

Prerequisites for Vagrant, VirtualBox, and Docker Lab

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Why Prerequisites?

- * Because of the size of the installable downloads required for this hands-on lab, it is strongly recommended that you perform these steps at home or your dorm on a fast network before attending the session:
 - * Download and Install VirtualBox, Vagrant, and Visual Studio Code
 - * Clone the git repo that has the lesson material
 - * Bring up the Vagrant images at least once to download packages and install Docker Engine while on a high speed network
 - * Use vagrant ssh to make sure that your ssh client is working*

* Critical for Windows users

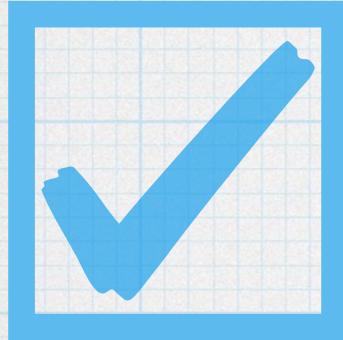
Some Assembly Required

* Tools you will need to complete the labs in class:

- Computer running macOS, Linux, or Windows*
- Internet Access to download boxes
- GitHub Account
- Visual Studio Code (or a text editor)
- PC users must have "VT-x/AMD-V hardware acceleration" turned on in your BIOS for VirtualBox to work.



* Windows users may need an ssh client



Computer running macOS, Linux, or Windows

- * While any modern computer should do, here are some specs:
- * Memory: 4 GB min (8 GB recommended)
- * CPU: Core i5 Dual Core (minimum)
- * Disk Space: 20 GB free space
- * The more, the better. A Core i3 may work but it will be slow





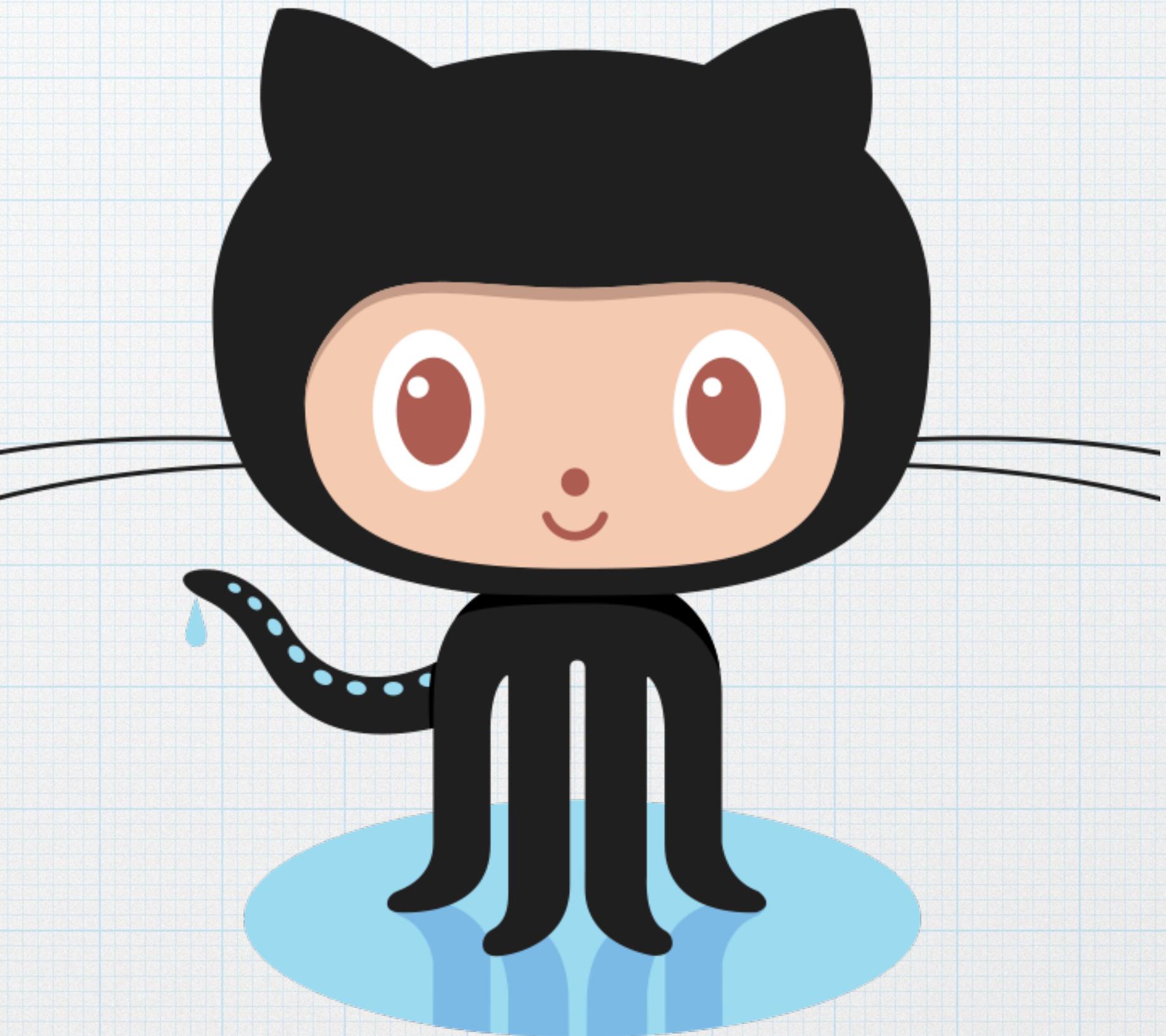
Internet Access

- * A lot of our labs download packages from the internet
- * Any broadband connection should be fine
- * While DSL might work, it will be sloooooowwww...
- * If your internet can handle Zoom you should be good to go



GitHub Account

- * If you don't have a GitHub Account, now is the time to sign up for one
- * Goto <http://www.github.com> and create a free account
- * You don't have to use your edu.nyu email. Just remember which email you used.
- * This is the email you will need to give to your classmates if they have to invite you to their GitHub Organization



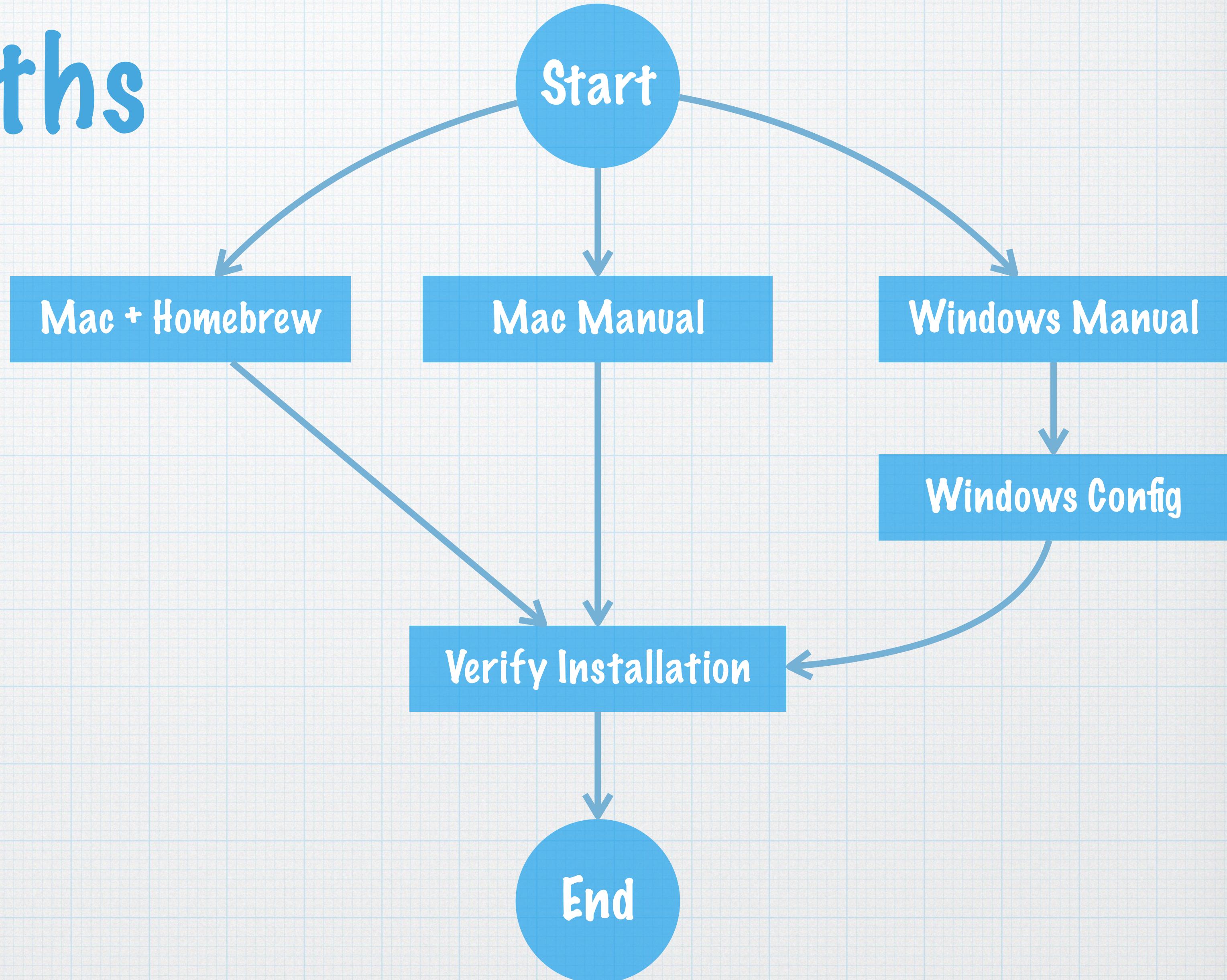


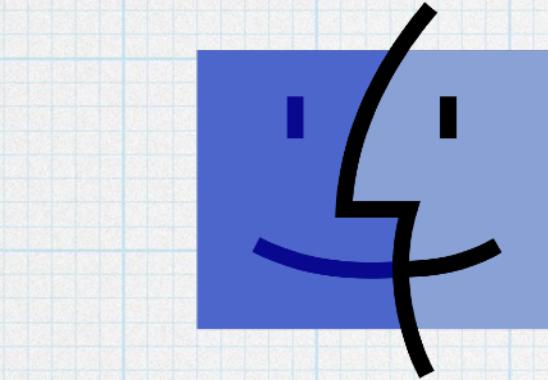
A Code Editor

- * It is strongly advised that you use a Programmer's Editor
- * This will have features that will make writing and debugging code lot easier
- * You could use Notepad orTextEdit but it will be much harder for you overall
- * I will be using the FREE Visual Studio Code (VSCode) community edition (and you should too) 😊

Installation Paths

- * If you have a Mac, the Homebrew path is recommended (one step)
- * If you have Windows or don't want to install Homebrew on your Mac, choose the manual path

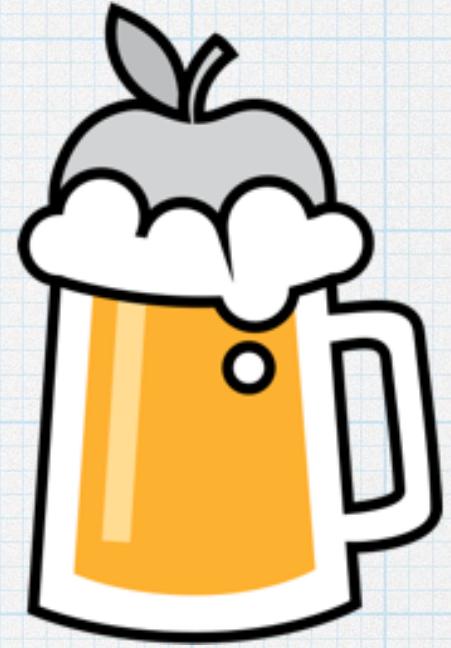




Mac OS

macOS Users

If you are using a Mac you can use Homebrew*



Install Homebrew: (<https://brew.sh>)

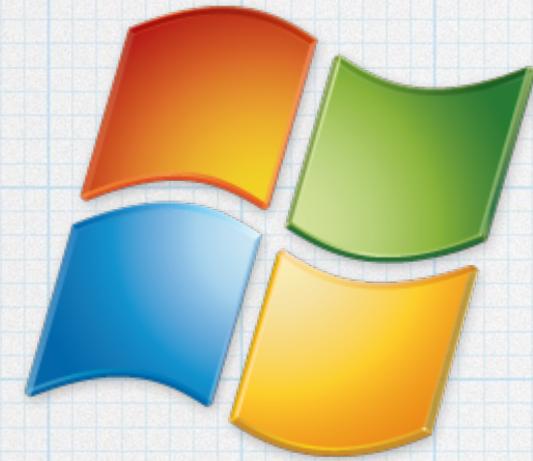
```
$ ruby -e "$(curl -fsSL https://raw.githubusercontent.com/Homebrew/install/master/install)"
```

Install Git, VirtualBox, Vagrant, and Visual Studio Code using Homebrew:

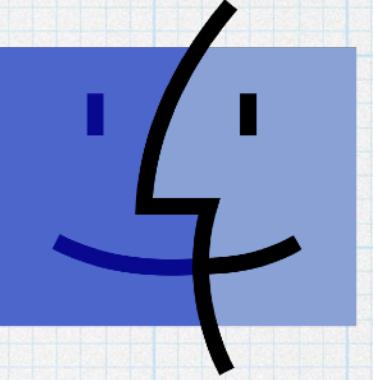
```
$ brew install git  
$ brew cask install virtualbox  
$ brew cask install vagrant  
$ brew cask install visual-studio-code
```

Go to Slide 18 (you're done installing 😎)

* You must open a terminal (shell) to execute these commands



Windows and Mac Manual



Mac OS

- * If you are on Windows or you are a Mac user that doesn't want to install homebrew, then these instructions are for you
- * Download and install each package on your computer
- * Windows users will have a few additional configurations to do after the installs

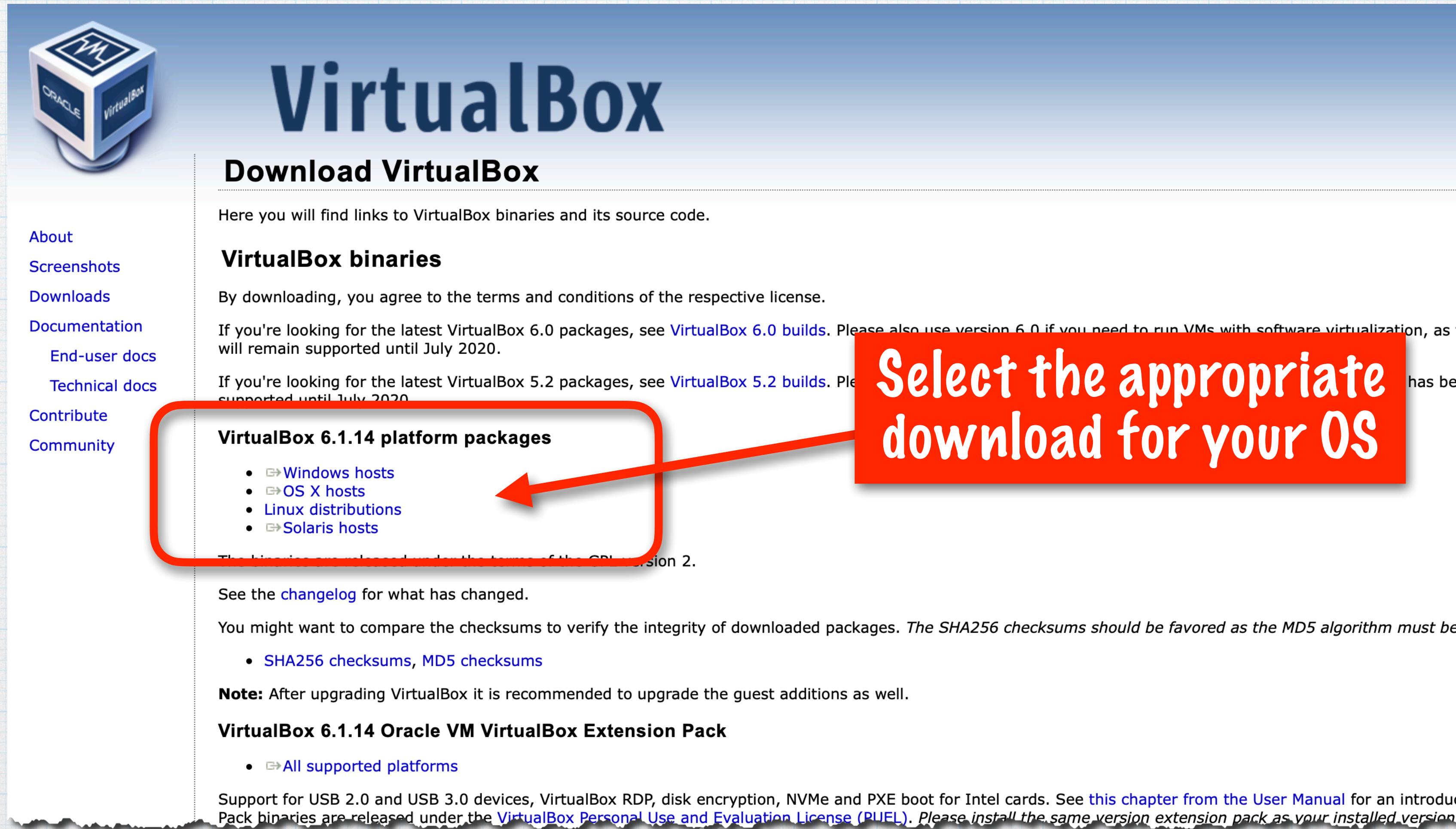
Download and Install Visual Studio Code

<https://code.visualstudio.com>

The image shows the official Visual Studio Code website at the top, featuring a dark header with navigation links like 'Visual Studio Code', 'Docs', 'Updates', 'Blog', 'API', 'Extensions', and 'FAQ'. A search bar and a 'Download' button are also present. Below the header, a message announces 'Version 1.49 is now available! Read about the new features and fixes from August.' On the left side of the page, there's a large callout text 'Code editing. Redefined.' and a 'Free. Built on open source. Runs everywhere.' message. Two download buttons are shown: 'Download for Mac' (Stable Build) and 'Other platforms and Insiders Edition'. A note below states: 'By using VS Code, you agree to its license and privacy statement.' To the right, a screenshot of the VS Code interface is displayed. It shows a dark-themed code editor with several tabs open: 'blog-post.js — gatsby-graphql-app', 'index.js', and 'utils.js'. The code editor displays a snippet of JavaScript code related to Gatsby. To the left of the editor, the 'EXTENSIONS: MARKETPLACE' sidebar is visible, listing popular extensions like Python, GitLens, C/C++, ESLint, Debugger for C#, Language Support, vscode-icons, and Vetur, each with an 'Install' button. The bottom of the interface shows the terminal output: 'info i [wdm]: Compiling...', 'DONE Compiling successfully in 26ms', and '3:57:58 PM'. The status bar at the bottom indicates the file is 'master', has 0 changes, and is using 'Gatsby Develop (gatsby-graphql-app)'.

Download and Install VirtualBox

<https://www.virtualbox.org/wiki/Downloads>



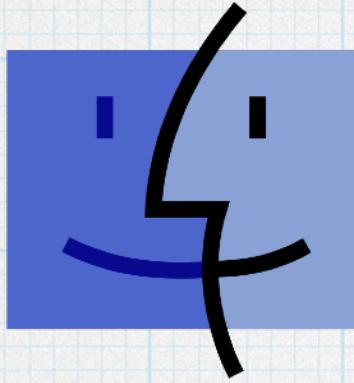
The screenshot shows the VirtualBox download page. On the left, there's a sidebar with links: About, Screenshots, Downloads, Documentation, End-user docs, Technical docs, Contribute, and Community. The main content area has a large "VirtualBox" logo at the top. Below it, a section titled "Download VirtualBox" says: "Here you will find links to VirtualBox binaries and its source code." A sub-section titled "VirtualBox binaries" contains a note about agreeing to terms and conditions. It then lists "VirtualBox 6.1.14 platform packages" which include: Windows hosts, OS X hosts, Linux distributions, and Solaris hosts. A red box highlights this list, and a red arrow points from it to a red callout box containing the text: "Select the appropriate download for your OS". At the bottom, there's a note about the GPL version 2 license, a changelog link, a note about checksums, a note about guest additions, and a section for the "VirtualBox 6.1.14 Oracle VM VirtualBox Extension Pack".

Select the appropriate download for your OS

Download and Install Vagrant

<https://www.vagrantup.com/downloads.html>

The screenshot shows the Vagrant download page. At the top, there's a navigation bar with the HashiCorp logo, a Vagrant logo, and links for Intro, Docs, VMware, and Community. A GitHub icon and a star rating of 20.5k are also present. A red callout box on the right says "Select the appropriate download for your OS". Below the navigation, a large heading says "Download Vagrant". A paragraph explains that users should download the proper package for their operating system and architecture. It includes links for "» Download VMware Utility" and "Continue learning with step by step tutorials at HashiCorp Learn.". A section for "Current Version: 2.2.10" has a link to "Download Older Versions of Vagrant". On the right, there's a "Mac OS X 64-bit" download section with a "Download" button, and other download options for Windows, Linux, Debian, and CentOS. A red box highlights the "MAC OS X" button. At the bottom, there are links for "SHA256 checksum (2.2.10)", "Checksum Verification File", "HashiCorp GPG Key", "Changelog", "Installation Instructions", and "Community Resources". A "fastly" logo is at the bottom right.



Mac OS

macOS Users

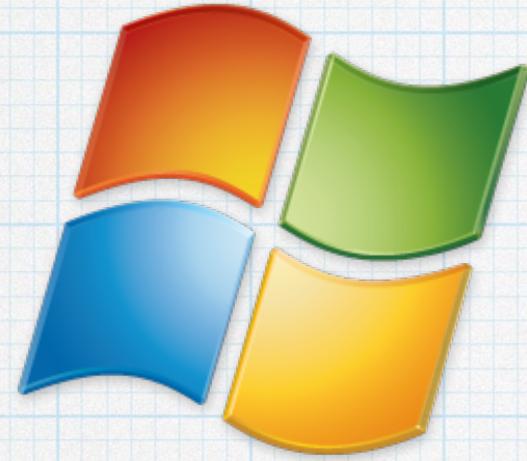
- * If you are using a Mac you can skip the next two charts 😊
- * Windows users need to do more configuration... 😞



I'm a PC.



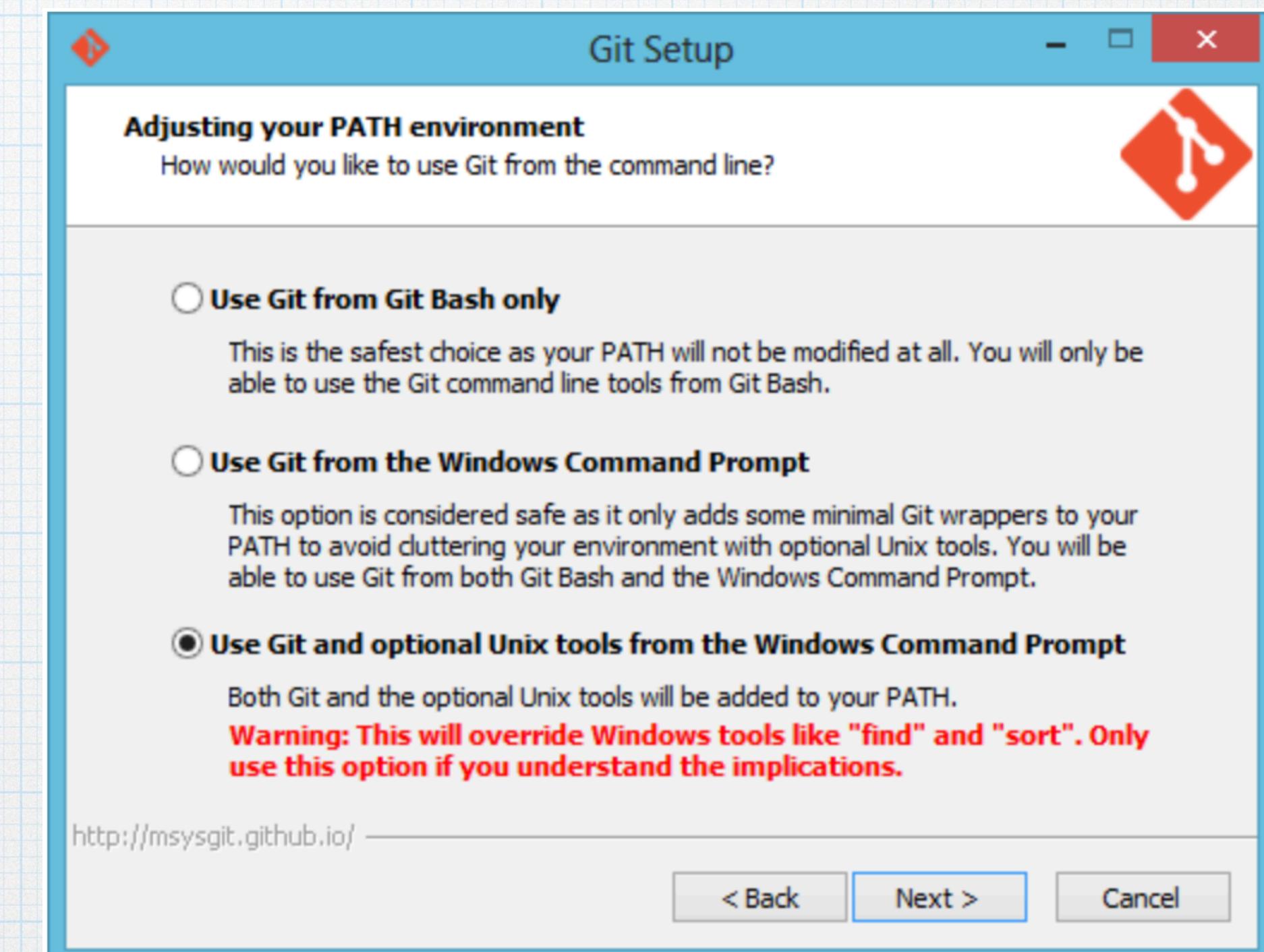
I'm a Mac.



Windows SSH

- * Vagrant requires an SSH client which Windows doesn't have by default
- * The easiest way to solve this is to install **git** with the optional unix tools from:
<http://git-scm.com/downloads>
- * Here is a great tutorial:

<http://tech.osteel.me/posts/2015/01/25/how-to-use-vagrant-on-windows.html>



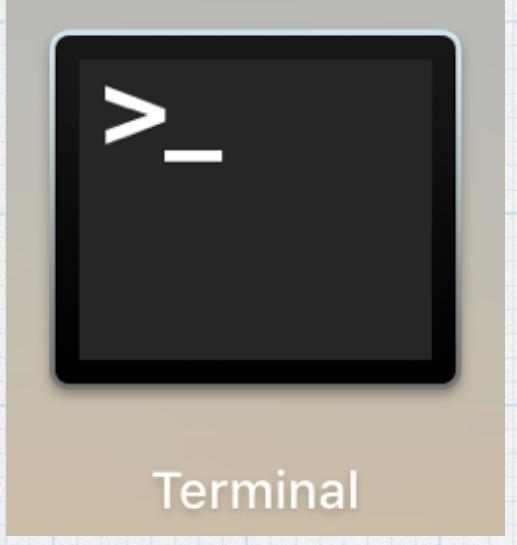


Windows VT-x/VT-d

- * VirtualBox requires that Hardware-Assisted Virtualization is enabled in order to work in 64-bit mode.
- * Some PC laptop manufacturers disable this by default. `_(`)_/`
- * If when you try and bring vagrant up you get an error that it cannot load the 64-bit VM then you need to change your BIOS settings to enable VT-x/VT-d
- * If you don't know how to do this, you need to consult with your PC documentation because this is different for every manufacturer.
(... or just buy a Mac 😊)

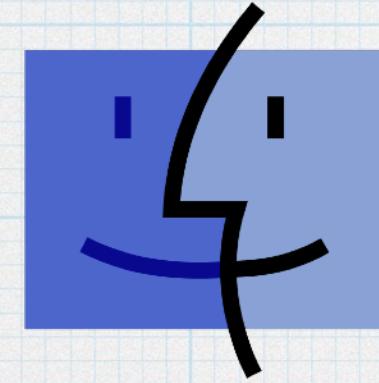
Install All the Downloads

- * If you haven't already, once you have the downloads for your OS:
 - * Install VirtualBox taking all of the defaults
 - * If prompted to download extensions say "Yes"
 - * Install Vagrant taking all of the defaults
 - * Install Visual Studio Code
- * You should now have the pre-requisite software installed



Terminal

Validation: Open a Bash Shell



Mac OS

- * If you are on macOS open a shell with the terminal app

- * Go to: Dock -> Launch Pad -> Other -> Terminal



- * If you are on Windows open the Bash Shell app that you just downloaded in the previous step

- * Go to: Start Programs -> Git -> Git Bash

Clone the Project from GitHub

- * You should clone this project and run vagrant up to download all of the need components, vagrant ssh to make sure ssh works.
- * Then exit and use vagrant halt to stop everything until you get to class

```
$ git clone https://github.com/rofrano/lab-vagrant.git  
$ cd lab-vagrant  
$ vagrant up  
. . . <- lots will happen here  
$ vagrant ssh  
$ exit  
$ vagrant halt
```

What did 'vagrant up' do?

- * In addition to having Vagrant and VirtualBox installed before the class, by performing these steps you will have:
 - * Downloaded a Linux Ubuntu 18.04 Bionic 64 box
 - * Downloaded and installed all of the packages needed for the session
 - * Downloaded and installed Docker Engine onto the virtual machine
 - * Pull the Docker images needed for the session

Visual Studio Code Extensions

- * One of the greatest features of Visual Studio Code is the ecosystem of extensions available in the marketplace
- * On the next chart is the list of extensions that I recommend for this class
- * You can just cut-n-paste it into a terminal window and they will get installed automatically

Visual Studio Code Extensions

- * Copy this text and paste it into a terminal window
- * It will install all of the extensions that I use for this class

```
code --install-extension alexkreichik.cucumberautocomplete
code --install-extension bbenoist.vagrant
code --install-extension bierner.github-markdown-preview
code --install-extension cstrap.flask-snippets
code --install-extension DavidAnson.vscode-markdownlint
code --install-extension donjayamanne.githistory
code --install-extension fabianlauer.vs-code-xml-format
code --install-extension GitHub.vscode-pull-request-github
code --install-extension hbenl.vscode-test-explorer
code --install-extension hnw.vscode-auto-open-markdown-preview
code --install-extension humao.rest-client
code --install-extension littlefoxtteam.vscode-python-test-adapter
code --install-extension mikestead.dotenv
code --install-extension ms-python.python
code --install-extension ms-vscode-remote.remote-containers
code --install-extension ms-vscode-remote.remote-ssh
code --install-extension ms-vscode-remote.remote-ssh-edit
code --install-extension njpwerner.autodocstring
code --install-extension redhat.vscode-yaml
code --install-extension SonarSource.sonarlint-vscode
code --install-extension VisualStudioExptTeam.vscodeintellicode
code --install-extension vscoss.vscode-ansible
code --install-extension wholroyd.jinja
code --install-extension yzhang.markdown-all-in-one
```

Questions?

#homework

- * Post any questions in the #homework channel of our NYU DevOps Fall 2020 Slack team

That's It !!!
See you in class! 😊