

Cloud Computing

Lab 8: VM Networking 2 Advanced Networking

Due Date: Tuesday, April 6, 2021 (11:59pm).

Student Name: Mohammed Al-Zahrani

Student ID: 2041606

Objective

Understanding VM customized networking on VMware Workstation Platform.

Equipment, Tools, Hardware, and Software Needed

1. Desktop PC, Laptop with internet connection.
2. VMware Workstation software - free downloadable
3. Ubuntu (live image) - free downloadable. You may download other Operating Systems image.

Theorem

The most significant advantage on Cloud Computing is the flexibility of building up network configuration as needed. We have seen three different types of network configuration on virtualized host (VMware Workstation) as below:

- **Network Address Translation (NAT) – Default**
- **Host-Only Networking - Bridged Networking**

However, in this Lab, we will examine the customized network configuration by building up different subnetworks between virtual machines.

The focus of the lab is on **Custom Network**.

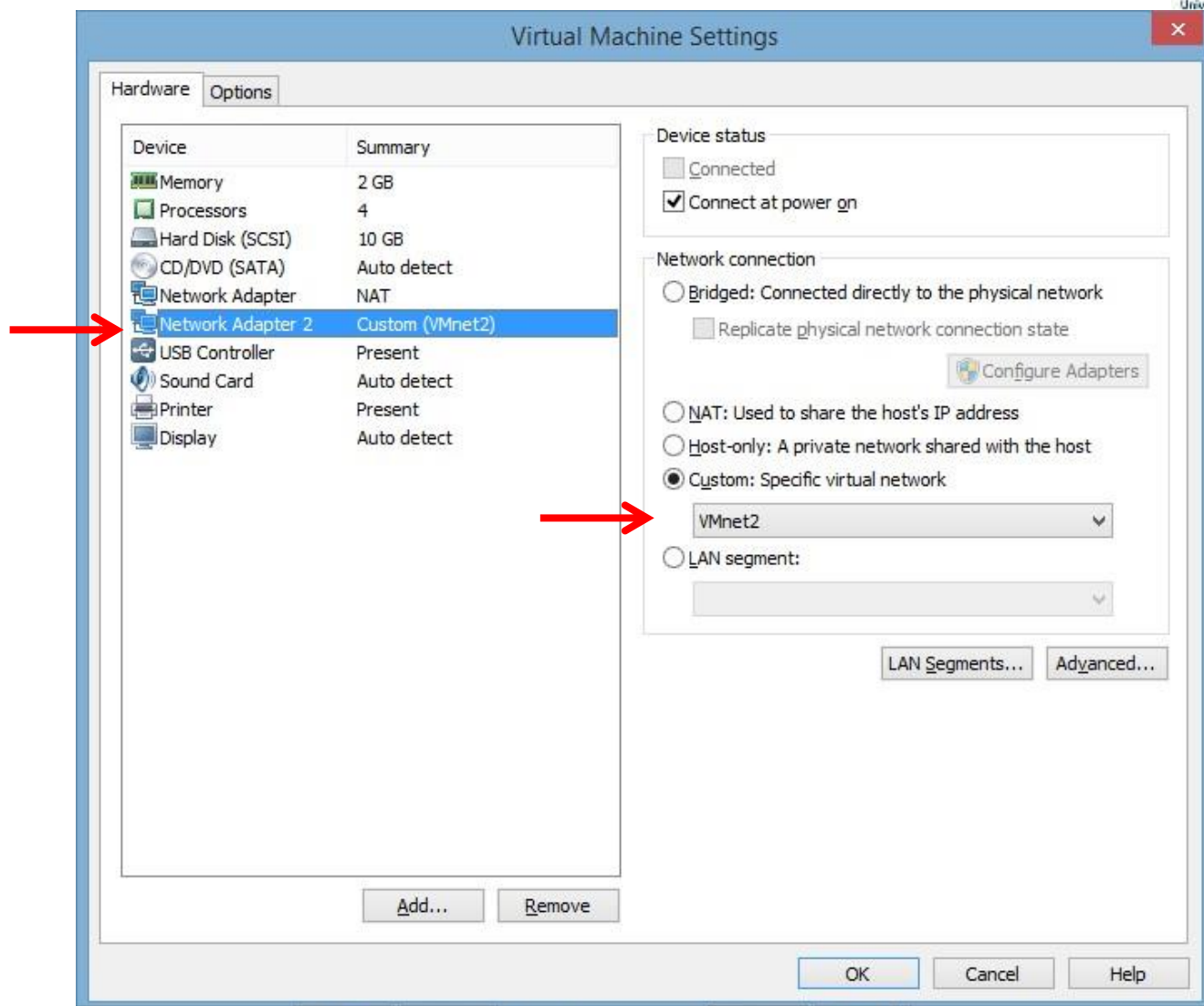
Procedure

***** Note: Use your previous Lab VMs**

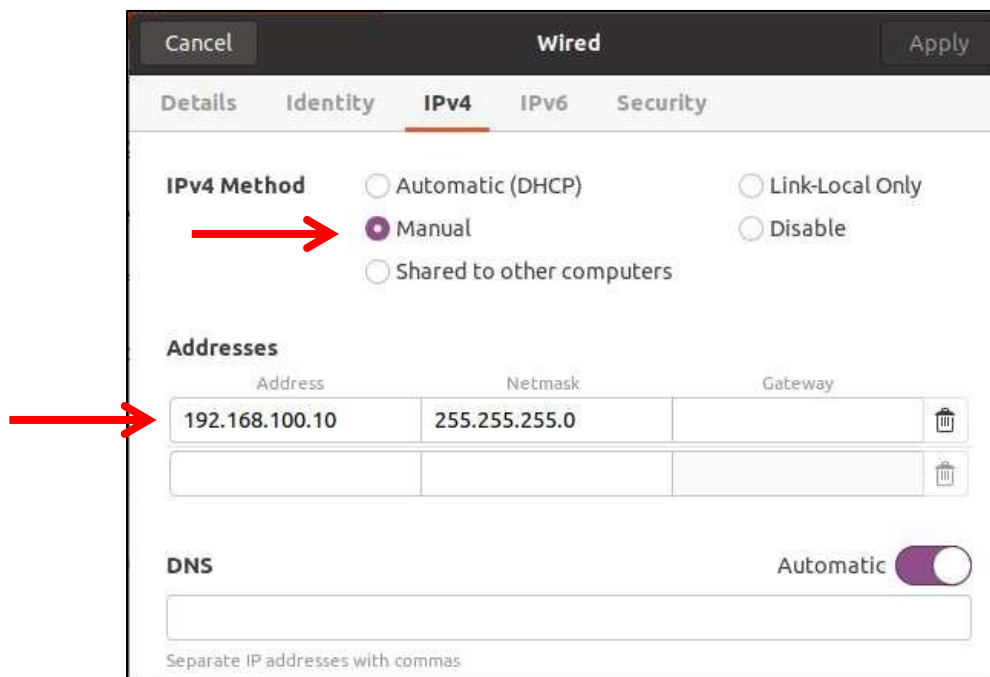
USE the previous VM 1 (Web & App), VM 2 (DB), and VM 3 (client).

VM 1 (Web & App):

- Add additional Network Adaptor and set it on Custom Network (Vnet2) as shown below



- Power **VM1** and manually configure the network adapter (connection) and assign the IP address For example, see the below configuration.



Cancel **Wired** Apply

Details Identity **IPv4** IPv6 Security

IPv4 Method

☐ Automatic (DHCP) ☐ Link-Local Only

☒ **Manual** ☐ Disable

☐ Shared to other computers

Addresses

Address	Netmask	Gateway
192.168.100.10	255.255.255.0	

DNS Automatic ☒

Separate IP addresses with commas

VM 3 (Client)

- Reconfigure the Network adaptor to be set to the same custom network (Vnet2)
- And Similarly, set the network configuration **manually** on the same subnet work as defined as in **VM1**.
Caution: do not set the same IP address to both VMs.

Verification of the configuration:

Verification 1: From **VM 3(Client)**, you **cannot** PING the **VM2 (DB)**,? **Yes** , **you can't ping vm2**

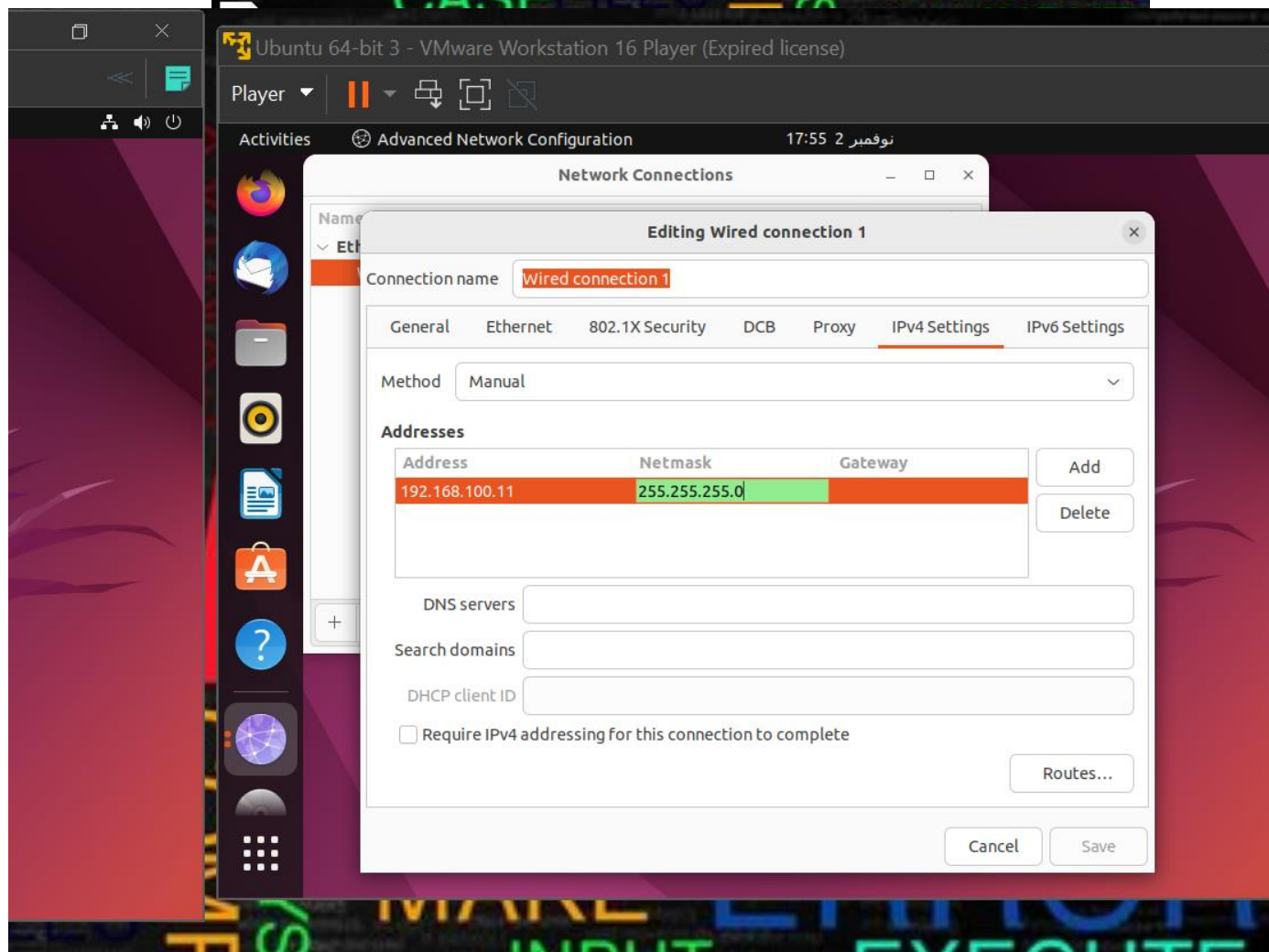
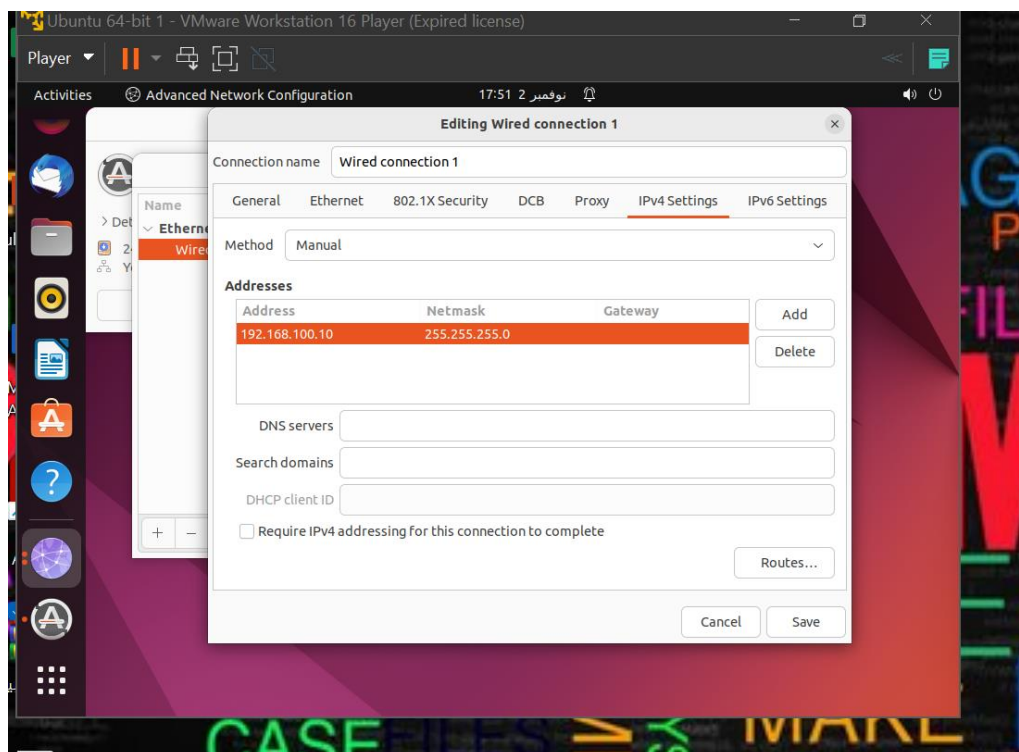
Verification 2: From **VM3(Client)**, you can **PING** the **VM1 (Web & App)**? Yes you can

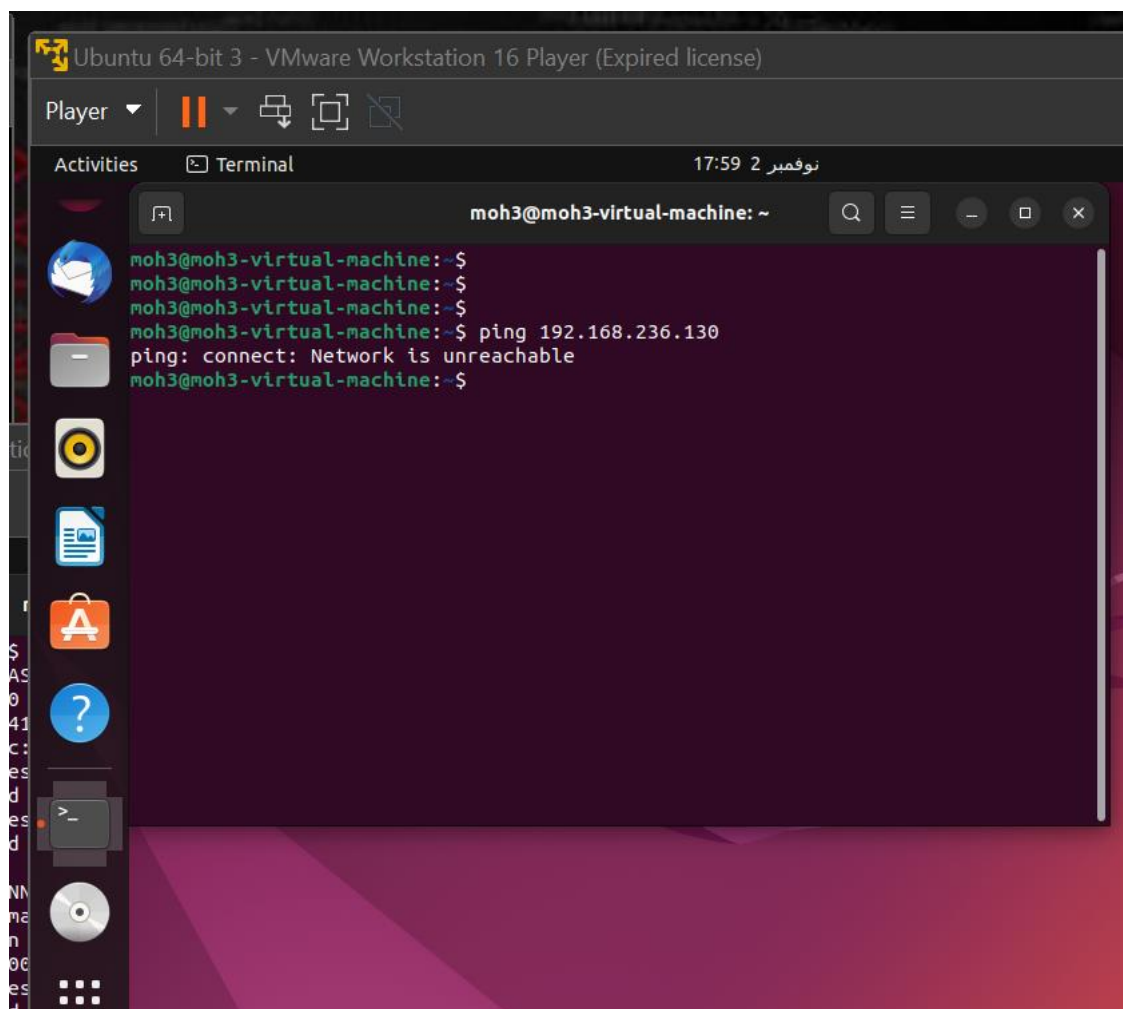
Verification 3: From **VM1(Web & App)**, you can **PING** the **VM3 (Client)**? Yes you can

Verification 4: From **VM1(Web & App)**, you can **PING** the **VM2 (DB)**? No ! , you cant ping

Lab Report

Report your answers to the above 4 verifications supported with screenshots.





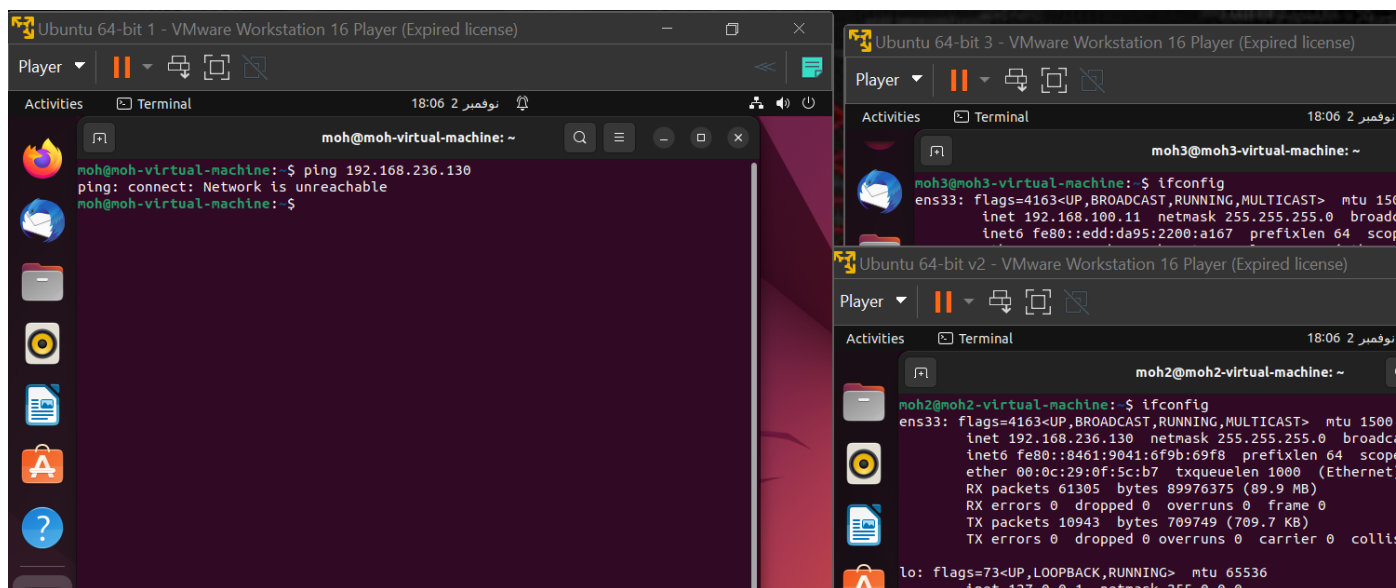
```

ead0
1
wdb

inet 127.0.0.1 netmask 255.0.0.0
inet6 ::1 prefixlen 128 scopeid 0x10<host>
loop txqueuelen 1000 (Local Loopback)
RX packets 2835 bytes 206963 (206.9 KB)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 2835 bytes 206963 (206.9 KB)
TX errors 0 dropped 0 overruns 0 carrier 0 coll

moh3@moh3-virtual-machine:~$ ping 192.168.100.10
PING 192.168.100.10 (192.168.100.10) 56(84) bytes of data.
64 bytes from 192.168.100.10: icmp_seq=1 ttl=64 time=2.54 m
64 bytes from 192.168.100.10: icmp_seq=2 ttl=64 time=0.713
64 bytes from 192.168.100.10: icmp_seq=3 ttl=64 time=0.726
64 bytes from 192.168.100.10: icmp_seq=4 ttl=64 time=1.06 m
64 bytes from 192.168.100.10: icmp_seq=5 ttl=64 time=0.962
64 bytes from 192.168.100.10: icmp_seq=6 ttl=64 time=0.503
64 bytes from 192.168.100.10: icmp_seq=7 ttl=64 time=0.577
64 bytes from 192.168.100.10: icmp_seq=8 ttl=64 time=0.634
64 bytes from 192.168.100.10: icmp_seq=9 ttl=64 time=0.775
64 bytes from 192.168.100.10: icmp_seq=10 ttl=64 time=0.528
64 bytes from 192.168.100.10: icmp_seq=11 ttl=64 time=0.535
64 bytes from 192.168.100.10: icmp_seq=12 ttl=64 time=0.420
64 bytes from 192.168.100.10: icmp_seq=13 ttl=64 time=1.09

```



Ubuntu 64-bit 1 - VMware Workstation 16 Player (Expired license)

Player

Activities Terminal 18:05 2 نوفمبر

```

moh@moh-virtual-machine: ~
moh@moh-virtual-machine:~$
moh@moh-virtual-machine:~$
moh@moh-virtual-machine:~$
moh@moh-virtual-machine:~$
moh@moh-virtual-machine:~$
moh@moh-virtual-machine:~$ ping 192.168.100.11
PING 192.168.100.11 (192.168.100.11) 56(84) bytes of data.
64 bytes from 192.168.100.11: icmp_seq=1 ttl=64 time=0.588 ms
64 bytes from 192.168.100.11: icmp_seq=2 ttl=64 time=1.04 ms
64 bytes from 192.168.100.11: icmp_seq=3 ttl=64 time=0.697 ms
64 bytes from 192.168.100.11: icmp_seq=4 ttl=64 time=0.294 ms
64 bytes from 192.168.100.11: icmp_seq=5 ttl=64 time=0.501 ms
64 bytes from 192.168.100.11: icmp_seq=6 ttl=64 time=0.781 ms
64 bytes from 192.168.100.11: icmp_seq=7 ttl=64 time=0.429 ms
64 bytes from 192.168.100.11: icmp_seq=8 ttl=64 time=0.681 ms
64 bytes from 192.168.100.11: icmp_seq=9 ttl=64 time=0.489 ms
64 bytes from 192.168.100.11: icmp_seq=10 ttl=64 time=0.966 ms
64 bytes from 192.168.100.11: icmp_seq=11 ttl=64 time=0.569 ms
64 bytes from 192.168.100.11: icmp_seq=12 ttl=64 time=0.567 ms
64 bytes from 192.168.100.11: icmp_seq=13 ttl=64 time=0.311 ms
64 bytes from 192.168.100.11: icmp_seq=14 ttl=64 time=0.898 ms
64 bytes from 192.168.100.11: icmp_seq=15 ttl=64 time=0.511 ms

```

Ubuntu 64-bit 3 - VMware Workstation 16 Player (Expired license)

Player

Activities Terminal

```

moh3@moh3-virtual-machine:~$
moh3@moh3-virtual-machine:~$ ifconfig
ens33: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.100.11 netm
    inet6 fe80::edd:da95:
    ether 00:0c:29:b0:3e:
    RX packets 79 bytes
    RX errors 0 dropped
    TX packets 229 byte
    TX errors 0 dropped

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netm
    inet6 ::1 prefixlen
    loop txqueuelen 100
    RX packets 4150 byt
    RX errors 0 dropped
    TX packets 4150 byt
    TX errors 0 dropped

```