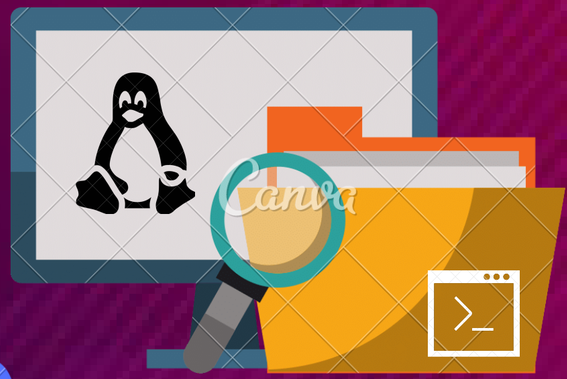
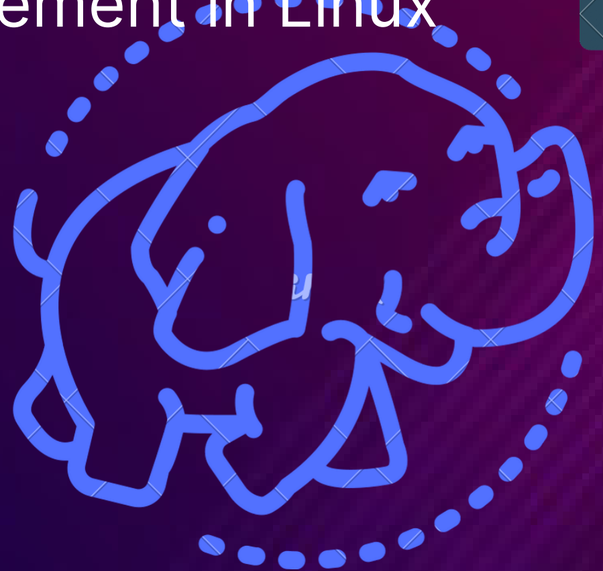
WALCHAND LINUX USERS' GROUP

PRESENTS CLUB SERVICE ON

LINUX FILE MANAGEMENT

- Introduction to File Management
- Types of Files and Structures
- Need for File Management in Linux
- Operations on Files





LIVE DEMO

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Linux File Management System

Today we will discuss about :

- Introduction to Linux File System
- Types of files
- Linux file system types
- Linux directory structure
- Features of Linux File System
- Various Operations on files and directories

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What is Linux?

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LINUX

- Linux is a kernel.
- It was invented by Linus Torvalds.
- It is Open Source, lightweight, fast and efficient.
- It is a multiuser, multitasking kernel.
- It is written in C language.

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File Management of Linux

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Files

- It is the basic unit of file management system.
- On Linux, Everything is a FILE.
- It can be manipulated.
- It can be stored with extensions.

Partition

- It is the segment of memory and contains specific data.
- Filesystem uses partitions to make access of data at ease.
- Every partition has its filesystem.

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TYPES OF FILES

- Regular Files(-)
- Directory Files (d)
- Special Files

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Linux File System

1) A structured collection of files on a disk drive or partition.
2) It is used to handle data management of storage.
3) Linux uses variety of filesystems.
4) Linux filesystem management
   - file name
   - file size
   - modification date
   - file type
   - software for file modification

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Linux File System:

5 Commonly used filesystem

- ext* family
  - ext
  - ext2
  - ext3
  - ext4

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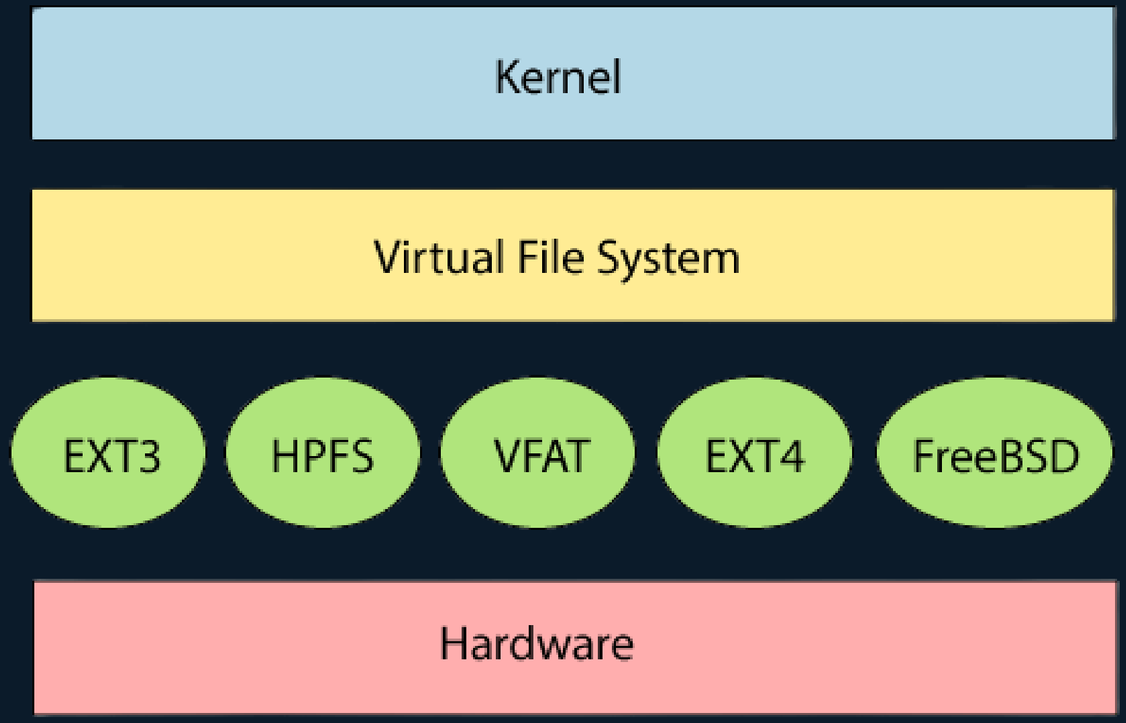
Architecture of File system



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Architecture of File System

- It is hierarchical in nature.
- It contains root directory and subdirectory.
- Linux provides virtual filesystem containing kernel, API, hardware, filesystem.
- Kernel gives access to user for file handling using API called Linux virtual file machine.

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Types of File System

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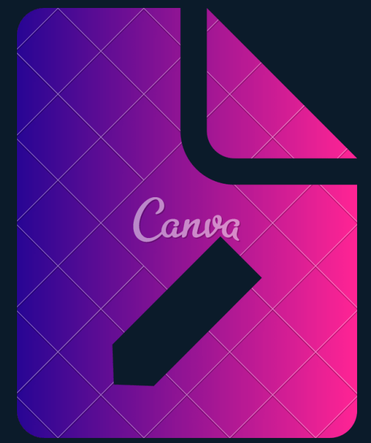
ext File System

- Released in 1992.
- filename size - upto 255 characters
- file size - upto 2GB
- Overcomed the size limitations of MINIX.
- Had significant problems so quickly superseded by ext 2.



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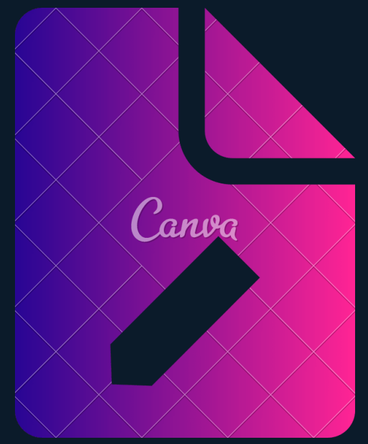
ext 2 File System

- Overcome the limitation of the legacy ext file system.
- Maximum file size is 16 GB – 2 TB.
- It did not support journaling.
- Still had two major issues: 1) File corruption
  2) Performance loss



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ext 3 File System

- Improved version of ext2 file system
- Max file size upto 2 TB
- It supports journaling
- Issue of file corruption in ext2 has overcome by the journaling feature

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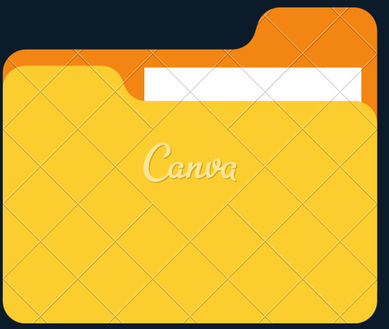
ext 4 File System

- High-anticipated ext3 successor
- Max file size 16 GB to 16 TB.
- Faster file system among all the ext file systems
- Very compatible option for the SSD
- Default file system of the current Linux kernel



Difference

	ext2	ext3	ext4
Introduced	in 1993	in 2001	in 2008
Max file size	16GB~2TB	16GB~2TB	16GB~16TB
Max file system size	2TB~32TB	2TB~32TB	1EB
Features	no journaling	journaling	journaling, checksum ,delayed allocation

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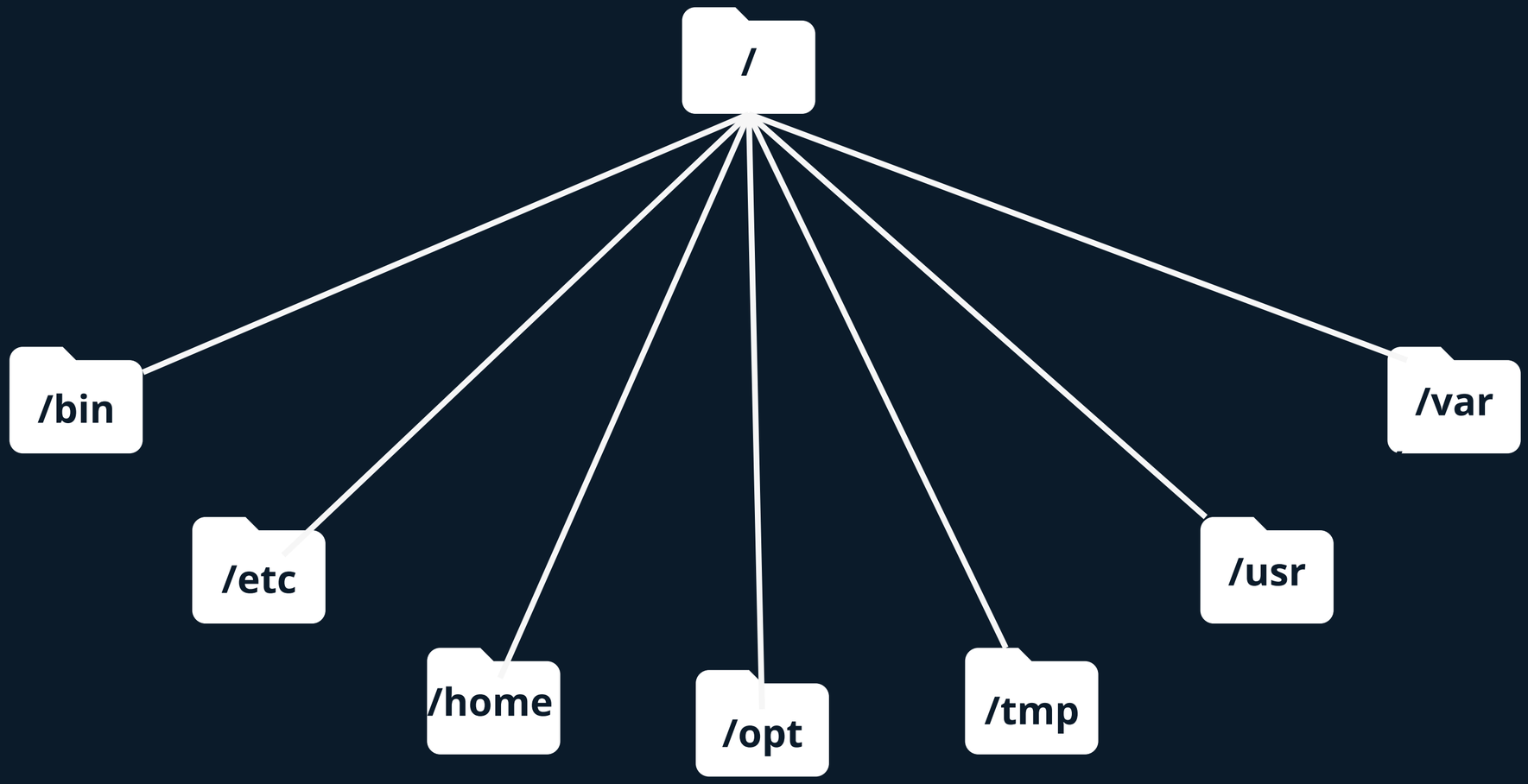
Linux Directory Structure



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Common Directories

/ — The Root Directory

- Primary hierarchy root and root directory of the entire file system hierarchy.
- Every single file and directory starts from the root directory

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Common Directories

/bin — Essential User Binaries

- Contains the essential user binaries (programs)
- Commands used by all the users of the system are located here e.g. ps, ls, ping, grep, cp

Common Directories

/home — Home Folders

- The /home directory contains a home folder for each user.
- Users' home directories, containing saved files, personal settings, etc.

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Common Directories

/tmp — Temporary Files

- Stores temporary files in the /tmp directory.
- In this directory, files are deleted when your system restarts.

Common Directories

/opt — Optional Packages

- Contains subdirectories for optional software packages.
- Add-on applications should be installed under either /opt/ or /opt/ sub-directory.

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Linux File System Features

Some key features of Linux file system are as following:

- Specifying paths
- Case Sensitivity
- Hidden files
- File Extensions

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Operations on a file in Linux

- Creating File
- Adding content in file
- Displaying file content
- Moving the file from one directory to another
- Creating the copy of file
- Renaming the file
- Creating archive file of existing file
- Removing file

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Operations on a Directory in Linux

- Creating Directory
- Switching from one directory to other
- Creating file in Directory
- Rename the Directory
- Removing the Directory

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Demo

Quiz time!

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Thank you