Linux Installation

CIS 2230 Linux System Administration

Lecture 2

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Review

- 2 main threads of UNIX:
- The inventor of Linux is:
- The logo for Linux is:
- How many 'flavors' of Linux? (ballpark)
- Name 2 popular ones:
- What features of Linux makes it a superior OS for servers, even 90% of the world's supercomputers, including IBM's Watson?
- Name 2 elements of the Unix Philosophy?
- What are the 2 primary GUIs for Linux?
- GPL stands for:
- Another name for GPL is:
- GNU stands for:
- Ubuntu releases how many times per year?
- The Ubuntu releases are named by what 3 things:
- For Ubuntu, LTS stands for:
- How would you describe the prof's standard for lab writeups?

Linux Environment Choices

- You have to make three choices …
  - ✓ *Note*: You *can* change mid-course. No problem.
  1. Which computer to use: your own or a VTC lab computer
  2. Which method for running Linux
  3. Which Linux distro to use
- My recommendations:
  - #1 – your own laptop is the most convenient
  - #3 – Use latest LTS Ubuntu – 16.04.3 Xenial Xerus
    (or get the latest distro – 17.04 Zesty Zapus)

#2 Which method of running Linux

- #2 is a little more complicated
- There are 3 options for running Linux...

- Option 1: '*Live Boot*'

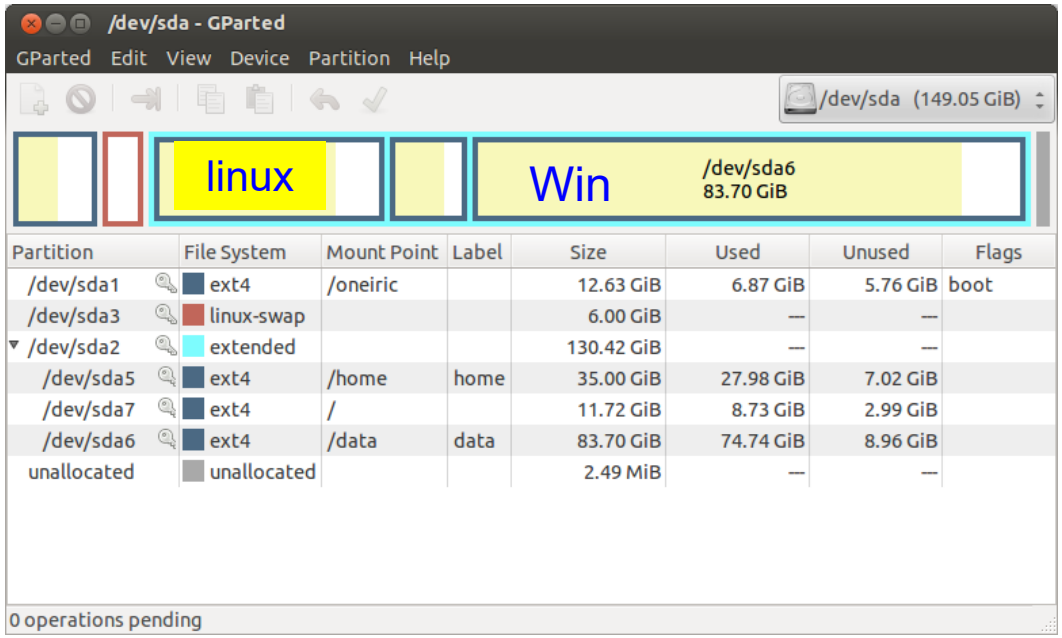
  i.e. Put Linux OS on a CD or USB drive
  - + same image each time
  - - terribly slow (much slower than HD)
  - - can't easily save work week to week

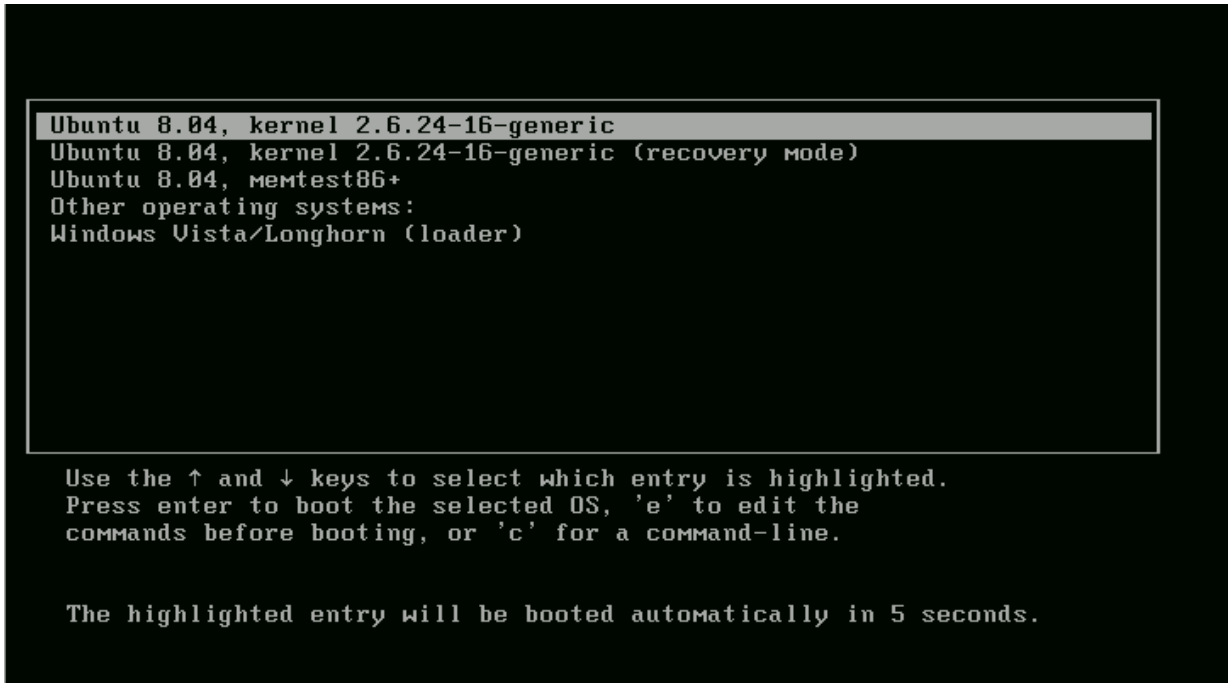
#2 Which method of running Linux cont'd

- Option 2: *Dual Boot*

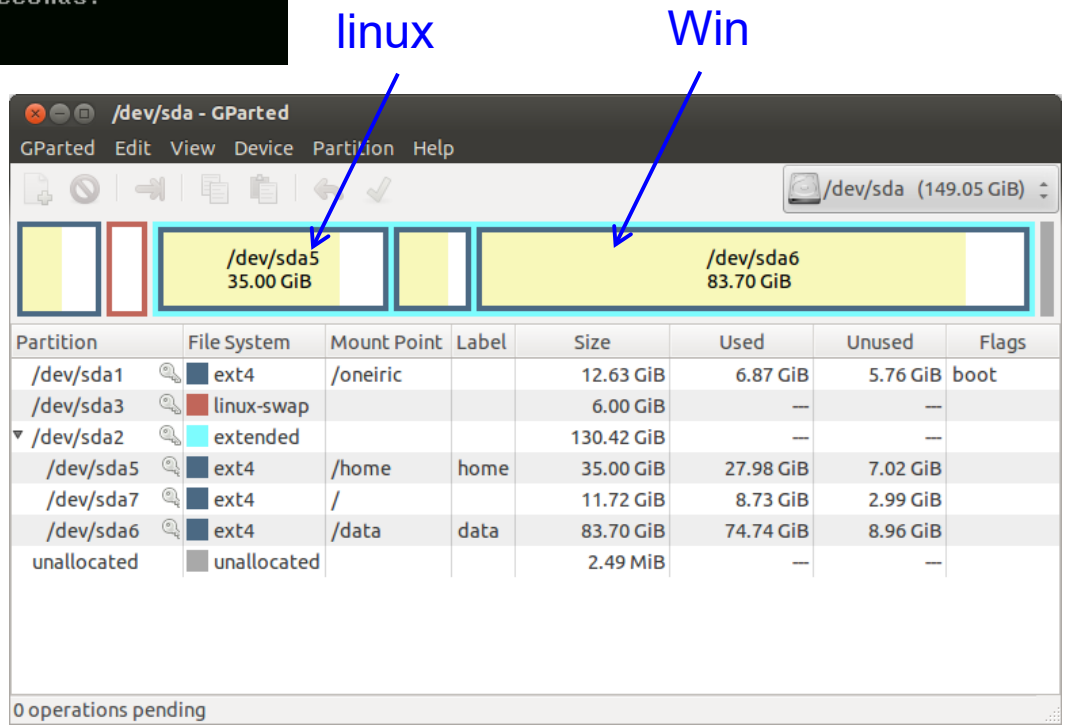
  i.e. create multiple partitions and select Linux at reboot

  - + Linux runs native (fast)
  - - can't do in VTC lab
  - - tedious to reboot
  - - repartitioning to create a new partition can be problematic





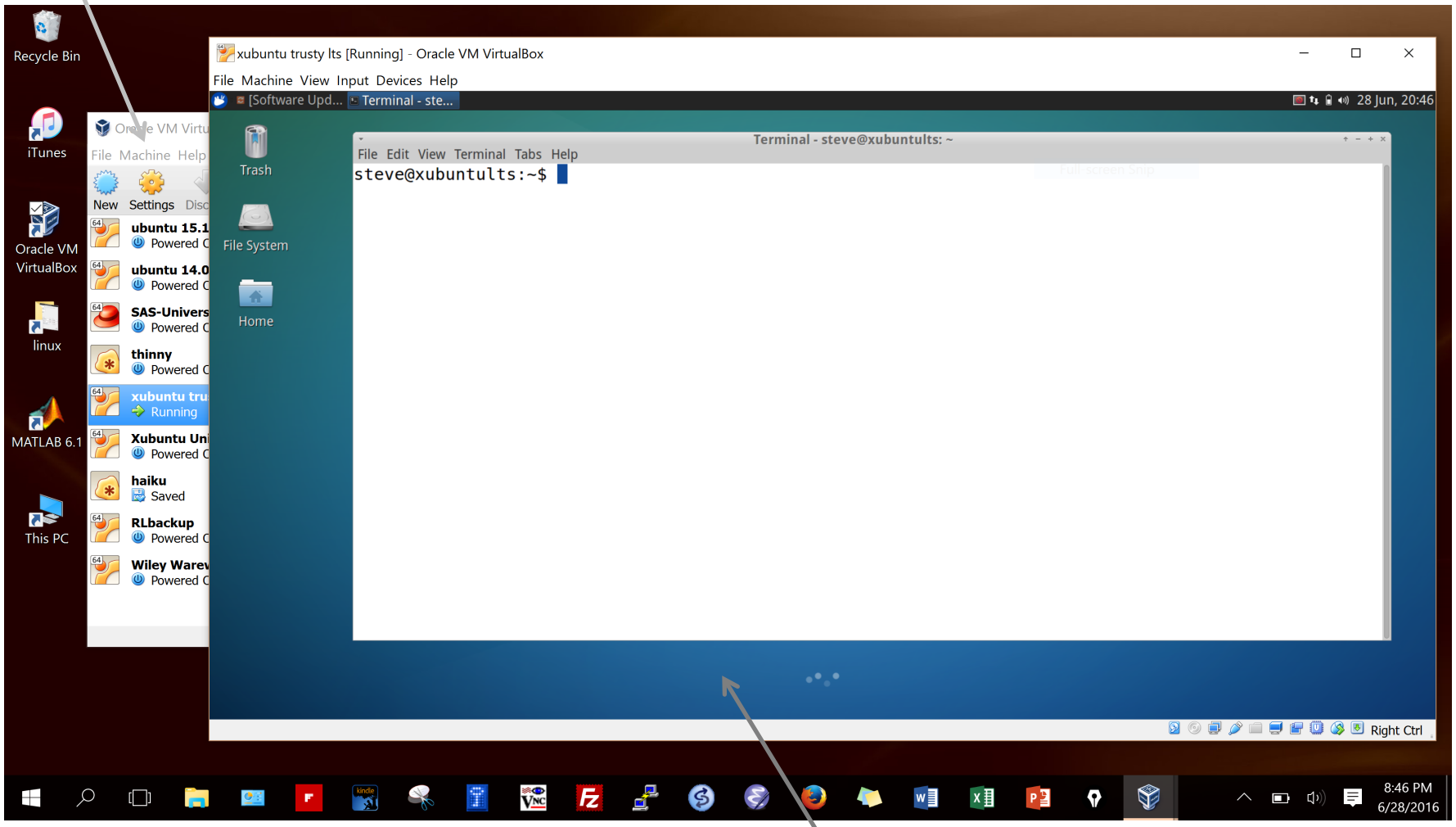
Example bootloader



#2 Which method of running Linux

- Option 3: *Virtualization*
  - "host" = the 'normal' or 'regular' boot OS
  - "guest" = whatever other OS you want to run
  - The guest OS "*thinks*" is running on it's own HW. Of course, it's not. It's 'sharing' with the host OS.
    - Guest file system is actually a large, single file in host OS
    - + no changes to host OS
    - + start and stop guest OS as desried
    - + can share files between OS's
    - - shared resources and virtualization, so somewhat slower
  - 2 'main' free virtualization applications
    - Oracle VirtualBox
    - VMware Player

Oracle VirtualBox on Win 10 host OS, running linux Ubuntu guest OS.

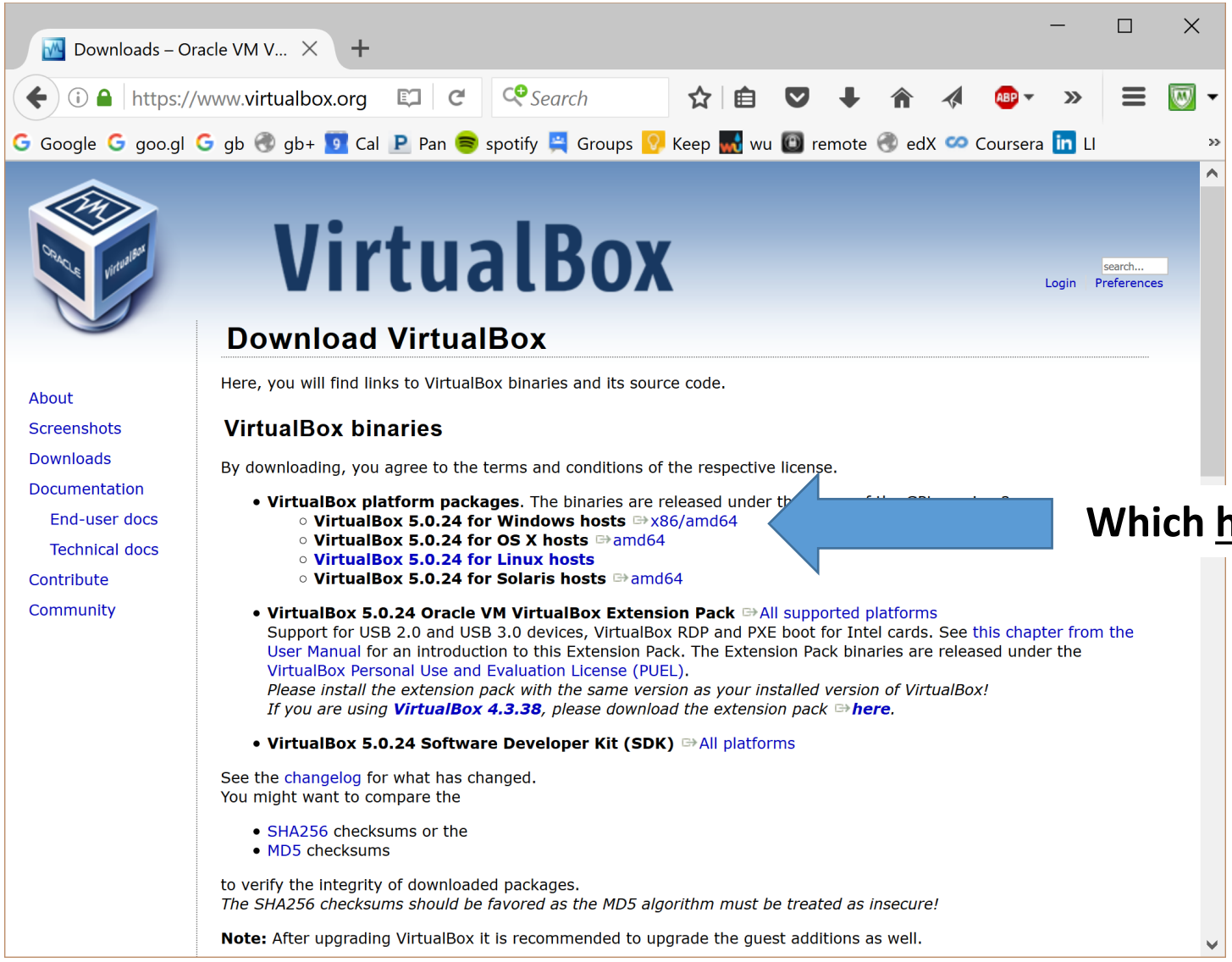


"host" OS – how the machine booted (win 10)

"guest" OS – running inside a "window" (It thinks it's running in its own computer.)

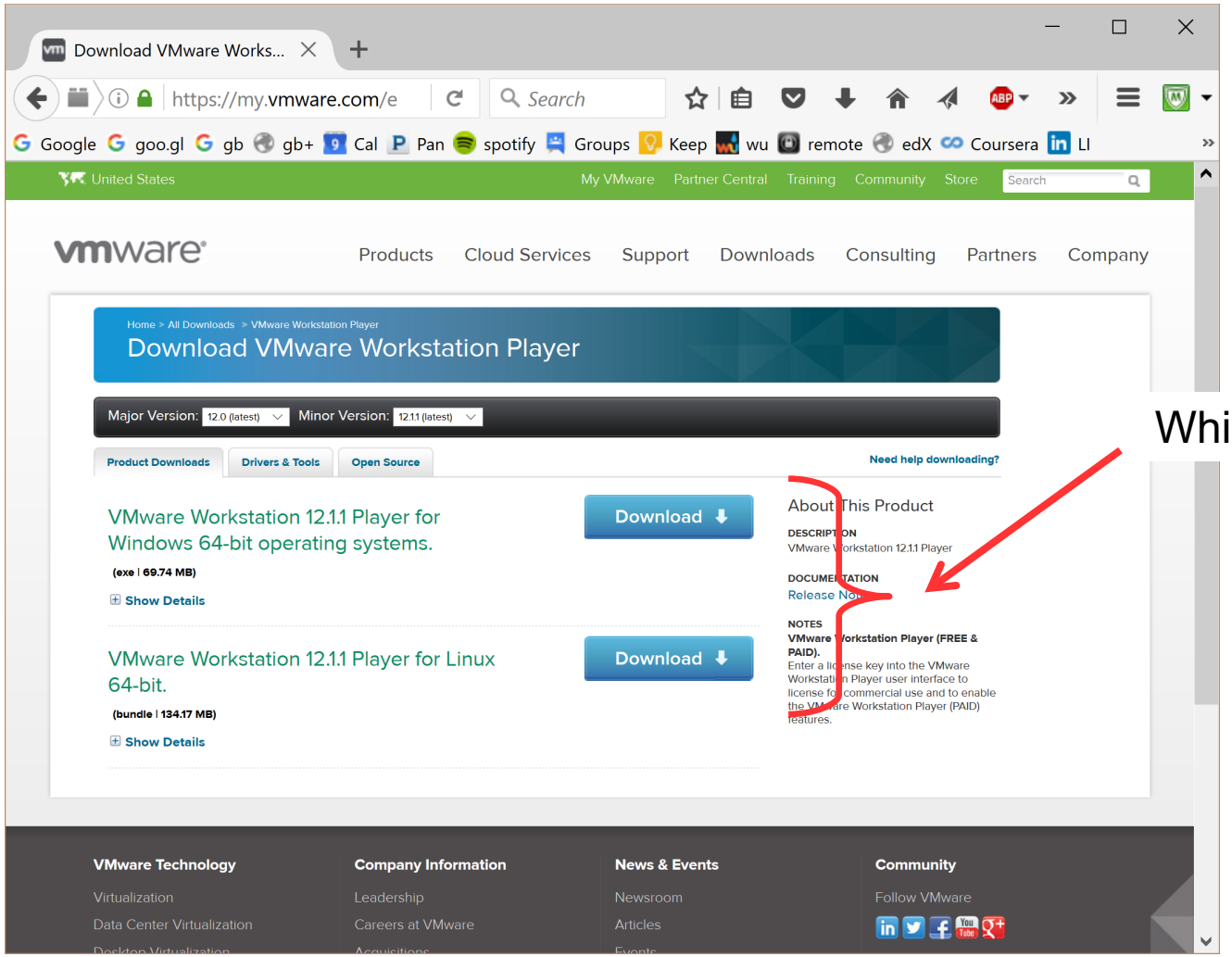
Oracle Virtualbox

Oracle Virtualbox



VMware Player

- Google: “vmware player download”
- https://www.**vmware**.com/go/**downloadplayer**



Which “*host*” OS?

Prof Recommendation

→ Oracle VirtualBox (Vbox) running LTS Ubuntu on your own laptop

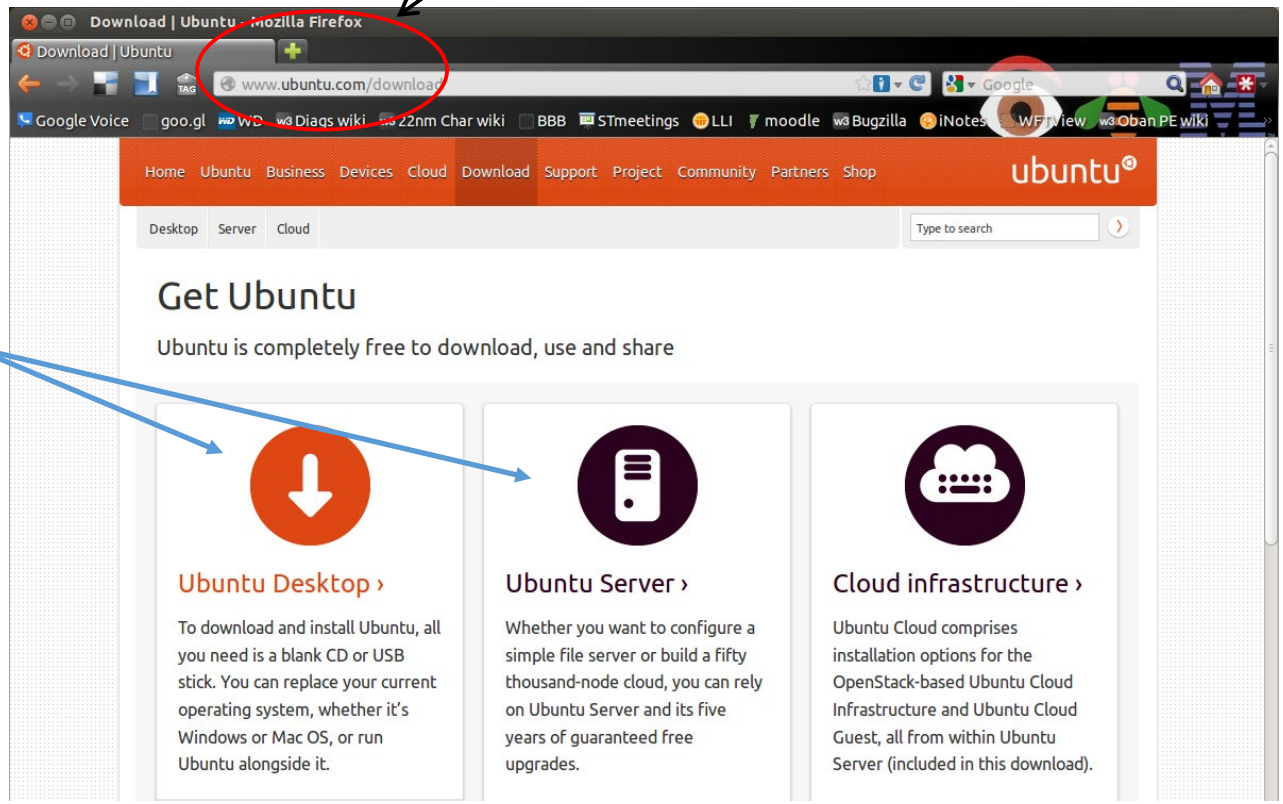
- It seems to me that VirtualBox is more 'popular' in classrooms, but VMware might be more stable.
- If you don't have your own laptop, that's OK.
  - Use VBox "appliance" and a memory stick
  - Keep your Linux env on this "appliance" file and have it travel with you.
  - Use it on *any* computer in the lab (or anywhere there is VBox).
  - 5 min setup to copy from USB to that computer, then run VBox on that computer

Download Ubuntu Desktop iso

- Whether you use VBox or VMware, you will install linux in the VM.
- Linux is free → *no need* to go to Best Buy and purchase install disks!!!
- Just download the iso from the 'net.
- What's an iso?

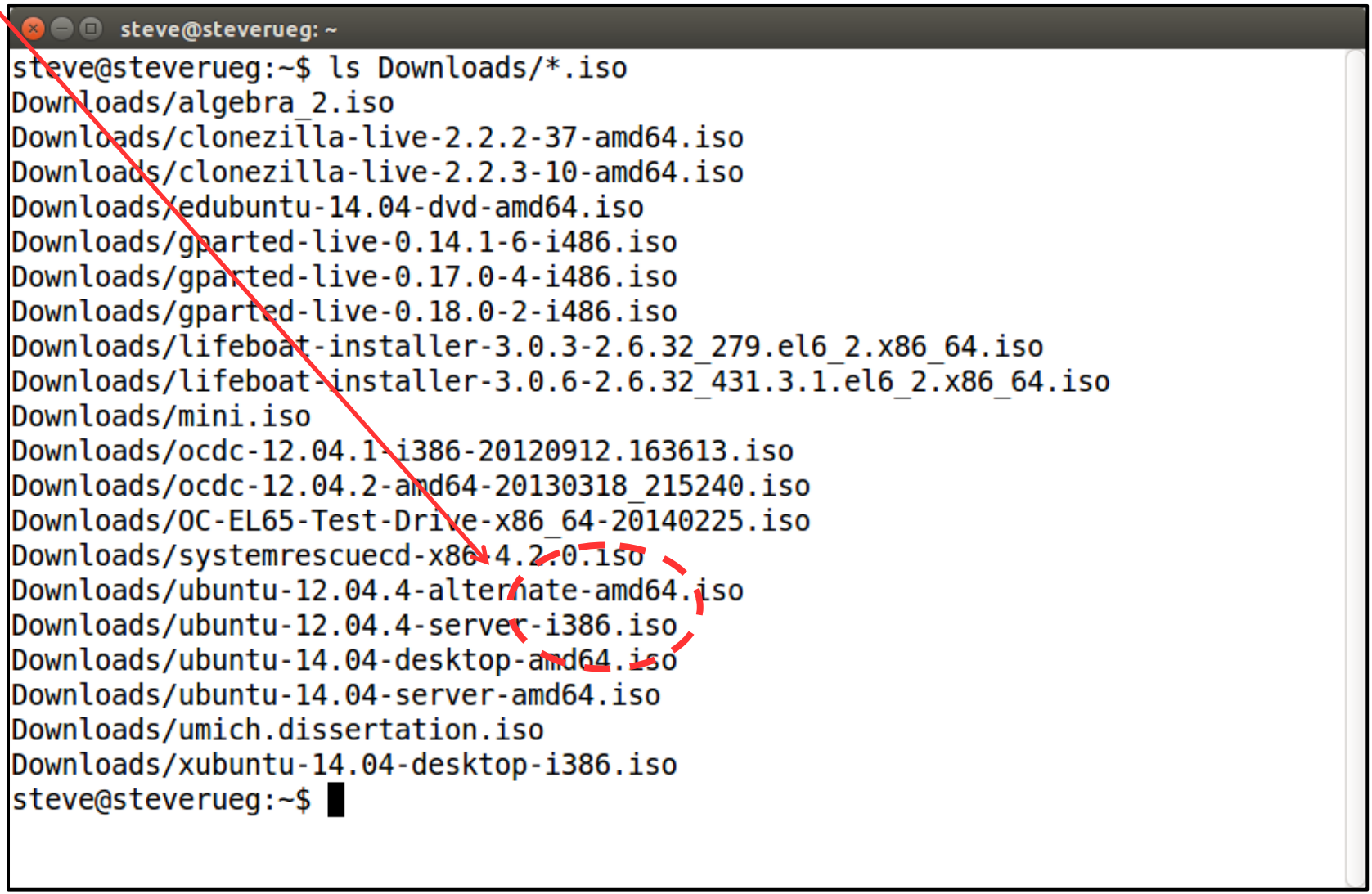
Ubuntu vs mirror (local)?

What's the diff between Desktop vs Server?



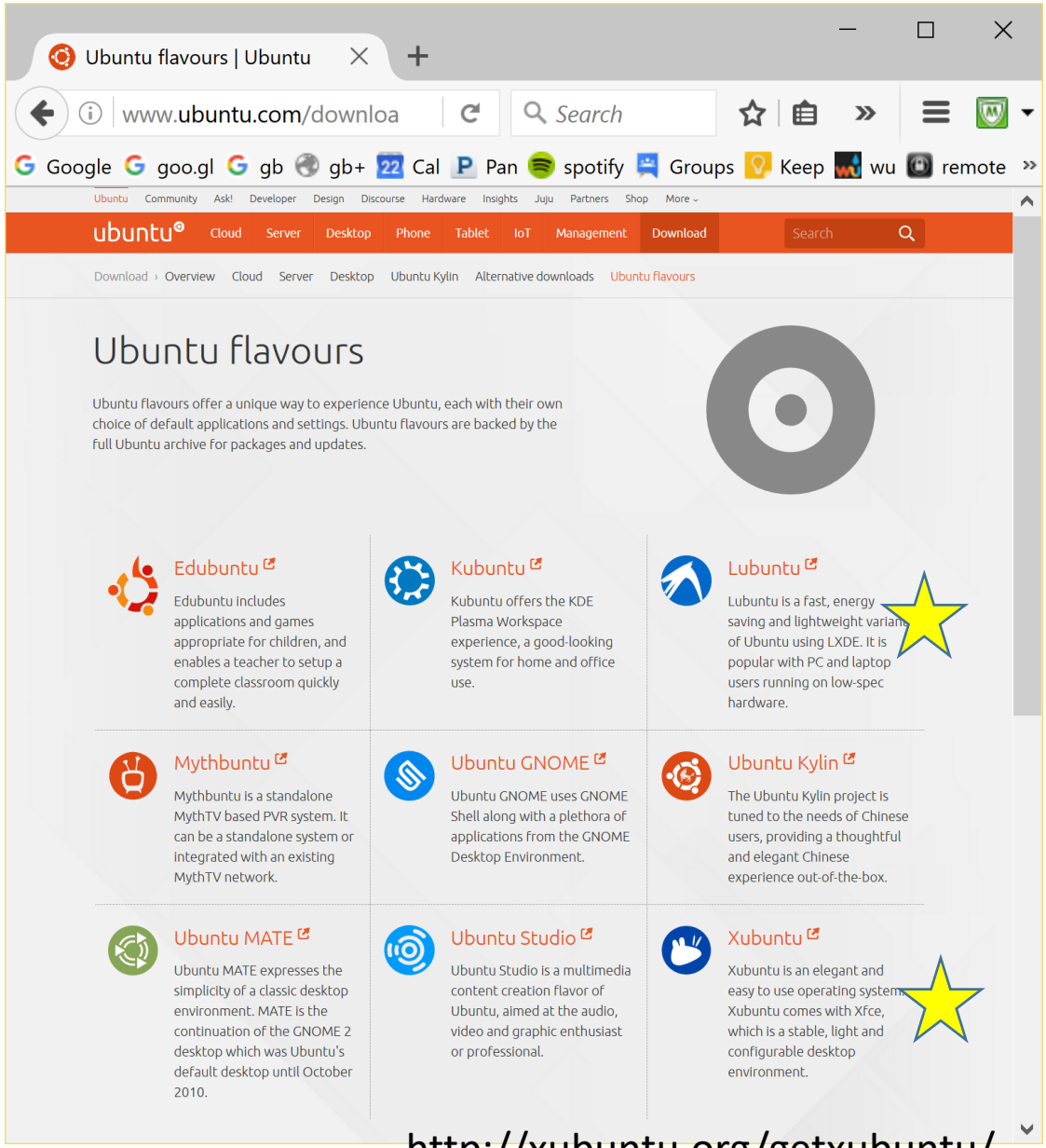
Lots-o-iso's

What is i386 vs amd64?



Ubuntu “flavors”

- Xubuntu
  - Ubuntu built with XCFE UI.
  - Rather simple. (Still 1Gb)
  - Doesn’t take too much CPU.
  - My choice this semester.
- Lubuntu
  - Built on LXDE.
  - Very simple.
  - (a little too simple for me)



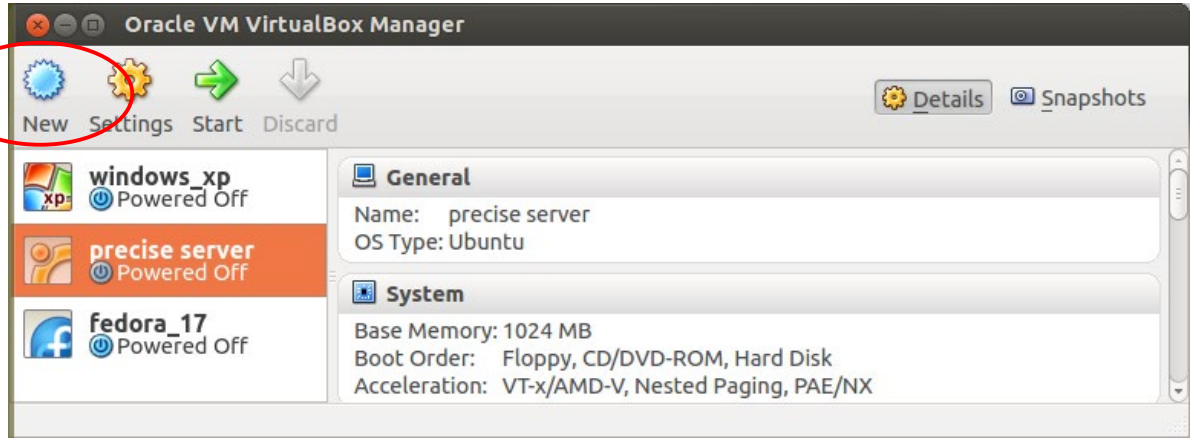
http://xubuntu.org/getxubuntu/

Notes on Ubuntu GUI 'flavors'

- Google “ubuntu derivatives” http://www.ubuntu.com/about/about-ubuntu/derivatives
- Default Desktop Environment GUI is Unity
  - + Most complex, 'prettiest'
  - - Takes most CPU resources = slowest
- Kubuntu (& Mint)
  - KDE – medium complexity
- Xubuntu
  - XFCE – lightwieght
- Lubuntu
  - LXFE – super lightweight
- Recommendations:
  - If you don't have an i7 (4-core), you might not want Unity
  - Therefore, you *might* want to start with Xubuntu. I am.

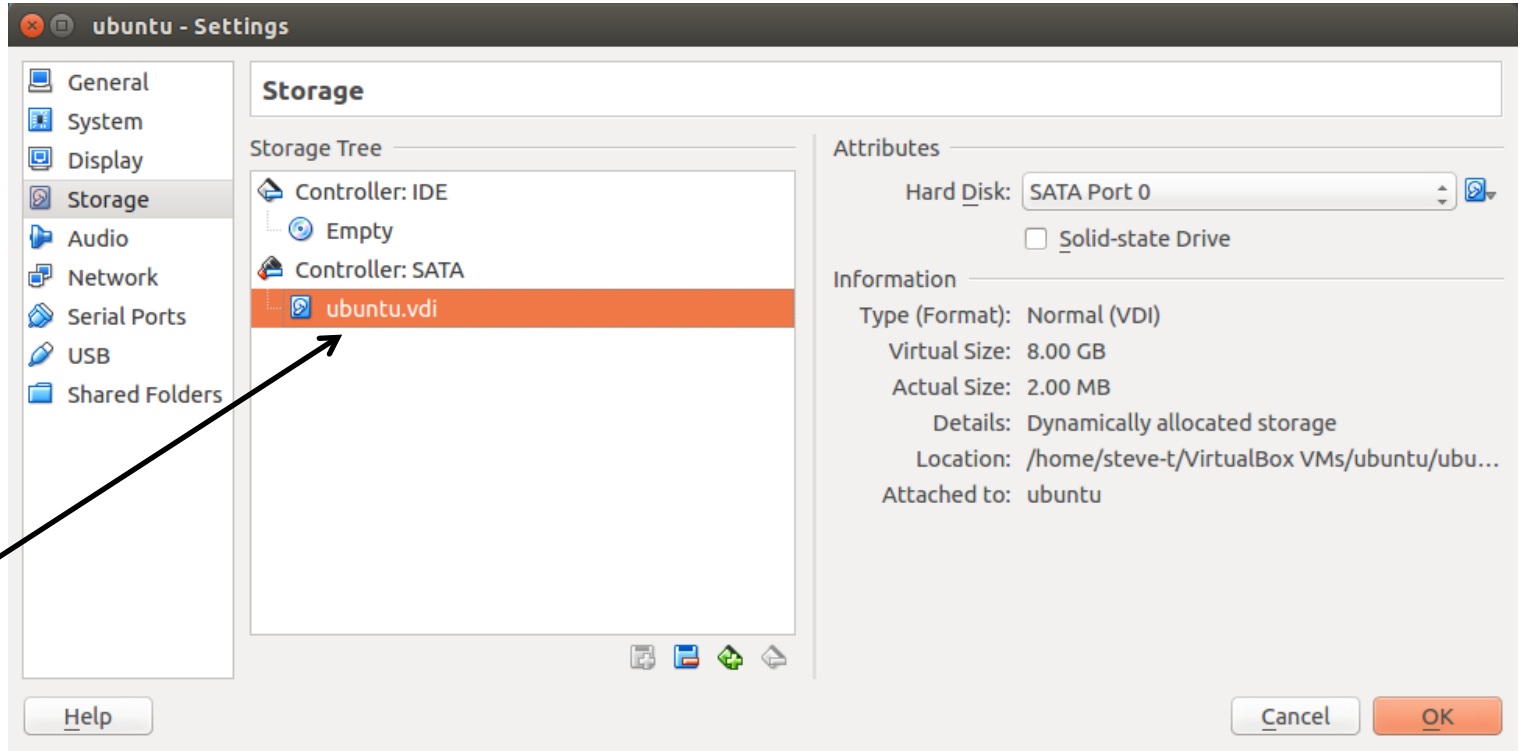
Let's do Lab 1

Start VB app and create new virtual machine (VM)



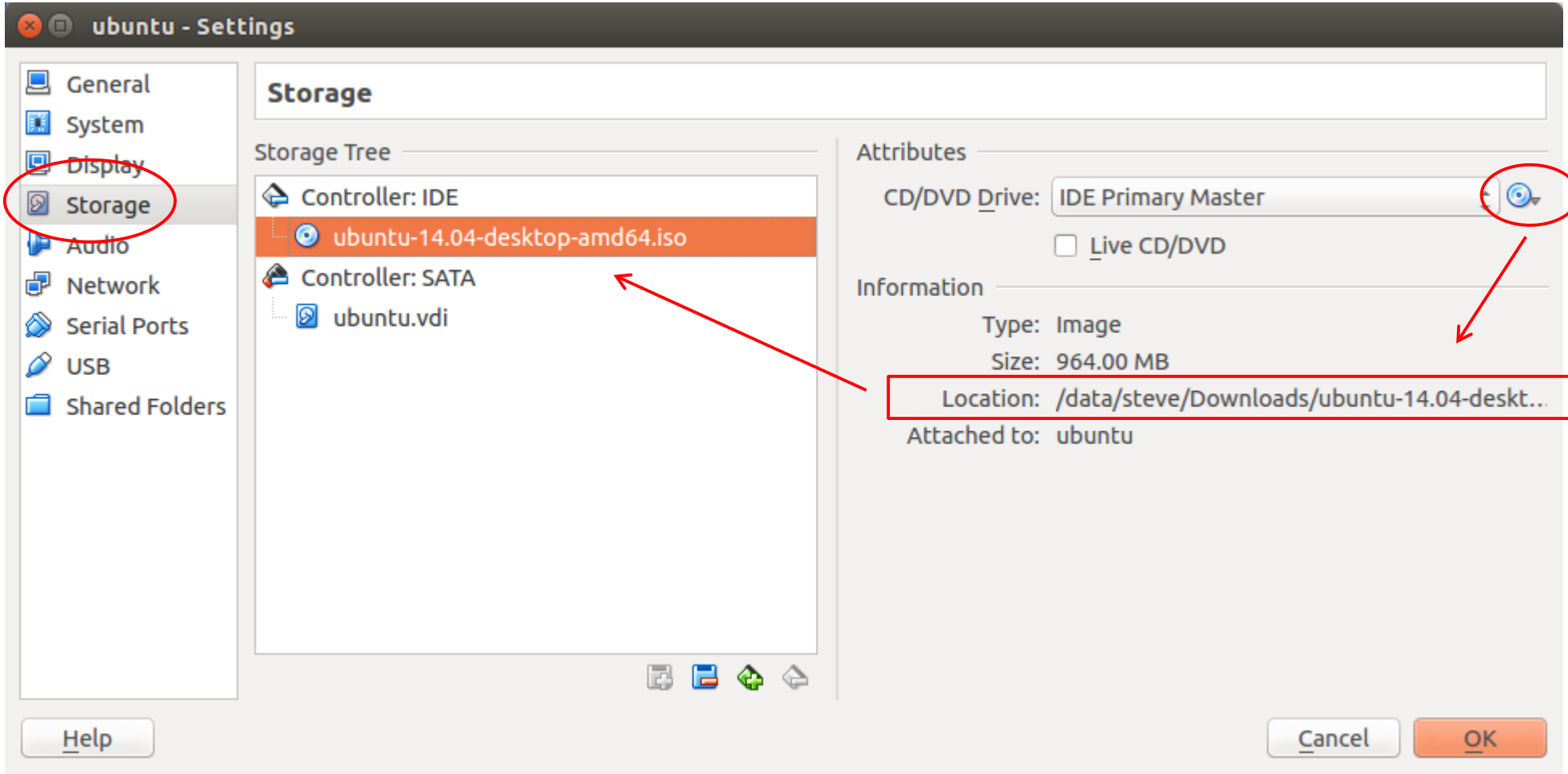
Suggest:
1Gb mem (1024Mb)
12 Mb video RAM
8Gb VDI harddrive

3 VM's



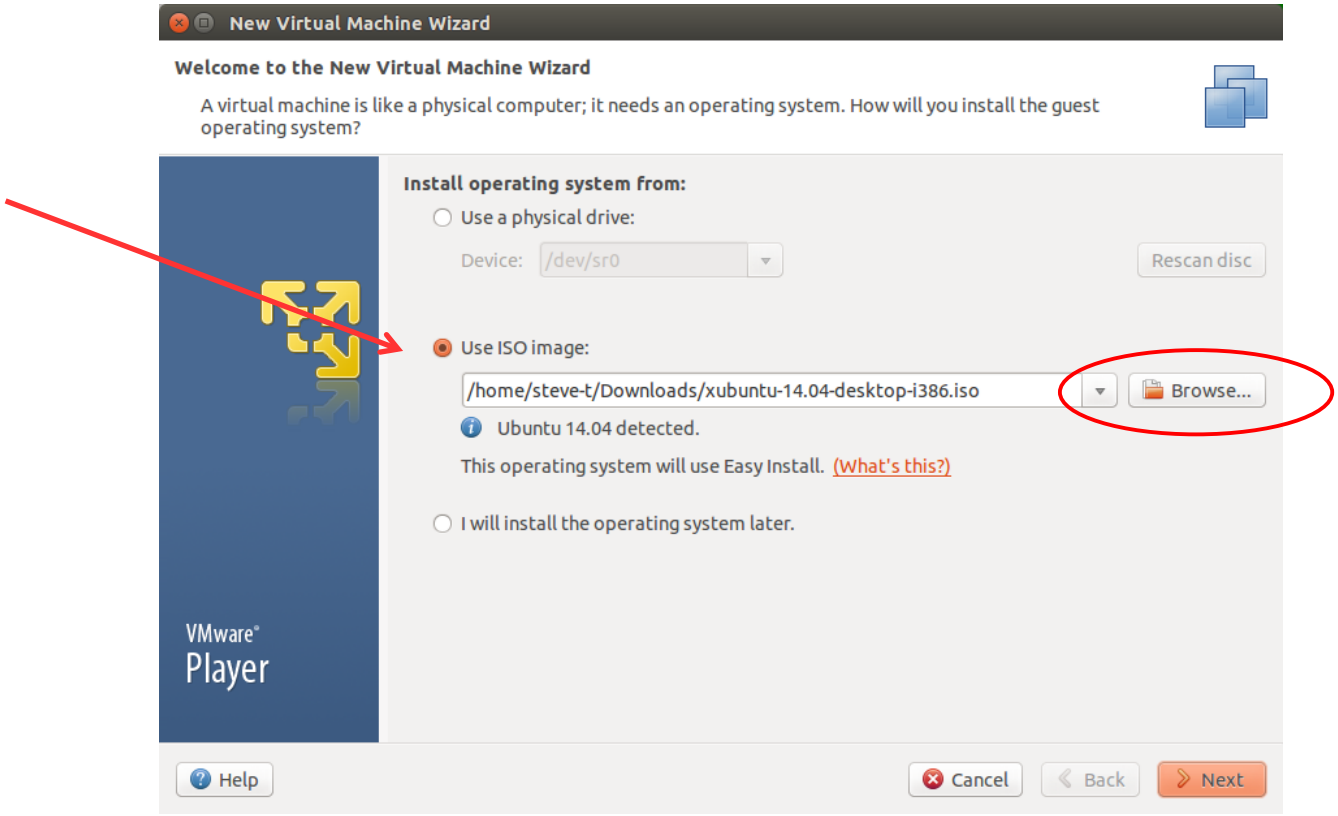
"empty HD"
→ won't boot

Add the Ubuntu .iso install 'disk' to the CD drive of the VM

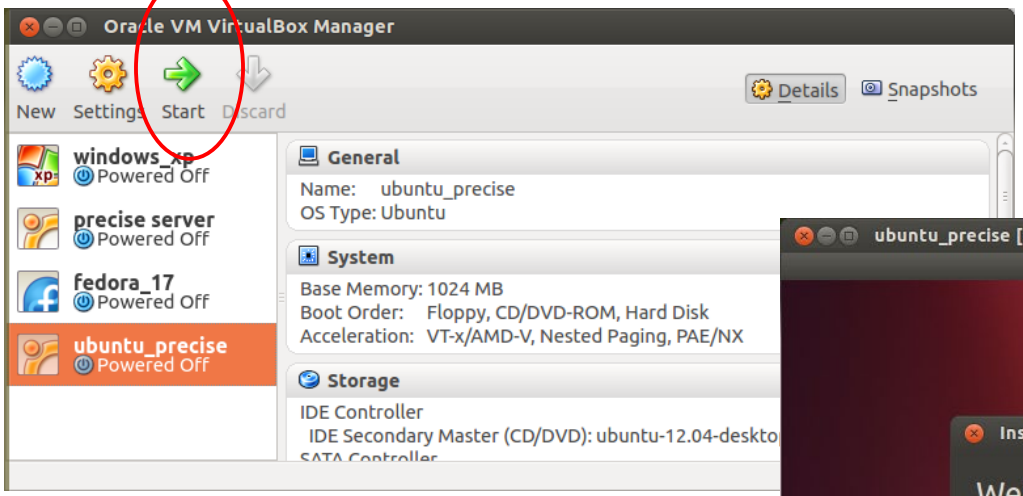


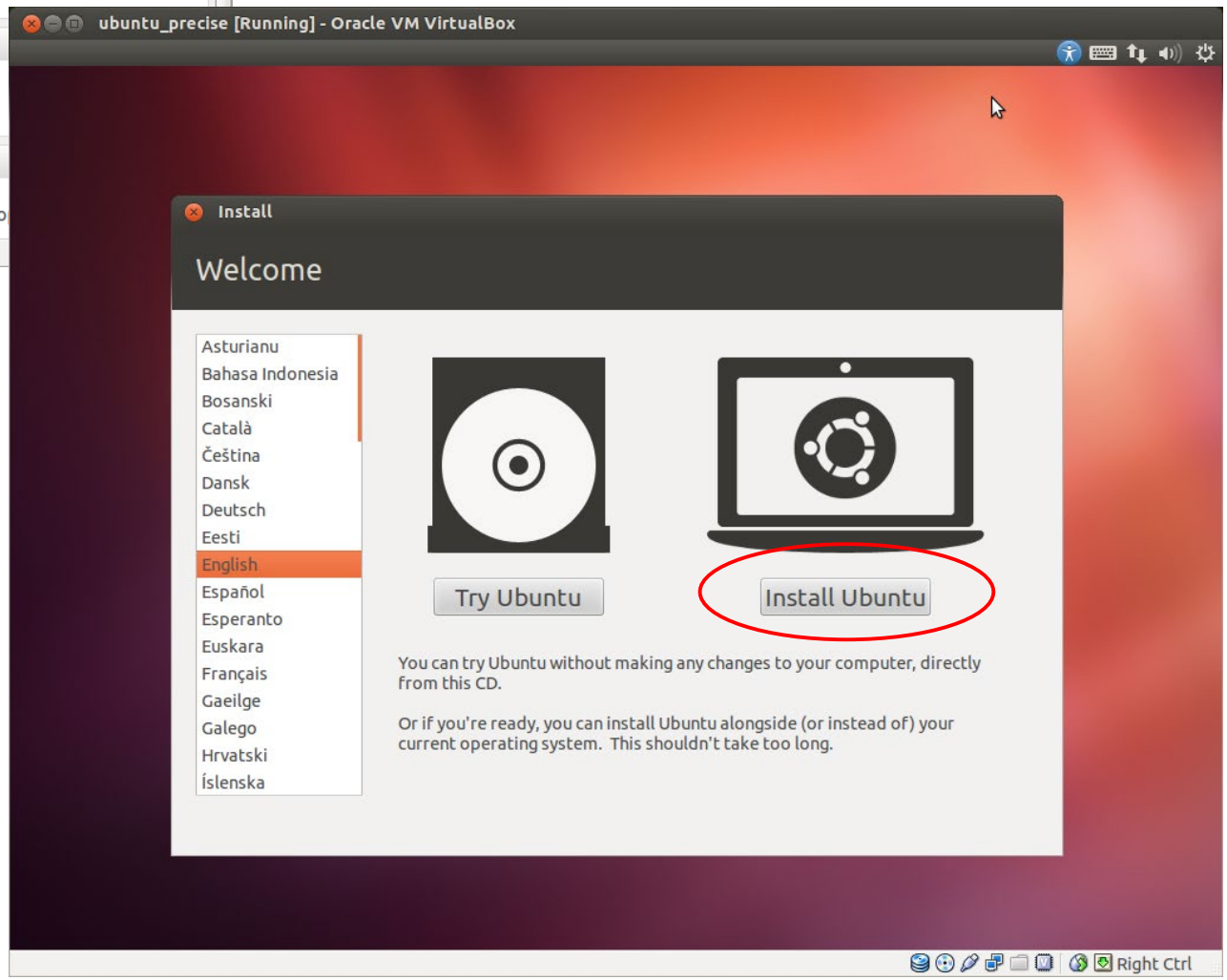
Add the Ubuntu .iso install 'disk' to the CD drive of the VM

- In VMware Player, when you create a new VM, it asks for the install iso "*right up front*"
- And automatically adds the .iso the virtual CD so the VM starts the install CD all-by-itself



Start the VM and install Ubuntu

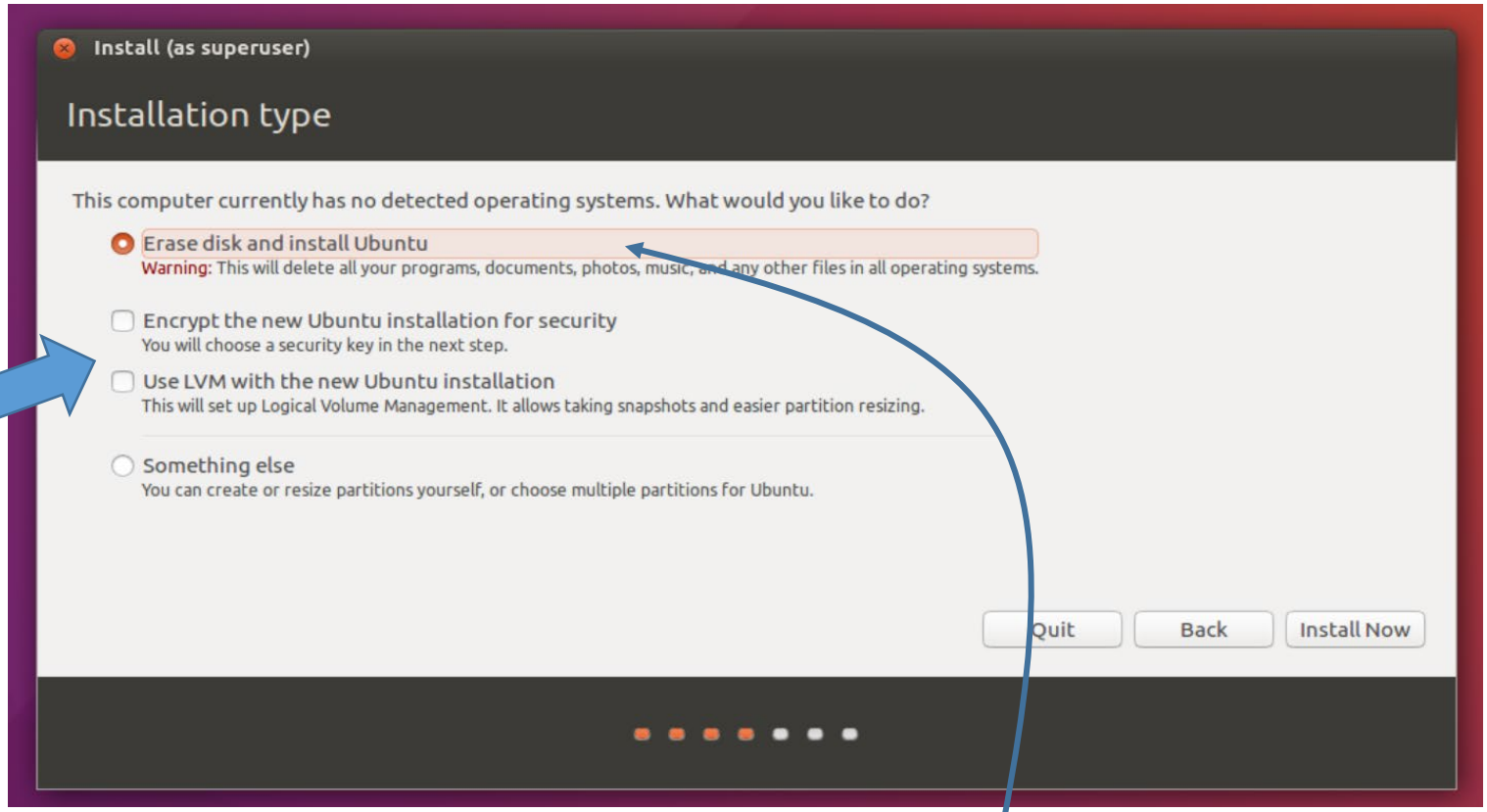




Note:
"Right Ctrl" key is the VB "hot key"

Typical install

Install on “fresh” 8Gb VDI Vbox disk

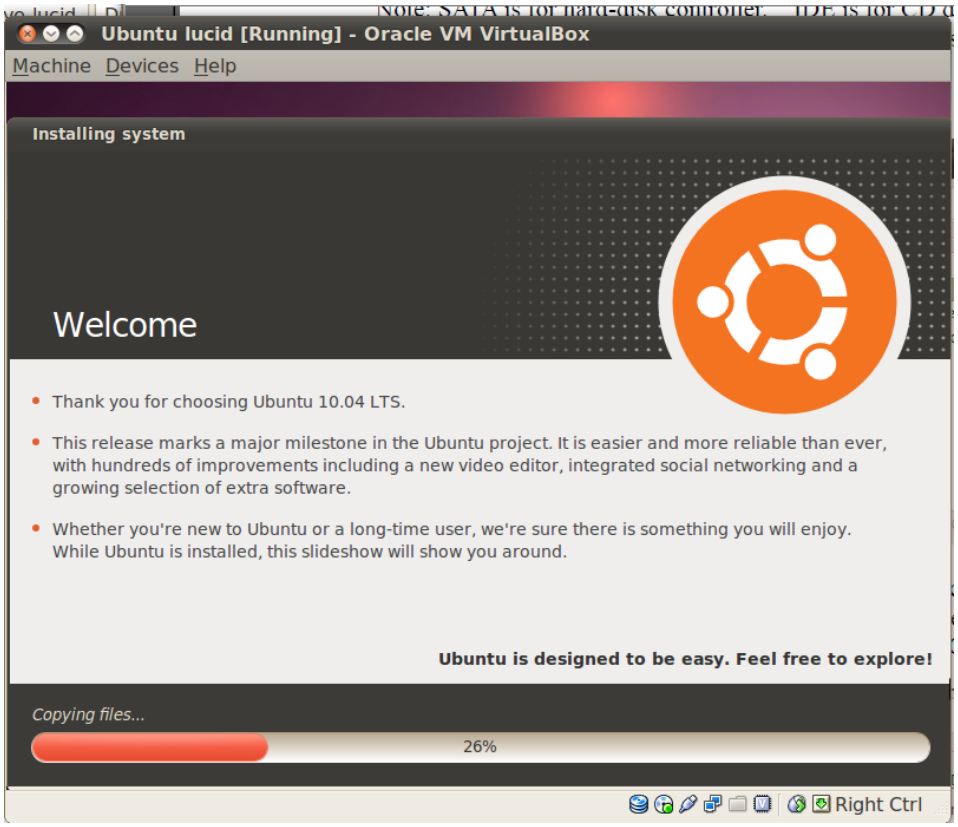


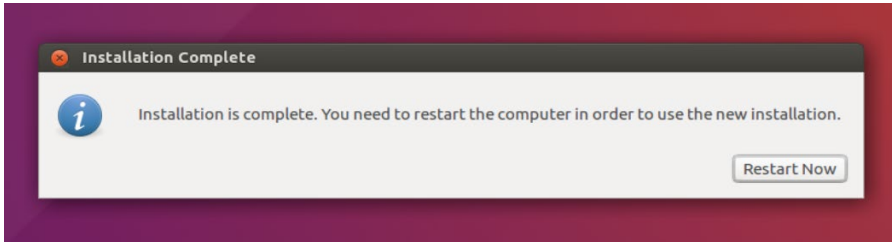
NO

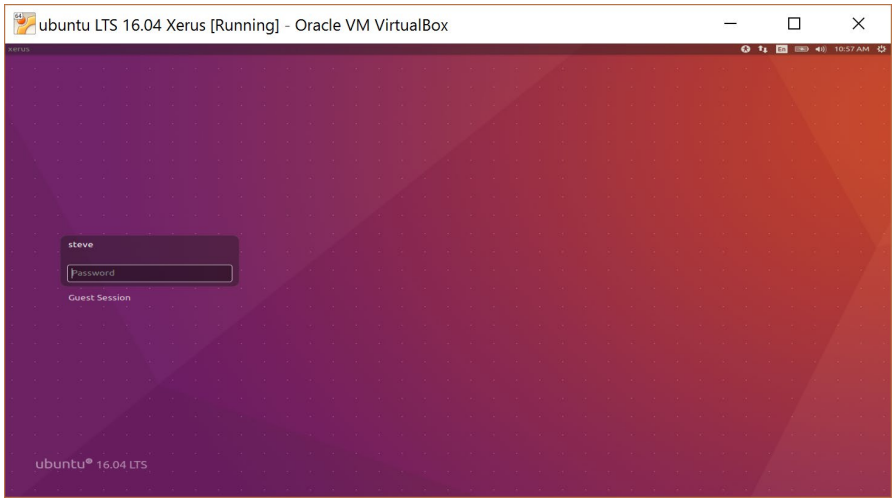
No Encrypt
No LVM
(those are for later)

i.e. This “Erase” message is talking about the *new*, blank VDI

Typical install





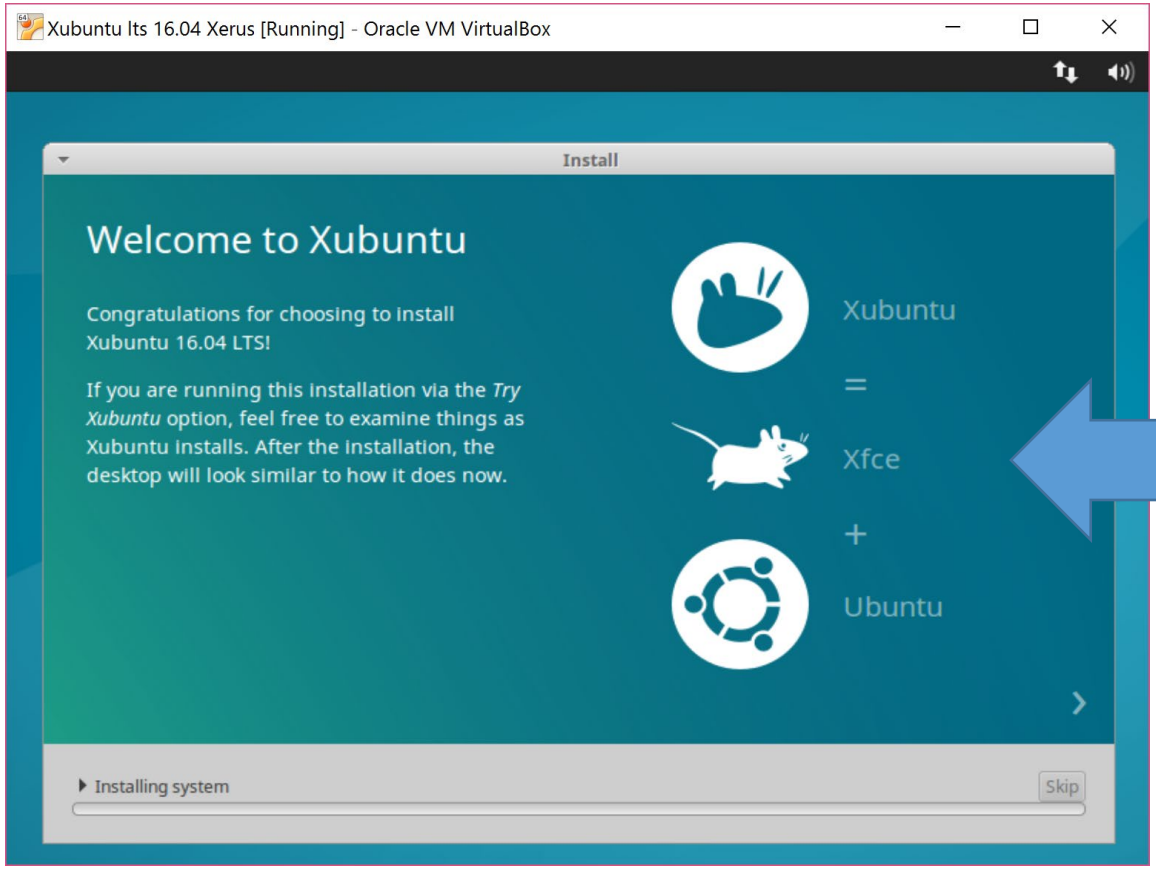


It will take 5-10 min, depending on CPU and internet connection

Reboot & Done

Xubuntu install

Again, Xubuntu “is” Ubuntu, but with a simplier GUI interface, called Xfce. The installation is identical.

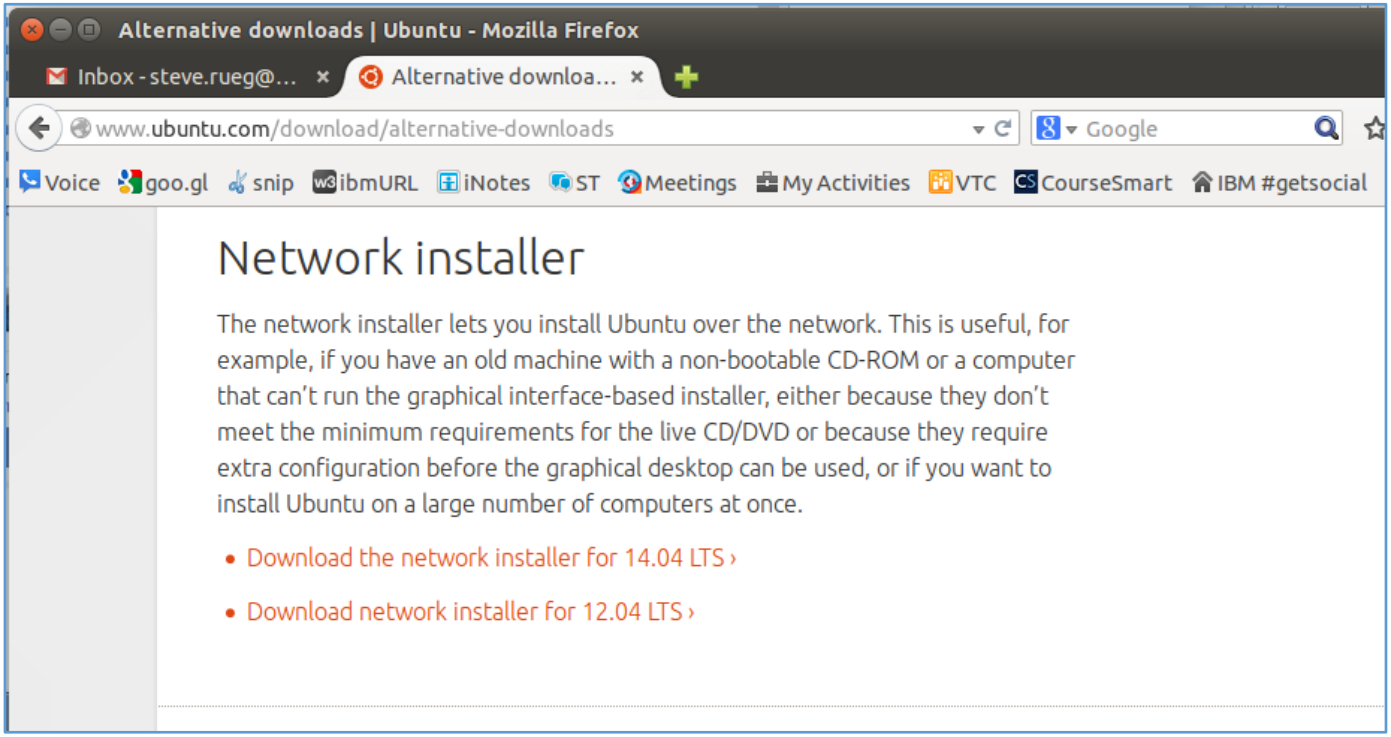


The GUI

Note: In Mac, you can’t choose the GUI. In Windows, you can’t choose the GUI. In Linux, you choose the GUI.

FYI – another method: Network Installer

- *a.k.a.* "minimal" linux install
- Select "only" required packages from repo for download
- N.B. the repo could be 'local'



Mini install / network install

archive.ubuntu.com/ubuntu/dists/trusty/main/installer-amd64/current/images/netboc

Voice goo.gl snip ibmURL iNotes ST Meetings My Activities VTC CourseSmart IBM #getsocial gb gb+ STG IT (afs)

Index of /ubuntu/dists/trusty/main/installer-amd64/current /images/netboot

Name	Last modified	Size
Parent Directory		-
boot.img.gz	15-Apr-2014 21:53	26M
mini.iso	15-Apr-2014 21:53	37M
netboot.tar.gz	15-Apr-2014 21:53	26M
pxelinux.0	15-Apr-2014 21:53	26K
pxelinux.cfg/	15-Apr-2014 21:53	-
ubuntu-installer/	15-Apr-2014 21:53	-
xen/	15-Apr-2014 21:53	-

Apache/2.2.22 (Ubuntu) Server at archive.ubuntu.com Port 80

mini.iso

Put in “CD” of mini.iso

Update the OS

- Your newly installed OS is the version when it was *'frozen*' when the install CD was created.
  - It is now *months* old.
- Linux has 'easy' ways to upgrade (most all OS's do now-a-days)
- The two different flavors of Linux have 2 different ways
  - Red Hat: `yum`
  - Debian (Ubuntu): `apt-get`
- Both have GUIs as well
- We'll focus on Ubuntu (APT) for this lecture, but you are welcome to use Red Hat or SUSE and yum.

APT

- Advanced Package Tool
- A GUI app for APT is called "`synaptic`"
- Command line:

```
$ sudo apt-get update
$ sudo apt-get upgrade
$ sudo apt-get dist-upgrade
```

Know what these do.

- Install new packages (must know package name)

```
$ sudo apt-get install <package>
```