Day 3 Recap

Module 3 → user & group mgmt windows

Hands on
1) Command prompt (Admin)
2) Computer Management → 10/11 pro & Enterprise
3) Accounts → other users

Module 4: Device Management

Device Manager (utility)

Device Driver
→ System s/w
OS ⟷ device
Legacy / plug n play

3 states (failure)
- ⚠ → not working properly
- ↓ → disabled device
- ? → H/w is not compatible

Day 4

Module: File Systems

File System: Method / system (or) data structure → OS → org data + store + retrieve
- files / folders

metadata ↳ data about data.

filename — fileABC "Hello world"
perm, Date time created, modified

Concepts:
1) File → digital document → data
2) folder → container — files, sub folder
3) Attributes: name, permission, size, access mode, owner, file path, timestamps
4) path: loc of the file / folder on the OS
5) File Allocation (table): FileA → storage space on the disk

File operations:
1) create 2) open 3) Read 4) write 5) modify 6) Delete 7) Rename 8) Copy 9) move 10) assign & change permissions 11) Execute (Script)

Folder operations: create, open, modify, delete, rename, cp, move, permissions

File System formatting

process of prep the disk for use
→ Erase the data
→ preparing to store the data

File Systems in Windows

1) FAT File Allocation Table
   - FAT 12 → small storage devices — floppy disks
   - FAT 16 → 4GB storage device, Max file size 2GB
   - FAT 32 → common / popular
     - device cap: 2TB
     - Max file size: 4GB → USB, SD cards

2) NTFS new Technology file System

Use: win 2000 11

Features:
1) Large files → 256 TB — auto.
2) File Compression → compress the files → save space (↑ disk / storage device)
3) File Encryption → secure the data ↳ you have to enable
4) Disk Quotas → user / group → disk space can be used
5) File permissions → special permissions
6) Journaling → logging → system crash / failure → Recovering

plaintext ABC → Encryption algorithm → ciphertext #12A2B....
ciphertext → decryption → plaintext
↓ security

Diff. NTFS & FAT
1) file size limit
2) Security
3) Reliability
4) Compatibility → NTFS → mainly for windows
   ✓ FAT32 → devices & OS

View the FS: File Explorer → This PC → Right click on the drive → properties

Drawbacks of NTFS
1) Compatibility
2) overhead & complexity
3) ↑ Disk space usage
   ↳ MFT → org storage, efficient retrieval, scalability
   Master File table → DB
   ↳ entry: every file & folder
   └ name, size, creation / modifications, location, permissions, access levels
4) ↑ Resource usage

Refs (Resilient file System)

- * Data Integrity → checksums
  - S —(ABC) message (10 value)→ R
  - calc. value = 10
  - 10 = 10 → Data integrity ✓
- * Fault tolerance
- * Scalability → vol / cap: 35PB

Enterprise scenario → Data centers / VM