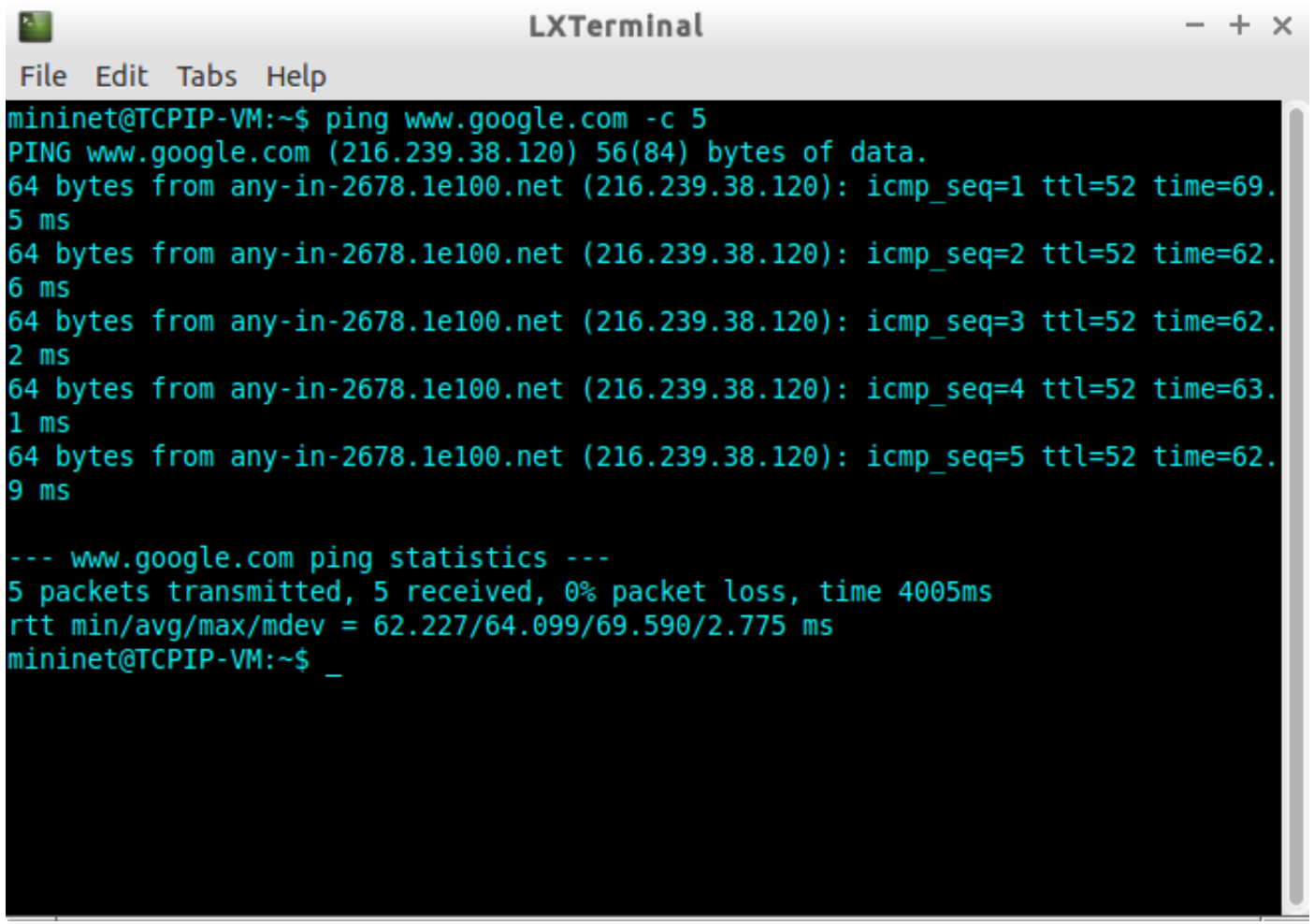
MiniNet

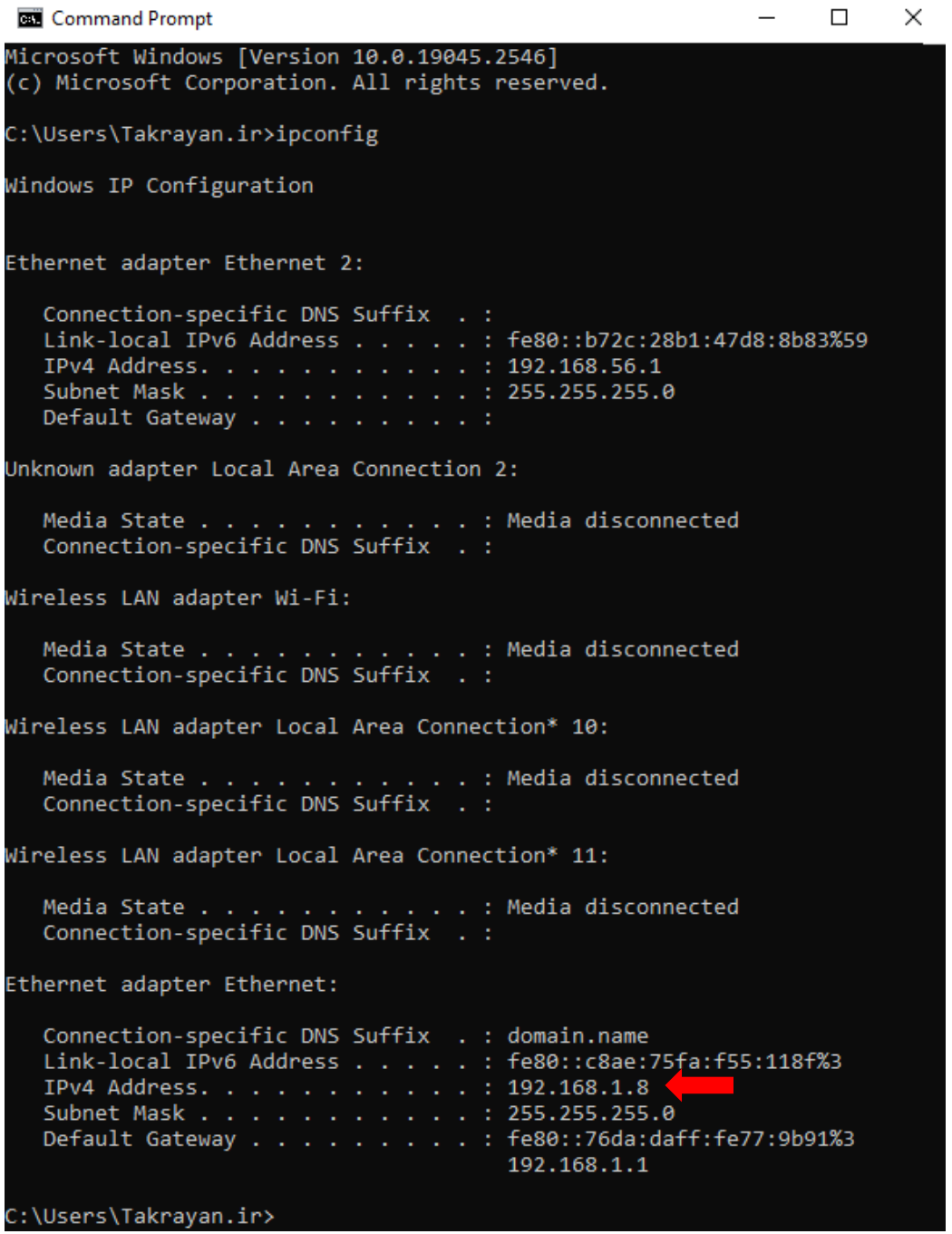
Check internet connectivity

- Open LXTerminal on desktop
- $ ping (web address)
- -c: the number of packets



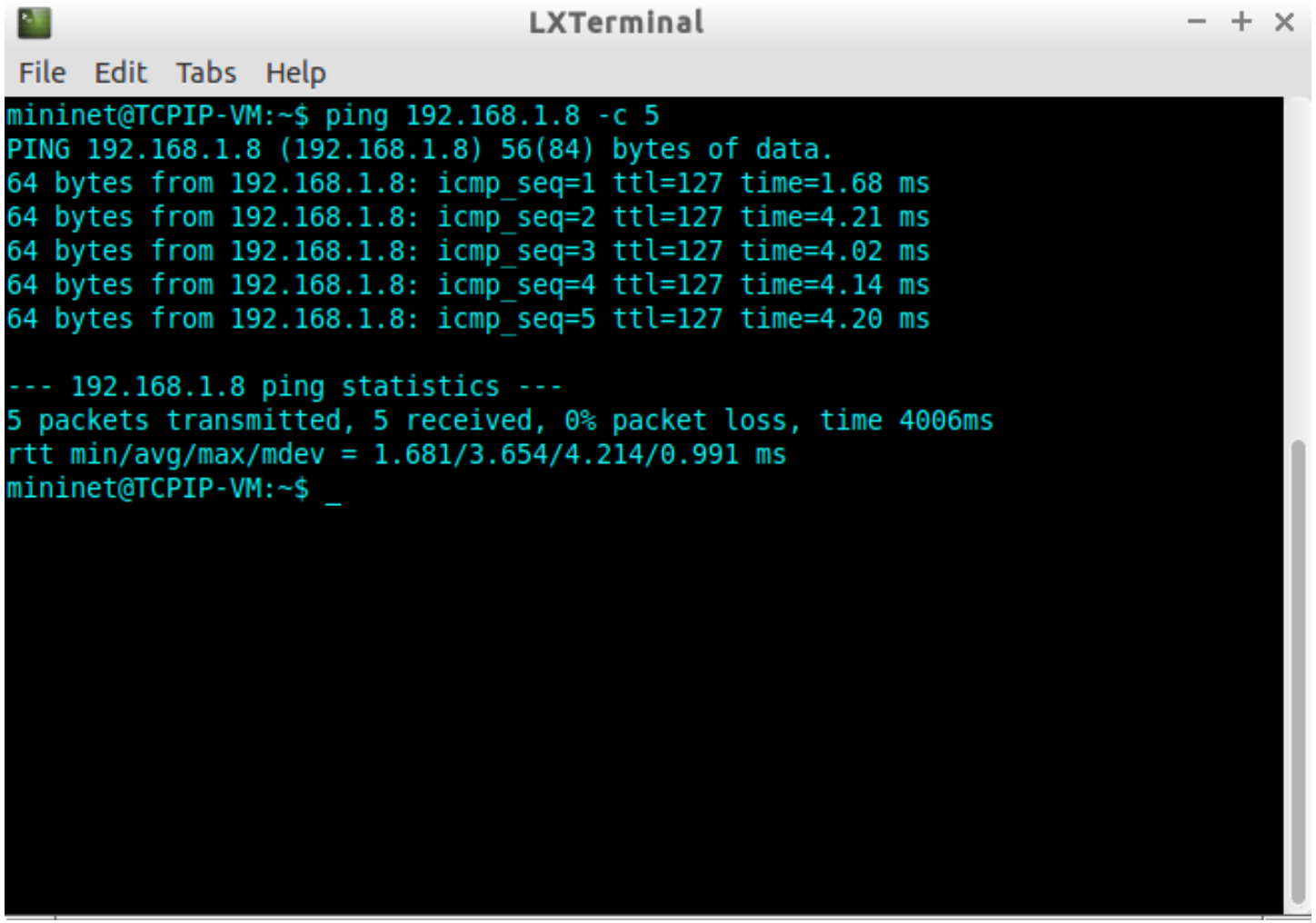
Windows IP

- Type *cmd* on search box
- Open Command Prompt
- > ipconfig



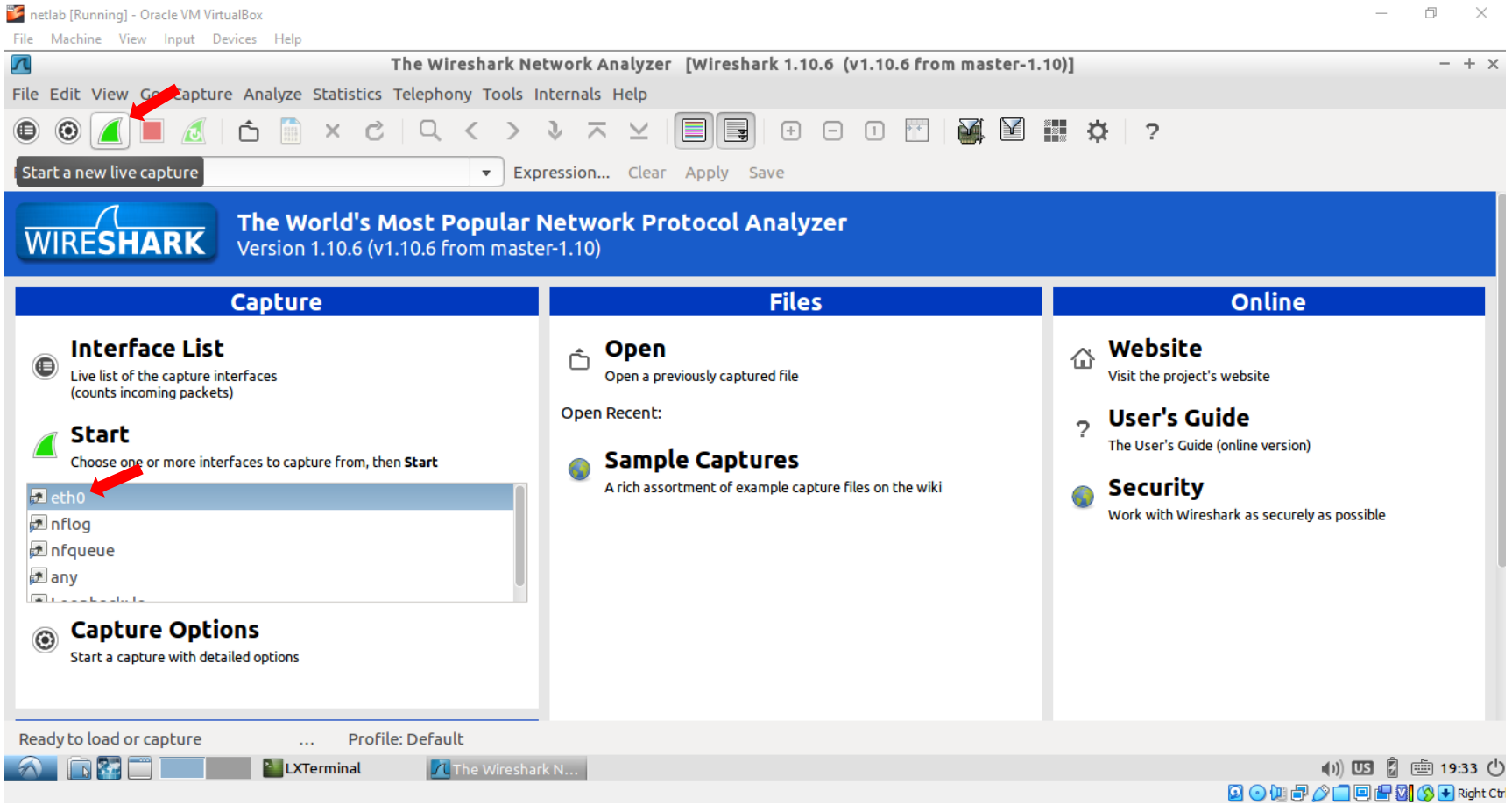
Ping Windows adapter

- $ ping (IP address)

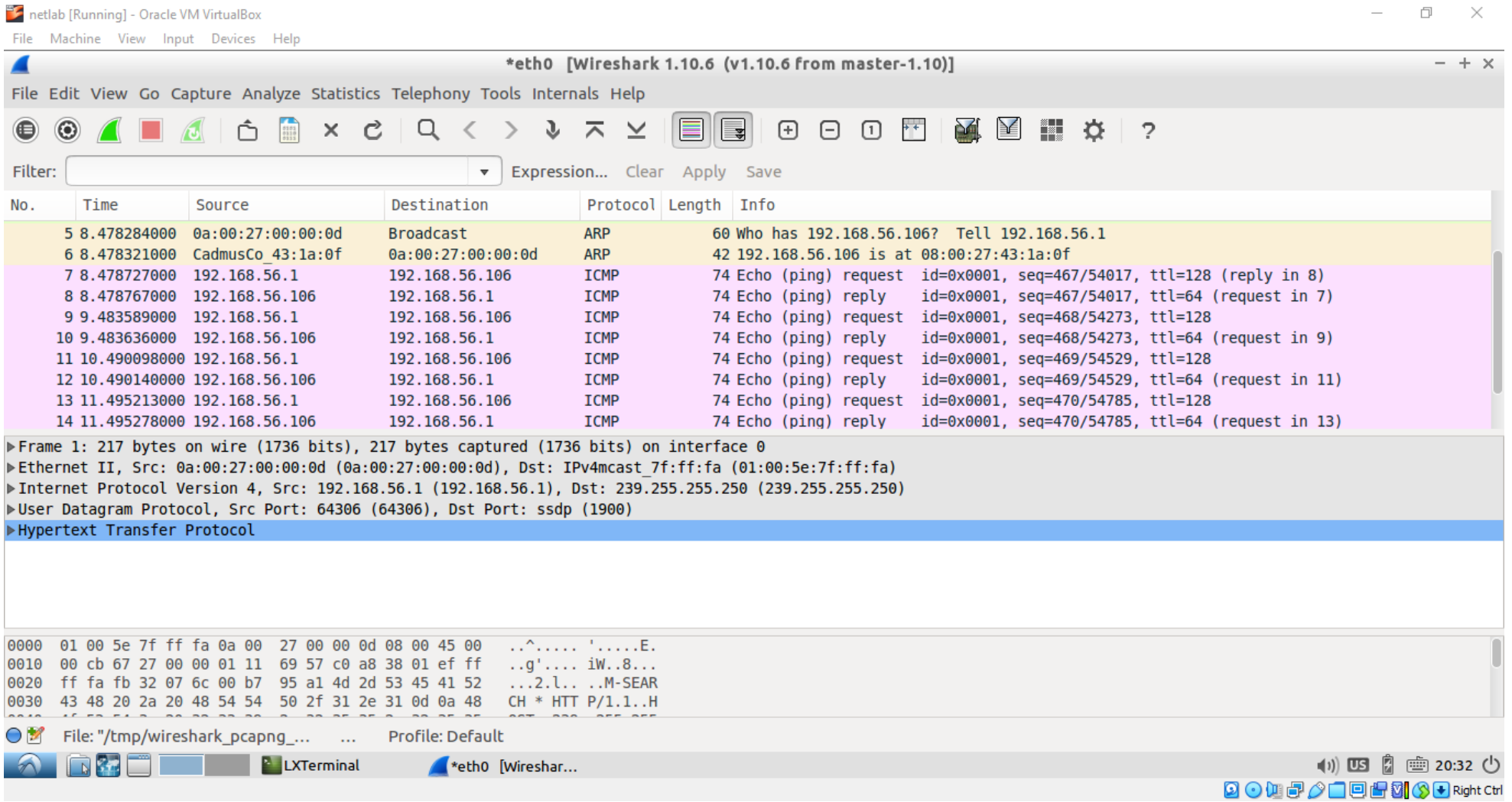


Wireshark

- On Linux, open a separate terminal.
- $ sudo wireshark
- (Click OK)
- Choose eth0
- Press on start



Capturing packets on Wireshark



Wireshark filters

- Protocol: tcp (udp, icmp, …)
- IP address: ip.addr == x.x.x.x
  - Source address: ip.src == x.x.x.x
  - Destination address: ip.dst == x.x.x.x
- Sequence number: tcp.seq >= x
- Port number: tcp.port == xxx
- Content: tcp contains xxx
- Conditions: ip.src == x.x.x.x and(or) ip.dst != x.x.x.x

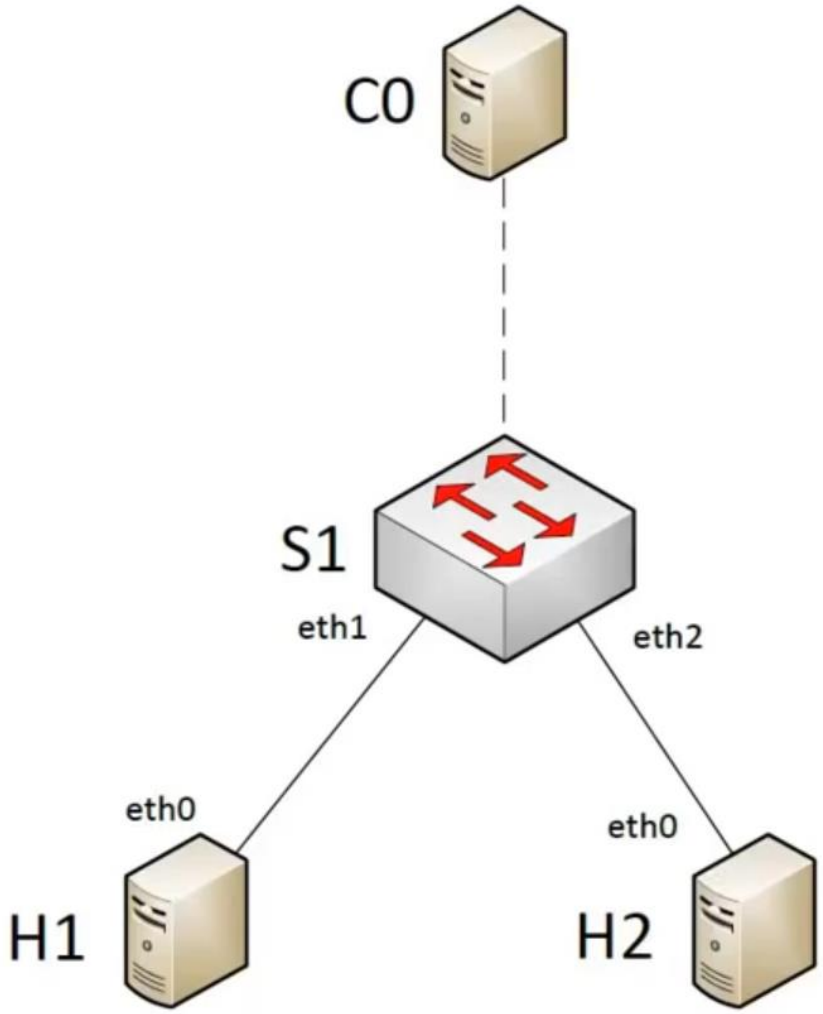
Mininet commands

1. $ sudo mn
   - Start Mininet with a minimal topology (1 switch and 2 connected hosts).
2. mininet> pingall
   - Verify the connectivity between all pairs of hosts.
3. mininet> nodes
   - Display nodes.
4. mininet> net
   - Display links.
5. mininet> dump
   - Display information about all nodes.
6. mininet> exit
   - Exit Mininet.
7. $ sudo mn -c
   - Clean up.

Topologies

- Minimal

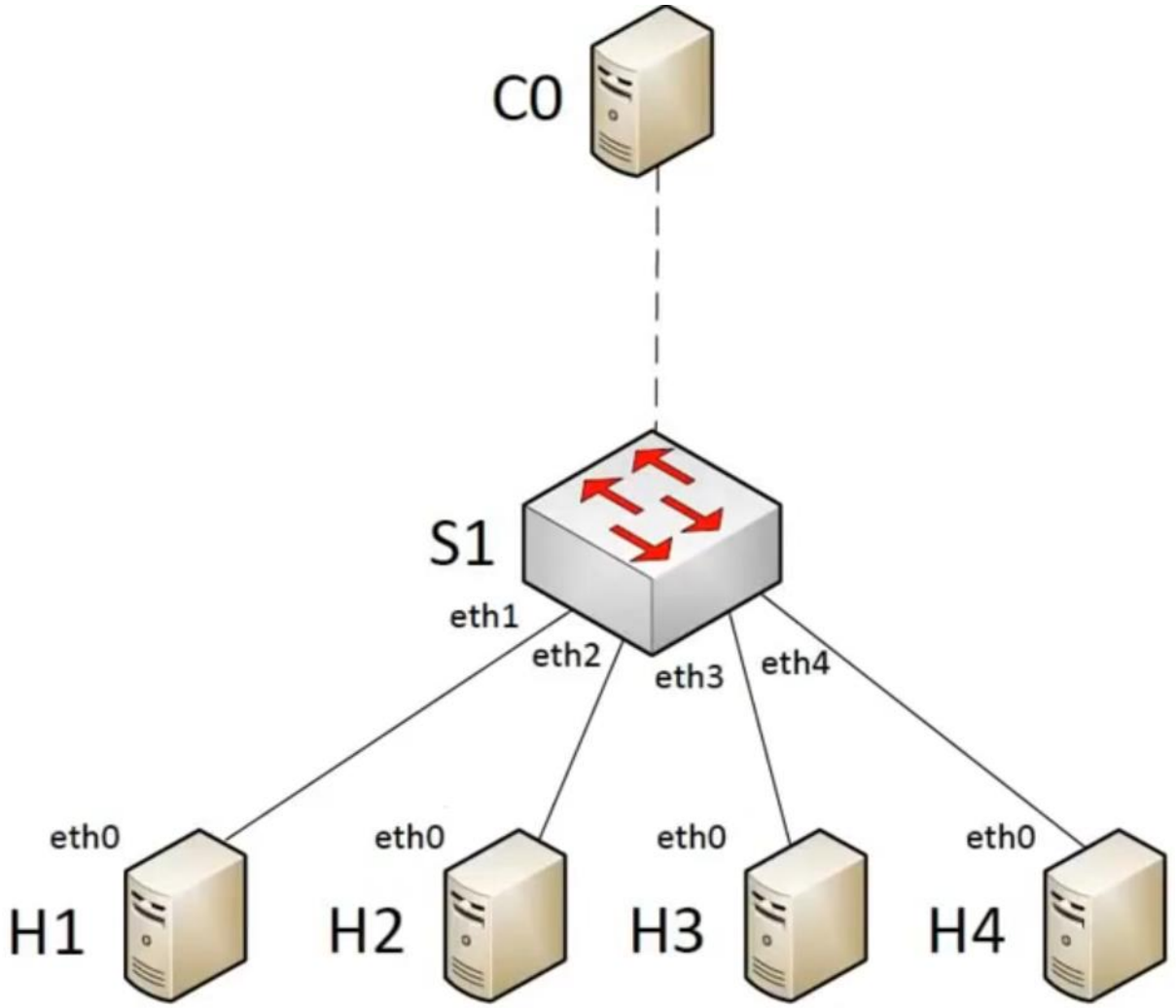
$ sudo mn --topo minimal



Topologies

- Single

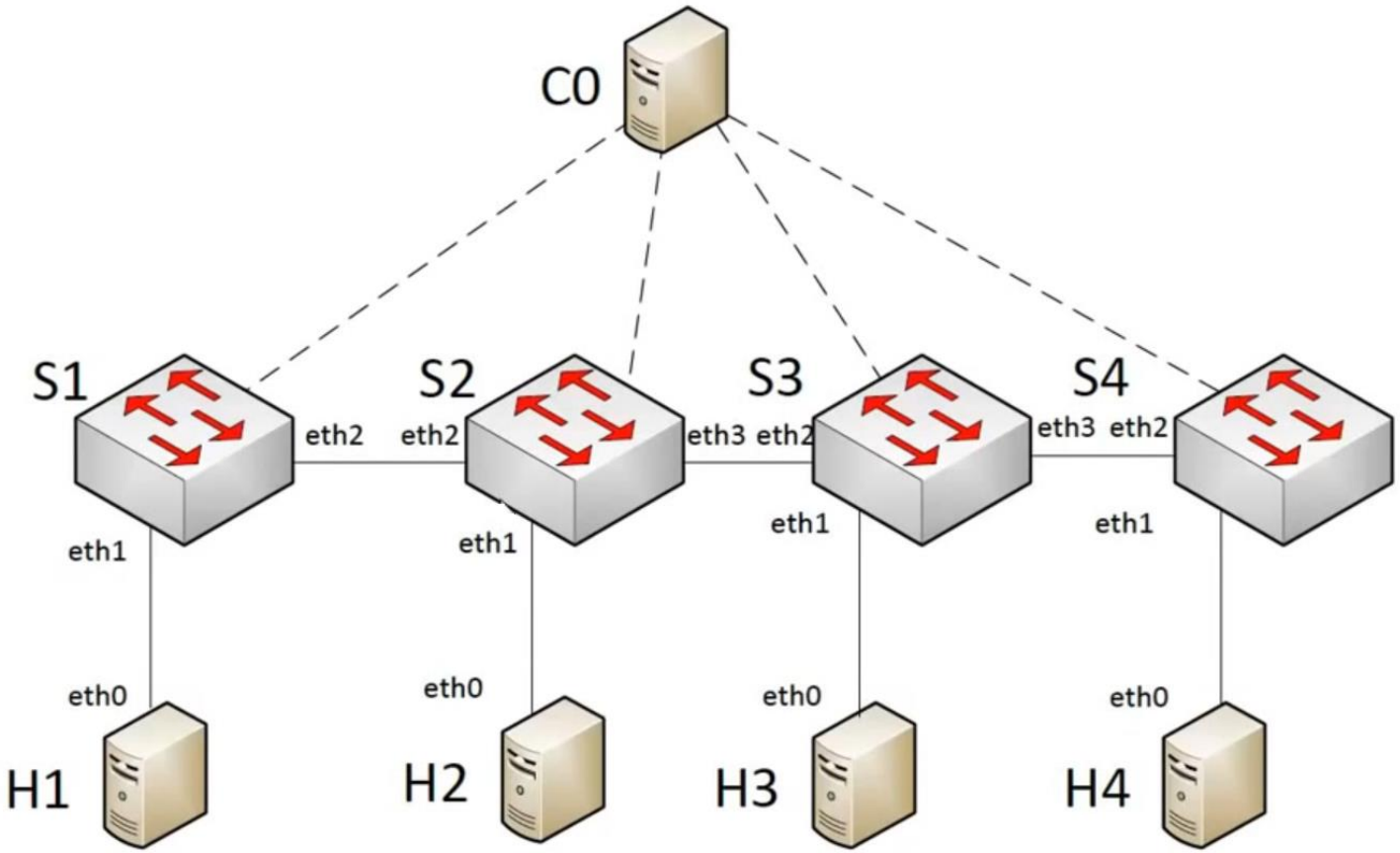
$ sudo mn --topo single,4



Topologies

- Linear

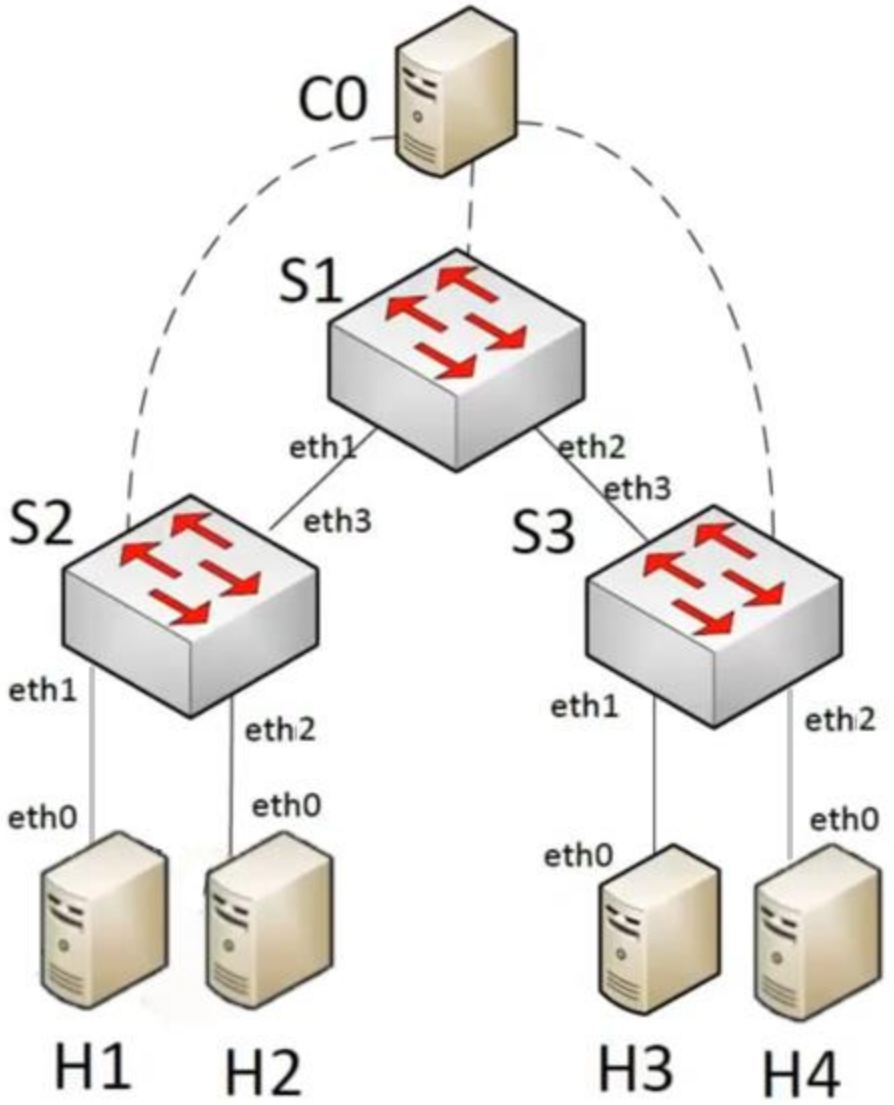
$ sudo mn --topo linear,4,1



Topologies

- Tree

$ sudo mn --topo tree,depth=2,fanout=2



Mininet commands

- $ sudo mn (--topo …) --link tc,bw=100,delay=1ms
  - Start Mininet by assigning bandwidth of 100 Mbps and delay of 1 ms to all links.

- mininet> h1 ping h2 -c 10
  - Verify the connectivity by pinging from host h1 to host h2.

- mininet> iperf h1 h2
  - Perform a TCP bandwidth test between hosts h1 and h2.