

## ## File Permissions and Access Control Lists - Day 6

### \*\*Tasks\*\*

#### 1. Create a simple file and do `ls -ltr` to see the details of the files.

- touch task1.sh
- ls -ltr task1.sh

Output:

```
ubuntu@ip-172-31-44-115:~/Day6$ touch task1.sh
ubuntu@ip-172-31-44-115:~/Day6$ ls -ltr task1.sh
-rw-rw-r-- 1 ubuntu ubuntu 0 Feb 15 10:13 task1.sh
ubuntu@ip-172-31-44-115:~/Day6$
```

- After changing user permissions from rw to rwx
- chmod 764 task1.sh

```
ubuntu@ip-172-31-44-115:~/Day6$ touch task1.sh
ubuntu@ip-172-31-44-115:~/Day6$ ls -ltr task1.sh
-rw-rw-r-- 1 ubuntu ubuntu 0 Feb 15 10:13 task1.sh
ubuntu@ip-172-31-44-115:~/Day6$ chmod 764 task1.sh
ubuntu@ip-172-31-44-115:~/Day6$ ls -ltr
total 0
-rwxrw-r-- 1 ubuntu ubuntu 0 Feb 15 10:13 task1.sh
ubuntu@ip-172-31-44-115:~/Day6$
```

#### 2. Write an article about File Permissions based on your understanding from the notes.

##### ➤ File permissions:

Basically, there are three types of users:

- User permissions
- Group permissions
- Other user permissions

We can grant permissions as follows:

Symbolic	Mode	Absolute Mode
r	-read	4
w	-write	2
x	-execute	1
(-)	Null	0

By using above permissions, we can give read, write and execute permissions to user, group and others as follows:

If we want to give rwx permissions to user we will calculate it as:

Read=4 + write=2 + execute=1 =7

We can check permissions using `ls -l` OR `ls -ld`

1	2	3	4	5	6	7	8	9	10
-/d	r	w	-	r	-	x	r	-	-
File type	Owner Permissions			Group Permissions			Other user Permission- Not in Group		
	4+2+0 = 6			4+0+1 = 5			4+0+0 = 4		

### 3. Read about ACL and try out the commands 'getfacl' and 'setfacl'

➤ `getfacl task1.sh`

```
ubuntu@ip-172-31-44-115:~/Day6$ getfacl task1.sh
# file: task1.sh
# owner: ubuntu
# group: ubuntu
user::rwx
group::rw-
other::r--

ubuntu@ip-172-31-44-115:~/Day6$
```

➤ `setfacl -m u:permissions:rwx task1.sh`

```
ubuntu@ip-172-31-44-115:~/Day6$ setfacl -m u:permissions:rwx task1.sh
ubuntu@ip-172-31-44-115:~/Day6$ getfacl task1.sh
# file: task1.sh
# owner: ubuntu
# group: ubuntu
user::rwx
user:permissions:rwx
group::rw-
mask::rwx
other::r--

ubuntu@ip-172-31-44-115:~/Day6$
```

We can observe here when we are setting permissions for user permissions, permissions for that user are added and mask is also added.

We can change mask permissions also as below:

- `setfacl -m mask:r task1.sh`

```
ubuntu@ip-172-31-44-115:~/Day6$ setfacl -m mask:r task1.sh
ubuntu@ip-172-31-44-115:~/Day6$ getfacl task1.sh
# file: task1.sh
# owner: ubuntu
# group: ubuntu
user::rwx
user:permissions:rwx          #effective:r--
group::rw-                    #effective:r--
mask::r--
other::r--

ubuntu@ip-172-31-44-115:~/Day6$
```