# Lab 0--Linux Virtual Machine (VM)

This lab uses the CentOS installation as called for in the CyberAces modules. SVGS uses Ubuntu because that is what CyberPatriots uses. This lab is included for places that choose to use CentOS.

# Assignment

Gain some insight into Linux and Operating Systems in general.

Read CyberAces Linux module 1, session 1, VMware configuration (<https://tutorials.cyberaces.org/downloads/pdf/Module1/Linux/CyberAces_Module1-Linux_1_VMwareInstallation.pdf>)

Read CyberAces Linux module 1, session 2, OS Background and CentOS guest installation (<https://tutorials.cyberaces.org/downloads/pdf/Module1/Linux/CyberAces_Module1-Linux_2_BuildingTheVM.pdf>)

# VMware Workstation Player

Our SVGS lab has VMware Workstation Player (or just Player) already installed for you. If you would like to install Player on your own computer for practice or so that you always have your own copy of your lab work, please do! You are not required to use the classroom computers if you have a working version on your own computer.

# Linux Versions or Distributions

We will use Ubuntu as our primary Linux platform this year. We will also install the desktop version instead of the server version. The server version is very similar to what we will use, but it is stripped down (no desktop or apps by default), so it won’t waste disc space or CPU cycles on software that doesn’t apply to its mission as a server. While the Cyber Aces module are written for CentOS Linux, CyberPatriots uses Ubuntu. We will use the current version of Ubuntu since we compete in Cyber Patriots. CyberPatriots likes to use old Ubuntu versions to throw you off balance. We will usually know the Ubuntu version CyberPatriots will use about a week before a competition; if you like, you can install the CyberPatriots version and compare it to our version.

There are many, many versions of Linux, but most fall into a few families. Redhat Linux is used by many professional IT shops, and its main derivatives are Fedora and CentOS. Debian Linux leads another big family, and the most popular derivative is Ubuntu. Berkeley Software Distribution (BSD) Linux formed the base for Apple’s MacOS.

# Install CentOS Linux as a VM

Download CentOS as called for in CyberAces OS Background and CentOS guest installation, slide 12, from <https://redsiege.com/ca/centos8>. It will redirect you to the CentOS download page. Download CentOS-8.2.xxxx-x86\_64-dvd1.iso (xxxx is the current version number) as the slide instructs.

## Live versus Installed

The CyberAces instructions will create a Live VM. That means the VM will always boot from the ISO file, and will not save changes to disk when the VM is shut down. Any time you restart the VM, your CentOS will be the same as it was in the original installation. This can be an advantage—if your VM is damaged, just reboot and you are back to the original copy. The Live version also requires much less disk space. An Installed version creates Linux OS files in your VM directory just like a hardware installation would. It takes more disk space, but it saves all your work. If you create files or install software, they will still be there after a reboot.

If you are creating an Installed VM, leave the disk space at 20 GB instead of changing it as shown on CyberAces slide 17.

You may not see all the screens shown in slides 26 to 36. The “Easy Install” setting (where you selected the path to the ISO in VMware) may do much of this for you automatically.

Remember your password when you install your Ubuntu VM! It is possible to recover a VM when you have lost the password, but it is easier to just rebuild the VM again. Remember your password!

# Apply Updates

Ubuntu will probably try to update itself. Updates are important, so let it update.

# Save a copy of the VM

More robust hypervisors have a feature called “snapshot.” The hypervisor will stop making changes to the main VM files and save all changes to new files instead. Later, if you want to take the VM back to the state it was in when you took the snapshot you simply revert to the snapshot. Workstation Player does not have this feature, so we will do a version of it manually. Shut down your VM. Then copy the folder that contains your VM and paste it somewhere. If you paste it in the same directory that holds your original VM, Windows will prefix “Copy of” to the name of the new folder. This requires more disc space than snapshots do, but it will allow you to fall back easily if your original VM is damaged. You may want to put a text file in the new VM’s folder with the username and password you need to use the VM.

# Hand In

What is the command you would use in a terminal window to update your CentOS VM? (This may require some search engine work.)