Permission In Linux

- **Hard link:**


```
[root@vbox ~]# touch sakshi
[root@vbox ~]# mkdir file1
[root@vbox ~]# ls -ltr
total 8
-rw-------. 1 root root 861 Jun 14 23:18 anaconda-ks.cfg
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Videos
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Templates
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Public
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Music
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Downloads
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Documents
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Desktop
-rw-r--r--. 1 root root  20 Jun 21 20:10 file
drwxr-xr-x. 2 root root  53 Jun 22 22:39 Pictures
-rw-r--r--. 1 root root   0 Jun 27 22:35 sakshi
drwxr-xr-x. 2 root root   6 Jun 27 22:35 file1
[root@vbox ~]# ln file hardlink
[root@vbox ~]# ls -ltr
total 12
-rw-------. 1 root root 861 Jun 14 23:18 anaconda-ks.cfg
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Videos
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Templates
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Public
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Music
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Downloads
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Documents
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Desktop
-rw-r--r--. 2 root root  20 Jun 21 20:10 hardlink
-rw-r--r--. 2 root root  20 Jun 21 20:10 file
drwxr-xr-x. 2 root root  53 Jun 22 22:39 Pictures
-rw-r--r--. 1 root root   0 Jun 27 22:35 sakshi
drwxr-xr-x. 2 root root   6 Jun 27 22:35 file1
[root@vbox ~]#
```



```
[root@vbox ~]# ln sakshi hardsakshi
[root@vbox ~]# ls -ltr
total 12
-rw-------. 1 root root 861 Jun 14 23:18 anaconda-ks.cfg
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Videos
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Templates
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Public
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Music
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Downloads
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Documents
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Desktop
-rw-r--r--. 2 root root  20 Jun 21 20:10 hardlink
-rw-r--r--. 2 root root  20 Jun 21 20:10 file
drwxr-xr-x. 2 root root  53 Jun 22 22:39 Pictures
-rw-r--r--. 2 root root   0 Jun 27 22:35 sakshi
-rw-r--r--. 2 root root   0 Jun 27 22:35 hardsakshi
drwxr-xr-x. 2 root root   6 Jun 27 22:35 file1
[root@vbox ~]#
```

```
[root@vbox ~]# cat > sakshi
Hello,How are you/
[root@vbox ~]# cat sakshi
Hello,How are you/
[root@vbox ~]# cat hardlink
Hello, How are you?
[root@vbox ~]# cat hardsakshi
Hello,How are you/
[root@vbox ~]# ls -i hardsakshi
35105235 hardsakshi
[root@vbox ~]# cat hardsakshi
Hello,How are you/
[root@vbox ~]# cat >> hardsakshi
Hieeeee
[root@vbox ~]# cat hardsakshi
Hello,How are you/
Hieeeee
[root@vbox ~]# ls -i sakshi
35105235 sakshi
[root@vbox ~]#
```

- ## Soft Link:

```
[root@vbox ~]# touch testfile
[root@vbox ~]# mkdir /Sakshi
[root@vbox ~]# ls -ltr
total 12
-rw-------. 1 root root 861 Jun 14 23:18 anaconda-ks.cfg
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Videos
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Templates
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Public
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Music
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Downloads
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Documents
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Desktop
drwxr-xr-x. 2 root root   6 Jun 27 22:35 file1
-rw-r--r--. 2 root root  27 Jun 27 22:44 sakshi
-rw-r--r--. 2 root root  27 Jun 27 22:44 hardsakshi
drwxr-xr-x. 2 root root 100 Jun 27 22:44 Pictures
-rw-r--r--. 1 root root   0 Jun 27 22:52 h1
-rw-r--r--. 1 root root   0 Jun 27 22:53 file
-rw-r--r--. 1 root root   0 Jun 27 23:00 testfile
[root@vbox ~]# cat > testfile
Welcome to Mentore Solutions
[root@vbox ~]#
[root@vbox ~]# ls -s testfile softlink
ls: cannot access 'softlink': No such file or directory
4 testfile
[root@vbox ~]# ln -s testfile softlink
[root@vbox ~]# ls -ltr
total 16
-rw-------. 1 root root 861 Jun 14 23:18 anaconda-ks.cfg
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Videos
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Templates
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Public
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Music
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Downloads
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Documents
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Desktop
drwxr-xr-x. 2 root root   6 Jun 27 22:35 file1
-rw-r--r--. 2 root root  27 Jun 27 22:44 sakshi
-rw-r--r--. 2 root root  27 Jun 27 22:44 hardsakshi
drwxr-xr-x. 2 root root 100 Jun 27 22:44 Pictures
-rw-r--r--. 1 root root   0 Jun 27 22:52 h1
-rw-r--r--. 1 root root   0 Jun 27 22:53 file
-rw-r--r--. 1 root root  29 Jun 27 23:03 testfile
lrwxrwxrwx. 1 root root   8 Jun 27 23:04 softlink -> testfile
```

```
[root@vbox ~]# cat softlink
Welcome to Mentore Solutions
[root@vbox ~]# ln -s /Sakshi softlink
ln: failed to create symbolic link 'softlink': File exists
[root@vbox ~]# ln -s /Sakshi softSakshi
[root@vbox ~]# ls -ltr
total 16
-rw-------. 1 root root 861 Jun 14 23:18 anaconda-ks.cfg
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Videos
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Templates
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Public
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Music
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Downloads
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Documents
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Desktop
drwxr-xr-x. 2 root root   6 Jun 27 22:35 file1
-rw-r--r--. 2 root root  27 Jun 27 22:44 sakshi
-rw-r--r--. 2 root root  27 Jun 27 22:44 hardsakshi
drwxr-xr-x. 2 root root 100 Jun 27 22:44 Pictures
-rw-r--r--. 1 root root   0 Jun 27 22:52 h1
-rw-r--r--. 1 root root   0 Jun 27 22:53 file
-rw-r--r--. 1 root root  29 Jun 27 23:03 testfile
lrwxrwxrwx. 1 root root   8 Jun 27 23:04 softlink -> testfile
lrwxrwxrwx. 1 root root   7 Jun 27 23:08 softSakshi -> /Sakshi
[root@vbox ~]#
```

```
[root@vbox ~]# ln -s /Sakshi softSakshi
[root@vbox ~]# ls -ltr
total 16
-rw-------. 1 root root 861 Jun 14 23:18 anaconda-ks.cfg
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Videos
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Templates
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Public
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Music
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Downloads
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Documents
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Desktop
drwxr-xr-x. 2 root root   6 Jun 27 22:35 file1
-rw-r--r--. 2 root root  27 Jun 27 22:44 sakshi
-rw-r--r--. 2 root root  27 Jun 27 22:44 hardsakshi
drwxr-xr-x. 2 root root 100 Jun 27 22:44 Pictures
-rw-r--r--. 1 root root   0 Jun 27 22:52 h1
-rw-r--r--. 1 root root   0 Jun 27 22:53 file
-rw-r--r--. 1 root root  29 Jun 27 23:03 testfile
lrwxrwxrwx. 1 root root   8 Jun 27 23:04 softlink -> testfile
lrwxrwxrwx. 1 root root   7 Jun 27 23:08 softSakshi -> /Sakshi
[root@vbox ~]# ls -I testfile softlink
softlink
[root@vbox ~]# ls -I Sakshi softSakshi/
[root@vbox ~]# rm -rvf testfile
removed 'testfile'
[root@vbox ~]# ls -ltr
total 12
-rw-------. 1 root root 861 Jun 14 23:18 anaconda-ks.cfg
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Videos
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Templates
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Public
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Music
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Downloads
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Documents
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Desktop
drwxr-xr-x. 2 root root   6 Jun 27 22:35 file1
-rw-r--r--. 2 root root  27 Jun 27 22:44 sakshi
-rw-r--r--. 2 root root  27 Jun 27 22:44 hardsakshi
drwxr-xr-x. 2 root root 100 Jun 27 22:44 Pictures
-rw-r--r--. 1 root root   0 Jun 27 22:52 h1
-rw-r--r--. 1 root root   0 Jun 27 22:53 file
lrwxrwxrwx. 1 root root   8 Jun 27 23:04 softlink -> testfile
lrwxrwxrwx. 1 root root   7 Jun 27 23:08 softSakshi -> /Sakshi
[root@vbox ~]# cat soft
cat: soft: No such file or directory
[root@vbox ~]# cat soft
softlink     softSakshi/
[root@vbox ~]# cat softlink
cat: softlink: No such file or directory
```

- **Read, Write and Execute:**

```
[root@vbox ~]# chmod ugo+rwx file
[root@vbox ~]# ls -ltr
total 12
-rw-------. 1 root root 861 Jun 14 23:18 anaconda-ks.cfg
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Videos
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Templates
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Public
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Music
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Downloads
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Documents
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Desktop
drwxr-xr-x. 2 root root   6 Jun 27 22:35 file1
-rw-r--r--. 2 root root  27 Jun 27 22:44 sakshi
-rw-r--r--. 2 root root  27 Jun 27 22:44 hardsakshi
drwxr-xr-x. 2 root root 100 Jun 27 22:44 Pictures
-rw-r--r--. 1 root root   0 Jun 27 22:52 h1
-rwxrwxrwx. 1 root root   0 Jun 27 22:53 file
lrwxrwxrwx. 1 root root   8 Jun 27 23:04 softlink -> testfile
lrwxrwxrwx. 1 root root   7 Jun 27 23:08 softSakshi -> /Sakshi
-rwxrwxrwx. 1 root root   0 Jun 27 23:13 testfile
[root@vbox ~]#
```

```
[root@vbox ~]# chmod ugo-x file
[root@vbox ~]# ls -ltr
total 12
-rw-------. 1 root root 861 Jun 14 23:18 anaconda-ks.cfg
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Videos
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Templates
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Public
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Music
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Downloads
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Documents
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Desktop
drwxr-xr-x. 2 root root   6 Jun 27 22:35 file1
-rw-r--r--. 2 root root  27 Jun 27 22:44 sakshi
-rw-r--r--. 2 root root  27 Jun 27 22:44 hardsakshi
drwxr-xr-x. 2 root root 100 Jun 27 22:44 Pictures
-rw-r--r--. 1 root root   0 Jun 27 22:52 h1
-rw-rw-rw-. 1 root root   0 Jun 27 22:53 file
lrwxrwxrwx. 1 root root   8 Jun 27 23:04 softlink -> testfile
lrwxrwxrwx. 1 root root   7 Jun 27 23:08 softSakshi -> /Sakshi
-rwxrwxrwx. 1 root root   0 Jun 27 23:13 testfile
[root@vbox ~]#
```

```
[root@vbox ~]# chmod u-w file
[root@vbox ~]# ls -ltr
total 12
-rw-------. 1 root root 861 Jun 14 23:18 anaconda-ks.cfg
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Videos
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Templates
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Public
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Music
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Downloads
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Documents
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Desktop
drwxr-xr-x. 2 root root   6 Jun 27 22:35 file1
-rw-r--r--. 2 root root  27 Jun 27 22:44 sakshi
-rw-r--r--. 2 root root  27 Jun 27 22:44 hardsakshi
drwxr-xr-x. 2 root root 100 Jun 27 22:44 Pictures
-rw-r--r--. 1 root root   0 Jun 27 22:52 h1
-r--rw-rw-. 1 root root   0 Jun 27 22:53 file
lrwxrwxrwx. 1 root root   8 Jun 27 23:04 softlink -> testfile
lrwxrwxrwx. 1 root root   7 Jun 27 23:08 softSakshi -> /Sakshi
-rwxrwxrwx. 1 root root   0 Jun 27 23:13 testfile
[root@vbox ~]#
```

```
[root@vbox ~]# chmod ugo=x file
[root@vbox ~]# ls -ltr
total 12
-rw-------. 1 root root 861 Jun 14 23:18 anaconda-ks.cfg
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Videos
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Templates
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Public
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Music
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Downloads
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Documents
drwxr-xr-x. 2 root root   6 Jun 15 21:03 Desktop
drwxr-xr-x. 2 root root   6 Jun 27 22:35 file1
-rw-r--r--. 2 root root  27 Jun 27 22:44 sakshi
-rw-r--r--. 2 root root  27 Jun 27 22:44 hardsakshi
drwxr-xr-x. 2 root root 100 Jun 27 22:44 Pictures
-rw-r--r--. 1 root root   0 Jun 27 22:52 h1
---x--x--x. 1 root root   0 Jun 27 22:53 file
lrwxrwxrwx. 1 root root   8 Jun 27 23:04 softlink -> testfile
lrwxrwxrwx. 1 root root   7 Jun 27 23:08 softSakshi -> /Sakshi
-rwxrwxrwx. 1 root root   0 Jun 27 23:13 testfile
```