Access control list (ACL)

To verify the default ACL of the file or directory

getfacl /file or directory
getfacl mobile

```
[root@localhost ~]# mkdir mobile
[root@localhost ~]# getfacl mobile/
# file: mobile/
# owner: root
# group: root
user::rwx
group::r-x
other::r-x
```

Before that we want to create a directory :

mkdir /mobile

```
[root@localhost ~]# cd /
[root@localhost /]# mkdir mobile
[root@localhost /]# ls -ld mobile/
drwxr-xr-x. 2 root root 6 Sep 18 14:51 mobile/
```

Now,
Setting ACL on a directory for a specific user:

setfacl -m u:username:7 /directory
setfacl -m u:arunagiri:7 /mobile

```
[root@localhost /]# setfacl -m u:gowdham:7 /mobile
[root@localhost /]# ls -ld mobile/
drwxrwxr-x+ 2 root root 6 Sep 18 14:51 mobile/
```

```
[root@localhost /]# su - gowdham
[gowdham@localhost ~]$ mkdir /mobile/mi
[gowdham@localhost ~]$ ls -l /mobile
total 0
drwxr-xr-x. 2 gowdham gowdham 6 Sep 18 14:55 mi
[gowdham@localhost ~]$ logout
[root@localhost /]# su kapil
[kapil@localhost /]$ mkdir /mobile/poco
mkdir: cannot create directory '/mobile/poco': Permission denied
```

Setting ACL on a file for a specific user:

setfacl -m u:username:6 /file

setfacl -m u:arunagiri:6/dog

```
[root@localhost /]# touch /dog
[root@localhost /]# ls -l dog
-rw-r--r--. 1 root root 0 Sep 18 15:02 dog
[root@localhost /]# setfacl -m u:gowdham:6 /dog
[root@localhost /]# getfacl dog
# file: dog
# owner: root
# group: root
user::rw-
user:gowdham:rw-
group::r--
mask::rw-
other::r--

[root@localhost /]# ls -l dog
-rw-rw-r--+ 1 root root 0 Sep 18 15:02 dog
```

```
[root@localhost /]# su - gowdham
[gowdham@localhost ~]$ vi dog
[gowdham@localhost ~]$ ./dog
-bash: ./dog: Permission denied
[gowdham@localhost ~]$ chmod 655 dog
[gowdham@localhost ~]$ ./dog
-bash: ./dog: Permission denied
[gowdham@localhost ~]$ chmod 777 dog
[gowdham@localhost ~]$ ./dog
   September 2024
Su Mo Tu We Th Fr Sa
 1  2  3  4  5  6  7
 8  9 10 11 12 13 14
15 16 17 18 19 20 21
22 23 24 25 26 27 28
29 30


real    0m0.000s
user    0m0.000s
sys     0m0.000s
Wed Sep 18 03:10:20 PM IST 2024
```

To remove ACL on a file for a specific user

setfacl -x u:username /secure

setfacl -x u:username /mobile

```
[root@localhost /]# setfacl -x u:gowdham /mobile
[root@localhost /]# ls -ld mobile
drwxr-xr-x+ 3 root root 16 Sep 18 14:55 mobile
[root@localhost /]# getfacl /mobile/
getfacl: Removing leading '/' from absolute path names
# file: mobile/
# owner: root
# group: root
user::rwx
group::r-x
mask::r-x
other::r-x

[root@localhost /]# su - gowdham
[gowdham@localhost ~]$ mkdir /mobile/poco
mkdir: cannot create directory '/mobile/poco': Permission denied
[gowdham@localhost ~]$ ls -l /mobile/
total 0
drwxr-xr-x. 2 gowdham gowdham 6 Sep 18 14:55 mi
```

To set ACL on a file for a specific group

setfacl -m g:groupname:rwx filename

setfacl -m g::7 filename

```
[root@localhost /]# groupadd phone
[root@localhost /]# useradd -G phone poco
[root@localhost /]# useradd -G phone vivo
[root@localhost /]# setfacl -m g:phone:rwx mobile
[root@localhost /]# getfacl mobile/
# file: mobile/
# owner: root
# group: root
user::rwx
group::r-x
group:phone:rwx
mask::rwx
other::r-x

[root@localhost /]# su poco
[poco@localhost /]$ mkdir mobile/kkr
[poco@localhost /]$ ls -ld mobile
drwxrwxr-x+ 4 root root 27 Sep 18 15:41 mobile
[poco@localhost /]$ ls -l mobile
total 0
drwxrwxr-x. 2 poco      poco      6 Sep 18 15:41 kkr
drwxr-xr-x. 2 gowdham gowdham 6 Sep 18 14:55 mi
[root@localhost /]# useradd -G dog cat
[root@localhost /]# su poco
[poco@localhost /]$ exit
exit
[root@localhost /]# su cat
[cat@localhost /]$ mkdir /mobile/mouse
mkdir: cannot create directory '/mobile/mouse': Permission denied
```

To remove ACL on a file for a specific group

setfacl -x g:username /secure

```
[root@localhost ~]# setfacl -x g:str /mouse
[root@localhost ~]# setfacl -x g:str /mouse
[root@localhost ~]#
[root@localhost ~]# su - parthi
[parthi@localhost ~]$
[parthi@localhost ~]$ cd /mouse
[parthi@localhost mouse]$ ls -ld
drwxr-xr-x+ 4 root root 32 Aug 29 11:33 .
[parthi@localhost mouse]$ mkdir jd
mkdir: cannot create directory 'jd': Permission denied
[parthi@localhost mouse]$ logout
```

To remove all ACL

setfacl -b file/directory

```
[root@localhost /]# setfacl -x g:phone /mobile
[root@localhost /]# getfacl mobile/
```

```
[root@localhost /]# su poco
[poco@localhost /]$ mkdir /mobile/dd
mkdir: cannot create directory '/mobile/dd': Permission denied
```

To retrieve and display Access Control Lists (ACLs) for files and directories:

getfacl -R /mobile

```
[root@localhost /]# getfacl -R mobile
# file: mobile
# owner: root
# group: root
user::rwx
group::r-x
mask::r-x
other::r-x

# file: mobile/mi
# owner: gowdham
# group: gowdham
user::rwx
group::r-x
other::r-x

# file: mobile/kkr
# owner: poco
# group: poco
user::rwx
group::rwx
other::r-x
```

To create a directory in the root directory / and make ensure that any files/directory created inside the directory having a default permissions of 700 permission using ACL:

mkdir /usb

chmod 700 /usb

setfacl -m d:u::7,d:g::0,d:o::0 /usb

```
[root@localhost /]# mkdir hi
[root@localhost /]# chmod 700 hi
[root@localhost /]# ls -ld hi
drwx------. 2 root root 6 Sep 18 16:10 hi
[root@localhost /]# getfacl hi
# file: hi
# owner: root
# group: root
user::rwx
group::---
other::---
```

```
[root@localhost /]# setfacl -m d:u::7,d:g::0,d:o::0 /hi
[root@localhost /]# mkdir hi/hello
[root@localhost /]# ls -ld hi/hello/
drwx------+ 2 root root 6 Sep 18 16:13 hi/hello/
[root@localhost /]#
```

removing all ACL from file/directory

To remove all ACL

 # setfacl -b file/directory

```
[root@localhost /]# setfacl -b mobile
[root@localhost /]# getfacl mobile
# file: mobile
# owner: root
# group: root
user::rwx
group::r-x
other::r-x
```