



NTFS 5.0

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Introduction

- MFT Master File Table Array

- ◆ Similar to FAT*

- *File Allocation Table the File System that Microsoft uses in DOS, Windows 95/98

- ◆ Actually 1KB entries for every file

File or Directory Attributes

- Standard Information
- Name
- Security Descriptor
- Data
- Named Data
- Index Root, Allocation and Bitmap
- Reparse

Streams

■ Multiple Data Streams

- ◆ Unnamed and named data stream
- ◆ Example a .BMP file and its thumbnail
- ◆ Document and its updated versions

- ◆ Major disadvantage is backward compatibility with FAT, so floppy disks, cdroms don't support this feature

Hard Links

- Hard Link allows a file to have multiple path names within a single volume
 - ◆ Example one header file in many projects
- Behavior similar to UNIX since the POSIX subsystem requires it*

*You can't make a hard link of a directory

File Stream Compression

- NTFS can automatically compress all data streams
 - ◆ It breaks stream into compression units and then compresses every one of them
- Major Drawbacks
 - ◆ CPU cost
 - ◆ Time cost
 - ◆ So it is not the default option in NTFS

Sparse Streams

- Large Streams with holes in them
 - ◆ Similar function to Compressed Streams
- Easy to implement a File Queue

Encrypted Streams

- Protection from “bad” guys
 - ◆ Actually file shows up in a “dir” command but no one can actually see its contents
- Always at least one recovery key
 - ◆ So employee can’t lock the disk when he is fired from the company!

Reparse Points

- Allows a piece of code to be executed when a directory is accessed
 - ◆ Data can be up to 16KB only
- Used for creating directory junctions
 - ◆ Like links for directories e.g. `c:\cdrom` points to the actual CD-ROM drive

Quotas

- Disk quota support is build within the system
 - ◆ Max quota
 - ◆ Warning level
 - ◆ Admin tools that allow administrator to see every user's quota data visually