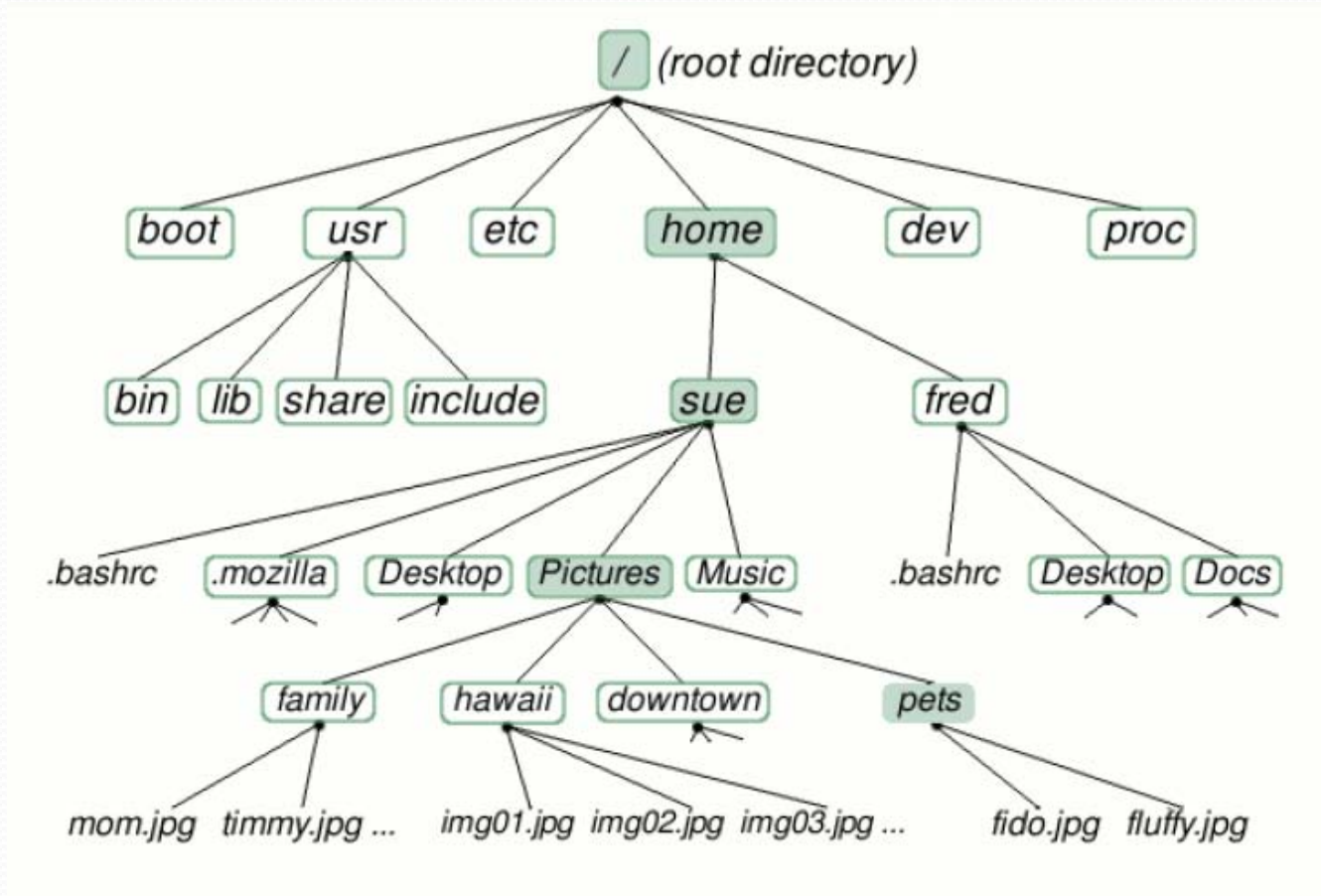


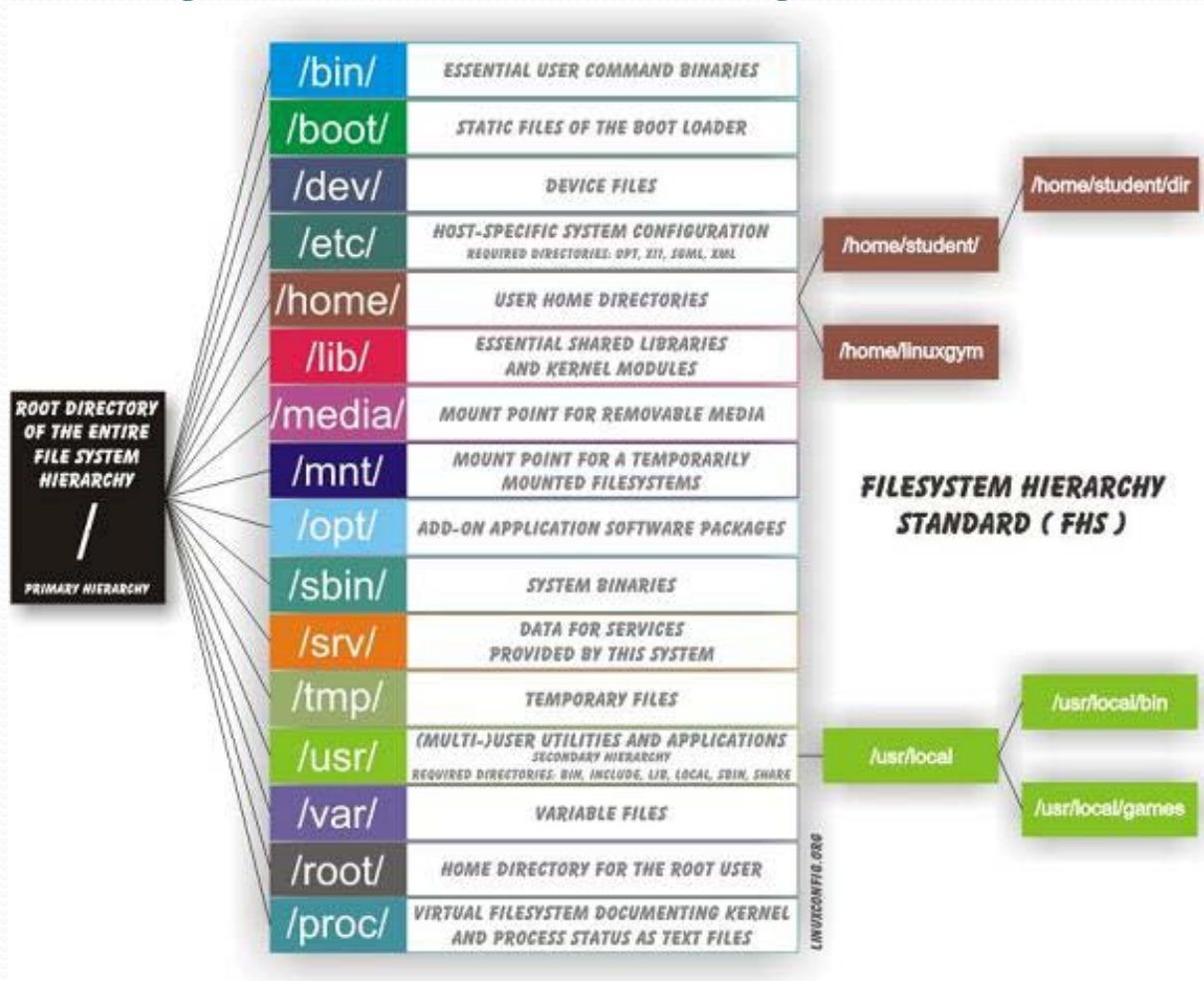
Linux File System (Basics)

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Linux Directory Structure



Linux Filesystem Hierarchy Standard



Linux Filesystem Hierarchy Standard

- **“/” Root**
 - The Directory Structure starts with the Root file system “/”
 - The partition where / (the root directory) will be located on a UNIX or UNIX-compatible system.
- **/boot**
 - The /boot directory contains the Boot loader files including Grub or Lilo, the Kernel, initrd and system.map config files
- **/sys**
 - This contains the Kernel, Firmware and system related files

Linux Filesystem Hierarchy Standard

- **/sbin**
 - Contains the essential System Binaries and System Administration tools essential for the system operation and performance
- **/bin**
 - Contains the essential binaries for users and those utilities that are required in single user mode.
- **/lib**
 - Contains the library files for all the binaries held in the /sbin & /bin directories
- **/dev**
 - The /dev directory contains the essential system files and drivers.

Linux Filesystem Hierarchy Standard

- **/etc**
 - The /etc/directory contain essential System configuration files including /etc/hosts, /etc/resolv.conf, nsswitch.conf, defaults and network configuration files.
- **/home**
 - All the user home directories are held under this directory with the exception of the root home directory which is kept under /root directory.
- **/media**
 - A generic mount point for removable media like CD-ROM, USB, Floppies etc
- **/mnt**
 - A generic mount point for temporary file systems.

Linux Filesystem Hierarchy Standard

- **/opt**
 - A rarely used directory in Linux for Optional Software Packages.
- **/usr**
 - Contains user specific utilities and applications.
- **/var**
 - The /var directory is mostly mounted as a separate filesystem under the root where in all the variable content like logs, spool files for printers, crontab, at jobs, mail, running process, lock files etc.
- **/tmp**
 - A temporary file system which hold temporary files which are cleared at system reboot.

Linux Filesystem Hierarchy Standard

- /tmp vs /var/tmp
 - /var/tmp directory holds files that are protected at system reboot.
 - But files resides in /tmp are cleared at system reboot

Absolute and Relative Paths

- Absolute path
 - Exact path from root directory
 - ex. /var/www
- Relative path
 - Relative to the current path
 - ./ means current directory
 - ../ means parent directory
 - ~/ home directory
- Case sensitive

cd command

- `cd [directory-name]`
 - ex.
 - `/home/amir$ cd /var/www`
 - `/var/www$ cd ../`
 - `/var$ cd ./www`
 - `/var/www$ cd /root`
 - `/root$ cd -`
 - `/var/www$ cd`
 - `/home/amir$`
- `pwd`
 - PrintWorking Directory

ls command

- `ls [options]... [pathnames]..`
 - List information about files

Options	Means
<code>-a , --all</code>	Do not hide entries starting with .
<code>-d, --directory</code>	List directory entries instead of contents
<code>-l</code>	Long listing format
<code>-s, --size</code>	Print size of each file, in blocks
<code>-k, --kilobytes</code>	Use 1kbyte blocks
<code>-R</code>	Includes the contents of subdirectories

ls command (continue...)

Permissions	Directories/ Hard Links	User	Group	Size	Date	Directory or File
drwxr-xr-x	4	amir	amir	4096	2008-12-26 01:22	Desktop
drwxr-xr-x	2	amir	amir	4096	2008-12-26 01:22	Documents
drwxr-xr-x	2	amir	amir	4096	2008-12-26 01:22	Download
drwxr-xr-x	2	amir	amir	4096	2008-12-26 01:22	Public

- **Permissions** - The permissions of the directory or file.
- **Directories/Hard link** - The amount of links or directories within the directory. The default amount of directories is going to always be 2 because of the . and .. directories.
- **Group** - The group assigned to the file or directory
- **Size** - Size of the file or directory.
- **Date** - Date of last modification.
- **Directory of file** - The name of the file or file.

ls command (continue...)

- Here is list of most common colors:
 - Normal file : Normal
 - Directory: Blue
 - Symbolic link : Cyan
 - Archives or compressed : Red (.tar, .gz, .zip, .rpm)
 - Image files : Magenta (.jpg, .gif, .bmp, .png, .tif)
- Where is color of ls command defined?
 - /etc/DIR_COLORS

cp commands

- `cp [options]... Source Dest`
 - Copy one or more files to another location
- `cp [options]... Source... Directory`
 - Copy SOURCE to DEST, or multiple SOURCE(s) to DIRECTORY.

Options	Means
-f, --force	remove existing destinations, never prompt
-R, --recursive	copy directories recursively
-v, --verbose	explain what is being done

rm/rmdir commands

- `rm [options]... file...`

Options	Means
-f, --force	remove existing destinations, never prompt
-R, --recursive	remove directories recursively
-v, --verbose	explain what is being done

- `rmdir folder(s)...`
 - Remove directory, this command will only work if the folders are empty

mv command

- `mv [options]... Source Dest`
 - 'mv' moves each other given file into a file with the same name in that directory
- `mv [options]... Source... Directory`
 - it renames the first as the second

Options	Means
-f, --force	remove existing destinations, never prompt
-v, --verbose	explain what is being done

Others

- `stat [directory/file]`
 - See more detailed info about a dir/file
- `du -sh [directory]`
 - See a Directory size
- `df -k`
 - See all partitions
- `fdisk -l`
 - See all storages