

# Cybersecurity Bootcamp Virtual Machine Set-up

So far you've installed and set up your virtual machines.

**IMPORTANT:** Please read through [this document](#) for thorough step-by-step instructions on downloading and installing your virtual machine. This document also contains more detailed instructions on the Vagrant commands you'll need to update your virtual machine as well as common troubleshooting issues.

There are three main components that work in conjunction to manage your cybersecurity bootcamp Vagrant lab.

- **VirtualBox:** Oracle's Virtualbox is a virtualization platform that allows you to run isolated, virtual operating systems within your current operating system.
- **vagrant-linux.sh:** This is the script that you ran and it ensures that your virtual machines were installed properly on your local machine.
- **Vagrantfile:** The Vagrantfile configures and defines your virtual machine set-up. In our case, this Vagrant file, when executed via the vagrant-linux.sh script, will configure the custom Linux Ubuntu machine that you are using.

Other terms to know:

- **Local Machine:** Whenever the bootcamp refers to your local machine, it means the one you use on a daily basis.

In the sections below, we'll explain Vagrant more in depth and what Vagrant commands you'll need to know to make sure your machines are updated and managed properly.

## What Exactly Does Vagrant Do?

Vagrant, therefore, is a tool that allows teams to easily create reproducible, configurable, and portable work virtual environments with VirtualBox or other types, such as Hyper-V and Docker.

You will be using Vagrant in conjunction with VirtualBox extensively throughout the bootcamp, so it is important to know how to use common Vagrant commands to keep your bootcamp lab environments updated, stable, and secure (or in some cases, intentionally unsecure).

We are constantly optimizing and refining the virtual machines that you are using, and with Vagrant, we allow you, the student, to get the latest changes we have made to the virtual machine in a fast, efficient way that doesn't involve you having to reconfigure a new virtual machine. Instead, Vagrant will handle getting the latest virtual machine updates for you and

making sure your virtual machines are up-to-date. We will cover what commands to run for this as well as other general Vagrant commands in the next section.

## Vagrant Commands

If you are on a Mac computer, you will be using Terminal. Windows users will be using Git Bash.

If you are unfamiliar with these terms or the command line, do not worry! You will get familiar with them in this course.

When using Vagrant commands, please make sure that you are running these commands within the directory where you have your Vagrant file.

Unless your instructor directed you to set up Vagrant in another way, and depending on how far you are in the curriculum, your lab's Vagrantfiles can be found in the following directories:

- `$HOME/Documents/Cybersecurity-Bootcamp/Linux-Module` which contains your ongoing Linux Ubuntu virtual machine that you will use for several weeks in the program
- `$HOME/Documents/LabEnvironments/linux-scavenger` which contains a specific smaller virtual machine that you will use only for the Unit 6.3 activity.
- **Note:** After you complete the Unit 6 HW, you will have an additional Vagrantfile. You will download this during the Unit 6 HW.

**In order to find the locations of your Vagrant machine installations:**

- Run `vagrant global-status --prune` to see a listing of all known installation directories. Vagrant will also check to see which machines are running.

**You can always access your virtual machine by opening up VirtualBox but you can also open your virtual machine on the command line.**

- Run `vagrant up` to open your virtual machine

**To get the most recent changes onto your machine, please run these commands:**

- Run `vagrant box update` to get the most recently updated virtual machine. This might take several minutes or longer, depending on your internet connection. Once this is complete, run the below command.
- Run `vagrant destroy` within the directories that your Vagrantfiles are installed to ensure that the virtual machines are stopped and all associated files are removed.

- Run `vagrant up` to launch the newer version.
- Optionally run `vagrant box prune` afterwards to delete all old, unused versions of the virtual machine

### Shutting down your machine (via Vagrant, but not necessary)

- When you are done with your session, run `vagrant halt` to shut down your virtual machine

### An all-in-one-command to ensure you get the latest build

- The following command can be run to update:  
`cd $HOME/Documents/Cybersecurity-Bootcamp/Linux-Module && vagrant box update && vagrant destroy --force && vagrant up`

## How Often Should I Update My Vagrant Virtual Machine

Please update your machine at the end of every unit. Ideally you should be updating your machine after you have completed the unit's homework, but in most cases, you can update your machine at the end of the Day 3 lesson in the unit.

If you have any questions or issues on how to do this, please use office hours with your TA and instructor to get guidance.

Please remember that when updating your machine you MUST run the below commands. The last one is optional :

- `vagrant box update`
- `vagrant destroy`
- `vagrant up`
- `vagrant box prune` (optional)

**NOTE:** When you update your machine, you will lose your progress as the box is getting replaced. However this should not be an issue as the units in this program are independent from each other and there are no dependencies from one week to the next that you must maintain in your virtual machines.

## Troubleshooting

### Unable to download the latest version of a Vagrant machine

The latest version of the bootcamp's Ubuntu Vagrant machine can be found at <https://app.vagrantup.com/cybersecurity/boxes/UbuntuVM>. If the above is not updating your

machine properly, please run the command `vagrant box remove cybersecurity/UbuntuVM --all` and attempt to `vagrant destroy && vagrant up` again.

- `vagrant box remove cybersecurity/UbuntuVM --all` removes all versions of the Ubuntu VM provided by the Cybersecurity Bootcamp.

If neither work, use the deep clean process:

- Run `vagrant destroy` in all of the bootcamp's vagrant directories, and then
- Delete any `.vagrant.d` subdirectory in the bootcamp's vagrant directories and in your `$HOME` directory.
- Go back to the bootcamp's vagrant directories and re-run `vagrant up` in each to grab the latest versions of the machines

### If you see a **'playbook' does not exist on the host** - error

If you see a **'playbook' does not exist on the host** error when running `vagrant up`, please run the command `vagrant box remove cybersecurity/UbuntuVM --all` and attempt to `vagrant destroy && vagrant up` again.

### Permission issues after running *sudo vagrant up* (Mac)

If you're using a Mac and you used `sudo` to launch the vagrant machine, you can either continue using `sudo vagrant up / sudo virtualbox` for the rest of the bootcamp or swap to the "best practice", which is to use regular `vagrant up`.

If you want to essentially deep clean permission issues caused by using `sudo vagrant up`:

- First, use `vagrant global-status --prune` to check where vagrant directories exist on your machine. Then run `sudo vagrant destroy` in each of these directories to remove the virtual machines. If `vagrant global-status --prune` didn't work, just run `sudo vagrant destroy` in the default bootcamp directories listed earlier in this document.
- Next, you need to get rid of the `.vagrant` directories on your machine by running `sudo rm -rf .vagrant*`.
- Lastly, re-run `vagrant up`, *WITHOUT* `sudo`, in each of the directories to grab the latest boxes