



File Permissions

Linux Essentials



TRAINING
CENTER



Ownership and permissions

	Read	Write	Execute
File	Open and read	Modify the context	Run the program
Folder	List the context	Add, remove and rename files	Can be entered

```
ubuntu@ip-172-31-32-20:~$ ls -l
total 8
-rw-rw-r-- 1 ubuntu ubuntu 0 Jun 1 23:32 TestFile3
drwxrwxr-x 2 ubuntu ubuntu 4096 Jun 1 23:35 testFiDir
drwxrwxr-x 2 ubuntu ubuntu 4096 Jun 1 23:40 testfidir2
-rw-rw-r-- 1 ubuntu ubuntu 0 Jun 1 23:23 testfile1
-rw-rw-r-- 1 ubuntu ubuntu 0 Jun 1 23:23 testfile2
```

r = read permission
w = write permission
x = execute permission
- = no permission

Numeric representation of permissions

Number	Permission Type	Symbolic representation
0	No Permission	---
1	Execute	--X
2	Write	-W-
3	Execute + Write	-WX
4	Read	r-
5	Read + Execute	r-X
6	Read +Write	rw-
7	Read + Write +Execute	rwX

Lsattr and extended attributes view

```
ubuntu@ip-172-31-32-20:~$ lsattr
-----e--- ./testFiDir
-----e--- ./testfile2
-----e--- ./testfile1
-----e--- ./TestFile3
-----e--- ./testfidir2
ubuntu@ip-172-31-32-20:~$
```

a: append only

c: compressed

d: no dump

e: extent format

i: immutable

j: data journalling

s: secure deletion

t: no tail-merging

u: undeletable

A: no atime updates

C: no copy on write

D: synchronous
directory updates

S: synchronous
updates

T: top of directory
hierarchy

Changing permissions

```
ubuntu@ip-172-31-32-20:~/testfidir2$ ls -l
total 0
---x-w--wx 1 ubuntu ubuntu 0 Jun 16 07:57 myfile
ubuntu@ip-172-31-32-20:~/testfidir2$ chmod u=rwx,g=rw,o=r myfile
ubuntu@ip-172-31-32-20:~/testfidir2$ ls -l
total 0
-rwxrw-r-- 1 ubuntu ubuntu 0 Jun 16 07:57 myfile
ubuntu@ip-172-31-32-20:~/testfidir2$
```

chmod who=permissions filename

- *u: user*
- *g: group*
- *o: other*
- *a: all of the above; used instead of typing ugo*

Using chmod in this format will rewrite permissions

```
ubuntu@ip-172-31-32-20:~/testfidir2$ ls -l
total 0
-rwxrw-r-- 1 ubuntu ubuntu 0 Jun 16 07:57 myfile
ubuntu@ip-172-31-32-20:~/testfidir2$ chmod g-w myfile
ubuntu@ip-172-31-32-20:~/testfidir2$ ls -l
total 0
-rwxr--r-- 1 ubuntu ubuntu 0 Jun 16 07:57 myfile
ubuntu@ip-172-31-32-20:~/testfidir2$
```

chmod who+permissions filename

Using chmod in this format will modify permissions

Changing ownership

```
ubuntu@ip-172-31-32-20:~/testfidir2$ ls -l
total 0
-rwxr--r-- 1 ubuntu ubuntu 0 Jun 16 07:57 myfile
ubuntu@ip-172-31-32-20:~/testfidir2$ sudo chown :ftpuser myfile
ubuntu@ip-172-31-32-20:~/testfidir2$ ls -l
total 0
-rwxr--r-- 1 ubuntu ftpuser 0 Jun 16 07:57 myfile
ubuntu@ip-172-31-32-20:~/testfidir2$ sudo chown ftpuser myfile
ubuntu@ip-172-31-32-20:~/testfidir2$ ls -l
total 0
-rwxr--r-- 1 ftpuser ftpuser 0 Jun 16 07:57 myfile
ubuntu@ip-172-31-32-20:~/testfidir2$ sudo chown root:ubuntu myfile
ubuntu@ip-172-31-32-20:~/testfidir2$ ls -l
total 0
-rwxr--r-- 1 root ubuntu 0 Jun 16 07:57 myfile
ubuntu@ip-172-31-32-20:~/testfidir2$
```

chown owner filename

- user
- :group
- user:group