

**IT TECHNOLOGY  
NETWORKING  
ASSIGNMENT 2:**



University College

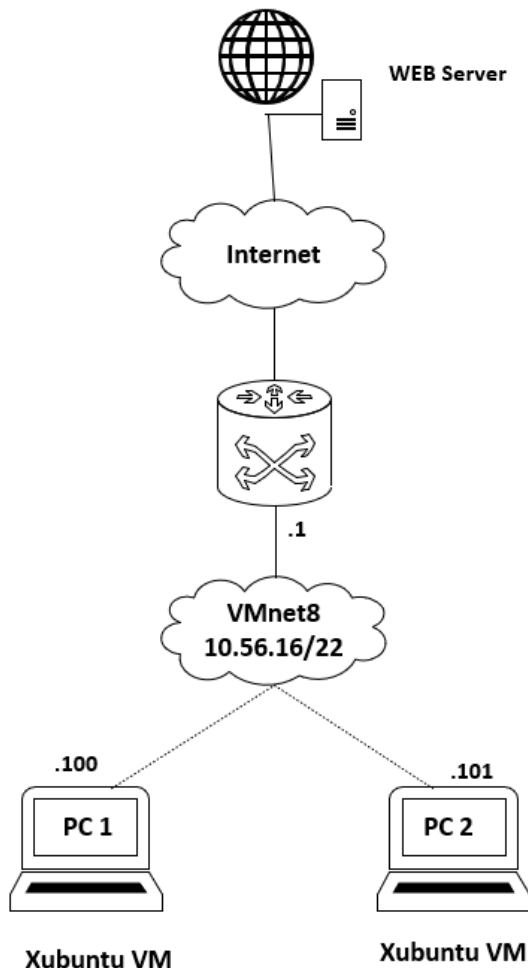
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## 1. INTRODUCTION.

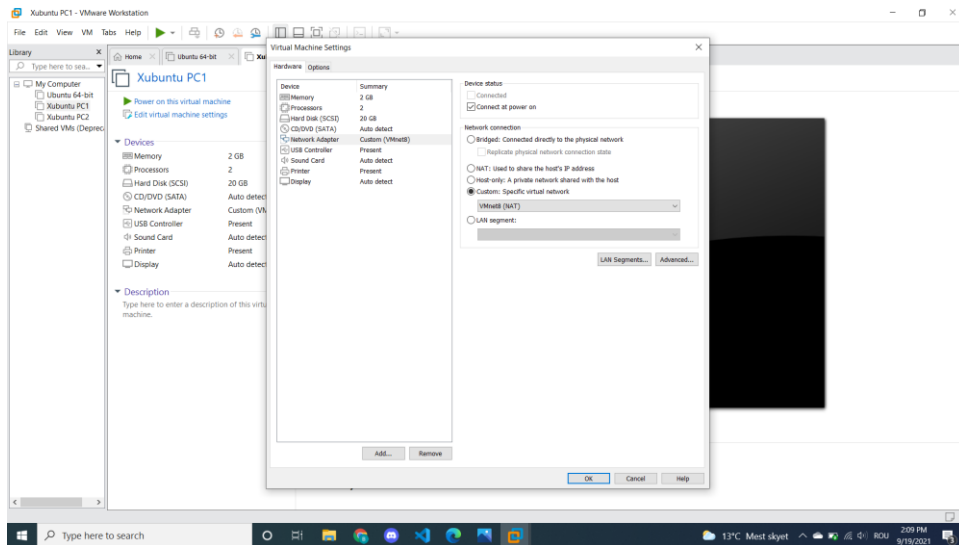
In this assignment we will be taking a look at Network diagrams, see a little bit about how the Linux software works and about static IP's and connection between two hosts.

## 2. NETWORK DIAGRAM.



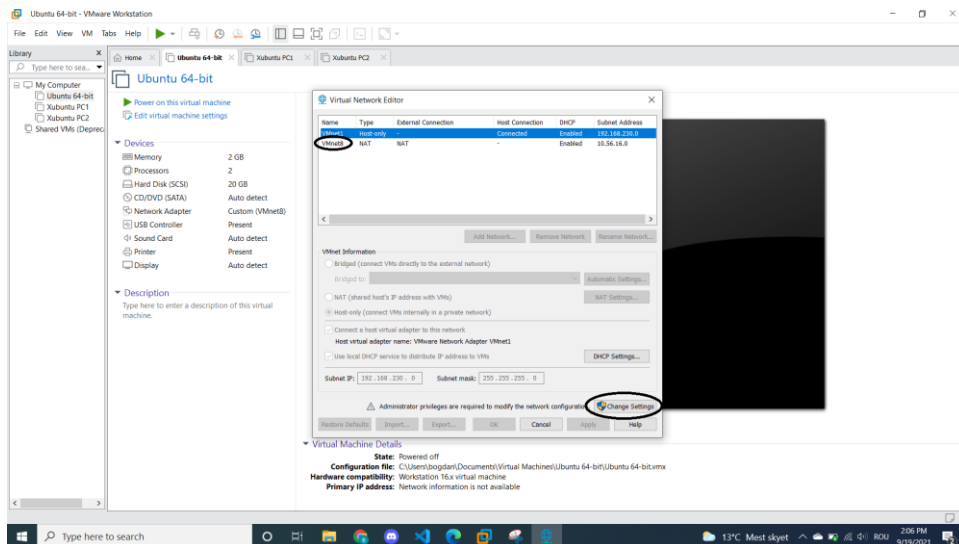
## 3. HOW TO SETUP VMnet8 IN VIRTUAL NETWORK EDITOR

First we need to go to the selected VM and right-click on it, go to **SETTINGS** and then click on **NETWORK ADAPTER**. Choose **VMnet8**.



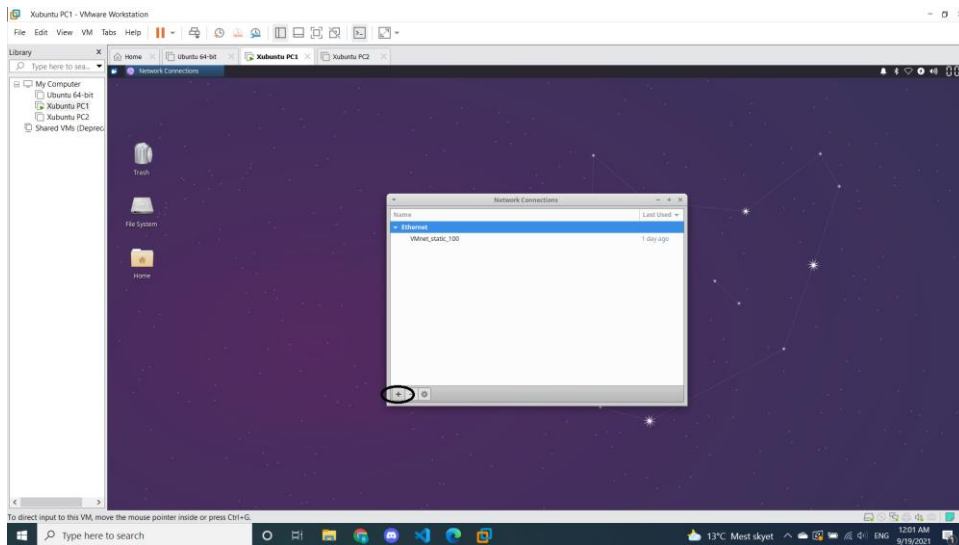
After that go to **EDIT** and choose **VIRTUAL NETWORK EDITOR**.

Click on **VMnet8** > **CHANGE SETTINGS** and type in your IP.

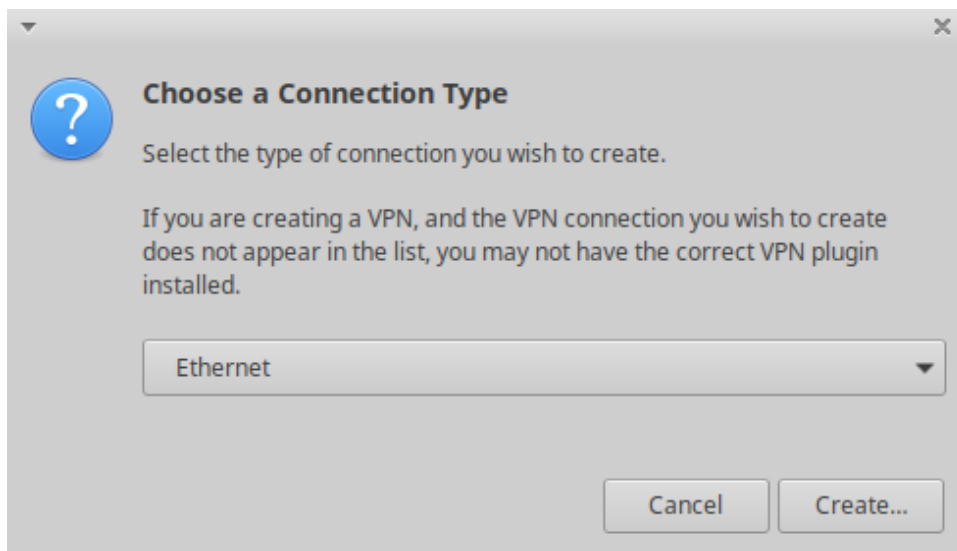


#### 4. How to set static IP addresses on Xbuntu Linux hosts.

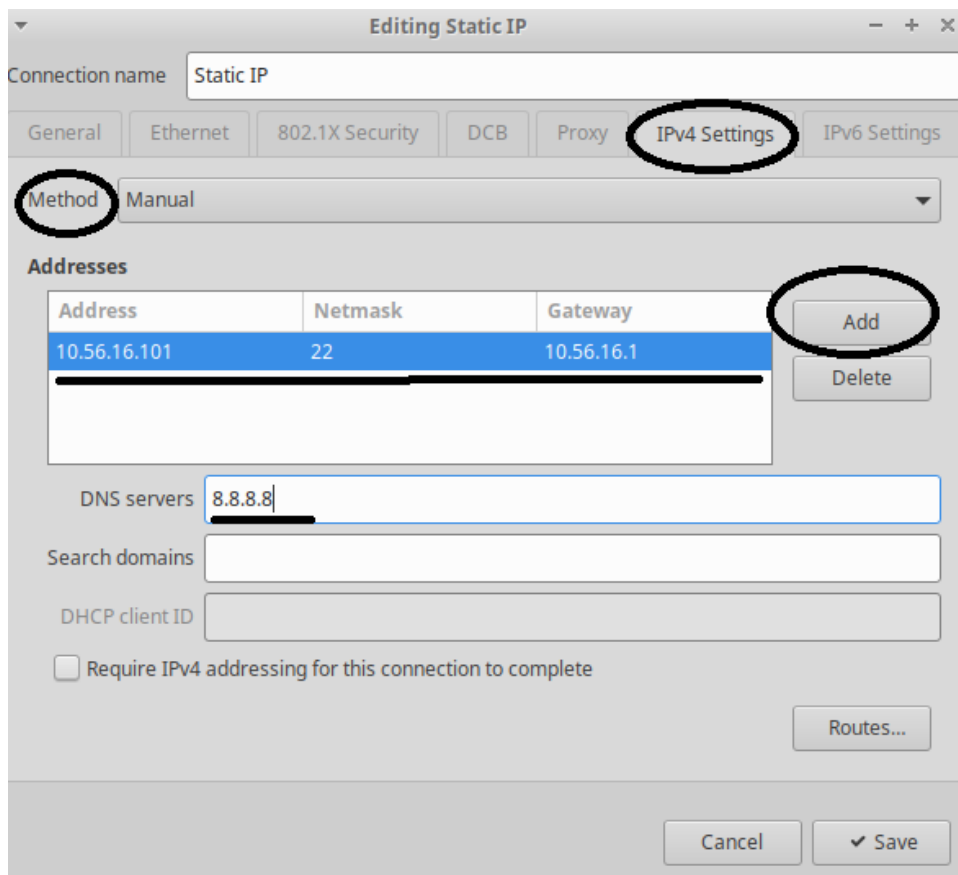
First you need to power on your Virtual Machine, go to the Network and Disable the network connection. After that go to **EDIT CONNECTIONS** and hit the plus button down to the right of the window **“ADD A NEW CONNECTION”**



Choose **ETHERNET** and then **CREATE**.



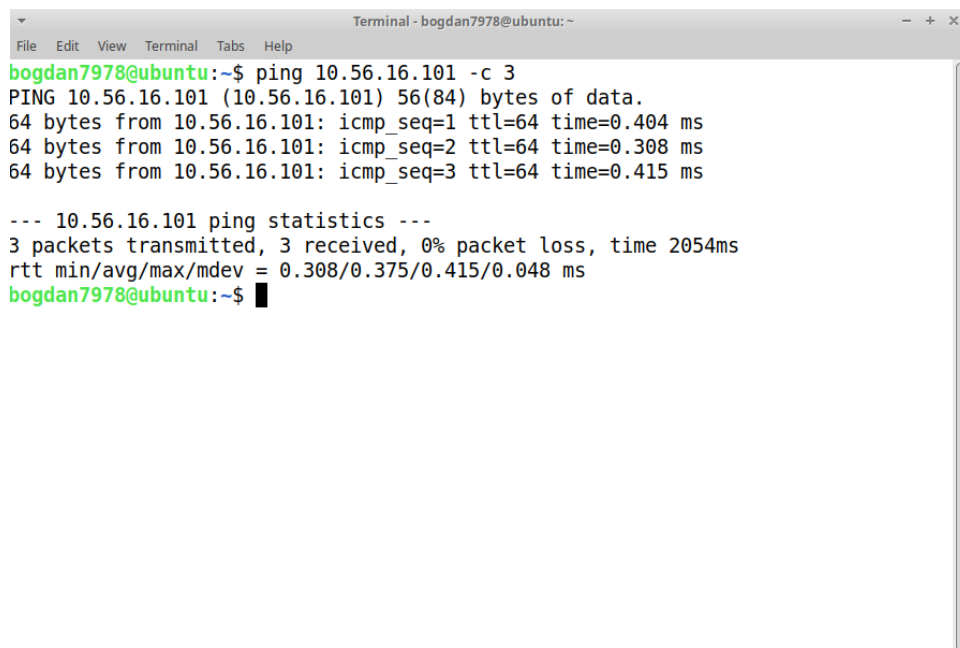
Select '**IPv4 Settings**', change your Connection name and Method to 'manual' and then click the 'ADD' button to add your new STATIC IP



Click the “Save” button down to the right bottom corner and you are good to go with your new static IP adress.

### 5. How to use PING to check connectivity between two hosts.

First you need to open a new terminal on you VM. To do that press “**CTR+ALT+T**”. After that type the command “ping” and the ip adress followed by “-c 3”, this will send only 3 pings to the other machine.

A screenshot of a terminal window titled "Terminal - bogdan7978@ubuntu: ~". The terminal shows the execution of the command "ping 10.56.16.101 -c 3". The output displays three successful ping responses with varying times (0.404 ms, 0.308 ms, 0.415 ms) and a summary of statistics: 3 packets transmitted, 3 received, 0% packet loss, and a total time of 2054ms. The terminal interface includes a menu bar with "File", "Edit", "View", "Terminal", "Tabs", and "Help".

```
Terminal - bogdan7978@ubuntu: ~
File Edit View Terminal Tabs Help
bogdan7978@ubuntu:~$ ping 10.56.16.101 -c 3
PING 10.56.16.101 (10.56.16.101) 56(84) bytes of data.
64 bytes from 10.56.16.101: icmp_seq=1 ttl=64 time=0.404 ms
64 bytes from 10.56.16.101: icmp_seq=2 ttl=64 time=0.308 ms
64 bytes from 10.56.16.101: icmp_seq=3 ttl=64 time=0.415 ms

--- 10.56.16.101 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2054ms
rtt min/avg/max/mdev = 0.308/0.375/0.415/0.048 ms
bogdan7978@ubuntu:~$
```

## 6. What the PING program is.

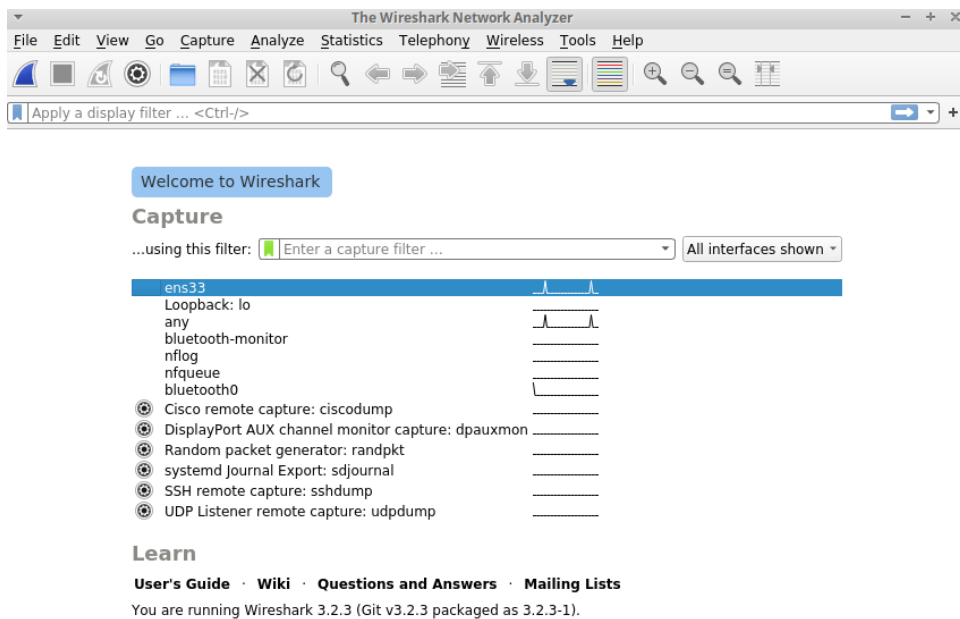
When you use the ping command that will send a signal to the ip adress that you choose and receive a reply from that adress if your connection is working correctly. This is mainly used when troubleshooting a network connection that is not working properly or to check if your PC is communicating with a server.

## 7. What a networking interface is.

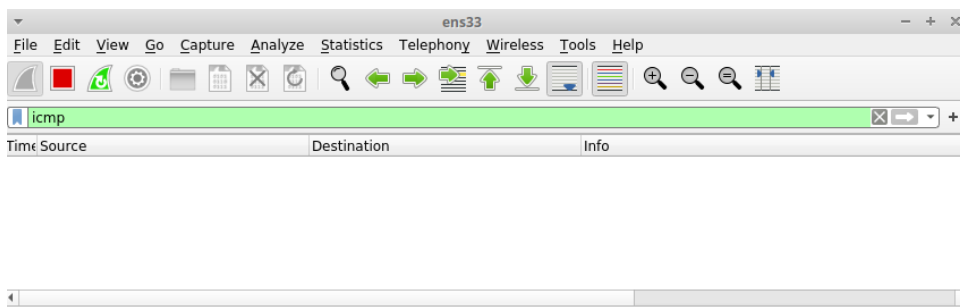
A network interface is a piece of hardware that comes with software and is making the connection between a computer and a private or public network via Internet Protocol (IP).

## 8. How to use Wireshark to monitor traffic between two hosts.

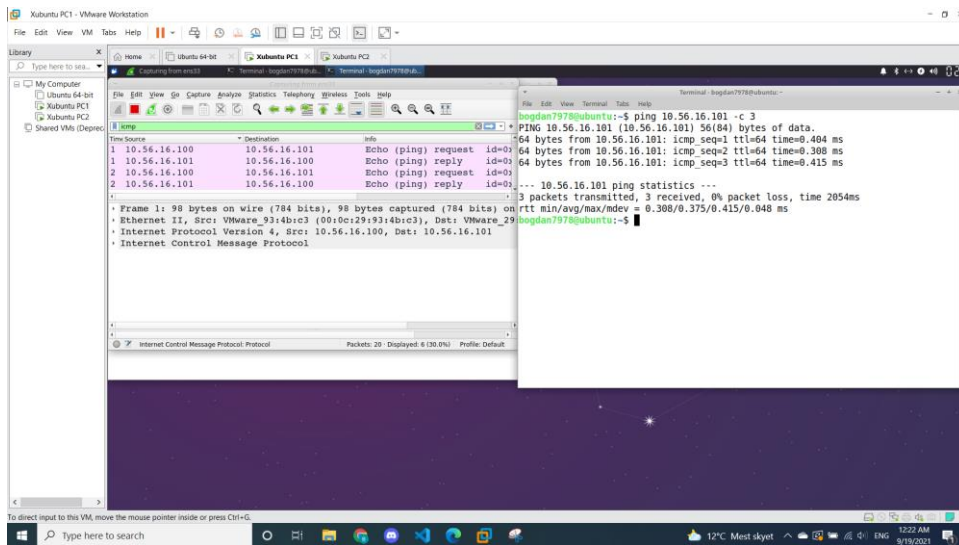
First you need to open a new terminal (“**CTR+ALT+T**”), then type in the command “**sudo wireshark**”, this will open the wireshark program.



After that click on “**ens33**” and type “**icmp**”



Open a new terminal and use the “**PING**” function that we talked about at nr. 5. After that the request and the reply between the two hosts will appear in the wireshark program



## 9. How to update and upgrade a Linux OS.

To update and upgrade a Linux OS you need two basic commands.

Open a new terminal and type in “sudo apt update”, after that is done type the second command “sudo apt upgrade” and wait for it to finish.

## 10. What a Linux repository is and how to pull and install software from it.

A Linux repository is a storage location from which your system retrieves and installs OS updates and applications. To do that you need to use the “sudo install” command in a terminal followed by the program you want to install.

Examples of programs you can get from the Linux repository:

- wireshark (Ethernet capturing and monitoring GUI software.)
- tcpdump (app to capture live TCP/IP packets on a network interface)
- putty (Terminal program.)
- net-tools (arp, hostname, ifconfig, netstat, route)

## 11. Challenge: What a broadcast ping is and who will reply to it.

Broadcast pings send ICMP echo requests to the local broadcast address. I think the most usual is the 8.8.8.8 ping which is the google servers.

## 12. Conclusion on the learning goals.

Now we know how to:

- Set up a VMnet8 in VMWare Workstation using Virtual Network Editor.



- Update and Upgrade a Linux OS.
- Pull and install software or applications from a Linux repository.
- Set static IP address on Linux hosts.
- Use PING to check connectivity between two hosts.
- Use Wireshark to monitor traffic between two hosts.
- Explain what a networking interface is.