

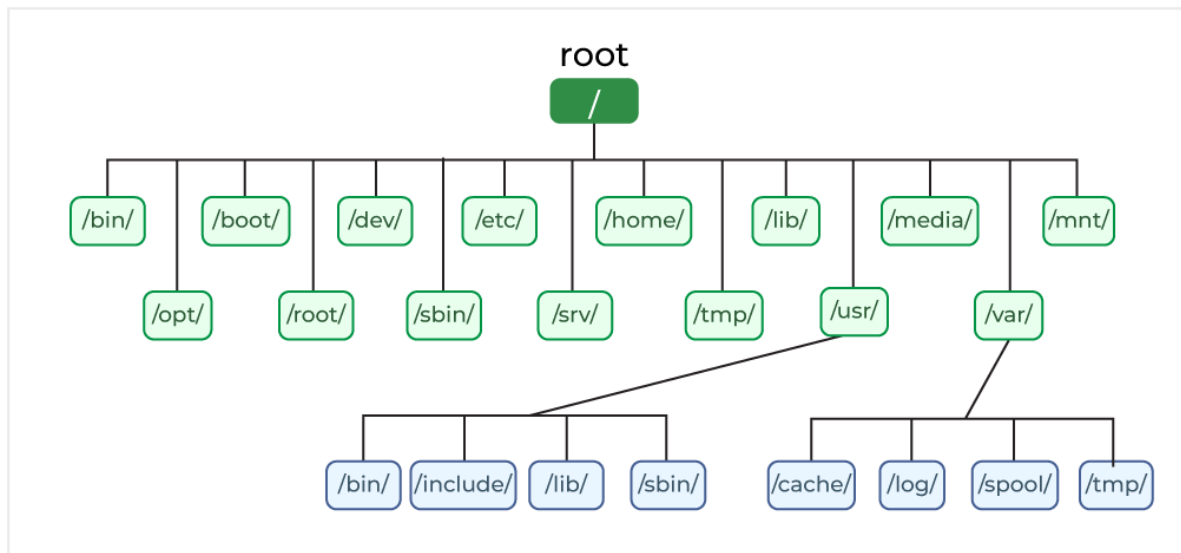
Unix Fundamentals

Directory Heirarchy :

The Unix file system is a hierarchical file system used by Unix-based operating systems to store and organize files and directories. It is a tree-like structure that starts with a single directory called the root directory, which is denoted by a forward slash (/) character.

File on Unix Operating System:

- In Unix everything is treated as a file, even devices are also treated as a special file.
- All devices are represented by files called special files that are located in /dev directory.
- These are accessed in the same way as regular file.
- Device files have two categories: 1) Block Special File, 2) Character Special File
- In Block Special File data gets transferred in terms of blocks. So it has characteristics similar to a disk.
- In Character Special File data gets transferred by a stream of bits in sequential order like a keyboard.
- Every file on a Unix system has a unique Inode.
- Processes access files by a well-defined set of system calls.
- Files can be specified by a character string called a path name.
- Each Pathname is unique and it is converted to an Inode.



Unix File System

Directories or Files and their Description

NAME	DESCRIPTION
/	The slash / character alone denotes the root of the filesystem tree.
/bin	Stands for "binaries" and contains certain fundamental utilities, such as ls or cp, which are generally needed by all users.
/boot	Contains all the files that are required for successful booting process.
/dev	Stands for "devices". Contains file representations of peripheral devices and pseudo-devices.

/etc	Contains system-wide configuration files and system databases. Originally also contained "dangerous maintenance utilities" such as init, but these have typically been moved to /sbin or elsewhere.
/home	Contains the home directories for the users.
/lib	Contains system libraries, and some critical files such as kernel modules or device drivers.
/media	Default mount point for removable devices, such as USB sticks, media players, etc.
/mnt	Stands for "mount". Contains filesystem mount points. These are used, for example, if the system uses multiple hard disks or hard disk partitions. It is also often used for remote (network) filesystems, CD-ROM/DVD drives, and so on.
/proc	procfs virtual filesystem showing information about processes as files.

/root	The home directory for the superuser "root" – that is, the system administrator. This account's home directory is usually on the initial filesystem, and hence not in /home (which may be a mount point for another filesystem) in case specific maintenance needs to be performed, during which other filesystems are not available. Such a case could occur, for example, if a hard disk drive suffers physical failures and cannot be properly mounted.
/tmp	A place for temporary files. Many systems clear this directory upon startup; it might have tmpfs mounted atop it, in which case its contents do not survive a reboot, or it might be explicitly cleared by a startup script at boot time.

/usr	Originally the directory holding user home directories, its use has changed. It now holds executables, libraries, and shared resources that are not system critical, like the X Window System, KDE, Perl, etc. However, on some Unix systems, some user accounts may still have a home directory that is a direct subdirectory of /usr, such as the default as in Minix. (on modern systems, these user accounts are often related to server or system use, and not directly used by a person).
/usr/bin	This directory stores all binary programs distributed with the operating system not residing in /bin, /sbin or (rarely) /etc.
/usr/include	Stores the development headers used throughout the system. Header files are mostly used by the #include directive in C/C++ programming language.
/usr/lib	Stores the required libraries and data files for programs stored within /usr or elsewhere.
/var	A short for "variable." A place for files that may change often – especially in size, for example e-mail sent to users on the system, or process-ID lock files.
/var/log	Contains system log files.

/var/mail	The place where all the incoming mails are stored. Users (other than root) can access their own mail only. Often, this directory is a symbolic link to /var/spool/mail.
/var/spool	Spool directory. Contains print jobs, mail spools and other queued tasks.
/var/tmp	A place for temporary files which should be preserved between system reboots.