

**Networking & System Administration Lab**  
**Basic Linux Commands**  
**ASSIGNMENT-3**

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Roll no: 10

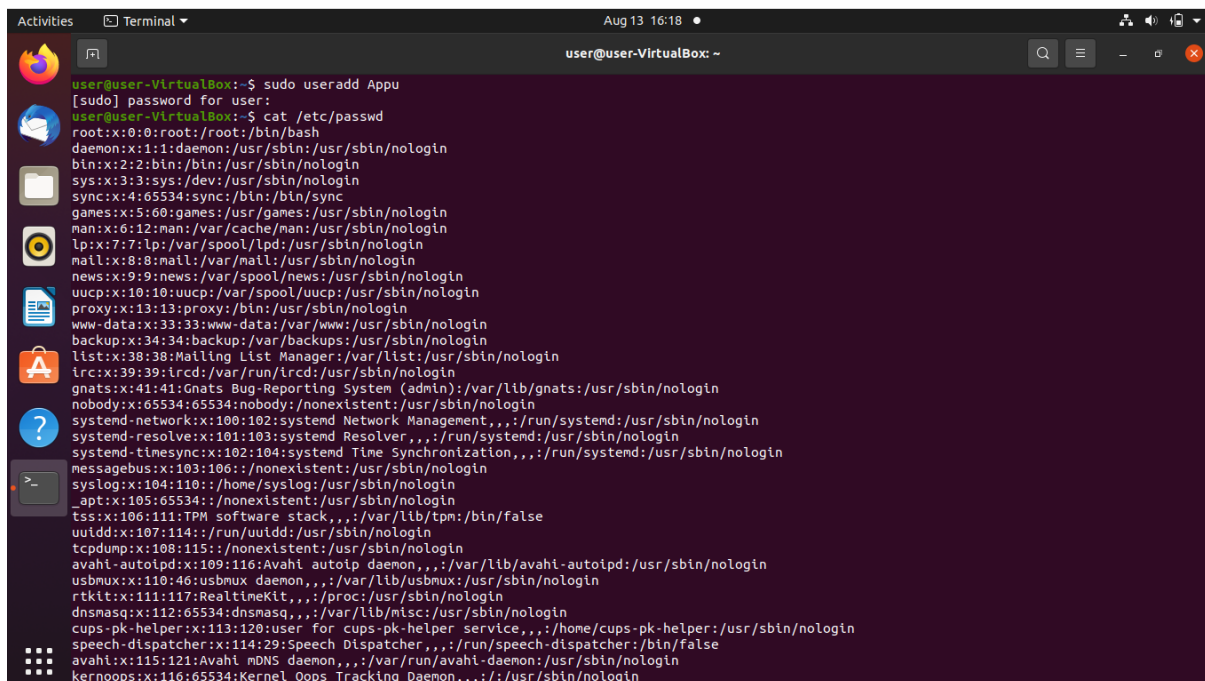
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## 1. Usermod

The usermod command or modify user is a command in Linux that is used to change the properties of a user in Linux through the command line. After creating a user we have to sometimes change their attributes like password or login directory etc.

### Options

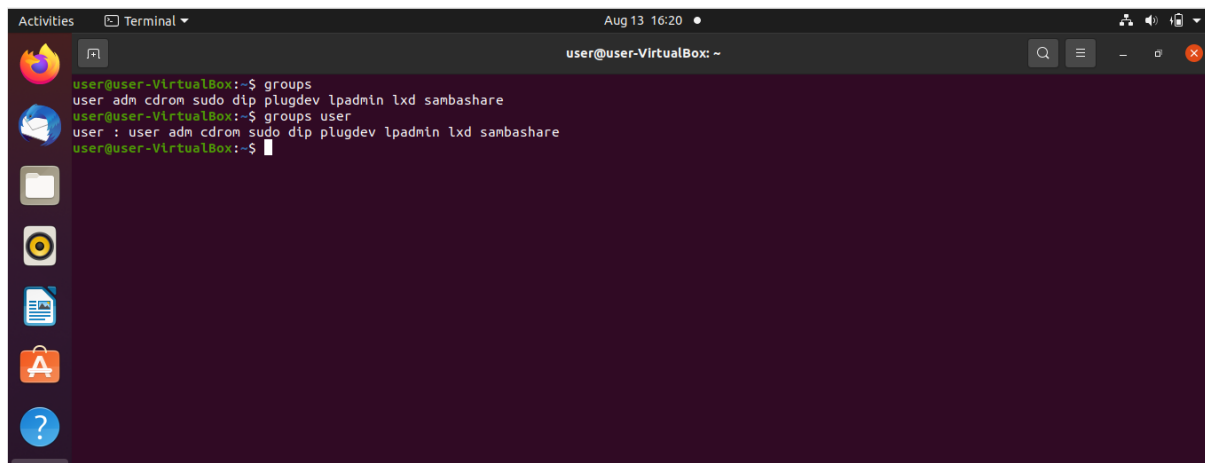
- c = we can add comment field for the user account.
- d = used to modify the directory for any existing user account.
- e = Using this option we can make the account expiry in specific period.
- g = Change the primary group for a User.
- G = used to add a supplementary groups.
- a = used to add anyone of the group to a secondary group.
- l = The name of the user will be changed from login to new login. Nothing else will change.
- L = To lock the user account. This will lock the password so we can't use the account.
- m = moving the contents of the home directory from existing home directory to new Directory.

A terminal window titled 'user@user-VirtualBox: ~' showing the execution of the 'useradd' command. The user 'Appu' has been created with a password. The terminal then displays the contents of the '/etc/passwd' file, listing system users and regular users with their respective IDs, home directories, and shells.

```
user@user-VirtualBox:~$ sudo useradd Appu
[sudo] password for user:
user@user-VirtualBox:~$ cat /etc/passwd
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin
list:x:38:38:Mailng List Manager:/var/list:/usr/sbin/nologin
irc:x:39:39:ircd:/var/run/ircd:/usr/sbin/nologin
gnats:x:41:41:Gnats Bug-Reporting System (admin):/var/lib/gnats:/usr/sbin/nologin
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
systemd-network:x:100:102:systemd Network Management,,,:/run/systemd:/usr/sbin/nologin
systemd-resolve:x:101:103:systemd Resolver,,,:/run/systemd:/usr/sbin/nologin
systemd-timesync:x:102:104:systemd Time Synchronization,,,:/run/systemd:/usr/sbin/nologin
messagebus:x:103:106:/:/nonexistent:/usr/sbin/nologin
syslog:x:104:110:/:/home/syslog:/usr/sbin/nologin
_apt:x:105:65534:/:/nonexistent:/usr/sbin/nologin
tss:x:106:111:TPM software stack,,,:/var/lib/tpm:/bin/false
uuidd:x:107:114:/:/run/uuidd:/usr/sbin/nologin
tcpdump:x:108:115:/:/nonexistent:/usr/sbin/nologin
avahi-autoipd:x:109:116:Avahi autoip daemon,,,:/var/lib/avahi-autoipd:/usr/sbin/nologin
usbmux:x:110:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin
rtkit:x:111:117:RealtimeKit,,,:/proc:/usr/sbin/nologin
dnsmasq:x:112:65534:dnsmasq,,,:/var/lib/misc:/usr/sbin/nologin
cups-pk-helper:x:113:120:user for cups-pk-helper service,,,:/home/cups-pk-helper:/usr/sbin/nologin
speech-dispatcher:x:114:29:Speech Dispatcher,,,:/run/speech-dispatcher:/bin/false
avahi:x:115:121:Avahi mDNS daemon,,,:/var/run/avahi-daemon:/usr/sbin/nologin
kernoops:x:116:65534:Kernel Oops Tracking Daemon,,,:/usr/sbin/nologin
```

## Groups

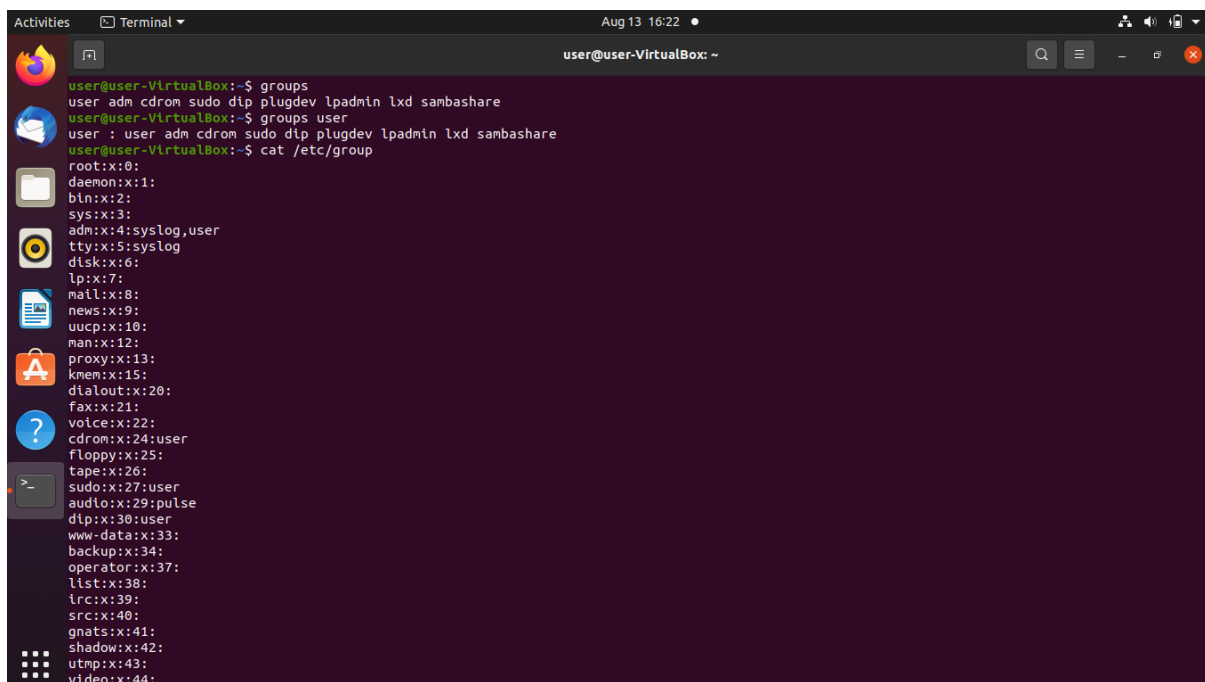
The `groups` command prints the names of the primary and any supplementary groups for each given username, or the current process if no names are given. If more than one name is given, the name of each user is printed before the list of that user's groups and the username is separated from the group list by a colon.



```
user@user-VirtualBox:~$ groups
user adm cdrom sudo dip plugdev lpadmin lxd sambashare
user@user-VirtualBox:~$ groups user
user : user adm cdrom sudo dip plugdev lpadmin lxd sambashare
user@user-VirtualBox:~$
```

## Groupadd

The `groupadd` command is used for create a new group to create a new group in Linux.



```
user@user-VirtualBox:~$ groups
user adm cdrom sudo dip plugdev lpadmin lxd sambashare
user@user-VirtualBox:~$ groups user
user : user adm cdrom sudo dip plugdev lpadmin lxd sambashare
user@user-VirtualBox:~$ cat /etc/group
root:x:0:
daemon:x:1:
bin:x:2:
sys:x:3:
adm:x:4:syslog,user
tty:x:5:syslog
disk:x:6:
lp:x:7:
mail:x:8:
news:x:9:
uucp:x:10:
man:x:12:
proxy:x:13:
kmem:x:15:
dialout:x:20:
fax:x:21:
voice:x:22:
cdrom:x:24:user
floppy:x:25:
tape:x:26:
sudo:x:27:user
audio:x:29:pulse
dip:x:30:user
www-data:x:33:
backup:x:34:
operator:x:37:
list:x:38:
irc:x:39:
src:x:40:
gnats:x:41:
shadow:x:42:
utmp:x:43:
video:x:44:
```

## Groupmod

The `groupmod` command in Linux is used to modify or change the existing group on Linux system. It can be handled by superuser or root user. Basically, it modifies a group definition on the system by modifying the right entry in the database of the group. Syntax: `groupmod [option] GROUP`.

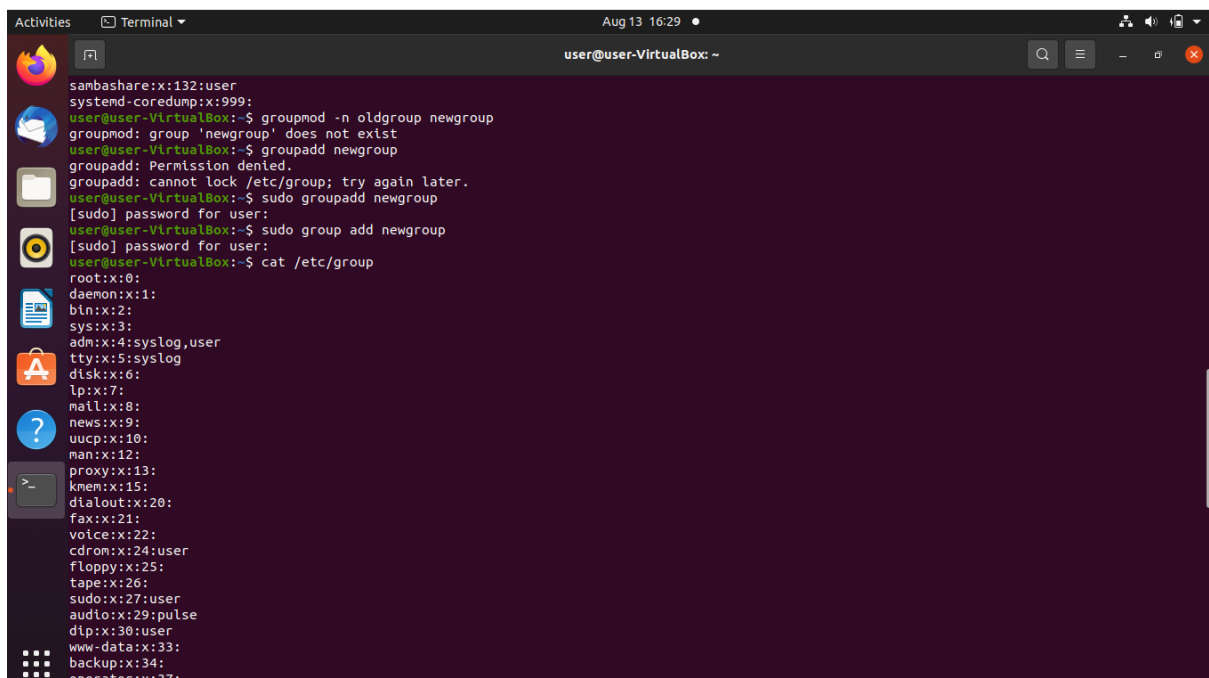
The `groupmod` command has following files.

**/etc/group:** Group Account Information.

**/etc/gshadow:** Secured group account information.

**/etc/login.def:** Shadow passwd suite configuration.

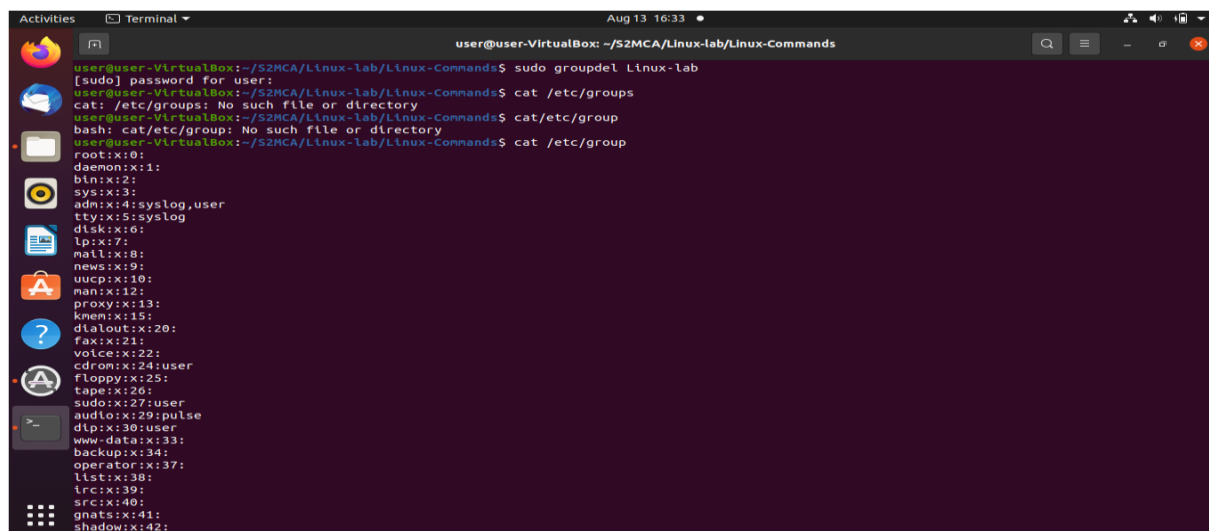
**/etc/passwd:** User account information.

A terminal window titled 'Terminal' with a date and time of 'Aug 13 16:29'. The prompt is 'user@user-VirtualBox: ~'. The user enters 'groupmod -n oldgroup newgroup', which results in an error: 'groupmod: group 'newgroup' does not exist'. Then, the user enters 'groupadd newgroup', which results in an error: 'groupadd: Permission denied. groupadd: cannot lock /etc/group; try again later.'. Next, the user enters 'sudo groupadd newgroup', which prompts for a password. After entering the password, the command succeeds. Finally, the user enters 'cat /etc/group', which displays the contents of the /etc/group file, listing various system and user groups such as root:x:0, daemon:x:1, bin:x:2, sys:x:3, adm:x:4, tty:x:5, disk:x:6, lp:x:7, mail:x:8, news:x:9, uucp:x:10, man:x:12, proxy:x:13, knm:x:15, dialout:x:20, fax:x:21, voice:x:22, cdrom:x:24, floppy:x:25, tape:x:26, sudo:x:27, audio:x:29, dip:x:30, www-data:x:33, backup:x:34, and operator:x:37.

```
user@user-VirtualBox: ~  
sambashare:x:132:user  
systemd-coredump:x:999:  
user@user-VirtualBox:~$ groupmod -n oldgroup newgroup  
groupmod: group 'newgroup' does not exist  
user@user-VirtualBox:~$ groupadd newgroup  
groupadd: Permission denied.  
groupadd: cannot lock /etc/group; try again later.  
user@user-VirtualBox:~$ sudo groupadd newgroup  
[sudo] password for user:  
user@user-VirtualBox:~$ sudo groupadd newgroup  
[sudo] password for user:  
user@user-VirtualBox:~$ cat /etc/group  
root:x:0:  
daemon:x:1:  
bin:x:2:  
sys:x:3:  
adm:x:4:syslog,user  
tty:x:5:syslog  
disk:x:6:  
lp:x:7:  
mail:x:8:  
news:x:9:  
uucp:x:10:  
man:x:12:  
proxy:x:13:  
knem:x:15:  
dialout:x:20:  
fax:x:21:  
voice:x:22:  
cdrom:x:24:user  
floppy:x:25:  
tape:x:26:  
sudo:x:27:user  
audio:x:29:pulse  
dip:x:30:user  
www-data:x:33:  
backup:x:34:  
operator:x:37:
```

## Groupdel

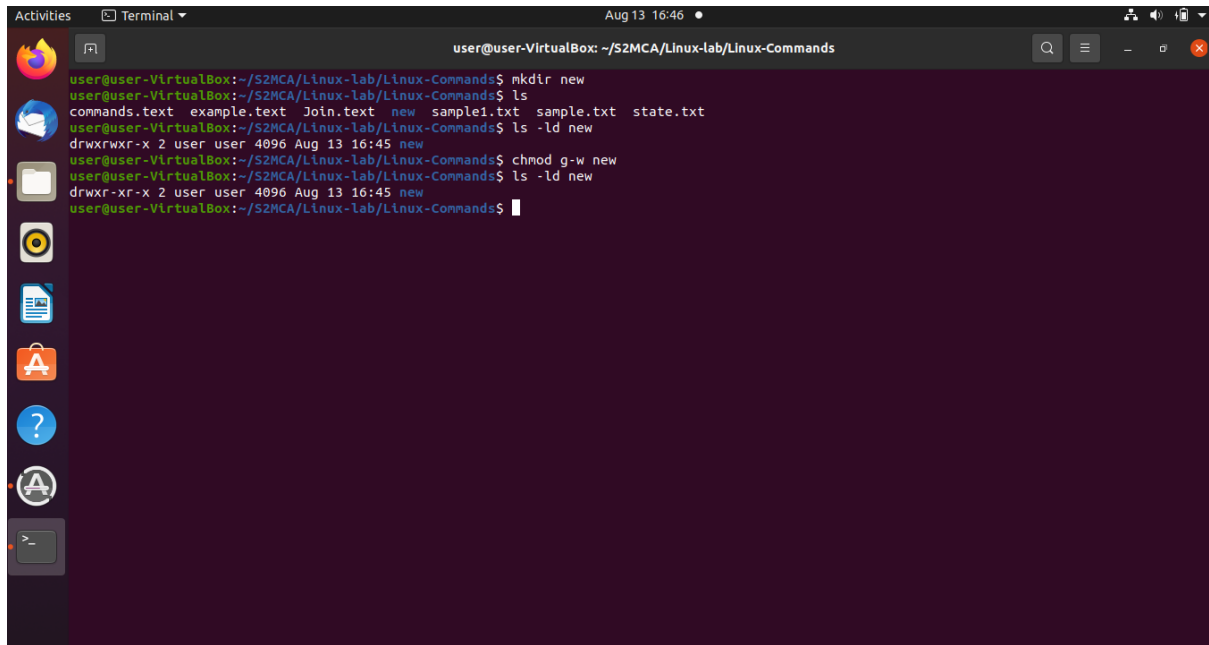
The `groupdel` command modifies the system account files, deleting all entries that refer to group. The named group must exist.

A terminal window titled 'Terminal' with a date and time of 'Aug 13 16:33'. The prompt is 'user@user-VirtualBox: ~/S2MCA/Linux-lab/Linux-Commands'. The user enters 'sudo groupdel Linux-lab', which prompts for a password. After entering the password, the command succeeds. Then, the user enters 'cat /etc/groups', which results in an error: 'cat: /etc/groups: No such file or directory'. Next, the user enters 'cat /etc/group', which results in an error: 'bash: cat/etc/group: No such file or directory'. Finally, the user enters 'cat /etc/group', which displays the contents of the /etc/group file, listing various system and user groups such as root:x:0, daemon:x:1, bin:x:2, sys:x:3, adm:x:4, tty:x:5, disk:x:6, lp:x:7, mail:x:8, news:x:9, uucp:x:10, man:x:12, proxy:x:13, knem:x:15, dialout:x:20, fax:x:21, voice:x:22, cdrom:x:24, floppy:x:25, tape:x:26, sudo:x:27, audio:x:29, dip:x:30, www-data:x:33, backup:x:34, operator:x:37, list:x:38, irc:x:39, src:x:40, gnats:x:41, and shadow:x:42.

```
user@user-VirtualBox:~/S2MCA/Linux-lab/Linux-Commands$ sudo groupdel Linux-lab  
[sudo] password for user:  
user@user-VirtualBox:~/S2MCA/Linux-lab/Linux-Commands$ cat /etc/groups  
cat: /etc/groups: No such file or directory  
user@user-VirtualBox:~/S2MCA/Linux-lab/Linux-Commands$ cat /etc/group  
bash: cat/etc/group: No such file or directory  
user@user-VirtualBox:~/S2MCA/Linux-lab/Linux-Commands$ cat /etc/group  
root:x:0:  
daemon:x:1:  
bin:x:2:  
sys:x:3:  
adm:x:4:syslog,user  
tty:x:5:syslog  
disk:x:6:  
lp:x:7:  
mail:x:8:  
news:x:9:  
uucp:x:10:  
man:x:12:  
proxy:x:13:  
knem:x:15:  
dialout:x:20:  
fax:x:21:  
voice:x:22:  
cdrom:x:24:user  
floppy:x:25:  
tape:x:26:  
sudo:x:27:user  
audio:x:29:pulse  
dip:x:30:user  
www-data:x:33:  
backup:x:34:  
operator:x:37:  
list:x:38:  
irc:x:39:  
src:x:40:  
gnats:x:41:  
shadow:x:42:
```

## Chmod

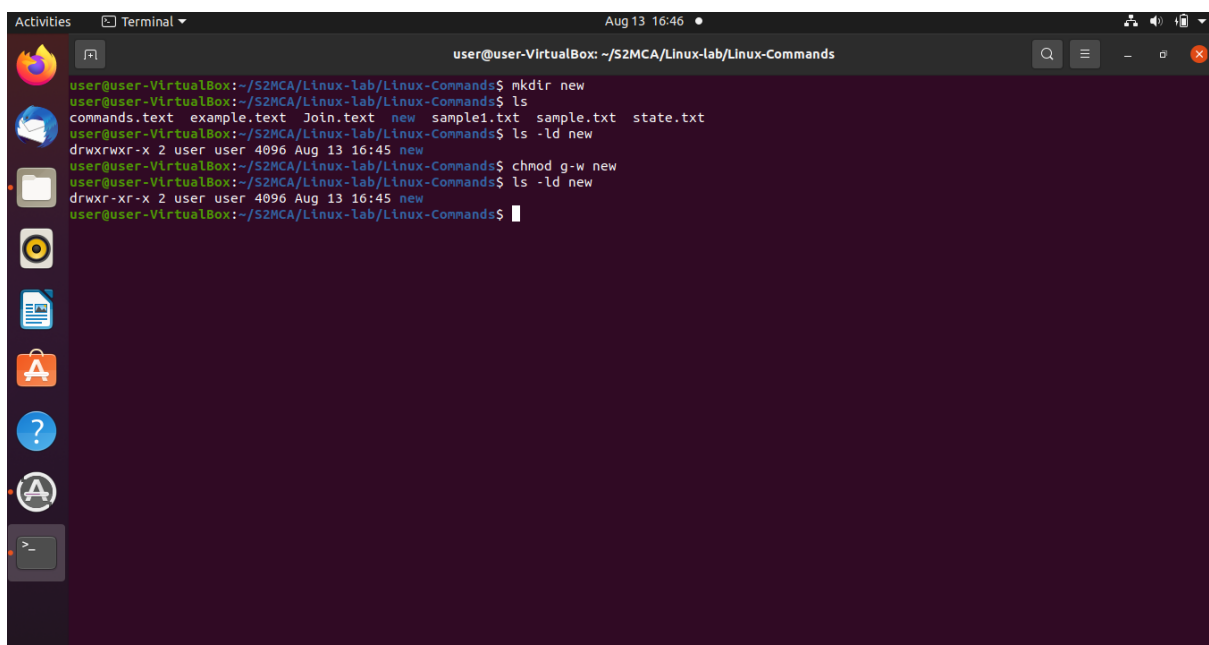
The chmod command is used to change the access mode of a file.

A terminal window titled 'user@user-VirtualBox: ~/S2MCA/Linux-lab/Linux-Commands' showing a series of commands and their outputs. The commands are: 'mkdir new', 'ls' (listing files including 'new'), 'ls -ld new' (showing permissions 'drwxrwxr-x'), and 'chmod g-w new' (removing write permission for the group). The final 'ls -ld new' output shows 'drwxr-xr-x', indicating the permission change was successful.

```
user@user-VirtualBox:~/S2MCA/Linux-lab/Linux-Commands$ mkdir new
user@user-VirtualBox:~/S2MCA/Linux-lab/Linux-Commands$ ls
commands.text  example.text  Join.text  new  sample1.txt  sample.txt  state.txt
user@user-VirtualBox:~/S2MCA/Linux-lab/Linux-Commands$ ls -ld new
drwxrwxr-x 2 user user 4096 Aug 13 16:45 new
user@user-VirtualBox:~/S2MCA/Linux-lab/Linux-Commands$ chmod g-w new
user@user-VirtualBox:~/S2MCA/Linux-lab/Linux-Commands$ ls -ld new
drwxr-xr-x 2 user user 4096 Aug 13 16:45 new
user@user-VirtualBox:~/S2MCA/Linux-lab/Linux-Commands$
```

## Chown

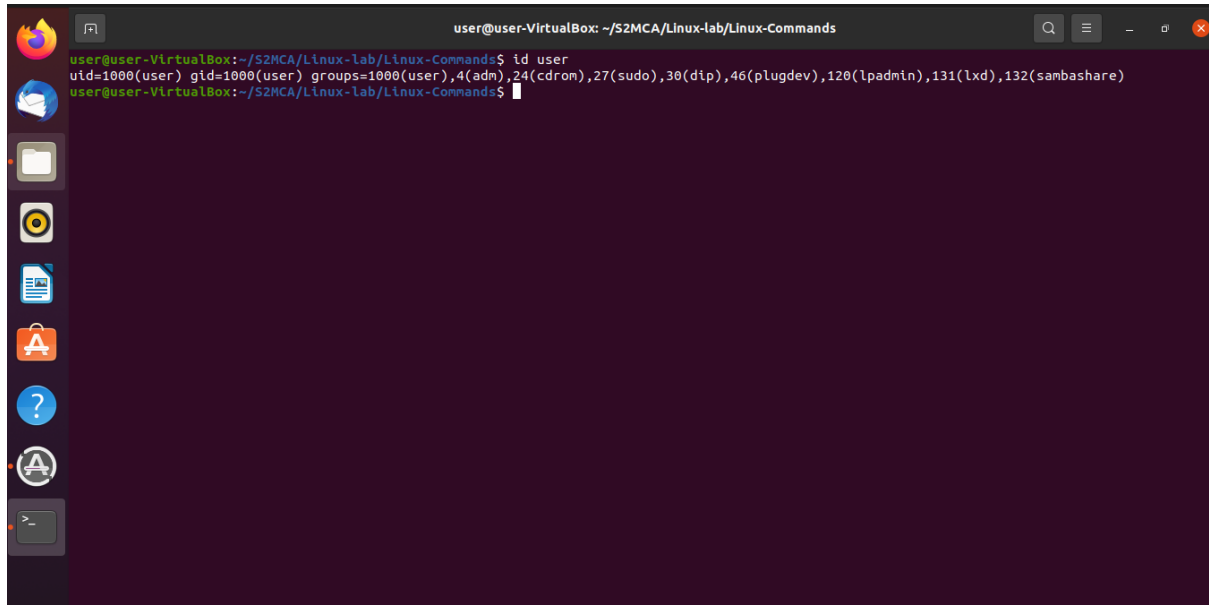
The chown command allows you to change the user and/or group ownership of a given file, directory, or symbolic link. In Linux, all files are associated with an owner and a group and assigned with permission access rights for the file owner, the group members, and others.

A terminal window titled 'user@user-VirtualBox: ~/S2MCA/Linux-lab/Linux-Commands' showing a series of commands and their outputs. The commands are: 'mkdir new', 'ls' (listing files including 'new'), 'ls -ld new' (showing permissions 'drwxrwxr-x'), and 'chmod g-w new' (removing write permission for the group). The final 'ls -ld new' output shows 'drwxr-xr-x', indicating the permission change was successful.

```
user@user-VirtualBox:~/S2MCA/Linux-lab/Linux-Commands$ mkdir new
user@user-VirtualBox:~/S2MCA/Linux-lab/Linux-Commands$ ls
commands.text  example.text  Join.text  new  sample1.txt  sample.txt  state.txt
user@user-VirtualBox:~/S2MCA/Linux-lab/Linux-Commands$ ls -ld new
drwxrwxr-x 2 user user 4096 Aug 13 16:45 new
user@user-VirtualBox:~/S2MCA/Linux-lab/Linux-Commands$ chmod g-w new
user@user-VirtualBox:~/S2MCA/Linux-lab/Linux-Commands$ ls -ld new
drwxr-xr-x 2 user user 4096 Aug 13 16:45 new
user@user-VirtualBox:~/S2MCA/Linux-lab/Linux-Commands$
```

## Id

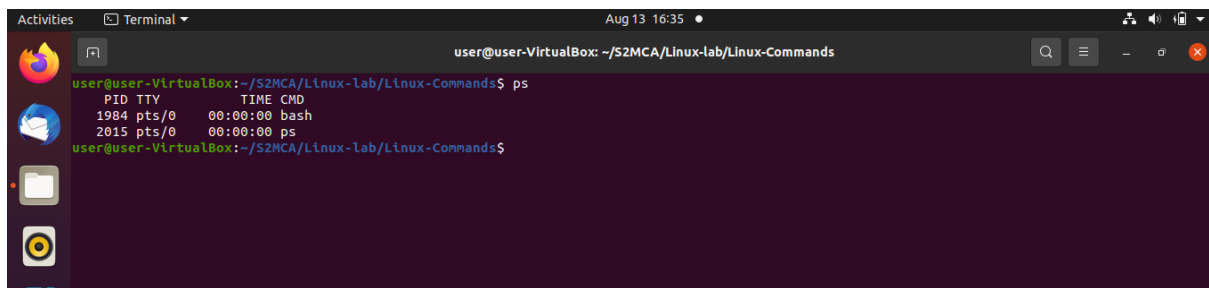
The id command in Linux is used to find out user and group names and numeric ID's (UID or group ID) of the current user or any other user in the server. This command is useful to find out the following information as listed below: User name and real user id.

A terminal window titled 'user@user-VirtualBox: ~/S2MCA/Linux-lab/Linux-Commands'. The prompt is 'user@user-VirtualBox: ~/S2MCA/Linux-lab/Linux-Commands\$'. The command 'id user' has been entered, and the output is displayed on the next line: 'uid=1000(user) gid=1000(user) groups=1000(user),4(adn),24(cdrom),27(sudo),30(dip),46(plugdev),120(lpadmin),131(lxd),132(sambashare)'. The prompt is now 'user@user-VirtualBox: ~/S2MCA/Linux-lab/Linux-Commands\$' with a cursor at the end.

```
user@user-VirtualBox: ~/S2MCA/Linux-lab/Linux-Commands$ id user
uid=1000(user) gid=1000(user) groups=1000(user),4(adn),24(cdrom),27(sudo),30(dip),46(plugdev),120(lpadmin),131(lxd),132(sambashare)
user@user-VirtualBox: ~/S2MCA/Linux-lab/Linux-Commands$
```

## Ps

The ps command in Linux is used to display about running processes on the system. You can get information like process ID (PID) for the processes you or any other user is running on the same Linux system.

A terminal window titled 'user@user-VirtualBox: ~/S2MCA/Linux-lab/Linux-Commands'. The prompt is 'user@user-VirtualBox: ~/S2MCA/Linux-lab/Linux-Commands\$'. The command 'ps' has been entered, and the output is displayed on the next line as a table with columns PID, TTY, TIME, and CMD. The output shows two processes: '1984 pts/0 00:00:00 bash' and '2015 pts/0 00:00:00 ps'. The prompt is now 'user@user-VirtualBox: ~/S2MCA/Linux-lab/Linux-Commands\$' with a cursor at the end.

```
user@user-VirtualBox: ~/S2MCA/Linux-lab/Linux-Commands$ ps
  PID TTY          TIME CMD
 1984 pts/0    00:00:00 bash
 2015 pts/0    00:00:00 ps
user@user-VirtualBox: ~/S2MCA/Linux-lab/Linux-Commands$
```

## Top

The Linux top command shows the running processes within your Linux environment that consume the most system resources.

```
user@user-VirtualBox: ~/S2MCA/Linux-lab/Linux-Commands

top - 16:37:08 up 23 min, 1 user, load average: 0.09, 0.06, 0.07
Tasks: 169 total, 1 running, 168 sleeping, 0 stopped, 0 zombie
%Cpu(s): 5.2 us, 1.0 sy, 0.0 ni, 93.8 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st
MiB Mem : 2992.3 total, 1474.0 free, 730.0 used, 788.2 buff/cache
MiB Swap: 966.7 total, 966.7 free, 0.0 used, 2088.5 avail Mem

  PID USER      PR  NI  VIRT  RES  SHR S %CPU  %MEM    TIME+  COMMAND
 1048 user      20   0 3718912 348468 130516 S  2.7  11.4   0:20.74 gnome-shell
   810 user      20   0 561112 84620 49852 S  2.0   2.8   0:09.46 Xorg
  1977 user      20   0 824264 52284 38928 S  1.7   1.7   0:02.51 gnome-terminal-
   859 user      20   0 325360 8676 7668 S  0.3   0.3   0:00.10 gvfs-afc-volume
  1225 user      20   0 357540 30988 20680 S  0.3   1.0   0:00.41 gsd-power
   727 user      20   0 19272 10604 8252 S  0.0   0.3   0:00.33 systemd
   729 user      20   0 103468 3576 4 S  0.0   0.1   0:00.00 (sd-pam)
   798 user      9  -11 1941172 18732 14864 S  0.0   0.6   0:00.53 pulseaudio
   802 user      39  19 520148 24020 15028 S  0.0   0.8   0:00.15 tracker-miner-f
   804 user      20   0 248660 7048 6080 S  0.0   0.2   0:00.03 gnome-keyring-d
   808 user      20   0 172652 6464 5816 S  0.0   0.2   0:00.00 gdm-x-session
   812 user      20   0 8408 5532 3872 S  0.0   0.2   0:00.30 dbus-daemon
   819 user      20   0 248320 7816 6844 S  0.0   0.3   0:00.03 gvfsd
   824 user      20   0 382060 8340 7440 S  0.0   0.3   0:00.01 gvfsd-fuse
   828 user      20   0 326068 11524 9892 S  0.0   0.4   0:00.08 gvfs-udisks2-vo
   849 user      20   0 244332 6304 5716 S  0.0   0.2   0:00.00 gvfs-mtp-volume
   854 user      20   0 246608 6760 6064 S  0.0   0.2   0:00.01 gvfs-gphoto2-vo
   869 user      20   0 244508 6052 5528 S  0.0   0.2   0:00.00 gvfs-goa-volume
   875 user      20   0 554888 36436 30404 S  0.0   1.2   0:00.10 goa-daemon
   908 user      20   0 327236 11456 10104 S  0.0   0.4   0:00.02 goa-identity-se
   918 user      20   0 199560 15524 13676 S  0.0   0.5   0:00.03 gnome-session-b
   985 user      20   0 6040 456 0 S  0.0   0.0   0:00.01 ssh-agent
  1008 user      20   0 309800 8964 8044 S  0.0   0.3   0:00.00 at-spi-bus-laun
  1013 user      20   0 7248 4272 3808 S  0.0   0.1   0:00.02 dbus-daemon
  1026 user      20   0 98696 4400 3984 S  0.0   0.1   0:00.00 gnome-session-c
  1033 user      20   0 495224 17368 14596 S  0.0   0.6   0:00.08 gnome-session-b
  1089 user      20   0 323320 10352 8776 S  0.0   0.3   0:00.02 tbus-daemon
  1093 user      20   0 175184 9140 8264 S  0.0   0.3   0:00.00 tbus-memconf
```