Lab *01 – Virtualizing*

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INTRODUCTION

In this lab, I will learn how to set up a virtual machine or guest machine inside a virtual machine manager on my computer. I will be installing and using VirtualBox since it is readily available in any environment. A virtual machine is helpful for security, experimentation, flexibility, cloning, and efficiency. This is an essential practice amongst cybersecurity professionals because you need a protective environment to practice defense and offense operations. Therefore, effectively installing and using a virtual machine will be valuable for testing new software and processes.

PROCESS

Step *0: Save, Secure, And Setup!*

I renamed my lab report template doc and saved it to my USB under the class IS 1003. I adjusted the setting so my pc doesn't sleep. Lastly, I wrote an introduction based on the instruction pdf.

Step 1: Check Your BIOS Settings

I verified my BIOS settings by using the search bar on the task pane on my computer. I entered "Task," and the task manager application popped up. Once I entered the app, it was on the processed bar, so I clicked on the performance tab. On the performance tab, I was able to locate "Virtualization," and it was enabled for my computer.

Step 2: Research And Take Notes

I watched a video on how to install a Linux Virtual Machine on windows 11. The guy starts by saying you need to install VirtualBox. Then you need to download an iso file, create a virtual machine on the VirtualBox to use ubuntu, and set how much memory you want to use. After the virtual machine is created, you need to go to the settings and put bidirectional on the two advanced settings; system: don't need floppy on the motherboard, max of 6 processors on CPU; display->screen, max video memory; storage->empty, select the iso file for ubuntu. Then you are all set to start using the virtual machine.

Step 3: Download Your Virtual Machine Manager And Your Linux Distribution

In this step, I was able to download VirtualBox 7.0.6 platform packages to my computer and Ubuntu 22.04.1 LTS without any significant problems.

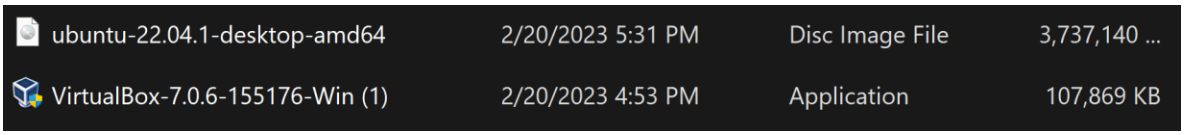


Figure 1: Capturing the downloaded files with timestamps and date for Breakpoint #3.

Step 4: Install And Set Up VirtualBox

In this step, I successfully installed VirtualBox and set up virtual hardware for Ubuntu OS. I also changed a couple of settings that were necessary under the instructions. During this whole process, I was keeping along with your video instructions and the document instructions. Still, I forgot to play the video when I first downloaded VirtualBox, and I clicked to open it, and it asked me questions I was unfamiliar with, so I thought I followed the step incorrectly. And I stopped on the questions and deleted VirtualBox the first time. But then I clicked to follow along with the video and realized I was doing the steps correctly, so I redownloaded VirtualBox.

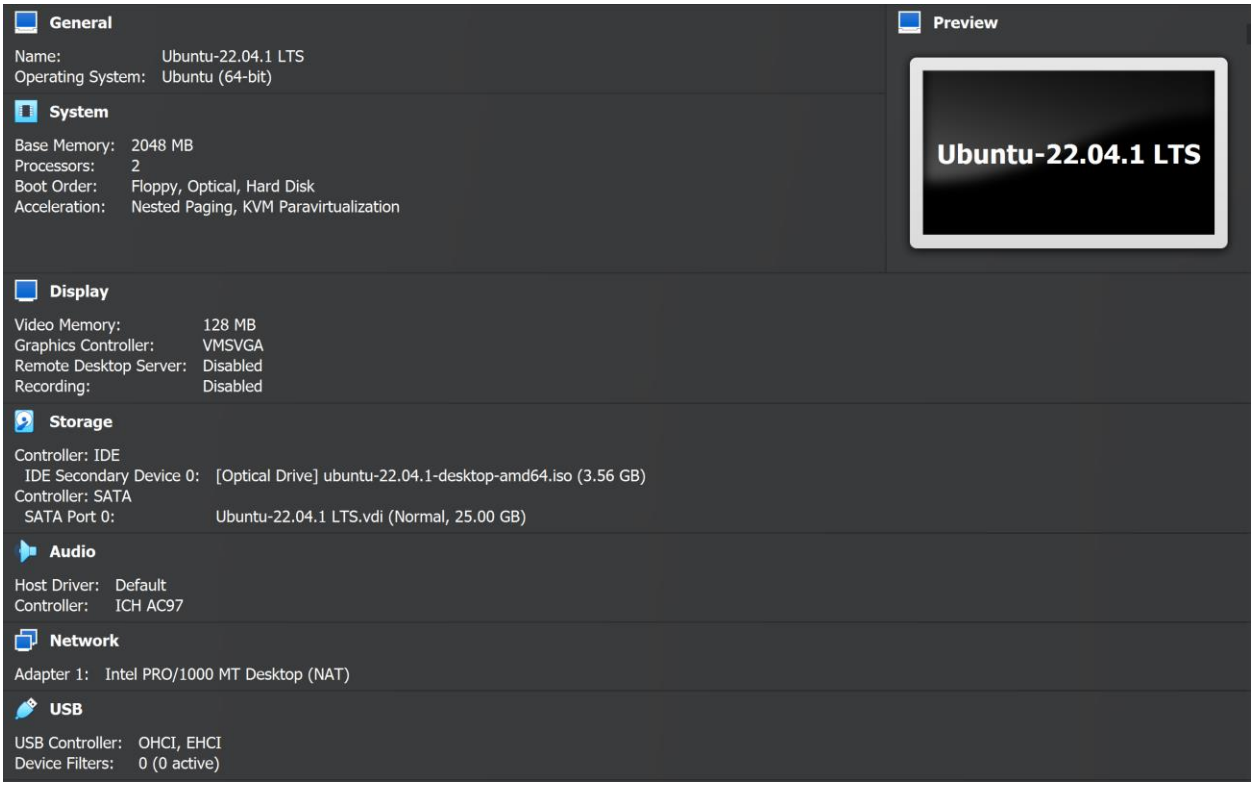


Figure 2: VirtualBox interface and its settings for the Ubuntu Virtual machine.

Step 5: Load Your Linux Distro Into VirtualBox

For this step, I didn't have to do anything other than increase the video memory to 128 MB because the Ubuntu image was already inserted into the virtual CD/DVD drive.

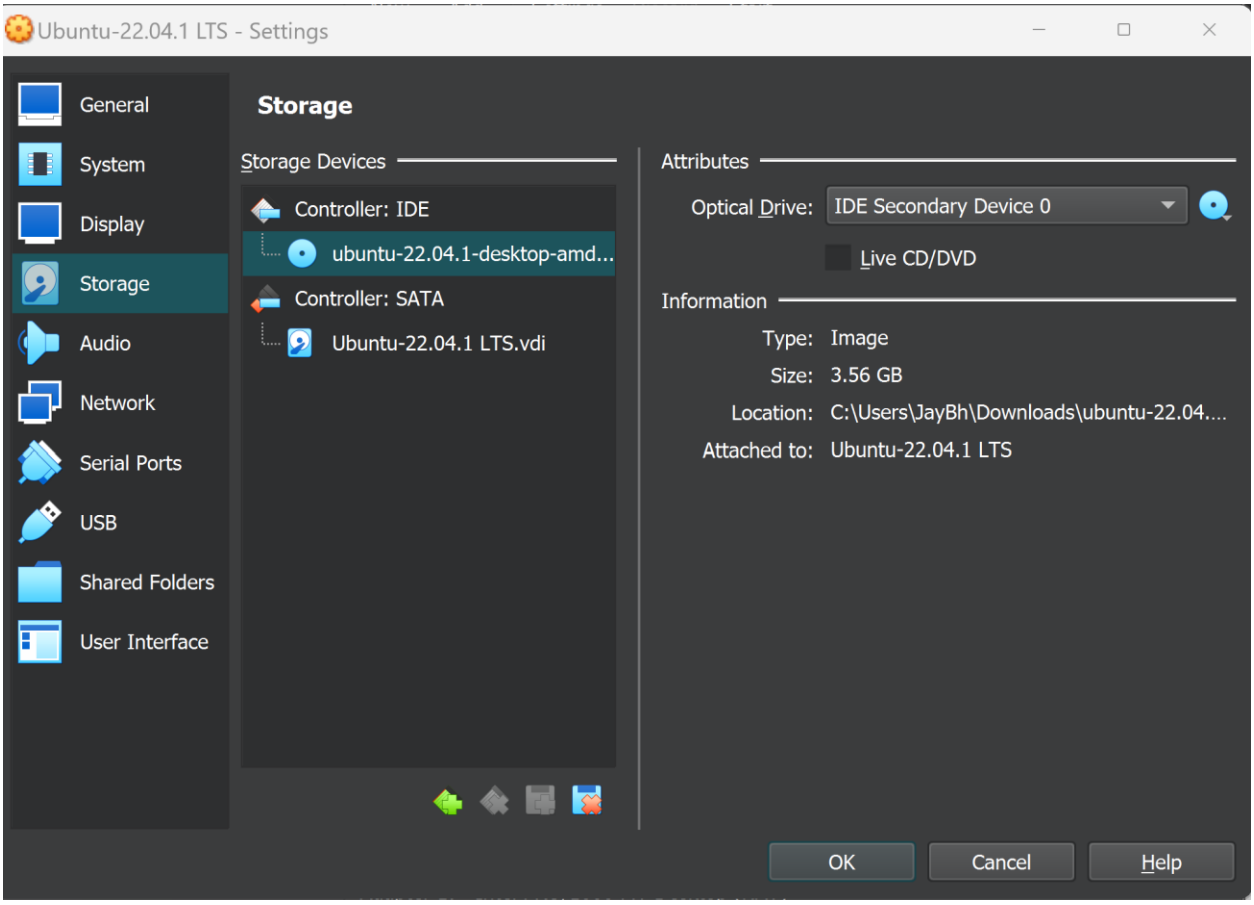


Figure 3: Inserting the Ubuntu OS into the CD/DVD drive.

Step 6: Rev Up Your Machine

The process I took to download a virtual machine manager (VirtualBox), and a virtual machine (Ubuntu) was smooth, without any significant hiccups. However, I did have a minor hiccup. I started by ensuring my PC had the virtualization option enabled in the BIOS settings. Then I was able to download VirtualBox. While trying to download VirtualBox, I followed the document instructions. I needed clarification with the questions I was asked when trying to download VirtualBox, so I deleted it immediately, thinking I had made a mistake. After following along with the instruction video, I learned that I was doing everything appropriately, so I had to redownload VirtualBox. After this, I downloaded the iso file for Ubuntu. I had everything I needed to set up VirtualBox, so I set up a virtual machine (Ubuntu). Then I loaded it into Ubuntu after installing it. That is where I am now.

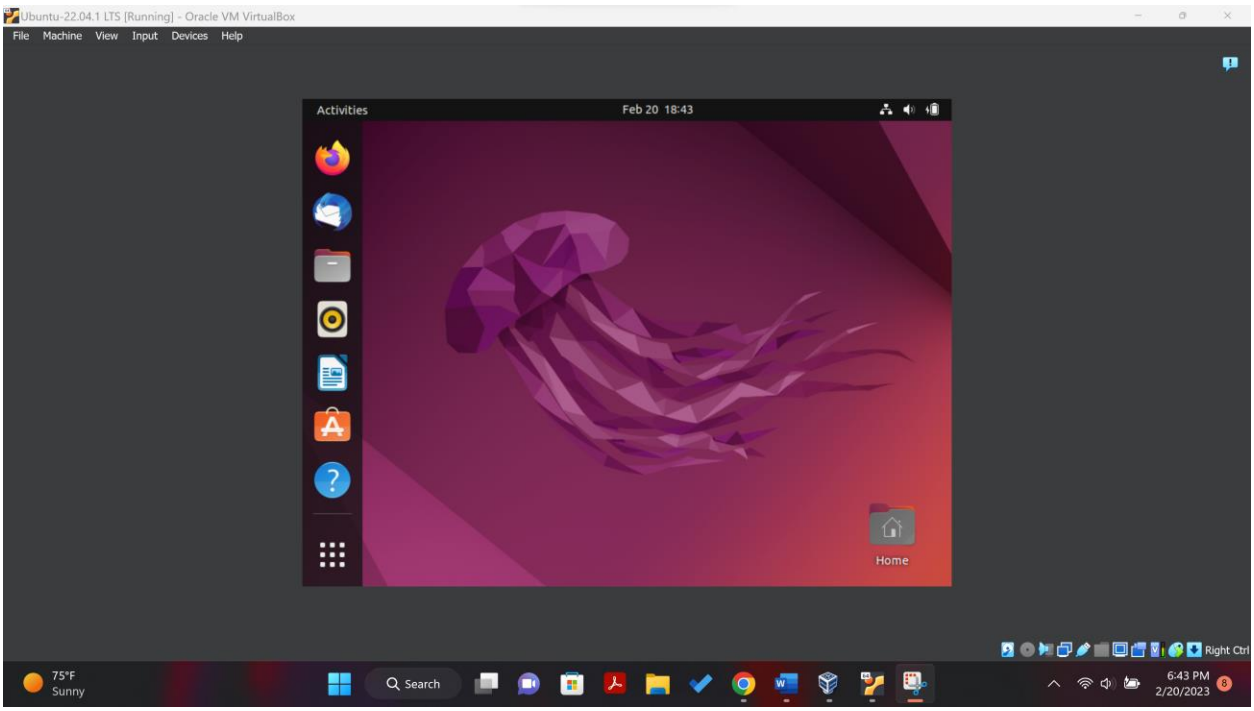
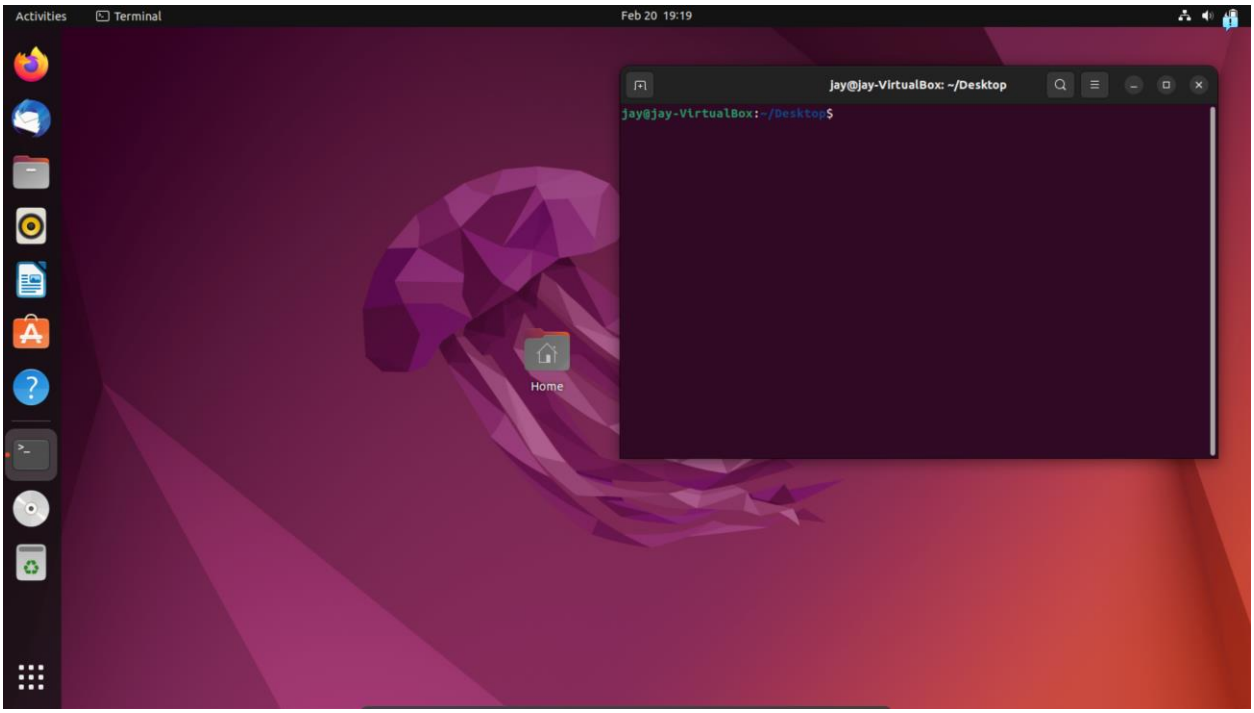


Figure 4: Ubuntu machine up and running on my computer.

Step 7: Install Guest Additions

Installing guest additions was reasonably straightforward, even though it looked very complicated. I started by clicking the install guest additions from the devices tab. Then I opened it and right-clicked it to open the terminal. Initially, when it asked for my password, I didn't see what I was typing, so I was confused since there was nothing in the video related to it. Still, I read in the instructions doc that passwords are invisible, so I was good to move forward with the sudo apt commands. And I was able to do everything successfully and put the bidirectional setting for shared clipboards on the devices bar. Overall, I am pleased after completing this lab, even though I should've finished it sooner.



Step 8: Explore Your New Operating System And Terminal!

- Right here, I am using the pwd (present working directory) command to find the location of my home directory.

```
jay@jay-VirtualBox:~/Desktop$ pwd
/home/jay/Desktop
```

Figure 5: Using the pwd command on Ubuntu

- Right here, I am using the ls -a command to list all objects, whether hidden or not.

```
jay@jay-VirtualBox:/media/jay/VBox_GAs_7.0.6$ ls -a
.              OS2                              VBoxSolarisAdditions.pkg
..             runasroot.sh                     VBoxWindowsAdditions-amd64.exe
AUTORUN.INF    TRANS.TBL                        VBoxWindowsAdditions.exe
autorun.sh     VBoxDarwinAdditions.pkg          VBoxWindowsAdditions-x86.exe
cert           VBoxDarwinAdditionsUninstall.tool windows11-bypass.reg
NT3x           VBoxLinuxAdditions.run
```

Figure 6: Using the ls -a command on Ubuntu

- Right here, I am using the ls -al command to view a bigger picture of the contents of the current directory (owner and size).

```
jay@jay-VirtualBox:/media/jay/VBox_GAs_7.0.6$ ls -al
total 41763
dr-xr-xr-x  5 jay  jay      2570 Jan 11 10:28 .
drwxr-x---+ 3 root root     4096 Feb 20 19:14 ..
-r--r--r--  1 jay  jay      1049 Aug 22 12:54 AUTORUN.INF
-r-xr-xr-x  1 jay  jay      6849 Jan 11 08:35 autorun.sh
dr-xr-xr-x  2 jay  jay      1468 Jan 11 10:28 cert
dr-xr-xr-x  2 jay  jay      1252 Jan 11 10:28 NT3x
dr-xr-xr-x  2 jay  jay      2828 Jan 11 10:28 OS2
-r-xr-xr-x  1 jay  jay      5097 Jan 11 08:35 runasroot.sh
-r--r--r--  1 jay  jay       592 Jan 11 10:28 TRANS.TBL
-r--r--r--  1 jay  jay   2202917 Jan 11 08:38 VBoxDarwinAdditions.pkg
-r-xr-xr-x  1 jay  jay      4225 Jan 11 08:35 VBoxDarwinAdditionsUninstall.tool
-r-xr-xr-x  1 jay  jay   5968312 Jan 11 08:36 VBoxLinuxAdditions.run
-r--r--r--  1 jay  jay   9332736 Jan 11 08:38 VBoxSolarisAdditions.pkg
-r-xr-xr-x  1 jay  jay  15755216 Jan 11 10:27 VBoxWindowsAdditions-amd64.exe
-r-xr-xr-x  1 jay  jay    243728 Jan 11 08:38 VBoxWindowsAdditions.exe
-r-xr-xr-x  1 jay  jay   9227840 Jan 11 10:08 VBoxWindowsAdditions-x86.exe
-r--r--r--  1 jay  jay       259 Oct  1  2021 windows11-bypass.reg
```

Figure 7: Using the ls -al command

- Right here, I used the ll command, a shortcut for ls -al (the previous command).

```
jay@jay-VirtualBox:/media/jay/VBox_GAs_7.0.6$ ll
total 41763
dr-xr-xr-x  5 jay  jay      2570 Jan 11 10:28 ./
drwxr-x---+ 3 root root     4096 Feb 20 19:14 ../
-r--r--r--  1 jay  jay      1049 Aug 22 12:54 AUTORUN.INF
-r-xr-xr-x  1 jay  jay      6849 Jan 11 08:35 autorun.sh*
dr-xr-xr-x  2 jay  jay      1468 Jan 11 10:28 cert/
dr-xr-xr-x  2 jay  jay      1252 Jan 11 10:28 NT3x/
dr-xr-xr-x  2 jay  jay      2828 Jan 11 10:28 OS2/
-r-xr-xr-x  1 jay  jay      5097 Jan 11 08:35 runasroot.sh*
-r--r--r--  1 jay  jay       592 Jan 11 10:28 TRANS.TBL
-r--r--r--  1 jay  jay   2202917 Jan 11 08:38 VBoxDarwinAdditions.pkg
-r-xr-xr-x  1 jay  jay      4225 Jan 11 08:35 VBoxDarwinAdditionsUninstall.tool*
-r-xr-xr-x  1 jay  jay   5968312 Jan 11 08:36 VBoxLinuxAdditions.run*
-r--r--r--  1 jay  jay   9332736 Jan 11 08:38 VBoxSolarisAdditions.pkg
-r-xr-xr-x  1 jay  jay  15755216 Jan 11 10:27 VBoxWindowsAdditions-amd64.exe*
-r-xr-xr-x  1 jay  jay    243728 Jan 11 08:38 VBoxWindowsAdditions.exe*
-r-xr-xr-x  1 jay  jay   9227840 Jan 11 10:08 VBoxWindowsAdditions-x86.exe*
-r--r--r--  1 jay  jay       259 Oct  1  2021 windows11-bypass.reg
```

Figure 8: Using the ll command

- Right here, I used the ls command to display the contents of the current directory without much special formatting.

```
jay@jay-VirtualBox:/media/jay/VBox_GAs_7.0.6$ ls
AUTORUN.INF  NT3x          TRANS.TBL                      VBoxLinuxAdditions.run          VBoxWindowsAdditions.exe
autorun.sh   OS2           VBoxDarwinAdditions.pkg        VBoxSolarisAdditions.pkg        VBoxWindowsAdditions-x86.exe
cert         runasroot.sh  VBoxDarwinAdditionsUninstall.tool  VBoxWindowsAdditions-amd64.exe  windows11-bypass.reg
```

Figure 9: Using the ls command on an open terminal

LIMITATIONS/CONCLUSION

- I completed all the steps in the instructions word document.
- The goal of this lab is to set up future assignments for this class. Installing and using a virtual machine manager and a virtual machine was to test new software and processes. Cybersecurity professionals always use virtual machines to practice different kinds of operations and scenarios in a protected environment.
- I think using virtual machines is a very effective strategy due to the flexibility it offers and how secure it is. In the future, I want to run operations and whatnot like cybersecurity professionals.

REFERENCES

Nosware [online]. “How to Install a Linux Virtual Machine on Windows 11”, August 9, 2022. Available: https://www.youtube.com/watch?v=hqebFr_ATSA [Accessed 20 February 2023]

COLLABORATION

In this lab, I relied on feedback from the slack lab 01 channel and not from specific people but by scrolling through the channel.