

**20MCA136-NETWORKING &
ADMINISTRATION LAB**

EXPERIMENT

Ubuntu Basic Commands-4

SUBMITTED BY,

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MEERA MISS

1. wc

-Used to print newline, word, and byte counts for each file

-To print the counts of line, word, characters

```
vivin@vivin-VirtualBox:~/Desktop$ ls
Amal Buses Buses.txt friends.txt 'hello world welcome' Mca2
vivin@vivin-VirtualBox:~/Desktop$ cat Buses.txt
Ordinary
Fast Passenger
Super Fast
Delux
Super Delux
Ultra Delux
vivin@vivin-VirtualBox:~/Desktop$ wc Buses.txt
 6 10 65 Buses.txt
vivin@vivin-VirtualBox:~/Desktop$ man wc
vivin@vivin-VirtualBox:~/Desktop$
```

6 10 65 Buses.txt

Where,

6-Number of lines

10-Number of words

65- Number of characters (including space)

-To print multiple file word count and find total word count

```
vivin@vivin-VirtualBox:~/Desktop$ ls
Amal Buses Buses.txt friends.txt 'hello world welcome' Mca2
vivin@vivin-VirtualBox:~/Desktop$ cat friends.txt
Hello, My name is Vivin
vivin@vivin-VirtualBox:~/Desktop$ wc friends.txt Buses.txt
 1  5 24 friends.txt
 6 10 65 Buses.txt
 7 15 89 total
vivin@vivin-VirtualBox:~/Desktop$
```

-To print the number of lines

```
vivin@vivin-VirtualBox:~/Desktop$ wc Buses.txt
 6 10 65 Buses.txt
vivin@vivin-VirtualBox:~/Desktop$ wc -l Buses.txt
 6 Buses.txt
```

-To print the number of words

```
vivin@vivin-VirtualBox:~/Desktop$ wc -w Buses.txt
10 Buses.txt
```

-To print the number of characters

```
vivin@vivin-VirtualBox:~/Desktop$ wc -c Buses.txt
65 Buses.txt
vivin@vivin-VirtualBox:~/Desktop$ wc -m Buses.txt
65 Buses.txt
vivin@vivin-VirtualBox:~/Desktop$
```

2. tar

- Used to create archive and extract archive files

- Create a tar file

```
vivin@vivin-VirtualBox:~/Desktop/ever$ cat >>Road
Car
jeep
bike
lorries
^C
vivin@vivin-VirtualBox:~/Desktop/ever$ tar cf hello.tar Buses.txt friends.txt school Road
```

- To Extract a tar file in new directory

```
vivin@vivin-VirtualBox:~/Desktop/ever$ mkdir hai
vivin@vivin-VirtualBox:~/Desktop/ever$ cd hai
vivin@vivin-VirtualBox:~/Desktop/ever/hai$ tar xf /home/vivin/Desktop/ever/hello.tar
vivin@vivin-VirtualBox:~/Desktop/ever/hai$ ls
Buses.txt friends.txt Road school
vivin@vivin-VirtualBox:~/Desktop/ever/hai$ cat Buses.txt
Ordinary
Fast Passenger
Super Fast
Delux
S Help Delux
U Delux
vivin@vivin-VirtualBox:~/Desktop/ever/hai$ cat Road
Car
jeep
bike
lorries
vivin@vivin-VirtualBox:~/Desktop/ever/hai$
```

Compression Types

1. gzip(z)

```
vivin@vivin-VirtualBox:~/Desktop$ tar czf hai.tar.gz Buses.txt cat.txt friends.txt
```

2. bzip2(j)

```
vivin@vivin-VirtualBox:~/Desktop$ tar cjf hello.tar.bz2 Buses.txt cat.txt friends.txt
```

3. xz(J)

```
vivin@vivin-VirtualBox:~/Desktop$ tar cJf haia.tar.xz Buses.txt cat.txt friends.txt
```

Extract an archive

1. gzip(z)

```
vivin@vivin-VirtualBox:~/Desktop$ mkdir new
vivin@vivin-VirtualBox:~/Desktop$ cd new
vivin@vivin-VirtualBox:~/Desktop/new$ tar xzf /home/vivin/Desktop/hai.tar.gz
vivin@vivin-VirtualBox:~/Desktop/new$ ls
Buses.txt cat.txt friends.txt
vivin@vivin-VirtualBox:~/Desktop/new$ cd ..
```

2. bzip2(j)

```
vivin@vivin-VirtualBox:~/Desktop$ mkdir new1
vivin@vivin-VirtualBox:~/Desktop$ cd new1
vivin@vivin-VirtualBox:~/Desktop/new1$ tar xjf /home/vivin/Desktop/hello.tar.bz
2
vivin@vivin-VirtualBox:~/Desktop/new1$ ls
Buses.txt  cat.txt  friends.txt
```

3. xz(J)

```
vivin@vivin-VirtualBox:~/Desktop$ mkdir new2
vivin@vivin-VirtualBox:~/Desktop$ cd new2
vivin@vivin-VirtualBox:~/Desktop/new2$ tar xJf /home/vivin/Desktop/haia.tar.xz
vivin@vivin-VirtualBox:~/Desktop/new2$ ls
Buses.txt  cat.txt  friends.txt
vivin@vivin-VirtualBox:~/Desktop/new2$ cd ..
```

3. expr

-Used to evaluate expression

```
vivin@vivin-VirtualBox:~/Desktop$ expr 3
3
vivin@vivin-VirtualBox:~/Desktop$ expr 3 + 5
8
vivin@vivin-VirtualBox:~/Desktop$ expr 54 / 2
27
vivin@vivin-VirtualBox:~/Desktop$ expr 5 / 2
2
vivin@vivin-VirtualBox:~/Desktop$
```

4. Redirection and 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.

```
vivin@vivin-VirtualBox:~/Desktop$ ls -l
total 68
drwxrwxr-x 5 anu   vivin   4096 Jun 13 20:34  Amal
drwxrwxrwx 2 vivin vivin   4096 Aug 10 23:26  Buses
-rw-rw-r-- 1 vivin vivin    65 Aug 11 17:10  Buses.txt
-rw-rw-r-- 1 vivin vivin    22 Aug 11 18:16  cat.txt
drwxrwxr-x 3 vivin vivin   4096 Aug 11 18:06  ever
-rw-rw-r-- 1 vivin vivin  10240 Aug 11 17:58  every.tar
-rw-rw-r-- 1 vivin vivin    24 Jun 22 17:42  friends.txt
-rw-rw-r-- 1 vivin vivin   320 Aug 11 18:20  haia.tar.xz
-rw-rw-r-- 1 vivin vivin   265 Aug 11 18:17  hal.tar.gz
-rw-rw-r-- 1 vivin vivin   278 Aug 11 18:19  hello.tar.bz2
drwxrwxr-x 3 vivin vivin   4096 Jun 13 11:23  'hello world welcome'
drwxrwxr-x 3 vivin vivin   4096 Jun 13 11:40  Mca2
drwxrwxr-x 2 vivin vivin   4096 Aug 11 18:22  new
drwxrwxr-x 2 vivin vivin   4096 Aug 11 18:27  new1
drwxrwxr-x 2 vivin vivin   4096 Aug 11 18:26  new2
vivin@vivin-VirtualBox:~/Desktop$ ls -l|wc -l
16
vivin@vivin-VirtualBox:~/Desktop$
```

```

vivin@vivin-VirtualBox:~/Desktop$ cat/etc/passwd|head -10
bash: cat/etc/passwd: No such file or directory
vivin@vivin-VirtualBox:~/Desktop$ cat /etc/passwd |head -10
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
vivin@vivin-VirtualBox:~/Desktop$ cat /etc/passwd |head -10|tail -3
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
vivin@vivin-VirtualBox:~/Desktop$

```

5. 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
- ```
#ssh user_name@host(IP/Domain_name)
```
- ```
#ssh-Xroot@server1.example.com
```

6. 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:
 - o From your local system to a remote system.
 - o From a remote system to your local system
 - o 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
```

## 7. 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
```

```

vivin@vivin-VirtualBox:~/Desktop$ ssh-keygen -t rsa
Generating public/private rsa key pair.
Enter file in which to save the key (/home/vivin/.ssh/id_rsa):
/home/vivin/.ssh/id_rsa already exists.
Overwrite (y/n)? y
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /home/vivin/.ssh/id_rsa
Your public key has been saved in /home/vivin/.ssh/id_rsa.pub
The key fingerprint is:
SHA256:WZEDe0SSWq3VDX1JRjSwIP6piW5Q14tj7/N+bUSyRgk vivin@vivin-VirtualBox
The key's randomart image is:
+---[RSA 3072]---+
| o*++.=*+. |
| ++*.E=.o |
| o.++. o o |
| ...=... +. |
| . S .O.. + |
| . .+o. o . |
| ...oo . .. |
| .. o .o |
| +o.. |
+-----[SHA256]-----+
vivin@vivin-VirtualBox:~/Desktop$

```

```

vivin@vivin-VirtualBox:~/Desktop$ ssh-keygen
Generating public/private rsa key pair.
Enter file in which to save the key (/home/vivin/.ssh/id_rsa): qwerty
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in qwerty
Your public key has been saved in qwerty.pub
The key fingerprint is:
SHA256:dgSx18lULxsMS9pKOnDi5C8IBC6sw+WEI7yhCsrnJYE vivin@vivin-VirtualBox
The key's randomart image is:
+---[RSA 3072]---+
| . o. .++ o |
|+ o o ++..= |
|oB + +..oo+o o |
|* X + +oo . . |
|=E + oSo.. |
|= . o |
|o. o o . . |
| o o . |
| . |
+-----[SHA256]-----+

```

```

vivin@vivin-VirtualBox:~/Desktop$ ls
Amal ever hai.tar.gz new qwerty.pub
Buses every.tar hello.tar.bz2 new1
Buses.txt friends.txt 'hello world welcome' new2
cat.txt haia.tar.xz Mca2 qwerty
vivin@vivin-VirtualBox:~/Desktop$ cat qwerty.pub

```

```

ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQGDGCYpGGJG1o/pICiTWGbjiatRDcaxjIsnJLD3nFXk
bSZqdsGm/lQ804nuwARBS8B0m4I2zF16TnCz8S4Z2gm2kCXq04V2j0fY4q9pjyFUV5nPDgyN0FsuDKi
CSB22ZKIYfwYz0/ak/Jylx3c9u+v9qecKnmgYTrHpr245Dd8HMRebWMJAnXpBrbGonliib5EHT90y9I
t7VzVtMp2ELwtZLxNZUA+M/h3QIiB68WdpibN6yaEh6LCjDL8s7aVb8eFD9573W//RQkESNEJhIOBh
jI7j89Leoq+7q1rxb0e/8T4LKWHfs+FHUREVY0906IKPQMmGTNO8RHZKQE4Nzu4enr6x53ZcZ+VgvLE
+Vsp/qI6gDxqXPfWT2dqoGLL1X3vltSBjUxaobivw1nmfPZdP9SNfLW+pwN2WqhZvQEY13IDvNVWWY7
4+8y85KDF9f7k8QhoA0Kpeu05hTurBaJV+Ois/qyNQcxYpya/RKJCQvmML20bgbb1m2MfmUvxIN3M=
vivin@vivin-VirtualBox
vivin@vivin-VirtualBox:~/Desktop$

```

## **8. ssh-copy-id**

-This ssh-copy-id command allows you to install an SSH key on a remote server's authorized keys

-This command facilitates SSH key login which removes the need for a password for each login, thus ensuring a password-less, automatic login process.

`$ssh-copy-id username@remote_host`