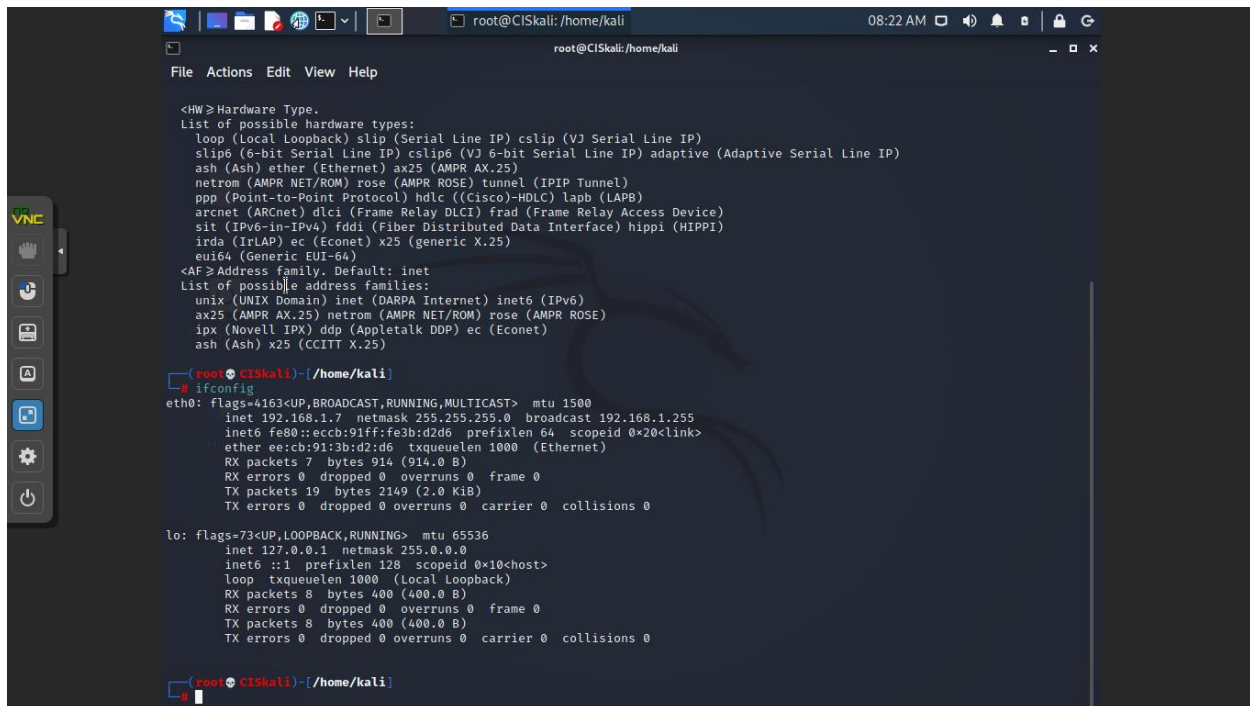


Homework 1 - Basic Networking Utilities

- This is an individual assignment, and worth 20 points.
- The due date and time is Wednesday, September 15th, Midnight.
- You need to provide your outcomes to the “Homework 1-Outcome.docx.” Change the file name following the naming convention. The naming convention is as follows: homework, hyphen, last name, first initial, and extension (e.g., Homework1-ImG.docx). If you do not follow the convention, I will deduct 1.
- Make screenshots small so that you can save space.

Tasks

(Task 1) Provide a screenshot #1.



```
root@CISkali: /home/kali
File Actions Edit View Help

<HW> Hardware Type.
List of possible hardware types:
loop (Local Loopback) slip (Serial Line IP) cslip (VJ Serial Line IP)
slip6 (6-bit Serial Line IP) cslip6 (VJ 6-bit Serial Line IP) adaptive (Adaptive Serial Line IP)
ash (Ash) ether (Ethernet) ax25 (AMPR AX.25)
netrom (AMPR NET/ROM) rose (AMPR ROSE) tunnel (IPIP Tunnel)
ppp (Point-to-Point Protocol) hdlc ((Cisco)-HDLC) lapb (LAPB)
arcnet (ARCnet) dlci (Frame Relay DLCI) frad (Frame Relay Access Device)
sit (IPv6-in-IPv4) fddi (Fiber Distributed Data Interface) hippi (HIPPI)
irda (IrLAP) ec (Econet) x25 (generic X.25)
eui64 (Generic EUI-64)
<AF> Address family. Default: inet
List of possible address families:
unix (UNIX Domain) inet (DARPA Internet) inet6 (IPv6)
ax25 (AMPR AX.25) netrom (AMPR NET/ROM) rose (AMPR ROSE)
ipx (Novell IPX) ddp (Appletalk DDP) ec (Econet)
ash (Ash) x25 (CCITT X.25)

root@CISkali: /home/kali
ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.1.7 netmask 255.255.255.0 broadcast 192.168.1.255
    inet6 fe80::ecb:91ff:fe3b:d2d6 prefixlen 64 scopeid 0<20<link>
    ether ee:cb:91:3b:d2:d6 txqueuelen 1000 (Ethernet)
    RX packets 7 bytes 914 (914.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 19 bytes 2149 (2.0 KiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0<10<host>
    loop txqueuelen 1000 (Local Loopback)
    RX packets 8 bytes 400 (400.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 8 bytes 400 (400.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

root@CISkali: /home/kali
```

(Task 2) Provide a screenshot #2.

```

root@CISkali: /home/kali
File Actions Edit View Help
-n          no dns name resolution
-O          report outstanding replies
-p <pattern> contents of padding byte
-Q          quiet output
-q <class>  use quality of service <class> bits
-s <size>   use <size> as number of data bytes to be sent
-S <size>   use <size> as SO_SNDBUF socket option value
-t <tll>     define time to live
-U          print user-to-user latency
-v          verbose output
-V          print version and exit
-w <deadline> reply wait <deadline> in seconds
-W <timeout> time to wait for response

IPv4 options:
-4          use IPv4
-b          allow pingg broadcast
-R          record route
-T <timestamp> define timestamp, can be one of <tsonly|tsandaddr|tsprespec>

IPv6 options:
-6          use IPv6
-F <flowLabel> define flow label, default is random
-N <nodeinfo opt> use icmp6 node info query, try <help> as argument

For more details see ping(8).

root@CISkali: /home/kali
# ping -c 5 www.nyt.com
PING nytimes.map.fastly.net (151.101.1.164) 56(84) bytes of data:
64 bytes from 151.101.1.164 (151.101.1.164): icmp_seq=1 ttl=54 time=10.1 ms
64 bytes from 151.101.1.164 (151.101.1.164): icmp_seq=2 ttl=54 time=10.3 ms
64 bytes from 151.101.1.164 (151.101.1.164): icmp_seq=3 ttl=54 time=9.89 ms
64 bytes from 151.101.1.164 (151.101.1.164): icmp_seq=4 ttl=54 time=10.2 ms
64 bytes from 151.101.1.164 (151.101.1.164): icmp_seq=5 ttl=54 time=10.2 ms

--- nytimes.map.fastly.net ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4006ms
rtt min/avg/max/mdev = 9.892/10.120/10.272/0.131 ms

```

(Task 3) Provide a screenshot #3.

```

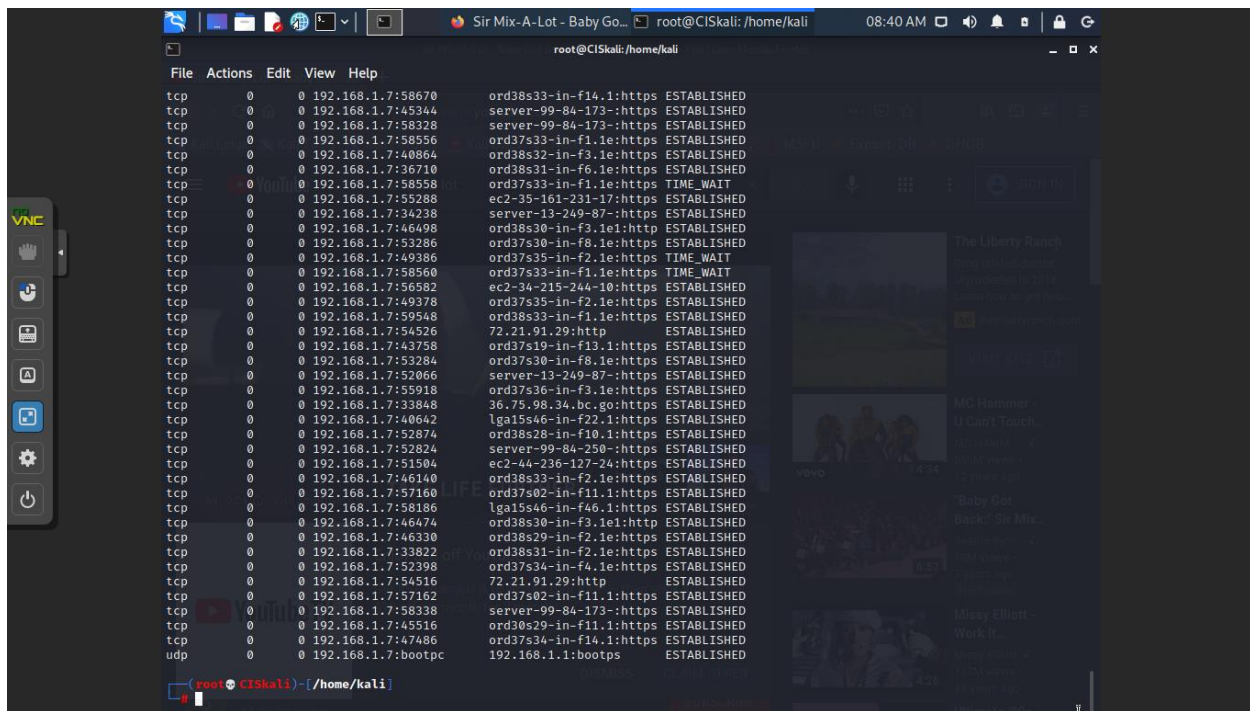
root@CISkali: /home/kali
File Actions Edit View Help
-o, --timers          display timers
-c, --continuous      continuous listing

-l, --listening       display listening server sockets
-a, --all              display all sockets (default: connected)
-F, --fib             display Forwarding Information Base (default)
-C, --cache           display routing cache instead of FIB
-z, --context         display SELinux security context for sockets

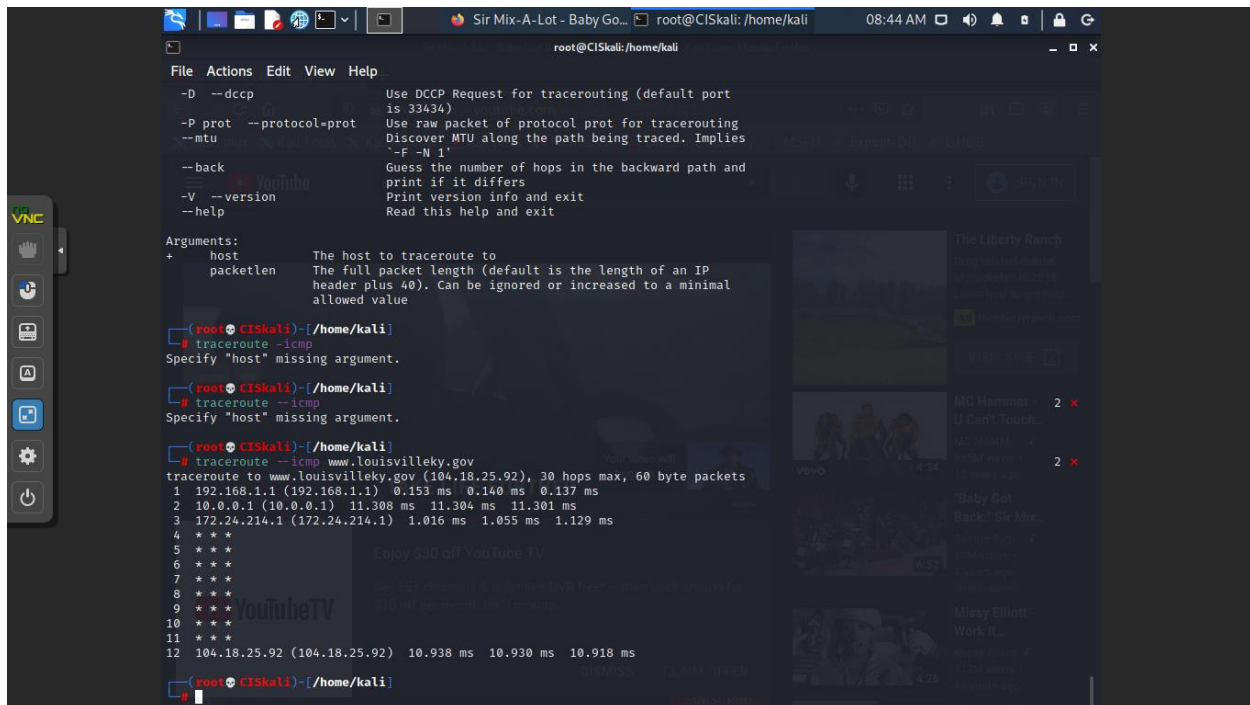
<Socket> {-t|--tcp} {-u|--udp} {-U|--udplite} {-S|--sctp} {-w|--raw}
{-x|--unix} --ax25 --ipx --netrom
<AF> Use '-6|--4' or '-A <af>' or '--<af>'; default: inet
List of possible address families (which support routing):
inet (DARPA Internet) inet6 (IPv6) ax25 (AMPR AX.25)
netrom (AMPR NET/ROM) ipx (Novell IPX) ddp (Appletalk DDP)
x25 (CCITT X.25)

root@CISkali: /home/kali
# netstat -atu
Active Internet connections (servers and established)
Proto Recv-Q Send-Q Local Address           Foreign Address         State
tcp        0      0 192.168.1.7:35626       0.0.0.0:0               TIME_WAIT
tcp        0      0 192.168.1.7:46500       0.0.0.0:0               ESTABLISHED
tcp        0      0 192.168.1.7:47484       0.0.0.0:0               ESTABLISHED
tcp        0      0 192.168.1.7:49612       0.0.0.0:0               ESTABLISHED
tcp        0      0 192.168.1.7:58670       0.0.0.0:0               ESTABLISHED
tcp        0      0 192.168.1.7:45344       0.0.0.0:0               ESTABLISHED
tcp        0      0 192.168.1.7:58328       0.0.0.0:0               ESTABLISHED
tcp        0      0 192.168.1.7:58556       0.0.0.0:0               ESTABLISHED
tcp        0      0 192.168.1.7:40864       0.0.0.0:0               ESTABLISHED
tcp        0      0 192.168.1.7:36710       0.0.0.0:0               ESTABLISHED
tcp        0      0 192.168.1.7:58558       0.0.0.0:0               TIME_WAIT
tcp        0      0 192.168.1.7:55288       0.0.0.0:0               ESTABLISHED
tcp        0      0 192.168.1.7:34238       0.0.0.0:0               ESTABLISHED
tcp        0      0 192.168.1.7:46498       0.0.0.0:0               ESTABLISHED
tcp        0      0 192.168.1.7:53286       0.0.0.0:0               ESTABLISHED
tcp        0      0 192.168.1.7:49386       0.0.0.0:0               TIME_WAIT
tcp        0      0 192.168.1.7:58560       0.0.0.0:0               TIME_WAIT
tcp        0      0 192.168.1.7:56582       0.0.0.0:0               ESTABLISHED
tcp        0      0 192.168.1.7:49378       0.0.0.0:0               ESTABLISHED
tcp        0      0 192.168.1.7:59548       0.0.0.0:0               ESTABLISHED
tcp        0      0 192.168.1.7:54526       0.0.0.0:0               ESTABLISHED

```



(Task 4) Provide a screenshot #4.



(Task 5) Provide a screenshot #5.

```
root@CISkali: /home/kali 02:38 PM
root@CISkali: /home/kali
File Actions Edit View Help
    minimum = 60
google.com      nameserver = ns4.google.com.
google.com      text = "MS-E4A68B9AB2BB9670BCE15412F62916164C0820BB"
Authoritative answers can be found from:

(root@CISkali)-[/home/kali]
# nslookup -type=ns google.com
Server:      192.168.1.1
Address:     192.168.1.1#53

Non-authoritative answer:
google.com    nameserver = ns2.google.com.
google.com    nameserver = ns4.google.com.
google.com    nameserver = ns3.google.com.
google.com    nameserver = ns1.google.com.
Authoritative answers can be found from:

(root@CISkali)-[/home/kali]
# nslookup -type=soa www.google.com
Server:      192.168.1.1
Address:     192.168.1.1#53

Non-authoritative answer:
*** Can't find www.google.com: No answer
Authoritative answers can be found from:
google.com
    origin = ns1.google.com
    mail addr = dns-admin.google.com
    serial = 396553081
    refresh = 900
    retry = 900
    expire = 1800
    minimum = 60

(root@CISkali)-[/home/kali]
```