Virtual Box – Installing Ubuntu Lab

<PREREQUISITE>

Internet Connection

Laptop

VirtualBox downloaded and installed

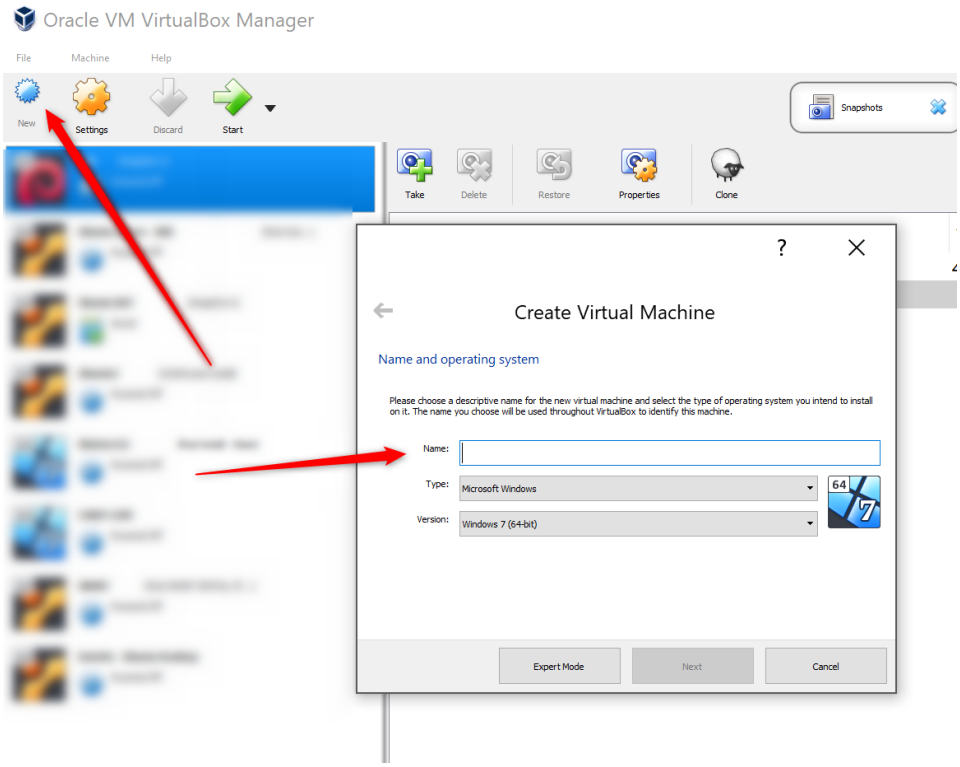
UBUNTU SERVER 16.04 LTS ISO FILE

http://releases.ubuntu.com/16.04/ubuntu-16.04.4-desktop-amd64.iso

LAB START

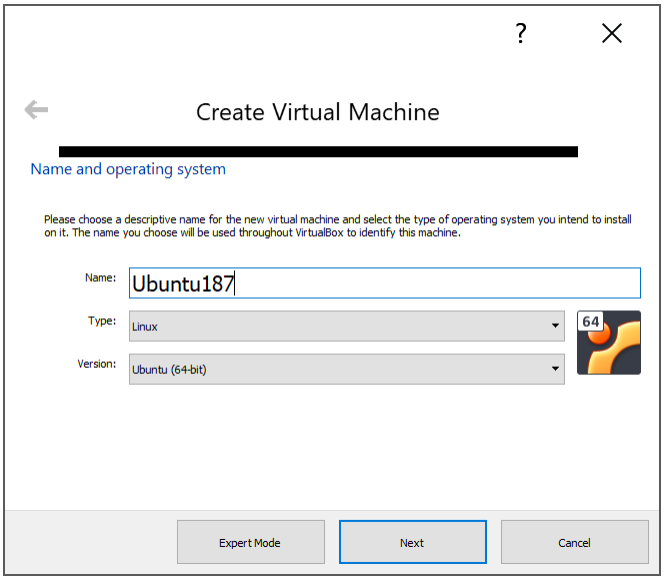
Open Virtual Box

Click on NEW to create a new Virtual Machine object.

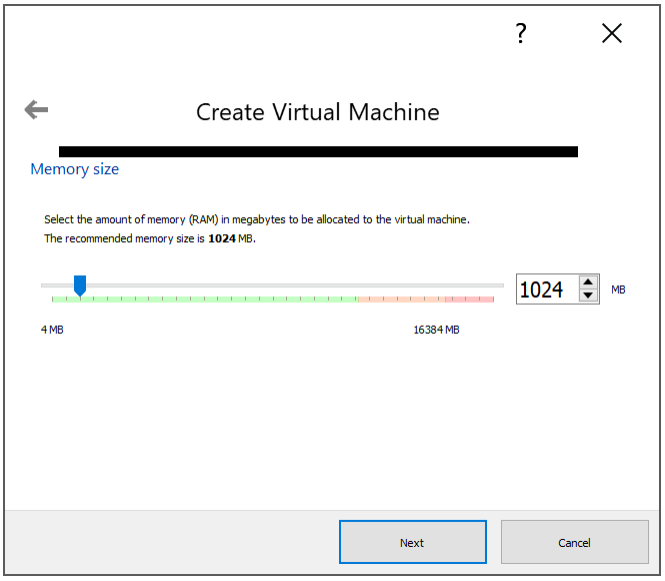


Give your computer a name and ensure you have selected the right operating system. In this guide we will be installing UBUNTU SERVER 16.04 LTS. (This server has no GUI) (GUI = Graphical User Interface)

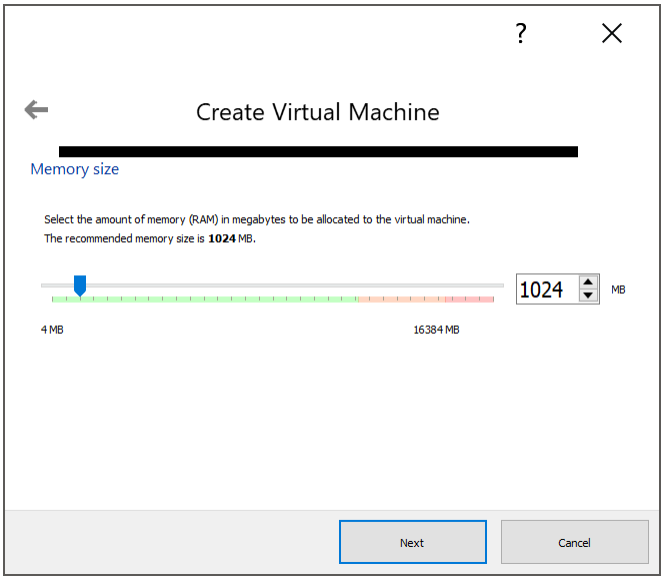
If you use the word Ubuntu, VirtualBox will autodetect what OS you are trying to install, neat eh?



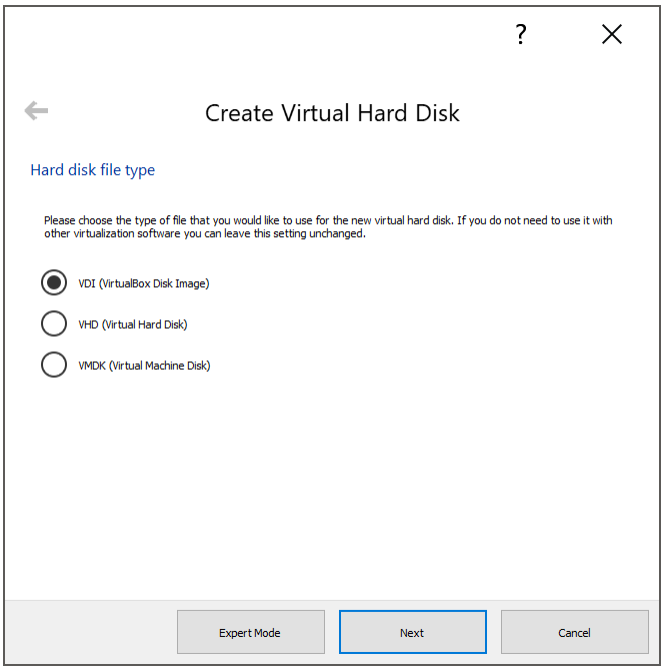
Give it 1 GB of memory



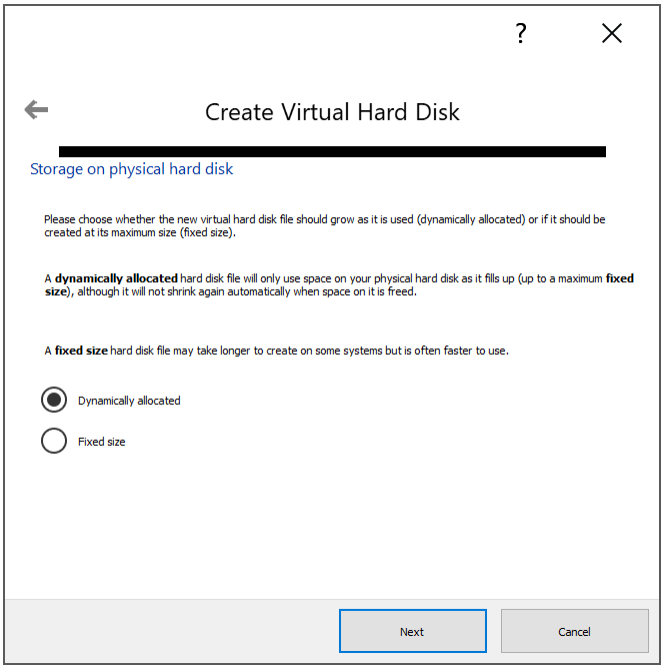
Go ahead and create a Virtual Hard Drive for it.



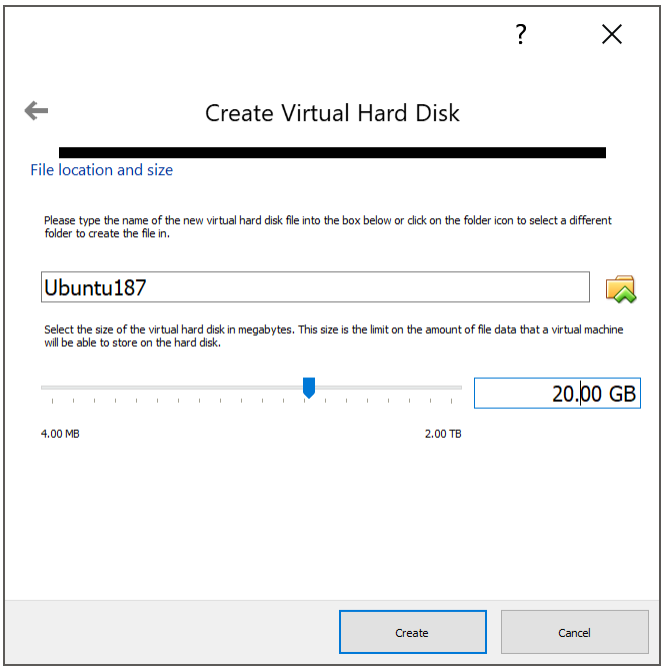
Lets go with the default of VDI (VirtualBox Disk Image)



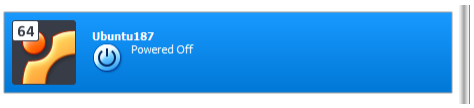
We will leave it Dynamically allocated. Take time to read what that means.



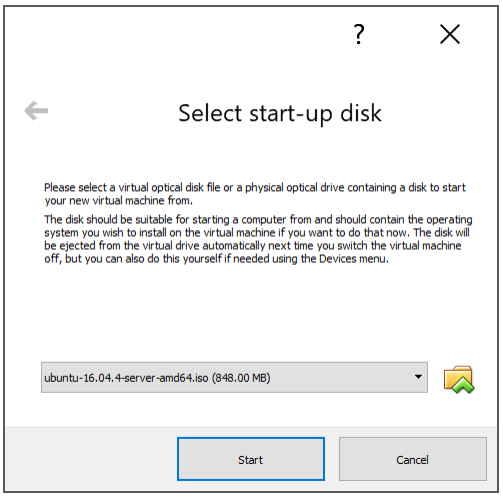
Lets bump it up to 20gb, depending on what you are going to use it for, you might need it, if you don't as you practice, you might want to delete this VM and create others which are larger and smaller depending on the applcation you are conducting on it.



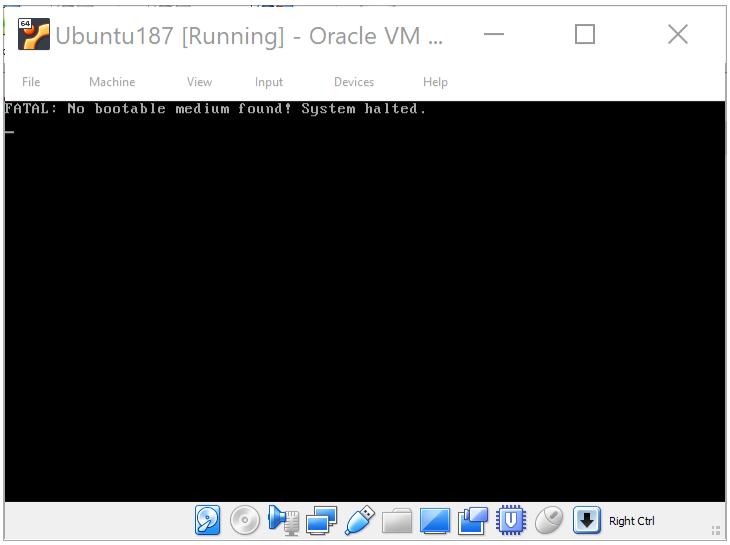
Your VM OBJECT has been created, you have created a virtual computer. (We use the word object, as the abstraction of a computer.) (In software engineering and computer science, abstraction is a technique for hiding complexity of computer systems. It works by establishing a level of simplicity on which a person interacts with the system, suppressing the more complex details below the current level.)



Now, if you were to start this VM, it would show you this window.

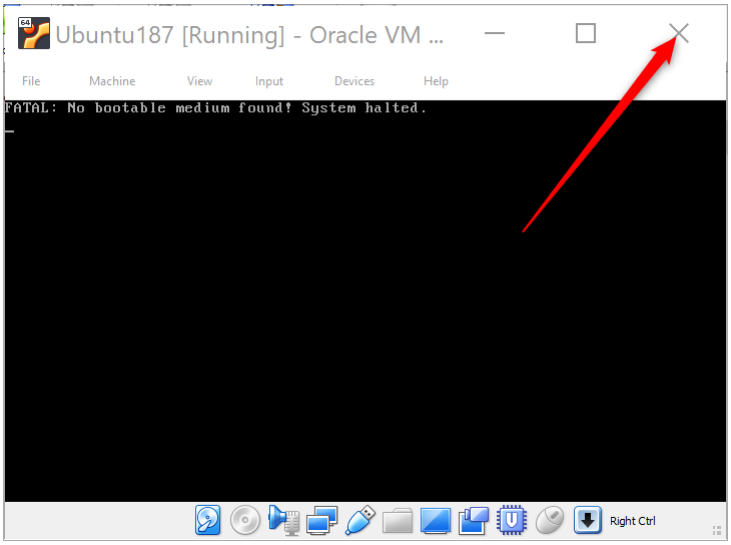


That is VirtualBox trying to help you, it detected that you have a Computer with no OPERATING SYSTEM ON IT, so it is asking you, hey do you want to plug in a VIRTUAL OPTICAL DISK with the installation for some operating systems? We want it to fail to truly understand this, so click on cancel.

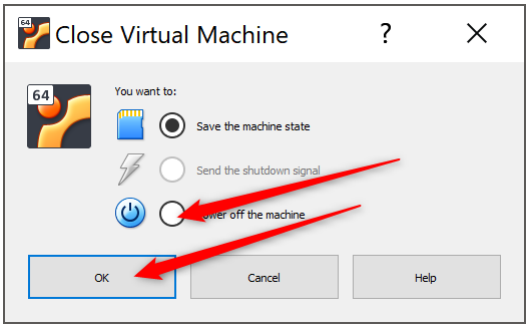


What this means is your VM booted and there was no OS on it, so there was nothing to boot into.

go ahead and click on the X in the upper right hand corner to close this.

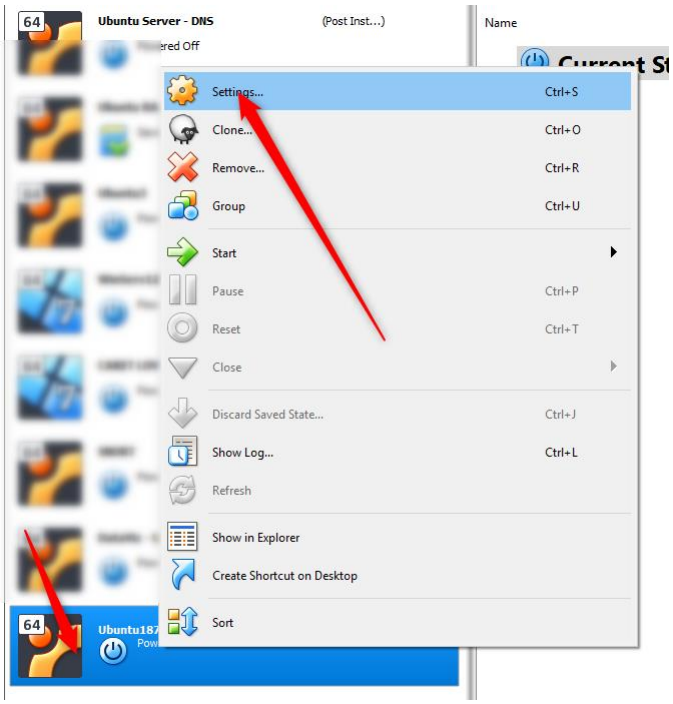


It will then ask you, do you want to save the machine state (we dont) or Power off the machine (like pulling the plug) Lets go ahead and show skynet who is boss and Power off the Machine.

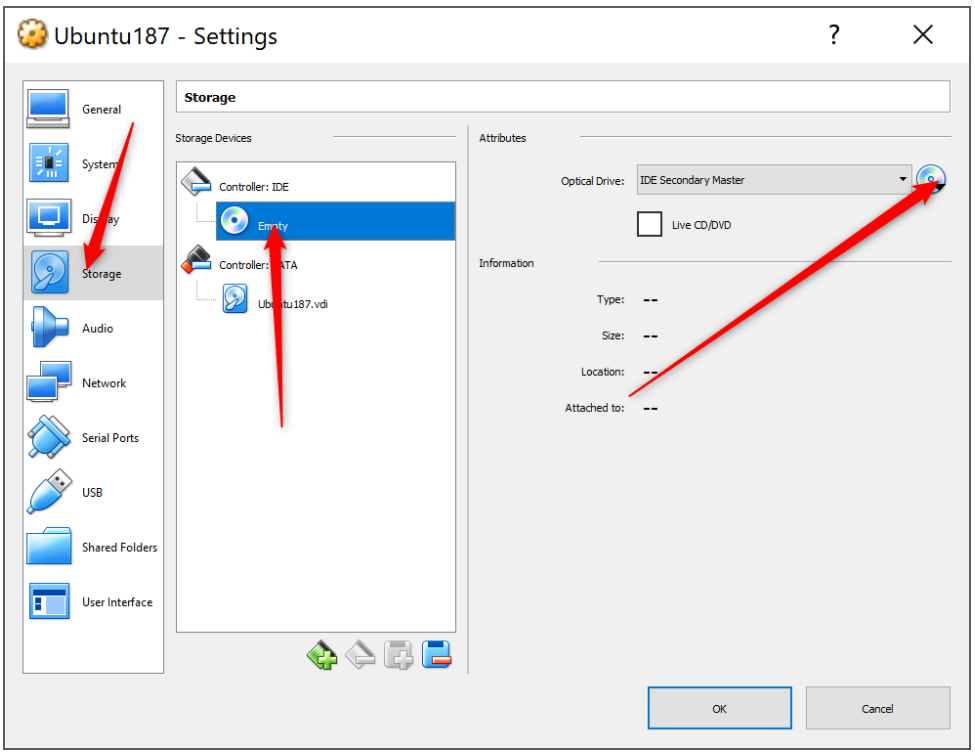


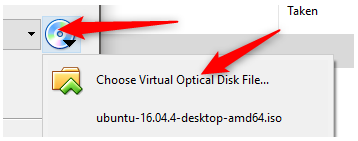
So what we need to do now is INSERT the VIRTUAL OPTICAL DISK in the VIRTUAL DVD DRIVE of this VIRTUAL MACHINE. Feel like a technomacer yet?

We do that by left clicking 1x the computer listed in VIRTUALBOX, and then rightclicking on the “SETTINGS” button.

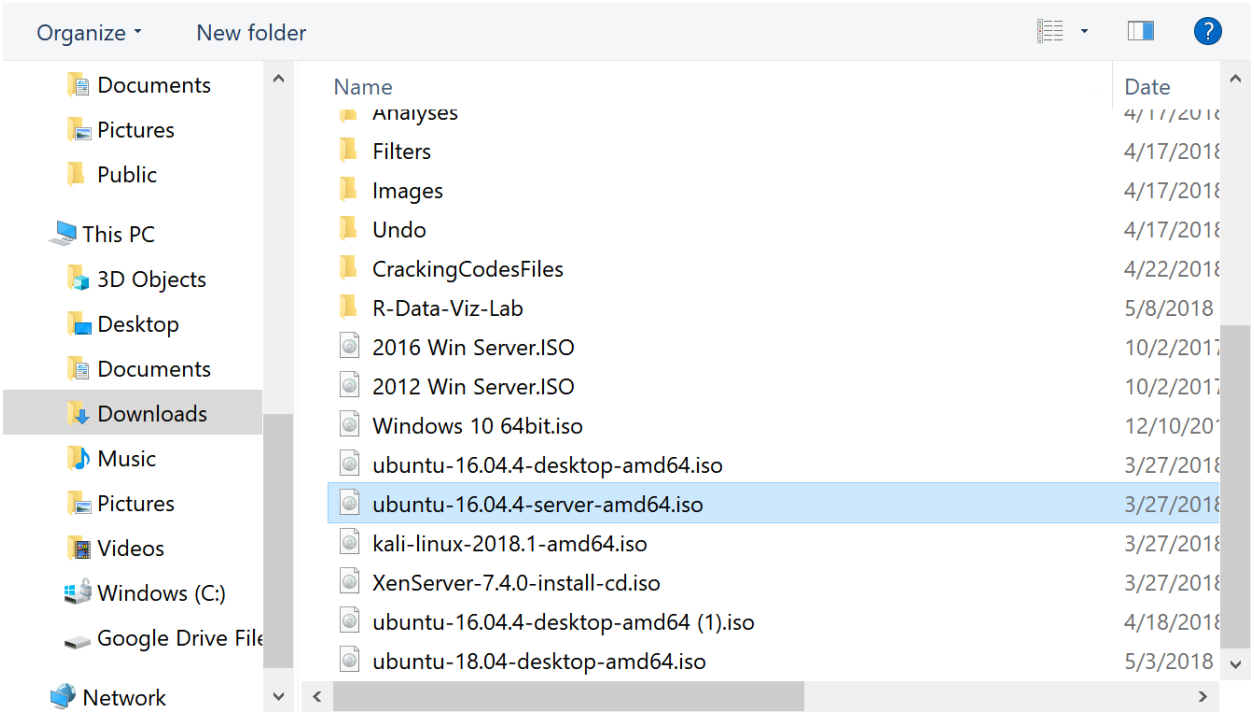


From here we will select strorage from the menu on the left, the OPTICAL DRIVE in the middle and then click on the disk on the right and select the ISO file that you downloaded that has the installation media.





Browse to where you saved the ISO file.



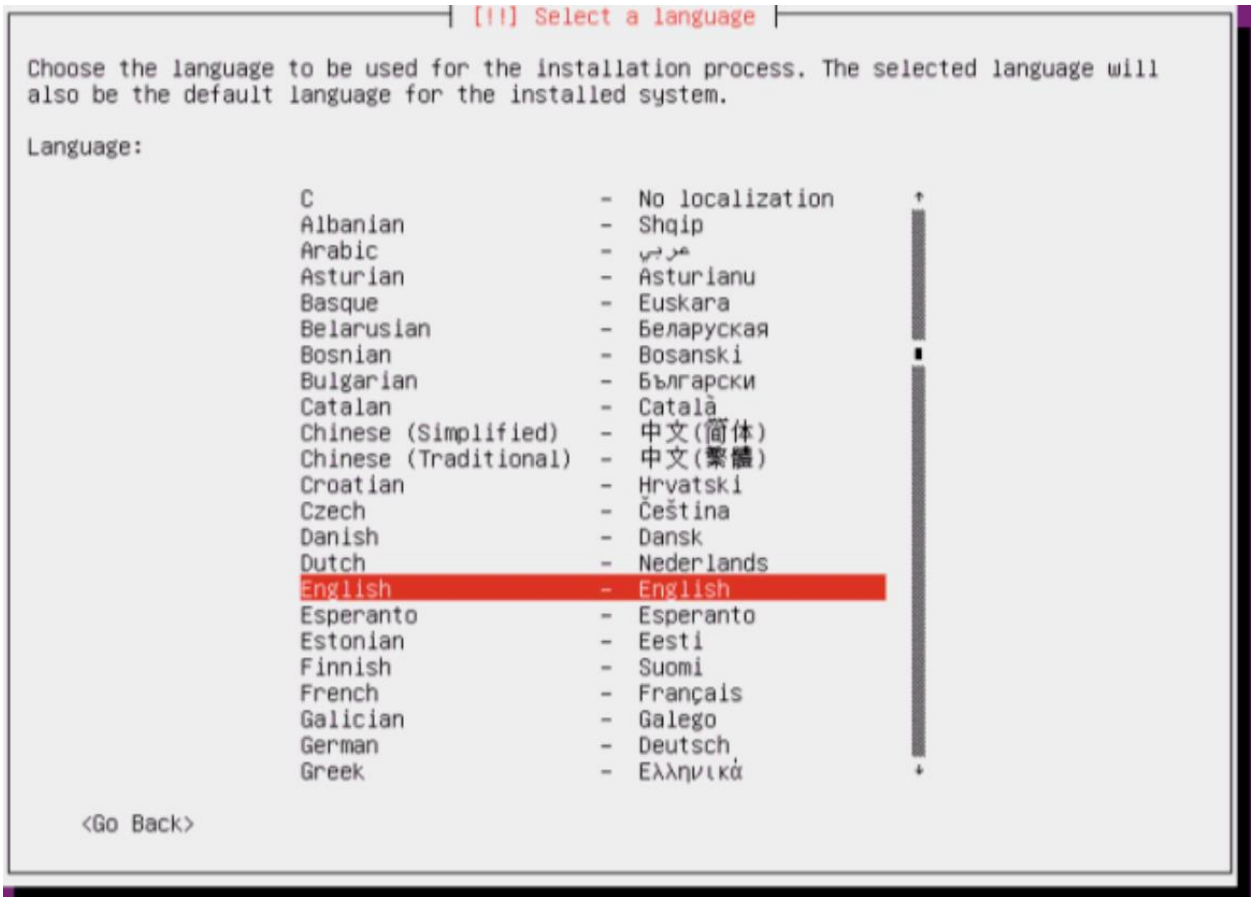
Then save save save and then you can boot your VM with the installation media were it needs to be.

INSTALLING THE OS

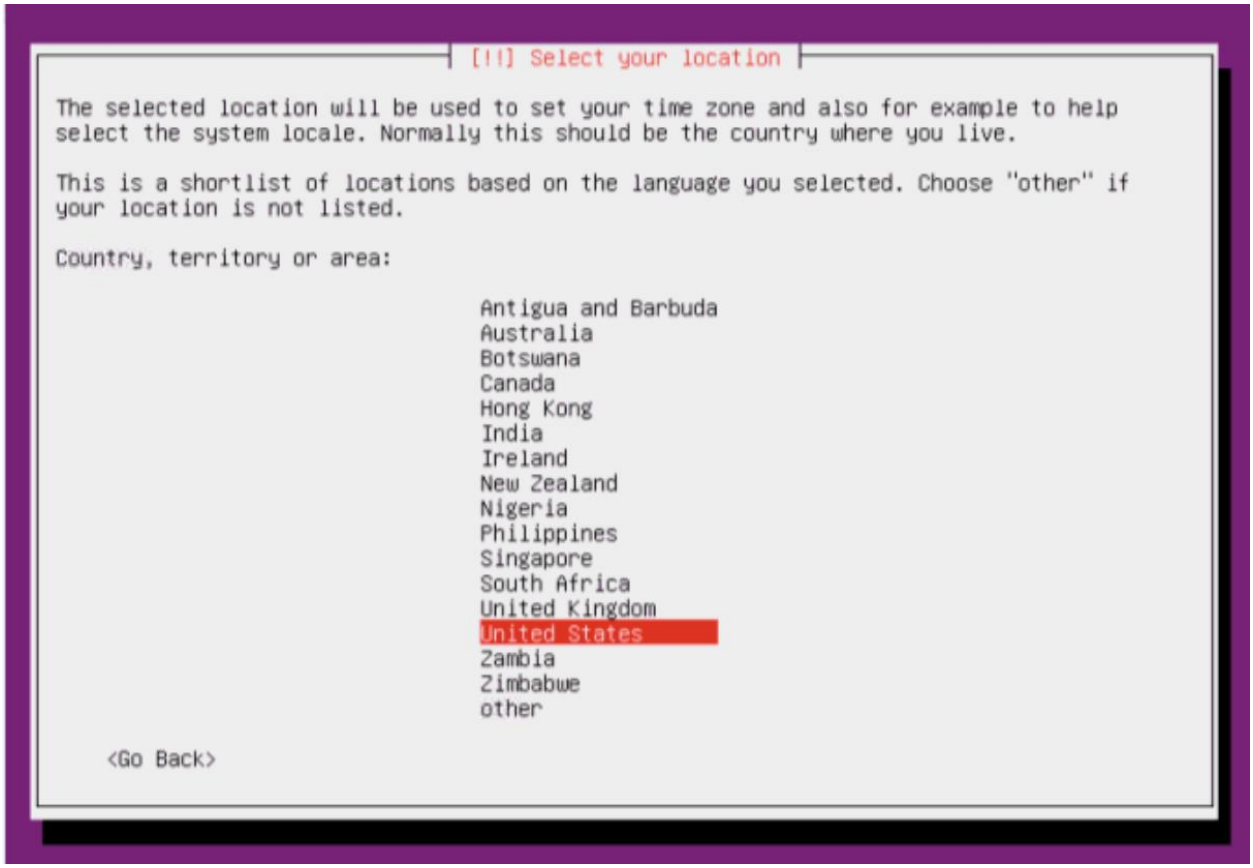
I'd Pick English =)

SELECT INSTALL UBUNTU SERVER <Image not shown>

Default Language. I'd suggest English, so just hit enter.

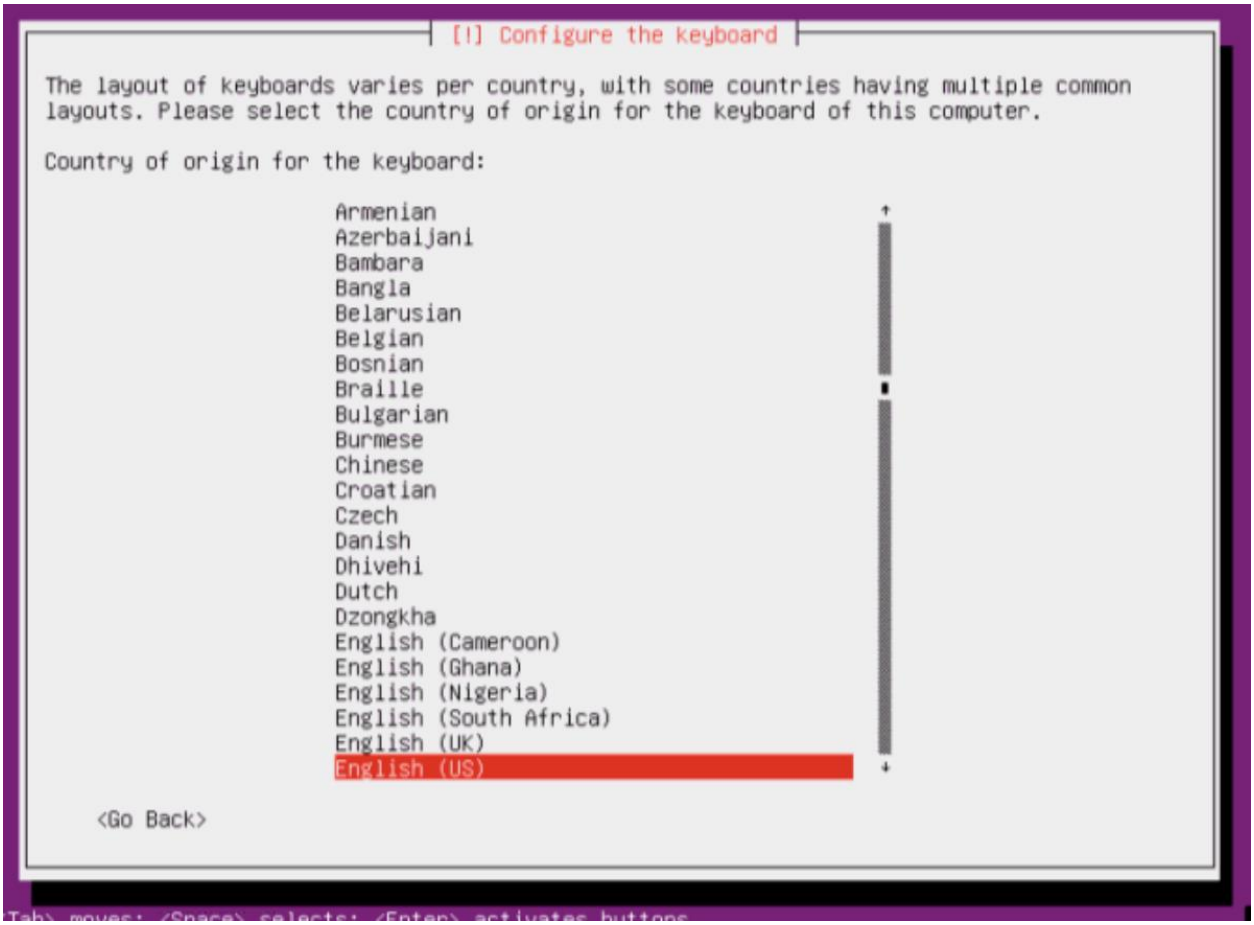

[!!] Select a language
Choose the language to be used for the installation process. The selected language will also be the default language for the installed system.
Language:
C - No localization
Albanian - Shqip
Arabic - عربي
Asturian - Asturianu
Basque - Euskara
Belarusian - Беларуская
Bosnian - Bosanski
Bulgarian - Български
Catalan - Català
Chinese (Simplified) - 中文(简体)
Chinese (Traditional) - 中文(繁體)
Croatian - Hrvatski
Czech - Čeština
Danish - Dansk
Dutch - Nederlands
English - English
Esperanto - Esperanto
Estonian - Eesti
Finnish - Suomi
French - Français
Galician - Galego
German - Deutsch
Greek - Ελληνικά
<Go Back>

Where will you be installing this Server? It defaults to the United States so just hit ENTER.



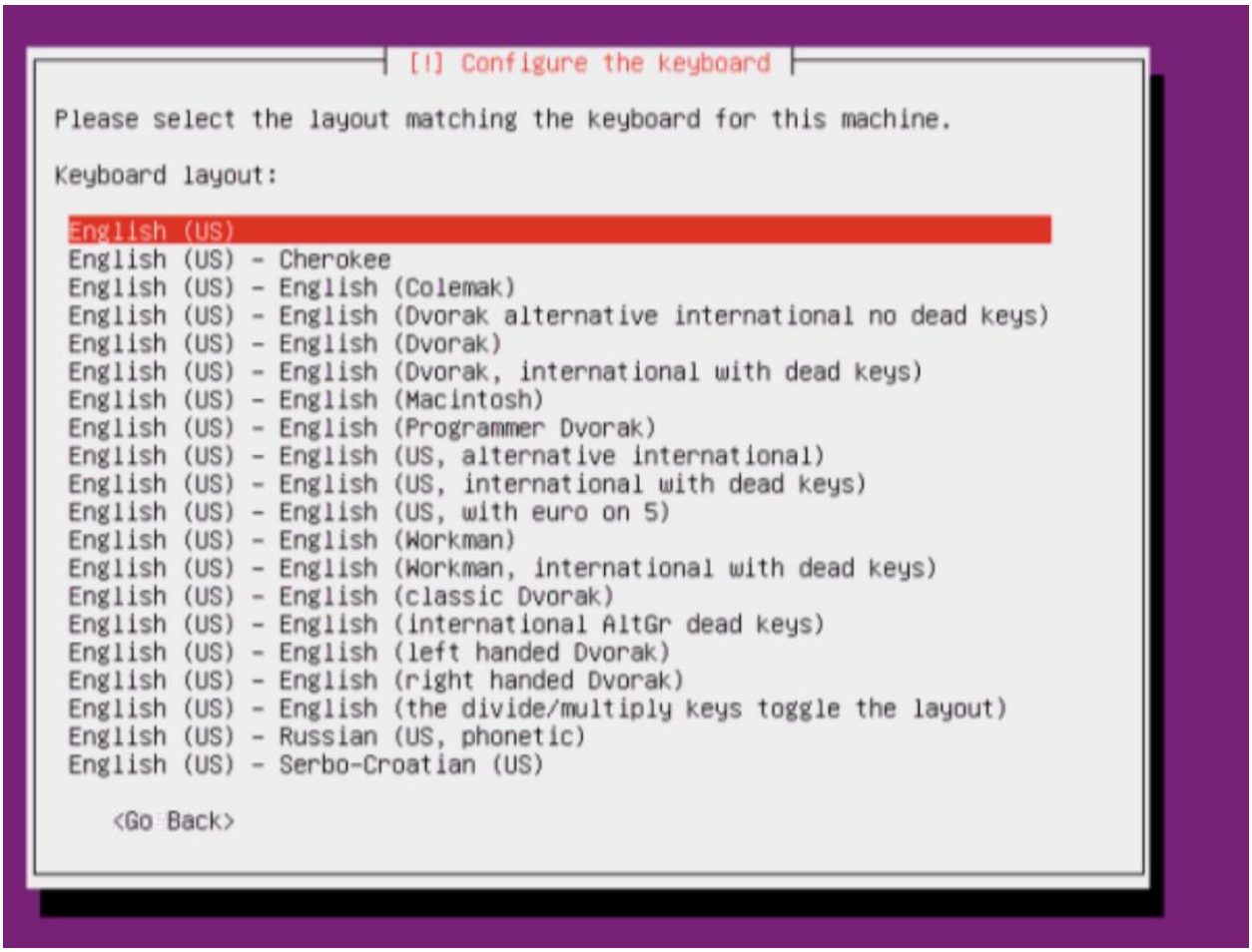
It kinda sucks detecting Keyboard Layout, its just super easy to pick, it defaults to NO, so just hit ENTER.

It defaults to English (US) <This just couldn't get easier?> Hit ENTER

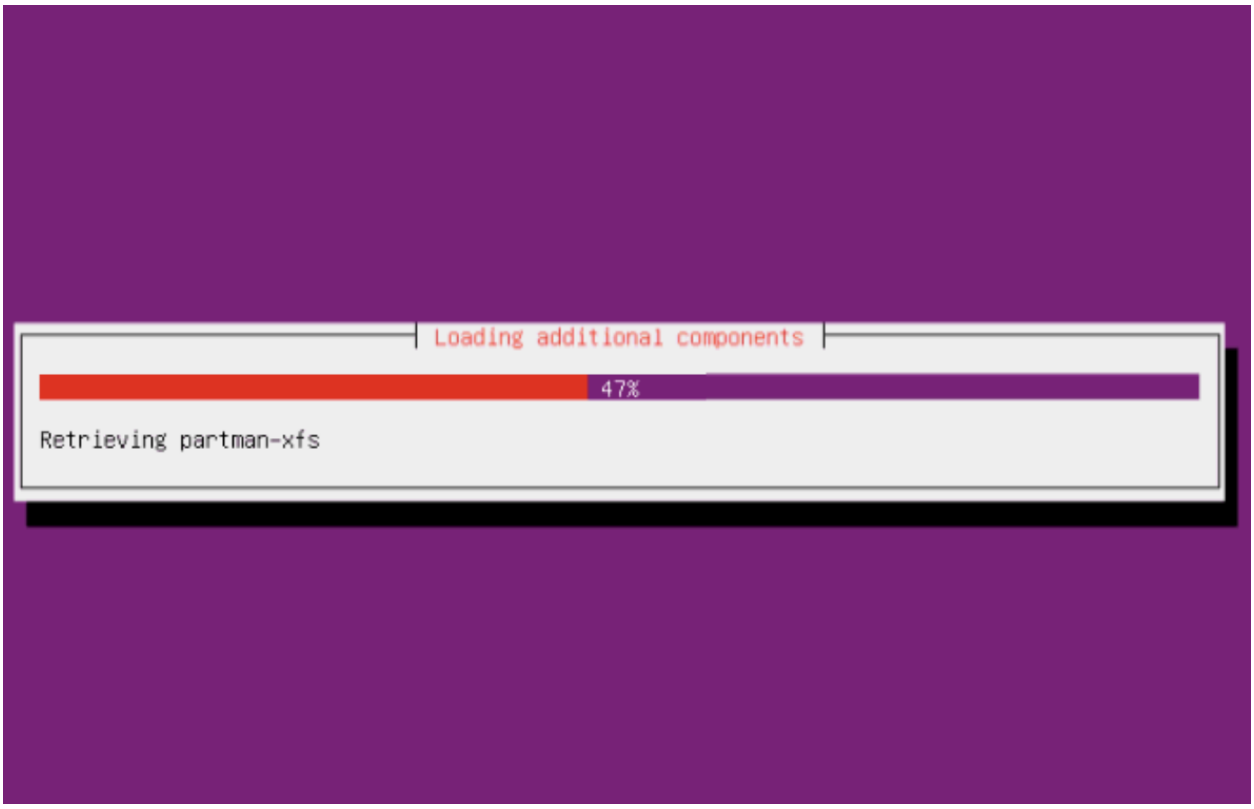


Again, Cherokee would be interesting, but not helpful, go with the default which is English (US)

JUST HIT ENTER

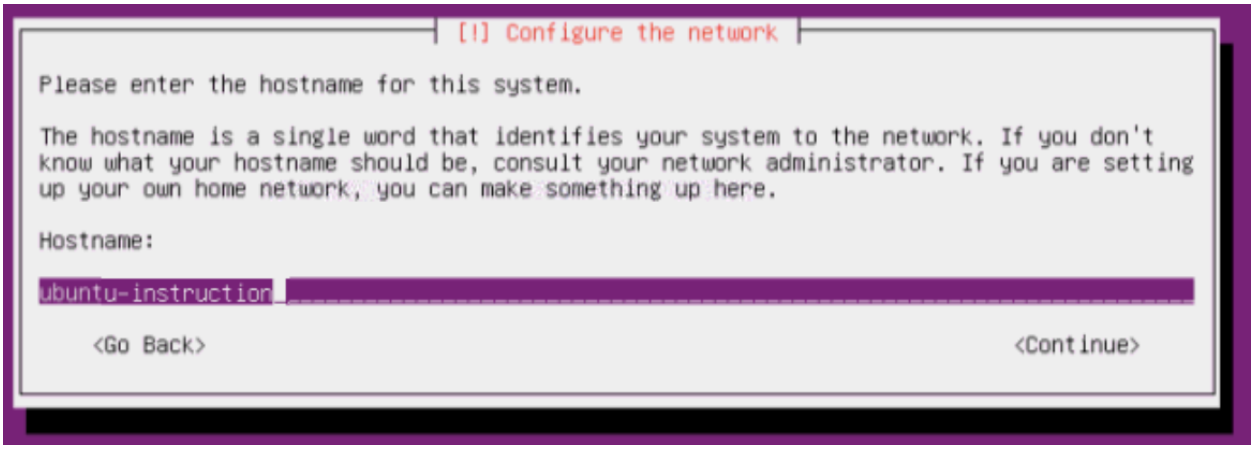


It will install a bit, be patient.



Settings it typically will be:

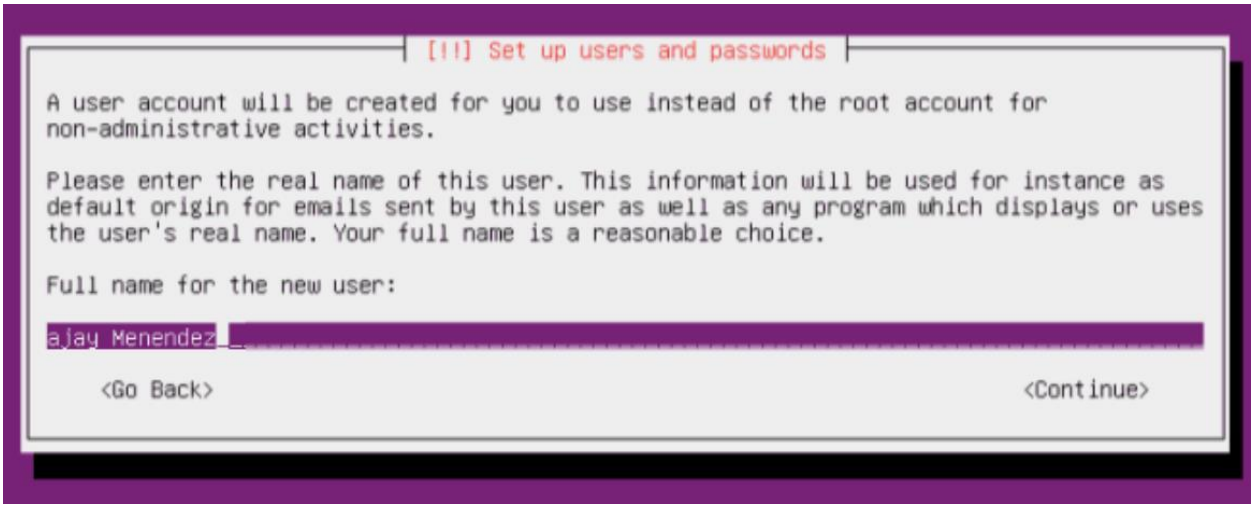
Give your system a hostname. All lowercase, something creative, but not crazy. =) No spaces. Leave it lowercase for simplicity.



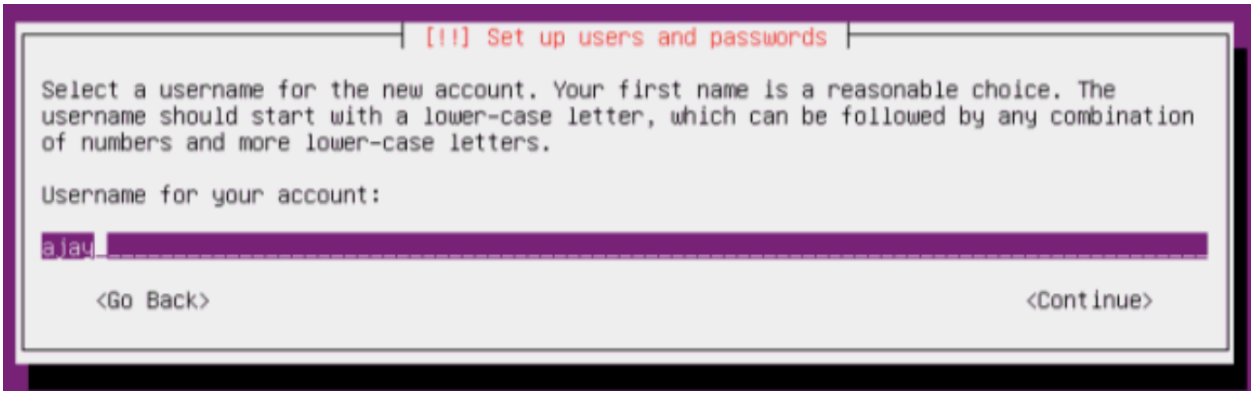
You don’t need a domain name, you can skip.

Time to create yourself a user account.

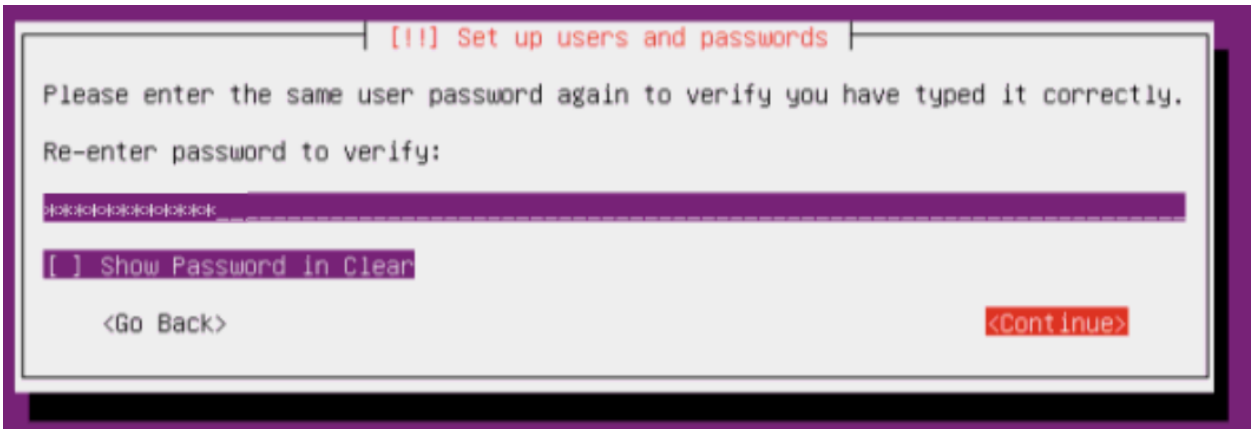
The first step wants your whole name, you don't NEED it, but you can put your full name.



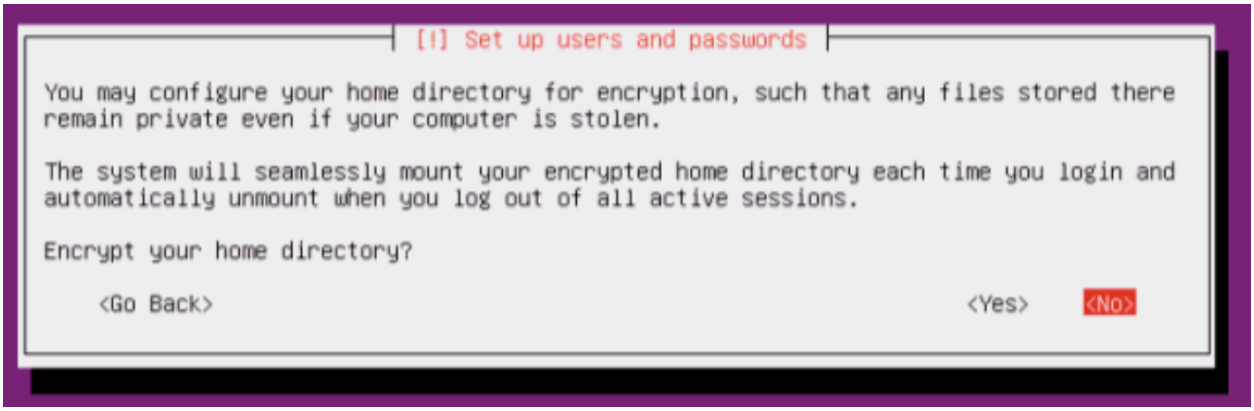
Next, it will be your USERNAME the word that you will use to login with. I'd go with your first name, all lower case. (In this example, I'll use ajay)



You'll need to give yourself a password, you'll have to validate it a second time.

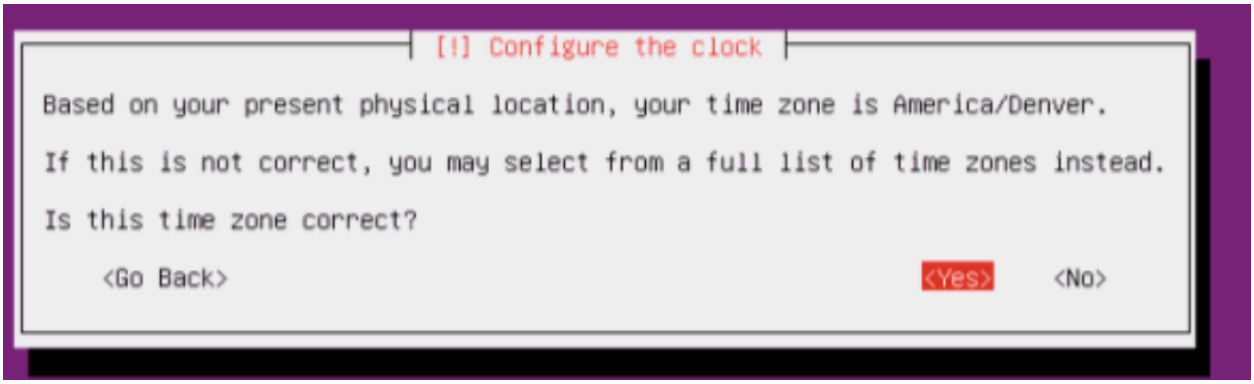


We're just learning, so we don't NEED to encrypt our home drive. Let's just say no for now.

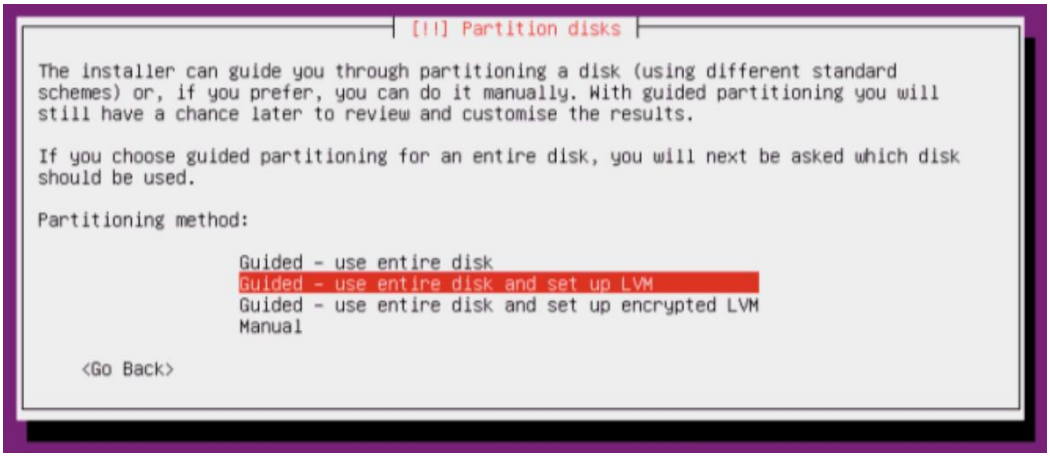


HEY what do you know, based off of the public IP from SecureSet its going to determine your server is located in Denver, this service is known as NTP, (Network Time Protocol) and it will be used to keep your server on the right time, Daylight Savings or not, and keep it at the right time.

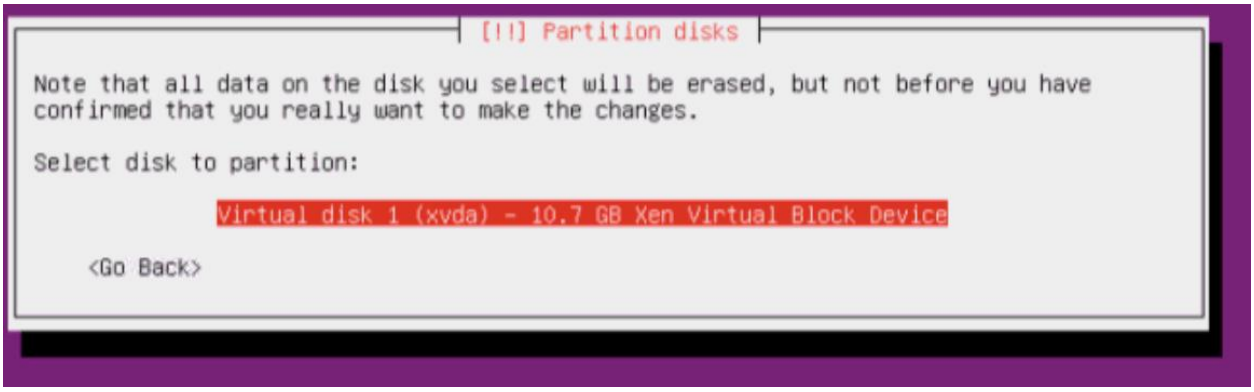
Just it enter, it will be the default which is yes.



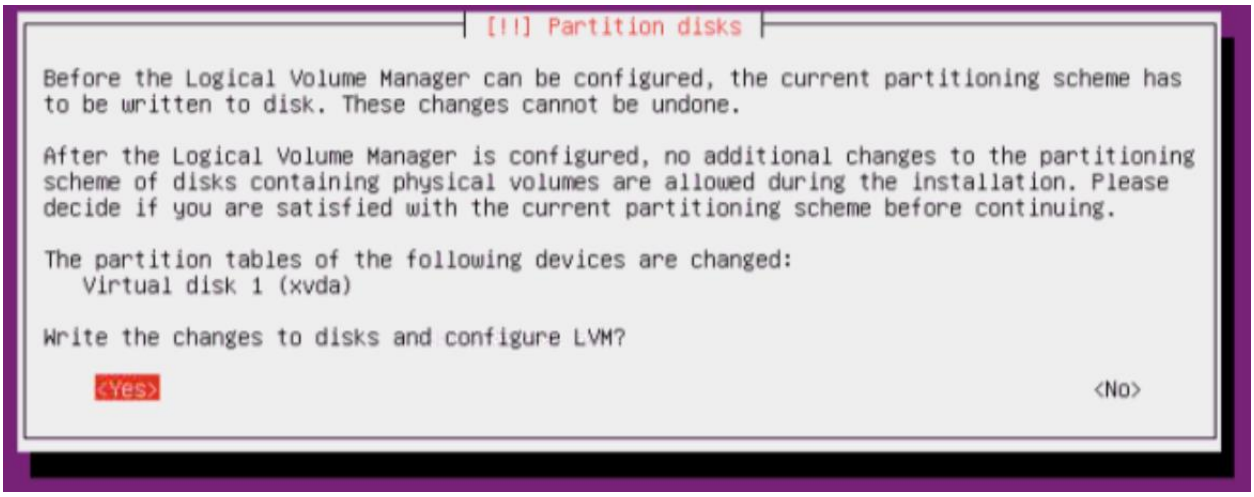
Its going to create the file system for the Ubuntu Server, so go ahead and use the default setting "Guided – use entire disk and set up LVM"



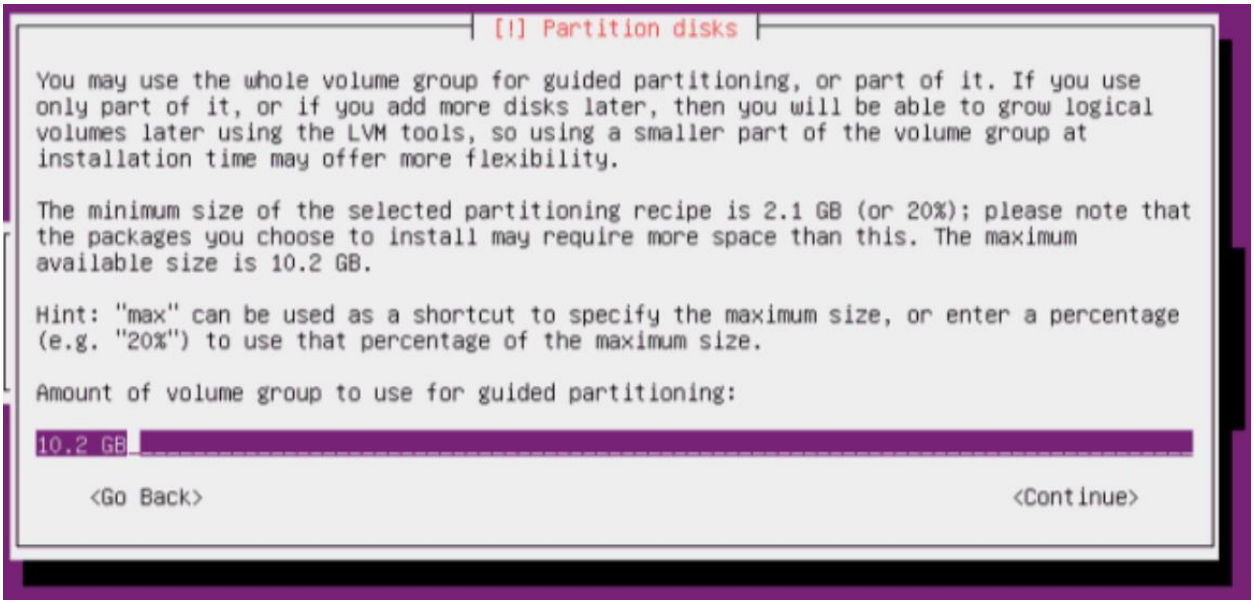
The next step has one option, I advise you to take it.



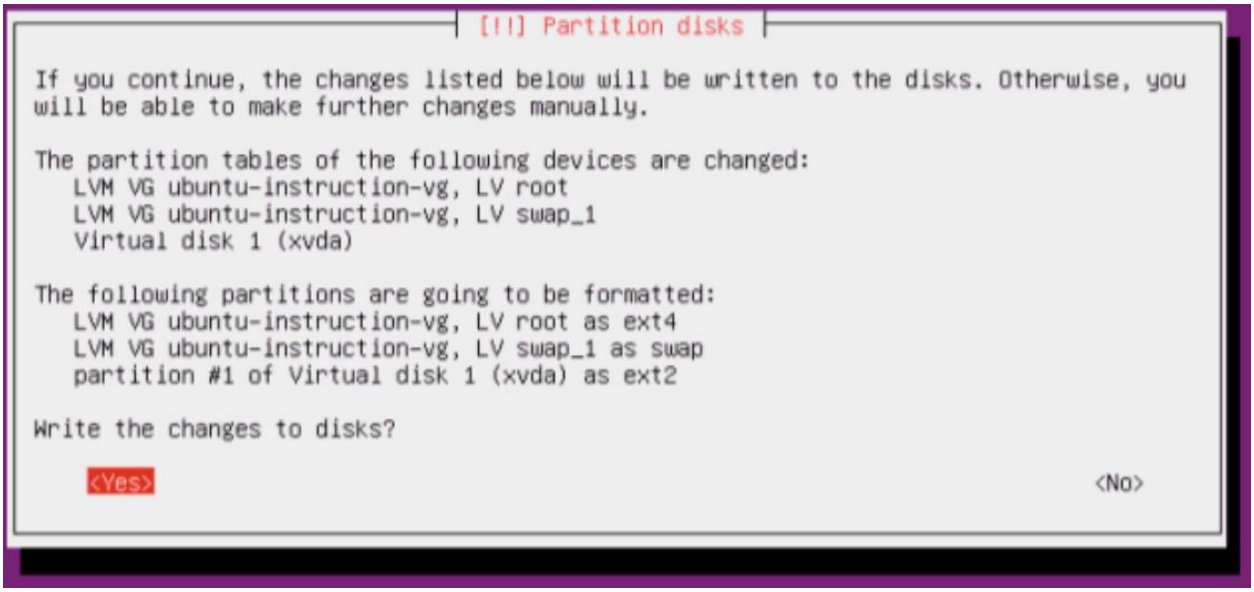
You want to hit TAB to ensure you are selecting YES and then hit enter for the next step.



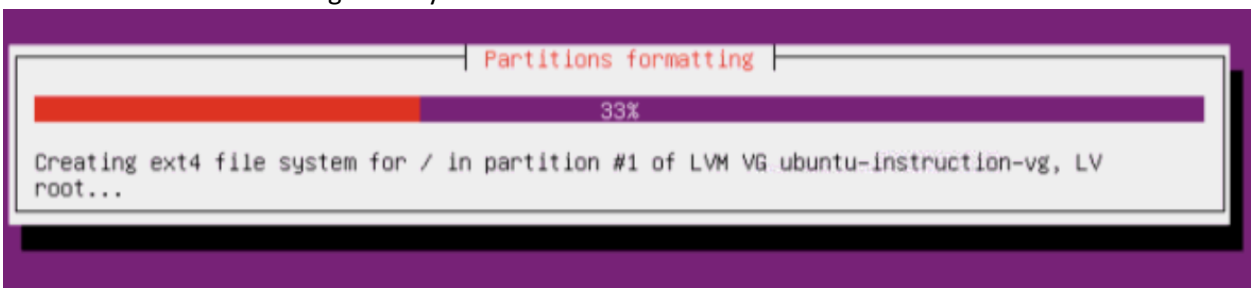
Stick with the defaults, just hit tab to go to <Continue> and hit enter.



Final Failsafe for your configuration, after this it will format the “virtual disk” and setup the partition and install the operating system. Hit tab to Select <YES> and hit enter. (Don’t worry it’s a VM, there is no data and you won’t blow anything up. (I hope)



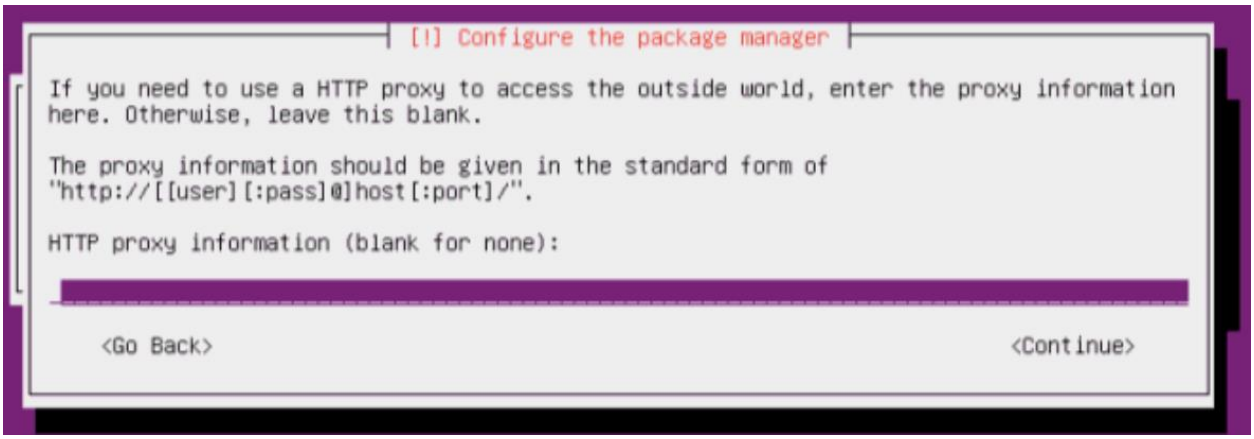
It will format the drive and get ready to install the OS.



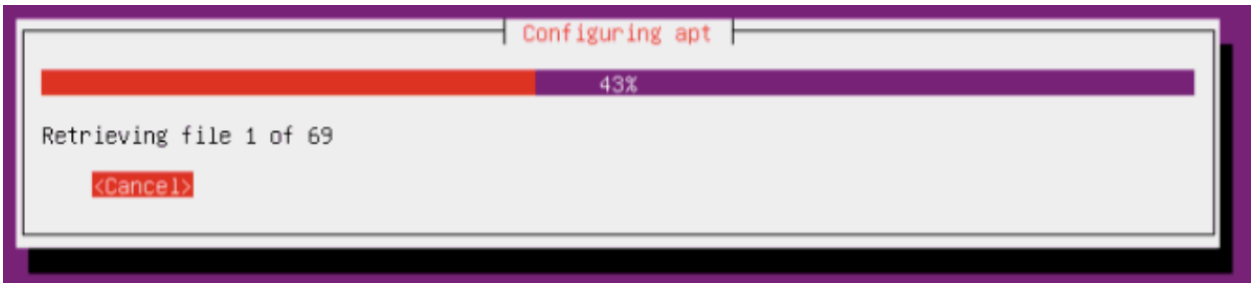
Be Patient, it might take a little while. =)

The next step is not necessary since we are not using a HTTP Proxy at SecureSet (YET!)

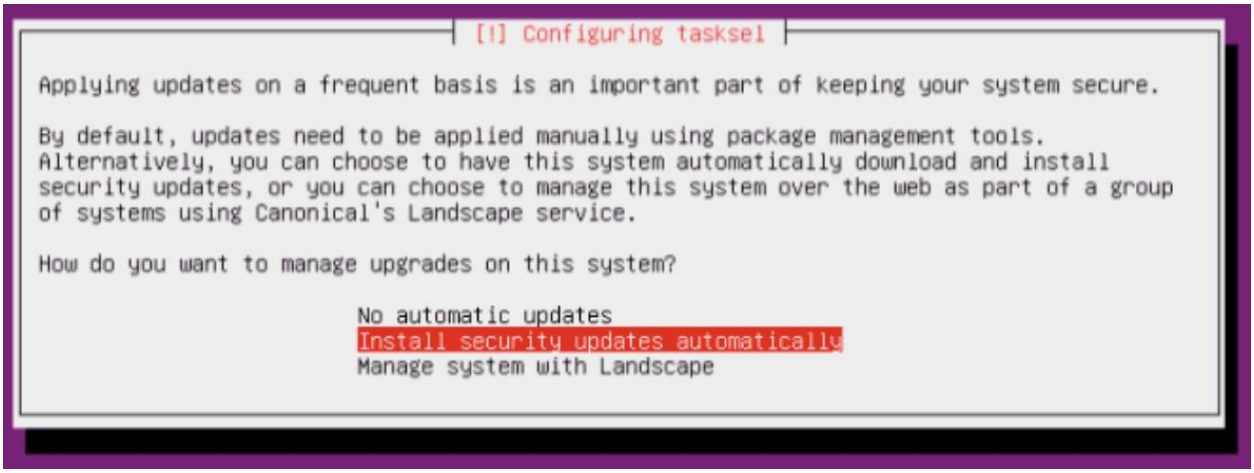
So just TAB till <CONTINUE> is selected and hit enter.



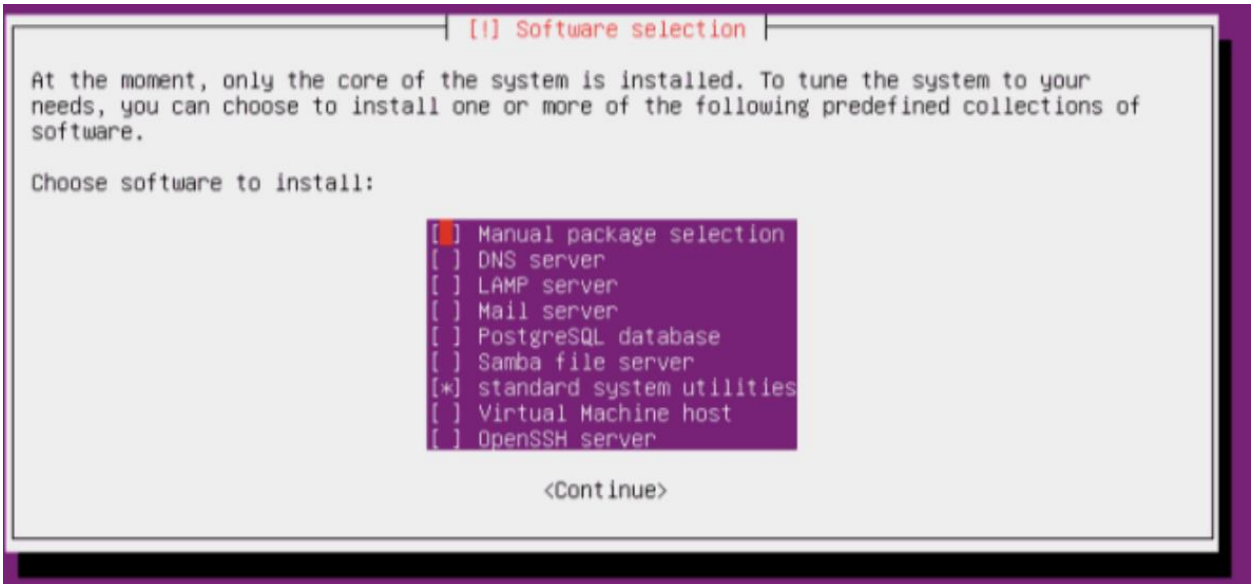
So, it will now start to install the software into the VM.



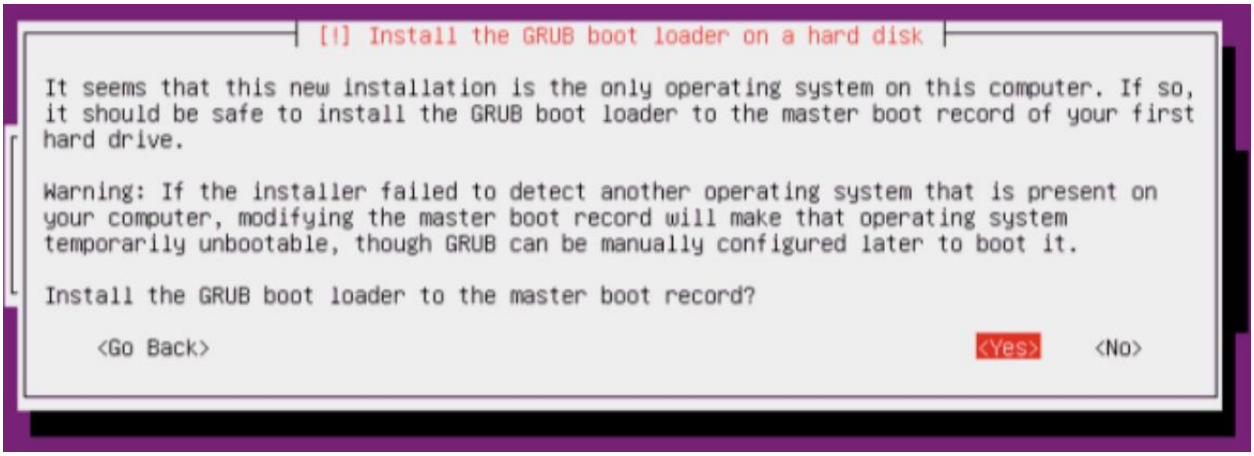
For your intents and purposes in the next step you will select “Install Security Updates Automatically” and hit ENTER



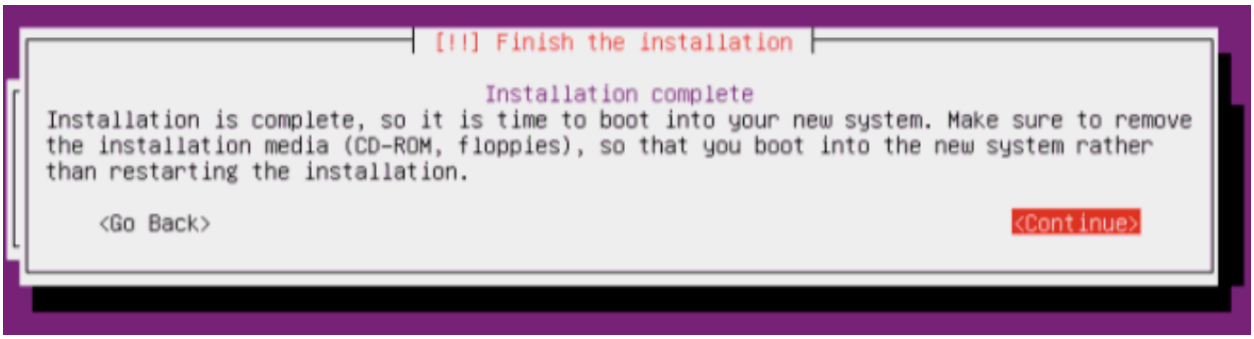
Just so you can get more experience getting hands on with Linux, we will NOT be installing any of the Software Packages besides the Standard System Utilities. So just hit TAB and <CONTINUE> with ENTER.



The next step is to install the GRUB Boot Loader. Ensure <YES> is selected and hit ENTER



Looks like your done. Time to reboot and start your server! =)



<skipping pretty easy steps. Start VM Then click the ubuntu start, then search for terminal then click!>

So from here we want to run some commands to ensure your Linux Server OS is fully up to date and ready to be used.

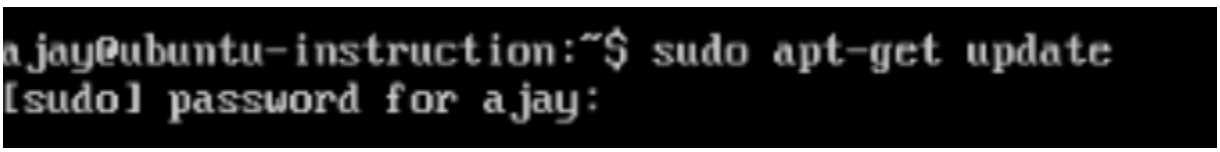
(The $ just shows you are on the command line. Please don't type it)

Commands to type in will be in RED TEXT.

Sudo (Super USER DO) is a command that escalates your privileges so that you can do administrative tasks as a normal user.

(You have to be in the SUDOERS list. As the initial user, you are not a administrator per se' but you are in the SUDOERS so that you can run the SUDO command and do administrative (or root in Linux) commands. More about that later)

$ sudo apt-get update



You'll need to type in your password.

It will do some work.

```
ajay@ubuntu-instruction:~$ sudo apt-get update
[sudo] password for ajay:
Hit:1 http://us.archive.ubuntu.com/ubuntu xenial InRelease
Get:2 http://us.archive.ubuntu.com/ubuntu xenial-updates InRelease [102 kB]
Get:3 http://us.archive.ubuntu.com/ubuntu xenial-backports InRelease [102 kB]
Get:4 http://security.ubuntu.com/ubuntu xenial-security InRelease [102 kB]
Fetched 306 kB in 0s (381 kB/s)
Reading package lists... 11%
```

Next command will upgrade the OS if there are any upgrades available for it.

$ sudo apt-get upgrade

```
ajay@ubuntu-instruction:~$ sudo apt-get upgrade
Reading package lists... Done
Building dependency tree
Reading state information... Done
Calculating upgrade... Done
The following packages have been kept back:
  linux-generic linux-headers-generic linux-image-generic
The following packages will be upgraded:
  apparmor apport apt apt-transport-https apt-utils base-files bash bind9-host bsdutils
  btrfs-tools cloud-initramfs-copymods cloud-initramfs-dyn-netconf coreutils cryptsetup
  cryptsetup-bin distro-info-data dnsmasq-base dnsutils dpkg eject git git-man grub-legacy-ec2
  init init-system-helpers iproute2 isc-dhcp-client isc-dhcp-common kmod less libapparmor-perl
  libapparmor1 libapt-inst2.0 libapt-pkg5.0 libasn1-8-heimdal libbind9-140 libblkid1 libc-bin
  libc6 libcryptsetup4 libdns-export162 libdns162 libdrm2 libevent-2.0-5 libexpat1 libfdisk1
  libgcrypt20 libgnutls-openssl27 libgnutls30 libgssapi3-heimdal libhcrypto4-heimdal
  libheimbase1-heimdal libheimntlm0-heimdal libhx509-5-heimdal libicu55 libisc-export160 libisc160
  libisccc140 libisccfg140 libkmod2 libkrb5-26-heimdal libldap-2.4-2 liblwres141 liblxc1 libmount1
  libmspack0 libnl-3-200 libnl-genl-3-200 libpam-systemd libpci3 libroken18-heimdal librtmp1
  libsmartcols1 libssl1.0.0 libsystemd0 libtasn1-6 libudev1 libuuid1 libwind0-heimdal libxml2
  linux-firmware locales login logrotate lxc-common lxcfs lxd lxd-client makedev mdadm mount
  multiarch-support nano open-iscsi openssh-client openssl overlayroot passwd pciutils
  python3-apport python3-distupgrade python3-problem-report python3-software-properties
  python3-update-manager resolvconf snap-confine snapd software-properties-common sosreport sudo
  systemd systemd-sysv tcpdump ubuntu-core-launcher ubuntu-release-upgrader-core udev uidmap
  unattended-upgrades update-manager-core update-notifier-common util-linux uuid-runtime vlan wget
  zlib1g
125 upgraded, 0 newly installed, 0 to remove and 3 not upgraded.
Need to get 100 MB of archives.
After this operation, 24.8 MB of additional disk space will be used.
Do you want to continue? [Y/n]
```

Notice that there are some upgrades available and it will take 24.8mb more room. If you just hit enter, it will do the default which is YES in this example. (See how its capitalized in the options?) You can type y if you want to but just enter will work fine.

It will take a couple minutes to complete. Be patient.

Lastly, we need to upgrade the distribution lists that Ubuntu already has access to.

$ sudo apt-get dist-upgrade

*** PRO TIP: Linux does an excellent job of autocompleting commands and folders and files. If you just type “sudo apt-get dist” and hit the TAB button it will auto complete the command for you. Its handy as computer people because we can be lazy and it ensures that the output is correct. (validation) ***

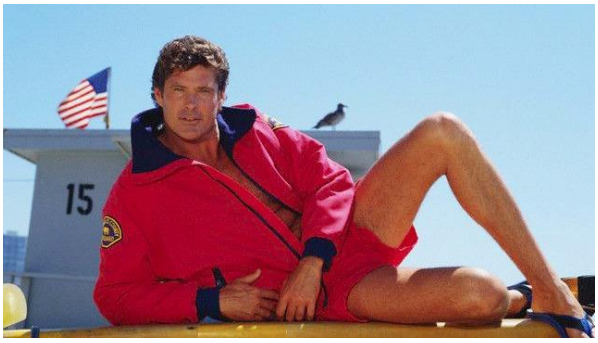
```
The following NEW packages will be installed:
  linux-headers-4.4.0-93 linux-headers-4.4.0-93-generic linux-image-4.4.0-93-generic
  linux-image-extra-4.4.0-93-generic
The following packages will be upgraded:
  linux-generic linux-headers-generic linux-image-generic
3 upgraded, 4 newly installed, 0 to remove and 0 not upgraded.
Need to get 68.6 MB of archives.
After this operation, 297 MB of additional disk space will be used.
Do you want to continue? [Y/n] _
```

So it looks like there are a LARGE amount of Distribution updates. This might take 5 min or so.

Good time to get coffee. =) (But make sure to lock your computer, you never want to leave a computer unlocked while it is unattended. Instructors have been requested to change the desktop of your computer to David Hasselhoff if they find your computer unattended and unlocked)

Ask your instructor why. It’s a #cybersecurity thing.

You should google what shortcuts or hotkeys or hot corners you can configure to easily lock your host workstation. <YES THIS IS IMPORTANT>



Excellent, so now your system is for the most part, ready to go. Good job!

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