

19CSE301 COMPUTER NETWORKS Component
Lab Lab sheet 1 Familiarizing Linux Networking Tools
Lab exercise

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1. Ping the IP address of another computer

```
vinayak@vinayak-VirtualBox:~$ ping -c 1 google.com
PING google.com (142.250.193.142) 56(84) bytes of data.
64 bytes from maa05s25-in-f14.1e100.net (142.250.193.142): icmp_seq=1 ttl=118 time=18.3 ms

--- google.com ping statistics ---
1 packets transmitted, 1 received, 0% packet loss, time 0ms
rtt min/avg/max/mdev = 18.330/18.330/18.330/0.000 ms
```

2. Ping the IP address of the default gateway

```
vinayak@vinayak-VirtualBox:~$ ping 142.250.193.142
PING 142.250.193.142 (142.250.193.142) 56(84) bytes of data.
64 bytes from 142.250.193.142: icmp_seq=1 ttl=118 time=65.6 ms
64 bytes from 142.250.193.142: icmp_seq=2 ttl=118 time=15.4 ms
64 bytes from 142.250.193.142: icmp_seq=3 ttl=118 time=15.8 ms
64 bytes from 142.250.193.142: icmp_seq=4 ttl=118 time=15.6 ms
^C
--- 142.250.193.142 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3005ms
rtt min/avg/max/mdev = 15.444/28.137/65.640/21.652 ms
vinayak@vinayak-VirtualBox:~$
```

3. Ping the Loopback IP address of this computer (127.0.0.1)

```
vinayak@vinayak-VirtualBox:~$ ping -c 5 127.0.0.1
PING 127.0.0.1 (127.0.0.1) 56(84) bytes of data.
64 bytes from 127.0.0.1: icmp_seq=1 ttl=64 time=0.013 ms
64 bytes from 127.0.0.1: icmp_seq=2 ttl=64 time=0.085 ms
64 bytes from 127.0.0.1: icmp_seq=3 ttl=64 time=0.032 ms
64 bytes from 127.0.0.1: icmp_seq=4 ttl=64 time=0.025 ms
64 bytes from 127.0.0.1: icmp_seq=5 ttl=64 time=0.024 ms

--- 127.0.0.1 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4088ms
rtt min/avg/max/mdev = 0.013/0.035/0.085/0.025 ms
vinayak@vinayak-VirtualBox:~$
```

4. Obtain the hostname and ipaddress of amrita.ac.in

```
vinayak@vinayak-VirtualBox:~$ nslookup amrita.ac.in
Server:      127.0.0.53
Address:      127.0.0.53#53

Non-authoritative answer:
Name:   amrita.ac.in
Address: 117.193.77.232
```

5. Ping to amrita.ac.in and find out how its result differs from ping -c 5 amrita.ac.in.

```
vinayak@vinayak-VirtualBox:~$ ping amrita.ac.in
PING amrita.ac.in (117.193.77.232) 56(84) bytes of data.
64 bytes from static.ill.117.193.77.232.bsnl.in (117.193.77.232): icmp_seq=1 ttl=53 time=44.5 ms
64 bytes from static.ill.117.193.77.232.bsnl.in (117.193.77.232): icmp_seq=2 ttl=53 time=44.4 ms
64 bytes from static.ill.117.193.77.232.bsnl.in (117.193.77.232): icmp_seq=3 ttl=53 time=45.0 ms
64 bytes from static.ill.117.193.77.232.bsnl.in (117.193.77.232): icmp_seq=4 ttl=53 time=44.1 ms
^C
--- amrita.ac.in ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3004ms
rtt min/avg/max/mdev = 44.139/44.520/45.043/0.331 ms
vinayak@vinayak-VirtualBox:~$ ping -c 5 amrita.ac.in
PING amrita.ac.in (117.193.77.232) 56(84) bytes of data.
64 bytes from static.ill.117.193.77.232.bsnl.in (117.193.77.232): icmp_seq=1 ttl=53 time=45.2 ms
64 bytes from static.ill.117.193.77.232.bsnl.in (117.193.77.232): icmp_seq=2 ttl=53 time=45.2 ms
64 bytes from static.ill.117.193.77.232.bsnl.in (117.193.77.232): icmp_seq=3 ttl=53 time=44.2 ms
64 bytes from static.ill.117.193.77.232.bsnl.in (117.193.77.232): icmp_seq=4 ttl=53 time=46.9 ms
^C
--- amrita.ac.in ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3005ms
rtt min/avg/max/mdev = 44.159/45.375/46.895/0.979 ms
```

Lab exercise-II

I. Use nc command to perform the following on your local machine with one terminal as server and other as client:

1. Create a chat application.

```
vinayak@vinayak-VirtualBox:~$ nc -lp 6565
vinayak@vinayak-VirtualBox:~$ nc localhost 6565
```

2. Echo a message in server and pass it to the client machine on raising a request

```
vinayak@vinayak-VirtualBox:~$ nc -lp 6565
hi
hello
vinayak@vinayak-VirtualBox:~$ nc localhost 6565
hi
hello
```

3. Chat with your neighbour. Allow another neighbours to chat with you once the first one is terminated

```
vinayak@vinayak-VirtualBox:~$ nc -l -p 6565
hi
hello
hey
hello
vinayak@vinayak-VirtualBox:~$ nc localhost 6565
hi
^C
vinayak@vinayak-VirtualBox:~$ nc localhost 6565
hello
hey
^C
vinayak@vinayak-VirtualBox:~$ nc localhost 6565
hello
```

4. Create a chat application such that the client will terminate the connection if no messages being received for 10 seconds.

```
vinayak@vinayak-VirtualBox:~$ nc -l -p 6565
hi
vinayak@vinayak-VirtualBox:~$ nc -w 10 localhost 6565
hi
vinayak@vinayak-VirtualBox:~$
```

5. List all the files and folders in the client machine at your server.

```

vinayak@vinayak-VirtualBox:~$ nc -l -p 6565
count
count2
count3
countfinal
demo
Desktop
Documents
Downloads
file1.sh
file.sh
hiddendetails
hiddenfiles
main
maths
Music
numericdata
Pictures
Public
shell1.sh
shell2.sh
shell3.sh
shell4.sh
snap
sort
sortmanual
studdetails
Templates
test1
Test1
Videos

```

```

vinayak@vinayak-VirtualBox:~$ ls | nc localhost 6565

```

6. Display the contents of any file in your server at the client. (Note: You may create a new file at server if needed)

```

vinayak@vinayak-VirtualBox:~$ cat test1 | nc -l -p 6565

```

```

vinayak@vinayak-VirtualBox:~$ nc localhost 6565
I am working with linux shell
Good bye

```

7. Send the man page of ls command in your client machine to the server and server should write it into a file

```

vinayak@vinayak-VirtualBox:~$ nc -l -p 6565 > lsman
vinayak@vinayak-VirtualBox:~$ ls | grep lsman
lsman
vinayak@vinayak-VirtualBox:~$

```

```

vinayak@vinayak-VirtualBox:~$ man ls | nc localhost 6565
^C
vinayak@vinayak-VirtualBox:~$

```