Linux Essential commands

User and group Administration

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Contents

1 Users and groups databases

1.1 /etc/passwd file

Passwd file is in etc directory. Every user in the system has a row in it.Each raw in the file has 7 fields

```
testuser:x:1481:1482:This is a test user:/home/testuser:/bin/bash
           |    |    |     |                |                 |                    |
 [Username] |    |    |                |                 |                    |
      [Password] |    |                |                 |                    |
           [Userid]  |                |                 |                    |
                  [Groupid]           |                 |                    |
                             |                |                 |                    |
                       [User Information]          |                    |
                                           [User home path]  |
                                                       [User shell]
```

1. The name of the user account

2. In the past it was the encrypted password but it removed for security and for backward compatibility it set to x

3. Its unique ID for each user. From 0 : 100 is reserved for operating system. From 100 : 1000 is reserved for system applications. Created users ID starts from 1000

4. Primary group ID

5. one line description for user

6. User Home directory

7. User default shell

1.2 /etc/shadow file

1. Username: The name of the user account.

2. Encrypted password: The encrypted password for the user account. The encrypted password is stored using a one-way hashing function, so it is not possible to retrieve the original password from the encrypted version. The initial letters of the encrypted password tell about the encryption methods used to create the password.

3. Last password change (date): The date on which the user last changed their password, represented as the number of days since January 1, 1970.

4. Minimum password age: The minimum number of days that must pass before the user is allowed to change their password again.

5. Maximum password age: The maximum number of days that the user's password is valid before it must be changed.

6. Password warning period: The number of days before the user's password is set to expire that the user will receive a warning.

7. Password inactivity period: The number of days of inactivity after which the user's password will expire and the account will be locked.

8. Account expiration date: The date on which the user's account will be disabled, represented as the number of days since January 1, 1970.

1.3   /etc/group file

/etc/group columns

sudo : x : 24 : devconnected,bob

group name | GID | Users in the group
password
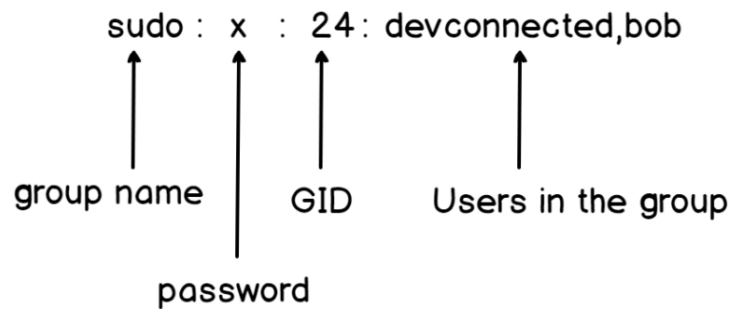
1. Group name

2. Passwords:As is passwd file it was encrypted passwords but now passwords are in /etc/gshadow file

3. Group ID

4. In some distributions it consists of all users in the group in other ones its consist of users which in the group as secondary group

1.4   /etc/gshadow file

It is identical to group file with hashed passwords instead of x

2   User Accounts

2.1   Add user

To add new user use:
$\rightarrow$ sudo useradd [options] username
you must be root or have root permissions and use sudo command

```
command(1)
1  sudo useradd user1
2  tail -1 /etc/passwd
3  =>user1:x:1001:1001::/home/user1:/bin/sh
4  tail -1 /etc/group
5  =>user1:x:1001:
```

the command(1) is used to add user and show passwd and group files but be careful it doesn't create its home directory.

Useradd command has options

1. -u ID : set user ID

2. -g group1 : set primary group

3. -G group1,group2 : set secondary groups

4. -md /path/to/home : create home directory

5. -c "Comment" : user description

6. -s /bin/bash : set default shell

7. -e yyyy-mm-dd : set expiration day

```
                                  command(2)
1  sudo useradd -u 1005 -g user1 -c "user2 HR dept office 1010" -md /home/user2 \
2  -s /bin/bash user2
3  tail -1 /etc/group
4  =>user1:x:1001:
5  tail -1 /etc/passwd
6  user2:x:1005:1001:user2 HR dept office 1010:/home/user2:/bin/bash
```

2.2   Adding & deleting User Accounts passwords

To add password to current user:

→ sudo passwd

To add password to another user:

→ sudo passwd username

To delete user password:

→ sudo passwd -d username

2.3   Modifying User Accounts

To modify user account:

→ sudo usermod [options] username

It has the same options of Useradd + -aG to add secondary groups.

Note: -G : set new secondary groups and remove old ones

-aG : add new secondary groups to existing ones

```
─────────────────────── command(3) ───────────────────────
1  sudo usermod -aG avahi user2
2  id
3  => uid=1005(user2)gid=1001(user1)groups=1001(user1)
```

2.4   Deleting user accounts

To remove user:

→ sudo userdel username

To remove user and home directory:

→ sudo userdel -r username

2.5   password Aging policies

2.5.1   Password criteria

- Consists of 8 or more characters.

- Consists uppercase letters.

- Consists numbers.

- Consists special characters.

- Consists Non-dictionary words.

2.5.2   Sets up password aging

To sets up password aging use :

→ sudo chage [options] username

Options

1. -m : to change the min number of days between password changes.

2. -M : to change the max number of days between password changes.

3. -E date : change the expiration date for the account.

4. -W : change the number of days to start warning before a password change will be required.

3 Managing groups

3.1 Creating New Group

To add new group use :

→ sudo groupadd [options] groupname

Options

1. -g : Specify a custom group ID.

2. -r : To avoid using a GID within the range typically assigned to users and their private groups.

Note : Don't add users or groups with capital letters o avoid problems in communication with servers through the network

3.2 Modifying an Existing Group

To modify group use :

→ sudo groupmod [options] groupname

Options

1. -n name : to set new name for the group

2. -g GID : to set new ID for the group

```
                                  ─── command(4) ───────────
1  sudo groupadd Opensource
2  sudo groupmod -n os Opensource
```

3.3 Managing groups users

To mange users of any group use:

→ sudo gpasswd [options] groupname

Options:

1. -a user group : Add user to a group

2. -d user group : Delete (remove) user from a group

3. -A user group : Set administrator(s) for a group (replaces existing admins)

4. -M users group : Set group members (comma-separated, replaces current member list)

3.4   Deleting group

To delete group use :

→ sudo groupdel groupname

Note : you can't delete the group which has any primary member

You can list all files which are owned by groups not defined in /etc/group file using

→find/ -nogroup

4   Adding & Deleting Groups Passwords

To create or change password for a group:

→ sudo gpasswd groupname

To delete password for a group:

→ sudo gpasswd -r groupname

5   Changing Active Group

By default when user create file the group of the file is the user primary group to change the file group to any of user secondary groups :

→ chgrp groupname filename

you can change your primary group temporary by using:

→ newgrp groupname

after this command any file you create will has groupname as a group. After #exit command you will return to default primary group. you can use #groups command to show your groups

6   Switching Accounts

To switch to any accounts:

→ su [−] username

the − make you loads username's environment

su [−] username -c command

you also can switch account for specific command:

su [−] username -c command

```
──────────────────────────── command(5) ────────────────────────────
1  │ su - user2
2  │ => /home/user2
3  │ exit
4  │ su user2
5  │ =>/home/iti
6  │ su - user3 -c pwd
7  │ =>/home/user3
```