NETWORKING AND SYSTEM ADMINISTRATION LAB RECORD

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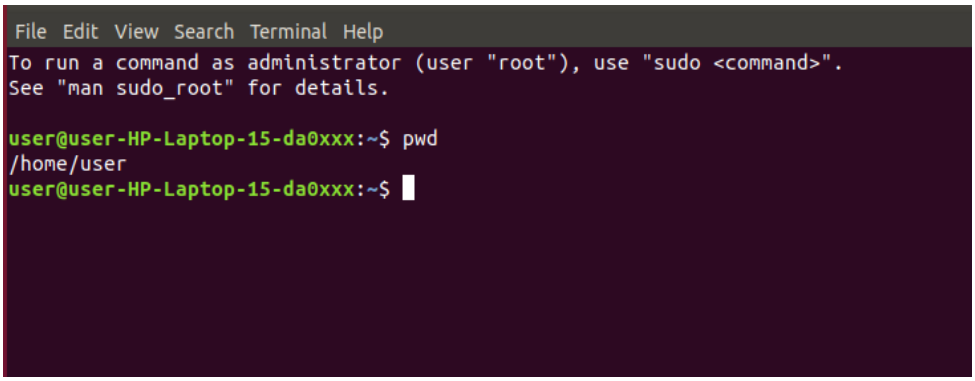
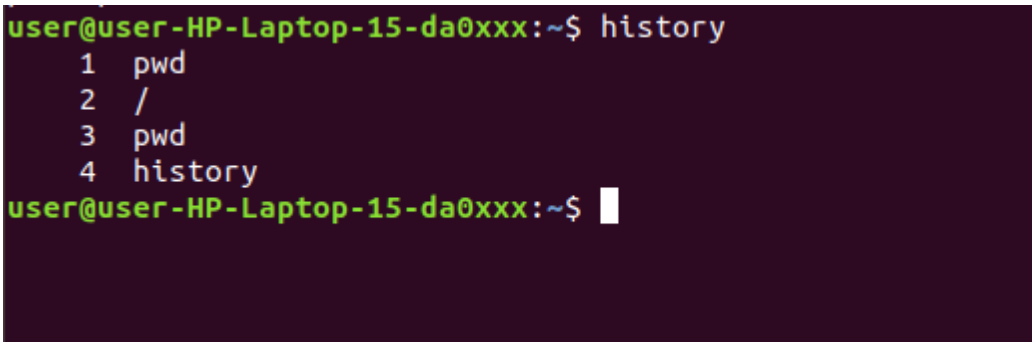
RMCA B
ROLL : 20

BASIC LINUX COMMANDS

1. **pwd (Print Working Directory):** Use the pwd command to find out the path of the current working directory (folder) you're in. The command will return an absolute (full) path, which is basically a path of all the directories that starts with a forward slash (/). An example of an absolute path is /home/username.



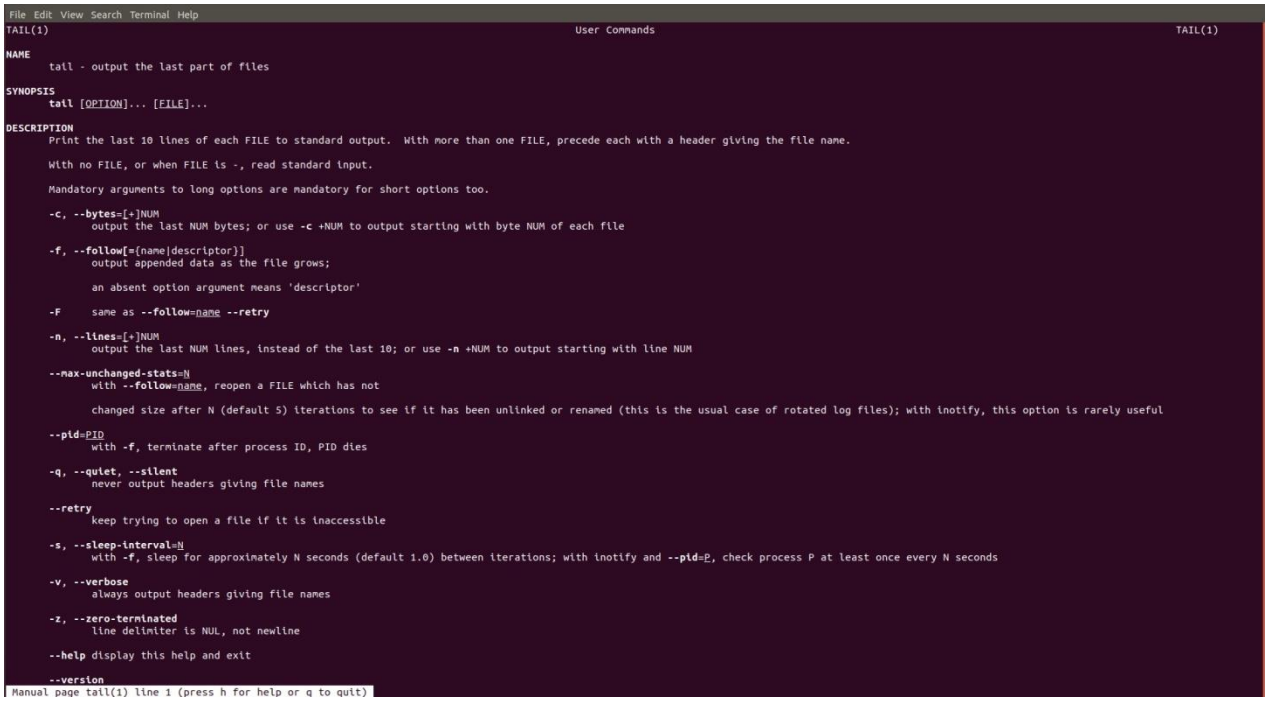
2. **history :** When you have been using Linux for a certain period of time, you will quickly notice that you can run hundreds of commands every day. As such, running history command is particularly useful if you want to review the commands you have entered before.



3. **man :** by using this command you can easily learn how to use

certain function of linux commands right from Linux's shell by using the man command. For instance, entering man tail will show the manual instruction of the tail command. Use the command: man man to start learning about man utility.

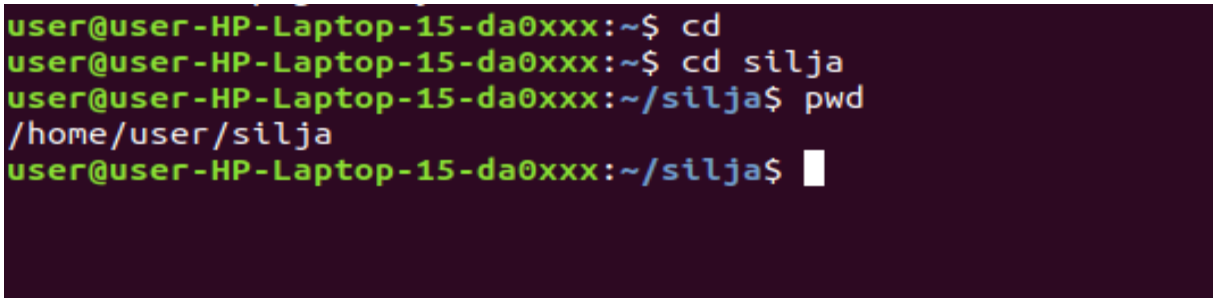
Eg:



4. **cd** :To navigate through the Linux files and directories, use the cd . It requires either the full path or the name of the directory,

depending on the current working directory that you're in.

Eg:

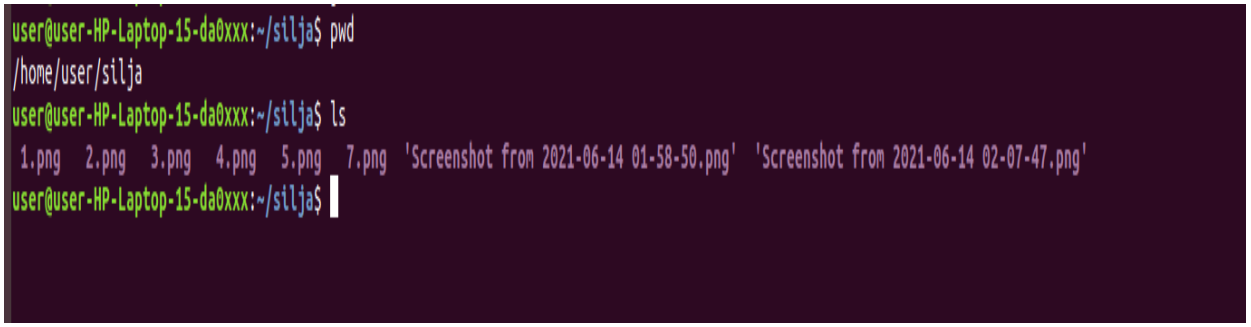


5. **ls**:The ls command is used to view the contents of a directory. By default, this command will display the contents of your current working directory.If you want to see the content of other directories, type ls and then the directory's path.

   There are variations you can use with the ls command:

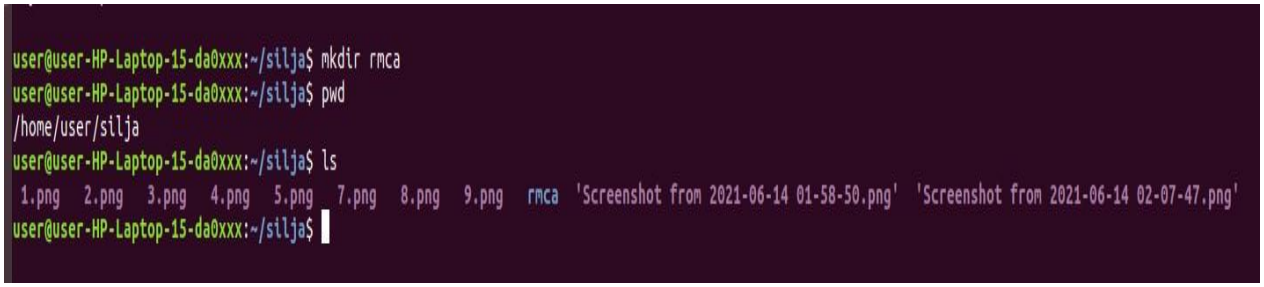
   - ls -R will list all the files in the sub-directories as well
   - ls –l – long listing
   - ls -a will show the hidden files
   - ls -al will list the files and directories with detailed information like the permissions, size, owner, etc.
   - ls -t lists files sorted in the order of "last modified"
   - ls -r option will reverse the natural sorting order. Usually used in combination with other switches such as ls -tr. This will reverse the time-wise listing.

   Eg:



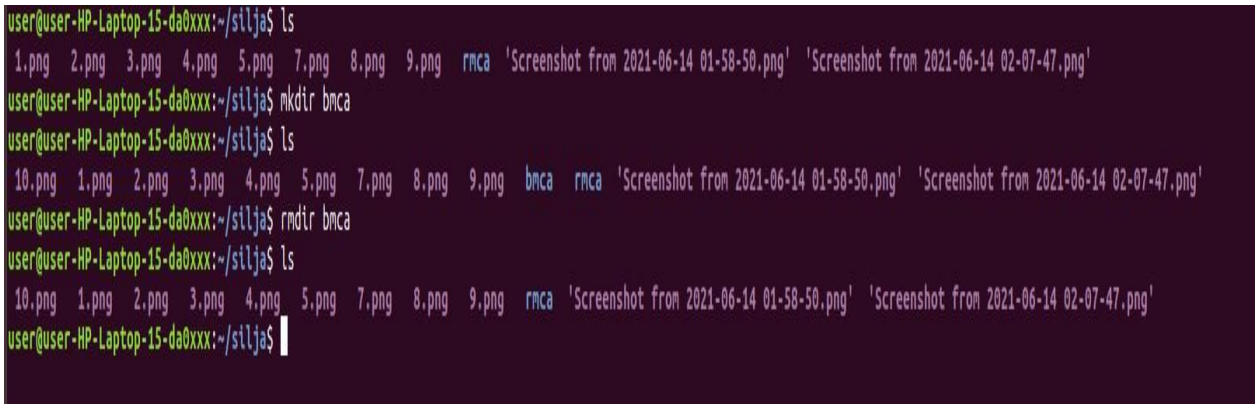
6. **mkdir :** Use mkdir command to make a new directory — if you type mkdir Music it will create a directory called Music.To generate a new directory inside another directory, use this Linux basic command.

Eg:



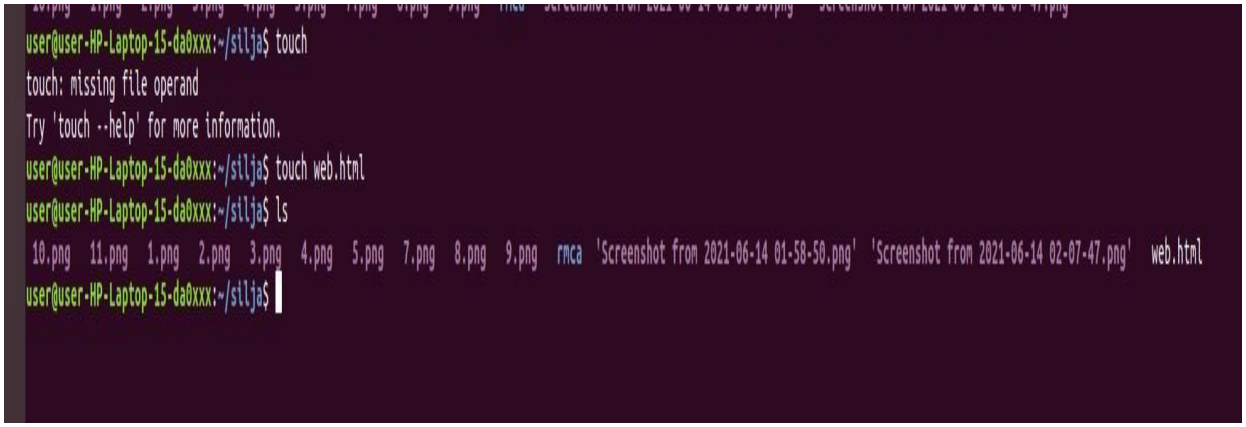
7. **rmdir:** If you need to delete a directory, use the rmdir command. However, rmdir only allows you to delete empty directories.

Eg:



8. **touch:** The touch command allows you to create a blank new file through the Linux command line.

Eg

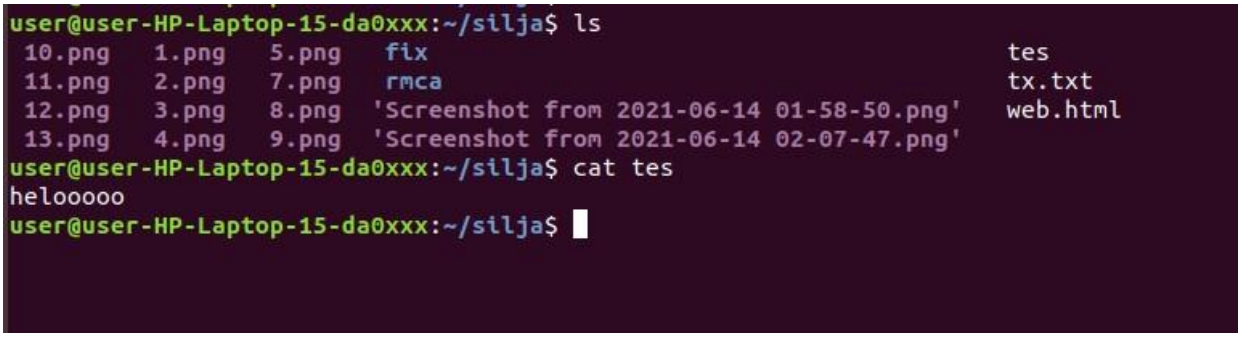


9. **rm :** The rm command is used to delete directories and the contents within them. If you only want to delete the directory — as an alternative to rmdir — use rm -r.Be very careful with this command and double-check which directory you are in. This will delete everything and there is no undo. To remove a file use rm filename.

Eg:

10. **Cat:**cat (short for concatenate) is one of the most frequently used commands in Linux. It is used to list the contents of a file on the standard output stdout . To run this command, type cat followed by the file's name and its extension.

Eg:



11.echo: echo command is used to move some data into a file. If you want to add the text, "Hello, my name is John" into a file called name.txt, you would type echo Hello, my name is John >> name.txt 2. head .

Eg:

```
user@user-HP-Laptop-15-da0xxx:~$ pwd
/home/user
user@user-HP-Laptop-15-da0xxx:~$ cd silja
user@user-HP-Laptop-15-da0xxx:~/silja$ echo hello,my name is silja>>tst
user@user-HP-Laptop-15-da0xxx:~/silja$ cat tst
hello,my name is silja
```

12.head: The head command is used to view the first lines of any text file. By default, it will show the first ten lines, but you can change this number to your liking. If you only want to show the first five lines, type head -n 5 filename.txt.

Eg:

```
user@user-HP-Laptop-15-da0xxx:~/silja$ head -n 2 lin
helooo
hiiii
user@user-HP-Laptop-15-da0xxx:~/silja$
```

13.tail : This one has a similar function to the head command, but instead of showing the first lines, the tail command will display the last ten lines of a text file. tail -n filename.txt.

Eg:

```
user@user-HP-Laptop-15-da0xxx:~/silja$ tail -n 2 lin
yeloo
heyyyy
user@user-HP-Laptop-15-da0xxx:~/silja$
```

14.read : read the contents of a line into a variable. The read command can be used with and without arguments .read command is used to read [options] [name...] . $read • $read var1 var2 var3 .$echo "[$var1] [$var2] [$var3].

Eg:

```
user@user-HP-Laptop-15-da0xxx:~/silja$ $read
user@user-HP-Laptop-15-da0xxx:~/silja$ $read a
a: command not found
user@user-HP-Laptop-15-da0xxx:~/silja$ read a

user@user-HP-Laptop-15-da0xxx:~/silja$
user@user-HP-Laptop-15-da0xxx:~/silja$ echo "a"
a
user@user-HP-Laptop-15-da0xxx:~/silja$
```

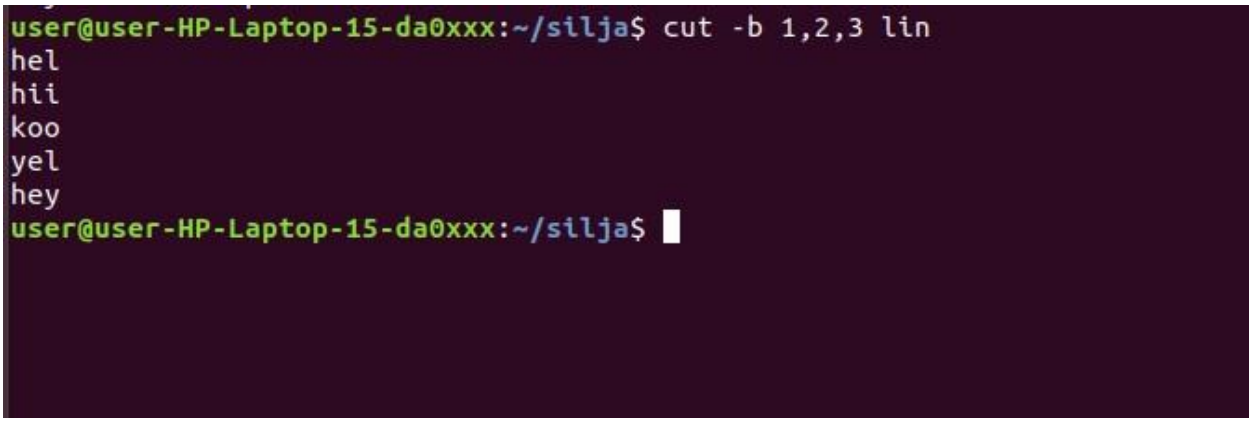
15.more :Like cat command, more command displays the content of a file. Only difference is that, in case of larger files, 'cat' command output will scroll off your screen while 'more' command displays output one screenful at a time. Enter key:

Eg:

16.less : The 'less' command is same as 'more' command but include some more features. It automatically adjust with the width and height of the teminal window, while 'more' command cuts the content as the width of the terminal window get shorter.

Eg:

17.cut : The cut command is used for cutting out the sections from each line of files and writing the result to standard output. It can be used to cut parts of a line by byte position, character and fiel. Eg:



18.paste : It is used to join files horizontally (parallel merging) by

outputting lines consisting of lines from each file specified, separated by tab as delimiter, to the standard output. paste [OPTION]... [FILES]...
$ paste state.txt capital.txt.

Eg:

```
user@user-HP-Laptop-15-da0xxx:~/silja$ paste tst lin
hello,my name is silja  helooo
        hiiii
        koooooii
        yeloo
        heyyyy
user@user-HP-Laptop-15-da0xxx:~/silja$
```

19.uname :The uname command, short for Unix Name, will print detailed information about your Linux system like the machine name, operating system, kernel, and so on. $uname ,$uname –r.

Eg:

```
user@user-HP-Laptop-15-da0xxx:~$ pwd
/home/user
user@user-HP-Laptop-15-da0xxx:~$ cd silja
user@user-HP-Laptop-15-da0xxx:~/silja$ uname -r
4.18.0-15-generic
user@user-HP-Laptop-15-da0xxx:~/silja$
```

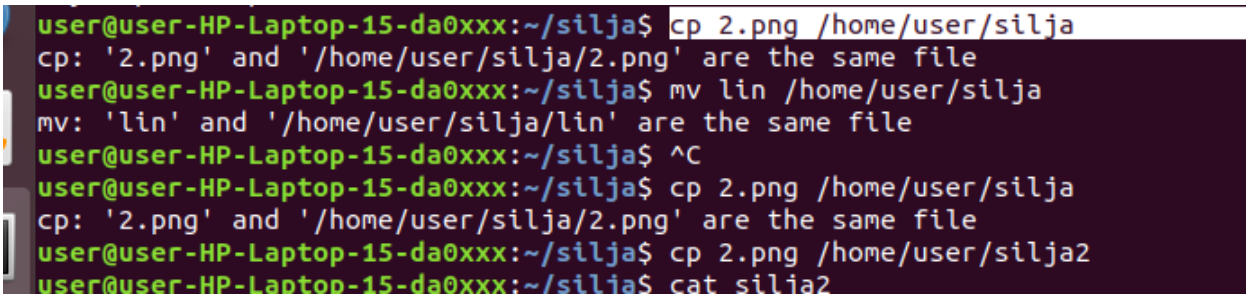
20.cp : cp command is used to copy files from the current directory to a different directory. For instance, the command cp scenery.jpg
/home/username/Pictures would create a copy of scenery.jpg (from your current directory) into the Pictures directory. cp -i will ask for user's consent in case of a potential file overwrite. cp -p will preserve source files'mode, ownership and timestamp. cp -r will copy directories recursively. cp -u copies files only if the destination file is not existing or the source file is newer than the destination file.

Eg:

```
user@user-HP-Laptop-15-da0xxx:~/silja$ cp 2.png /home/user/silja
cp: '2.png' and '/home/user/silja/2.png' are the same file
user@user-HP-Laptop-15-da0xxx:~/silja$ mv lin /home/user/silja
mv: 'lin' and '/home/user/silja/lin' are the same file
user@user-HP-Laptop-15-da0xxx:~/silja$ ^C
user@user-HP-Laptop-15-da0xxx:~/silja$ cp 2.png /home/user/silja
cp: '2.png' and '/home/user/silja/2.png' are the same file
user@user-HP-Laptop-15-da0xxx:~/silja$ cp 2.png /home/user/silja2
user@user-HP-Laptop-15-da0xxx:~/silja$ cat silja2
```

21.mv : The primary use of the mv command is to move files, it can also be used to rename files. The arguments in mv are similar to the cp command. You need to type mv, the file's name, and the destination's directory. mv file.txt /home/username/Documents .To rename files, the Linux is mv oldname.ext newname.ext.

Eg:



22.locate : To locate a file, just like the search command in Windows. What's more, using the -i argument along with this command will make it caseinsensitive, so you can search for a file even if you don't remember its exact name. To search for a file that contains two or more words, use an asterisk (*). For example, locate -i school*note command will search for any file that contains the word ‘‘school’’ and ‘‘note’’, whether it is uppercase or lowercase.

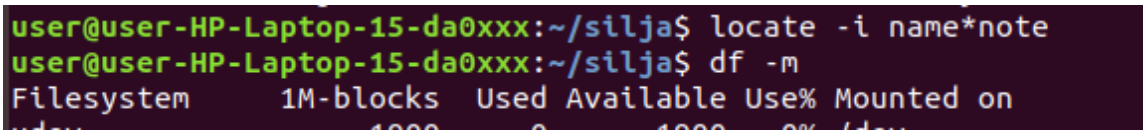
Eg:

```
user@user-HP-Laptop-15-da0xxx:~/silja$ locate -i name*note
user@user-HP-Laptop-15-da0xxx:~/silja$ df -m
Filesystem     1M-blocks  Used Available Use% Mounted on
```

23.find :Similar to the locate command, using find also searches for files

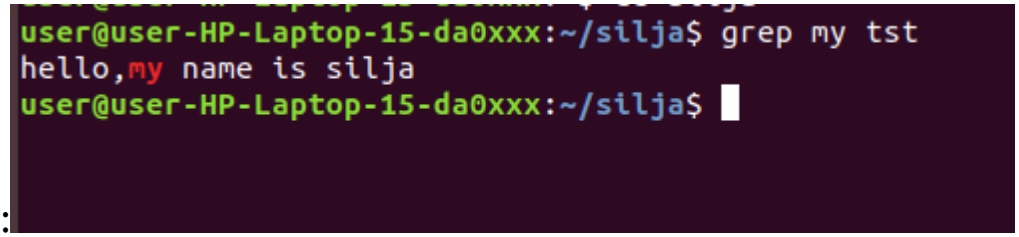
and directories. The difference is, you use the find command to locate files within a given directory. As an example, find /home/ -name notes.txt command will search for a file called notes.txt within the home directory and its subdirectories. Other variations when using the find are: To find files in the current directory use, find . -name notes.txt .To look for directories use, / -type d -name notes. Txt.

Eg:



24.grep : Another basic Linux command that is undoubtedly helpful for everyday use is grep. It lets you search through all the text in a given file. To illustrate, grep blue notepad.txt will search for the word blue in the notepad file. Lines that contain the searched word will be displayed fully. Usually output of a previous command is piped into the grep command. For example ls -l | grep "kernel" .

Eg:



25.df :Use df command to get a report on the system's disk space usage, shown in percentage and KBs. If you want to see the report in megabytes, type df -m.

Eg:

```
user@user-HP-Laptop-15-da0xxx:~/silja$ df -m
Filesystem     1M-blocks  Used Available Use% Mounted on
udev                1900     0      1900   0% /dev
tmpfs                387     2       385   1% /run
/dev/sda8          48961  6548     39897  15% /
tmpfs                1931     0      1931   0% /dev/shm
tmpfs                   5     1         5   1% /run/lock
tmpfs                1931     0      1931   0% /sys/fs/cgroup
/dev/loop3             15    15         0 100% /snap/gnome-logs/45
/dev/loop2            141   141         0 100% /snap/gnome-3-26-1604/74
/dev/loop4              3     3         0 100% /snap/gnome-calculator/260
/dev/loop0             91    91         0 100% /snap/core/6350
/dev/loop5             13    13         0 100% /snap/gnome-characters/139
/dev/loop6              4     4         0 100% /snap/gnome-system-monitor/57
/dev/loop1             35    35         0 100% /snap/gtk-common-themes/818
/dev/sda2              96    31        66  32% /boot/efi
tmpfs                387     1       386   1% /run/user/1000
user@user-HP-Laptop-15-da0xxx:~/silja$
```

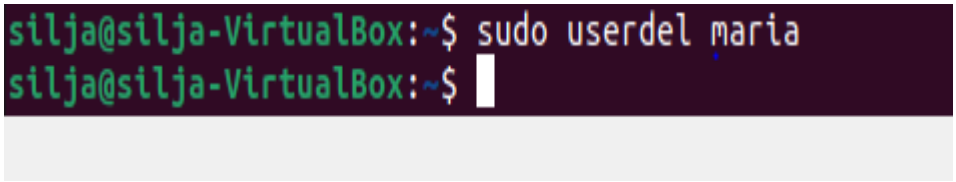
26.du :If you want to check how much space a file or a directory takes, the du (Disk Usage) command is the answer. However, the disk usage summary will show disk block numbers instead of the usual size format. If you want to see it in bytes, kilobytes, and megabytes, add the -h argument to the command line.

```
silja@silja-VirtualBox:~$ du
4       ./snap/snap-store/547/.config/dconf
8       ./snap/snap-store/547/.config/fontconfig
8       ./snap/snap-store/547/.config/autostart
4       ./snap/snap-store/547/.config/gtk-3.0
4       ./snap/snap-store/547/.config/gtk-2.0
4       ./snap/snap-store/547/.config/ibus
52      ./snap/snap-store/547/.config
188     ./snap/snap-store/547/.local/share/glib-2.0/sche
```

27.useradd : This is available only to system admins .Since Linux is a multi-user system, this means more than one person can interact with the same system at the same time. useradd is used to create a new user, while passwd is adding a password to that user's account. To add a new person named John type, useradd John and then to add his password type, passwd 123456789.

```
user@user-HP-Laptop-15-da0xxx:~$ sudo useradd juliet
[sudo] password for user:
user@user-HP-Laptop-15-da0xxx:~$
```

28.userdel :Remove a user is very similar to adding a new user. To delete the users account type, userdel UserName .



29.sudo :Short for ‘‘SuperUser Do’’, this command enables you to perform tasks that require administrative or root permissions. You must have sufficient permissions to use this command. sudo useradd maria.

30.passwd : Changes passwords for user accounts. A normal user may only change the password for their own account, while the superuser may change the password for any account.

Eg:

31.usermod : usermod command is used to change the properties of a user in Linux through the command line command-line utility that allows you to modify a user's login information .

```
silja@silja-VirtualBox:~$ sudo useradd sil
silja@silja-VirtualBox:~$ sudo usermod -u 2000 sil
silja@silja-VirtualBox:~$ id sil
uid=2000(sil) gid=1001(sil) groups=1001(sil)
silja@silja-VirtualBox:~$
```

32.groupadd : groupadd command creates a new group account using the values specified on the command line and the default values from the system.

```
silja@silja-VirtualBox:~$ sudo groupadd mca
silja@silja-VirtualBox:~$
```

33.groups : print the groups a user is in#groups alice.

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

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

```
silja@silja-VirtualBox:~$ sudo groupadd mba
silja@silja-VirtualBox:~$ sudo groupdel mba
silja@silja-VirtualBox:~$
```

```
user@user-HP-Laptop-15-da0xxx:~/silja$ groupdel
Usage: groupdel [options] GROUP

Options:
  -h, --help                    display this help message and exit
  -R, --root CHROOT_DIR         directory to chroot into
  -f, --force                   delete group even if it is the primary group of a user

user@user-HP-Laptop-15-da0xxx:~/silja$
```

35.groupmod . The groupmod command modifies the definition of the specified group by modifying the appropriate entry in the group database. # groupmod -n group1 group2 .

```
user@user-HP-Laptop-15-da0xxx:~/silja$ groupmod
Usage: groupmod [options] GROUP

Options:
  -g, --gid GID                 change the group ID to GID
  -h, --help                    display this help message and exit
  -n, --new-name NEW_GROUP      change the name to NEW_GROUP
  -o, --non-unique              allow to use a duplicate (non-unique) GID
  -p, --password PASSWORD       change the password to this (encrypted)
                                PASSWORD
  -R, --root CHROOT_DIR         directory to chroot into

user@user-HP-Laptop-15-da0xxx:~/silja$
```

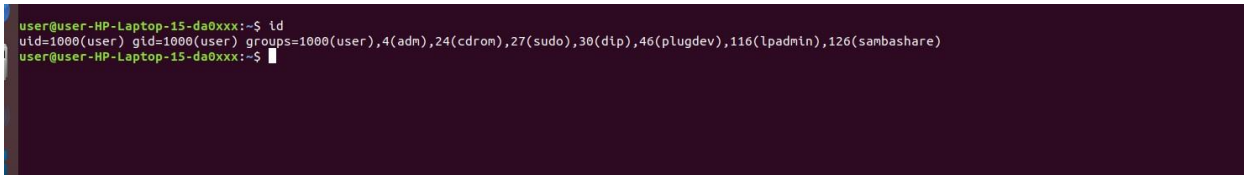
36.chmod . To change directory permissions of file/ Directory in Linux. #chmod whowhatwhich file/directory chmod +rwx filename to add permissions. chmod -rwx directoryname to remove permissions. chmod +x filename to allow executable permissions. chmod -wx filename to take out write and executable permissions. #chmod u+x test #chmod g-rwx test #chmod o-r test 4

```
silja@silja-VirtualBox:~$ sudo chmod +rwx ho
silja@silja-VirtualBox:~$ ls -d ho
ho
silja@silja-VirtualBox:~$
```

37.chown :The chown command allows you to change the user and/or group ownership of a given file, directory. #chownTom Test

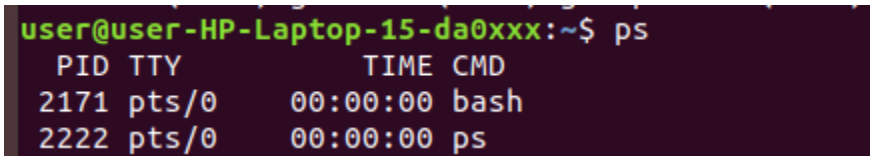
```
silja@silja-VirtualBox:~$ sudo chown sil ho
silja@silja-VirtualBox:~$ ls -d ho
ho
silja@silja-VirtualBox:~$
```

38.id :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. • #id

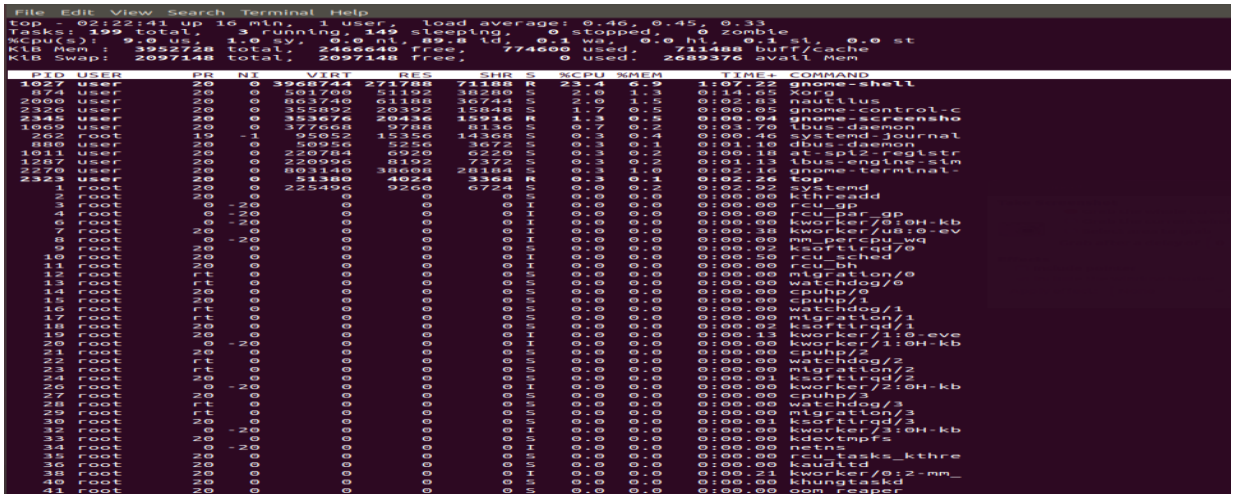


39.ps: The ps command, short for Process Status, is a command line utility that is used to display or view information related to the processes running in a Linux system. PID – This is the unique process ID TTY– This is the type of terminal that the user is logged in to . TIME – This is the time in minutes and seconds that the process has been running .CMD

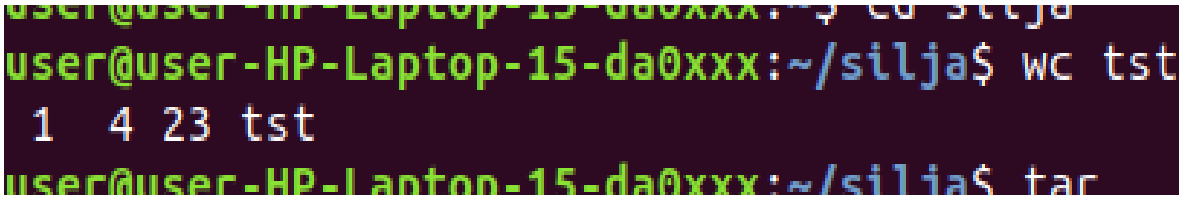
– The command that launched the process #ps -a 5



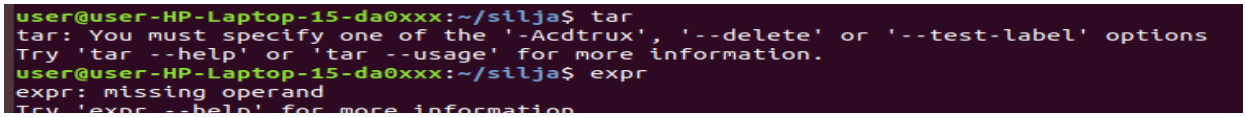
40.top :top command is used to show the Linux processes. It provides a dynamic real-time view of the running system #top –u rose



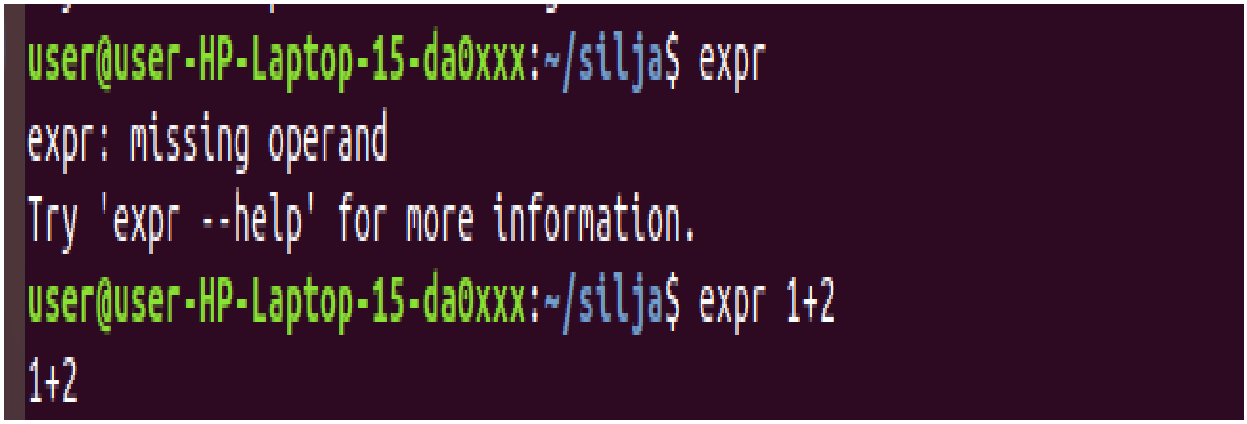
41.wc : wc stands for word count. Used for counting purpose. It is used to find out number of lines, word count, byte and characters count in the files specified in the file arguments. #wc state.txt 6 8 54 state.tx . #wc state.txt capital.txt wc -l state.txt wc -w state.txt capital.txt wc -c state.txt .wc -m state.txt



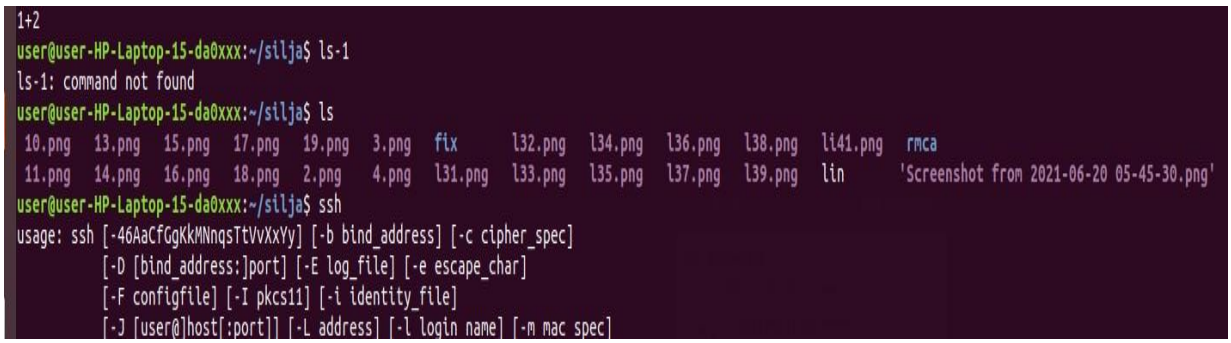
42.tar : The Linux ‘tar’stands for tape archive, is used to createArchive and extract theArchive files Linux tar command to create compressed or uncompressedArchive files.



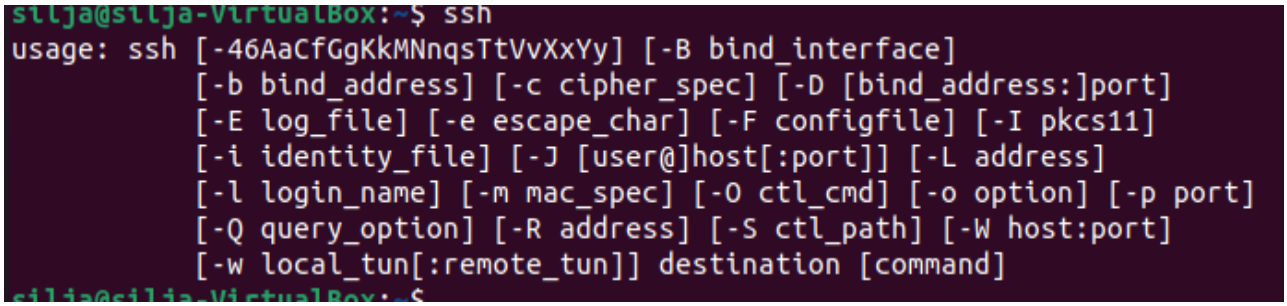
43.expr : The expr command evaluates a given expression and displays its corresponding output. It is used for: . Basic operations like addition, subtraction, multiplication, division, and modulus on integers. Evaluating regular expressions, string operations like substring, length of strings etc. Performing operations on variables inside a shell script.



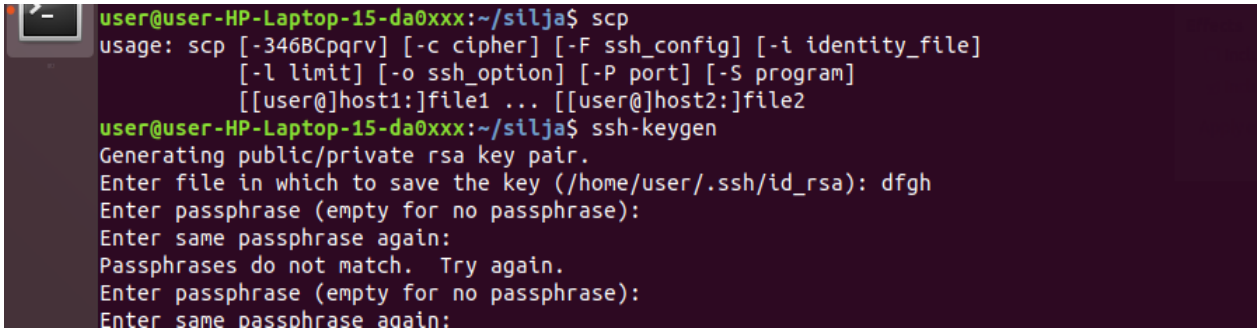
44.Redirections & Piping :A pipe is a form of redirection to send the output of one command/program/process to another command/program/process for further processing. Pipe is used to combine two or more commands, the output of one command acts as input to another command, and this command's output may act as input to the next command and so on.



45.ssh : ssh stands for "Secure Shell". It is a protocol used to securely connect to a remote server/system. ssh is secure in the sense that it transfers the data in encrypted form between the host and the client. It transfers inputs from the client to the host and relays back the output. ssh runs at TCP/IP port 22.



46.scp: SCP (secure copy) is a command-line utility that allows you to securely copy files and directories between two locations. With scp, you can copy a file or directory: From your local system to a remote system. From a remote system to your local system. Between two remote systems from your local system. Remote file system locations are specified in format [user@]host:/path Syntax: scp [OPTION] [user@]SRC_HOST:]file1 [user@]DEST_HOST:]file2 $scp /etc/yum.config /etc/hosts ServerX:/home/student $scp ServerX:/etc/hostname /home/student.



47.ssh-keygen : ssh-keygen command to generate a public/private authentication key pair. Authentication keys allow a user to connect to a remote system without supplying a password. Keys must be generated for each user separately. If you generate key pairs as the root user, only the root can use the keys. $ssh-keygen -t rsa.

48.a. Create six files with name of the form songX.mp3 b. Create six files with name of the form snapX.mp3 c. Create six files with name of the form filmX.mp3 (In each set, replace X with the numbers 1 through 6)

```
user@user-HP-Laptop-15-da0xxx:~$ touch song1.mp3 song2.mp3 song3.mp3 song4.mp3 song5.mp3 song6.mp3
user@user-HP-Laptop-15-da0xxx:~$ touch snap1.jpg snap2.jpg snap3.jpg snap4.jpg snap5.jpg snap6.jpg
user@user-HP-Laptop-15-da0xxx:~$ touch film1.mp4 film2.mp4 film3.mp4 film4.mp4 film5.mp4 film6.mp4
user@user-HP-Laptop-15-da0xxx:~$
```

49. From your home directory, move the song files into your music subdirectory, the snapshot files into your pictures subdirectory, and the movie files into videos subdirectory

```
mv: missing destination file operand after '*.jpg./pictures'
Try 'mv --help' for more information.
user@user-HP-Laptop-15-da0xxx:~$ mv *.jpg./pictures/
mv: missing destination file operand after '*.jpg./pictures/'
Try 'mv --help' for more information.
user@user-HP-Laptop-15-da0xxx:~$ mv *.jpg./silja/
mv: missing destination file operand after '*.jpg./silja/'
Try 'mv --help' for more information.
user@user-HP-Laptop-15-da0xxx:~$ mv *.mp4./videos/
```

50.In your home directory, create three subdirectories for organizing your files. Call these directories friends, family, and work. Create all three with one command.

```
user@user-HP-Laptop-15-da0xxx:~$ mkdir -p {friends,family,work}
user@user-HP-Laptop-15-da0xxx:~$
```

51.Copy song files to the friends folder and snap files to family folder

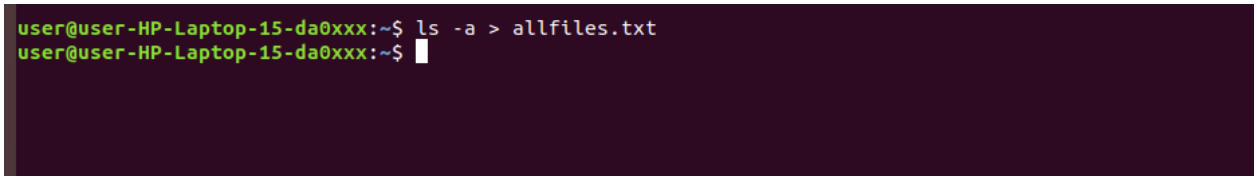
```
user@user-HP-Laptop-15-da0xxx:~$ cp /home/music  song1.mp3 song2.mp3 song3.mp3 song4.mp3 song5.mp3 song6.mp3
cp: target 'song6.mp3' is not a directory
user@user-HP-Laptop-15-da0xxx:~$ cp /home/music  song1.mp3 song2.mp3 song3.mp3 song4.mp3 song5.mp3 song6.mp3 /home/friends
cp: target '/home/friends' is not a directory
user@user-HP-Laptop-15-da0xxx:~$ cp /home/pictures snap1.jpg snap2.jpg snap3.jpg snap4.jpg snap5.jpg snap6.jpg
cp: target 'snap6.jpg' is not a directory
user@user-HP-Laptop-15-da0xxx:~$ cp /home/pictures snap1.jpg snap2.jpg snap3.jpg snap4.jpg snap5.jpg snap6.jpg /home/family/
cp: target '/home/family/' is not a directory
user@user-HP-Laptop-15-da0xxx:~$ cp /home/music  song1.mp3 song2.mp3 song3.mp3 song4.mp3 song5.mp3 song6.mp3 /home/friends/
cp: target '/home/friends/' is not a directory
```

52.Attempt to delete both family and friends projects with a single rmdir command.

```
user@user-HP-Laptop-15-da0xxx:~$ rmdir {friends,family}
user@user-HP-Laptop-15-da0xxx:~$
```

53.Use another command that will succeed in deleting both the family and friends folder

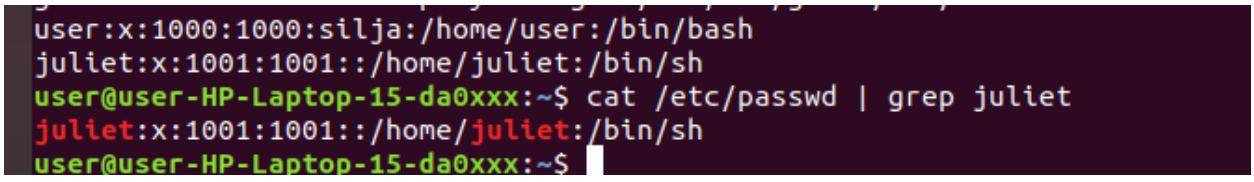
54.Redirect a long listing of all home directory files, including hidden, into a file named allfiles.txt. Confirm that the file contains the listing.



55.In the command window, display today's date with day of the week, month, date and year

56.Add the user Juliet

57.Confirm that Juliet has been added by examining the /etc/passwd file



58.Use the passwd command to initialize Juliet's password

```
user@user-HP-Laptop-15-da0xxx:~$ sudo passwd juliet
[sudo] password for user:
Enter new UNIX password:
Retype new UNIX password:
passwd: password updated successfully
user@user-HP-Laptop-15-da0xxx:~$
```

59.Create a supplementary group called Shakespeare with a group id of 30000

```
user@user-HP-Laptop-15-da0xxx:~$ sudo groupadd -g 30000 shakesphere
user@user-HP-Laptop-15-da0xxx:~$
```

60.Create a supplementary group called artists.

```
user@user-HP-Laptop-15-da0xxx:~$ sudo groupadd artists
user@user-HP-Laptop-15-da0xxx:~$
```

61.Confirm that Shakespeare and artists have been added by examining the /etc/group file.

```
juliet:x:1001:
shakesphere:x:30000:
artists:x:30001:
(END)
```

62.Add the Juliet user to the Shakespeare group as a supplementary group

```
user@user-HP-Laptop-15-da0xxx:~$ sudo usermod -G shakesphere juliet
[sudo] password for user:
user@user-HP-Laptop-15-da0xxx:~$
```

63.Confirm that Juliet has been added using the id command.

```
user@user-HP-Laptop-15-da0xxx:~$ id juliet
uid=1001(juliet) gid=1001(juliet) groups=1001(juliet),30000(shakesphere)
user@user-HP-Laptop-15-da0xxx:~$
```

64.Add Romeo and Hamlet to the Shakespeare group

```
user@user-HP-Laptop-15-da0xxx:~$ sudo usermod -G shakesphere hamlet
user@user-HP-Laptop-15-da0xxx:~$ sudo usermod -G shakesphere Romeo
user@user-HP-Laptop-15-da0xxx:~$ id REmo
id: ‘REmo’: no such user
user@user-HP-Laptop-15-da0xxx:~$ id Romeo
uid=1004(Romeo) gid=1004(Romeo) groups=1004(Romeo),30000(shakesphere)
user@user-HP-Laptop-15-da0xxx:~$ id hamlet
uid=1005(hamlet) gid=1005(hamlet) groups=1005(hamlet),30000(shakesphere)
```

65.Add Reba, Dolly and Elvis to the artists group.

```
user@user-HP-Laptop-15-da0xxx:~$ sudo usermod -G shakesphere hamlet
user@user-HP-Laptop-15-da0xxx:~$ sudo usermod -G shakesphere Romeo
user@user-HP-Laptop-15-da0xxx:~$ id REmo
id: ‘REmo’: no such user
user@user-HP-Laptop-15-da0xxx:~$ id Romeo
uid=1004(Romeo) gid=1004(Romeo) groups=1004(Romeo),30000(shakesphere)
user@user-HP-Laptop-15-da0xxx:~$ id hamlet
uid=1005(hamlet) gid=1005(hamlet) groups=1005(hamlet),30000(shakesphere)
```

66.Verify the supplemental group memberships by examining the /etc/group file

```
user@user-HP-Laptop-15-da0xxx:~$ sudo usermo
user@user-HP-Laptop-15-da0xxx:~$ /etc/group
bash: /etc/group: Permission denied
```

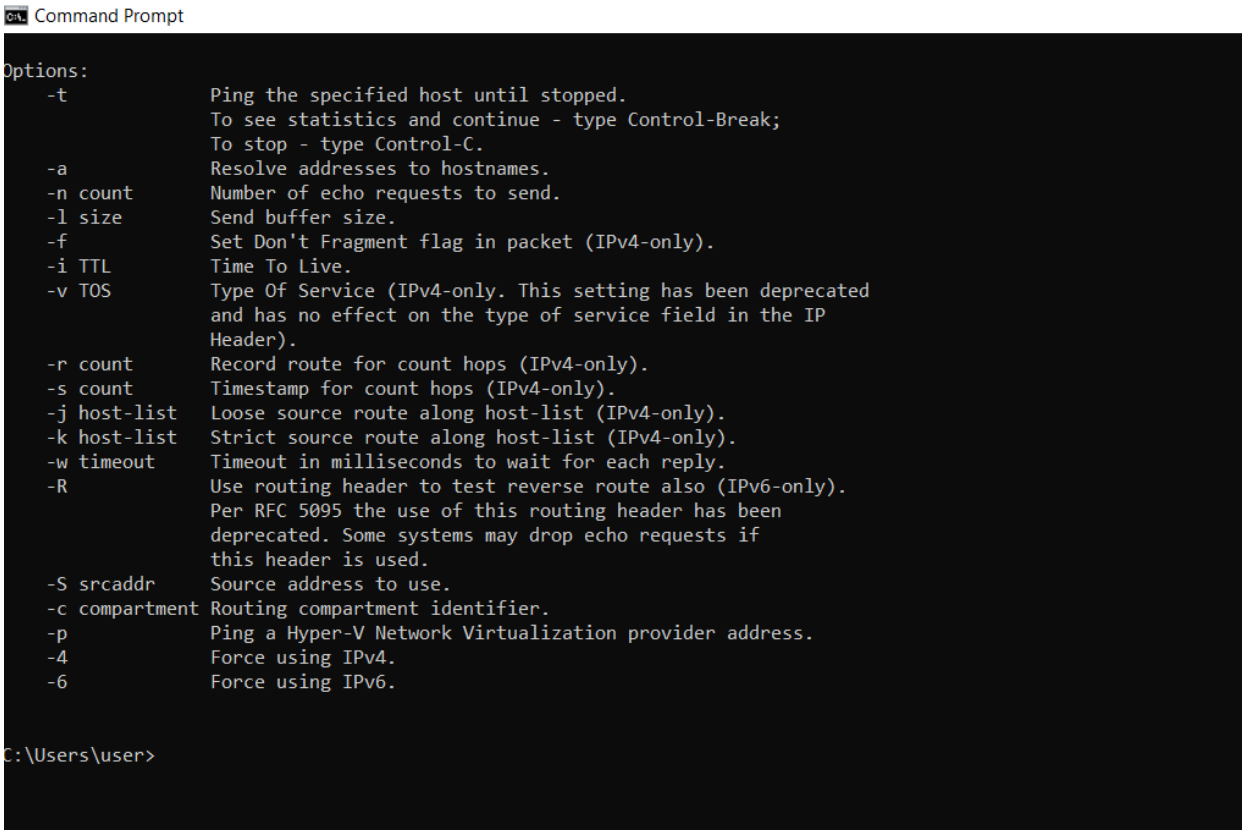
67.Attempt to remove user Dolly.

```
user@user-HP-Laptop-15-da0xxx:~$ id Dolly
id: ‘Dolly’: no such user
user@user-HP-Laptop-15-da0xxx:~$
```

Try out these network commands in Window as well as in Linux and perform at least 4 options with each command:ping, route traceroute, nslookup,IpConfig, NetStat .

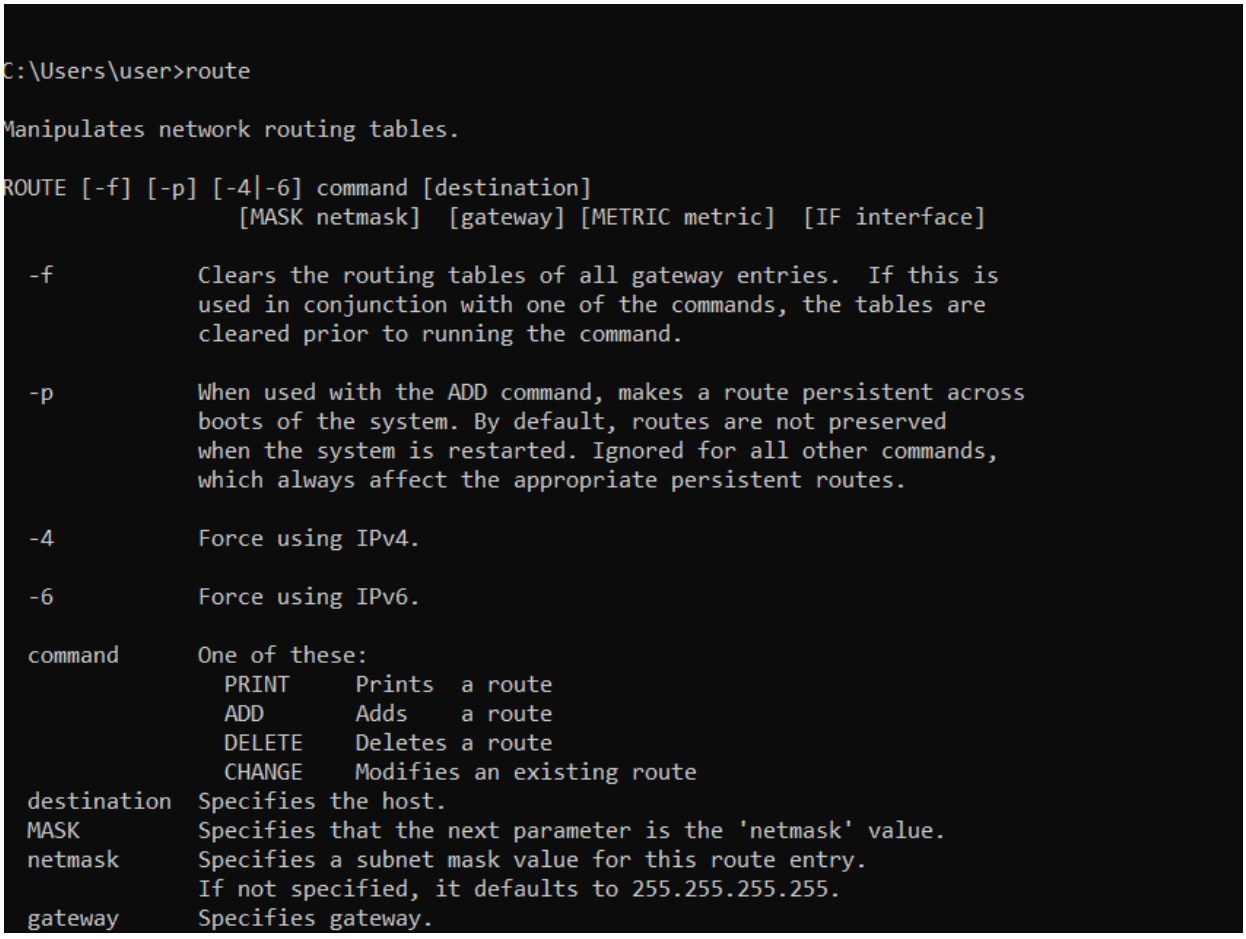
- ping

Ping is an old Unix tool that has been around for a long time but many PC users are unfamiliar with the Windows version. Ping sends out a packet to a designated internet host or network computer and measures its response time.



- Route

In computing, route is a command used to view and manipulate the IP routing table in Unix-like and Microsoft Windows[1] operating systems and also in IBM OS/2 and ReactOS.[2] Manual manipulation of the routing table is characteristic of static routing.



```
IPv6 Route Table
===========================================================================
Active Routes:
 If Metric Network Destination      Gateway
  1    331 ::1/128                  On-link
  2    281 fe80::/64                On-link
 23    296 fe80::/64                On-link
 23    296 fe80::3967:1de3:1924:1daf/128
                                    On-link
  2    281 fe80::e866:65b:18f5:53de/128
                                    On-link
  1    331 ff00::/8                 On-link
  2    281 ff00::/8                 On-link
 23    296 ff00::/8                 On-link
===========================================================================
Persistent Routes:
  None
```

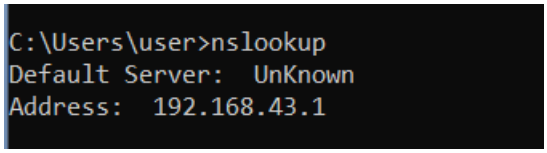
```
C:\Windows\system32>route print -6
===========================================================================
Interface List
  2...0a 00 27 00 00 02 ......VirtualBox Host-Only Ethernet Adapter
 25...1a 47 3d e9 62 5d ......Microsoft Wi-Fi Direct Virtual Adapter #5
 19...2a 47 3d e9 62 5d ......Microsoft Wi-Fi Direct Virtual Adapter #6
 23...18 47 3d e9 62 5d ......Qualcomm QCA61x4A 802.11ac Wireless Adapter
 10...18 47 3d e9 62 5e ......Bluetooth Device (Personal Area Network) #2
  1...........................Software Loopback Interface 1
===========================================================================

IPv6 Route Table
===========================================================================
Active Routes:
 If Metric Network Destination      Gateway
  1    331 ::1/128                  On-link
  2    281 fe80::/64                On-link
 23    296 fe80::/64                On-link
 23    296 fe80::3967:1de3:1924:1daf/128
                                    On-link
  2    281 fe80::e866:65b:18f5:53de/128
                                    On-link
  1    331 ff00::/8                 On-link
  2    281 ff00::/8                 On-link
 23    296 ff00::/8                 On-link
===========================================================================
Persistent Routes:
  None
```

- Nslookup

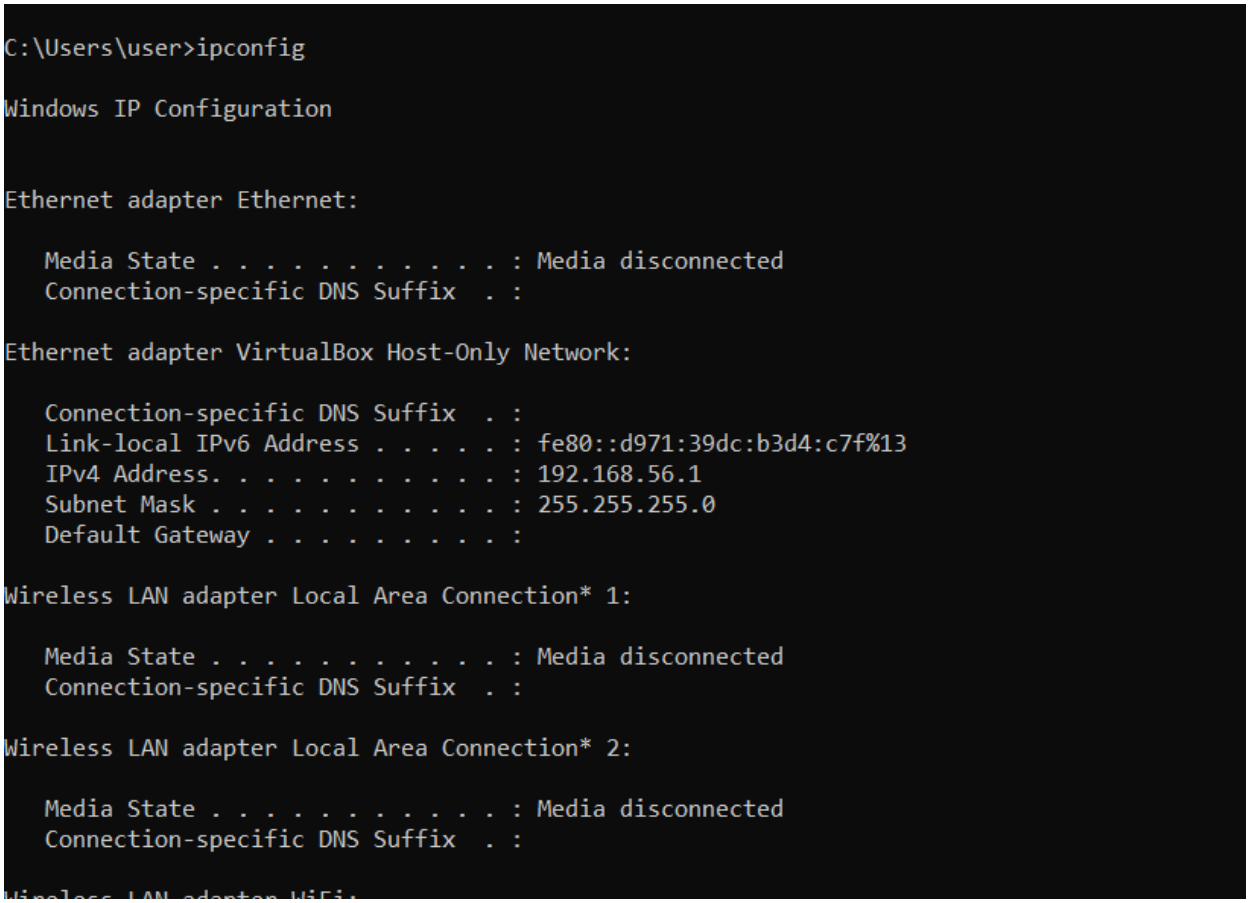
This command helps diagnose the Domain Name System (DNS) infrastructure and comes with a number of sub-commands. These are mainly for systems administrators. The primary interest for average PC users is its use to find the

computer name corresponding to a numeric IP. For example, if you want to know who is "216.109.112.135" , enter "nslookup 216.109.112.135" and you will find that it is (or was anyway) a Yahoo computer. My firewall keeps a log of the IPs involved in the attempts to probe my computer and I sometimes look a few up to see who they are. (There are also Whois search sites available on the Web as mentioned in the Ipconfig section.)



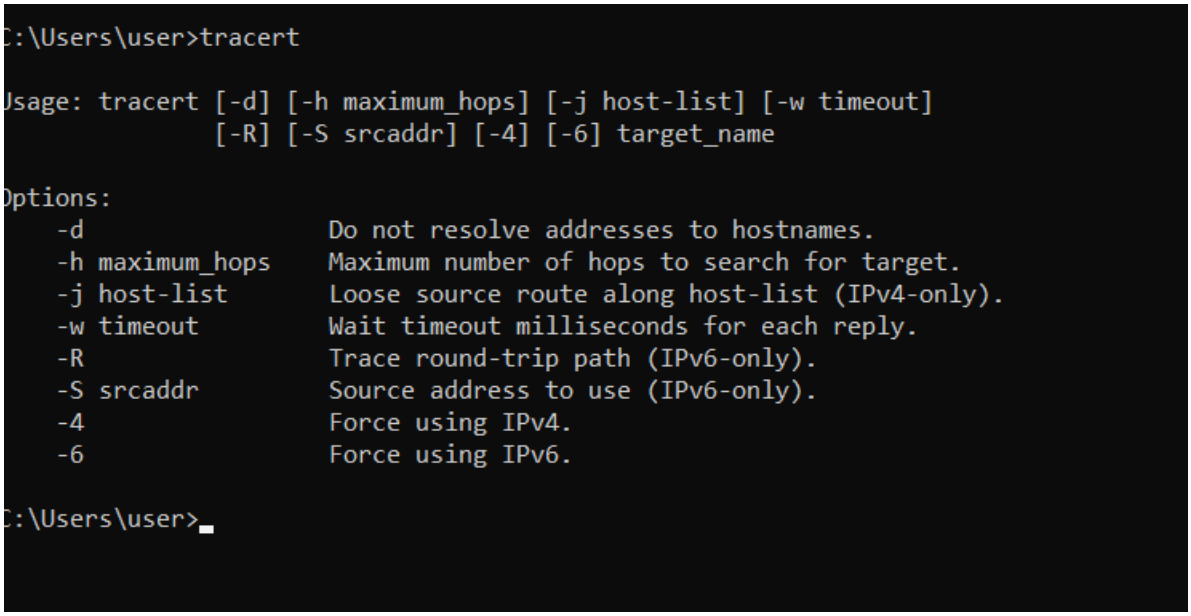
- ipconfig

The Windows IP Configuration tool (ipconfig) is the command-line equivalent of the accessory "Winipcfg" that was present in Windows 9X/Me. It is used to display the TCP/IP network configuration values. To open it, enter "ipconfig" in the command prompt. If you are connected directly to the Internet, you will obtain your IP address.



- Traceroute

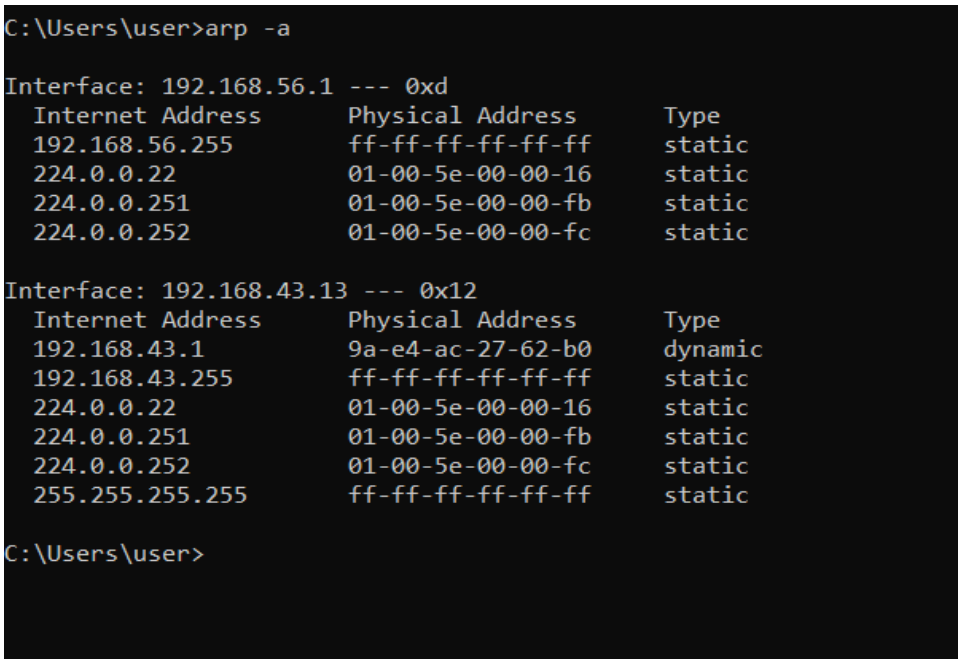
Tracert (traceroute) is another old tool borrowed from Unix. The actual path between two computers on the Internet is not a straight line but consists of numerous segments or "hops" from one intermediate computer to another. Tracert shows each step of the path taken. It can be interesting to see just how convoluted it is. The times for each hop and the IP addresses for each intermediate computer are displayed. Tracert shows up to 30 hops. It is convenient for finding if there is one particular segment that is causing a slow or bad connection. A typical command might be "tracert dell.com".



2. Identify and perform 5 more network commands and it's working.

a). ARP

The ARP command corresponds to the Address Resolution Protocol. Although it is easy to think of network communications in terms of IP addressing, packet delivery is ultimately dependent on the Media Access Control (MAC) address of the device's network adapter. This is where the Address Resolution Protocol comes into play. Its job is to map IP addresses to MAC addresses. Windows devices maintain an ARP cache, which contains the results of recent ARP queries. You can see the contents of this cache by using the ARP -A command. If you are having problems communicating with one specific host, you can append the remote host's IP address to the ARP -A command.



b) NbtStat

As I am sure you probably know, computers that are running a Windows operating system are assigned a computer name. Oftentimes, there is a domain name or a workgroup name that is also assigned to the computer. The computer name is sometimes referred to as the NetBIOS name. Windows uses several different methods to map NetBIOS names to IP addresses, such as broadcast, LMHost lookup, or even using the nearly extinct method of querying a WINS server. Of course, NetBIOS over TCP/IP can occasionally break down. The NbtStat command can help you to diagnose and correct such problems. The NbtStat -n command for example, shows the NetBIOS names that are in use by a device. The NbtStat -r command shows how many NetBIOS names the device has been able to resolve recently.

```
C:\Users\user>nbtstat -r

    NetBIOS Names Resolution and Registration Statistics
    ----------------------------------------------------

    Resolved By Broadcast     = 0
    Resolved By Name Server   = 0

    Registered By Broadcast   = 72
    Registered By Name Server = 0

C:\Users\user>
```

c) Hostname

The previously discussed NbtStat command can provide you with the host name that has been assigned to a Windows device, if you know which switch to use with the command. However, if you're just looking for a fast and easy way of verifying a computer's name, then try using the Hostname command. Typing Hostname at the command prompt returns the local computer name.

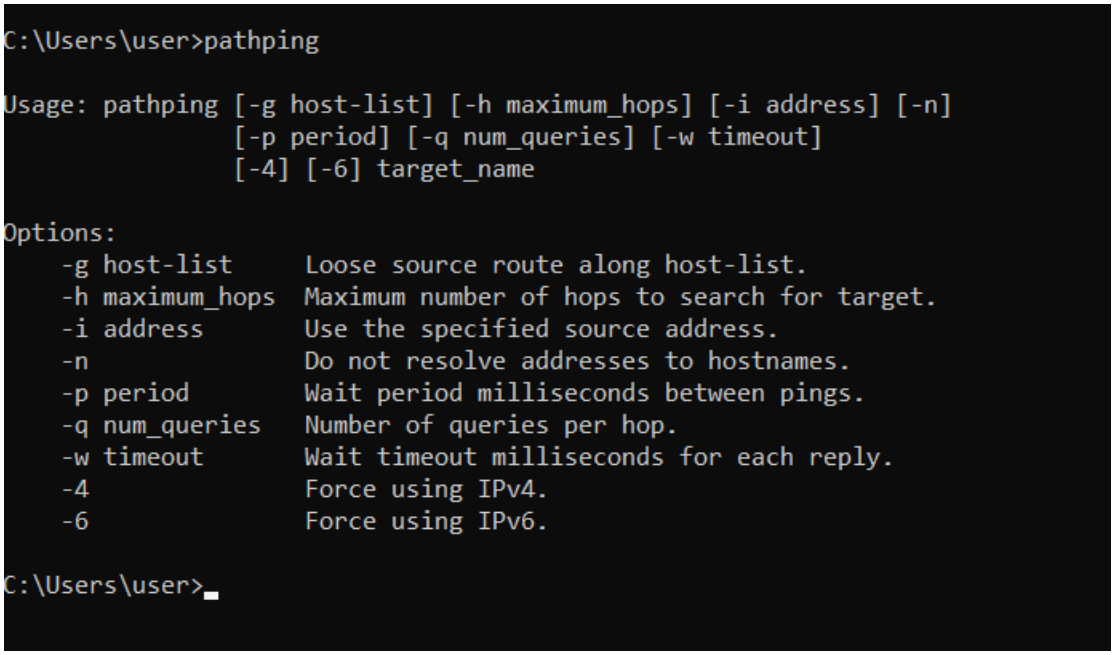
```
C:\Users\user>hostname
DESKTOP-QVOH9LF

C:\Users\user>
```

d) PathPing

Earlier, I talked about the Ping utility and the Tracert utility, and the similarities between them. As you might have guessed, the PathPing tool is a utility that combines the best aspects of Tracert and Ping. Entering the PathPing command

followed by a host name initiates what looks like a somewhat standard Tracert process. Once this process completes however, the tool takes 300 seconds (five minutes) to gather statistics, and then reports latency and packet loss statistics that are more detailed than those provided by Ping or Tracert.



e) getmac

Command Another very simple command that shows the MAC address of your network interfaces.

LAMP INSTALLATION PROCEDURE

Install apache

- Update your system

  sudo apt update

- Install Apache using apt:

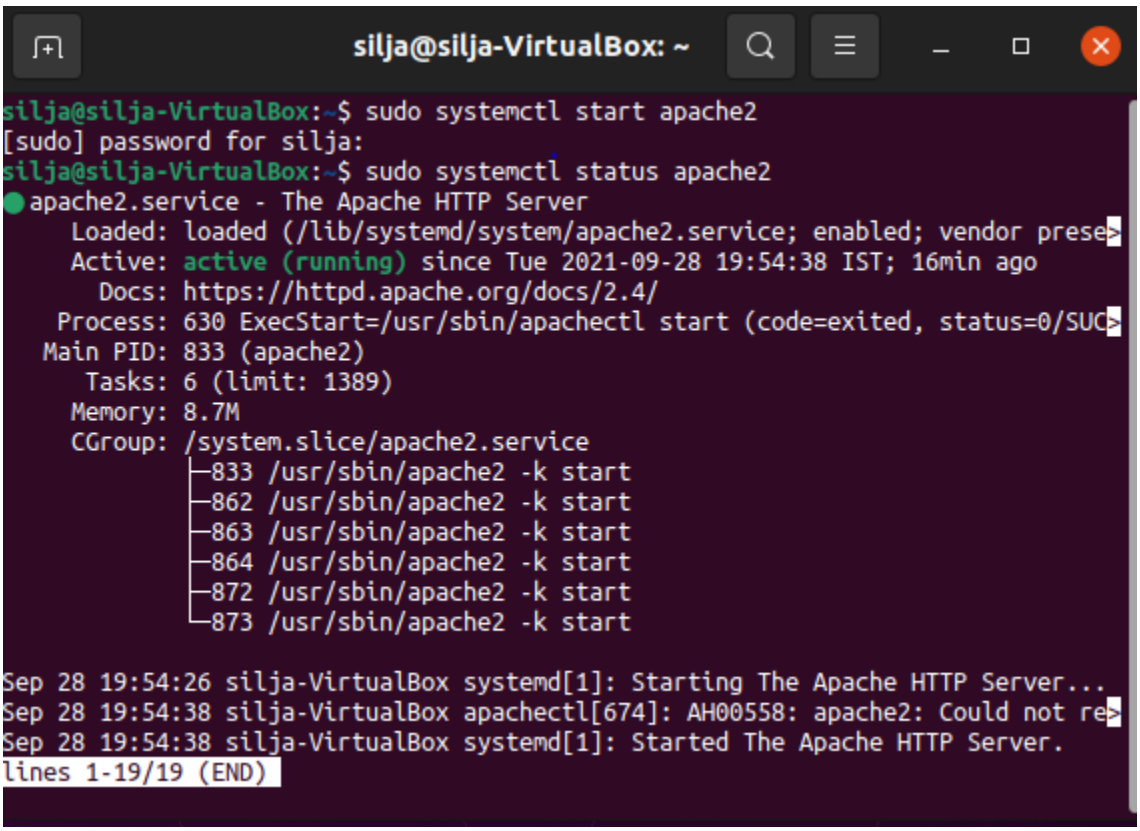
  sudo apt install apache2

- Confirm that Apache is now running with the following command:

  sudosystemctl status apache2

- if it is not working

  sudosystemctl start apache2



Install mariadb

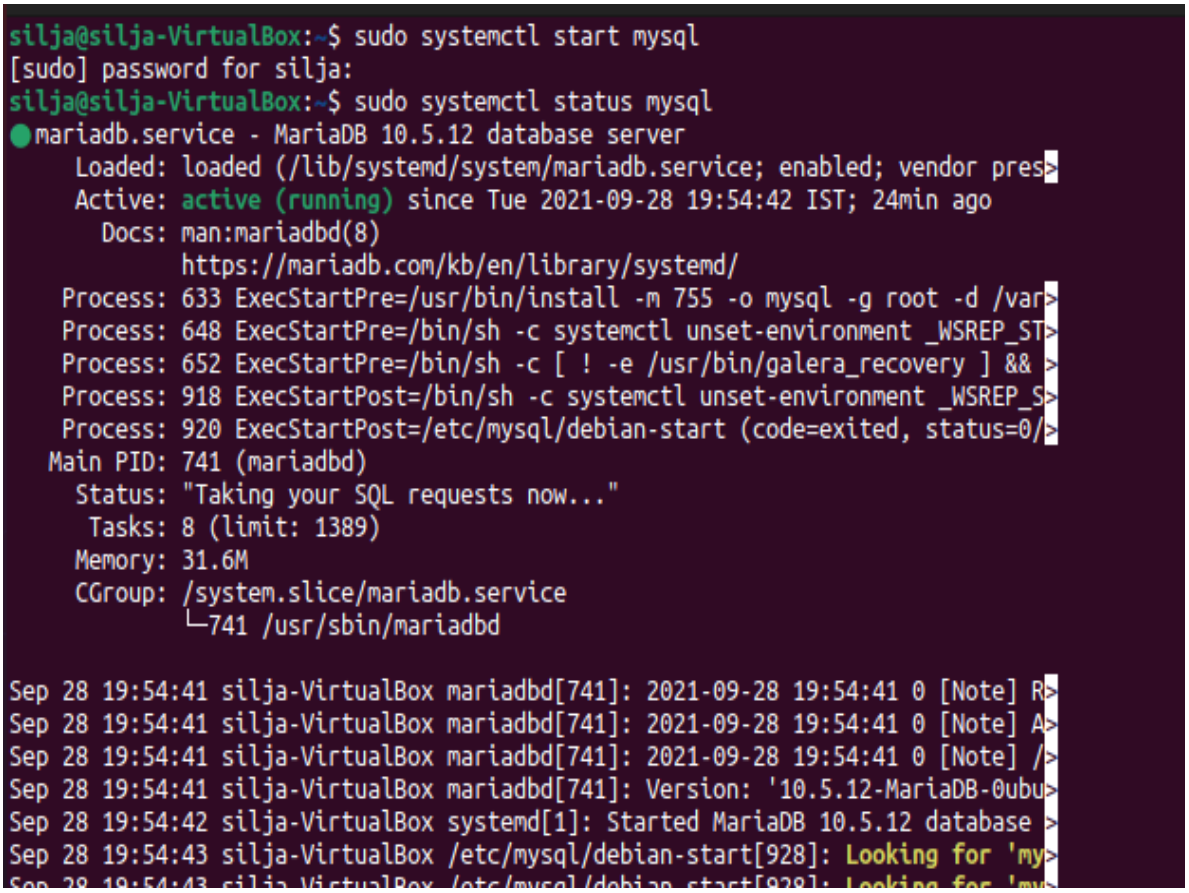
- Install mariaDB

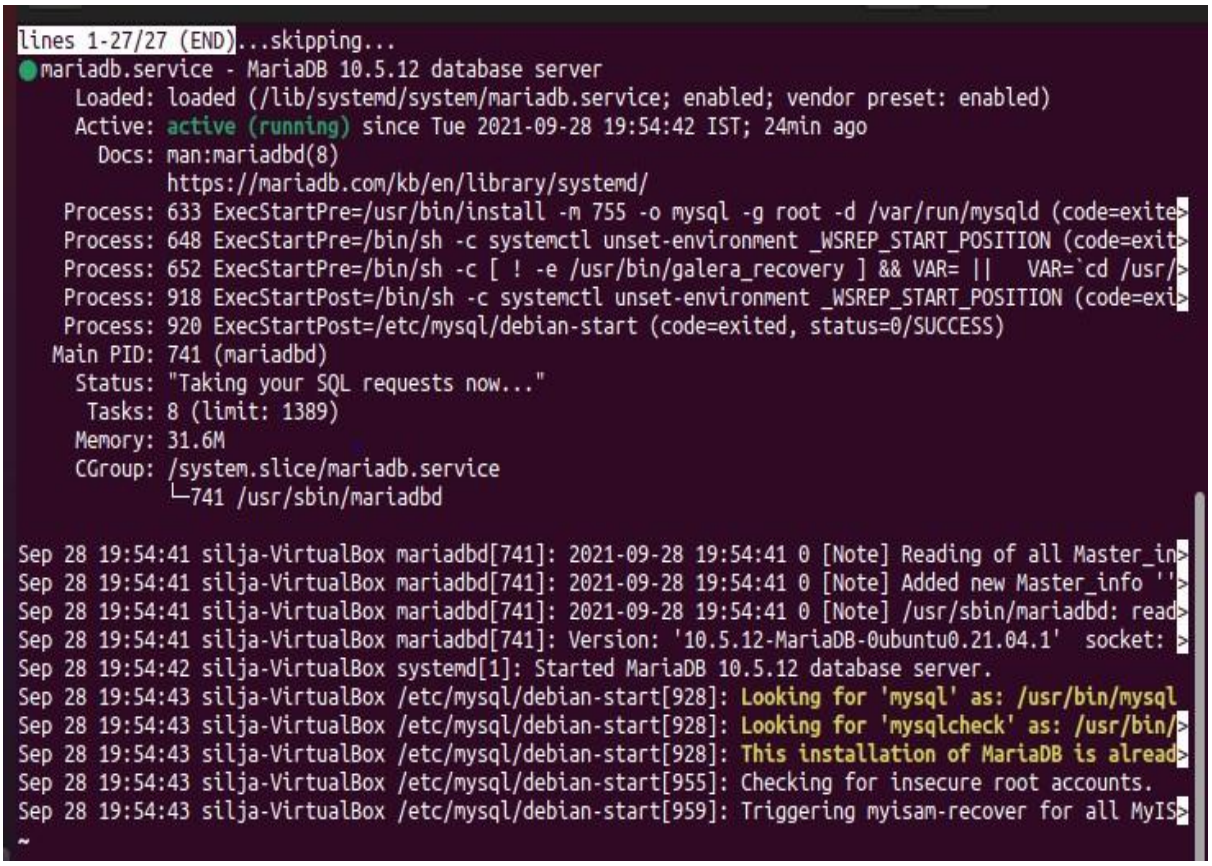
sudo apt install mariadb-server mariadb-client

- Check mariadb Installation

sudosystemctl status mysql

(if it is not working sudosystemctl start mysql)





Install PHP

- Install PHP

  sudo apt install php libapache2-mod-php php-opcachephp-cli php-gdphp-curl php-mysql

- Restart apache2

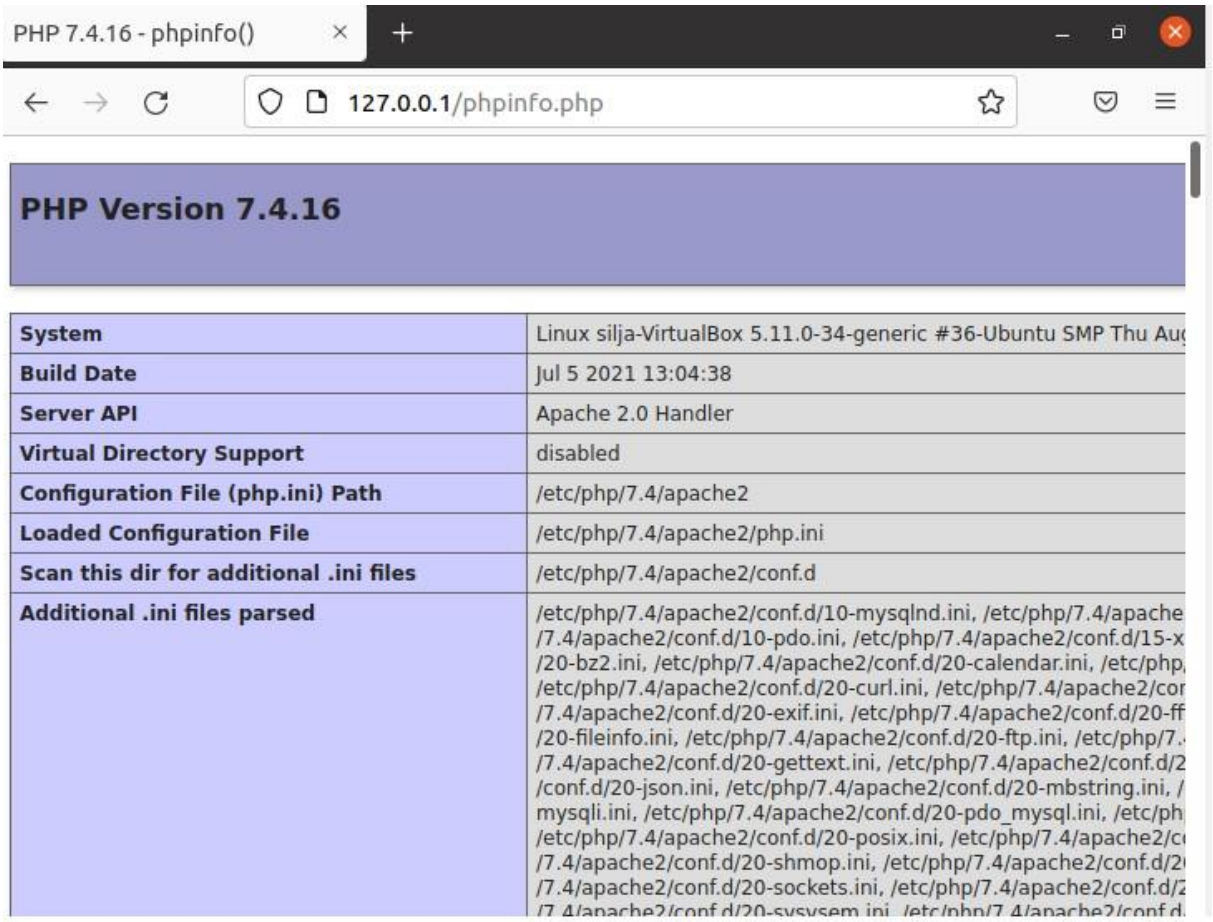
  sudosystemctl restart apache2

- Now you can check php installation

  sudo echo “<?phpphpinfo(); ?>” | sudo tee -a /var/www/html/phpinfo.php>/dev/null

- Open a browser

http://127.0.0.1/phpinfo.php



Install phpmyadmin

- Install phpmyadmin

  sudo apt install phpmyadminphp-mbstringphp-zip php-gdphp-jsonphp-curl

  (It ask for webserver select apache2, select db configuration and set password)

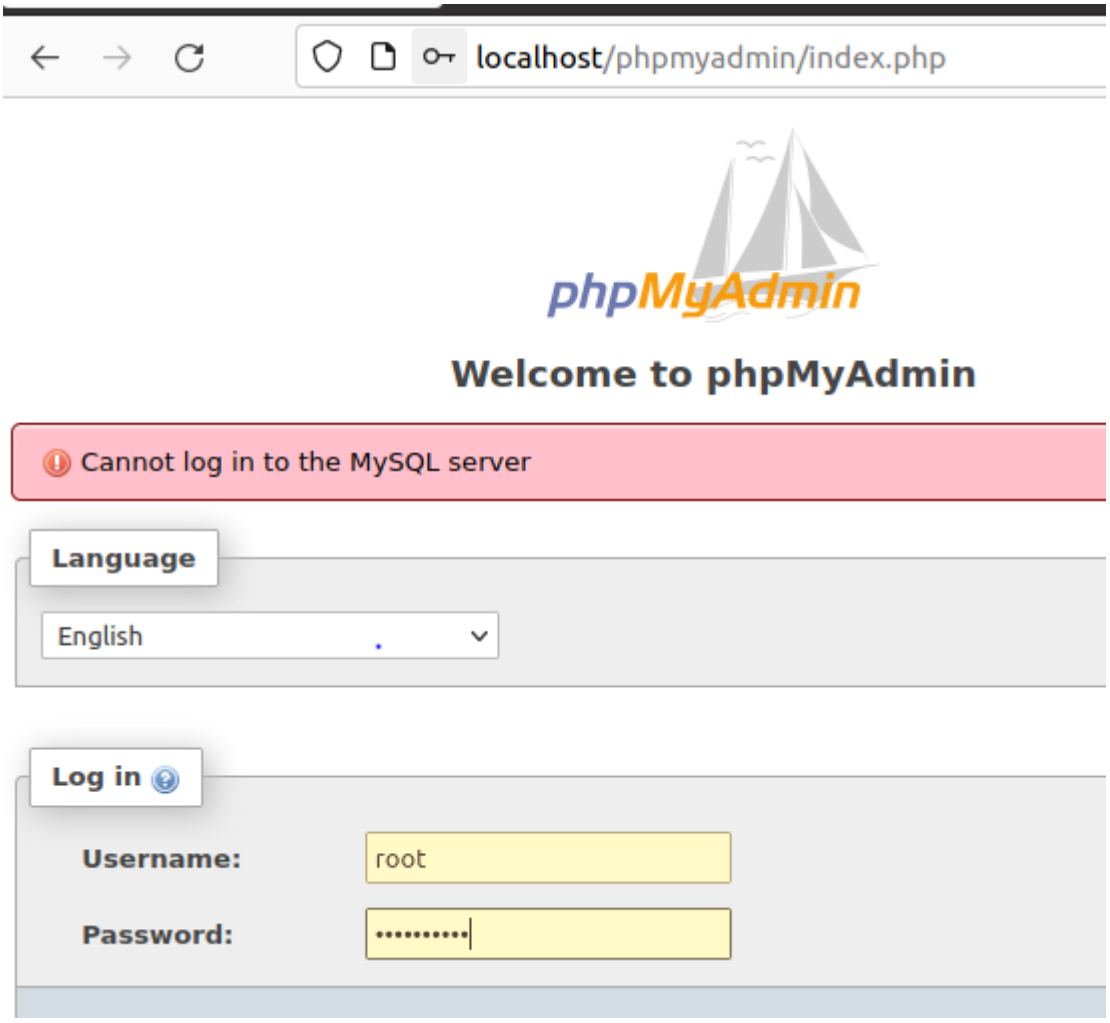
- Restart apache2

  sudosystemctl restart apache2

- Check phpmyadmin

- Open a browser

  http://localhost/phpmyadmin

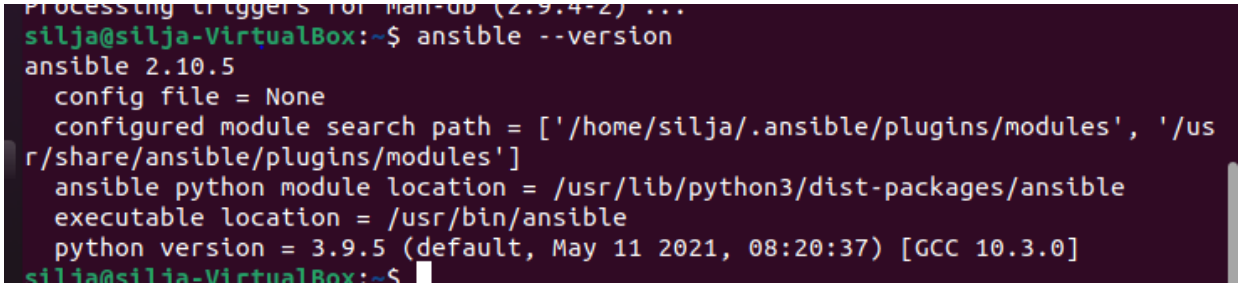


Ansible installation

COMMAND sudo apt install ansible

```
silja@silja-VirtualBox:~$ sudo apt install ansible
[sudo] password for silja:
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  ansible-base ieee-data python3-argcomplete python3-distutils
  python3-dnspython python3-ecdsa python3-jinja2 python3-jmespath
  python3-kerberos python3-libcloud python3-netaddr python3-ntlm-auth
  python3-packaging python3-pycryptodome python3-pyparsing
  python3-requests-kerberos python3-requests-ntlm python3-selinux
  python3-winrm python3-xmltodict
Suggested packages:
  cowsay sshpass python-jinja2-doc ipython3 python-netaddr-docs
  python-pyparsing-doc
The following NEW packages will be installed:
  ansible ansible-base ieee-data python3-argcomplete python3-distutils
  python3-dnspython python3-ecdsa python3-jinja2 python3-jmespath
  python3-kerberos python3-libcloud python3-netaddr python3-ntlm-auth
  python3-packaging python3-pycryptodome python3-pyparsing
  python3-requests-kerberos python3-requests-ntlm python3-selinux
  python3-winrm python3-xmltodict
0 upgraded, 21 newly installed, 0 to remove and 157 not upgraded.
Need to get 31.8 MB of archives.
After this operation, 275 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://in.archive.ubuntu.com/ubuntu hirsute/main amd64 python3-jinja2 all
 2.11.2-1 [99.8 kB]
Get:2 http://in.archive.ubuntu.com/ubuntu hirsute/main amd64 python3-pyparsing
```

COMMAND :ansible --version



TCPDUMP

Execute tcpdump and its options on your own system, and submit the output screenshot as a document.

```
silja@silja-VirtualBox:~$ sudo apt install tcpdump
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
tcpdump is already the newest version (4.9.3-7).
tcpdump set to manually installed.
0 upgraded, 0 newly installed, 0 to remove and 157 not upgraded.
```

- Sudo tcpdump

```
silja@silja-VirtualBox:~$ sudo tcpdump
tcpdump: verbose output suppressed, use -v or -vv for full protocol decode
listening on enp0s3, link-type EN10MB (Ethernet), capture size 262144 bytes
^C
0 packets captured
0 packets received by filter
0 packets dropped by kernel
```

- Sudo apt update

```
silja@silja-VirtualBox:~$ sudo apt update
[sudo] password for silja:
Hit:1 http://in.archive.ubuntu.com/ubuntu hirsute InRelease
Hit:2 http://in.archive.ubuntu.com/ubuntu hirsute-updates InRelease
Hit:3 http://in.archive.ubuntu.com/ubuntu hirsute-backports InRelease
Hit:4 http://security.ubuntu.com/ubuntu hirsute-security InRelease
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
157 packages can be upgraded. Run 'apt list --upgradable' to see them.
```

Sudo tcpdump

```
silja@silja-VirtualBox:~$ sudo tcpdump
tcpdump: verbose output suppressed, use -v or -vv for full protocol decode
listening on enp0s3, link-type EN10MB (Ethernet), capture size 262144 bytes
11:30:31.334812 IP6 silja-VirtualBox > ip6-allrouters: ICMP6, router solicitati
on, length 8
11:31:11.501310 IP silja-VirtualBox.41220 > 84.170.224.35.bc.googleusercontent.
com.http: Flags [S], seq 475077761, win 64240, options [mss 1460,sackOK,TS val
2429675019 ecr 0,nop,wscale 7], length 0
11:31:11.501954 IP silja-VirtualBox.56434 > 192.168.43.1.domain: 50750+ PTR? 84
.170.224.35.in-addr.arpa. (44)
11:31:11.732345 IP 192.168.43.1.domain > silja-VirtualBox.56434: 50750 1/0/0 PT
R 84.170.224.35.bc.googleusercontent.com. (96)
11:31:11.733210 IP silja-VirtualBox.37861 > 192.168.43.1.domain: 28068+ PTR? 15
.2.0.10.in-addr.arpa. (40)
11:31:11.834954 IP 192.168.43.1.domain > silja-VirtualBox.37861: 28068 NXDomain
 0/0/0 (40)
11:31:11.835366 IP 84.170.224.35.bc.googleusercontent.com.http > silja-VirtualB
ox.41220: Flags [S.], seq 26048001, ack 475077762, win 65535, options [mss 1460
], length 0
11:31:11.835392 IP silja-VirtualBox.41220 > 84.170.224.35.bc.googleusercontent.
com.http: Flags [.], ack 1, win 64240, length 0
11:31:11.836252 IP silja-VirtualBox.56651 > 192.168.43.1.domain: 56832+ PTR? 1.
43.168.192.in-addr.arpa. (43)
11:31:11.836472 IP silja-VirtualBox.41220 > 84.170.224.35.bc.googleusercontent.
com.http: Flags [P.], seq 1:88, ack 1, win 64240, length 87: HTTP: GET / HTTP/1
```

Sudo tcpdump -D

```
silja@silja-VirtualBox:~$ sudo tcpdump -D
1.enp0s3 [Up, Running]
2.any (Pseudo-device that captures on all interfaces) [Up, Running]
3.lo [Up, Running, Loopback]
4.bluetooth-monitor (Bluetooth Linux Monitor) [none]
5.nflog (Linux netfilter log (NFLOG) interface) [none]
6.nfqueue (Linux netfilter queue (NFQUEUE) interface) [none]
7.dbus-system (D-Bus system bus) [none]
8.dbus-session (D-Bus session bus) [none]
```

Sudo tcpdump –c 5

```
silja@silja-VirtualBox:~$ sudo tcpdump -c 5
tcpdump: verbose output suppressed, use -v or -vv for full protocol decode
listening on enp0s3, link-type EN10MB (Ethernet), capture size 262144 bytes
-v
11:34:32.976480 IP silja-VirtualBox.57522 > 192.168.43.1.domain: 25681+ AAAA? c
onnectivity-check.ubuntu.com. (47)
11:34:32.978247 IP silja-VirtualBox.36580 > 192.168.43.1.domain: 62896+ PTR? 1.
43.168.192.in-addr.arpa. (43)
11:34:37.979326 IP silja-VirtualBox.36580 > 192.168.43.1.domain: 62896+ PTR? 1.
43.168.192.in-addr.arpa. (43)
11:34:37.979449 IP silja-VirtualBox.57522 > 192.168.43.1.domain: 25681+ AAAA? c
onnectivity-check.ubuntu.com. (47)
11:34:37.984032 IP 192.168.43.1.domain > silja-VirtualBox.36580: 62896 NXDomain
 0/0/0 (43)
5 packets captured
10 packets received by filter
```

Sudo tcpdump –i enp2s0

```
silja@silja-VirtualBox:~$ -v
-v: command not found
silja@silja-VirtualBox:~$ sudo tcpdump -i enp2s0
tcpdump: enp2s0: No such device exists
(SIOCGIFHWADDR: No such device)
silja@silja-VirtualBox:~$
```

Shell Scripting

1. Write a shell script to ask your name, and college name and print it on the screen.

```
echo "enter details and view"
echo enter your name
read name
echo enter your college name
read c
clear
echo Details you entered
echo Name:$name
echo College:$c
```

```
user@user-VirtualBox:~$ bash 1.sh
enter details and view
enter your name
sreya
enter your college name
amal jyothi college
Details you entered
Name:sreya
College:amal jyothi college
user@user-VirtualBox:~$
```

2. Write a shell script to set a value for a variable and display it on command line interface.

```
echo "Display value of a variable"
a=50
echo $a
```

```
user@user-VirtualBox:~$ bash 2.sh
Display value of a variable
50
```

3. Write a shell script to perform addition, substation, multiplication, division with two numbers that is accepted from user.

```
echo enter a number
read a
echo enter another number
read b
echo enter operation
echo "\n1.addition \n2.subtraction \n3.multiplication \n4.division"
read op
case "$op" in
"1") echo "a+b="$(($a+$b));;
"2") echo "a-b="$(($a-$b));;
"3") echo "a*b="$(($a*$b));;
"4") echo "a/b="$(($a/$b));;
esac
```

4. Write a shell script to check the value of a given number and display whether the number is found or not.

```
echo enter a number
read a
if [ $a -eq 10 ];
then
echo "number found"
else
echo "not found"
fi
```

```
user@user-VirtualBox:~$ bash 4.sh
enter a number
9
not found
```

5. Write a shell script to display current date, calendar.

```
echo "Today is $(date)"
echo "calender:"
cal
```

```
user@user-VirtualBox:~$ bash 5.sh
Today is Saturday 02 October 2021 05:53:45 PM IST
calender:
    October 2021
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
31
```

6. Write a shell script to check a number is even or odd. #!/bin/bash

```
echo enter a number
read n
x=$(( $n % 2 ))
if [ $x -eq 0 ];
then
echo "number is even"
else
echo "numberis odd"
fi
```

```
user@user-VirtualBox:~$ bash 6.sh
enter a number
4
number is even
```

7. Write a shell script to check a number is greater than, less than or equal to another number.

```
echo enter first number
read a
echo enter second number
read b
if [ $a -gt $b ];
then
```

```
echo "$a is larger"
elif [ $b -gt $a ];
then
echo "$b is larger"
else
echo "both are equal"
fi
```

8. Write a shell script to find the sum of first 10 numbers.

```
s=0
for ((i=0;i<=10;i++))
do
s=`expr $s + $i`
done
echo "sum of first 10 numbers=$s"
```

```
user@user-VirtualBox:~$ bash 8.sh
sum of first 10 numbers=55
```

9. Write a shell script to find the sum, the average and the product of the four integers entered.

```
echo please enter your first number
read a
echo please enter your second number
read b
echo please enter your third number
read c
echo please enter your fourth number
read d
sum=$(($a + $b + $c + $d))
prod=$(($a * $b * $c * $d))
avg=$(echo $sum/4 | bc -l)
```

```
echo "the sum is:"$sum
echo "the average is:"$avg
echo "the product is:"$prod
```

```
user@user-VirtualBox:~$ bash 9.sh
please enter your first number
1
please enter your second number
2
please enter your third number
3
please enter your fourth number
4
the sum is:10
the average is:2.5000000000000000000
the product is:24
```

10. Write a shell script to find the smallest of three numbers.

```
echo enter first number
read a
echo enter second number
read b
echo enter third number
read c
if [ $a -lt $b ];
then
if [ $a -lt $c ];
then
echo "$a is smallest"
fi
elif [ $b -lt $c ];
then
echo "$b is smallest"
else
echo "$c is smallest";
fi
```

```
user@user-VirtualBox:~$ bash 10.sh
enter first number
5
enter second number
2
enter third number
6
2 is smallest
```

11. Write a shell program to find factorial of given number.

```
echo enter a number
read n
f=1
for ((i=2;i<=n;i++))
do
f=$(($f*$i))
done
echo "factorial is $f"
```

```
user@user-VirtualBox:~$ bash 11.sh
enter a number
5
factorial is 120
```

12. Write a shell program to check a number is palindrome or not.

```
echo enter a number
read n
rev=$(echo $n|rev)
if [ $n -eq $rev ];
then
echo "number is palindrome"
else
echo "number is not palindrome"
fi
```

```
user@user-VirtualBox:~$ bash 12.sh
enter a number
1221
number is palindrome
```

13. Write a shell script to find the average of the numbers entered in command line.

```
echo enter size
user@user-VirtualBox:~$ bash 13.sh
enter size
5
enter numbers
6
7
8
9
4
average is 6.800000000000000000
i=$((i+1))
done
avg=$(echo $s/$n | bc -l)
echo "average is $avg"
```

14. Write a shell program to find the sum of all the digits in a number.

```
echo enter a number
read n
s=0
while [ $n -gt 0 ]
do
mod=$((n%10))
s=$((s+mod))
n=$((n/10))
done
echo "sum of digit is $s"
```

```
user@user-VirtualBox:~$ bash 14.sh
enter a number
678
sum of digit is 21
```

15. Write a shell Script to check whether given year is leap year or not.

```
echo enter year
read y
a=$(($y%4))
b=$(($y%100))
c=$(($y%400))
if [ $a -eq 0 -a $b -ne 0 -o $c -eq 0 ];
then
echo "$y is leap year"
else
echo "$y is leap year"
fi
```

```
user@user-VirtualBox:~$ bash 15.sh
enter year
1994
1994 is leap year
```

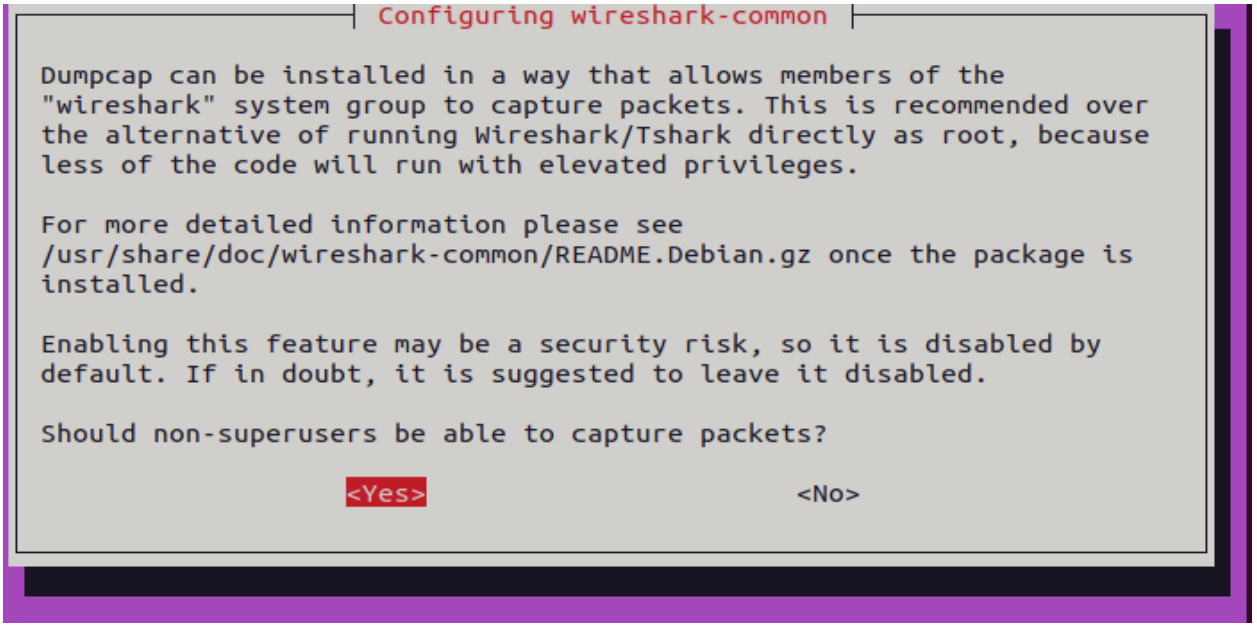
Analyzing network packet stream using nc and wireshark

Step 1:
sudo apt-get install wireshark

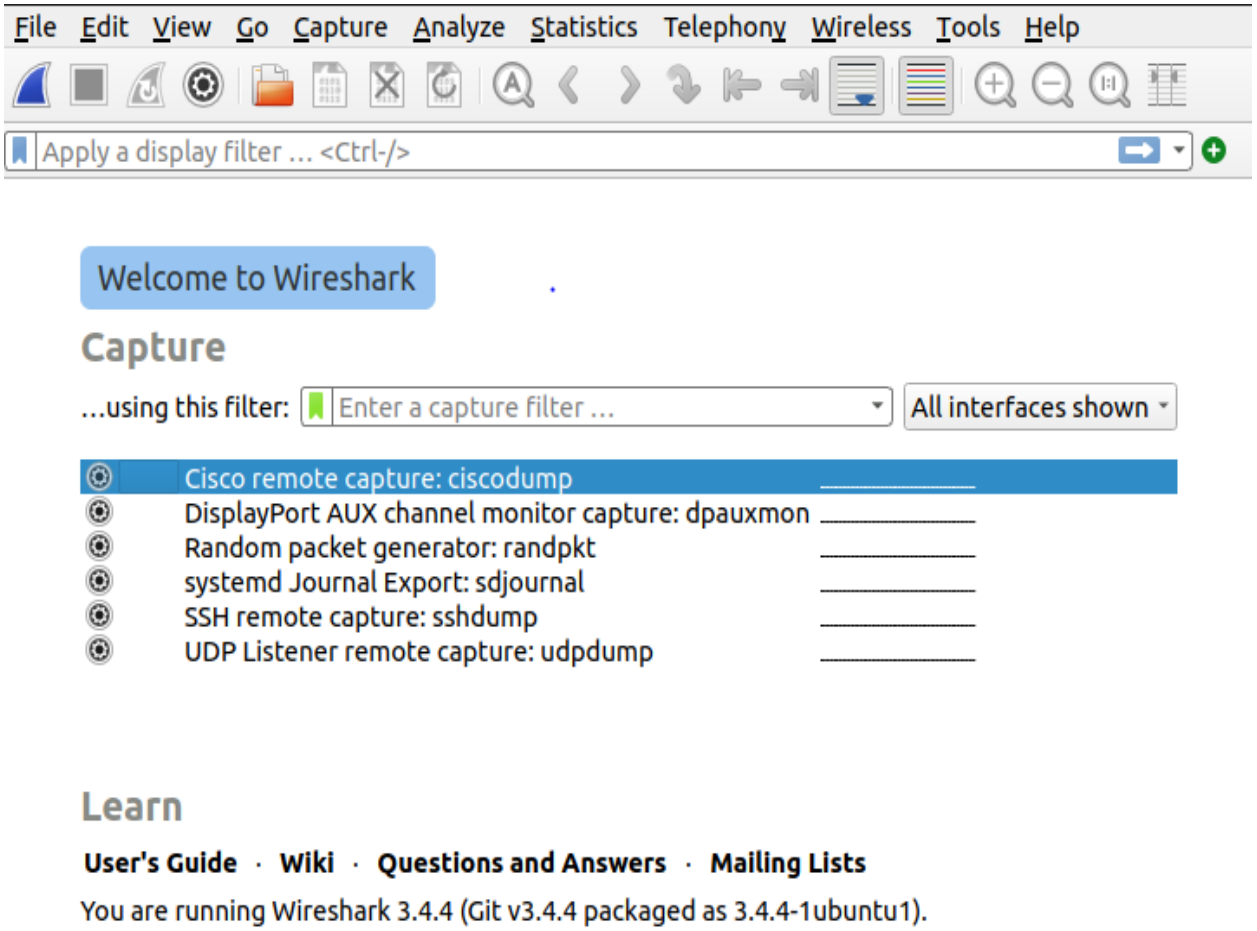
```
silja@silja-VirtualBox:~$ sudo apt-get install wireshark
[sudo] password for silja:
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  libbcg729-0 libc-ares2 libdouble-conversion3 liblua5.2-0 libmd4c0
  libminizip1 libpcre2-16-0 libqt5core5a libqt5dbus5 libqt5gui5
  libqt5multimedia5 libqt5multimedia5-plugins libqt5multimediagsttools5
  libqt5multimediawidgets5 libqt5network5 libqt5printsupport5 libqt5svg5
  libqt5widgets5 libsmi2ldbl libspandsp2 libssh-gcrypt-4 libwireshark-data
  libwireshark14 libwiretap11 libwsutil12 libxcb-xinerama0 libxcb-xinput0
  qt5-gtk-platformtheme qttranslations5-l10n wireshark-common wireshark-qt
Suggested packages:
  qt5-image-formats-plugins qtwayland5 snmp-mibs-downloader geoipupdate
  geoip-database geoip-database-extra libjs-leaflet
  libjs-leaflet.markercluster wireshark-doc
The following NEW packages will be installed:
  libbcg729-0 libc-ares2 libdouble-conversion3 liblua5.2-0 libmd4c0
  libminizip1 libpcre2-16-0 libqt5core5a libqt5dbus5 libqt5gui5
  libqt5multimedia5 libqt5multimedia5-plugins libqt5multimediagsttools5
  libqt5multimediawidgets5 libqt5network5 libqt5printsupport5 libqt5svg5
  libqt5widgets5 libsmi2ldbl libspandsp2 libssh-gcrypt-4 libwireshark-data
  libwireshark14 libwiretap11 libwsutil12 libxcb-xinerama0 libxcb-xinput0
  qt5-gtk-platformtheme qttranslations5-l10n wireshark wireshark-common
```

```
Setting up libqt5network5:amd64 (5.15.2+dfsg-5ubuntu1) ...
Setting up libwiretap11:amd64 (3.4.4-1ubuntu1) ...
Setting up libwireshark14:amd64 (3.4.4-1ubuntu1) ...
Setting up wireshark-common (3.4.4-1ubuntu1) ...
Setting up libqt5gui5:amd64 (5.15.2+dfsg-5ubuntu1) ...
Setting up libqt5widgets5:amd64 (5.15.2+dfsg-5ubuntu1) ...
Setting up qt5-gtk-platformtheme:amd64 (5.15.2+dfsg-5ubuntu1) ...
Setting up libqt5multimedia5:amd64 (5.15.2-3) ...
Setting up libqt5printsupport5:amd64 (5.15.2+dfsg-5ubuntu1) ...
Setting up libqt5multimediawidgets5:amd64 (5.15.2-3) ...
Setting up libqt5multimediagsttools5:amd64 (5.15.2-3) ...
Setting up libqt5multimedia5-plugins:amd64 (5.15.2-3) ...
Setting up libqt5svg5:amd64 (5.15.2-3) ...
Setting up wireshark-qt (3.4.4-1ubuntu1) ...
Setting up wireshark (3.4.4-1ubuntu1) ...
Processing triggers for libc-bin (2.33-0ubuntu5) ...
Processing triggers for man-db (2.9.4-2) ...
Processing triggers for shared-mime-info (2.0-1) ...
Processing triggers for mailcap (3.68ubuntu1) ...
Processing triggers for desktop-file-utils (0.26-1ubuntu1) ...
Processing triggers for hicolor-icon-theme (0.17-2) ...
Processing triggers for gnome-menus (3.36.0-1ubuntu1) ...
silja@silja-VirtualBox:~$
```

Step 2:
sudo dpkg-reconfigure wireshark-common

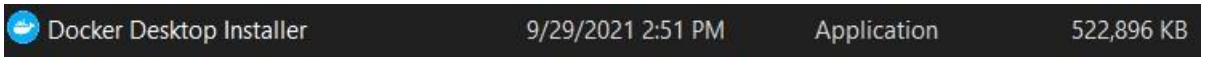


Step3 :
open wireshark from the applist.

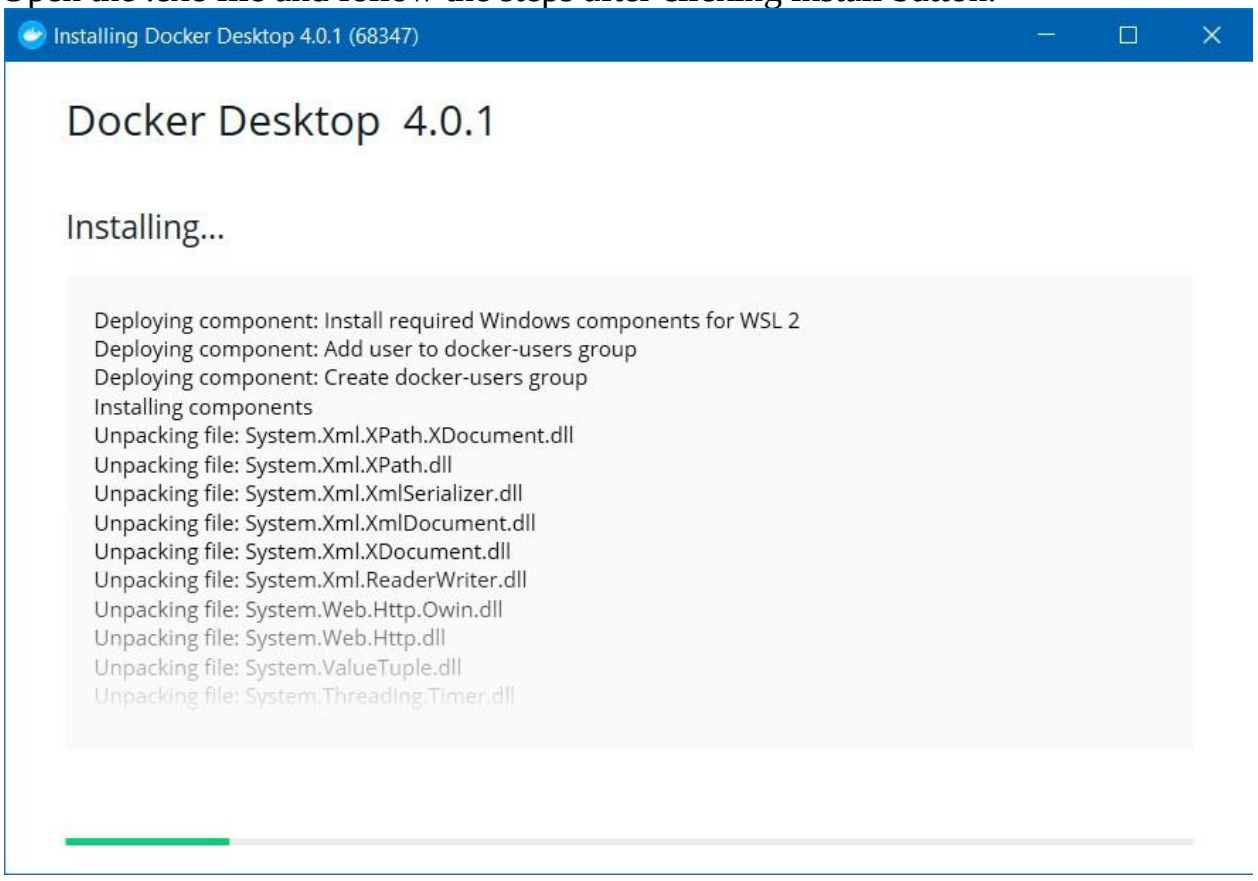

File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help
Apply a display filter ... <Ctrl-/>
Welcome to Wireshark
Capture
...using this filter:
Enter a capture filter ...
All interfaces shown
Cisco remote capture: ciscodump
DisplayPort AUX channel monitor capture: dpauxmon
Random packet generator: randpkt
systemd Journal Export: sdjournal
SSH remote capture: sshdump
UDP Listener remote capture: udpdump
Learn
User's Guide · Wiki · Questions and Answers · Mailing Lists
You are running Wireshark 3.4.4 (Git v3.4.4 packaged as 3.4.4-1ubuntu1).

DOCKER INSTALLATION

Step:1
Download Docker Desktop installer for Windows from
https://desktop.docker.com/win/main/amd64/Docker%20Desktop%20Installer.exe

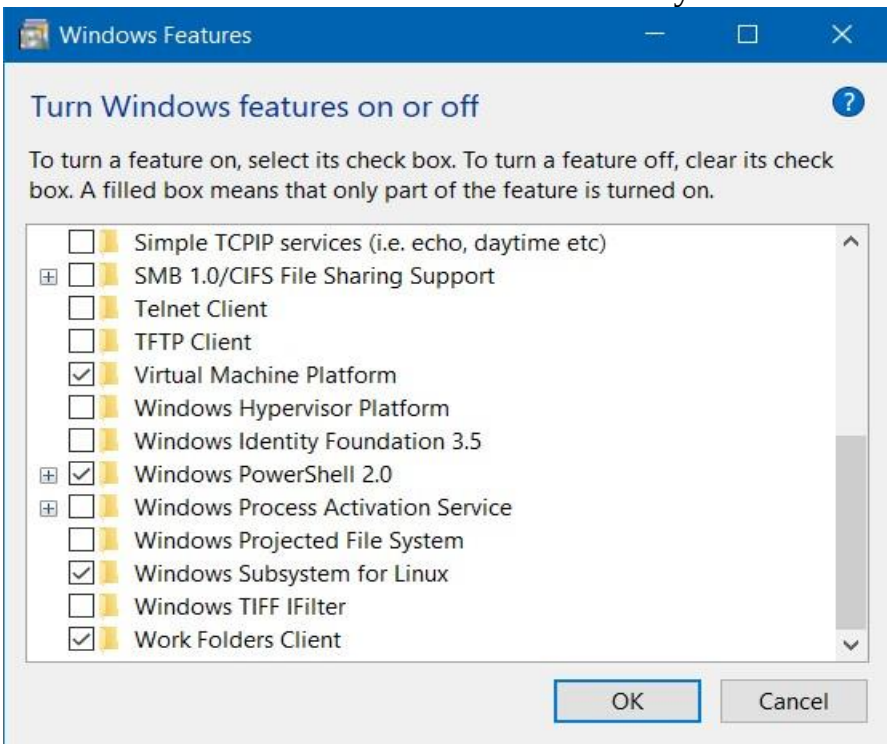


Step:2
Open the .exe file and follow the steps after clicking install button.

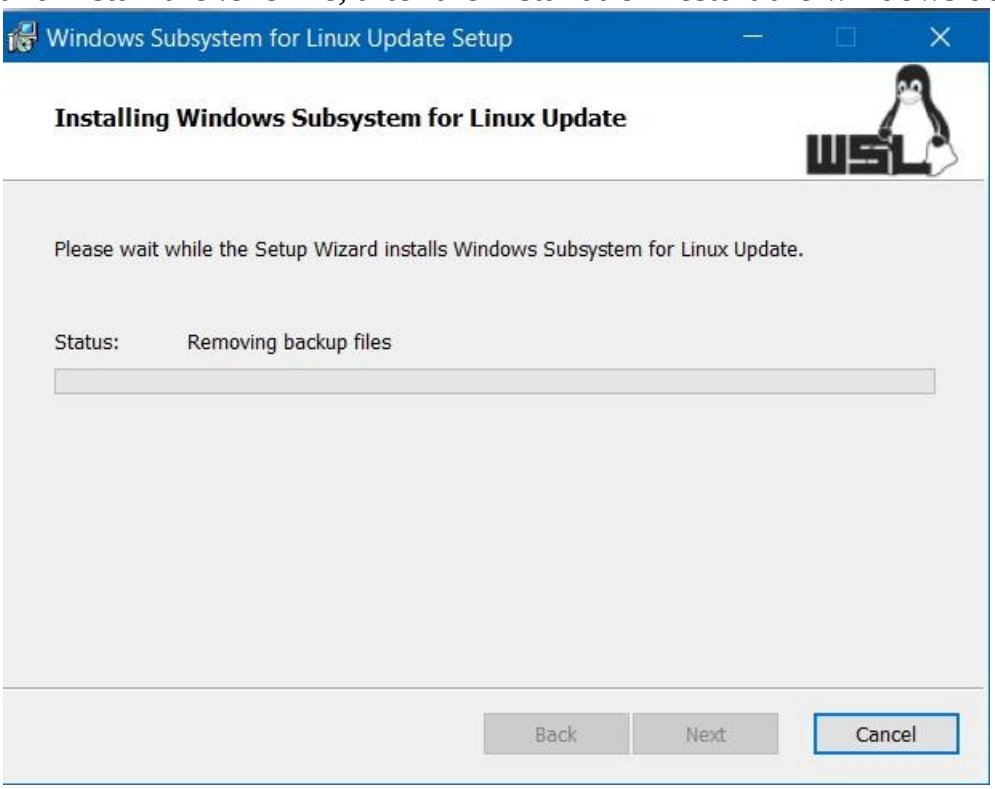


Step:3
Once installed go to programs and features and click turn on windows features on or off

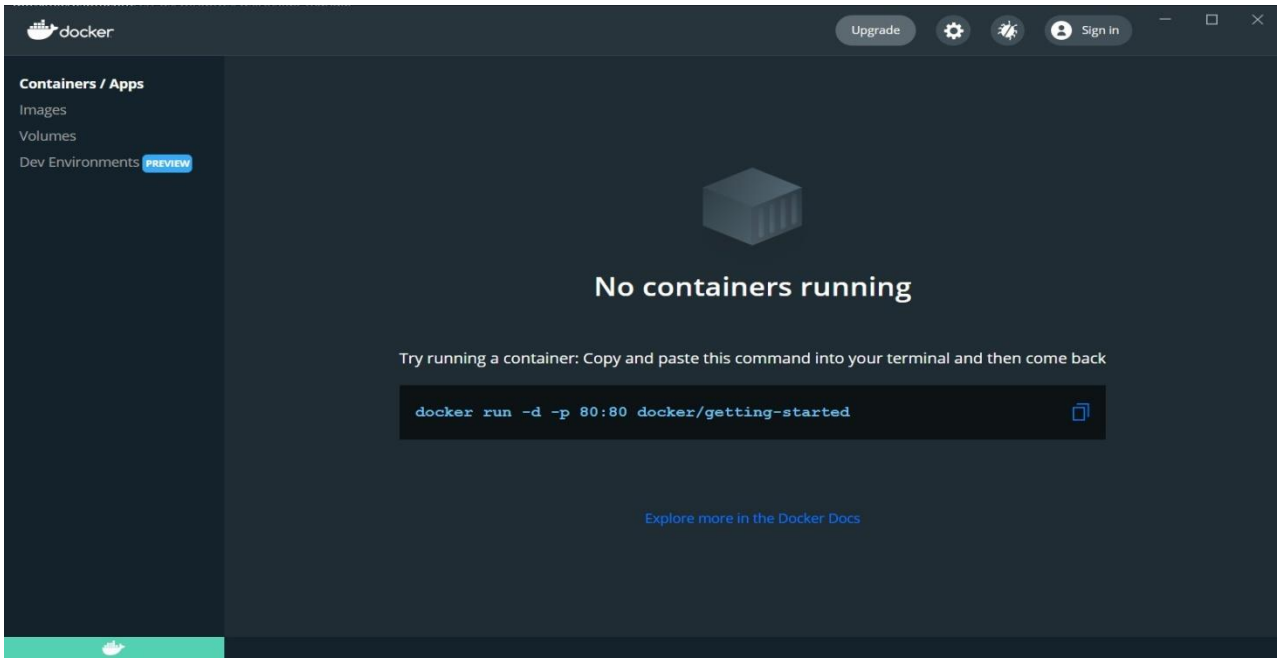
Scroll to the bottom and select windows subsystem for Linux



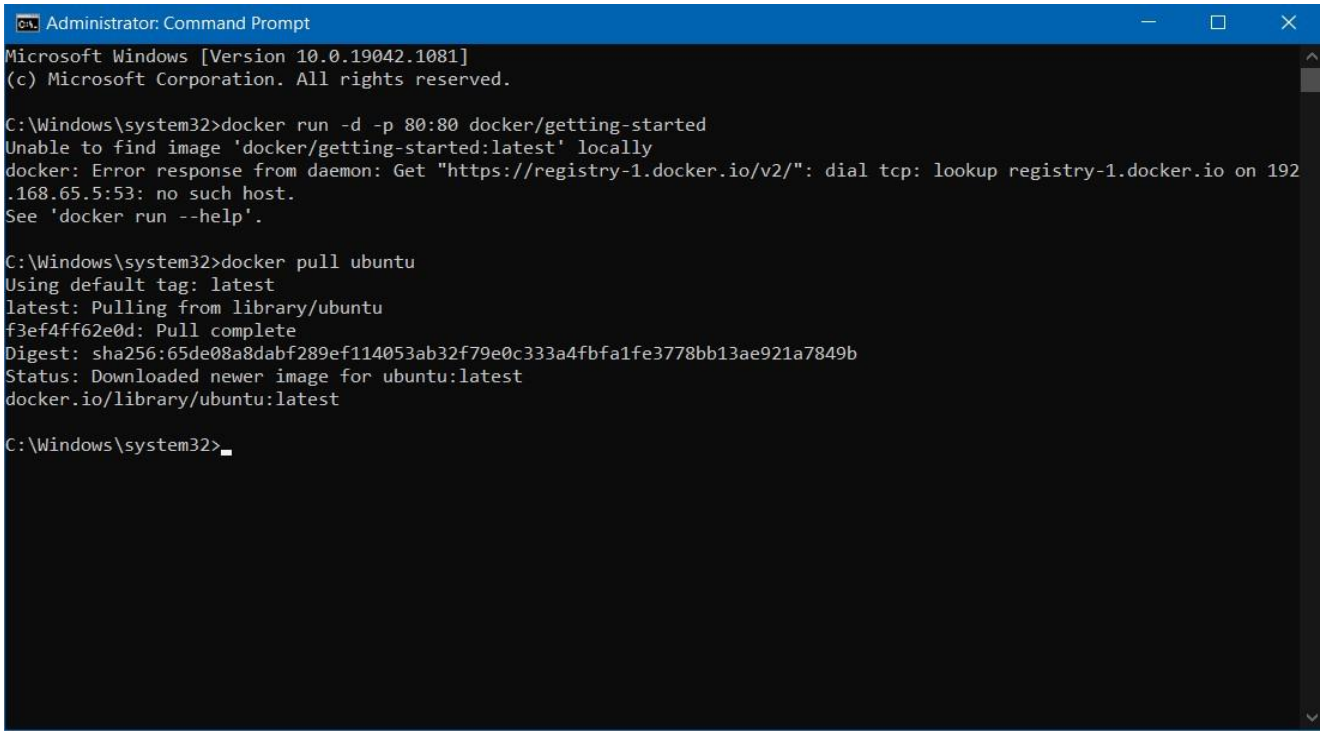
Step:4
If any WSL 2 error occurs download windows subsystem for linux update package and install the .exe file, after the installation restart the windows device.



Step:5
Once installed, open the docker desktop app, and signin using the dockerID



Step:6
Now pull any image from docker hub using the docker pull command in the command prompt (eg: docker pull ubuntu)



Now in the images tab an image of ubuntu will be displayed, we can run the ubuntu instance using the cli.