

Date: 8 Feb 2017

Reg. No.: 14BIT004

Experiment No: 2

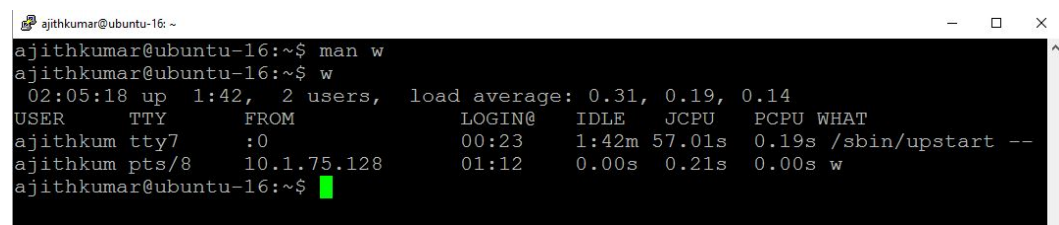
Question: Study of basic networking command.

COMMANDS AND ITS OUTPUTS:

w

Shows who is currently logged in and where they are logged in from.

OUTPUT SCREENSHOT:

A terminal window titled 'ajithkumar@ubuntu-16: ~' showing the command 'man w' and its output. The output includes system status (02:05:18 up 1:42, 2 users, load average: 0.31, 0.19, 0.14) and a table of logged-in users.

```
ajithkumar@ubuntu-16:~$ man w
ajithkumar@ubuntu-16:~$ w
 02:05:18 up  1:42,  2 users,  load average: 0.31, 0.19, 0.14
USER      TTY      FROM            LOGIN@   IDLE   JCPU   PCPU WHAT
ajithkum  tty7      :0                00:23    1:42m  57.01s 0.19s /sbin/upstart --
ajithkum pts/8     10.1.75.128      01:12    0.00s  0.21s  0.00s w
ajithkumar@ubuntu-16:~$
```

who

This also shows who is on the server in an shell.

OUTPUT SCREENSHOT:

A terminal window titled 'ajithkumar@ubuntu-16:~\$' showing the command 'who' and its output. The output lists the users currently logged in, their terminal type, and their login time and IP address.

```
ajithkumar@ubuntu-16:~$ who
ajithkumar  tty7                2017-02-13  00:23  (:0)
ajithkumar  pts/11              2017-02-13  02:08  (10.1.75.128)
ajithkumar  pts/8               2017-02-13  01:12  (10.1.75.128)
ajithkumar@ubuntu-16:~$
```

Netstat -an

Shows all connections to the server, the source and destination ips and ports.

```

Active Internet connections (servers and established)
Proto Recv-Q Send-Q Local Address           Foreign Address
tcp      0      0 127.0.0.1:3306          0.0.0.0:*
tcp      0      0 0.0.0.0:139             0.0.0.0:*
tcp      0      0 0.0.0.0:5900            0.0.0.0:*
tcp      0      0 0.0.0.0:80              0.0.0.0:*
tcp      0      0 0.0.0.0:245             0.0.0.0:*
tcp      0      0 127.0.1.1:53            0.0.0.0:*
tcp      0      0 127.0.0.1:3350          0.0.0.0:*
tcp      0      0 127.0.0.1:5432          0.0.0.0:*
tcp      0      0 127.0.0.1:5433          0.0.0.0:*
tcp      0      0 127.0.0.1:9050          0.0.0.0:*
tcp      0      0 0.0.0.0:3389            0.0.0.0:*
tcp      0      0 0.0.0.0:445             0.0.0.0:*
tcp      0      0 10.1.75.33:35328        94.242.255.
tcp      0    256 10.1.75.33:245          10.1.75.128
tcp      0      1 10.1.75.33:37070        84.80.80.69
tcp      0      0 10.1.75.33:50542        46.101.104.
tcp6     0      0 :::139                  :::*
tcp6     0      0 :::5900                  :::*
tcp6     0      0 :::245                   :::*
tcp6     0      0 :::21                    :::*
tcp6     0      0 :::445                   :::*
udp      0      0 0.0.0.0:5353            0.0.0.0:*

```

netstat -rn

Shows routing table for all ips bound to the server.

```
ajithkumar@ubuntu-16:~$ netstat -rn
Kernel IP routing table
Destination        Gateway            Genmask           Flags
0.0.0.0             10.1.75.1         0.0.0.0           UG
10.1.75.0           0.0.0.0           255.255.255.0     U
169.254.0.0         0.0.0.0           255.255.0.0       U
172.16.15.200       10.1.75.1         255.255.255.255   UGH
172.17.0.0          0.0.0.0           255.255.0.0       U
```

netstat -an |grep :80 |wc -l

Show how many active connections there are to apache (httpd runs on port 80)

```
ajithkumar@ubuntu-16:~$ netstat -an | grep :80
tcp        0      0 0.0.0.0:80 0.0.0.0:*
ajithkumar@ubuntu-16:~$ netstat -an | grep :80 |wc -l
1
ajithkumar@ubuntu-16:~$
```

top

Shows live system processes in a formatted table, memory information, uptime and other useful info.

ajithkumar@ubuntu-16: ~

```
top - 02:49:58 up 36 min,  2 users,  load average: 0.13
Tasks: 251 total,   1 running, 250 sleeping,   0 stopped
%Cpu(s):  0.2 us,  0.1 sy,  0.0 ni, 99.7 id,  0.1 wa,
KiB Mem : 8064628 total, 6197476 free,  865412 used,
KiB Swap:   0 total,   0 free,   0 used.
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%M
3389	root	20	0	0	0	0	S	0.3	0
3727	ajithku+	20	0	41912	3796	3072	R	0.3	0
1	root	20	0	185456	6048	3936	S	0.0	0
2	root	20	0	0	0	0	S	0.0	0
3	root	20	0	0	0	0	S	0.0	0
5	root	0	-20	0	0	0	S	0.0	0
6	root	20	0	0	0	0	S	0.0	0
7	root	20	0	0	0	0	S	0.0	0
8	root	20	0	0	0	0	S	0.0	0
9	root	rt	0	0	0	0	S	0.0	0
10	root	rt	0	0	0	0	S	0.0	0
11	root	rt	0	0	0	0	S	0.0	0
12	root	rt	0	0	0	0	S	0.0	0
13	root	20	0	0	0	0	S	0.0	0
15	root	0	-20	0	0	0	S	0.0	0
16	root	rt	0	0	0	0	S	0.0	0
17	root	rt	0	0	0	0	S	0.0	0

=====

While in top, Shift + M to sort by memory usage or Shift + P to sort by CPU usage.

top -u root

Show processes running by user root only.

ajithkumar@ubuntu-16: ~

```
top - 02:51:37 up 38 min,  2 users,  load average: 0.25,
Tasks: 248 total,    1 running, 247 sleeping,    0 stopped
%Cpu(s):  0.0 us,   0.0 sy,   0.0 ni,100.0 id,   0.0 wa,
KiB Mem : 8064628 total, 6197276 free,   865592 used,
KiB Swap:          0 total,          0 free,          0 used.
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM
1232	root	20	0	501360	41752	28176	S	0.0	0.0
1290	root	20	0	351092	40080	30560	S	0.0	0.0
2486	root	20	0	628732	32724	9248	S	0.0	0.0
1909	root	20	0	335500	29844	22884	S	0.3	0.0
1057	root	20	0	140784	18356	11752	S	0.0	0.0
1009	root	20	0	449684	17148	13948	S	0.0	0.0
1940	root	20	0	337908	15828	13272	S	0.0	0.0
1354	root	20	0	275664	12728	8204	S	0.0	0.0
2475	root	20	0	368096	11136	6024	S	0.0	0.0
1776	root	20	0	347388	10124	8536	D	0.3	0.0
1032	root	20	0	274960	9444	8220	S	0.0	0.0
930	root	20	0	166432	8756	8040	S	0.0	0.0
1943	root	20	0	337916	8608	6052	S	0.0	0.0
1181	root	20	0	282000	8584	6100	S	0.0	0.0
1029	root	20	0	337460	8576	6800	S	0.0	0.0
999	root	20	0	275884	8552	5692	S	0.0	0.0
2964	root	20	0	2100116	8504	5340	S	0.0	0.0

route -n

Shows routing table for all ips bound to the server.

```

ajithkumar@ubuntu-16:~$ route -n
Kernel IP routing table
Destination        Gateway            Genmask           Flags M
0.0.0.0            10.1.75.1         0.0.0.0           UG    6
10.1.75.0          0.0.0.0           255.255.255.0     U     6
169.254.0.0        0.0.0.0           255.255.0.0       U     1
172.16.15.200      10.1.75.1         255.255.255.255   UGH   6
172.17.0.0         0.0.0.0           255.255.0.0       U     0
ajithkumar@ubuntu-16:~$ █

```

traceroute indianwebportal.com

Have a look how you messages travel to yahoo.com

```

ajithkumar@ubuntu-16:~$ traceroute www.kctyugam.com
traceroute to www.kctyugam.com (104.28.8.56), 30 hops m
 1  10.1.75.1 (10.1.75.1)  3.576 ms  4.440 ms  4.446 ms
 2  10.1.110.1 (10.1.110.1)  3.463 ms  3.451 ms  3.439
 3  10.1.110.110 (10.1.110.110)  3.381 ms  3.409 ms  3.
 4  172.16.15.150 (172.16.15.150)  4.332 ms  5.818 ms
 5  nsg-static-001.162.72.182.airtel.in (182.72.162.1)
 6  61.95.191.5 (61.95.191.5)  100.411 ms 182.79.245.57
 7  13335.sgw.equinix.com (27.111.228.132)  46.533 ms
 8  104.28.8.56 (104.28.8.56)  47.587 ms  46.634 ms  47
ajithkumar@ubuntu-16:~$ █

```

tracpath indianwebportal.com

Performs a very similar function to traceroute.

```
ajithkumar@ubuntu-16:~$ tracpath www.kctyugam.com
1?: [LOCALHOST]
1:  10.1.75.1
1:  10.1.75.1
2:  10.1.110.1
3:  10.1.110.110
4:  172.16.15.150
5:  nsq-static-001.162.72.182.airtel.in
6:  aes-static-118.36.144.59.airtel.in
7:  no reply
8:  no reply
9:  no reply
```

ifconfig

Display info on the network interfaces.

```
ajithkumar@ubuntu-16:~$ ifconfig
docker0    Link encap:Ethernet  HWaddr 02:42:d5:ac:38:31
           inet addr:172.17.0.1  Bcast:0.0.0.0  Mask:255.255.0.0
           UP BROADCAST MULTICAST  MTU:1500  Metric:1
           RX packets:0 errors:0 dropped:0 overruns:0 frame:0
           TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
           collisions:0 txqueuelen:0
           RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

eth0       Link encap:Ethernet  HWaddr 28:d2:44:dc:da:aa
           UP BROADCAST MULTICAST  MTU:1500  Metric:1
           RX packets:0 errors:0 dropped:0 overruns:0 frame:0
           TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
           collisions:0 txqueuelen:1000
           RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

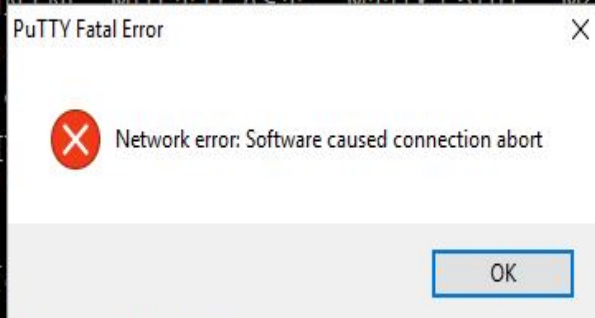
lo         Link encap:Local Loopback
           inet addr:127.0.0.1  Mask:255.0.0.0
           inet6 addr: ::1/128 Scope:Host
           UP LOOPBACK RUNNING  MTU:65536  Metric:1
           RX packets:1180 errors:0 dropped:0 overruns:0 frame:0
           TX packets:1180 errors:0 dropped:0 overruns:0 carrier:0
           collisions:0 txqueuelen:1
```

ifconfig eth0 down

This will take eth0 (assuming the device exists) down, it won't be able to receive or send anything until you put the device back "up" again.

```
wlan0      Link encap:Ethernet  HWaddr 38:b1:db:09:15:eb
            inet addr:10.1.75.33  Bcast:10.1.75.255  Mask:255.255.255
            inet6 addr: fe80::2a87:22e4:427a:e813/64 Scope:Link
            UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
            RX packets:20104  TX packets:4912  collisions:0 txq
            RX bytes:2973807  (2.1 MB)

ajithkumar@ubuntu-16:~$ ifconfig eth0 down
SIOCSIFFLAGS: Operation not permitted
ajithkumar@ubuntu-16:~$ sudo ifconfig wlan0 down
[sudo] password for ajithkumar:
█
```



ping

Sends test packets to a specified server to check if it is responding properly

```
ajithkumar@ubuntu-16:~$ ping www.kctyugam.com
PING kctyugam.com (104.28.8.56) 56(84) bytes of data.
64 bytes from 104.28.8.56: icmp_seq=1 ttl=58 time=47.3 ms
64 bytes from 104.28.8.56: icmp_seq=2 ttl=58 time=46.5 ms
64 bytes from 104.28.8.56: icmp_seq=3 ttl=58 time=48.0 ms
64 bytes from 104.28.8.56: icmp_seq=4 ttl=58 time=46.7 ms
64 bytes from 104.28.8.56: icmp_seq=5 ttl=58 time=46.3 ms
64 bytes from 104.28.8.56: icmp_seq=6 ttl=58 time=46.2 ms
64 bytes from 104.28.8.56: icmp_seq=7 ttl=58 time=46.2 ms
64 bytes from 104.28.8.56: icmp_seq=8 ttl=58 time=46.4 ms
64 bytes from 104.28.8.56: icmp_seq=9 ttl=58 time=46.4 ms
64 bytes from 104.28.8.56: icmp_seq=10 ttl=58 time=46.3 ms
64 bytes from 104.28.8.56: icmp_seq=11 ttl=58 time=46.9 ms
64 bytes from 104.28.8.56: icmp_seq=12 ttl=58 time=46.8 ms
64 bytes from 104.28.8.56: icmp_seq=13 ttl=58 time=47.4 ms
^C
--- kctyugam.com ping statistics ---
13 packets transmitted, 13 received, 0% packet loss, time 12017ms
rtt min/avg/max/mdev = 46.213/46.761/48.036/0.561 ms
ajithkumar@ubuntu-16:~$
```

=====

arp

Command mostly used for checking existing Ethernet connectivity and IP address

```
ajithkumar@ubuntu-16:~$ arp
Address                HWtype  HWaddress           Flags Mask
10.1.75.1               ether    00:04:96:35:e1:f3   C
10.1.75.128             ether    f8:b1:56:d3:8e:91   C
ajithkumar@ubuntu-16:~$
```
