



Linux Terminology



Linux Terminology and Examples

Kernel

distribution

boot loader

service

filesystem

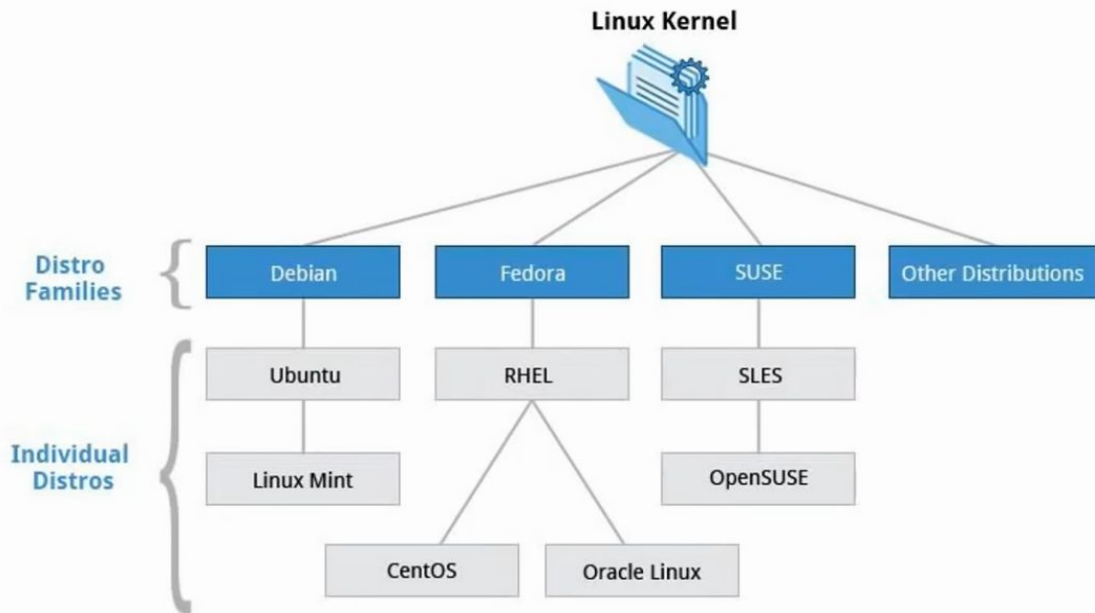
X Window system

desktop environment

command line



Kernel: Glue between hardware and applications
for example: Linux kernel



Distribution: Collection of software making up a Linux-based OS

for example: Red Hat Enterprise Linux, Fedora, Ubuntu and Gentoo



Boot loader

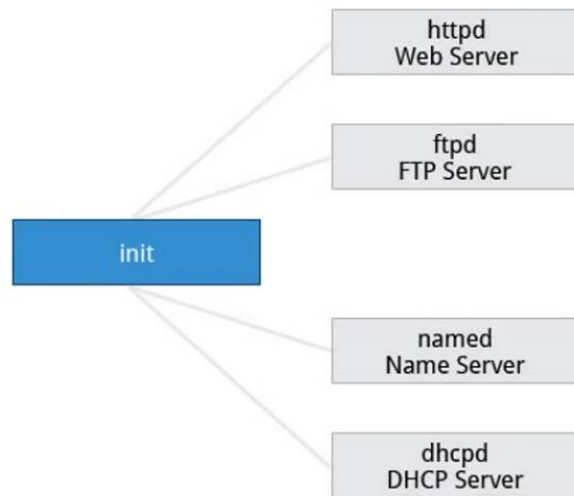


Linux Kernel

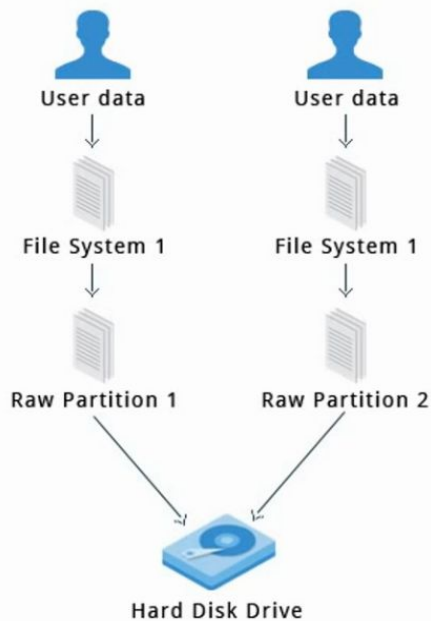


init

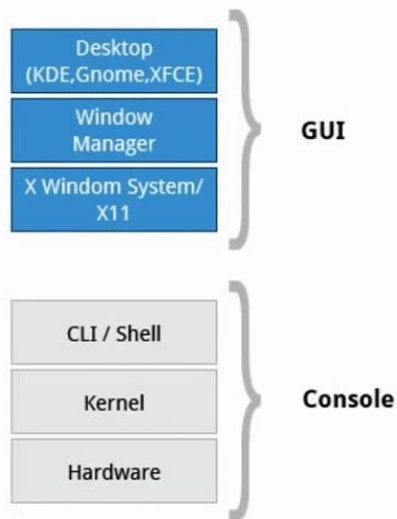
**Boot loader: Program that boots the operating system
for example: GRUB and ISOLINUX**



Service: Program that runs as a background process
example: httpd, nfsd, ntpd, ftpd and named

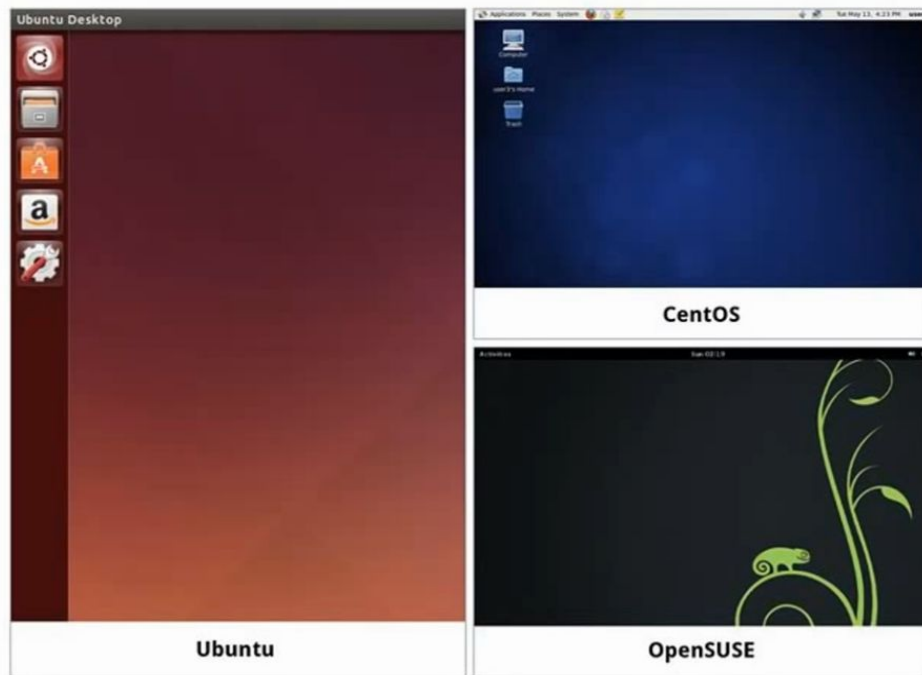


Filesystem: Method for storing and organizing files
example: ext3, ext4, FAT, XFS, NTFS and Btrfs

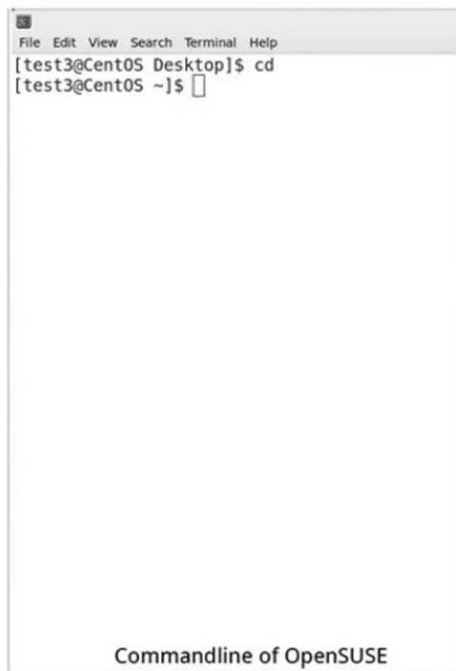


X Window System

Graphical subsystem on nearly all Linux systems



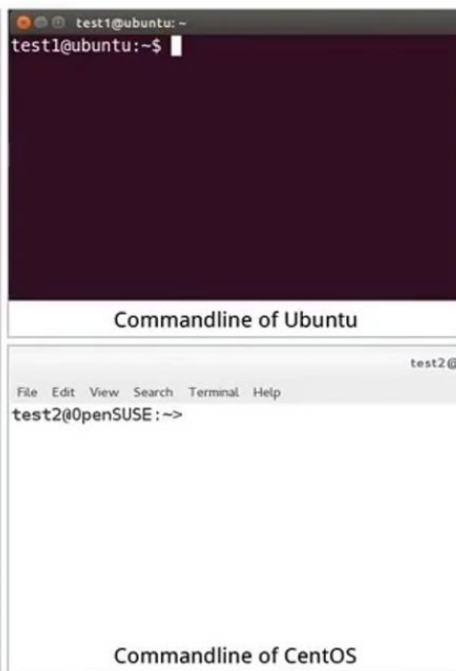
Desktop Environment: Graphical user interface on top of the operating system
for example: GNOME, KDE, Xfce and Fluxbox

A terminal window with a light gray title bar containing 'File Edit View Search Terminal Help'. The terminal text shows a user 'test3' at 'CentOS Desktop' running the 'cd' command to move to the home directory, resulting in the prompt '[test3@CentOS ~]\$' with a cursor.

File Edit View Search Terminal Help

```
[test3@CentOS Desktop]$ cd  
[test3@CentOS ~]$
```

Commandline of OpenSUSE

Two terminal windows are shown. The top window is titled 'test1@ubuntu: ~' and shows the prompt 'test1@ubuntu:~\$' with a cursor. The bottom window is titled 'test2@' and shows the prompt 'test2@openSUSE: ~->' with a cursor.

test1@ubuntu: ~

```
test1@ubuntu:~$
```

Commandline of Ubuntu

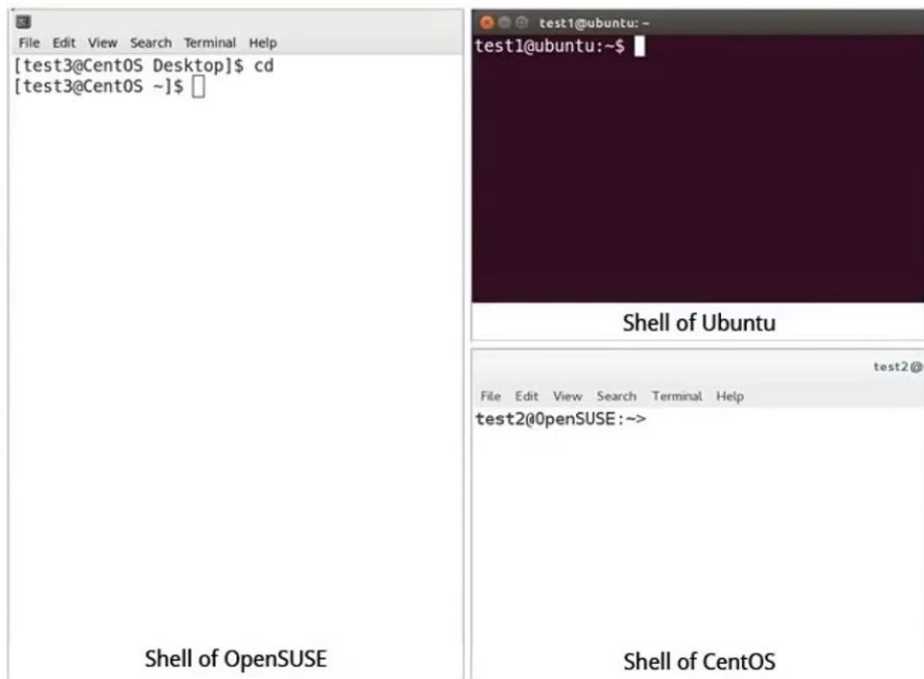
test2@

File Edit View Search Terminal Help

```
test2@openSUSE: ~->
```

Commandline of CentOS

Command line: Interface for typing commands on top of the operating system



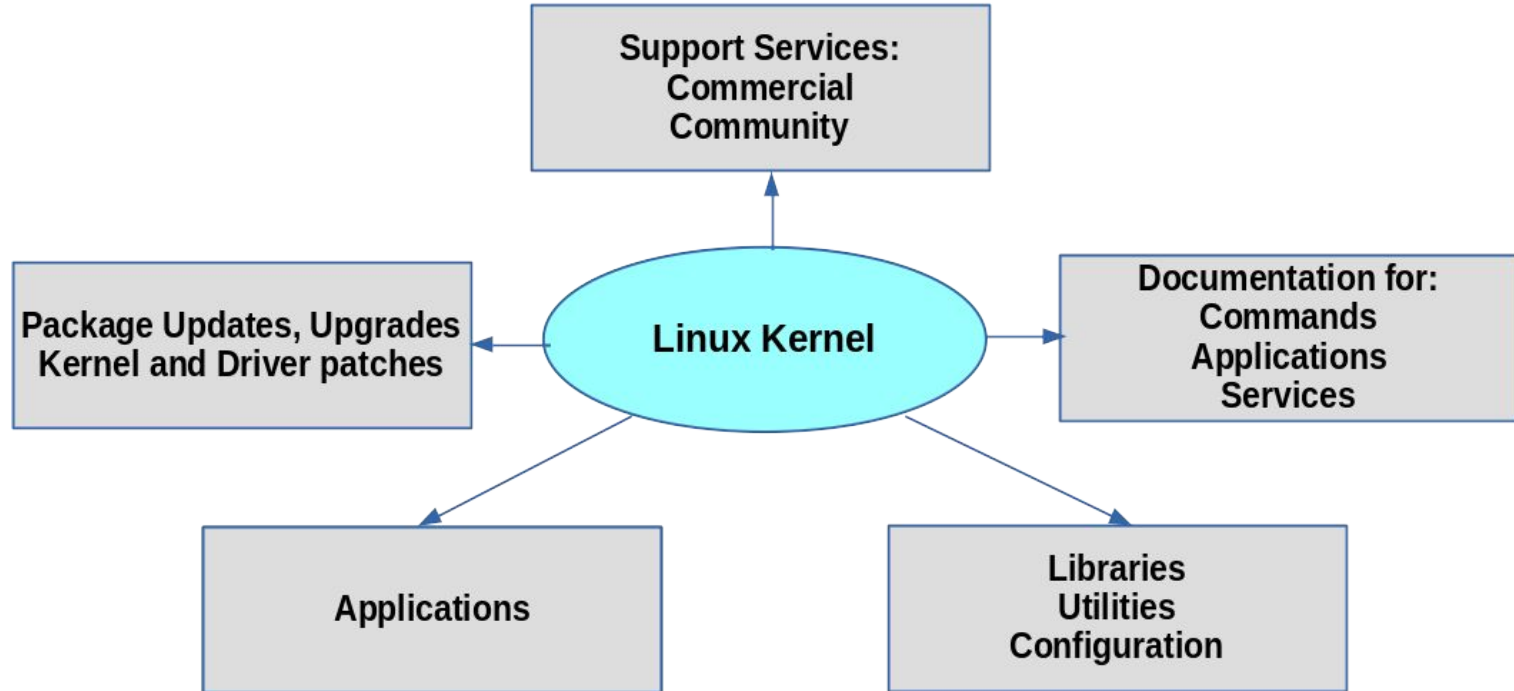
Shell: Command line interpreter that interprets the command line input and instructs the operating system to perform any necessary tasks and commands.
for example: bash, tcsh, and zsh



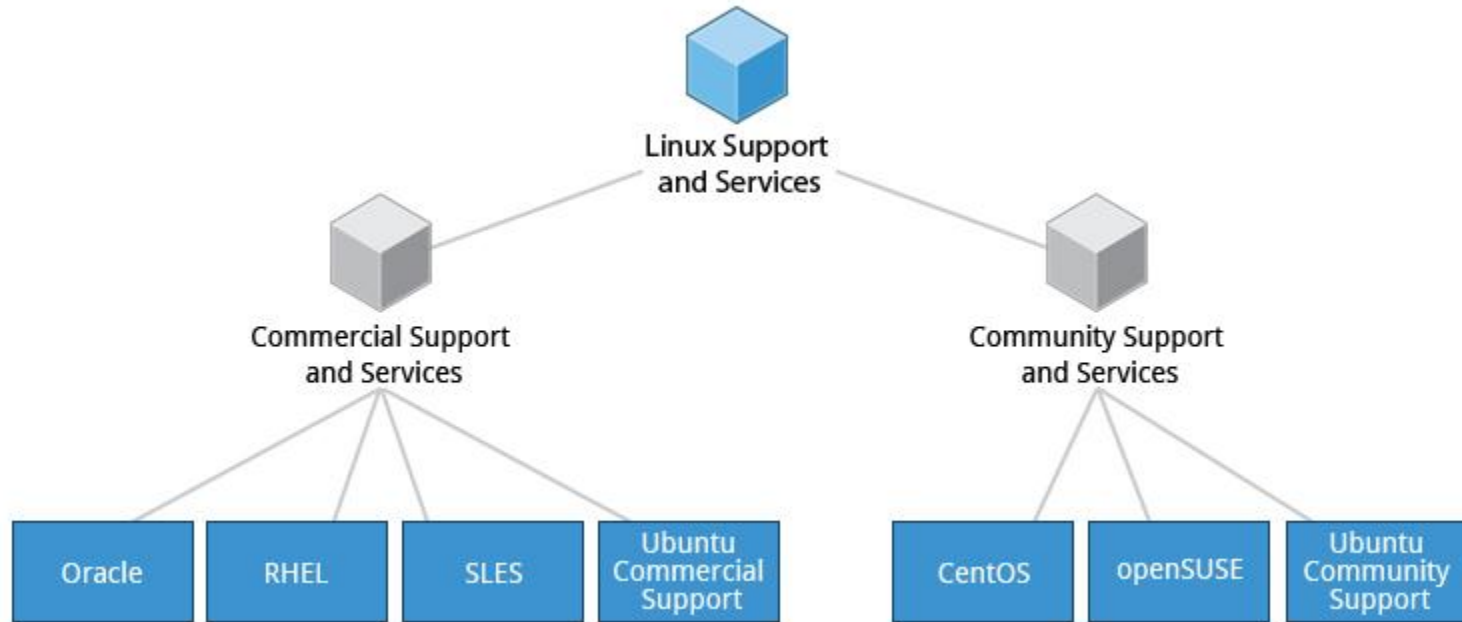
Linux Distributions



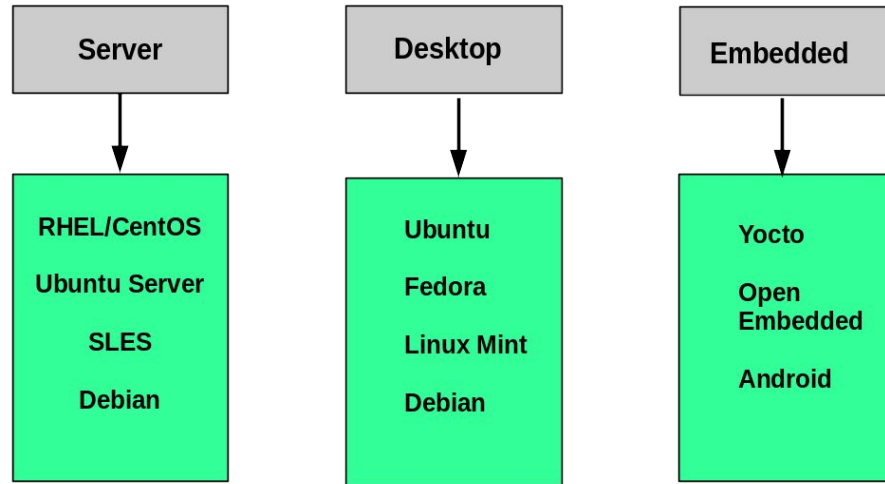
Distribution Roles



Services Associated with Distributions



Choosing a Linux Distribution



https://en.wikipedia.org/wiki/Linux_distribution



Installation



Pre-requisites

- Download and install **VirtualBOX** for your computer
 - <https://www.virtualbox.org/>
- Download Ubuntu (Centos, Debian, ...) **.iso** image
 - <http://cz.releases.ubuntu.com/>

Installation

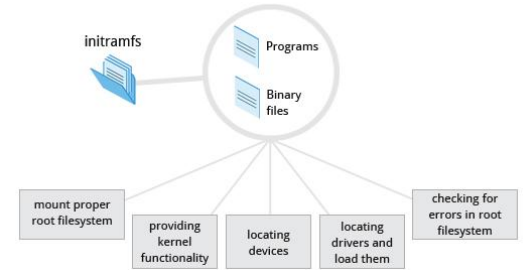
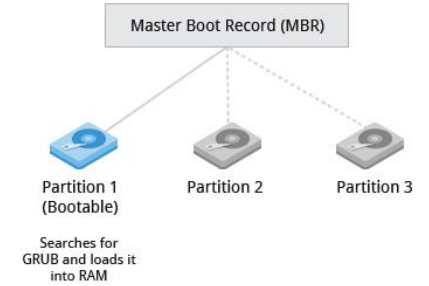
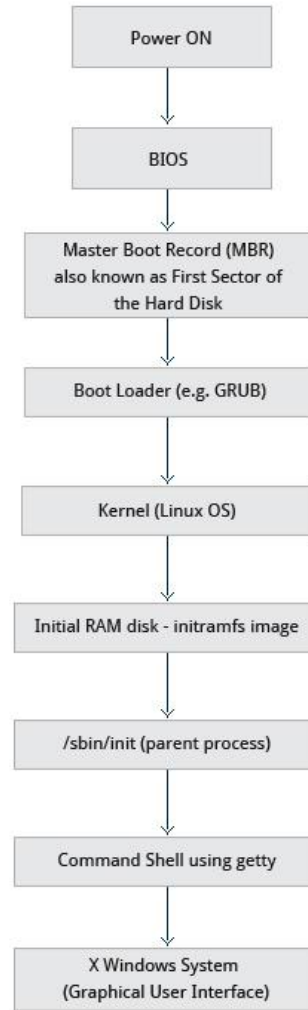
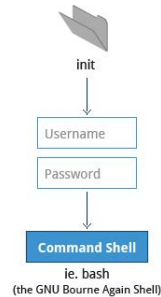
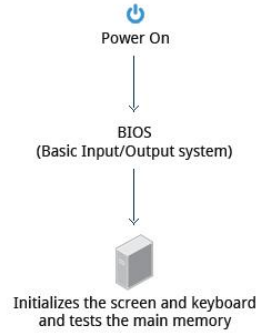
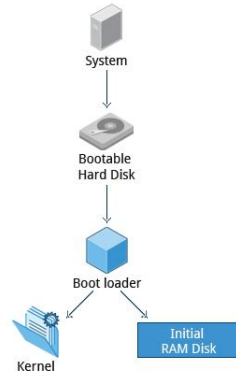
- Install **VirtualBOX**
- Run VirtualBox
- Create New VM - let's call it "**testvm**"
 - Allow 2 GB RAM, 10 GB disk space
 - Insert installation media - downloaded .iso
- Go through Ubuntu installation
 - Use first name as username
 - Use shareable password
- Reboot VM
- Login to desktop environment



Linux Boot Process



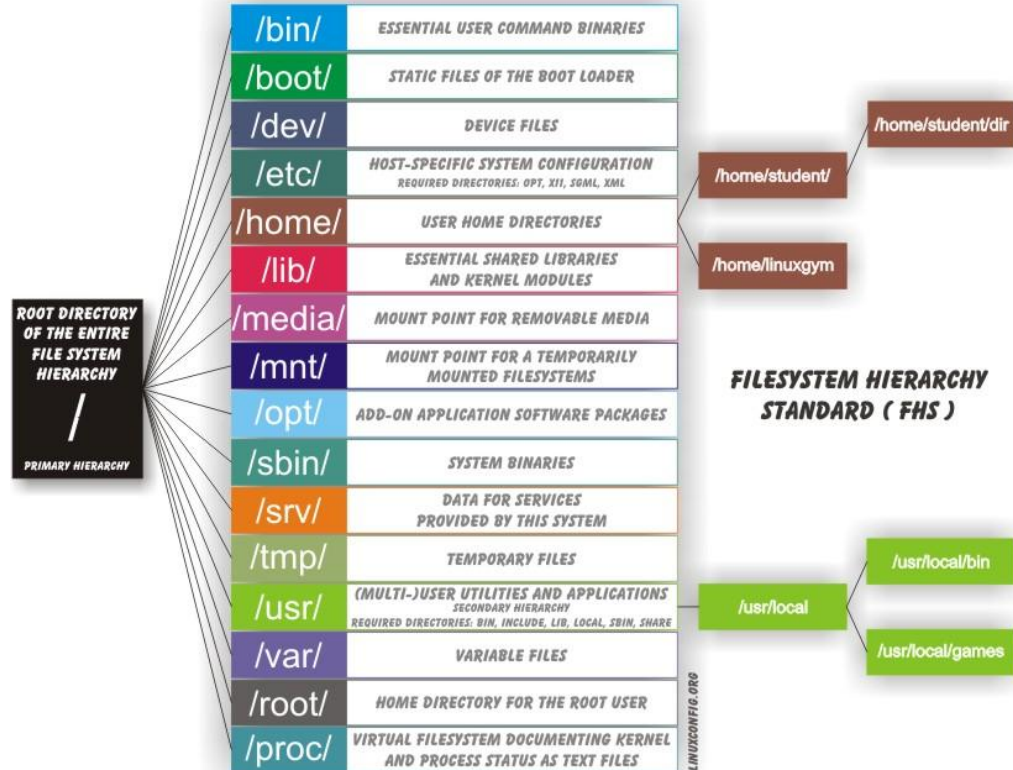
Boot Process



Filesystem Hierarchy Standard

	Windows	Linux
Partition	Disk1	/dev/sda1
Filesystem Type	NTFS/VFAT	EXT3/EXT4/XFS/BTRFS...
Mounting Parameters	DriveLetter	MountPoint
Base Folder (where OS is stored)	C:\	/

Linux uses the '/' character to separate paths (unlike Windows, which uses '\'), and does not have drive letters. Multiple drives and/or partitions are mounted as directories in the single filesystem. Removable media such as USB drives and CDs and DVDs will show up as mounted at **/run/media/yourusername/disklabel** for recent Linux systems, or under **/media** for older distributions. For example, if your username is **student** a USB pen drive labeled FEDORA might end up being found at **/run/media/student/FEDORA**, and a file **README.txt** on that disc would be at **/run/media/student/FEDORA/README.txt**.



```
student@centos:/  
File Edit View Search Terminal Help  
[student@centos /]$ tree -aCd -L 1 /  
/  
bin -> usr/bin  
boot  
dev  
etc  
home  
lib -> usr/lib  
lib64 -> usr/lib64  
lost+found  
media  
mnt  
opt  
proc  
root  
run  
sbin -> usr/sbin  
srv  
sys  
tmp  
usr  
var  
  
20 directories  
[student@centos /]$  
[student@centos /]$
```

```
student@centos:/  
File Edit View Search Terminal Help  
17 directories  
[student@centos /]$ tree -aCd -L 2 /home/home  
/home/home  
student  
├── .cache  
├── .ccache  
├── .config  
├── .dbus  
├── Desktop  
├── Documents  
├── Downloads  
├── .emacs.d  
├── LFT  
├── .local  
├── .mozilla  
├── Music  
├── Pictures  
├── Public  
├── Templates  
└── Videos  
  
17 directories  
[student@centos /]$  
[student@centos /]$
```

```
student@centos:/  
File Edit View Search Terminal Help  
[student@centos /]$  
[student@centos /]$ tree -aCd -L 1 /usr  
/usr  
├── bin  
├── etc  
├── games  
├── include  
├── lib  
├── lib64  
├── libexec  
├── local  
├── sbin  
├── share  
├── src  
└── tmp -> ../var/tmp  
  
12 directories  
[student@centos /]$
```

```
student@centos:/  
File Edit View Search Terminal Help  
[student@centos /]$ tree -aCd -L 1 /var  
/var  
├── account  
├── adm  
├── cache  
├── crash  
├── cvs  
├── db  
├── empty  
├── ftp  
├── games  
├── gopher  
├── kerberos  
├── lib  
├── local  
├── lock -> ../run/lock  
├── log  
├── mail -> spool/mail  
├── nis  
├── opt  
├── preserve  
├── run -> ../run  
├── spool  
├── target  
├── tmp  
└── yp  
  
24 directories  
[student@centos /]$
```