



# RHEL9

## Session 7 – 19<sup>th</sup> Nov 2022 Summary

- The “**useradd**” command is used to create users, behind the scene it updates the files such as “/etc/passwd”, “/etc/shadow”, “/etc/group” etc
- The link of “useradd” command is “**adduser**” which can also be used to create users
- The command to find the location of “adduser” command is “**which adduser**”

```
[root@localhost ~]# which adduser
/usr/sbin/adduser
```

- The command used to list the details of “adduser” command is “**ls -l /usr/sbin/adduser**” from this we see that “adduser” command is the link of “useradd” command, two different names but both the commands are same

```
[root@localhost ~]# ls -l /usr/sbin/adduser
lrwxrwxrwx. 1 root root 7 Dec  3 2021 /usr/sbin/adduser -> useradd
[root@localhost ~]#
```

- The command used to create a user pop123 is “**useradd pop123**”, this command behind the scene updates some of the files.

```
[root@localhost ~]# useradd pop123
[root@localhost ~]#
```

- The “/etc/passwd” file has the database of all users, every line is the information of a particular user, it has **seven fields**

```
[root@localhost ~]# cat /etc/passwd
```

```

flatpak:x:990:985:User for flatpak system helper:/:/sbin/nologin
gdm:x:42:42:/:var/lib/gdm:/sbin/nologin
cockpit-ws:x:989:984:User for cockpit web service:/nonexisting:/sbin/nologin
cockpit-wsinstance:x:988:983:User for cockpit-ws instances:/nonexisting:/sbin/nologin
gnome-initial-setup:x:987:982:/:run/gnome-initial-setup:/sbin/nologin
rpcuser:x:29:29:RPC Service User:/var/lib/nfs:/sbin/nologin
sshd:x:74:74:Privilege-separated SSH:/usr/share/empty.sshd:/sbin/nologin
chrony:x:986:981:/:var/lib/chrony:/sbin/nologin
dnsmasq:x:985:980:Dnsmasq DHCP and DNS server:/var/lib/dnsmasq:/sbin/nologin
tcpdump:x:72:72:/:/sbin/nologin
systemd-oom:x:978:978:systemd Userspace OOM Killer:/:usr/sbin/nologin
vimal:x:0:1000:vimal daga:/home/vimal:/bin/bash
tom:x:1001:1001:/:home/tom:/bin/bash
apache:x:48:48:Apache:/usr/share/httpd:/sbin/nologin
yash:x:1002:1002:/:home/yash:/bin/bash
pop:x:1003:1003:/:home/pop:/bin/bash
jack:x:1004:1004:/:home/jack:/bin/bash
eric:x:0:1005:/:home/eric:/bin/bash
pop123:x:1005:1006:/:home/pop123:/bin/bash

```

- The seven fields are separated by colon (:):
  - User name or Login name
  - Password (x) – links to other file “/etc/shadow”
  - UID(User Identifier)
  - GID(Group Identifier)
  - Comment – this field is usually empty but we can add details about the user
  - Home Directory- after user login, the OS will take user to this home directory
  - /bin/bash or /sbin/nologin shell

- To give details about the user

- Create the account

```

[root@localhost ~]# useradd tom123
[root@localhost ~]#

```

- Open the file

```

[root@localhost ~]# vim /etc/passwd

```

- Go to the line and add the details of the user

```

tom123:x:1006:1007:my tom admin:/home/tom123:/bin/bash

```

- The fifth field is the **comment field** is also called as GECOS field, in this one field we can store many information about the user.
- The “**chfn command**” by which we can store the detailed information about the user (chfn → change the finger database). It updates the information of the user in the “/etc/passwd” file. The command is “**chfn user\_name**”.

```
[root@localhost ~]# chfn vimal
Changing finger information for vimal.
Name [vimal daga]: vimal daga lw
Office []: LW
Office Phone []: 123456
Home Phone []: 982911124

Finger information changed.
[root@localhost ~]#
```

- The command used to open the “/etc/passwd” file is “vim /etc/passwd”, we see that in the fifth single field multiple information of a user can be stored this is called as **GECOS or finger** database.

```
[root@localhost ~]# vim /etc/passwd
```

```
systemd-oom:x:978:978:systemd Userspace OOM Killer:/:/usr/sbin/nologin
vimal:x:0:1000:vimal daga lwLW,123456,982911124:/home/vimal:/bin/bash
tom:x:1001:1001:/:/home/tom:/bin/bash
```

- The command used to open the manual for a file “**man 5 file\_name**”, here the file\_name is “passwd”

```
[root@localhost ~]# man 5 passwd
```

```
name:password:UID:GID:GECOS:directory:shell

The field are as follows:

name          This is the user's login name.  It should not contain capital letters.

password      This is either the encrypted user password, an asterisk (*), or the letter 'x'.  (See pwconv(8) for an explanation of 'x'.)

UID           The privileged root login account (superuser) has the user ID 0.

GID           This is the numeric primary group ID for this user.  (Additional groups for the user are defined in the system group file; see group(5)).
```

```

GECOS      This field (sometimes called the "comment field") is optional and used only for informational purposes. Usually, it contains the full username. Some programs (for example, finger(1)) display information from this field.

           GECOS stands for "General Electric Comprehensive Operating System", which was renamed to GCOS when GE's large systems division was sold to Honeywell. Dennis Ritchie has reported: "Sometimes we sent printer output or batch jobs to the GCOS machine. The gcoss field in the password file was a place to stash the information for the $IDENTcard. Not elegant."

directory  This is the user's home directory: the initial directory where the user is placed after logging in. The value in this field is used to set the HOME environment variable.

shell      This is the program to run at login (if empty, use /bin/sh). If set to a nonexistent executable, the user will be unable to login through login(1). The value in this field is used to set the SHELL environment variable.

```

- The “**finger** command” has the capability to convert the information of user into simple user readable format.

- Create user

```
[root@ip-172-31-40-219 ~]# useradd vimal
```

- Print the file

```
[root@ip-172-31-40-219 ~]# cat /etc/passwd
```

```
vimal:x:1001:1001::/home/vimal:/bin/bash
```

- Use finger command to retrieve a particular user information

```
[root@ip-172-31-40-219 ~]# finger vimal
Login: vimal                                Name:
Directory: /home/vimal                     Shell: /bin/bash
Never logged in.
No mail.
No Plan.
```

- The “**finger**” command is also used to keep track about all the users who are currently logged in

```
[root@ip-172-31-40-219 ~]# finger
```

| Login    | Name             | Tty   | Idle | Login Time      | Office | Office Phone | Host  |
|----------|------------------|-------|------|-----------------|--------|--------------|---|
| ec2-user | EC2 Default User | pts/0 |      | Nov 19 11:24    |        |              | (ec2-13-233-177-3.ap-south-1.comput<br>e.amazonaws.com) |
| tom      |                  | pts/1 | 1    | Nov 19 11:34    |        |              | (103.59.75.91)  |
| tom      |                  | pts/3 | 1    | Nov 19 11:35    |        |              | (103.59.75.91)  |
| vimal    | vimal daga       | pts/2 |      | Nov 19 11:35 LW |        | x1-2345      | (103.59.75.91)  |



- The “**who command**” is also used to see about all user currently logged in

```
[root@ip-172-31-40-219 ~]# who
ec2-user pts/0      2022-11-19 11:24 (ec2-13-233-177-3.ap-south-1.compute.amazonaws.com)
tom      pts/1      2022-11-19 11:34 (103.59.75.91)
vimal    pts/2      2022-11-19 11:35 (103.59.75.91)
tom      pts/3      2022-11-19 11:35 (103.59.75.91)
```

- The “**w command**” gives extra information about the system and all users currently logged in

```
[root@ip-172-31-40-219 ~]# w
11:38:01 up 19 min,  4 users,  load average: 0.00, 0.00, 0.00
USER      TTY      FROM            LOGIN@   IDLE   JCPU   PCPU WHAT
ec2-user  pts/0    ec2-13-233-177-3 11:24    1.00s  0.09s  0.01s sshd: ec2-user [priv]
tom       pts/1    103.59.75.91     11:34    3:11   0.01s  0.01s -bash
vimal     pts/2    103.59.75.91     11:35    2:06   0.01s  0.01s -bash
tom       pts/3    103.59.75.91     11:35    2:29   0.01s  0.01s -bash
```

- The “**pinky command**” is also used to see about all user currently logged in

```
[root@ip-172-31-40-219 ~]# pinky
Login  Name                TTY      Idle   When             Where
ec2-user EC2 Default User    pts/0          2022-11-19 11:24 ec2-13-233-177-3.ap-south-1.compute.amazonaws.com
tom      pts/1          00:03  2022-11-19 11:34 103.59.75.91
vimal    vimal daga         pts/2          00:02  2022-11-19 11:35 103.59.75.91
tom      pts/3          00:03  2022-11-19 11:35 103.59.75.91
```

- The sixth field is the “**home directory**”, when a user login to OS, the user will be in some directory or folder
- After user login, the first directory, where the user lands is called the **home directory**

```
Red Hat Enterprise Linux 9.0 (Plow)
Kernel 5.14.0-70.22.1.el9_0.x86_64 on an x86_64

Activate the web console with: systemctl enable --now cockpit.socket

localhost login: vimal
Password:
Last login: Sat Nov 19 17:18:48 on tty3
#####
##### Welcome Back from diwali festival #####
##### now focus on study..... #####

[root@localhost ~]#
[root@localhost ~]#
[root@localhost ~]# pwd
/home/vimal
[root@localhost ~]# _
```

- We have multiple users, each user has personal data to manage, to store user data separately there is home directory
- The “/home” is a pre-created directory, where we see all users home directory

```
[root@localhost ~]#
[root@localhost ~]# cd /home/
[root@localhost home]# ls
eric jack pop pop123 tom tom123 vimal yash
[root@localhost home]#
```

- When we create a user krish using command “**useradd krish**”, the useradd command automatically creates the directory krish for the user, this is the home directory for krish. It also sets a security.

```
[root@localhost home]# useradd krish
[root@localhost home]# pwd
/home
[root@localhost home]# ls
eric jack krish pop pop123 tom tom123 vimal yash
[root@localhost home]# _
```

- The seventh field is “/bin/bash or /sbin/nologin”, when a user login in CLI, we have a command prompt, there is a cursor blinking, where a command can be entered. A program behind the scene takes the command and runs it and gives the output. This program is called as **Shell Program**. There are different types of shell bash, csh, sh etc. The very famous shell is the “**bash**” shell. A user is able to run a program because bash shell is given to the user. These users are called **interactive users**.
- There is another shell “**nologin**” shell – where in some situations there are users, who do not interact with OS, such users are called **non-interactive users**.
- When we run a program it becomes a process, every process is run by a user that is every process is associated by a user.

```
[root@ip-172-31-40-219 ~]# ps -aux
```

| USER | PID | %CPU | %MEM | VSZ   | RSS  | TTY | STAT | START | TIME | COMMAND   |
|------|-----|------|------|-------|------|-----|------|-------|------|---|
| root | 1   | 0.0  | 0.5  | 41596 | 5324 | ?   | Ss   | 11:18 | 0:02 | /usr/lib/systemd/systemd --switched-root --system --d |
| root | 2   | 0.0  | 0.0  | 0     | 0    | ?   | S    | 11:18 | 0:00 | [kthreadd]  |
| root | 3   | 0.0  | 0.0  | 0     | 0    | ?   | I<   | 11:18 | 0:00 | [rcu_gp]  |
| root | 4   | 0.0  | 0.0  | 0     | 0    | ?   | I<   | 11:18 | 0:00 | [rcu_par_gp]  |

- In server program, when we start Apache Webserver, an httpd process starts, the user “**apache**” starts this process. The purpose of this user is to start the httpd process. These users are called as “**system or service users**”.

```
[root@localhost ~]# ps -aux | grep httpd
root      928  0.0  0.1 20048 11436 ?        Ss   16:24   0:00 /usr/sbin/httpd -DFOREGROUND
apache    959  0.0  0.0 21516  7304 ?        S    16:24   0:00 /usr/sbin/httpd -DFOREGROUND
apache    960  0.0  0.1 1669160 12828 ?      Sl   16:24   0:01 /usr/sbin/httpd -DFOREGROUND
apache    961  0.0  0.1 1538024 14868 ?      Sl   16:24   0:00 /usr/sbin/httpd -DFOREGROUND
apache    962  0.0  0.1 1538024 14868 ?      Sl   16:24   0:00 /usr/sbin/httpd -DFOREGROUND
root     7074  0.0  0.0 221800  2268 pts/0    S+   17:46   0:00 grep --color=auto httpd
[root@localhost ~]#
```

- For such users a non-interactive shell called “**nologin shell**” has been given

```
apache:x:48:48:Apache:/usr/share/httpd:/sbin/nologin
```