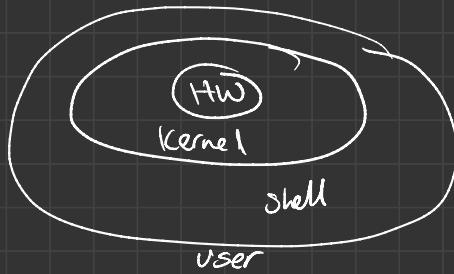


# \* RHCSA EX200 Exam (Admin 1 (RH124), Admin 2 (RH135))

- \* Command line is easier for customization Task , Fast Task ↪ permissions + access ↪ create 100 files for example
- \* as long as two systems can talk to the same protocol, they can integrate with each other.
- \* >alias to see linux commands on windows powershell
- \* in windows 10 you can install Bash shell on windows

## \* Computer System



Kernel [ Kernel کرنل یعنی ]  
• ویرایش سیستمی اینکه  
جیسے جیسے شیل میں ہے

windows → powershell

linux → Bash shell (by default)

→ sh Bourne shell  
→ ksh Korn shell  
→ csh C shell

## Unix / Linux history:

- 1969 AT&T Unix mainframe open source
- Berkeley uni add TCP/IP which mean system can connect to internet and talk to different protocols  
FreeBSD open source.
- IBM & HP & Sun took FreeBSD and created their own system  
OS: AIX, HP-UX, Solaris the problem their system work just on their devices only.
- Linus Torvalds want to make OS like unix  
He created the kernel of Linux (Linux is not unix) open source
- Redhat 1991: CentOS, Fedora, Suse, ... } package management is different  
play store is different.
- Debian Based: ubuntu, mint, kali, ... }

## \* File System format

Window: ntfs, refs, fat32

Linux: ext2, 3, 4 xfs → default for redhat

Unix: UFS, ZFS

\* by installing the system will create 3 partitions:

- Boot 1GB → Boot file
- Swap 4GB → for memory for inaktiv program
- Hard 45 GB →

\* root in linux is called superuser

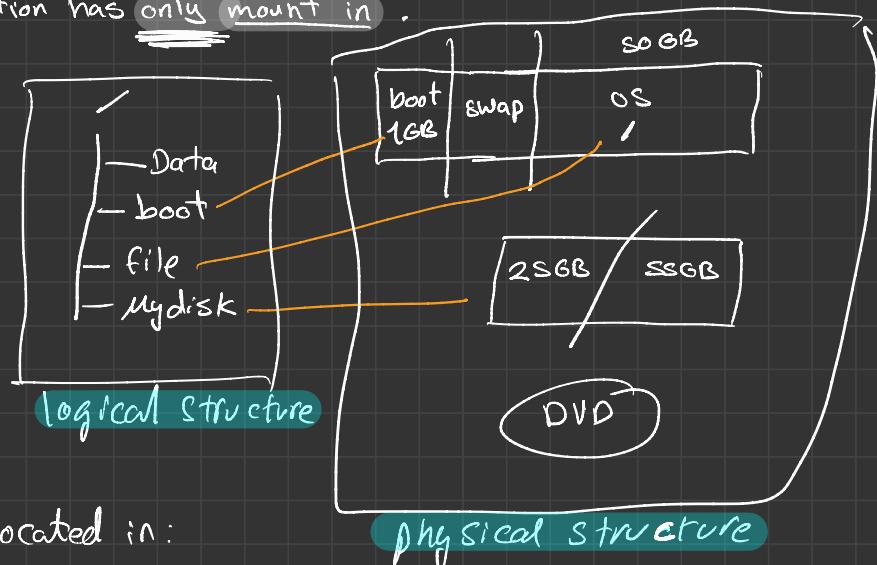
root (superuser)

\* every user has user id

\* root always has UID 0 → user no privileges. حقوق القائمة تكون

In Windows a partition has Drive letter and Mount in

In Linux a partition has only mount in.



Packages are located in:

Linux → Bash shell (by default) }  
sh Bourne shell  
ksh Korn shell  
csh Csh or shell } each one has  
his own feature

To know what kind of shell you are using → > echo \$SHELL

\* Check if installed : \* install any tool  
rpm -q app-name yum install nmap  
*still learning tools*

\* Command line syntax : ↴  
command option argument  
rm -i file

You can do multiple commands by separating them by ;

\* Command in details / infos use > man command  
> man ls

for search in man use /searchword , press n to go next  
press q to quit

\* for partition disk use >fdisk

\* lsblk  
Physical Hard 1 Physical Hard 2 Physical Hard 3  
sda sdb sdc  
  |  
  sd1 sd2  
  partition1 partition2  
srd (is for CD rom)

User profile = User home directory .

Big thanks to my teacher

Hany Nasr

## Mohamed essa :

- Redhat for money, but free CentOS, fedora
- You can work with CentOS and pass the exam.
- CentOS is exactly like Redhat but Redhat have support + update + patches.
- You can't use Fedora for RHCSA, It's develop
- Setup requirements → 512 (RAM), 4 GB for commandline (mini.)  
→ 1 GB "", 10 GB for interface
- First thing after installation is to update > yum update

## Q 8 A

- Redhat
  - ↳ free license CentOS 7
- Redhat is only in 64x bits
  - ↳ 86x bits does not exist
- Why can't you use 86x bit Redhat?
- Why better Redhat (servers) with internet
  - ↳ For update, add repository through installation
- No DVD, so use USB
- Why GUI is better?
  - ↳ There is software run only with GUI
  - ↳ Can you install Redhat without internet
    - ↳ Yes with USB or DVD, but you can't update only offline update.

- benefits of RHN (Redhat network)
  - ↳ you can do subscription
- which installation pattern to use with very limit space disk
  - ↳ minimal installation

Home work:

- ↳ make 3 labs < 2 GUI  
1 commandline
- install them on virtualbox → activate drag & drop

## Chapter 2: Executing Commands

- Aliases      alias newcmd="oldcmd"
- Internal commands
- external commands

> time ls      → show me how long it took to execute

## I/O Redirection:

### I/O Redirection

STDIN	Computer keyboard	< (same as 0<)	0
STDOUT	Computer monitor	> (same as 1>)	1
STDERR	Computer monitor	2>	2

input → accept → redirects output

### Common Bash Redirectors

Redirector	Explanation
> (same as 1>)	overwrites Redirects STDOUT
>> (same as 1>>)	appends Redirects STDOUT
2>	Redirects STDERR.
2>&1	Redirects STDERR.
< (same as 0<)	Redirects STDIN.

```
[muhammed@redhat ~]$ /dev/sda    → access hard
bash: /dev/sda: Permission denied
[muhammed@redhat ~]$ /dev/console   → access const
bash: /dev/console: Permission denied
[muhammed@redhat ~]$ /dev/tty1    → access const
bash: /dev/tty1: Permission denied
[muhammed@redhat ~]$ /dev/null    → for errors, ↗
bash: /dev/null: Permission denied
[muhammed@redhat ~]$ █
```

→ pipes → pipe

> ls | less      less no file(q) view cmd or full p/  
> ls -R /Desktop      show dir & sub dirs

Examples:

```
[muhammed@redhat ~]$ pwd
/home/muhammed
[muhammed@redhat ~]$ ls
Desktop Documents Downloads Music Pictures Public Templates Videos
[muhammed@redhat ~]$ ls > /dev/null → put results in /dev/null
[muhammed@redhat ~]$ ls sdfdfdf > /dev/null
ls: cannot access sdfdfdf: No such file or directory
[muhammed@redhat ~]$ ls sdfdfdf 2> /dev/null → send errors to /dev/null
[muhammed@redhat ~]$ ls sdfdfdf Documents 2> /dev/null
Documents:
[muhammed@redhat ~]$ ls sdfdfdf Documents > /dev/null
ls: cannot access sdfdfdf: No such file or directory
[muhammed@redhat ~]$ ls sdfdfdf Documents 2> /dev/null → hide errors
Documents:
[muhammed@redhat ~]$ ls sdfdfdf Documents 2> /dev/null>output → save results in output + send errors to /dev/null
[muhammed@redhat ~]$ ls
Desktop Documents Downloads Music output Pictures Public Templates Videos
[muhammed@redhat ~]$ cat output
Documents:
[muhammed@redhat ~]$
```

ctrlr+r → for search about cmd in history  
 >!7 → search in history for line 7 & execute it.  
 >history -c → remove all in history in memory  
 >history -w → write history to .bash\_history or external file.

## Shell Environments

- > env
- > echo \$PATH

Environment Configuration files:

- /etc/profile } changes for all users
- /etc/bashrc }
- ~/.bash\_profile } changes only for certain user → like define Variable
- ~/.bashrc }
- /etc/issue → for motd messages when user login successfully

apropos = man -K

man -f ls → list short description, if you get not appropriate  
 you need to update man >mandb

/K → Search in man file

# file Hierarchy system (FHS)

```
[muhammed@redhat ~]$ ls -l /
```

total 32								
lrwxrwxrwx.	1	root	root	7 Feb 18	09:15	bin	-> usr/bin	executable file system
dr-xr-xr-x.	4	root	root	4096 Feb 18	09:57	boot	→ contains everything to boot the system	
drwxr-xr-x.	20	root	root	3180 Feb 27	14:49	dev	→ for devices access	
drwxr-xr-x.	129	root	root	8192 Feb 27	14:46	etc	→ contains configuration files (services, programmes..)	
drwxr-xr-x.	3	root	root	21 Feb 18	09:35	home	→ local user home directory	
lrwxrwxrwx.	1	root	root	7 Feb 18	09:15	lib	-> usr/lib	
lrwxrwxrwx.	1	root	root	9 Feb 18	09:15	lib64	-> usr/lib64	libraries that used by programmes in boot, dev, etc, sbin
drwxr-xr-x.	2	root	root	6 Aug 12	2015	media	↳ used for mounting devices.	
drwxr-xr-x.	2	root	root	6 Aug 12	2015	mnt	→ contains third party programmes (programmes does not belong to user)	
drwxr-xr-x.	4	root	root	47 Feb 18	09:44	opt	→ ?	
dr-xr-xr-x.	179	root	root	0 Feb 27	14:45	proc	→ ?	
dr-xr-x---	5	root	root	4096 Feb 19	13:10	root	→ home directory for root user	
drwxr-xr-x.	36	root	root	1100 Feb 27	14:50	run	→ contains info for last login	
lrwxrwxrwx.	1	root	root	8 Feb 18	09:15	sbin	-> usr/sbin	→ like bin, but for system administration commands
drwxr-xr-x.	2	root	root	6 Aug 12	2015	srv	→ contains data for services	
dr-xr-xr-x.	13	root	root	0 Feb 27	14:45	sys	→ ?	
drwxrwxrwt.	34	root	root	4096 Feb 27	14:49	tmp	→ contains temporary file, that will be deleted once reboot system	
drwxr-xr-x.	13	root	root	4096 Feb 18	09:15	usr	→ directory contains subdirectories, libraries belonging to installed programmes + documentation	
drwxr-xr-x.	20	root	root	4096 Feb 27	14:45	var	→ programmes always change its size (logs, mails, ...)	

Some admins, separate Var and disk, so to not get the hard full because of many logs stored in /var

> df -h → Show all mountpoints on system -h for human readable

> Findmnt

$\text{ctrl} + (\text{Alt} + \text{F1})$  → to change to another console (F1 - F6)  
 $\geq w$  → overview for all users are loged in.



