

Day 11 – File Ownership Challenge (chown & chgrp)

Objective

Master file and directory ownership in Linux by practicing:

- Understanding owner and group
- Using chown and chgrp
- Changing ownership recursively
- Applying different ownerships to files

Task 1: Understanding Ownership

Command Used:

ls -l

Sample Output Format:

-rw-r--r-- 1 owner group size date filename

Explanation:

Owner – User who owns the file

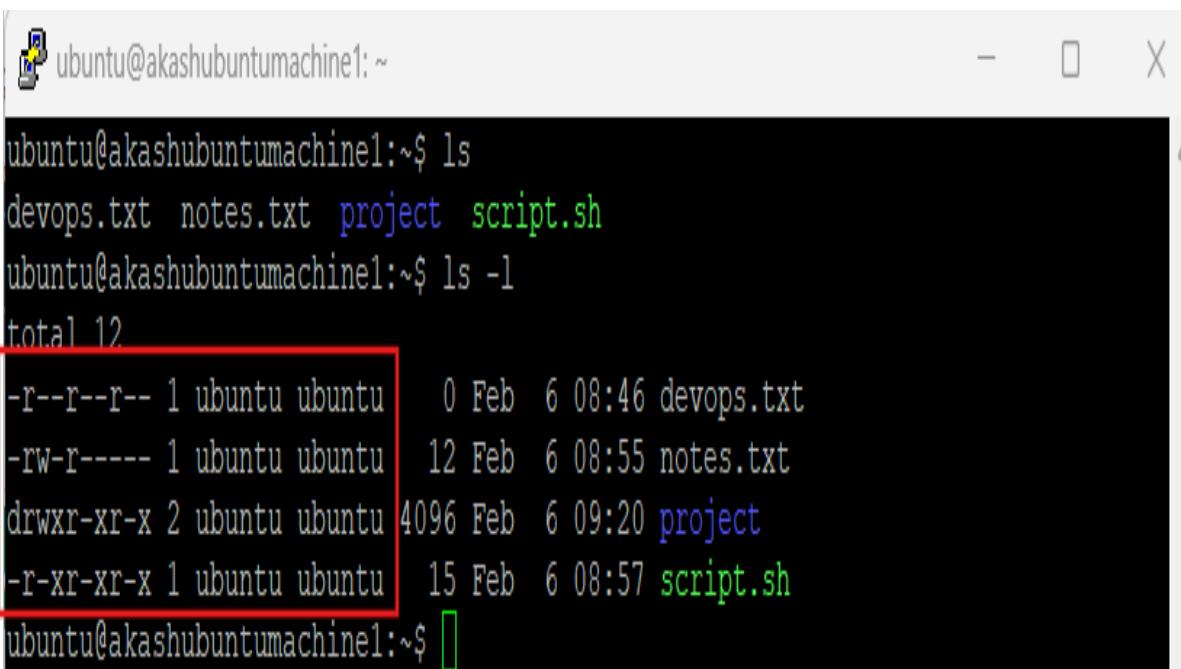
Group – Group associated with the file

Permissions – Define what owner, group, and others can do

Difference between Owner and Group:

The owner is the main user who controls the file.

The group allows multiple users to share access based on group membership.



A screenshot of a terminal window titled "ubuntu@akashubuntumachine1:~". The terminal displays the output of the 'ls' command followed by the '-l' option. The output shows four files: 'devops.txt', 'notes.txt', 'project', and 'script.sh'. A red box highlights the first four lines of the output, which represent the permissions, owner, group, and last modified date for each file. The 'project' file has a permission of 'drwxr-xr-x' and a size of '4096'. The 'script.sh' file has a permission of '-r-xr-xr-x'.

```
ubuntu@akashubuntumachine1:~$ ls
devops.txt  notes.txt  project  script.sh
ubuntu@akashubuntumachine1:~$ ls -l
total 12
-r--r--r-- 1 ubuntu  ubuntu    0 Feb  6 08:46 devops.txt
-rw-r----- 1 ubuntu  ubuntu   12 Feb  6 08:55 notes.txt
drwxr-xr-x  2 ubuntu  ubuntu  4096 Feb  6 09:20 project
-r-xr-xr-x  1 ubuntu  ubuntu   15 Feb  6 08:57 script.sh
ubuntu@akashubuntumachine1:~$
```

Task 2: Basic chown Operations

```
touch devops-file.txt  
ls -l devops-file.txt  
sudo chown tokyo devops-file.txt  
sudo chown berlin devops-file.txt  
ls -l devops-file.txt
```

```
ubuntu@akashubuntumachine1:~$ touch devops-file.txt  
ubuntu@akashubuntumachine1:~$ ls  
devops-file.txt devops.txt notes.txt project script.sh  
ubuntu@akashubuntumachine1:~$ ls -l  
total 12  
-rw-rw-r-- 1 ubuntu ubuntu 0 Feb 6 10:33 devops-file.txt  
-r--r--r-- 1 ubuntu ubuntu 0 Feb 6 08:46 devops.txt  
-rw-r----- 1 ubuntu ubuntu 12 Feb 6 08:55 notes.txt  
drwxr-xr-x 2 ubuntu ubuntu 4096 Feb 6 09:20 project  
-r-xr-xr-x 1 ubuntu ubuntu 15 Feb 6 08:57 script.sh  
ubuntu@akashubuntumachine1:~$ tail /etc/passwd  
ec2-instance-connect:x:109:65534::/nonexistent:/usr/sbin/nologin  
_chrony:x:110:112:Chrony daemon,,:/var/lib/chrony:/usr/sbin/nologin  
ubuntu:x:1000:1000:Ubuntu:/home/ubuntu:/bin/bash  
dnsmasq:x:999:65534:dnsmasq:/var/lib/misc:/usr/sbin/nologin  
akash:x:1002:1002:/home/akash:/bin/sh  
pcp:x:997:988:Performance Co-Pilot:/var/lib/pcp:/usr/sbin/nologin  
tokyo:x:1003:1003:/home/tokyo:/bin/sh  
berlin:x:1004:1004:/home/berlin:/bin/sh  
professor:x:1005:1005:/home/professor:/bin/sh  
nairobi:x:1001:1001,,,:/home/nairobi:/bin/bash  
ubuntu@akashubuntumachine1:~$ chown tokyo:ubuntu devops-file.txt  
chown: changing ownership of 'devops-file.txt': Operation not permitted  
ubuntu@akashubuntumachine1:~$ sudo chown tokyo:ubuntu devops-file.txt  
ubuntu@akashubuntumachine1:~$ ls -l  
total 12  
-rw-rw-r-- 1 tokyo ubuntu 0 Feb 6 10:33 devops-file.txt  
-r--r--r-- 1 ubuntu ubuntu 0 Feb 6 08:46 devops.txt  
-rw-r----- 1 ubuntu ubuntu 12 Feb 6 08:55 notes.txt  
drwxr-xr-x 2 ubuntu ubuntu 4096 Feb 6 09:20 project  
-r-xr-xr-x 1 ubuntu ubuntu 15 Feb 6 08:57 script.sh  
ubuntu@akashubuntumachine1:~$ sudo chown berlin:ubuntu devops-file.txt  
ubuntu@akashubuntumachine1:~$ ls -l  
total 12  
-rw-rw-r-- 1 berlin ubuntu 0 Feb 6 10:33 devops-file.txt  
-r--r--r-- 1 ubuntu ubuntu 0 Feb 6 08:46 devops.txt  
-rw-r----- 1 ubuntu ubuntu 12 Feb 6 08:55 notes.txt  
drwxr-xr-x 2 ubuntu ubuntu 4096 Feb 6 09:20 project  
-r-xr-xr-x 1 ubuntu ubuntu 15 Feb 6 08:57 script.sh  
ubuntu@akashubuntumachine1:~$ █
```

Task 3: Basic chgrp Operations

```
touch team-notes.txt  
sudo groupadd heist-team  
sudo chgrp heist-team team-notes.txt  
ls -l team-notes.txt
```

```

ubuntu@akashubuntumachine1: ~
ubuntu@akashubuntumachine1:~$ touch devops-file.txt
ubuntu@akashubuntumachine1:~$ ls
devops-file.txt  devops.txt  notes.txt  project  script.sh
ubuntu@akashubuntumachine1:~$ ls -l
total 12
-rw-rw-r-- 1 ubuntu  ubuntu  0 Feb  6 10:33 devops-file.txt
-r--r--r-- 1 ubuntu  ubuntu  0 Feb  6 08:46 devops.txt
-rw-r---- 1 ubuntu  ubuntu  12 Feb  6 08:55 notes.txt
drwxr-xr-x 2 ubuntu  ubuntu  4096 Feb  6 09:20 project
-r--xr-xr-x 1 ubuntu  ubuntu  15 Feb  6 08:57 script.sh
ubuntu@akashubuntumachine1:~$ tail /etc/passwd
ec2-instance-connect:x:109:65534::/nonexistent:/usr/sbin/nologin
_chrony:x:110:112:Chrony daemon,,,:/var/lib/chrony:/usr/sbin/nologin
ubuntu:x:1000:1000:ubuntu:/home/ubuntu:/bin/bash
dnsmasq:x:999:65534:dnsmasq:/var/lib/misc:/usr/sbin/nologin
akash:x:1002:1002:/home/akash:/bin/sh
pcp:x:997:988:Performance Co-Pilot:/var/lib/pcp:/usr/sbin/nologin
tokyo:x:1003:1003:/home/tokyo:/bin/sh
berlin:x:1004:1004:/home/berlin:/bin/sh
professor:x:1005:1005:/home/professor:/bin/sh
nairobi:x:1001:1001:,:/home/nairobi:/bin/bash
ubuntu@akashubuntumachine1:~$ chown tokyo:ubuntu devops-file.txt
chown: changing ownership of 'devops-file.txt': Operation not permitted
ubuntu@akashubuntumachine1:~$ sudo chown tokyo:ubuntu devops-file.txt
ubuntu@akashubuntumachine1:~$ ls -l
total 12
-rw-rw-r-- 1 tokyo  ubuntu  0 Feb  6 10:33 devops-file.txt
-r--r--r-- 1 ubuntu  ubuntu  0 Feb  6 08:46 devops.txt
-rw-r---- 1 ubuntu  ubuntu  12 Feb  6 08:55 notes.txt
drwxr-xr-x 2 ubuntu  ubuntu  4096 Feb  6 09:20 project
-r--xr-xr-x 1 ubuntu  ubuntu  15 Feb  6 08:57 script.sh
ubuntu@akashubuntumachine1:~$ sudo chown berlin:ubuntu devops-file.txt
ubuntu@akashubuntumachine1:~$ ls -l
total 12
-rw-rw-r-- 1 berlin  ubuntu  0 Feb  6 10:33 devops-file.txt
-r--r--r-- 1 ubuntu  ubuntu  0 Feb  6 08:46 devops.txt
-rw-r---- 1 ubuntu  ubuntu  12 Feb  6 08:55 notes.txt
drwxr-xr-x 2 ubuntu  ubuntu  4096 Feb  6 09:20 project
-r--xr-xr-x 1 ubuntu  ubuntu  15 Feb  6 08:57 script.sh
ubuntu@akashubuntumachine1:~$ █

```

Task 4: Change Owner & Group Together

```

touch project-config.yaml
sudo chown professor:heist-team project-config.yaml
mkdir app-logs
sudo chown berlin:heist-team app-logs

```

```

ubuntu@akashubuntumachine1: ~
ubuntu@akashubuntumachine1:~$ touch team-notes.txt
ubuntu@akashubuntumachine1:~$ ls -l
total 0
-rw-rw-r-- 1 ubuntu  ubuntu  0 Feb  6 10:40 team-notes.txt
ubuntu@akashubuntumachine1:~$ ls -l team-notes.txt
-rw-rw-r-- 1 [REDACTED]  [REDACTED]  0 Feb  6 10:40 team-notes.txt
ubuntu@akashubuntumachine1:~$ sudo groupadd heist-team
ubuntu@akashubuntumachine1:~$ tail -2 /etc/group
project-team:x:1008:nairobi,tokyo
heist-team:x:1009:
ubuntu@akashubuntumachine1:~$ ls -ls team-notes.txt
0 -rw-rw-r-- 1 ubuntu  ubuntu  0 Feb  6 10:40 team-notes.txt
ubuntu@akashubuntumachine1:~$ chown ubuntu:heist-team team-notes.txt
chown: changing ownership of 'team-notes.txt': Operation not permitted
ubuntu@akashubuntumachine1:~$ sudo chown ubuntu:heist-team team-notes.txt
ubuntu@akashubuntumachine1:~$ ls -ls team-notes.txt
0 -rw-rw-r-- 1 [REDACTED]  heist-team  0 Feb  6 10:40 team-notes.txt
ubuntu@akashubuntumachine1:~$ █

```

Task 5: Recursive Ownership

```

mkdir -p heist-project/vault
mkdir -p heist-project/plans
touch heist-project/vault/gold.txt
touch heist-project/plans/strategy.conf
sudo groupadd planners
sudo chown -R professor:planners heist-project/
ls -lR heist-project/

```

```

ubuntu@akashubuntumachine1:~$ ls
team-notes.txt
ubuntu@akashubuntumachine1:~$ mkdir -p heist-project/vault
ubuntu@akashubuntumachine1:~$ mkdir -p heist-project/plans
ubuntu@akashubuntumachine1:~$ touch -p heist-project/vault/gold.txt
touch: invalid option -- 'p'
Try 'touch --help' for more information.
ubuntu@akashubuntumachine1:~$ touch heist-project/vault/gold.txt
ubuntu@akashubuntumachine1:~$ touch heist-project/plans/strategy.conf
ubuntu@akashubuntumachine1:~$ ls -l heist-project/
total 8
drwxrwxr-x 2 ubuntu ubuntu 4096 Feb  6 10:49 plans
drwxrwxr-x 2 ubuntu ubuntu 4096 Feb  6 10:49 vault
ubuntu@akashubuntumachine1:~$ groupadd planners
groupadd: Permission denied.
groupadd: cannot lock /etc/group; try again later.
ubuntu@akashubuntumachine1:~$ sudo groupadd planners
ubuntu@akashubuntumachine1:~$ tail -3 /etc/group
project-team:x:1008:nairobi,tokyo
heist-team:x:1009:
planners:x:1010:
ubuntu@akashubuntumachine1:~$ chown -R professor:planners heist-project/
chown: changing ownership of 'heist-project/vault/gold.txt': Operation not permitted
chown: changing ownership of 'heist-project/vault': Operation not permitted
chown: changing ownership of 'heist-project/plans/strategy.conf': Operation not permitted
chown: changing ownership of 'heist-project/plans': Operation not permitted
chown: changing ownership of 'heist-project/': Operation not permitted
ubuntu@akashubuntumachine1:~$ sudo chown -R professor:planners heist-project/
ubuntu@akashubuntumachine1:~$ ls -lR heist-project/
heist-project/:
total 8
drwxrwxr-x 2 professor planners 4096 Feb  6 10:49 plans
drwxrwxr-x 2 professor planners 4096 Feb  6 10:49 vault

heist-project/plans:
total 0
-rw-rw-r-- 1 professor planners 0 Feb  6 10:49 strategy.conf

heist-project/vault:
total 0
-rw-rw-r-- 1 professor planners 0 Feb  6 10:49 gold.txt
ubuntu@akashubuntumachine1:~$ 

```

Task 6: Practice Challenge

```

sudo useradd tokyo
sudo useradd berlin
sudo useradd nairobi
sudo groupadd vault-team
sudo groupadd tech-team
mkdir bank-heist
touch bank-heist/access-codes.txt
touch bank-heist/blueprints.pdf
touch bank-heist/escape-plan.txt
sudo chown tokyo:vault-team bank-heist/access-codes.txt
sudo chown berlin:tech-team bank-heist/blueprints.pdf
sudo chown nairobi:vault-team bank-heist/escape-plan.txt

```

```
Ubuntu@akashubuntumachine1: ~
```

```
ubuntu@akashubuntumachine1:~/bank-heist$ ls -l
total 0
-rw-rw-r-- 1 tokyo  vault-team 0 Feb  6 10:59 access-code.txt
-rw-rw-r-- 1 berlin  tech-team  0 Feb  6 10:59 blueprint.pdf
-rw-rw-r-- 1 nairobi vault-team 0 Feb  6 10:59 escape-plan.txt
ubuntu@akashubuntumachine1:~/bank-heist$ cd ..
ubuntu@akashubuntumachine1:~$ ls -lR bank-heist/
bank-heist/:
total 0
-rw-rw-r-- 1 tokyo  vault-team 0 Feb  6 10:59 access-code.txt
-rw-rw-r-- 1 berlin  tech-team  0 Feb  6 10:59 blueprint.pdf
-rw-rw-r-- 1 nairobi vault-team 0 Feb  6 10:59 escape-plan.txt
ubuntu@akashubuntumachine1:~$
```