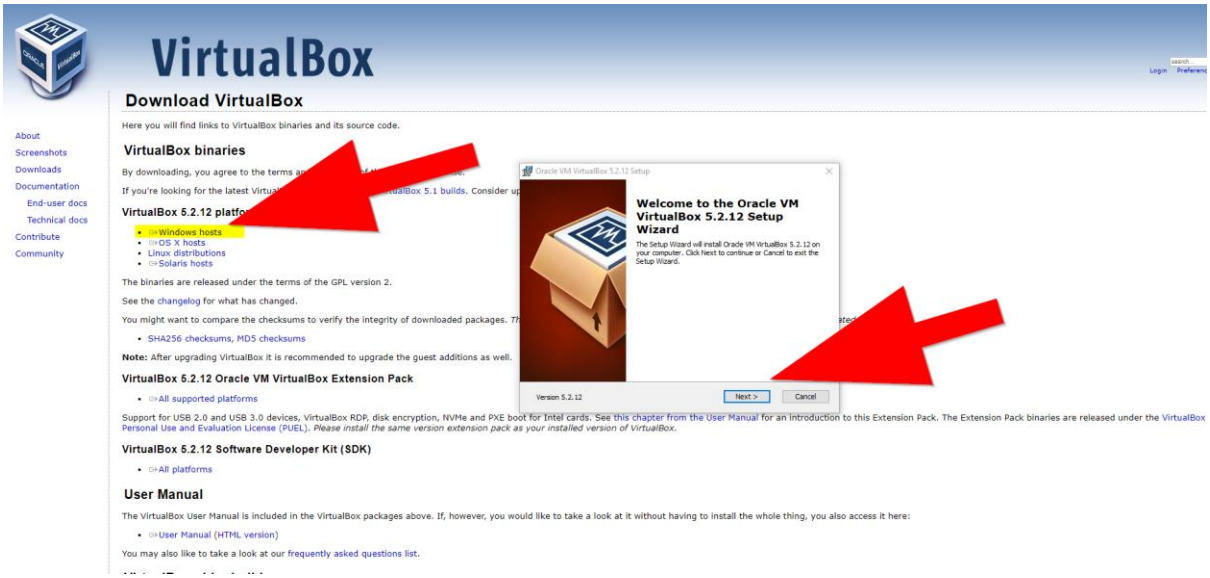
Ruby on Rails Setup using VirtualBox

Contents

Install VirtualBox

To setup our environment and create our virtual machine we will first need to install free software called VirtualBox

1. https://www.virtualbox.org/
2. Download the latest Version

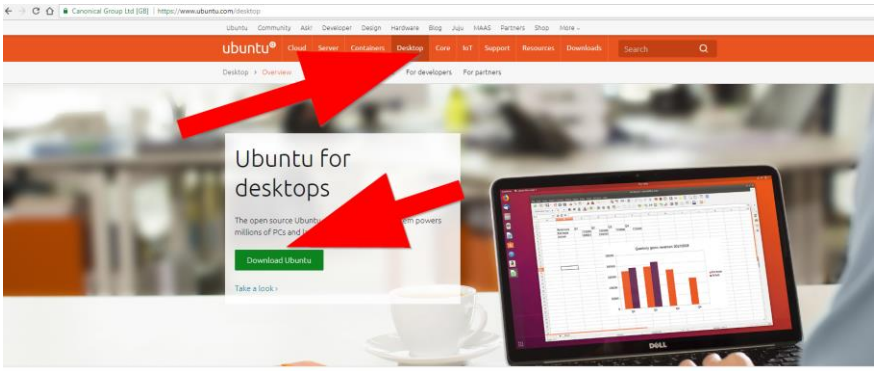


1. Once Downloaded, double click on the file and click “Next”
2. Click on “Next” for each step and click on “Install” and “Finish” to finish the installation

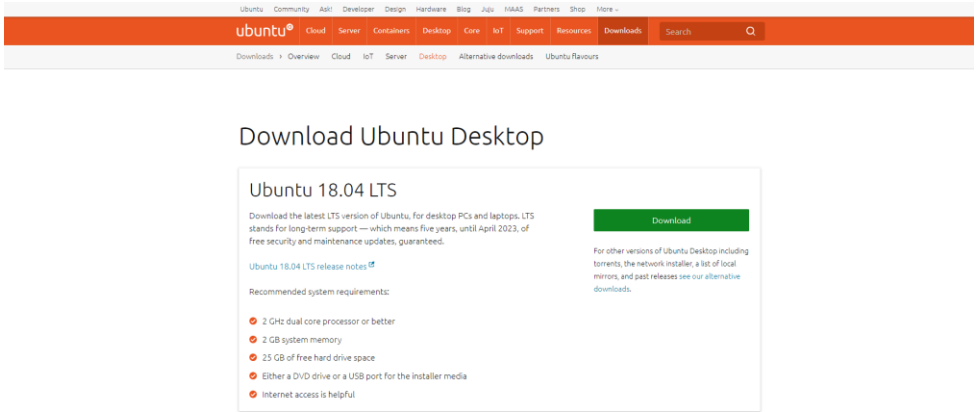
Install Ubuntu

The operating system I will be setting up is Unbuntu which is free to download and install. If you prefer there are other Linux flavours which you could use. As we have setup VirtualBox you could create multiple environments with different operating systems to find the one you prefer.

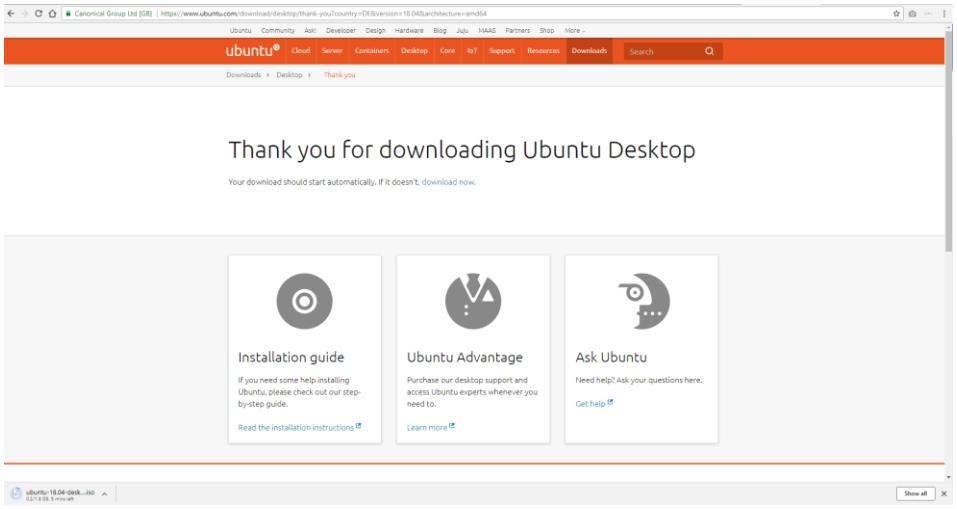
1. https://www.ubuntu.com
2. Select the desktop menu item
3. Download Ubuntu



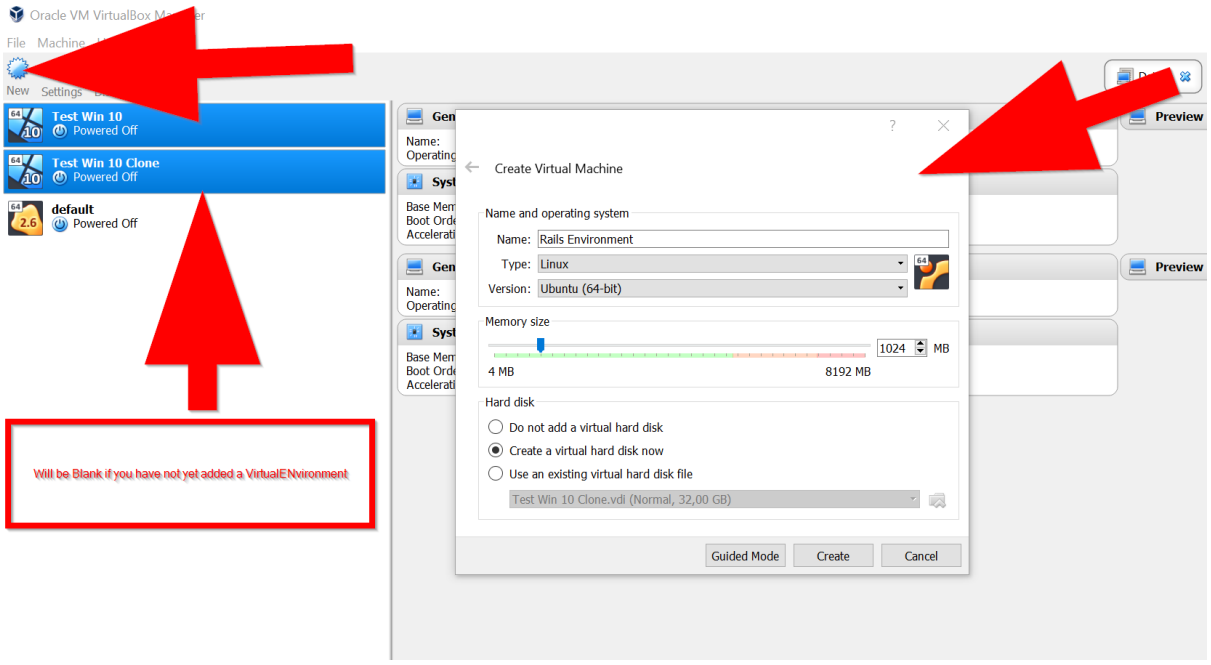
4. Download the LTS Version. LTS stands for Long Term Support and is the latest stable version



5. When clicking on Download you will be redirected to the “Help shape the future of Ubuntu Page” where they will ask for a donation. Click on “Not now, take me to the download” or the Pay with PayPal button to make a donation.
6. The installation file will start downloading:

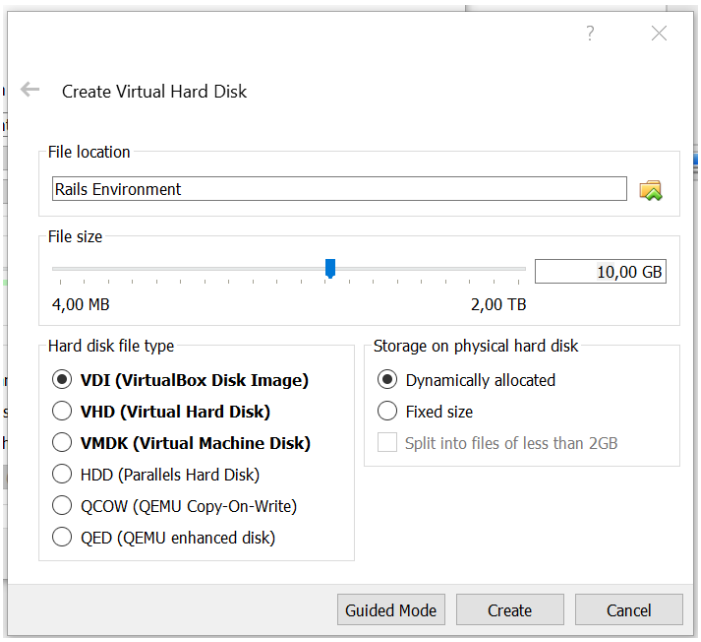


7. After the file has downloaded, open VirtualBox and New Environment:
    a. If you have not yet added any Virtual Environments, the list will be empty
    b. Click on the New Button to add a new Environment.
    c. In the popup window, Give the Environment a name: e.g.: Rails Environment
    d. Type: Linux
    e. Version: Ubuntu(64-bit)
    f. Leave the other settings as default. Depending on your PC i.e. processor, hard drive and memory you would need to adjust the respective options accordingly. Make sure that the settings are sufficient to run the Virtual Machine and that it does now slow down your local PC. These settings can always be changed at a later stage.
    g. Click on Create to create the new Virtual Machine

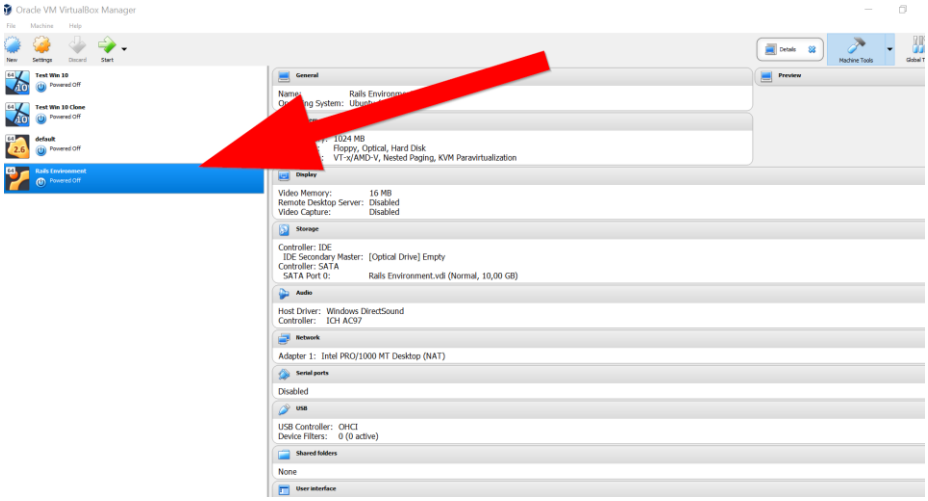


8. A Popup screen will appear, leave the Default settings but if you want to change the file location or size, this can be changed to your requirements:

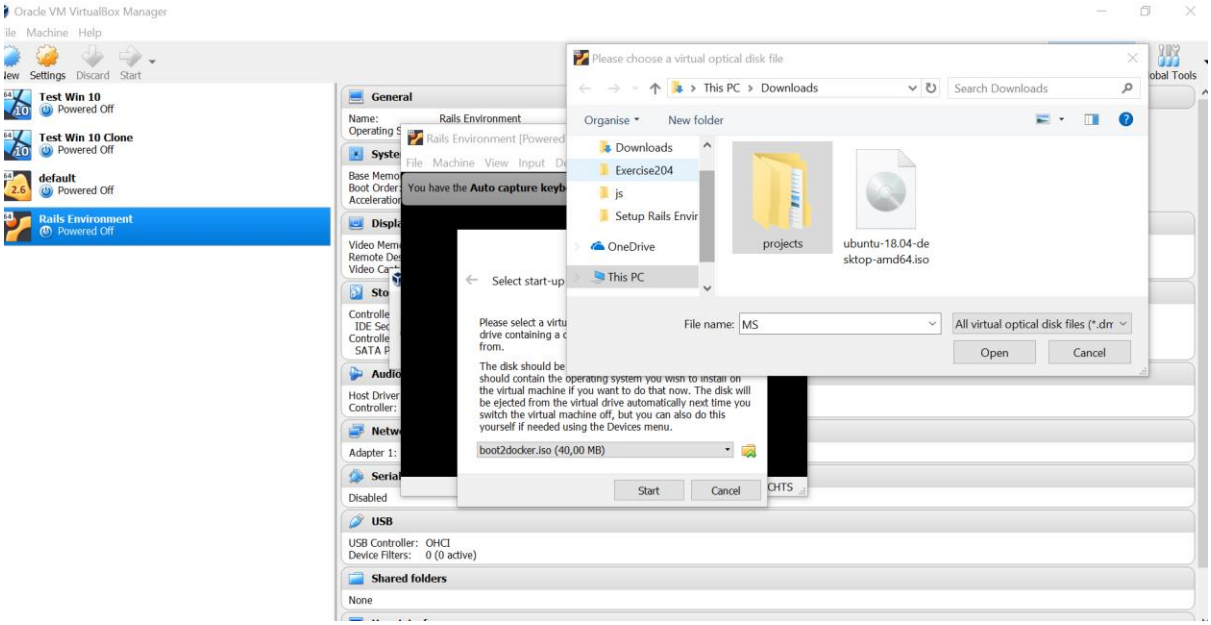
9. Click Create to create the Virtual Environment



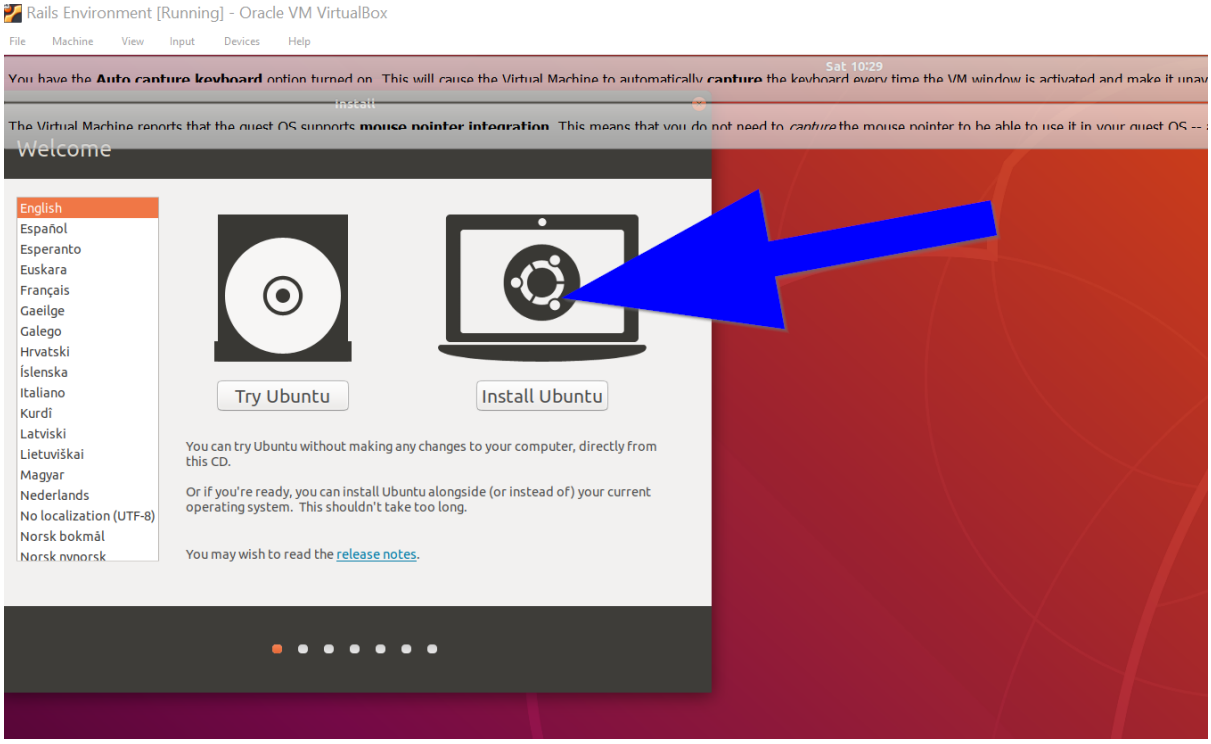
10. Double click on the VM Titled Rails Environment



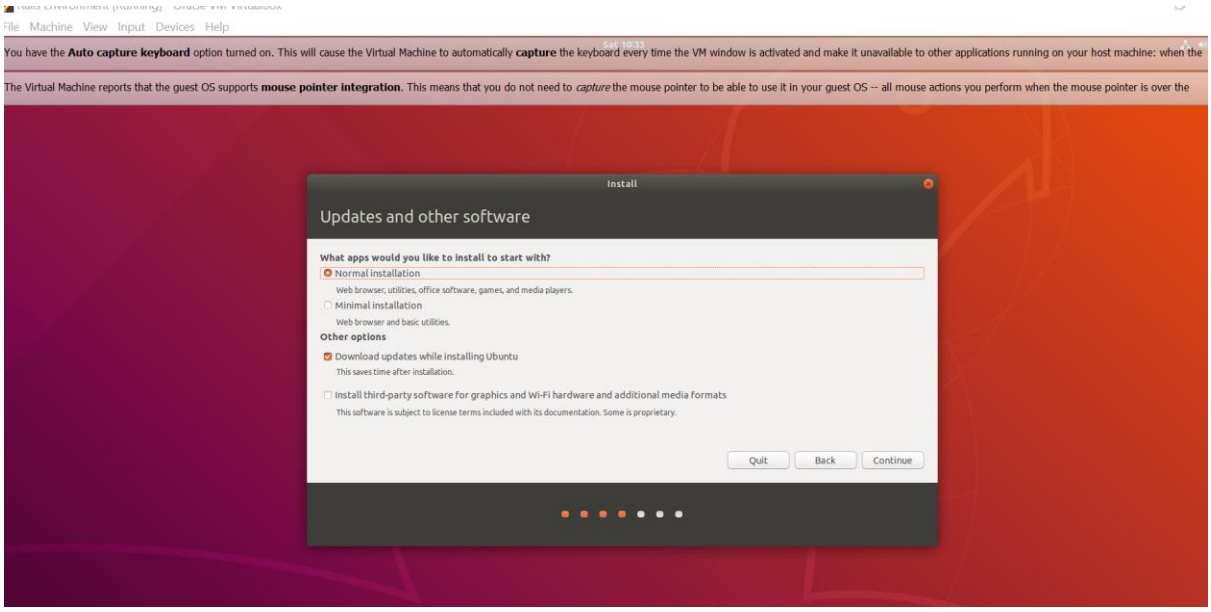
11. Because we have no operating system installed we will get a popup asking us to select a start up disk. From this screen select the location of the Ubuntu file we downloaded eg: ubuntu-18.04-desktop-amd64.iso



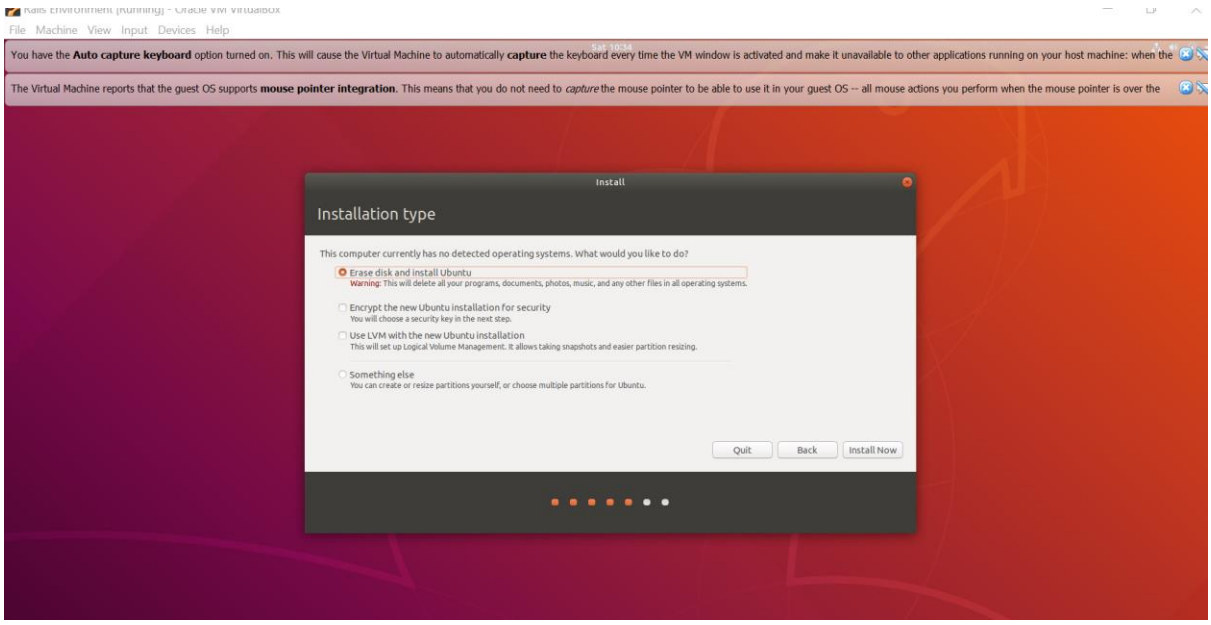
12. Select the File and click on Start to start the installation of Ubuntu
13. When the is available click on Install Ubuntu.



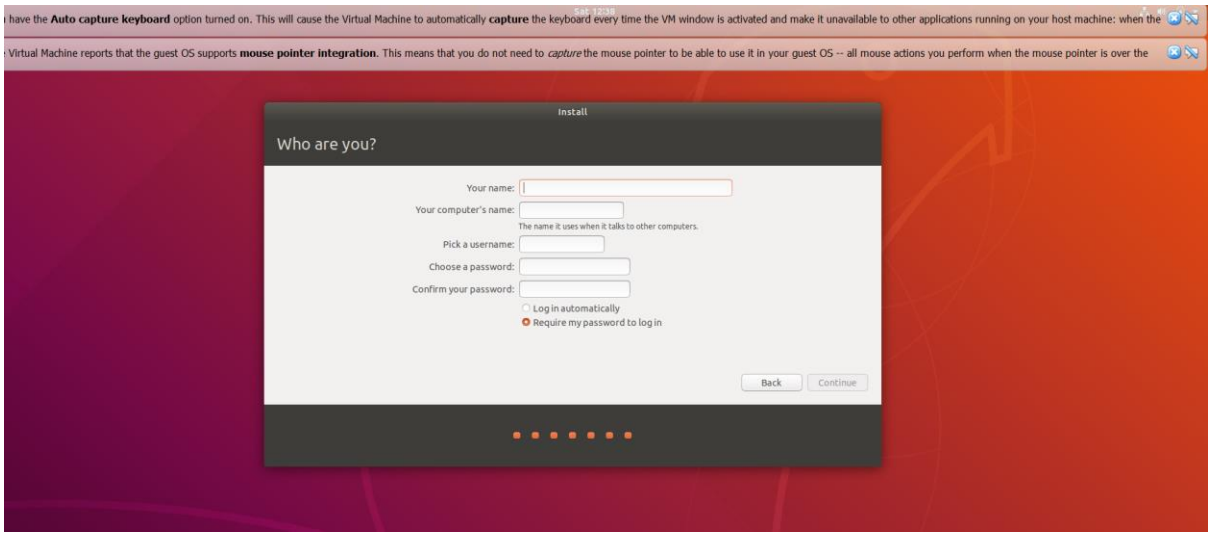
14. Select the keyboard layout and select Continue
15. Leave the Default Options and Click on Continue



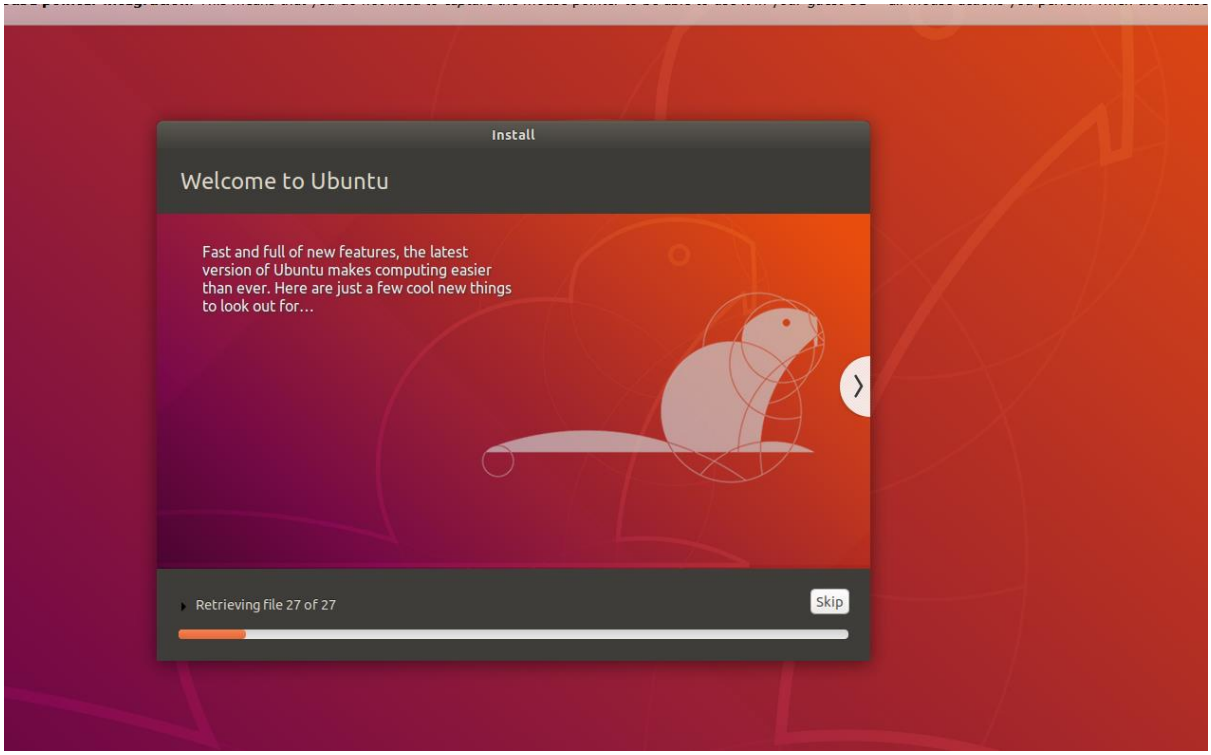
16. When asked for the installation type leave the default settings. The Erase Disk and Install option is not your local disc that will be erased, it is the virtual disk



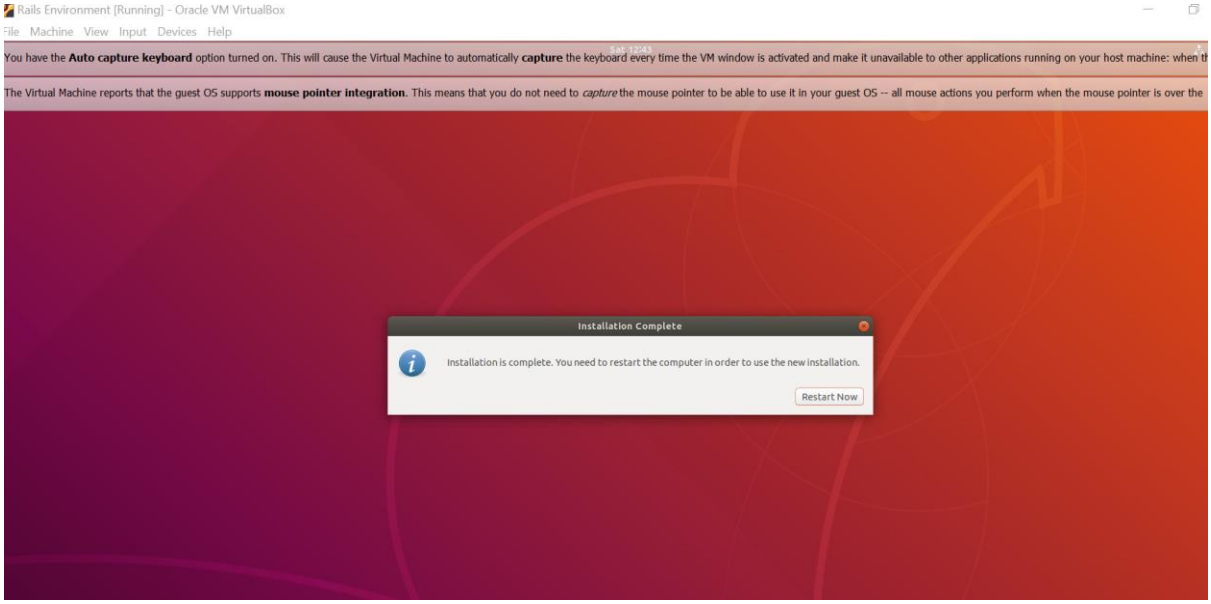
17. Write the Changes to Disk – Select Continue and Select your Region
18. Who are you: Enter your details and click Continue:



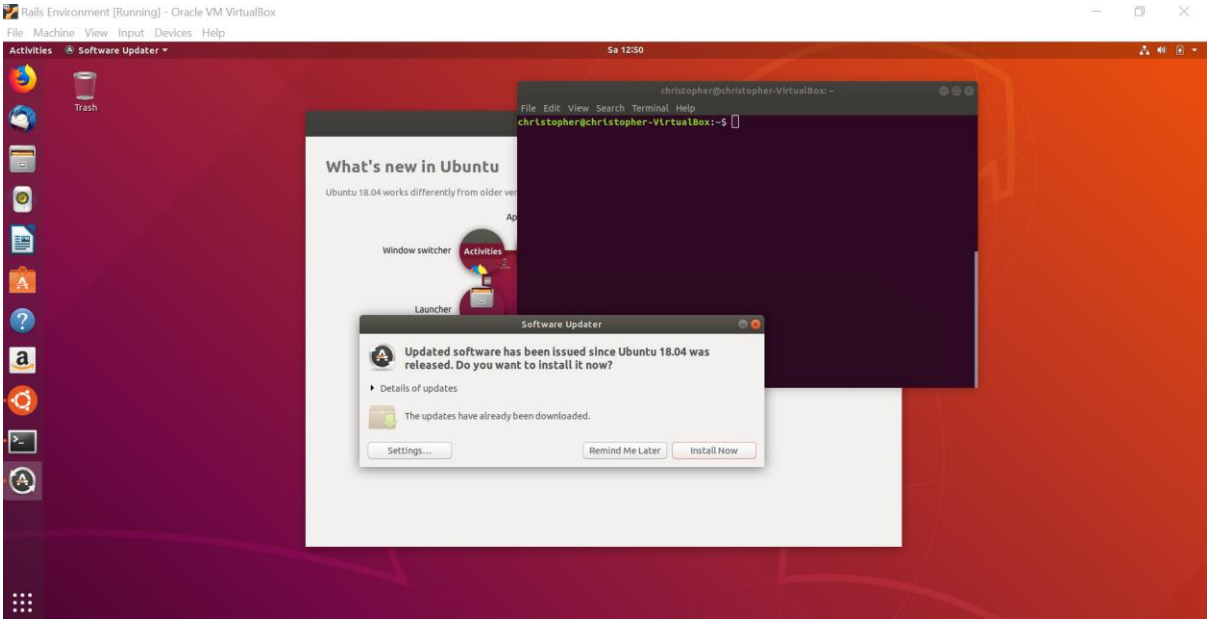
19. This will start the installation of the Operating System



20. When the installation is completed, you will get a message asking you to Reboot the System, this is a reboot of the Virtual Machine, not your PC. Click on Restart Now



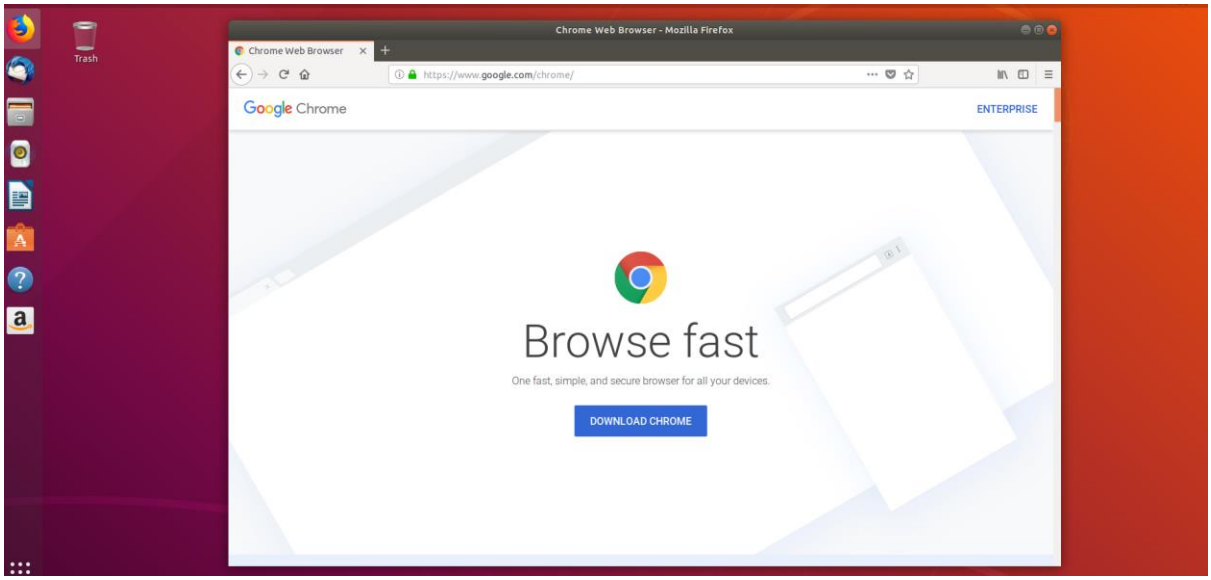
21. After the Sytem has rebooted, enter your password to log in. Once logged in explore the desktop and open the termanil to see if your keyboard is working correctly.
22. If your get a message that there are software Updates, you can click on Install Now to install them


Rails Environment [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Activities
Software Updater
Sa 12:50
Trash
christopher@christopher-VirtualBox: ~
File Edit View Search Terminal Help
christopher@christopher-VirtualBox:~$
What's new in Ubuntu
Ubuntu 18.04 works differently from older ver
Window switcher
Activities
Launcher
Software Updater
Updated software has been issued since Ubuntu 18.04 was released. Do you want to install it now?
Details of updates
The updates have already been downloaded.
Settings...
Remind Me Later
Install Now

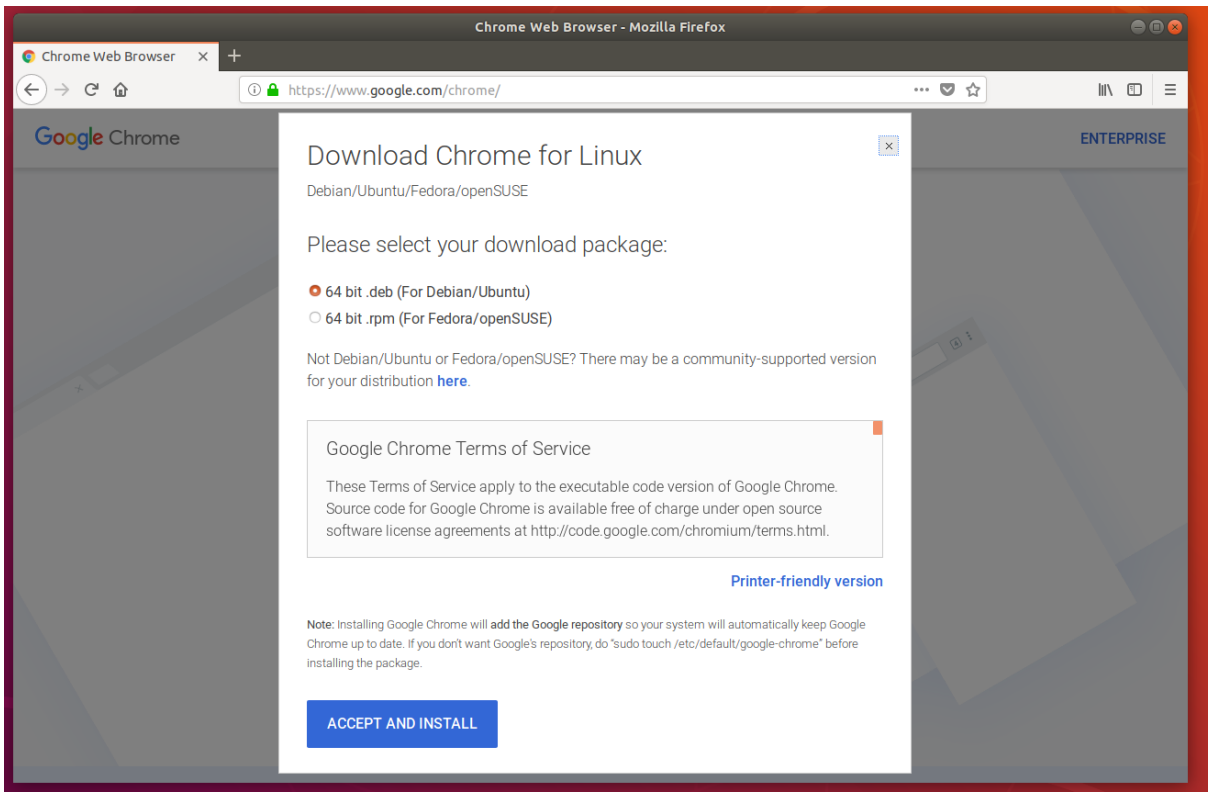
Install Chrome

FireFox should be installed as default but if you prefer Chrome you can install it as follows:

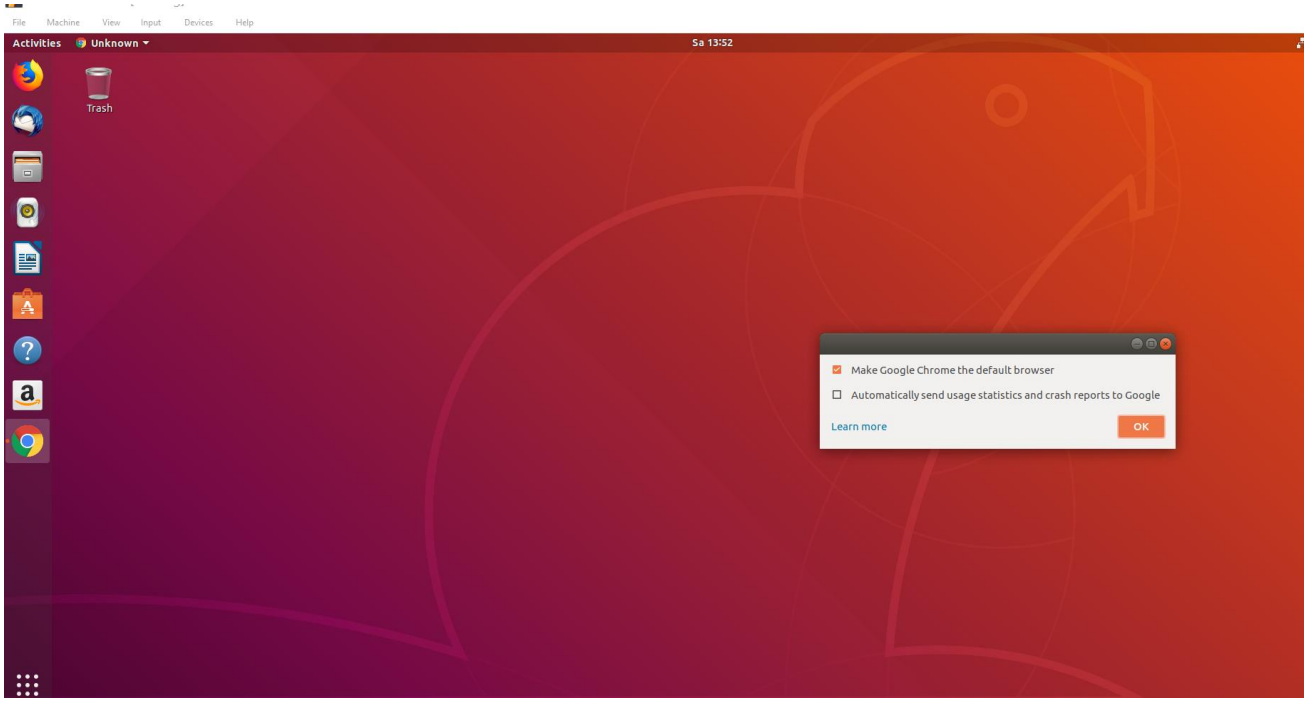
1. Open Firefox and navigate to www.google.com/chrome
2. Click on Download Chrome



3. Select the 64 bit .deb (For Debian/Ubuntu) version and click on Accept and Install



4. Follow the prompts and add your password when requested
5. Open Google Chrome and Set it as the default browser.


File
Machine
View
Input
Devices
Help
Activities
Unknown
Sa 13:52
Trash
Make Google Chrome the default browser
Automatically send usage statistics and crash reports to Google
Learn more
OK

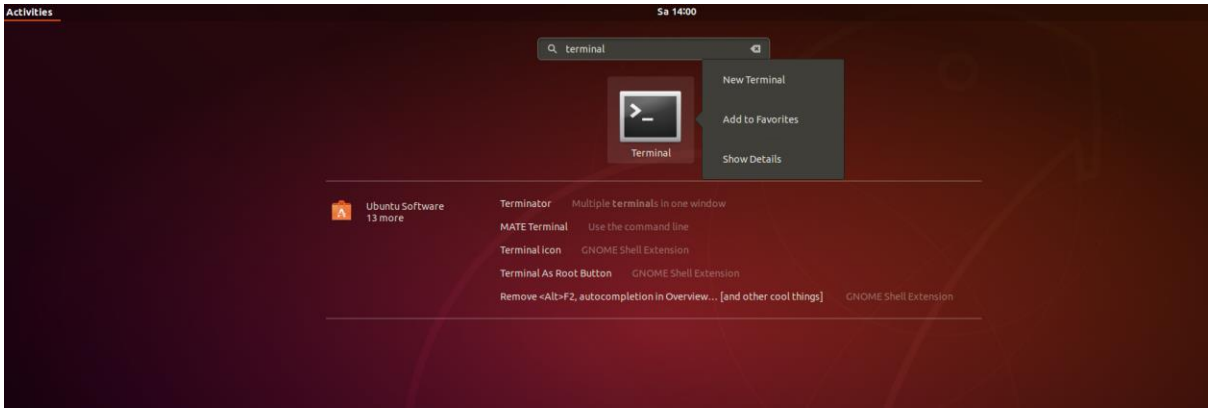
Configure the Task Bar

*If your VM is slow shut the system down and change the system settings such as Memory and CPU in VirtualBox. Do not assign too much memory to the VM or else it will slow down your PC but this will all depend on your PC specification.

To make it easier to navigate our system we can edit the programs that are listed on our Task Bar. As we will be using Chrome and the Terminal more than other programs I will add them to the Task Bar.

1. Select unwanted icons from the Task Bar and right click, and select Remove from Favourites from the Popup

2. To add new programs to the Task Bar, select the windows icon or press the windows key on your keyboard. Enter the program name in the search field, e.g. Terminal and right click to add it to your favourites. Repeat this process for all necessary programs

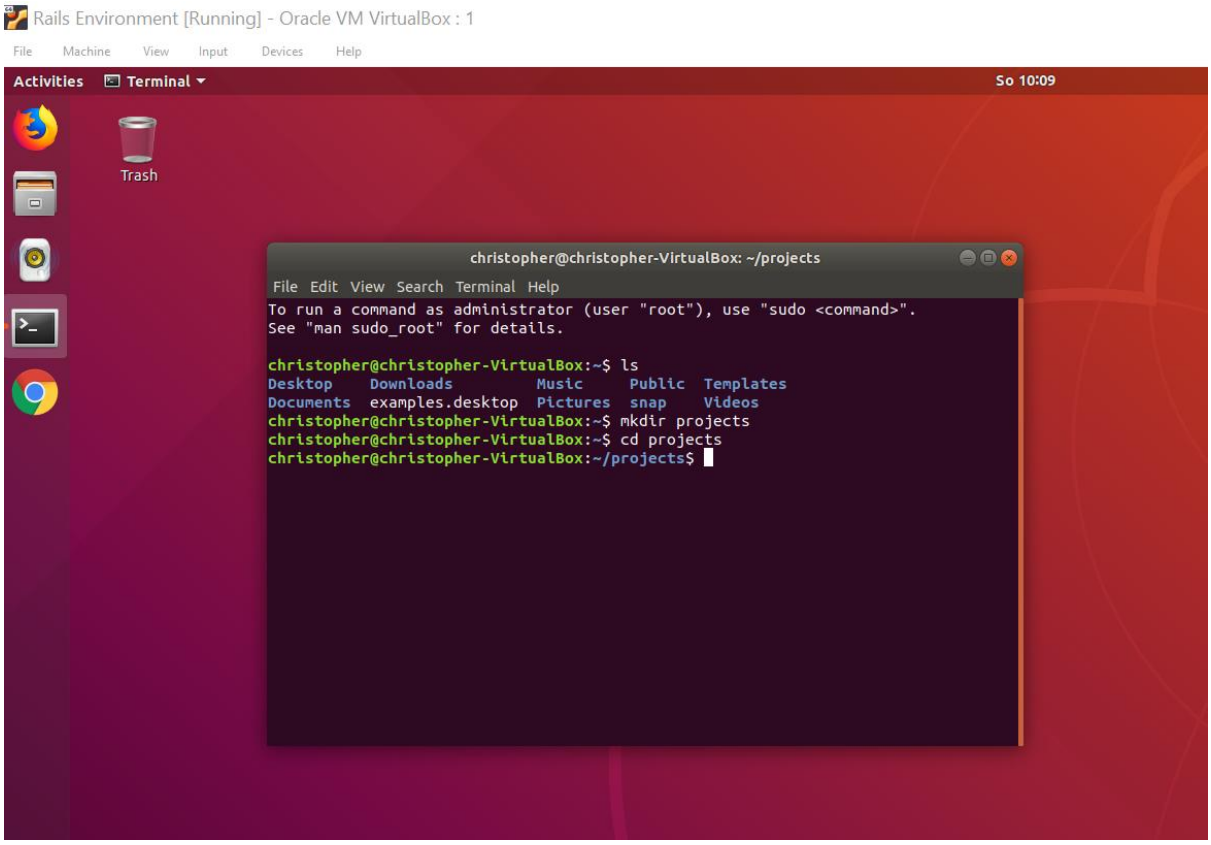

Activities
Sa 14:00
terminal
New Terminal
Add to Favorites
Show Details
Terminal
Ubuntu Software
13 more
Terminator
Multiple terminals in one window
MATE Terminal
Use the command line
Terminal icon
GNOME Shell Extension
Terminal As Root Button
GNOME Shell Extension
Remove <Alt>F2, autocompletion in Overview… [and other cool things]
GNOME Shell Extension

Install Git with SSH

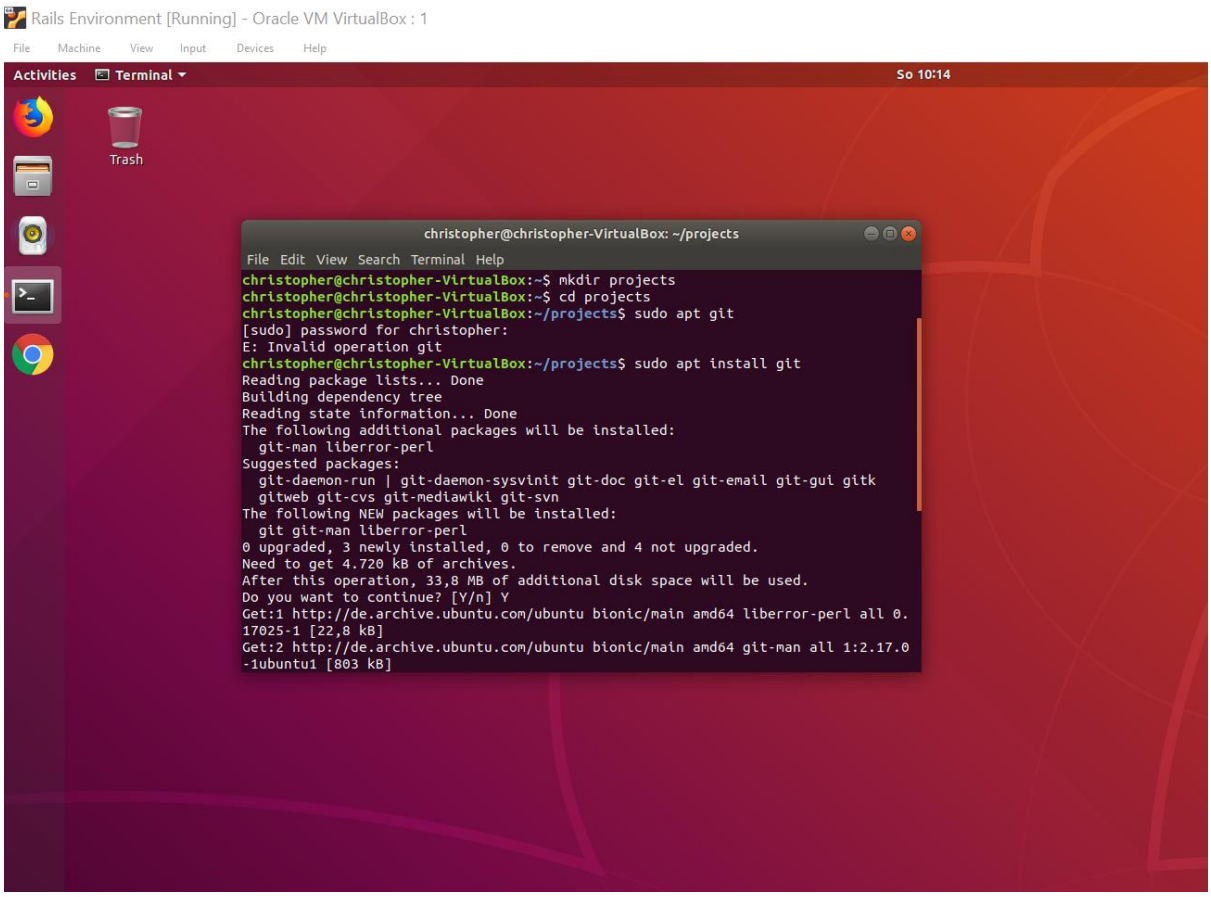
In this section we will install git, and create a test project which we will publish to GitHub using HTTPS or SSH. To complete these steps you will need to register with GitHub

Install Git

1. Open Terminal
2. Create a New Directory for our rails projects called projects
    a. mkdir rails
3. change directory
    a. cd projects



4. to install git type sudo apt install git and enter your password when asked



Configure Git

git will now be installed and can be tested by creating a test directory in our projects folder

1. mkdir test
2. cd test
3. git init
4. create a new file called README.MD
    a. touch README.ME
5. list directory settings
    a. ls
6. check the status of your git repository
    a. git status

```
christopher@christopher-VirtualBox: ~/projects/test
File  Edit  View  Search  Terminal  Help
Setting up liberror-perl (0.17025-1) ...
Processing triggers for man-db (2.8.3-2) ...
Setting up git (1:2.17.0-1ubuntu1) ...
christopher@christopher-VirtualBox:~/projects$ git status
fatal: not a git repository (or any of the parent directories): .git
christopher@christopher-VirtualBox:~/projects$ mkdir test
christopher@christopher-VirtualBox:~/projects$ cd test
christopher@christopher-VirtualBox:~/projects/test$ git init
Initialized empty Git repository in /home/christopher/projects/test/.git/
christopher@christopher-VirtualBox:~/projects/test$ touch README.MD
christopher@christopher-VirtualBox:~/projects/test$ ls
README.MD
christopher@christopher-VirtualBox:~/projects/test$ git status
On branch master

No commits yet

Untracked files:
  (use "git add <file>..." to include in what will be committed)

        README.MD

nothing added to commit but untracked files present (use "git add" to track)
christopher@christopher-VirtualBox:~/projects/test$
```

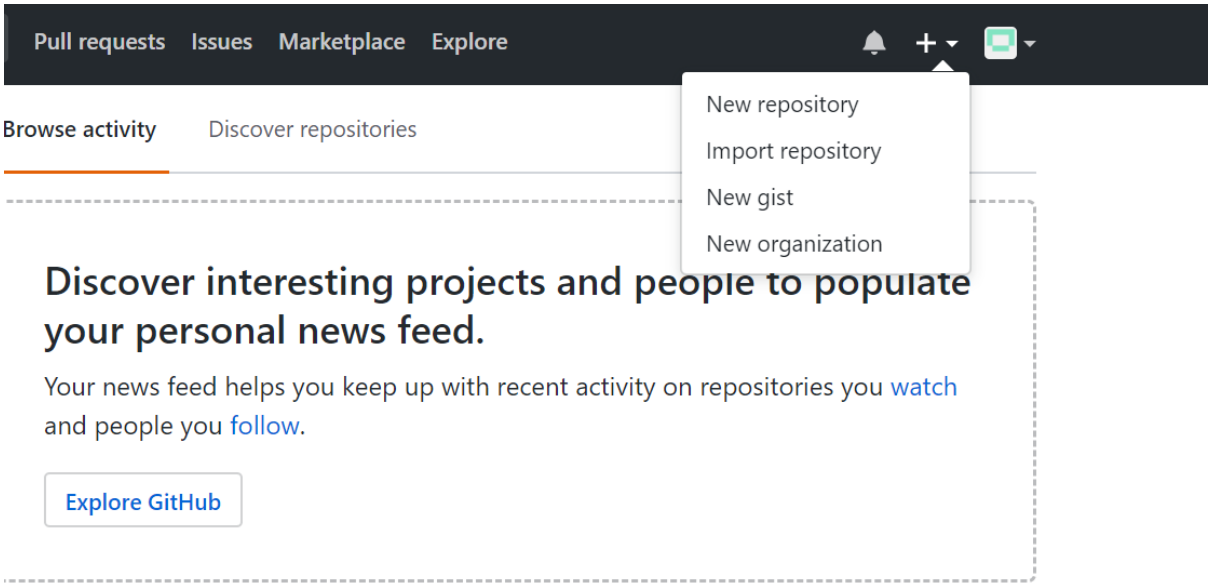
b. git status shows us that READMEmd is not being tracked so we need to the project by typing:
    i. git add .
c. if you type git status it will now say : No commits yet
d. to commit the file type:
    i. git commit -m “Initial Commit”
e. The message Initial Commit could be any message you would like to add
f. Because e we have not associated our Github account with Git we Should get a message saying : Please tell me who you are

```
christopher@christopher-VirtualBox: ~/projects/test
File  Edit  View  Search  Terminal  Help
christopher@christopher-VirtualBox:~/projects/test$ git commit -m "Initial Commi
t"

*** Please tell me who you are.

Run

  git config --global user.email "you@example.com"
  git config --global user.name "Your Name"

to set your account's default identity.
Omit --global to set the identity only in this repository.

fatal: unable to auto-detect email address (got 'christopher@christopher-Virtual
Box.(none)')
christopher@christopher-VirtualBox:~/projects/test$
```

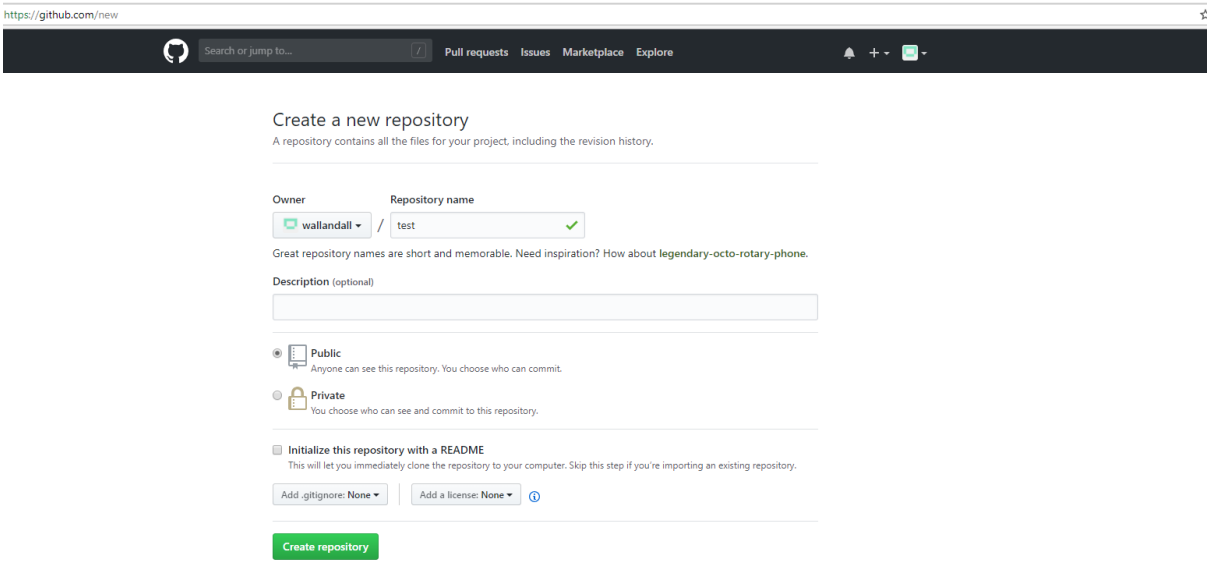
7. To associate your Github account type:
    a. Git config --global user.email "name@address.com"
    b. Git config --global user.name "Name Surname"
8. If you type git commit -m "Initial Commit" your file will be committed and can be confirmed by typing git status
9. If you do not want to type the full sentence out again, press the up arrow to toggle through the previous commands

Create a new repository on GitHub

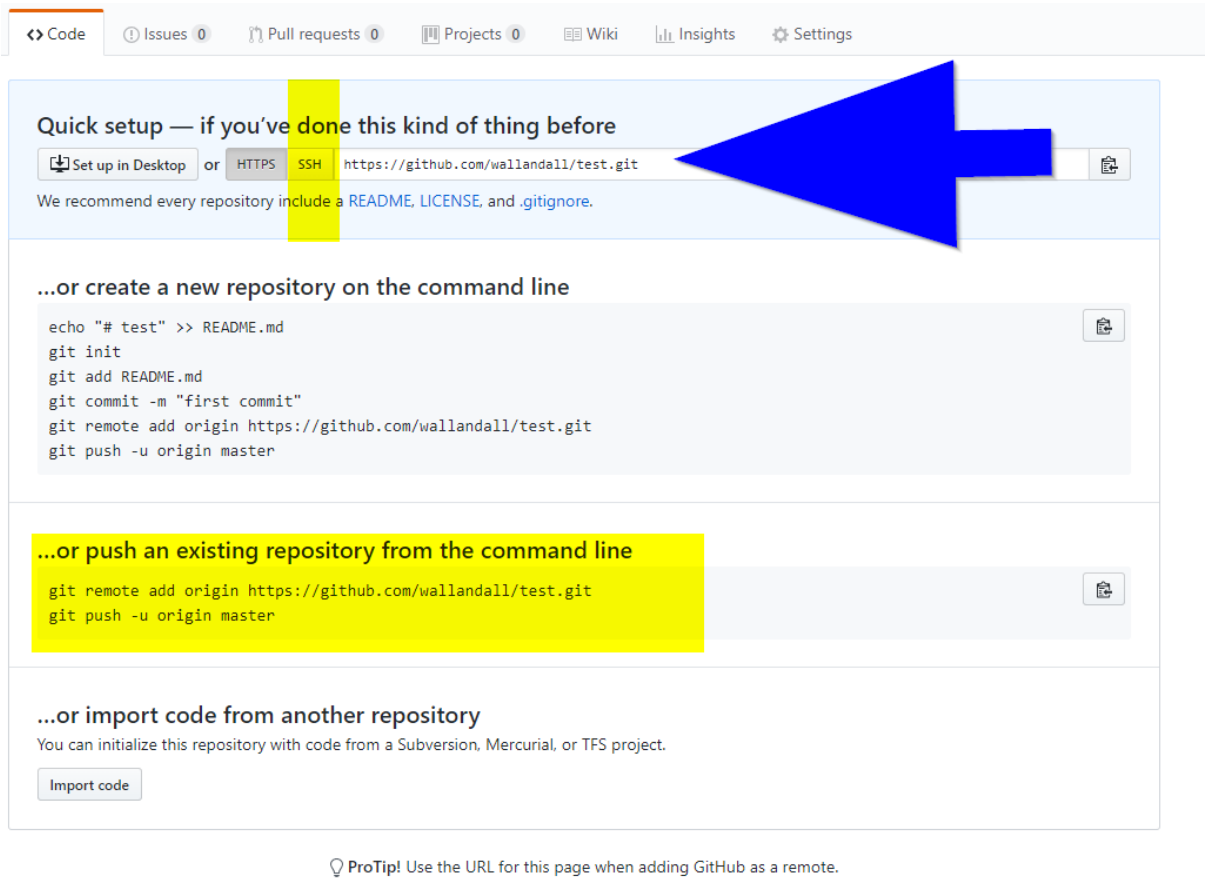
1. Navigate to https://github.com/ and click on New repository button in the top left corner



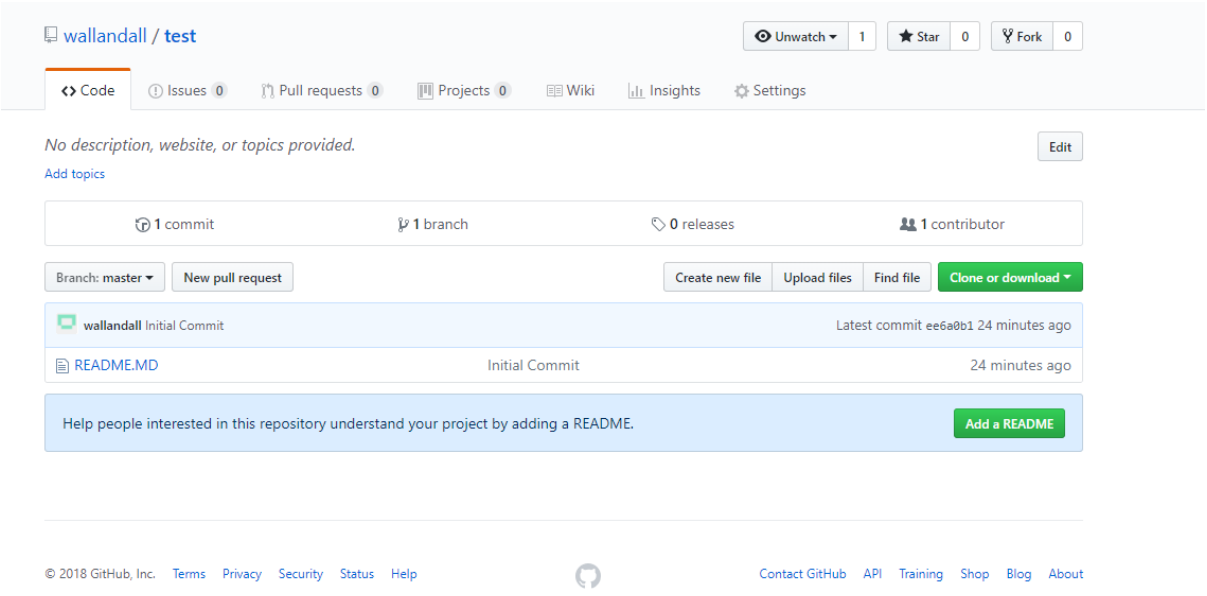
2. Enter the required information:
    a. Repository Name: test Give it the same name as our project, it can be different but I prefer to give it the same name.
    b. Description: Give it a description or leave it blanc
    c. Click on Create Repository



3. This will create the repository as well as provide you with the commands to push our local files to GitHub



4. To push our files to GitHub type:
   a. `git remote add origin https://github.com/wallandall/test.git`
   b. `git push -u origin master`
   c. *Make sure the path corresponds to your repository
5. When pushing your files you will be asked for your username and password
6. Once you have pushed your files you can go back to GitHub and refresh the page to view the files we have just pushed.

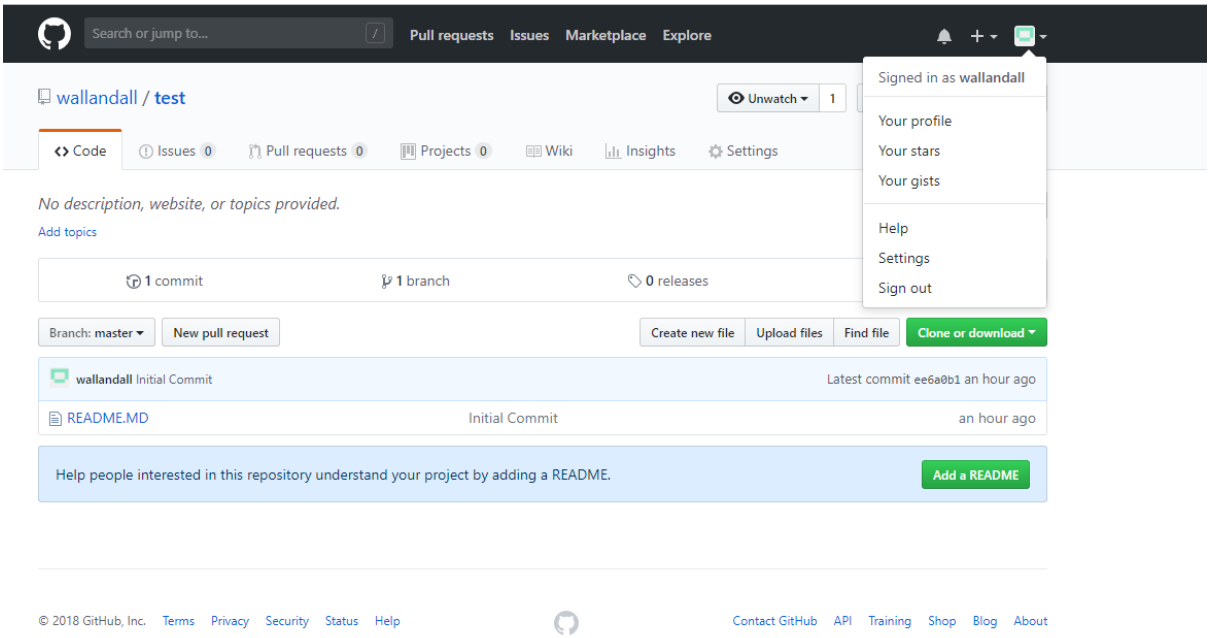


7. If you type git status you will see all your files are up to date.

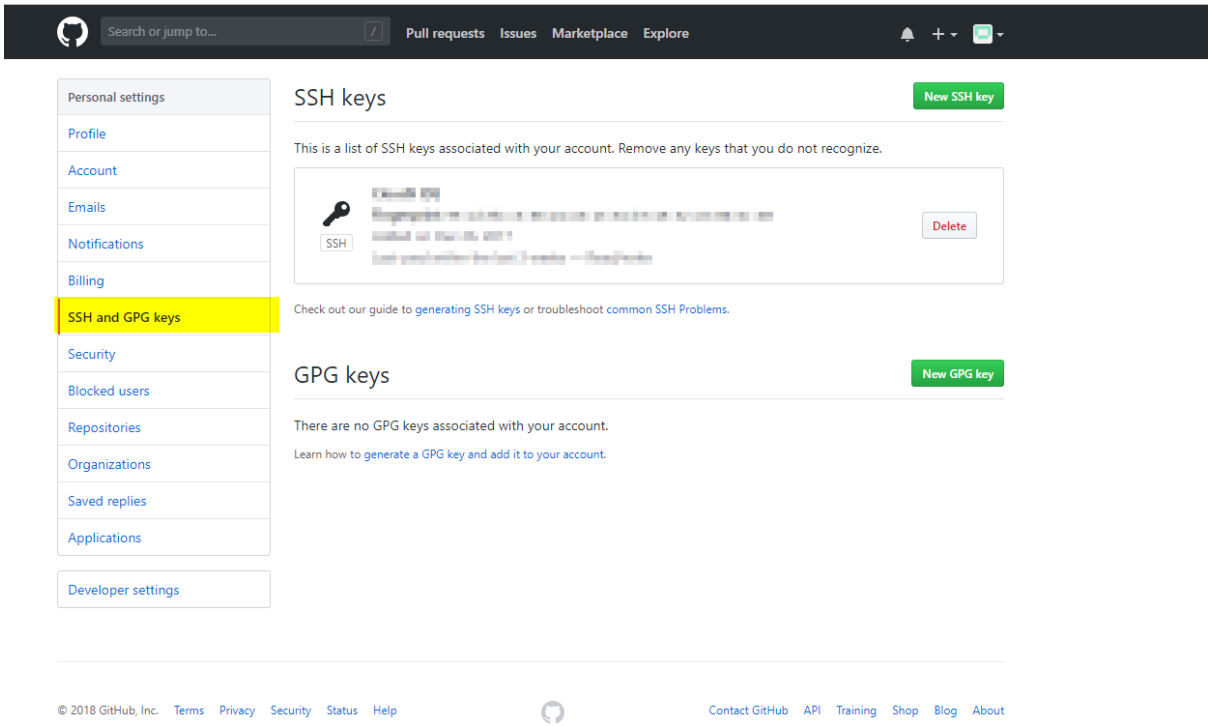
Configure SSH

We have created a test directory, initialised git and pushed our files to GitHub but we pushed our files over HTTPS. This is worked perfectly but is not as secure as SSH, if you would prefer to use SSH you can use the following steps or continue to use HTTPS

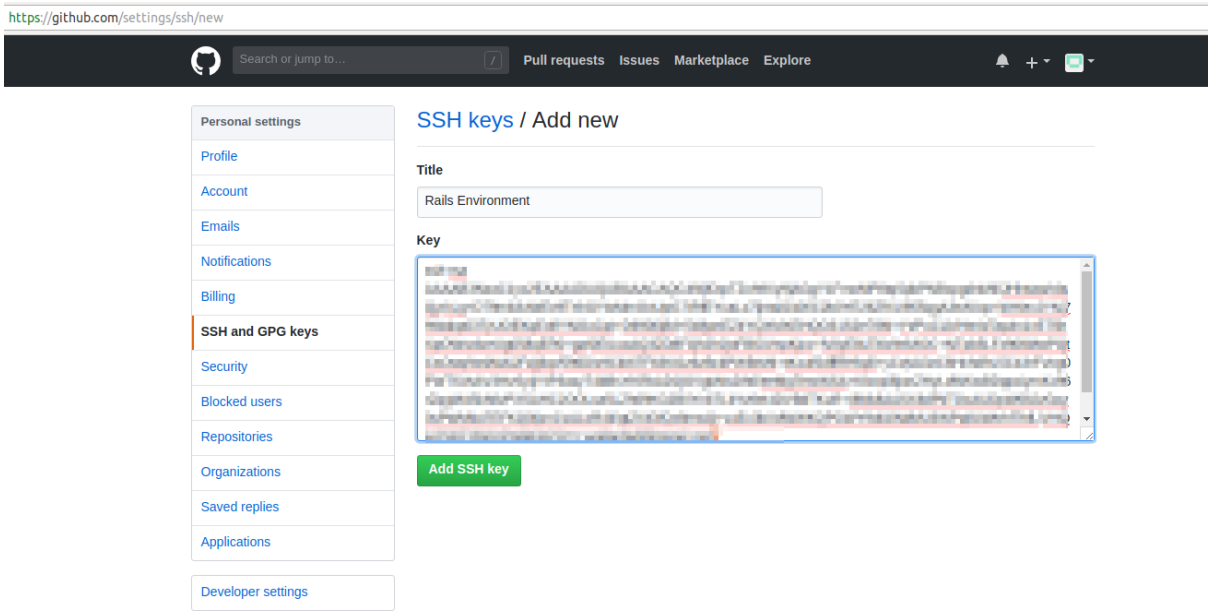
1. To setup SSH go to your account settings (in the top left corner and select settings)



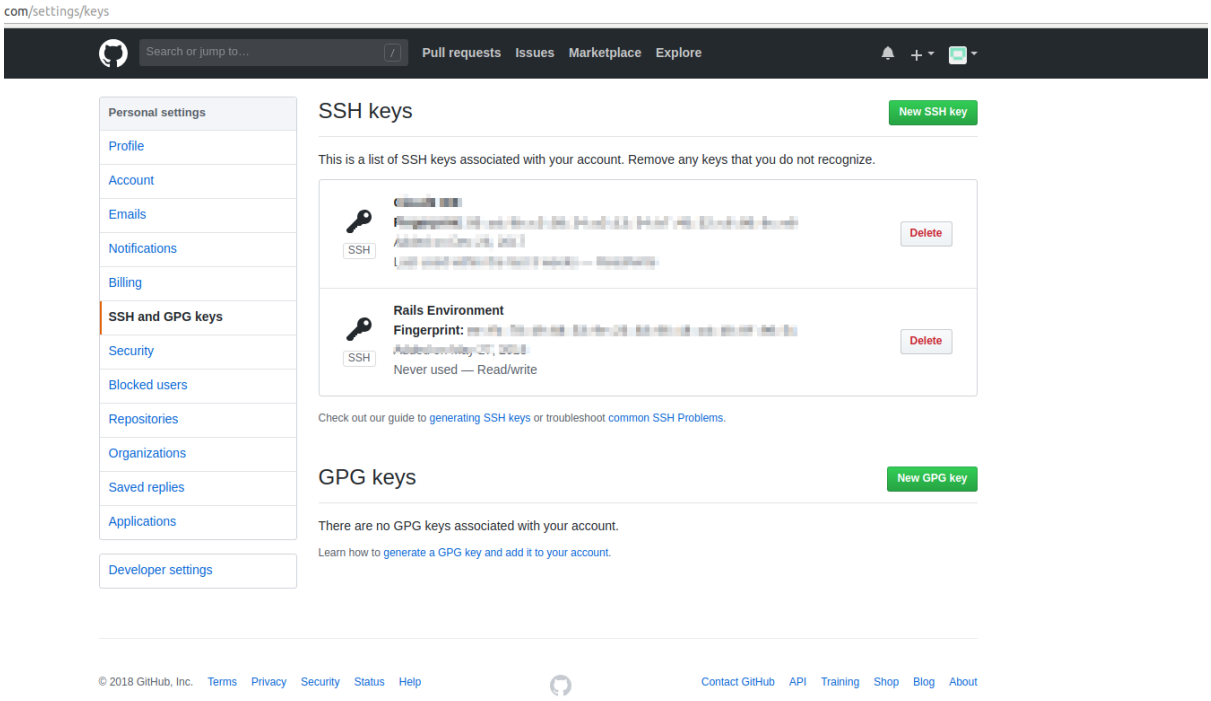
2. Under setting click on SSH and GPG key



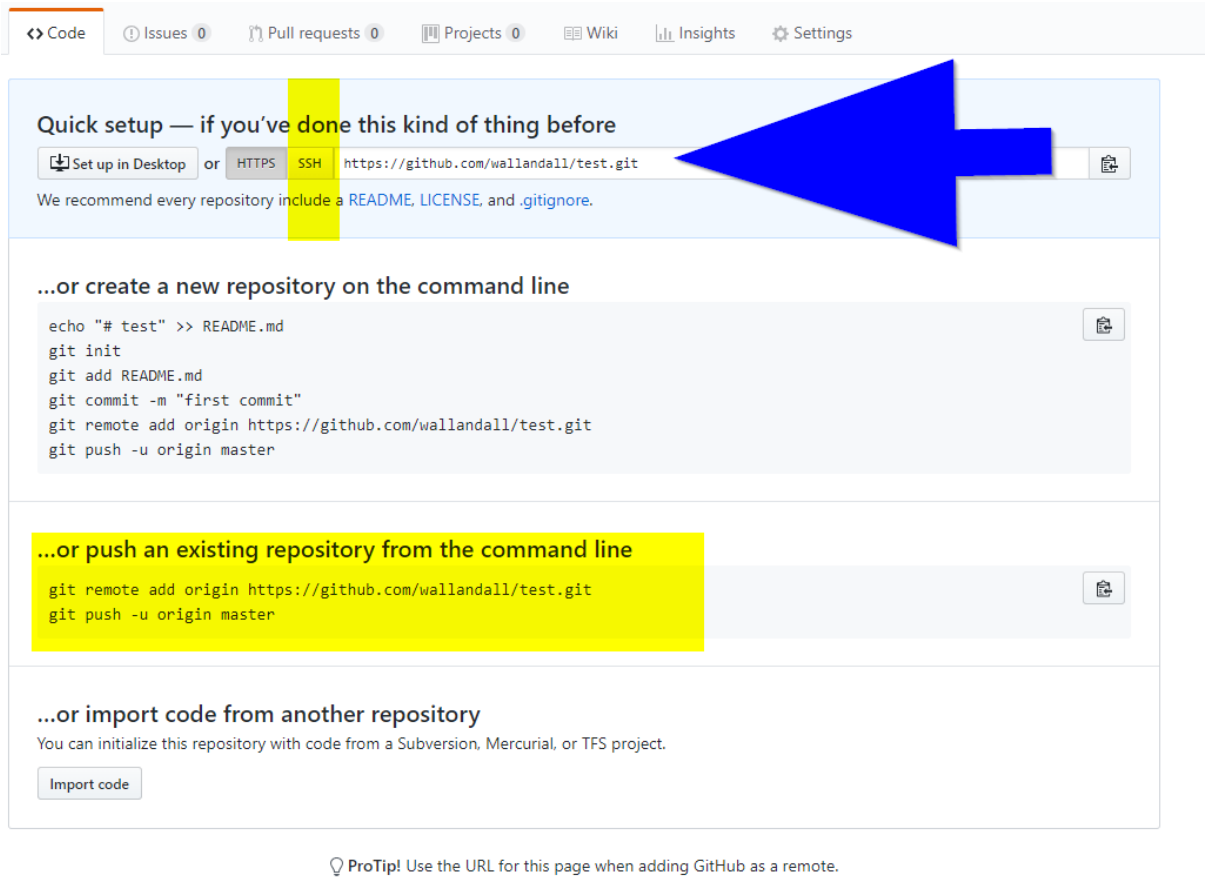
3. To generate new SSH Key, run the below command in the Terminal on your Virtual Machine
    a. ssh-keygen -t rsa -b 4096 -C "your_email@example.com"
    b. Make sure you enter the email address you used when you registered
    c. Press enter for both the file and passphrase
4. Add your SSH Key to the ssh-agent by typing:
    a. eval $(ssh-agent -s)
    b. ssh-add ~/.ssh/id_rsa
5. Add the key to your GitHub account by typing:
    a. sudo apt-get install xclip
    b. xclip -sel clip < ~/.ssh/id_rsa.pub
6. Go back to the GitHub settings page and click on New SSH Key
7. Give the Key a title
8. Paste the key we generated into the Key Field
    a. *the key was copied to our clipboard when we ran **xclip -sel clip < ~/.ssh/id_rsa.pub** so you need this step needs to be done from your Virtual Environment.
9. Click on Add SSH Key



10. You will notice that your new Key has been added to SSH and GPG Keys



11. We can now push our code to GitHub using SSH
12. Notice the URL will be different :
    a. `git remote add origin github.com/wallandall/test.git`
    b. `git push -u origin master`



Because we have setup SSH, we do not need to add a password when pushing our code to GitHub. Because of this it is important not to share your SSH Keys

Installing Node and NPM on Ubuntu

To securely install Node we will be using NPM (Node Package Manager)

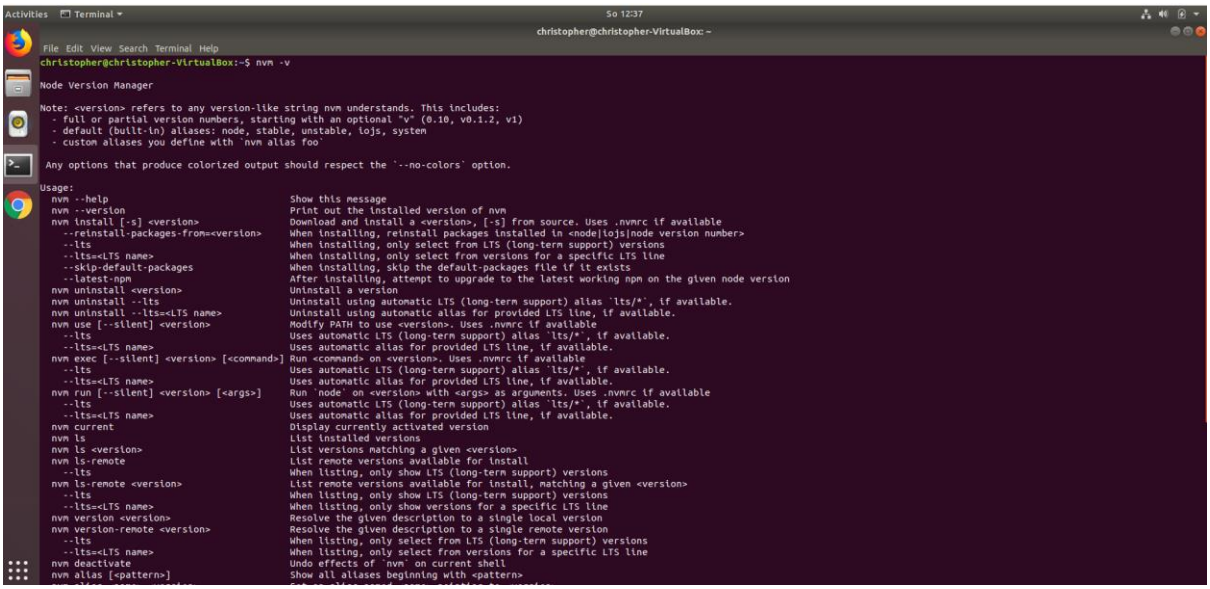
Install cURL

cURL is a command line tool used for transferring files. We will need to install it to get NVM

1. To install cURL type:
    a. sudo apt-get install curl
    b. Enter Password when prompted

Install NPM

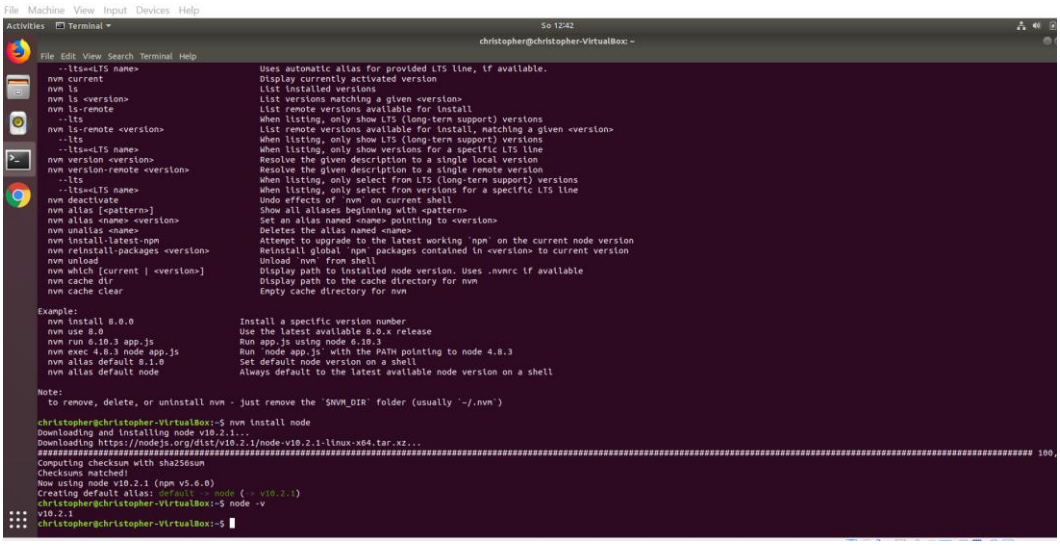
1. curl -o- https://raw.githubusercontent.com/creationix/nvm/v0.33.11/install.sh | bash
2. To check if nvm was installed correctly type:
    a. Nvm -v
    b. If you get an error close the terminal and reopen it



Install Node

To install Node type:

1. nvm install node
2. once installed type node -v to check the version



Installing the Heroku CLI

To deploy application to Heroku, you need to install the Heroku CLI. To use Heroku, you will need to create an account (heroku.com)

For information on the CLI, you can go to the following link:
https://devcenter.heroku.com/articles/heroku-cli

1. curl https://cli-assets.heroku.com/install-ubuntu.sh | sh
2. To check that you can connect to Heroku, type the following:
    a. heroku login
    b. heroku logout

An alternative to Heroku could be to setup your own Server and although it requires additional effort it can helpful and cost less when working with larger projects. Two useful links to setting up such an environment are:

- https://gorails.com/deploy/ubuntu/16.04
- https://gist.github.com/jrochkind/2161449

Install Atom

There are a number of different text editors that can be used for Rails development but I have been using Atom for some time and find that it has a number of plugins that can be helpful. I would recommend testing different editors as they all have their advantages, maybe you find one you prefer. https://www.ruby-lang.org/en recommends the following IDE's :

- Linux and cross-platform tools:
  - Aptana Studio
  - Emacs with Ruby mode and Rsense
  - Geany
  - gedit
  - Vim with vim-ruby plugin and Rsense
  - RubyMine
  - SciTe
  - NetBeans
  - Sublime Text
  - Atom
- On Windows:
  - Notepad++
  - E-TextEditor
  - Ruby In Steel
  - Atom
- On Mac OS X:
  - TextMate
  - TextWrangler
  - Dash (documentation browser)
  - Atom

To install Atom on Ubuntu run the following commands from the terminal:

1. curl -sL https://packagecloud.io/AtomEditor/atom/gpgkey | sudo apt-key add –
2. sudo sh -c 'echo "deb [arch=amd64] https://packagecloud.io/AtomEditor/atom/any/ any main" > /etc/apt/sources.list.d/atom.list'
3. sudo apt-get update
4. sudo apt-get install atom
5. Add atom to the Task Bar as described previously.

Installing Ruby and Ruby on Rails

There are different ways of installing ruby, I will be using RVM to install and manage my ruby versions, to get more information on the differences, check out the documentation on the Ruby Website:

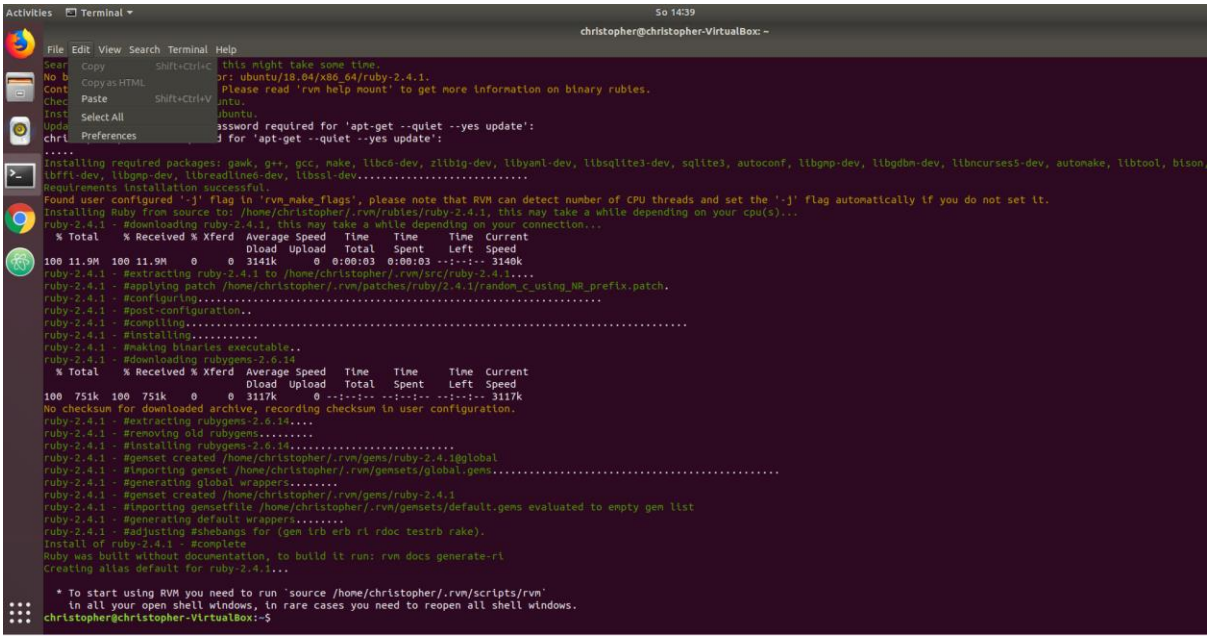
https://www.ruby-lang.org/en/documentation/installation/

Installing RVM on Ubuntu

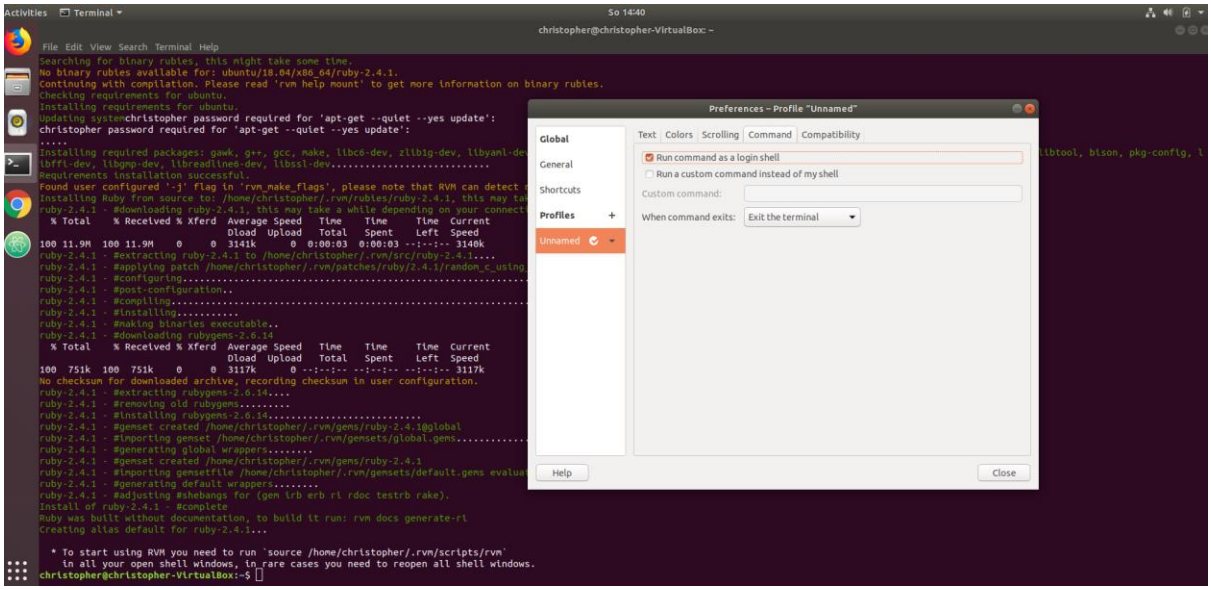
To get more details on the installation go to www.rvm.io/rvm/install

Run the following commands from your terminal:

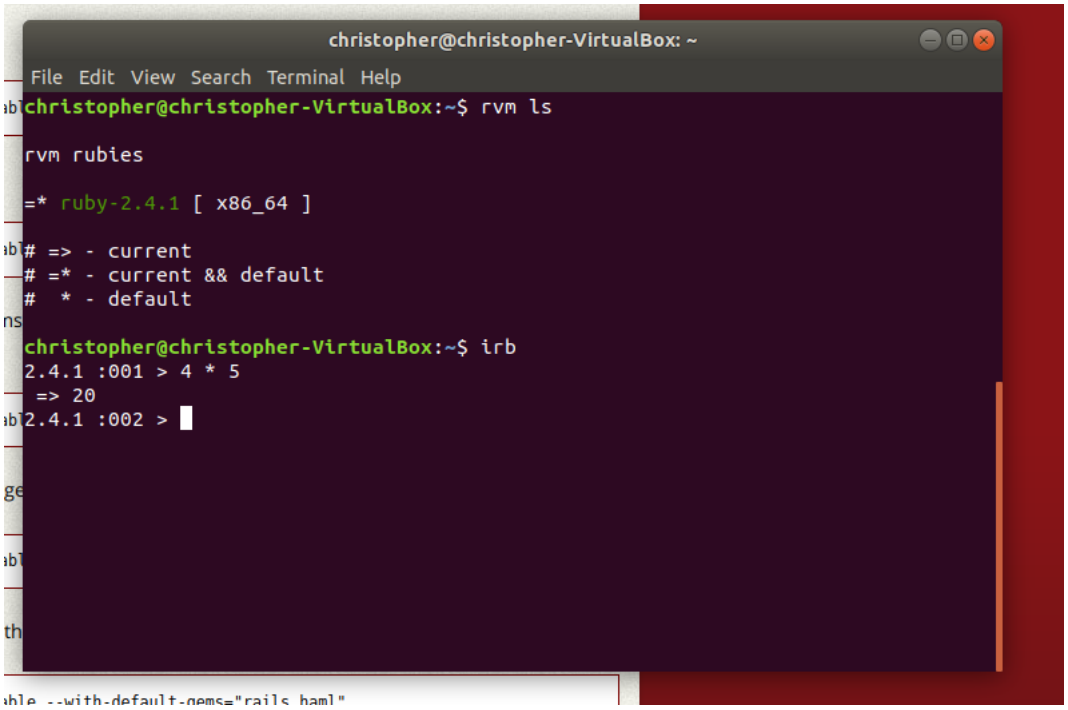
1. gpg --keyserver hkp://keys.gnupg.net --recv-keys 409B6B1796C275462A1703113804BB82D39DC0E3 7D2BAF1CF37B13E2069D6956105BD0E739499BDB
2. \curl -sSL https://get.rvm.io | bash -s stable –ruby
3. Close the terminal and reopen it
4. The default terminal does not give you permissions to run all the programs by default. To change this, click on Edit -> Preferences from the Terminal Menu Bar



5. Click on the Command tab and tick the Run command as login shell, tick box



6. Close and reopen the terminal
7. Type rvm list to list the versions of ruby that are installed
8. Type irb enter irb



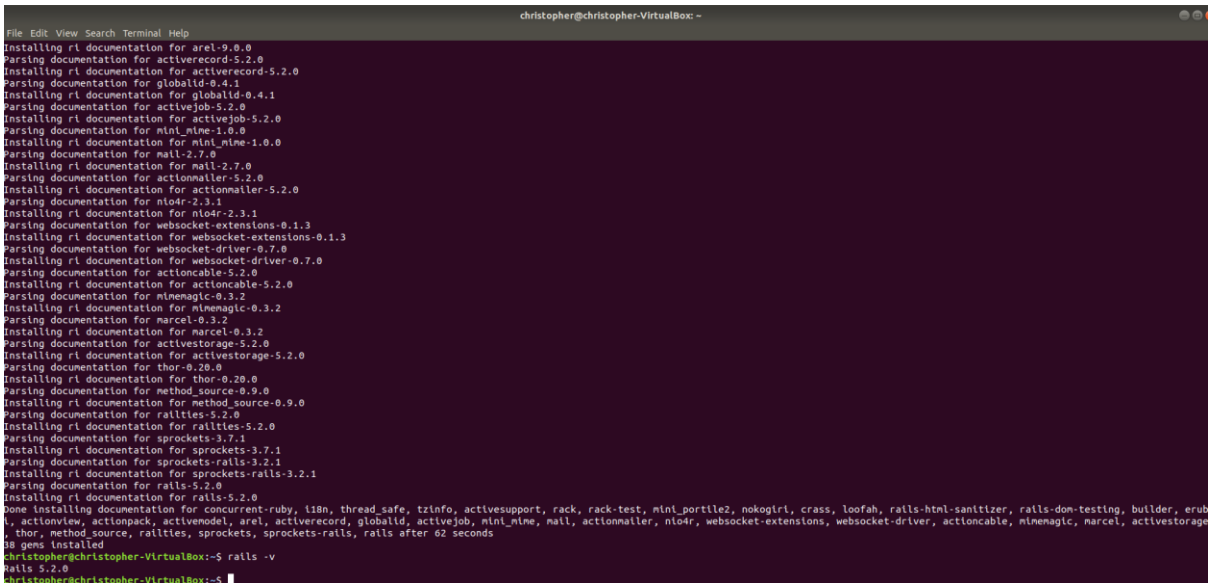
Install Gems

Ruby Gems are ruby programs and libraries that packaged in a way that makes it easy to install and distribute. https://rubygems.org provides a platform where you can host and download Gems. In order to setup our system we will need to install a number of gems.

1. gem install bundler
    a. bundler allows us to install gems eg: bundler install devise

b. You can read up on bundler from the following link:
https://rubygems.org/gems/bundler

2. gem install rails
   a. To find out more information on rails :
   https://rubygems.org/gems/rails
   b. Type: rails -v to ensure it was installed correctly



Install PostgresSQL

Ruby on Rails comes with sqlite3 however, if you plan on developing productive applications it is best practice to use the same Database on your dev and productive environments. As we will be deploying our applications to Heroku I will be installing PostgresSQL but if are deploying to your own server or a server with MySQL installed you should choose the database that is the same as your productive environment.

To install PostgresSQL run the following commands from your terminal:

1. sudo apt-install postgresql postgresql-contrib libpq-dev
2. create the postgress user account
    a. sudo -u postgres createuser -s devdb
3. To access the postgres database type:
    a. sudo -u postgress psql
4. to set a password for the devdb user we need to type the below command from the postgres terminal:
    a. \password devdb
    b. When you press enter it will prompt you for a password
    c. Type \q to exit the prompt