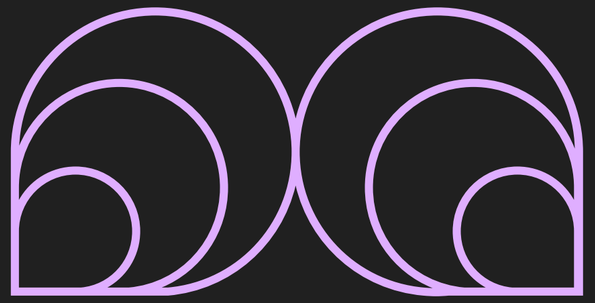


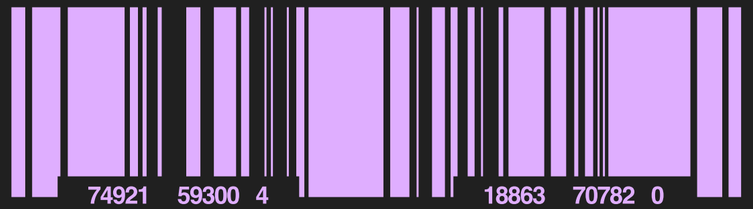
FILE DELETION: EXT4

There are Seven stages in file creation in Ext4, namely:

- Request for File Deletion
- Directory Entry Removal
- Inode Deallocation
- Data Block Deallocation
- Optional Data Erasure
- Metadata Update

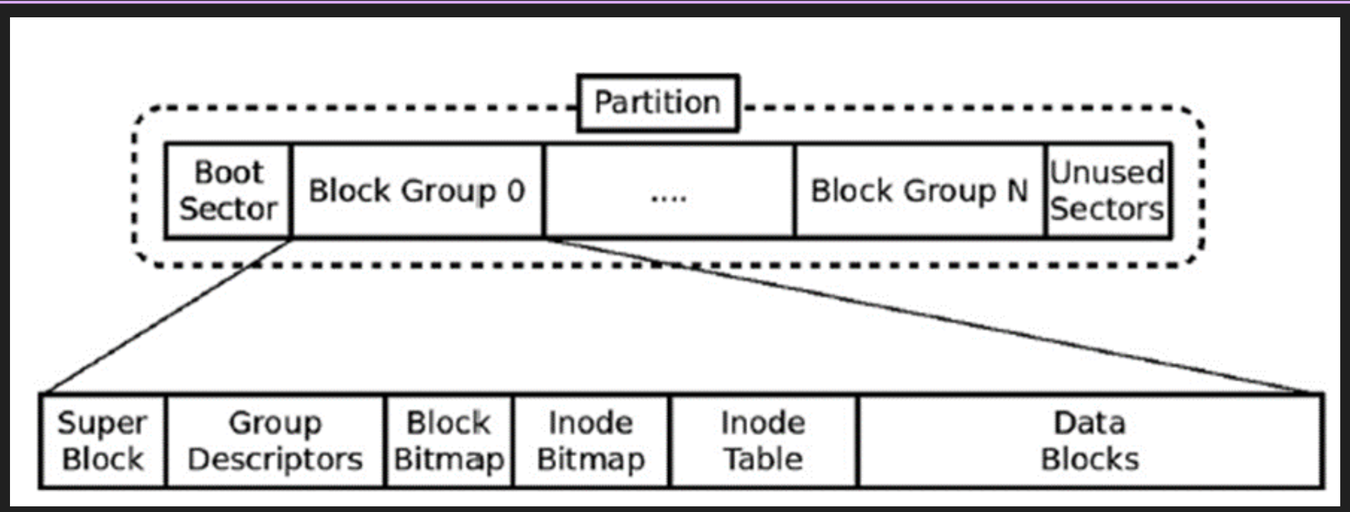






EXT4 TOPOLOGY

EXT4 TOPOLOGY



Boot Sector: Part of a storage that contains files used for booting the computer system.

EXT4 then divides the file system into similar sizes known as Block Groups.

Unused Sectors are parts of a storage system that are unutilized for certain files or directories.

EXT4 TOPOLOGY

A Block Group contains several parts such as:

- Super Block:
  - The first part of a file system that contains the metadata of a file system and has several backup copies to ensure the file system’s integrity.
- Group Description:
  - Stores information of each block group, block group locations, and inode locations.
- Block Bitmap:
  - Stores the status of block groups whether its allocated or free.
- Inode Bitmap:
  - Stores the status of inodes whether its allocated or free.
- Inode Table:
  - Stores and manages informations of file directories.
- Data Blocks:
  - Stores the actual file directory and file content.

THANK YOU!