Appendix A: Installing Virtual Box and Ubuntu on Mac OSX

The instructions below describe installation of an Ubuntu Linux VM to serve as the Labtainer host on a Mac. If you already have a Linux system that can support Dockers, you may use that system and not use this appendix. If you already have VirtualBox installed on your Mac, be sure it is updated to the latest version.

• Install Virutal Box from : https://www.virtualbox.org/wiki/Downloads



Click on the "OS X hosts" link.

Install per your OS' usual installation procedure...



• Download the latest Ubuntu Desktop LTS distribution .iso image. It is important you download this as an .iso image as that will be used to install Ubuntu on the VM you create. https://www.ubuntu.com/download

• Use VirtualBox to create a new VM, allocate at least 10GB of disk storage, 4GB



DAM and 2 CDU

	Oracle VM VirtualBox Manager	
New Settings Discard Start.	Retails Snapshots	
	Welcome to VirtualBox!	
	The left part of this window is a list of all virtual machines on your computer. The list is empty now because you haven't created any virtual machines yet.	
	In order to create a new virtual machine, press the New button in the main tool bar located at the top of the window.	
	You d www. Www. New Settings Discard Start.	ots
	Name and operating system	
click on the folder icon to select a	identify this machine.	1
Ubuntu for Labtainer Select the size of the virtual hard d the amount of file data that a virtua hard disk.	Immediate the file fill. Immediate the fill fill. Immediate the fill fill. Immediate the fill fill. Immediate the fill.	
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Ubuntu for Labtainer Select the size of the virtual hard d the amount of file data that a virtua hard disk. 4.00 MB Mory Size Select the amount of memory (R/ allocated to the virtual machine. The recommended memory size	AM) in megabytes to be is 1024 MB. 4096 © MB	*

• Select the Ubuntu iso image in the VirtualBox storage settings, and select "Live CD/DVD"

	Oracle VM VirtualBox Manager	
New Settings Discard Start		🏶 Deceme 🗃 Snapshots (1)
Ubuntu for Labtainer (Clean creation, not installed yet)	General	💂 Preview
Powered UT	Name: Ubuntu for Labtainer Operating System: Ubuntu (64-bit)	ike
	System	
	Base Memory: 4096 MB Processors: 2 Boot Order: Floppy, Optical, Hard Disk Acceleration: VT-x/AMD-V, Nested Paging, KVM Paravirtualization	Ubuntu for Labtainer
		Ubuntu 64-bit.ymwareym
	Display	ubuntu-16.0p-amd64.iso
	Video Memory: 16 MB Remote Desktop Server: Disabled	
	Video Capture: Disabled	
_	Storage	· · ·
	Controller: IDE IDE Secondary Master: [Optical Drive] Empty	
	Controller: SATA SATA Port 0: Ubuntu for Labtainer.vmdk (Normal, 80.00 GB)	▶ ubuntu-16.04.3-
	Ubuntu for Labtainer - Storage	tyname desktop-amd64.iso
	🗾 📃 🕥 🖕 💭 🏠 💼 📰	All virtual optical disk files (*.dmg
Genera	I System Display Storage Audio Network Ports Shared Folders User Interface	Options Cancel Open
Stora	ge Tree Attributes	
🔍 💊	Controller: IDE Optical Drive: IDE Secondary Master 📀 💿	r.
	Empty	oose Virtual Optical Disk File DOSE,
	Controller: SATA	move Disk from Virtual Drive
L.	Ubuntu for Labtainer.vmdk	

• Power on the virtual machine to install Ubuntu.

- If the VirtualBox window shows the following screen, the previous step did not work, please remount the ISO by selecting the little folder icon to the right.

bu l	Please select a optical drive co virtual machine	virtual optical disk file or a ontaining a disk to start you from.	a physical in the second	III III III VMs	
0	The disk shoul from and shou wish to install that now. The drive automati machine off, b needed using t	d be suitable for starting a d contain the operating sy on the virtual machine if yo disk will be ejected from th hally next time you switch i tt you can also do this you he Devices menu.	computer stem you u want to do e virtual rself if	,	ubuntu-16.04.3- dekton-andfål in
	Empty			tyname >	1.59 GB
				Pill th that optical dia	a mea (sang 💟

- Once you see the following desktop, you can install Ubuntu



You should be able to install Ubuntu by accepting the default options provided. It is recommended, though not required, you do select the following options:

- Download Updates while Installing Ubuntu



- Set your Time Zone



- Select your appropriate language

Keyboard layout	
Choose your keyboard layout:	
English (Ghana) English (Nigeria) English (South Africa) English (UK) English (UK) Esperanto Estonian Faroese Filipino	English (US) English (US) - Cherokee English (US) - English (Colemak) English (US) - English (Dvorak alternative international no dead keys) English (US) - English (Dvorak, international with dead keys) English (US) - English (Dvorak, international with dead keys) English (US) - English (Macintosh) English (US) - English (Programmer Dvorak) English (US) - English (US, alternative international)
Type here to test your keyboard Detect Keyboard Layout	Back Continue

When prompted, enter a user name and password:

Install (as superuser)		
Who are you?		
Your name: Your computer's name: Pick a username: Choose a password:	student student-VirtualBox) 🗸
Confirm your password:	 Log in automatically Require my password to log in Encrypt my home folder 	Back Continue

{student is used here in the example, you may use whatever name you like}

Ubuntu will then install on to the virtual hard drive.

Once the files are installed, you will need to restart the VM.

🛞 Insta	llation Complete
i	Installation is complete. You need to restart the computer in order to use the new installation.
	Restart Now

NOTE: be sure to unmount the ISO file before restarting. If you don't you will see the following screen:



To unmount the ISO, just choose the DVD icon in the lower left corner and select **Remove disk from virtual drive** (note if that is greyed out, first click on the ISO line above it then click on the Remove disk from virtual drive)

Please remove the installation medium, then press ENTER:
 Choose disk image v ubuntu-16.04.3-desktop-amd64.iso Remove disk from virtual drive

If it displays a message asking to force the unmount, that is okay, just select the **Force Unmount**







Note: If your Ubuntu desktop has a DVD icon on it, you did not unmount it correctly and should be unmounted by right clicking and ejecting the DVD ISO. The following step simplifies movement of files between Virtual Box guests and the host computer.

Setup shared folder:

• create or identify a folder on the host to share with the guest



• On the VirtualBox window, select the "Shared Folders" icon.

Then select the **add folder** button on the right, and add in the folder you created above, being sure to select **Auto-mount** and **Make Permanent**.



• Install VirtualBox Guest Additions

VirtualBox Guest Additions contain device drivers and system applications that optimize the operating system for improved performance.



To install them, choose Devices from the VirtualBox VM Menus, then



select Insert Guest Additions CS Image...



This will auto-launch the install program. Choose Run

You will then see the guest additions load, and finally ask you to *hit return to exit*.

• In order to cut and paste from and to the VM, lets enable sharing the

clipboard. To do this, go to the settings in the VirtualBox Manager (NOT the individual VM's window) then choose *Settings, General, Advanced,*

and allow for Shared Clipboard.



Then, open a terminal



and run this command in the terminal by typing:

sudo adduser \$USER vboxsf

Then, reboot the guest Linux system:

sudo reboot