BASIC NETWORKING COMMANDS

1.arp -a

```
Microsoft Windows [Version 10.0.22631.4249]
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C:\Users\nandh>arp -a

Interface: 172.16.9.74 --- 0x9
  Internet Address      Physical Address      Type
  172.16.8.1            7c-5a-1c-cf-be-45     dynamic
  172.16.8.162          7c-57-58-35-10-fb     dynamic
  172.16.8.164          7c-57-58-35-10-08     dynamic
  172.16.8.165          7c-57-58-35-05-57     dynamic
  172.16.8.166          7c-57-58-35-00-bf     dynamic
  172.16.8.167          7c-57-58-38-db-20     dynamic
  172.16.8.168          7c-57-58-38-dc-d8     dynamic
  172.16.8.173          7c-57-58-35-00-1f     dynamic
  172.16.8.175          7c-57-58-35-10-dc     dynamic
  172.16.8.180          7c-57-58-38-41-cc     dynamic
  172.16.8.187          7c-57-58-38-3f-a9     dynamic
  172.16.8.191          7c-57-58-35-05-a1     dynamic
  172.16.8.213          c0-3e-ba-3a-19-6b     dynamic
  172.16.8.219          74-d4-dd-1d-3f-92     dynamic
  172.16.9.48           d8-bb-c1-c5-ca-6c     dynamic
  172.16.9.69           04-bf-1b-1e-d5-ac     dynamic
  172.16.9.71           c8-5a-cf-df-2b-1c     dynamic
  172.16.9.140          0a-e0-af-f1-0d-1e     dynamic
  172.16.10.2           d8-bb-c1-c5-cb-70     dynamic
  172.16.10.3           d8-bb-c1-c5-cd-ef     dynamic
```

2.hostname

```
C:\Users\nandh>hostname
User
```

3.ipconfig /all

```
C:\Users\nandh>ipconfig /all

Windows IP Configuration

   Host Name . . . . . . . . . . . . : User
   Primary Dns Suffix  . . . . . . . :
   Node Type . . . . . . . . . . . . : Mixed
   IP Routing Enabled. . . . . . . . : No
   WINS Proxy Enabled. . . . . . . . : No

Ethernet adapter Ethernet 2:

   Connection-specific DNS Suffix  . :
   Description . . . . . . . . . . . : VirtualBox Host-Only Ethernet Adapter
   Physical Address. . . . . . . . . : 0A-00-27-00-00-0A
   DHCP Enabled. . . . . . . . . . . : No
   Autoconfiguration Enabled . . . . : Yes
   Link-local IPv6 Address . . . . . : fe80::fd6a:b4cc:4f0b:d912%10(Preferred)
   IPv4 Address. . . . . . . . . . . : 192.168.56.1(Preferred)
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . :
   DHCPv6 IAID . . . . . . . . . . . : 638189607
   DHCPv6 Client DUID. . . . . . . . : 00-01-00-01-2E-29-71-E0-C8-CB-9E-AC-F3-78
   NetBIOS over Tcpip. . . . . . . . : Enabled

Wireless LAN adapter Wi-Fi:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :
   Description . . . . . . . . . . . : Intel(R) Wi-Fi 6 AX200 160MHz
   Physical Address. . . . . . . . . : C8-CB-9E-AC-F3-78
   DHCP Enabled. . . . . . . . . . . : Yes
   Autoconfiguration Enabled . . . . : Yes
```

4. nbtstat –a

```
C:\Users\nandh>nbtstat -a

Displays protocol statistics and current TCP/IP connections using NBT
(NetBIOS over TCP/IP).

NBTSTAT [ [-a RemoteName] [-A IP address] [-c] [-n]
        [-r] [-R] [-RR] [-s] [-S] [interval] ]

  -a   (adapter status) Lists the remote machine's name table given its name
  -A   (Adapter status) Lists the remote machine's name table given its
                        IP address.
  -c   (cache)          Lists NBT's cache of remote [machine] names and their IP addresses
  -n   (names)          Lists local NetBIOS names.
  -r   (resolved)       Lists names resolved by broadcast and via WINS
  -R   (Reload)         Purges and reloads the remote cache name table
  -S   (Sessions)       Lists sessions table with the destination IP addresses
  -s   (sessions)       Lists sessions table converting destination IP
                        addresses to computer NETBIOS names.
  -RR  (ReleaseRefresh) Sends Name Release packets to WINS and then, starts Refresh

  RemoteName   Remote host machine name.
  IP address   Dotted decimal representation of the IP address.
  interval     Redisplays selected statistics, pausing interval seconds
               between each display. Press Ctrl+C to stop redisplaying
               statistics.
```

5. netstat

```
C:\Users\nandh>netstat -r
===========================================================================
Interface List
 10...0a 00 27 00 00 0a ......VirtualBox Host-Only Ethernet Adapter
  4...c8 cb 9e ac f3 78 ......Intel(R) Wi-Fi 6 AX200 160MHz
  8...c8 cb 9e ac f3 79 ......Microsoft Wi-Fi Direct Virtual Adapter
  5...ca cb 9e ac f3 78 ......Microsoft Wi-Fi Direct Virtual Adapter #2
  9...00 e0 4c 36 0b 58 ......Realtek USB FE Family Controller #2
 19...c8 cb 9e ac f3 7c ......Bluetooth Device (Personal Area Network)
  1...........................Software Loopback Interface 1
===========================================================================

IPv4 Route Table
===========================================================================
Active Routes:
Network Destination        Netmask          Gateway       Interface  Metric
          0.0.0.0          0.0.0.0      172.16.8.1      172.16.9.74     35
        127.0.0.0        255.0.0.0         On-link         127.0.0.1    331
        127.0.0.1  255.255.255.255         On-link         127.0.0.1    331
  127.255.255.255  255.255.255.255         On-link         127.0.0.1    331
       172.16.8.0    255.255.252.0         On-link       172.16.9.74    291
      172.16.9.74  255.255.255.255         On-link       172.16.9.74    291
    172.16.11.255  255.255.255.255         On-link       172.16.9.74    291
     192.168.56.0    255.255.255.0         On-link      192.168.56.1    281
     192.168.56.1  255.255.255.255         On-link      192.168.56.1    281
   192.168.56.255  255.255.255.255         On-link      192.168.56.1    281
        224.0.0.0        240.0.0.0         On-link         127.0.0.1    331
        224.0.0.0        240.0.0.0         On-link      192.168.56.1    281
        224.0.0.0        240.0.0.0         On-link       172.16.9.74    291
  255.255.255.255  255.255.255.255         On-link         127.0.0.1    331
  255.255.255.255  255.255.255.255         On-link      192.168.56.1    281
  255.255.255.255  255.255.255.255         On-link       172.16.9.74    291
===========================================================================
Persistent Routes:
  None

IPv6 Route Table
===========================================================================
Active Routes:
 If Metric Network Destination      Gateway
  1    331 ::1/128                  On-link
 10    281 fe80::/64                On-link
  9    291 fe80::/64                On-link
  9    291 fe80::ea4c:cf2:db0f:f3a1/128
                                    On-link
 10    281 fe80::fd6a:b4cc:4f0b:d912/128
                                    On-link
  1    331 ff00::/8                 On-link
 10    281 ff00::/8                 On-link
  9    291 ff00::/8                 On-link
===========================================================================
Persistent Routes:
  None
```

6. nslookup

```
C:\Users\nandh>nslookup www.google.com
Server:  UnKnown
Address:  172.16.8.1

Non-authoritative answer:
Name:    www.google.com
Addresses:  2404:6800:4007:81a::2004
          142.250.182.36
```

7.pathping

```
C:\Users\nandh>pathping

Usage: pathping [-g host-list] [-h maximum_hops] [-i address] [-n]
                [-p period] [-q num_queries] [-w timeout]
                [-4] [-6] target_name

Options:
    -g host-list     Loose source route along host-list.
    -h maximum_hops  Maximum number of hops to search for target.
    -i address       Use the specified source address.
    -n               Do not resolve addresses to hostnames.
    -p period        Wait period milliseconds between pings.
    -q num_queries   Number of queries per hop.
    -w timeout       Wait timeout milliseconds for each reply.
    -4               Force using IPv4.
    -6               Force using IPv6.
```

8. ping

```
C:\Users\nandh>ping user

Pinging User [fe80::ea4c:cf2:db0f:f3a1%9] with 32 bytes of data:
Reply from fe80::ea4c:cf2:db0f:f3a1%9: time<1ms
Reply from fe80::ea4c:cf2:db0f:f3a1%9: time<1ms
Reply from fe80::ea4c:cf2:db0f:f3a1%9: time<1ms
Reply from fe80::ea4c:cf2:db0f:f3a1%9: time<1ms

Ping statistics for fe80::ea4c:cf2:db0f:f3a1%9:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

9.route

```
C:\Users\nandh>route PRINT
===========================================================================
Interface List
 10...0a 00 27 00 00 0a ......VirtualBox Host-Only Ethernet Adapter
  4...c8 cb 9e ac f3 78 ......Intel(R) Wi-Fi 6 AX200 160MHz
  8...c8 cb 9e ac f3 79 ......Microsoft Wi-Fi Direct Virtual Adapter
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  127.255.255.255  255.255.255.255         On-link         127.0.0.1    331
       172.16.8.0    255.255.252.0         On-link       172.16.9.74    291
      172.16.9.74  255.255.255.255         On-link       172.16.9.74    291
    172.16.11.255  255.255.255.255         On-link       172.16.9.74    291
     192.168.56.0    255.255.255.0         On-link      192.168.56.1    281
     192.168.56.1  255.255.255.255         On-link      192.168.56.1    281
   192.168.56.255  255.255.255.255         On-link      192.168.56.1    281
        224.0.0.0        240.0.0.0         On-link         127.0.0.1    331
        224.0.0.0        240.0.0.0         On-link      192.168.56.1    281
        224.0.0.0        240.0.0.0         On-link       172.16.9.74    291
  255.255.255.255  255.255.255.255         On-link         127.0.0.1    331
  255.255.255.255  255.255.255.255         On-link      192.168.56.1    281
  255.255.255.255  255.255.255.255         On-link       172.16.9.74    291
===========================================================================
Persistent Routes:
  None
```

SOME IMPORTANT LINUX NETWORKING COMMANDS

1.ip

```
┌──(kitsune㉿vbox)-[~]
└─$ ip address show
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host noprefixroute
       valid_lft forever preferred_lft forever
2: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:ac:08:9d brd ff:ff:ff:ff:ff:ff
    inet 10.0.2.15/24 brd 10.0.2.255 scope global dynamic noprefixroute eth0
       valid_lft 86267sec preferred_lft 86267sec
    inet6 fd00::fa3f:171c:7602:d87e/64 scope global temporary dynamic
       valid_lft 86270sec preferred_lft 14270sec
    inet6 fd00::a00:27ff:feac:89d/64 scope global dynamic mngtmpaddr noprefixroute
       valid_lft 86270sec preferred_lft 14270sec
    inet6 fe80::a00:27ff:feac:89d/64 scope link noprefixroute
       valid_lft forever preferred_lft forever
```

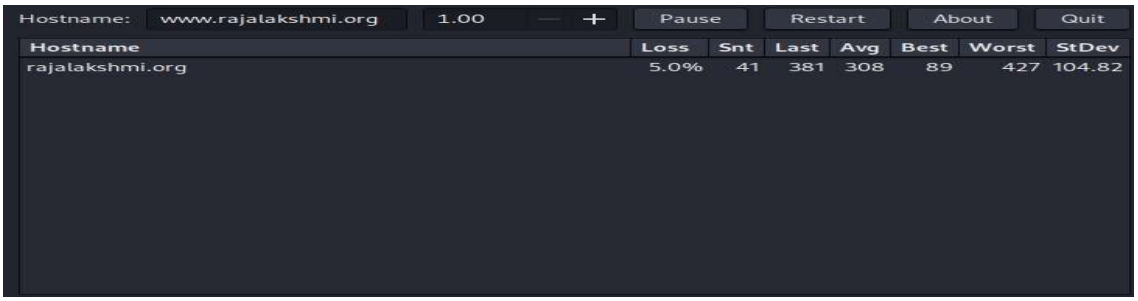
2.ifconfig

```
┌──(kitsune㉿vbox)-[~]
└─$ ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 10.0.2.15  netmask 255.255.255.0  broadcast 10.0.2.255
        inet6 fd00::ed7:cae3:8155:28ce  prefixlen 64  scopeid 0x0<global>
        inet6 fe80::a00:27ff:feac:89d  prefixlen 64  scopeid 0x20<link>
        inet6 fd00::a00:27ff:feac:89d  prefixlen 64  scopeid 0x0<global>
        ether 08:00:27:ac:08:9d  txqueuelen 1000  (Ethernet)
        RX packets 8  bytes 3613 (3.5 KiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 26  bytes 4708 (4.5 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 0x10<host>
        loop  txqueuelen 1000  (Local Loopback)
        RX packets 4  bytes 240 (240.0 B)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 4  bytes 240 (240.0 B)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0
```

3.mtr

```
┌──(kitsune㉿vbox)-[~]
└─$ mtr www.rajalakshmi.org
```



4.tcpdump

```
┌──(kitsune㉿vbox)-[~]
└─$ tcpdump -D
1.eth0 [Up, Running, Connected]
2.any (Pseudo-device that captures on all interfaces) [Up, Running]
3.lo [Up, Running, Loopback]
4.bluetooth-monitor (Bluetooth Linux Monitor) [Wireless]
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]
```

5.ping

```
┌──(kitsune㉿vbox)-[~]
└─$ ping www.rajalakshmi.org
PING www.rajalakshmi.org (14.99.10.232) 56(84) bytes of data.
64 bytes from rajalakshmi.org (14.99.10.232): icmp_seq=2 ttl=255 time=490 ms
64 bytes from rajalakshmi.org (14.99.10.232): icmp_seq=3 ttl=255 time=502 ms
64 bytes from rajalakshmi.org (14.99.10.232): icmp_seq=4 ttl=255 time=37.4 ms
64 bytes from rajalakshmi.org (14.99.10.232): icmp_seq=5 ttl=255 time=35.0 ms
64 bytes from rajalakshmi.org (14.99.10.232): icmp_seq=6 ttl=255 time=31.5 ms
^C
── www.rajalakshmi.org ping statistics ──
6 packets transmitted, 5 received, 16.6667% packet loss, time 5063ms
rtt min/avg/max/mdev = 31.450/219.235/502.201/226.130 ms
```