

Network Security Lab Setup Guide

In this guide, you'll learn how to set up your virtual machine (VM) environment for our labs. **If you already have Virtual Box setup and it works for you, you DO NOT** have to use VMware Fusion/Workstation unless you want to.

We will use **VMware Fusion (Mac)** or **VMware Workstation (Windows/Linux)** along with **Ubuntu Server** as our base VM.

Part 1: Install VMware

For Mac Users (VMware Fusion)

1. Create your Broadcom/VMware account (free registration required):
<https://profile.broadcom.com/web/registration>.
2. Go to the download page: [VMware Fusion Pro Free](#).
3. Click on **VMware Fusion Pro**.
4. Agree to the Terms and Conditions (you may need to open and look through the document).
5. Click on latest release and install.
6. Open the `.dmg` file and drag **VMware Fusion** into Applications.
7. Launch VMware Fusion. Accept the license agreement.
8. **No license key is required** (it's free).

Apple Silicon users (M1/M2/M3): You must choose **ARM64 Ubuntu ISOs** for your VM.

For Windows/Linux Users (VMware Workstation)

1. Create your Broadcom/VMware account (free registration required):
<https://profile.broadcom.com/web/registration>.
2. Go to the download page: [VMware Workstation Pro Free](#).
3. Click on **VMware Workstation Pro** for Windows or Linux.
4. Agree to the Terms and Conditions (you may need to open and look through the document).
5. Click on the the latest release and install.
6. Run the installer. Click **Next** through the setup wizard. Accept defaults.
7. **No license key is required** (it's free).

Part 2: Create an Ubuntu Server VM

Step 1: Download Ubuntu Server

1. Go to <https://cdimage.ubuntu.com/ubuntu/releases/22.04/release/> (ARM64 ISO).
 - **Mac (Apple Silicon):** Download [64-bit ARM \(ARMv8/AArch64\) server install image](#)
 - **Windows/Linux PCs/MacApple Intel**:** Download [64-bit PC \(AMD64\) desktop image](#)
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Step 2: Create a New VM in VMware

1. Open VMware Fusion or Workstation.
 2. Click **Create a New Virtual Machine**.
 3. Select **Install from Disk Image (ISO)**. choose the Ubuntu Server ISO you downloaded.
 4. Configure VM settings:
 - **Name:** UbuntuServer-Lab
 - **Processors:** 2
 - **Memory:** 4 GB (8 GB if you have lots of RAM)
 - **Disk Size:** 20 GB
 - **Networking:** NAT + Host-only (so you can practice networking/firewall labs)
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Step 3: Install Ubuntu Server

1. Start the VM.
 2. When prompted, select **Install Ubuntu Server/Desktop**.
 3. Choose defaults unless told otherwise in class.
 4. Create a user account:
 - **Username:** your last name and first initial
 - **Password:** pick something you'll remember
 5. Let the installation finish. Restart the VM.
- Detailed guide can be found here with pictures if needed: https://github.com/seed-labs/seed-labs/blob/master/lab-setup/apple-arm/seedvm-v2/SeedVM-Ubuntu_Installation.md
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Step 4: First Boot Setup

Inside your VM, log in and run these commands to update and install lab tools. We'll learn about these tools in the following weeks:

```
# Login
# Enter your username in the command line, then enter your password. Press
enter.
# Example:
kaitlinserv Login: kaitlin
Password: bestPasswordEver

# Update system
sudo apt update && sudo apt upgrade -y

# Install common tools for network security labs
sudo apt install net-tools curl wget vim ufw nmap tcpdump wireshark tshark
snort fail2ban -y
```

Step 5: Test Your Setup

If you installed the 64-bit AMD server image, enter the following command to install Ubuntu Desktop:

```
sudo apt install ubuntu-desktop
```

Step 6: Test Your Setup

- Run `ifconfig` in your command line/terminal. You should see a network interface.
- Run `nmap localhost`. Should scan your own VM.
- Run `sudo ufw status`. Should show firewall status.

Final Notes

- Always **shut down your VM properly** (`sudo shutdown now` via the command line) before closing VMware.
- You can **take snapshots** (VMware -> Snapshot menu) before labs, so you can roll back if things break.

- If you run into problems, either come to office hours with your laptop or email me with screenshots explaining your issue.