

# EEC-289 Student Software Manual

Welcome to EEC-289

Follow these instructions to prepare your machine for EEC-289 for this Fall.

Note that installing the eec289 software will require you to download around 10 GB data

If you have a slow network connection, please be patient with downloading.

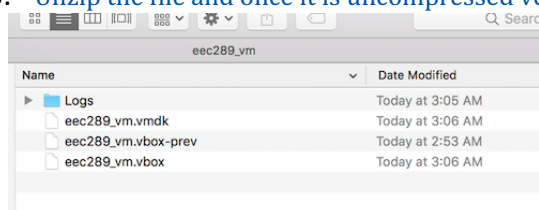
Please contact the course staff ASAP if these requirements present challenges so we can discuss alternative options.

## 1. VirtualBox

- 1.1. Go to <https://www.virtualbox.org/wiki/Downloads> ,download it and install it.
  - 1.1.1. **Windows** : <https://download.virtualbox.org/virtualbox/6.1.26/VirtualBox-6.1.26-145957-Win.exe>
  - 1.1.2. **OS X**: <https://download.virtualbox.org/virtualbox/6.1.26/VirtualBox-6.1.26-145957-OSX.dmg>
  - 1.1.3. **Ubuntu 20.04**: <https://download.virtualbox.org/virtualbox/6.1.26/virtualbox-6.1.26-145957~Ubuntu~eoan amd64.deb>

### 1.2. Download the VM

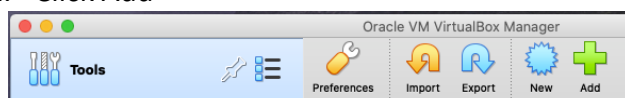
- 1.2.1. Download the VirtualBox Image for ECE 289 from [here](#)  
[<https://docs.google.com/open?id=1MnPNXmMxpO3pVZoGeYHsnPDhxDfDghv>]
- 1.2.2. Please confirm the filename of the file you downloaded is `eec289\_vm.zip`
- 1.2.3. Unzip the file and once it is uncompressed verify the files are as shown below:



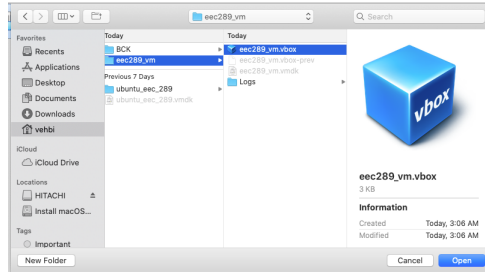
### 1.3. Create a new VM and attach the downloaded VirtualBox Image.

Image based instructions:

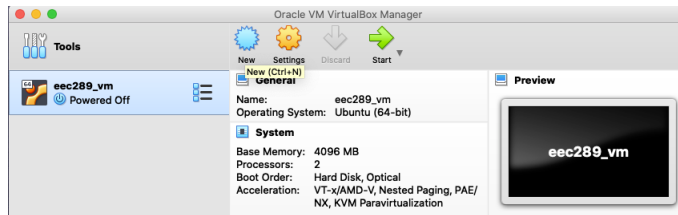
#### 1.3.1. Click Add



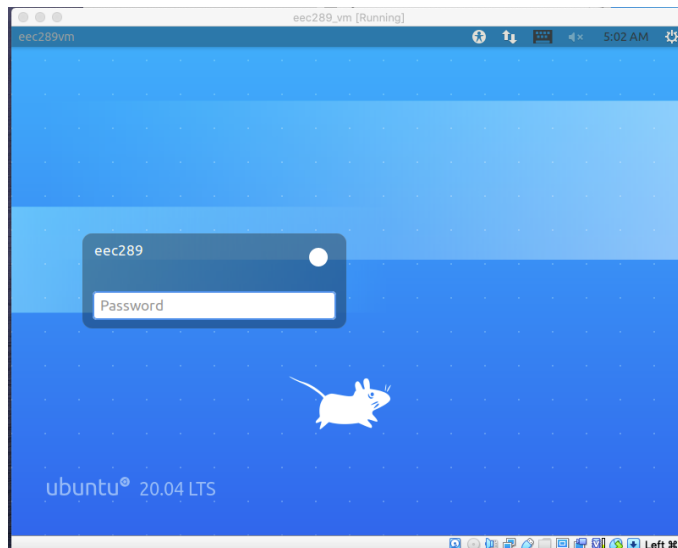
#### 1.3.2. Select eec289\_vm.vbox in the unzipped folder and click open



1.3.3. Click start to run the VM.

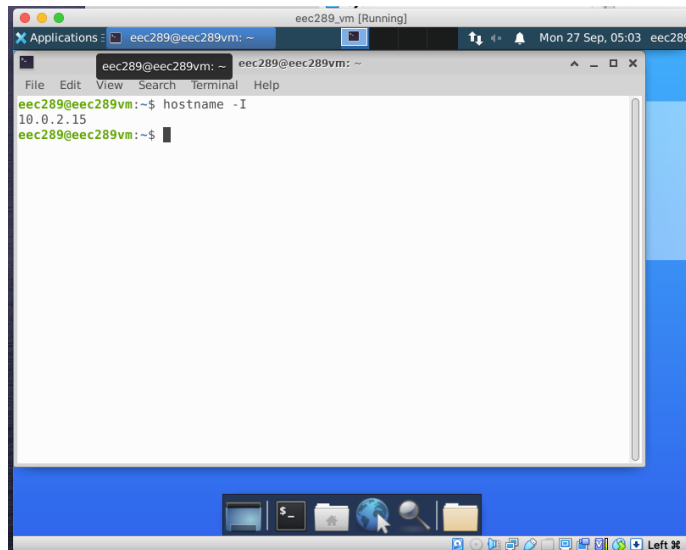


1.3.4. Once you are on the login screen, use the password “eec289”

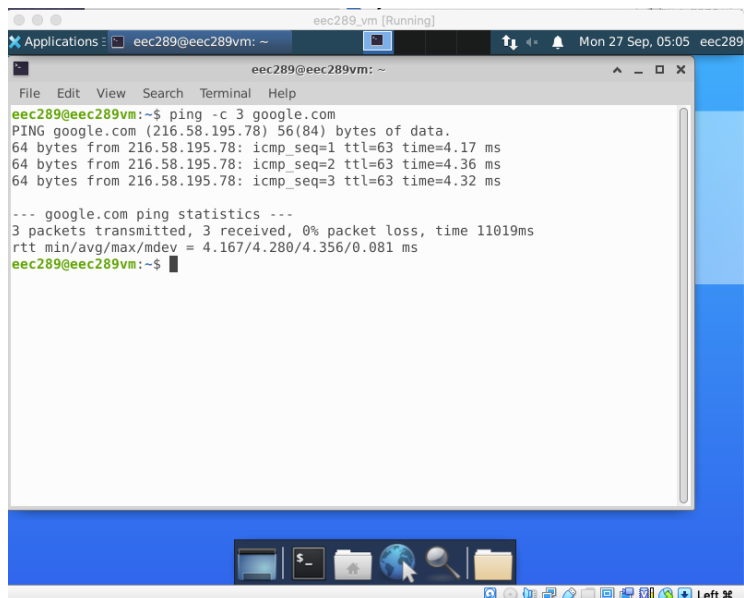


## 1.4. Configure your VM

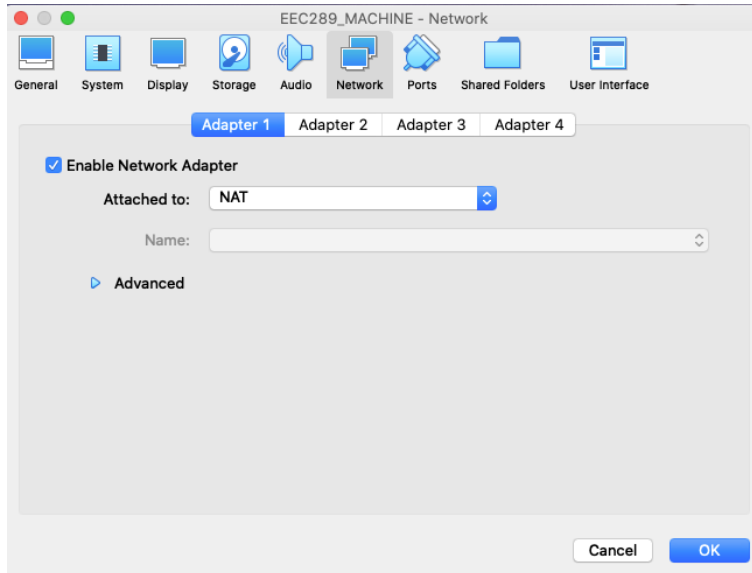
1.4.1. You will need to run `'hostname -I'` inside your eec289 VM to discover its IP address. You should be able to see an IP address just as shown below.



1.4.2. Ensure your VM is connected to the network by pinging google "ping -c 3 google.com" and make sure that it doesn't fail.



1.4.3. If either of these commands does not look right, you can turn of the VM and go to settings > networks > Adapter 1, make sure you have selected NAT



1.4.4. If you have resolve issues in your VM like below:

```
eec289@eec289vm:~$ ping -c 3 google.com
ping: google.com: Temporary failure in name resolution
```

You can turn off your VM and you open a terminal or a powershell or a command line on your host machine and run the following command: (change EEC289\_MACHINE to whatever you named your VM)

```
VBoxManage modifyvm "EEC289_MACHINE" --natdnshostresolver1 on
```

## 2. Install required software

2.1. Run an update

```
eec289@eec289vm:~$ sudo apt-get update
```

2.2. Install git

```
eec289@eec289vm:~$ sudo apt-get install git
```

2.3. Clone the following repo by “git clone <https://github.com/eec289q-f21/stdsw.git>”

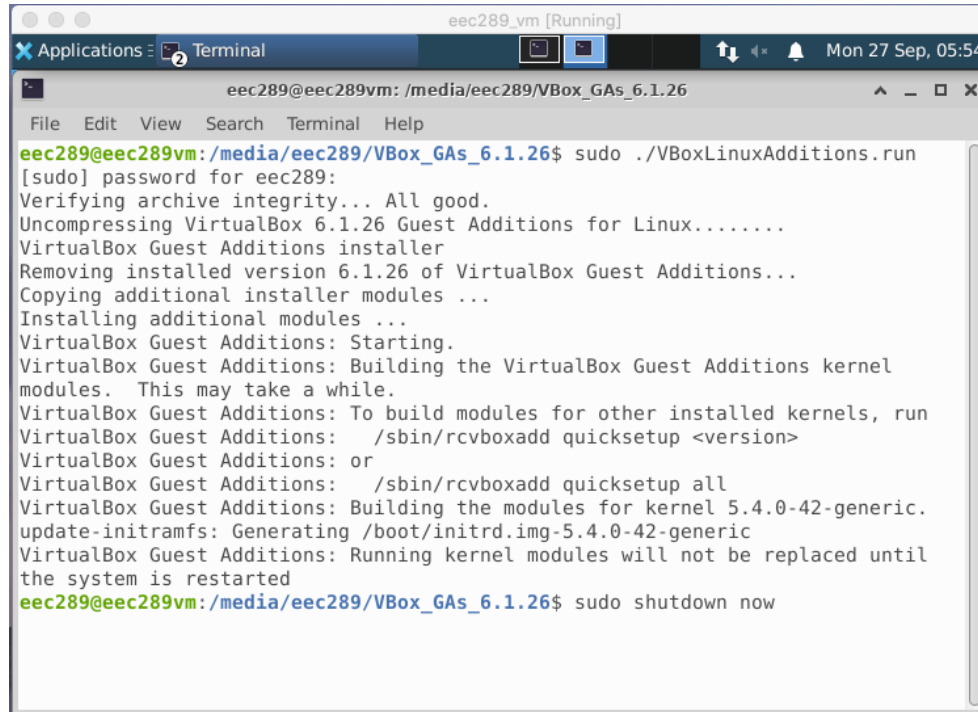
```
eec289@eec289vm:~$ git clone https://github.com/eec289q-f21/stdsw.git
Cloning into 'stdsw'...
remote: Enumerating objects: 11, done.
remote: Counting objects: 100% (11/11), done.
remote: Compressing objects: 100% (8/8), done.
remote: Total 11 (delta 1), reused 7 (delta 1), pack-reused 0
Unpacking objects: 100% (11/11), 3.65 KiB | 1.83 MiB/s, done.
```

2.4. Go to stdsw/vm and run “vmsetup.sh”, this may take a while! And can ask for password 2 times.

```
eec289@eec289vm:~$ cd stdsw/vm/
eec289@eec289vm:~/stdsw/vm$ ./vmsetup.sh
```

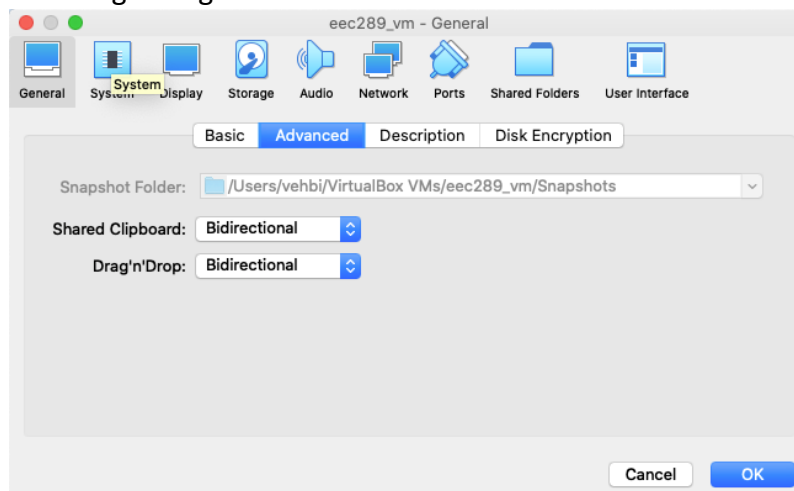
### 3. Some more configuration.

- 3.1.1. Guest Additions installation is needed to fix the screen resolution issues. please click on “Insert Guest Additions CD Image” from the devices menu and install it by opening a terminal within VM and switching to the directory “/media/eec289/VBOX\_GAs\_6.1.26” and running “VBOXLinuxAdditions.run” file. This may also take a while!. Once it is done, please shut down your VM.

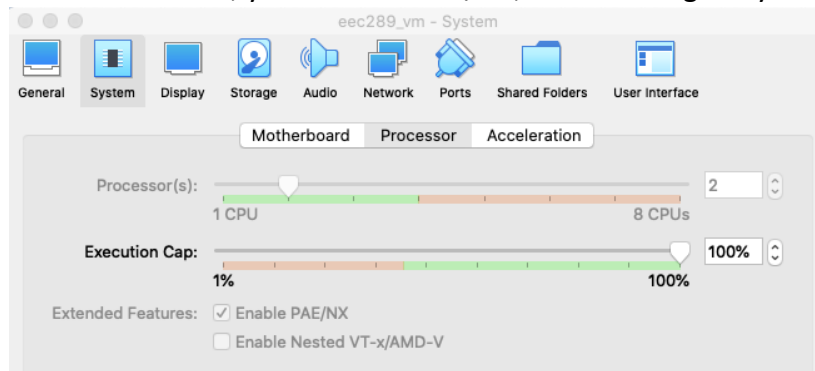


```
eec289_vm [Running]
Applications Terminal
eec289@eec289vm: /media/eec289/VBox_GAs_6.1.26
File Edit View Search Terminal Help
eec289@eec289vm:/media/eec289/VBox_GAs_6.1.26$ sudo ./VBoxLinuxAdditions.run
[sudo] password for eec289:
Verifying archive integrity... All good.
Uncompressing VirtualBox 6.1.26 Guest Additions for Linux.....
VirtualBox Guest Additions installer
Removing installed version 6.1.26 of VirtualBox Guest Additions...
Copying additional installer modules ...
Installing additional modules ...
VirtualBox Guest Additions: Starting.
VirtualBox Guest Additions: Building the VirtualBox Guest Additions kernel
modules. This may take a while.
VirtualBox Guest Additions: To build modules for other installed kernels, run
VirtualBox Guest Additions: /sbin/rcvboxadd quicksetup <version>
VirtualBox Guest Additions: or
VirtualBox Guest Additions: /sbin/rcvboxadd quicksetup all
VirtualBox Guest Additions: Building the modules for kernel 5.4.0-42-generic.
update-initramfs: Generating /boot/initrd.img-5.4.0-42-generic
VirtualBox Guest Additions: Running kernel modules will not be replaced until
the system is restarted
eec289@eec289vm:/media/eec289/VBox_GAs_6.1.26$ sudo shutdown now
```

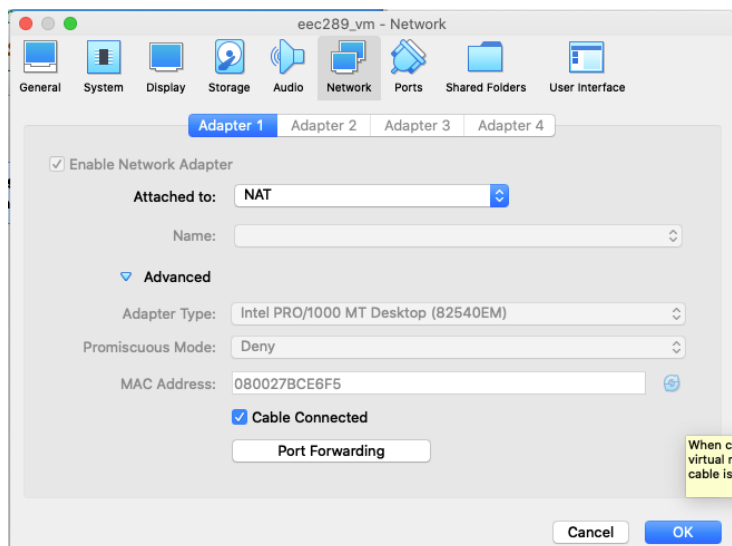
- 3.1.2. Once your VM is turned off, Go to settings > General > Advanced. Make the following configurations



3.1.3. Make sure also, you enabled PAE/NX, Go to settings > System > Processor.



3.1.4. Port-forwarding for SSH must be configured. Go to Settings > Network > Port Forwarding



Add the following rule:

	Name	Protocol	Host IP	Host Port	Guest IP	Guest Port
ssh		TCP		3022		22

## 4. Configure Your Development Environment (Optional)

4.1.1. Install VS Code on your computer (NOT inside the VM),

4.1.1.1. download and install Visual Studio Code from

<https://code.visualstudio.com/download>

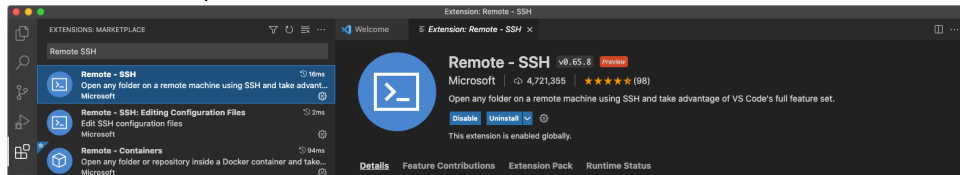
#### 4.1.2. Install the Remote-SSH extension by

4.1.2.1. Open VS Code

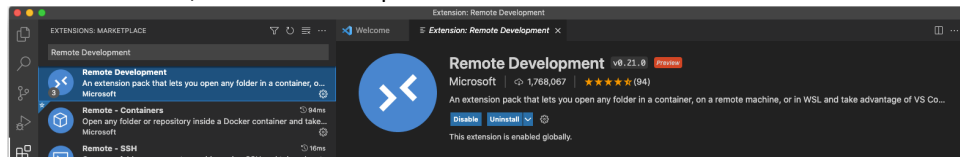
4.1.2.2. Press Ctrl-Shift-P (on Windows/Linux) or Cmd-Shift-P (on Mac)

4.1.2.3. Type `Extensions: Install Extensions` and select that option

4.1.2.4. In the search box, paste: `ms-vscode-remote.remote-ssh` or `Remote – SSH`



4.1.2.5. In the search box, “Remote Development”



4.1.2.6. Install these extensions

#### 4.1.3. Restart VS Code

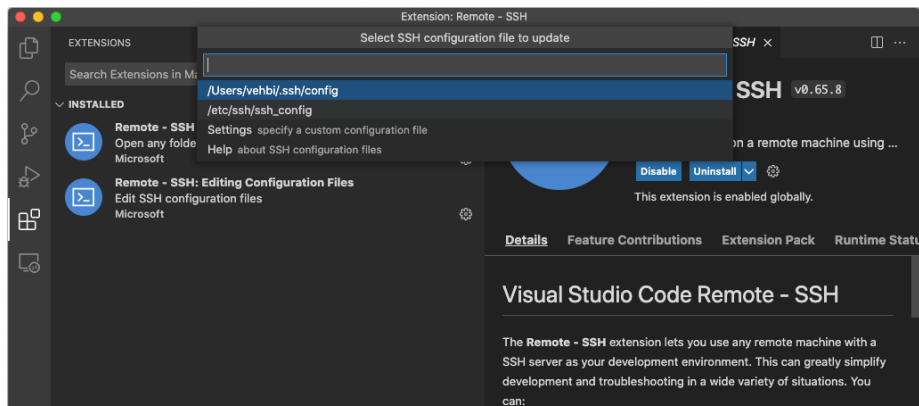
#### 4.1.4. Configure SSH Config

4.1.4.1. Open VS Code

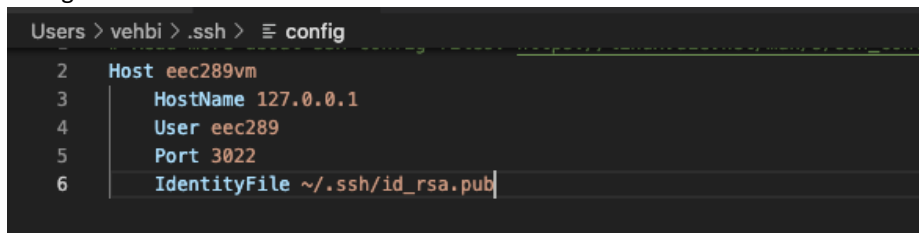
4.1.4.2. Press Ctrl-Shift-P (on Windows/Linux) or Cmd-Shift-P (on Mac)

4.1.4.3. Type `Remote-SSH: Open Configuration File` and select that option

4.1.4.4. Choose the first file



4.1.4.5. Configure as follows



For windows users can generate them opening a command line and running 'ssh-keygen -t rsa -b 4096 -f %USERPROFILE%/id\_rsa.pub' and give the C:/Users/<your user>/id\_rsa.pub

- 5.1.1. Open VS Code
- 5.1.2. Press Ctrl-Shift-P (on Windows/Linux) or Cmd-Shift-P on Mac
- 5.1.3. Type ``Remote-SSH: Connect to Host`` and select that option
- 5.1.4. Select eec289vm

