Web Server Project

- These are intended to cover the technology side of actually setting up real networks and applications, both personal, and small corporate networks.
- By the end of the semester, you should know how to set up a website and a DNS server.
- Reports for these assignments are submitted in Canvas.

Task 1

- Read the question at the end of the document so you can answer them during the setup.
- Install and configure a real webserver (Apache), and watch it with Wireshark
- You will need to set up a virtual machine to complete this task. You can install Virtual-box or use VMware to set up your virtual machines.
- Download Ubuntu Server 18.04 from here and use the ISO file set up your virtual machine.

Webserver

Install and configure a web server on your virtual machine
Read some background**:**

- How to Install Ubuntu Server on VirtualBox
- How To Install the Apache Web Server on Ubuntu
- Accessing your Virtualbox Guest from your Host OS
- Getting Started - Apache HTTP Server Version 2.5

Part 1: Setup

- Install apache, enable apache, check out the default website.
- Firewall configuration will depend on your setup.
- Create an actual site (index.html) in the directory referenced above.
- Visit your web server running in one VM, from the other VM. If you don't have the capacity to run two VMs try it from your host machine.
- If you want to use something other than Apache, you are welcome to, but we'll be configuring services in future assignments to point to this server, so keep that in mind.
- If you really would like to have a GUI on your server you can use one of these lightweight GUIs https://linoxide.com/linux-how-to/how-install-gui-ubuntu-server-guide/. This will also help you to run Wireshark on your server.

Part 2: Wireshark

- Startup Wireshark, observe the traffic from queries to your new website.
- What does it look like?
- Is it TCP or UDP?

- Follow a "stream"
- Can you read the HTTP data?
- Is it encrypted?

Part 3 (optional for fun)

- The only thing left to make this a real live site is to get an externally facing IP, and alternatively to get a domain name.
- Or, get an externally facing onion or garlic address to host your site for free:
    - https://2019.www.torproject.org/docs/tor-onion-service
    - https://geti2p.net/en/docs/applications/supported#web-servers
- Make your web Server HTTPS https://letsencrypt.org/how-it-works/ 10 extra points.
- How to Secure Your Web App Using HTTPS With Letsencrypt

Part 4: Report

Submitted via Canvas, report.pdf should have the following:

- A summary with screenshots, of the basic commands you executed, files you edited, and settings you changed, to get VirtualBox and your Web server up and working.
- A summary of what you had to do with any firewall configuration, if any, depending on your distribution.
- Include and discuss a screenshot of the HTTP Wireshark traffic from your browser to your VM.
- Screenshots embedded in the document, inline, showing the operation of one machine connecting to the webserver of the other machine, serving up the index.html file.