

⇒ . Linux Operating System & Commands. (Imp for DevOps) Day 3.

1> whoami 2> sudo su root. 3> pwd (Print working Directory)

User & Group Managements/Permission

root → almost have all the permissions.

Sudo su -

without password

4> ls ⇒ list Directory.(files).

(bin → store Binary files (say touch, ls etc). of all the common commands.)

5> touch a.txt (will create a file). (cat) ⇒ Show file content

6> Search from big list

ls | grep date (filteration).
→ (Pipe symbol)

b7n ⇒ Accessible by
any user

7> ./date (Executable commands, provide executable location).
↳ Binary file execution.

⇒ sbin ⇒ all system binaries will be stored (which are related to System Administration)

↳ only accessible by root/administrative users.

↳ mount, shutdown.

sshd, ifconfig

↳ / directory is very important.

↳ → Root Directory.

Windows (Local C: Disk)

- ⇒ cd etc → contains all configuration files.
- ① Date executable location.
- ② (Nothing will be printed in terminal.)
- ⇒ cd.. ⇒ one Directory Back.
- ⇒ If need to update Apache Configurations
- ⇒ Go to [cd httpd]
↓ ls.
cd conf
↓
vi httpd.conf ↪ [file will be open.]

⇒ Start HTTPD program.

System will start httpd

Want to access ⇒ curl Private IP Address

curl

as accessing in the same OS
from command line.

(Client side)

⇒ cd /var/www/html.

||

vi abc.html
⇒ add & save.

(Browser)

15.207.16.75/abc.html.

(By default 80 is the port number).

Whenever Nginx changes in conf file.

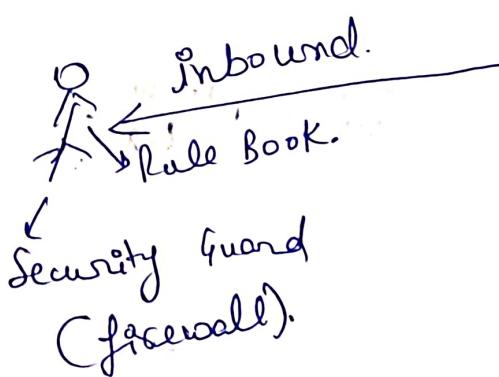
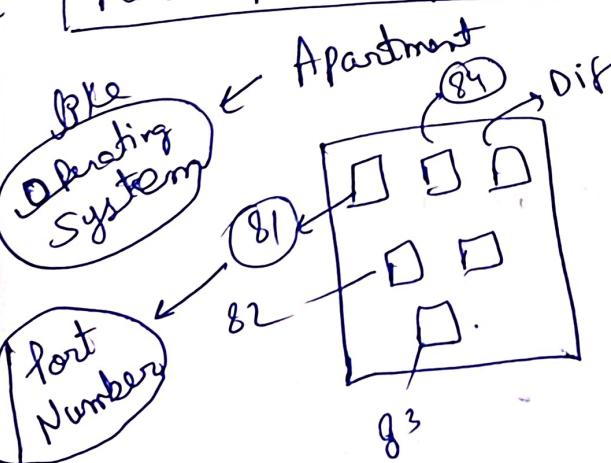
||

restart the server.

15.207.16.78:81/abc.html

→ check in security group as well.

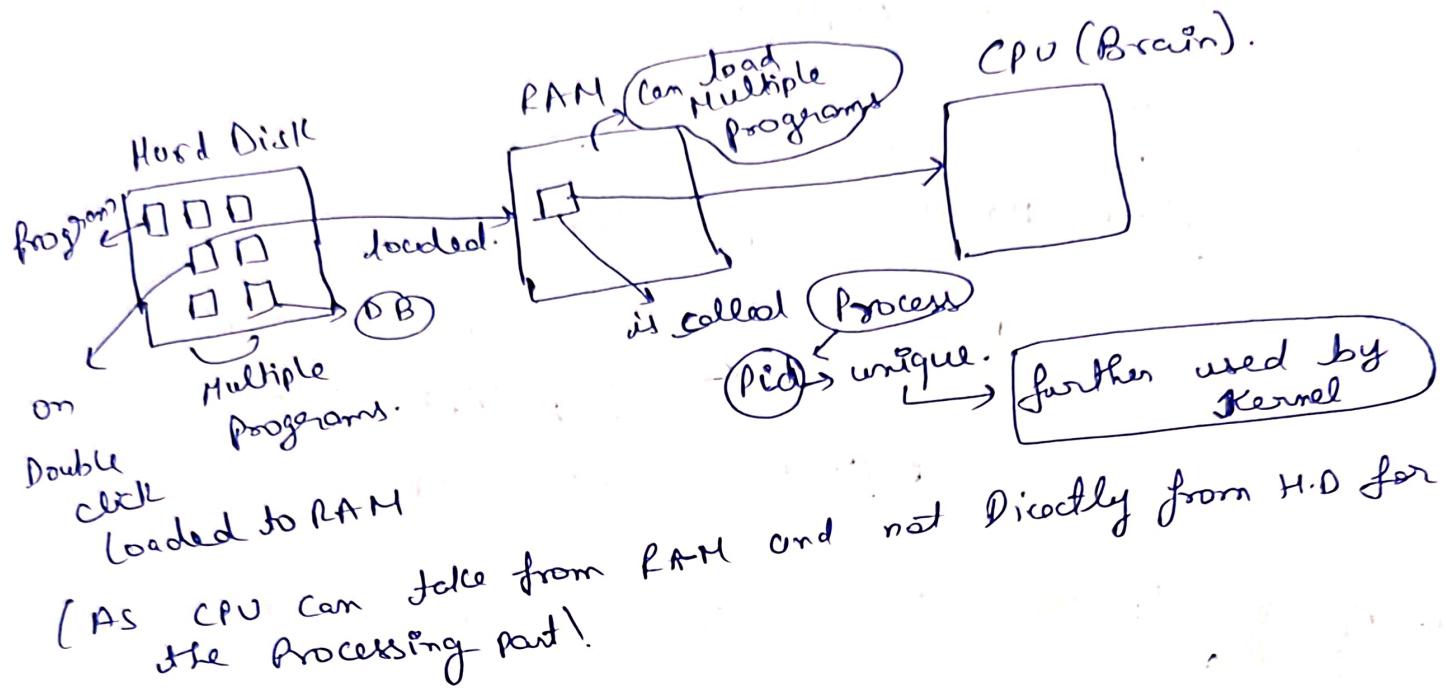
Port No Explanation



(Destination)
Source
IP Address

N/W Packet

⇒ PS - aux ⇒ No Number of programs running in the system
 (Same like Task Manager in Windows).



(AS CPU can take from RAM and not Directly from H.D for the processing part!)

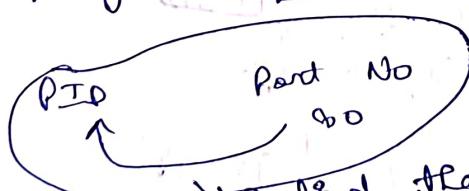
⇒ PS - aux | grep httpd.

one process can have multiple child processes as well).

use case Process ID is Dynamic and will be changing.

Static No (Port No) would be used.

Mapping b/w PID & Port No.



Behind the scenes will be mapped to this.

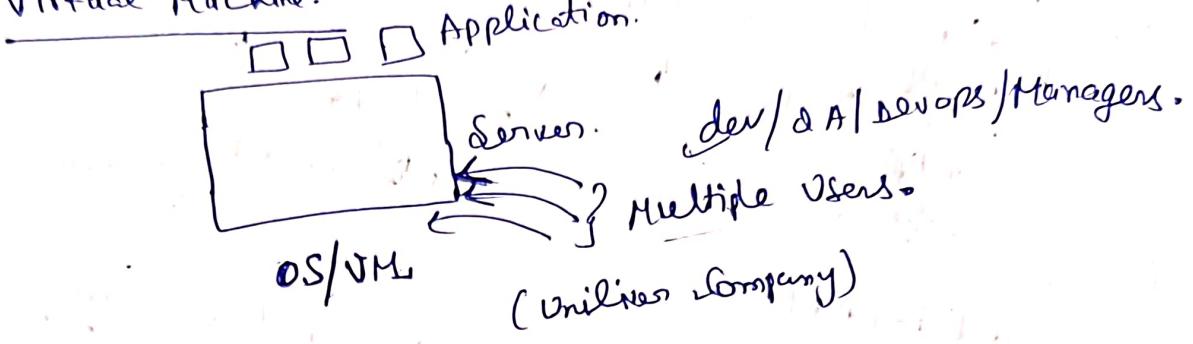
⇒ netstat -anp ⇒ describe what processID is connected to what port NO.

If anyone is coming to Port No 80, then I will direct them to particular PID

26754/ httpd -*

Example

In one OS Multiple Users can use the same Virtual Machine.



Multiple Users | Restrict As well
Creation (ec2-user/ root pre created)

⇒ useradd dev1
passwd dev1.

⇒ Suppose we created another user say dev2 and password.
No for dev1 can access @ part where dev2 can access permission separately for all the users.

↓
We can create a group and add that particular user to the group.

⇒ groupadd devs.
cat /etc/group

While adding user a group fd is also created with the same name

⇒ Existing user Modify

usermod dev1 -g devs.

usermod --help Documentation
Help

⇒ Adding more users Now
useradd dev2 -g devs while adding user can also add to group as well.

⇒ Managers Group Creation

groupadd Managers.

useradd Abc -g Managers

(Case) Suppose there is user A that is first added to managers group.
we do id A then Managers group is present

↓

No if we add same user A to devs group then it is added but when we do id A no Managers group is being removed.

Solution

changing the primary Group as well.

usermod -a -g general eg managers

1. (-g) Set the primary Group.

→ changes the primary group.

⇒ A user can have only one primary group.

⇒ Replaces the existing primary group.

2. (-G) Add to Secondary (Supplementary) Groups.

⇒ The (-G) option adds the user to one or more secondary groups.

⇒ A user can belong to multiple secondary groups.

Info This replaces all existing secondary groups unless you append using the (-a) flag.

⇒ [usermod -aG managers abhishek agarwal]

Switching of Users | Bsu Users If I am root user, then password will not be asked, as it is totally managed by root (Admin).

(cd home)

⇒ Each of the users will have their own Home directory where they can put/add their respective files.

⇒ `cd home` → `dev1` Directory

`dev2` bin file

⇒ If want user to go Home Directory

`cd ~`

home/dev1 ⇒ `touch a.txt`

Have permission for bin commands.

⇒ To check if password is set or not for user

`Sudo passwd -S dev2` (command).

Dev2

(Case) Suppose I am in home directory of User A

and then switch to User B then I can run

Commands like whoami fine, but if I run

`ls` command then get error as below:-

`ls: cannot open directory '.': Permission Denied`

which means I want to see files of User A

Because after switching, logged in as User B

but trying to access files of User A

for this User B need to go to his home
Directory.

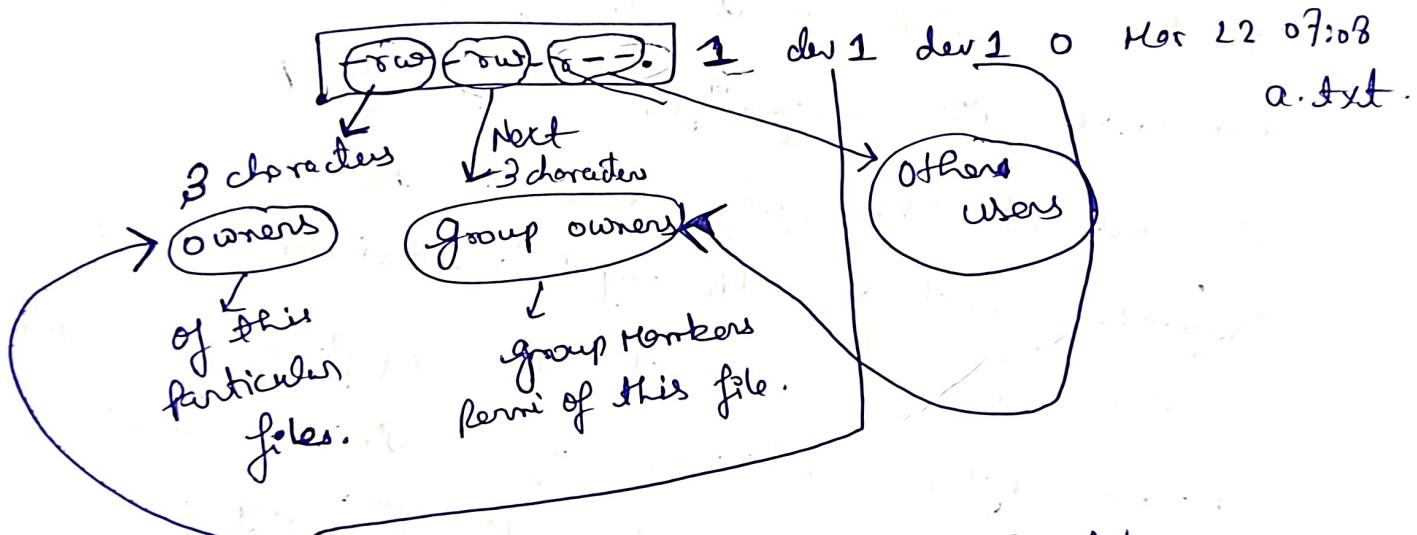
Now suppose User B wants permission to access User A data/files.

* **Imp** How to change Directory/files permission.

Sudo Su - → Switched to root.

User A → User B
give permission
of file/Directory

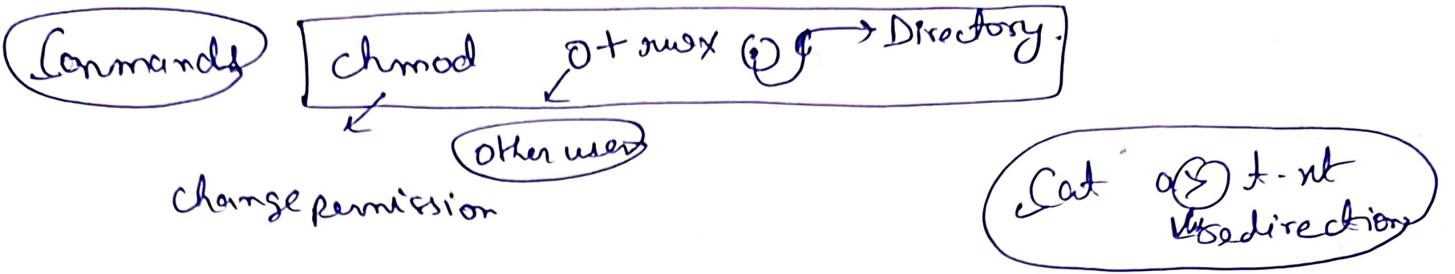
Imp `ls -l` → will show permissions about the file.



Users having `dev1` group access will be able to r/w the file.

→ who are not owners| group owners are under others category (Not part of `dev1` Group will have only read access).

⇒ `ls -l -a` ⇒ Info/permission about all hidden directories.



Note User B will have read, create file as well in User A Directory.

~~Case~~ Suppose in User A we have a file a.txt which is very important. Want User B to have write access. File is very critical and don't want all the other users in the System will be able to do the write operations. (Other users should not have read permission as well)

Commands Changing the Group Owner of a file.

`chown :dev a.txt` → file Name

Group Name.

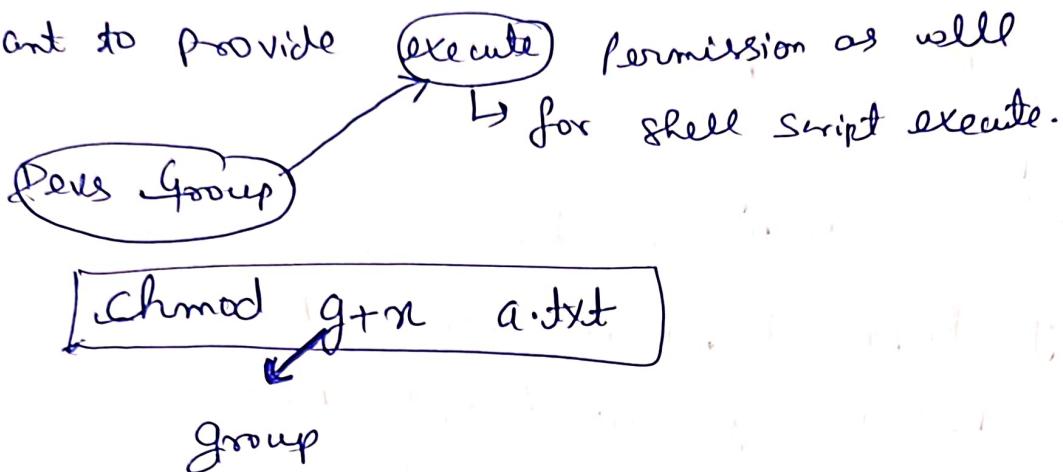
Now Switch Back to User B. from User A and now

a.txt will be editable to whoever users one in the devs group

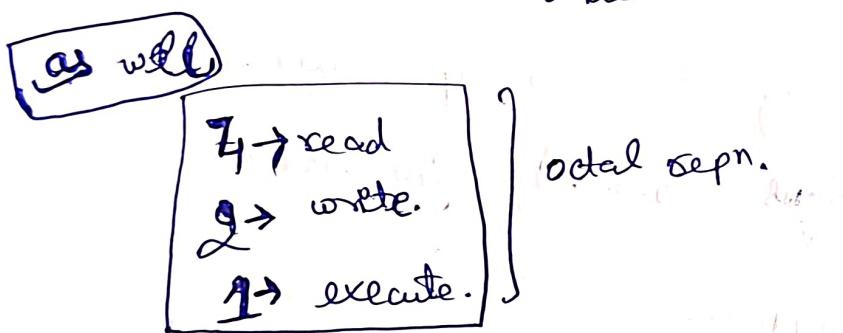
Now changing of these type of permission is a very frequent job.

Different ways of Doing this.

eg Want to provide execute permission as well for shell script execute.

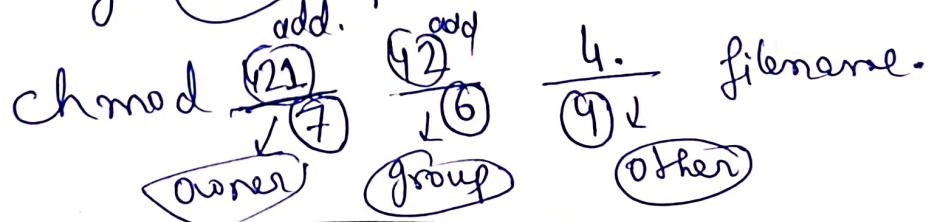


Imp We can define read & write & execute in Numeric ways



eg Want b.txt [owner] will have rwx, [Group owner] will have rw permission only and [Others Users] should

Have only read add. permission.



⇒ `chmod 777 filename`
all permission

(Temp Part) Switch Back to (User A)

→ Now Suppose this user wants to install a package and
Don't Have permission.

Till Now we have Discuss How to Change Permissions
relate to (files) & (folders) | But what about
Commands/Program

[As have from (root) user]

Now if have to give extra permission to Users to
run these types of commands then have to
add Super Admin Privileges.

1) we have one file

→ /etc/sudoers

Very imp file

will be add from
root user only

⇒ To check location of yum Binary file

which yum ⇒ /usr/bin/yum.

Now after switch to user A from root user provide privileges as well but have to use

(Sudo) command now &

(Sudo yum install httpd)

Running this command as a root user-

(Sudo -u root yum install httpd)

⇒ If not to manually add like (/etc/sudoers) in Sudoers file, then we can use (aliases) described in the same file.

⇒ Instead of Manually Adding Multiple Users in the sudoers file we can use the

(wheel) Group part which is by Default present.

(~~✓~~ Userdel username) (will delete only user)

Userdel -r username → will delete all info related to that user

Imp Topic

yum repository

⇒ Apache, nginx. → How yum know from where to install / access the file / dependencies as well.

→ yum is like a package manager for the entire os. (Installing package from a repo).
Install Dependencies as well.

Package extension

rpm ⇒ Redhat Package Manager

Windows ⇒ exe

Node (npm)

Python pip

(Installing packages from Internet).

⇒ Command to check is package is installed or not.

rpm -q httpd

Query

⇒ location

Cd /etc/yum.repos.d/

⇒ Directory

↓
ls

amazonlinux.repo

kernel-livpatch.repo

Now suppose need to install a package which is not in Amazon Linux Rep

fedora

Want to Configure Custom Repo.

Epel.repo

A custom Repo.

OSEL (Open Source packages for enterprise Linux)

↳ Linux Community.

Baseline lot of Packages present Not in Amazon Linux Repo.

gpg check ⇒ every package have their own signature (Verify them as well)

Enabled: 1

want to use this repo.

Command

yum repolist

↳ this will tell How much repo yum knows.

↳ Yum Info ailib

Yum Search PackageName

↳ Yum whatprovides httpd