IT Technology
Networking
Assignment 2

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1 Introduction

This report covers how to set up VMnet8 and static IP addresses for two guests operation systems in the Virtual Network Editor including a test of the connection. It also covers how to update the Linux system and how to use Wireshark to monitor packages.

2 Audience

This report is intended for individuals that is new to VMWare Workstation 16 PRO and Linux, and have a need for installing Xubuntu, updating and setting up a static IP for internet connection through VMWare and check that the connection is correctly setup.

3 Inventory

1. VMware Workstation 16 PRO with at least two Linux guest systems
2. Working internet connection

4 Definitions

Ping – when we *ping*, we test the reachability and latency of a host on a network. The ping works by sending ICMP (Internet Control Message Protocol) packets, which basically requests an echo of the host we are trying to reach (some hosts are set up, to not respond to ICMP packets).

Network interface – The physical hardware that connects the computer to the internet is the thing that is most often referred to, when you hear the words “Network Interface”. However, it can also be software, e.g. virtual machines.

Linux Repository – Linux repositories is a collection of software that is downloadable for the distribution of your choice. Downloading software from the repositories is very easy and does not necessarily require a google search, nor downloading from some shady site. It is advisable to update the repositories with “sudo apt update” before installing new software to get the latest version. The

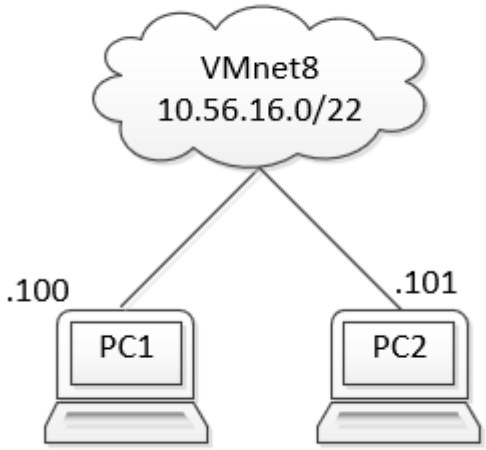
syntax for installation with “apt” is as easy as “sudo apt install *program*”, e.g. “sudo apt install wireshark”.

5 Tasks

1. How to set up VMnet8 in the Virtual Network Editor.
2. How to set static IP addresses on Xubuntu Linux hosts.
3. How to use PING to check connectivity between two hosts.
4. What the ping program is.
5. What a networking interface is.
6. How to use Wireshark to monitor traffic between two hosts.
7. How to update and upgrade a Linux OS.
8. What a Linux repository is and how to pull and install software from it.
9. Challenge: What a broadcast ping is and who will reply to it.

6 Network diagram

Here is a simple diagram of our desired network.



7 Updating and upgrading Linux OS

Updating and upgrading a Linux OS ca vary slightly from distro to distro, but for this Xubuntu machine, see syntax on the first line of figure 1. Here we combine the whole process of updating and upgrading in one line by using “&&”. This simply run the commands in sequence from left to right. The “-y” after our “upgrade” is simply to say “yes” to the upgrade without being prompted.

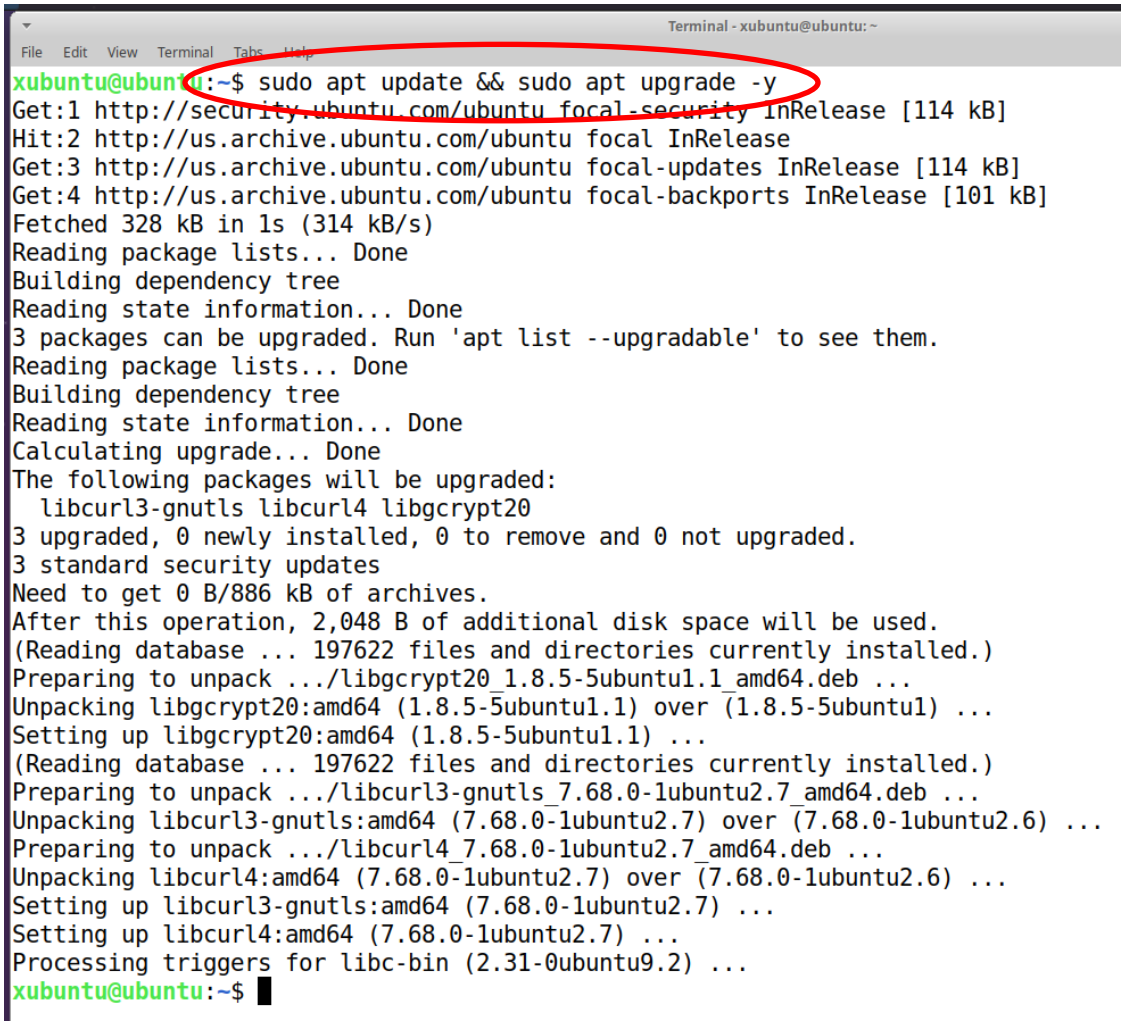
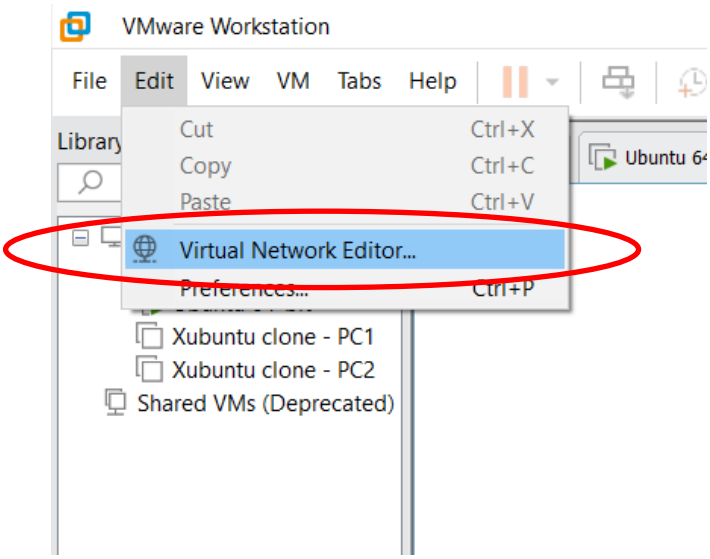


Figure 1 – Showing the update and upgrade process

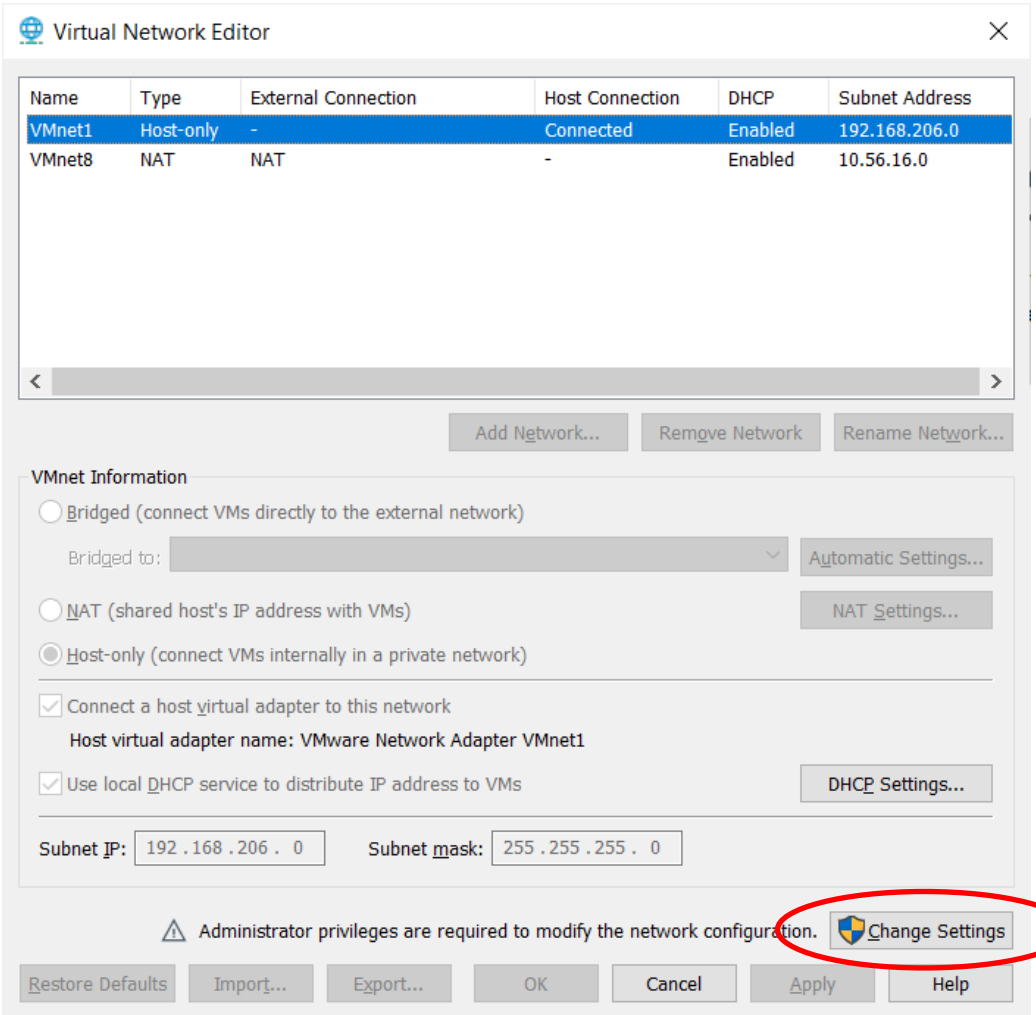
7.1 Setting up VMnet8 in Virtual Network Editor

First open VMware. Once it is open click the “Edit” button and then “Virtual Network Editor”. *(Figure 2)*



Figur 2 – Showing the location of the “Virtual Network Editor” button.

Next, select “VMnet8” click the “Change Settings” button and allow at the prompt. (Figure 3)



Figur 3 – The Virtual Network Editor

Once the editor allows you to edit the settings, put in 10.56.16.0 for the Subnet IP, and 255.255.252.0 for the Subnet mask, and make sure to UNTICK “Connect a host virtual adaptor to this network”. (Figure 4) Make sure to set Subnet IP and mask before next step.

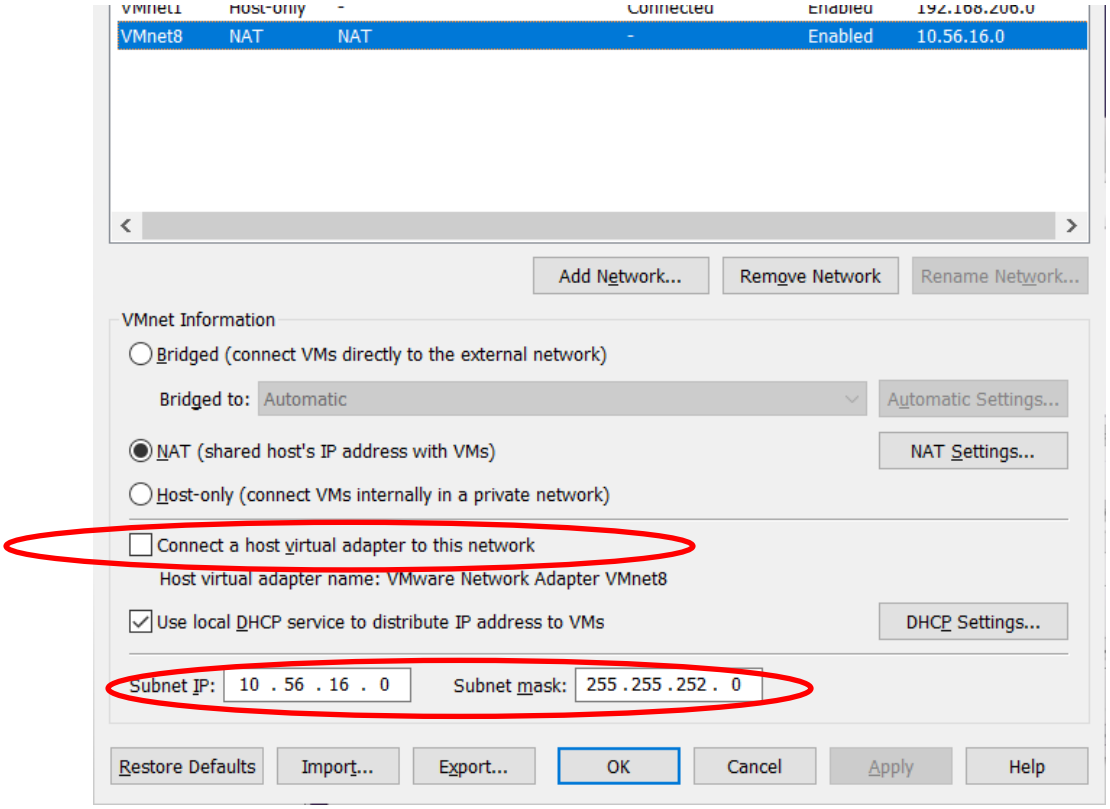
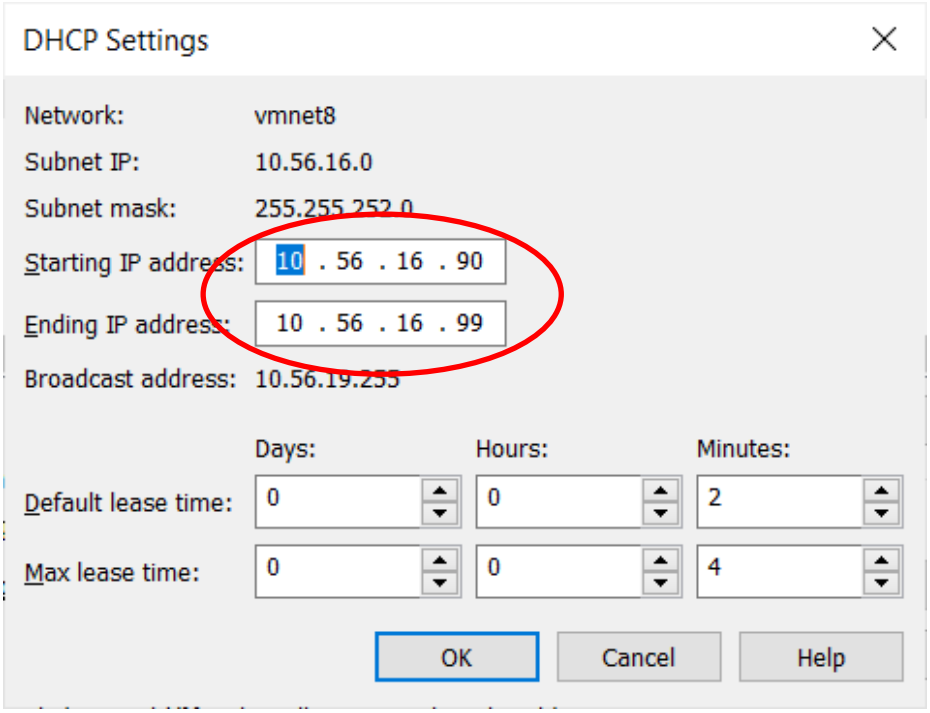


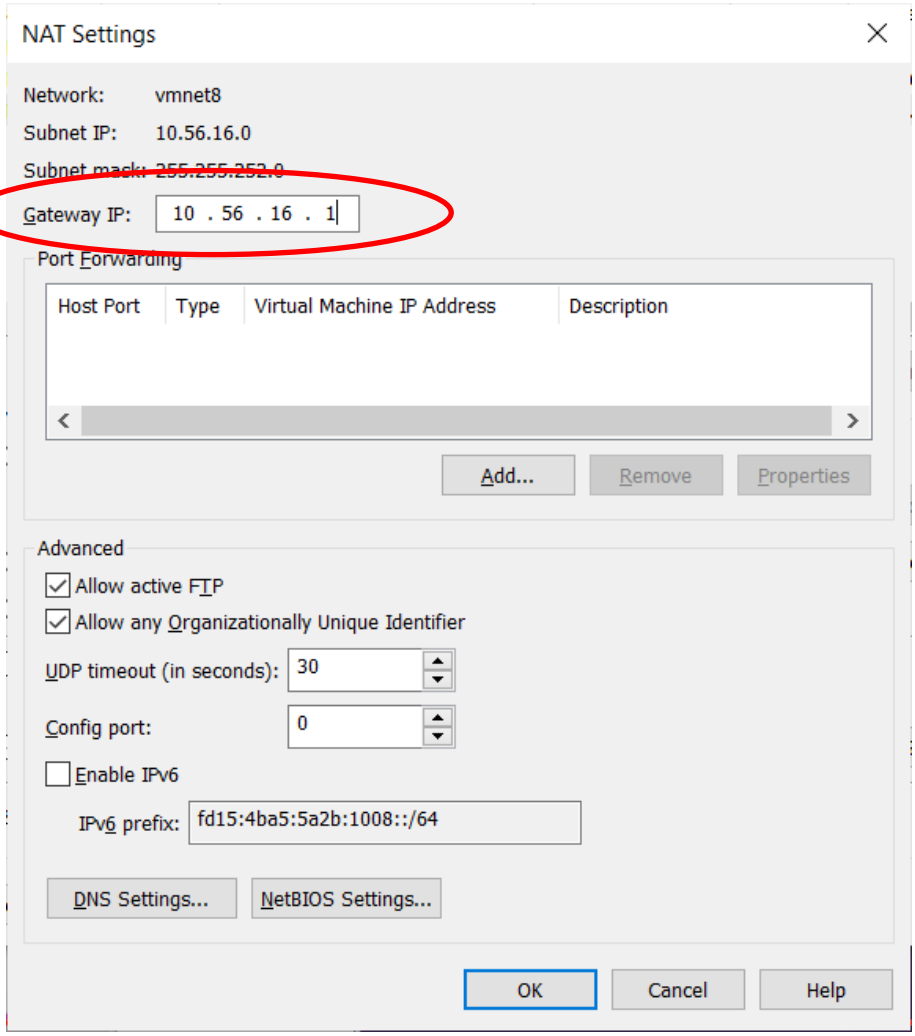
Figure 4

Next, click “DHCP Settings…” and make sure that the Starting and ending IP is as on figure 5, and click “OK”.



Figur 5 – DHCP Settings

Now click the ”NAT Settings” *(Figure 4)*, and make sure that the Gateway IP is set to 10.56.16.1 and click “OK”. *(Figure 6)*

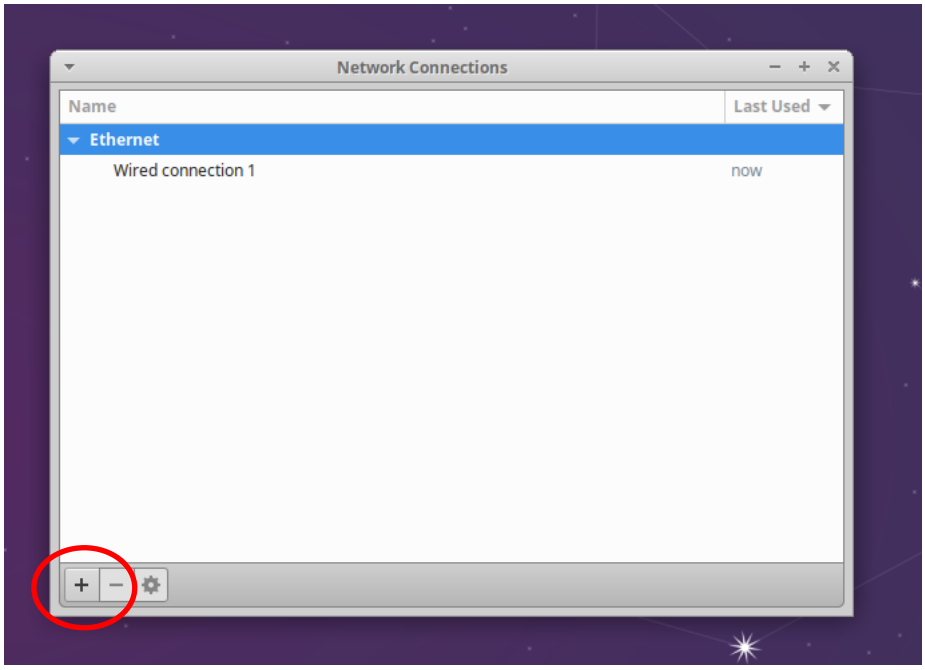


Figur 6 – NAT settings

Now click the “Apply” button, and “OK” to exit the editor.

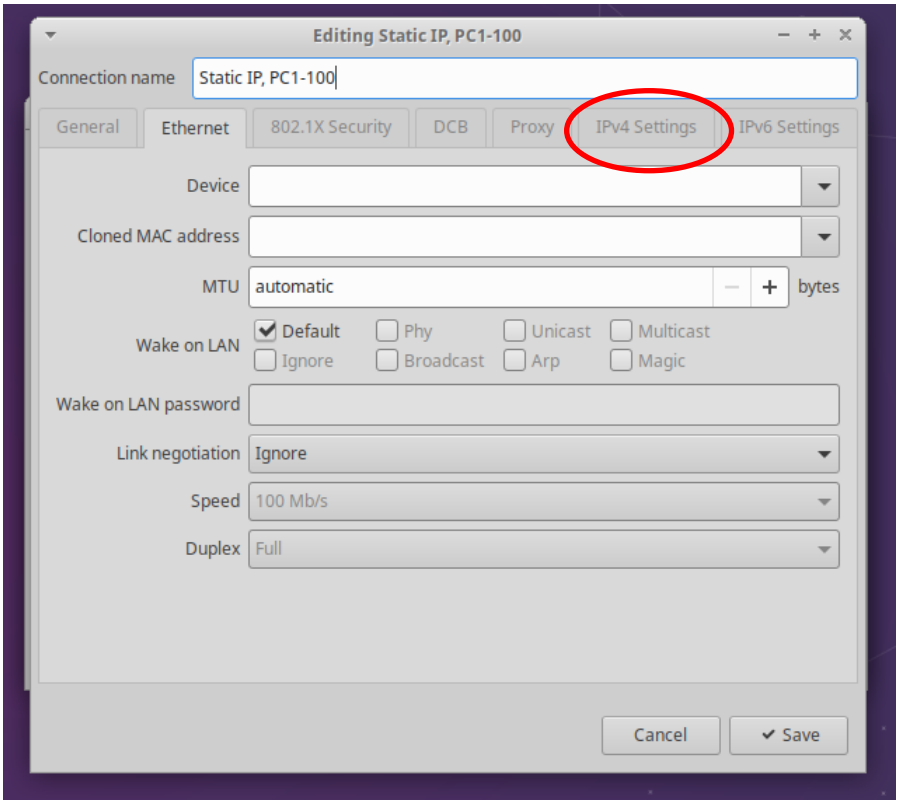
8 Setting up static IP addresses on hosts

Once logged in on one of the virtual machines for which we are going to setup static IP addresses, click the network icon in the upper right corner and click “Edit connections”. Now, click the “+” icon in the bottom left corner of the window. *(Figure 7)*



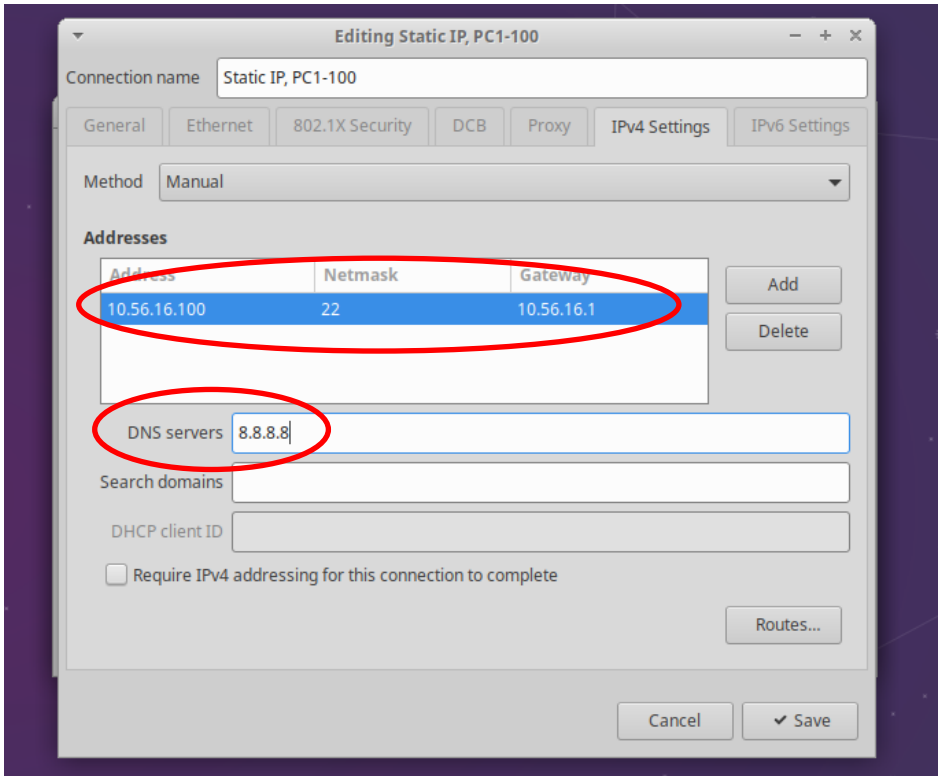
Figur 7 – Manage Network Connections for Xubuntu

For the connection type select “Ethernet” and click “create”.
Enter a name for the new connection and click the “IPv4 Settings” ribbon. *(Figure 8)*



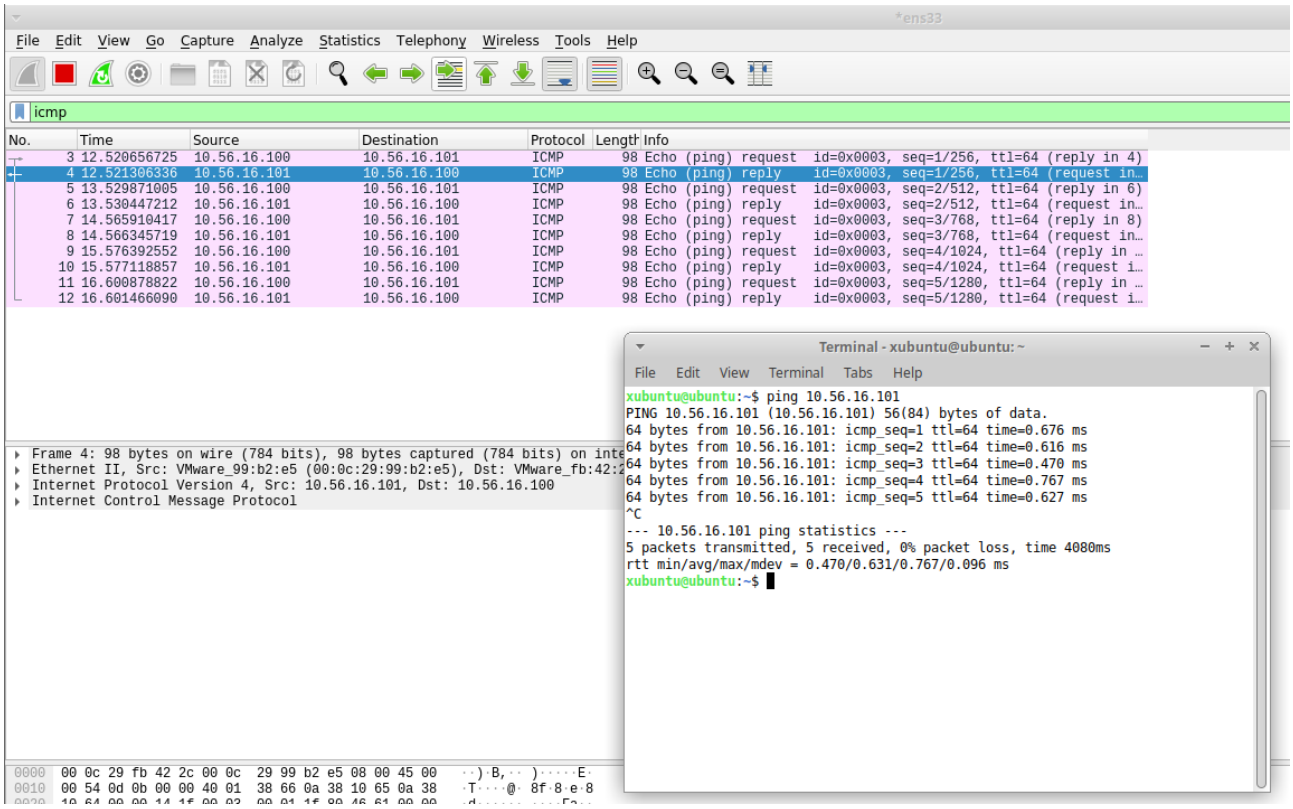
Figur 8

Now select, ”Manual” method and put in the information for PC1. Click “Save”, and select the connection in the network tab in. Do the same for PC2, but with 10.56.16.101 for the IP Address.



Figur 9 – Setting up static IP

To confirm that it has been set up correct, ping the IP on PC2 from PC1. Here the ping is performed and monitored by Wireshark. And we can se both the request and the response.



Figur 10 – Wireshark showing ICMP packets from one host to another

9 Broadcast ping and response

A broadcast ping can basically be used to ping all host on a network.

10 Conclusion

VMWare Workstation 16 PRO and guest operating system(Xubuntu) are now successfully installed on the host system. After initial setup of the network through the VMWare hypervisor, it is concluded and proven, that the guest operating system has established connection to the internet via VMnet8.

This report takes a quick glance at the basics of updating and upgrading a Linux distro, including installing new software through the Linux Repositories. It also dips in the waters of Wireshark and how to monitor packets on the network. We have also setup static IP's for two Xubuntu Virtual Machines, and used PING to test the reachability and latency.