

VirtualBox Installation Tutorial

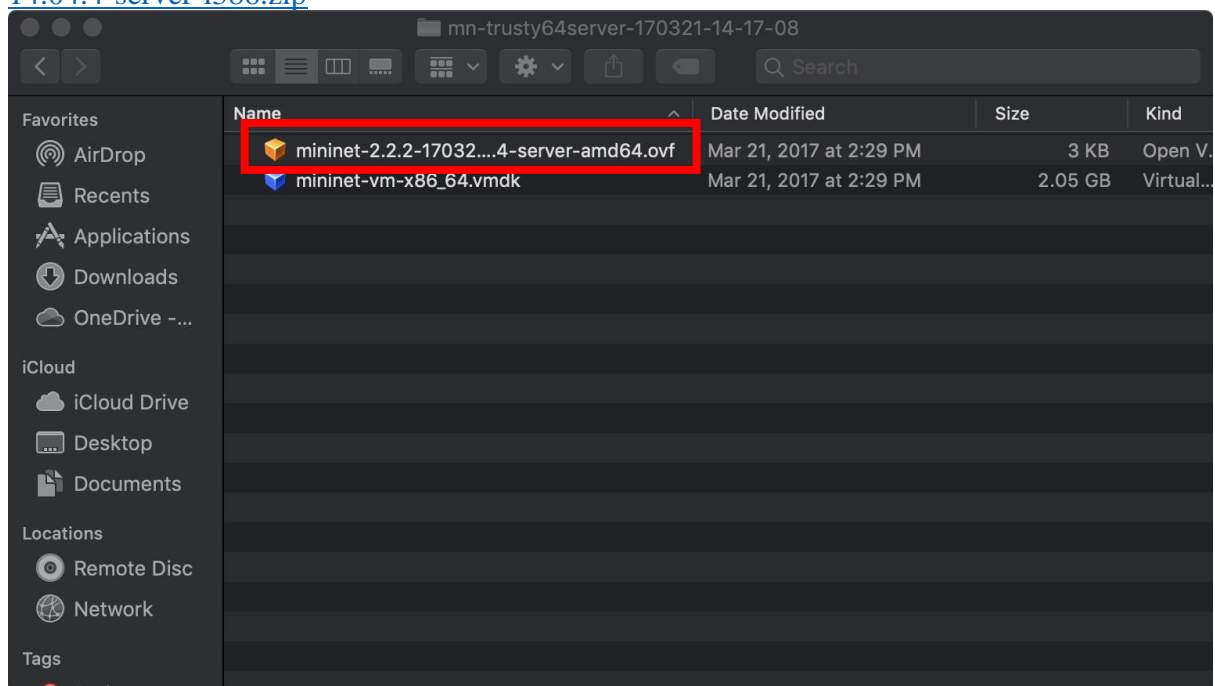
Steps:

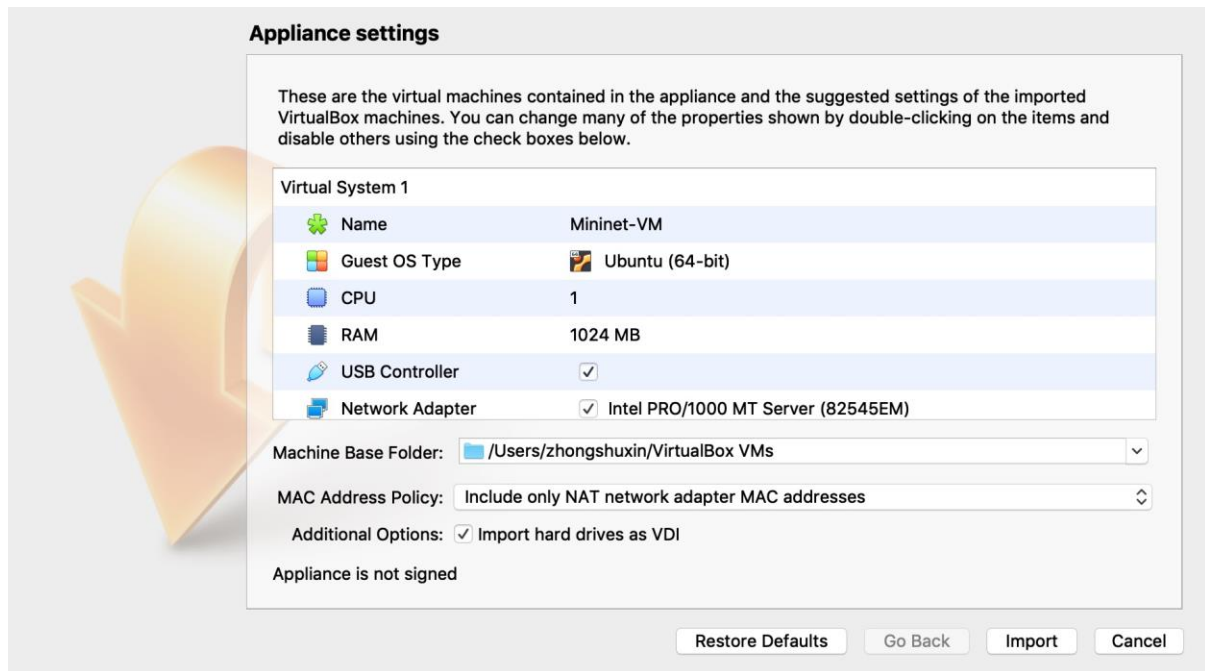
(1) Download and Install VirtualBox: <https://www.virtualbox.org/wiki/Downloads>



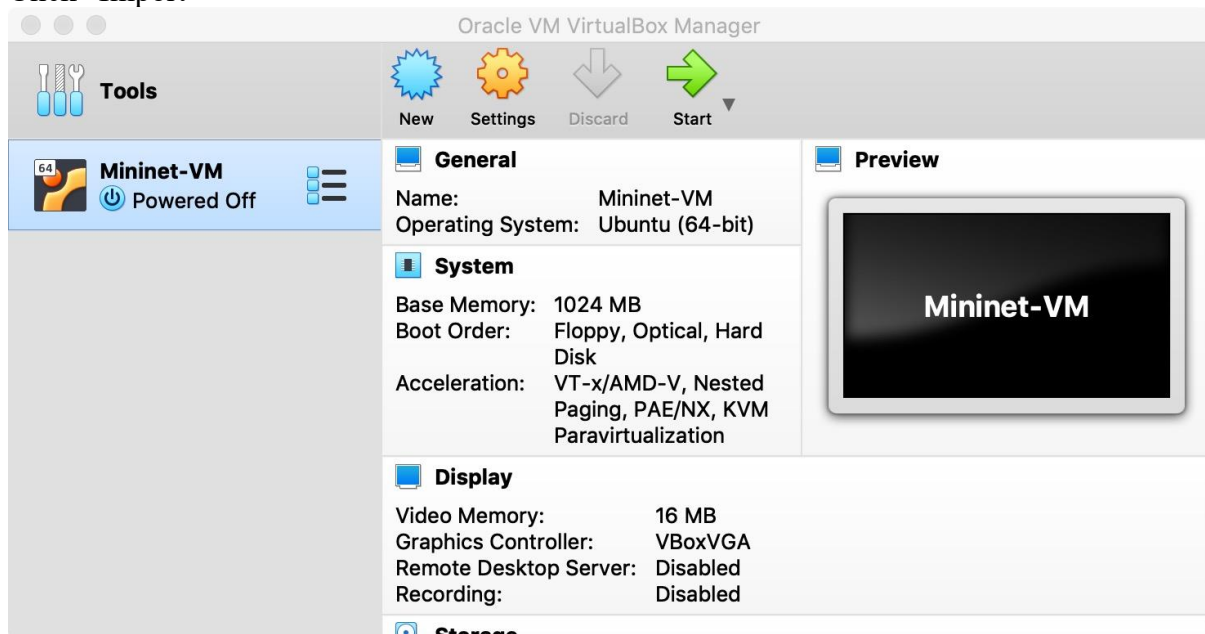
(2) Download and unzip mininet:

<https://github.com/mininet/mininet/releases/download/2.2.2/mininet-2.2.2-170321-ubuntu-14.04.4-server-i386.zip>

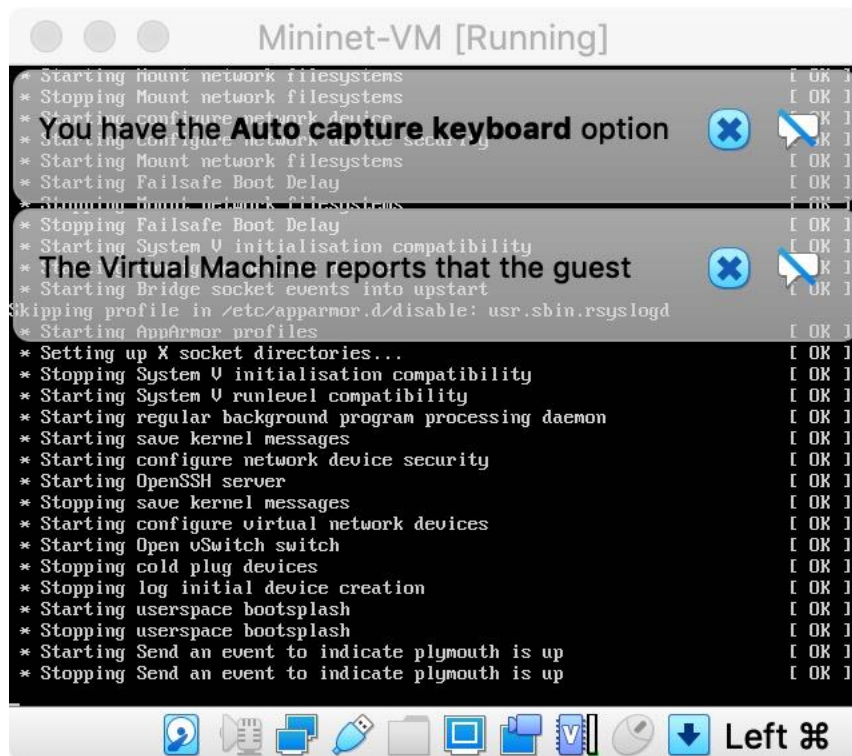




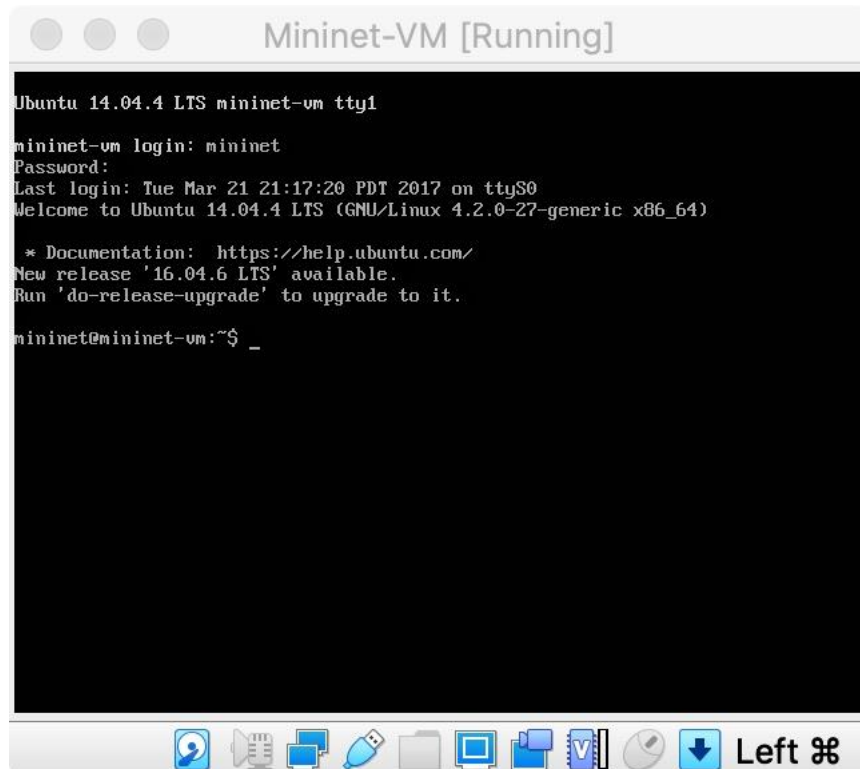
Click "Import"



Click "Start"



After Start:



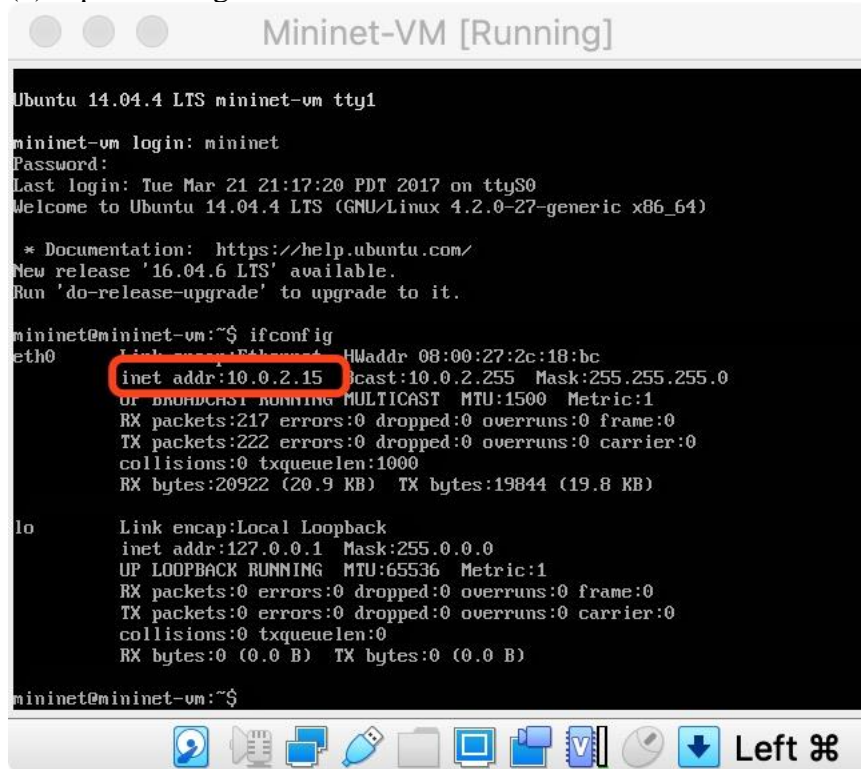
Login/Password: mininet

[[NOTE: this may be a good time to install **traceroute** inside the virtual machine, as well as **gnuplot** (for the extra credit project. After the following steps, I was unable to connect to the internet from the VM anymore, whereas at this point it was still possible. You can install them with the commands:

sudo apt-get update && sudo apt-get install traceroute
sudo apt-get update && sudo apt-get install gnuplot

]]

(3) Input ifconfig to check the IP address of this virtual machine



```
Mininet-VM [Running]
Ubuntu 14.04.4 LTS mininet-vm tty1
mininet-vm login: mininet
Password:
Last login: Tue Mar 21 21:17:20 PDT 2017 on ttyS0
Welcome to Ubuntu 14.04.4 LTS (GNU/Linux 4.2.0-27-generic x86_64)

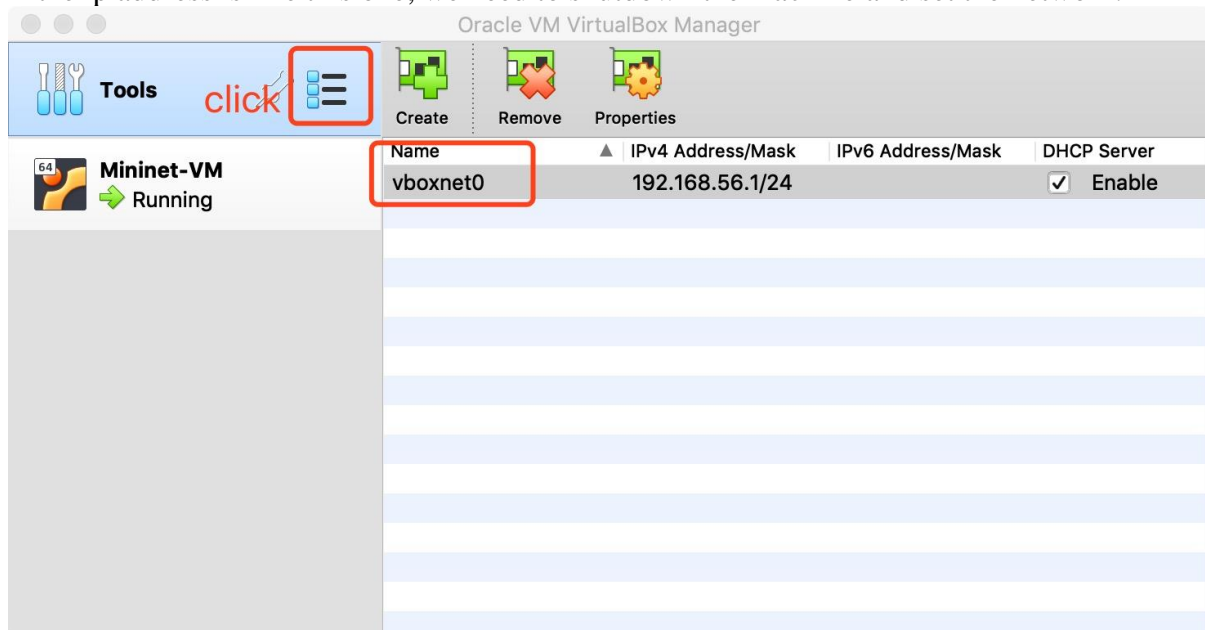
 * Documentation:  https://help.ubuntu.com/
New release '16.04.6 LTS' available.
Run 'do-release-upgrade' to upgrade to it.

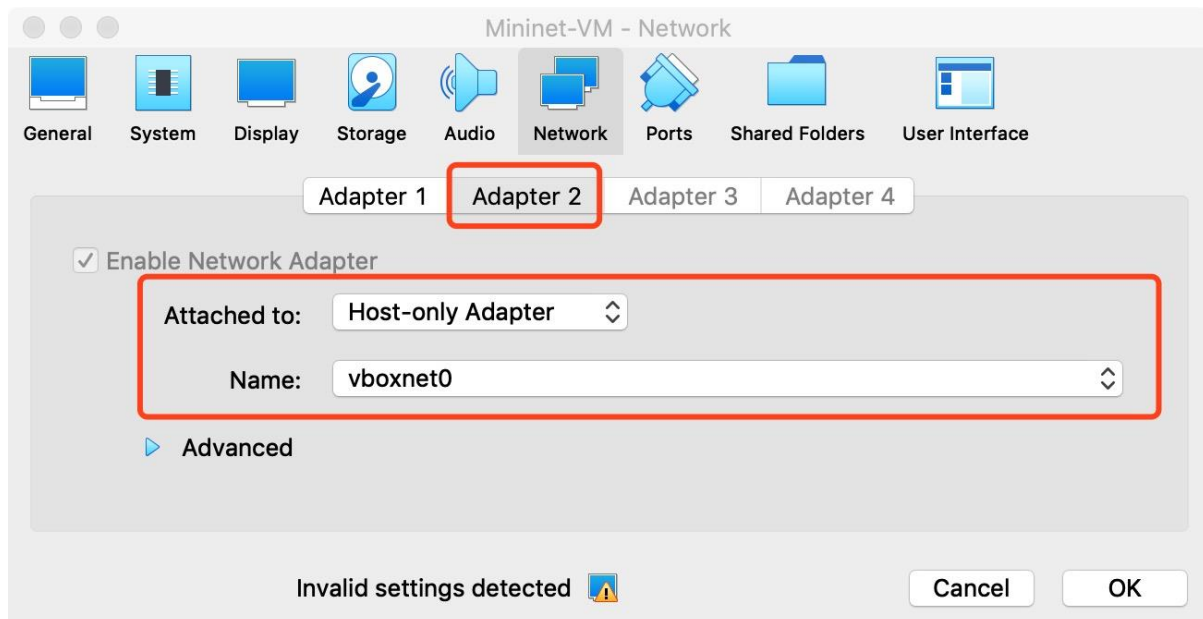
mininet@mininet-vm:~$ ifconfig
eth0:  Link encap:Ethernet  HWaddr 08:00:27:2c:18:bc
       inet addr:10.0.2.15  Bcast:10.0.2.255  Mask:255.255.255.0
       UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
       RX packets:217 errors:0 dropped:0 overruns:0 frame:0
       TX packets:222 errors:0 dropped:0 overruns:0 carrier:0
       collisions:0 txqueuelen:1000
       RX bytes:20922 (20.9 KB)  TX bytes:19844 (19.8 KB)

lo:    Link encap:Local Loopback
       inet addr:127.0.0.1  Mask:255.0.0.0
       UP LOOPBACK RUNNING  MTU:65536  Metric:1
       RX packets:0 errors:0 dropped:0 overruns:0 frame:0
       TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
       collisions:0 txqueuelen:0
       RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

mininet@mininet-vm:~$
```

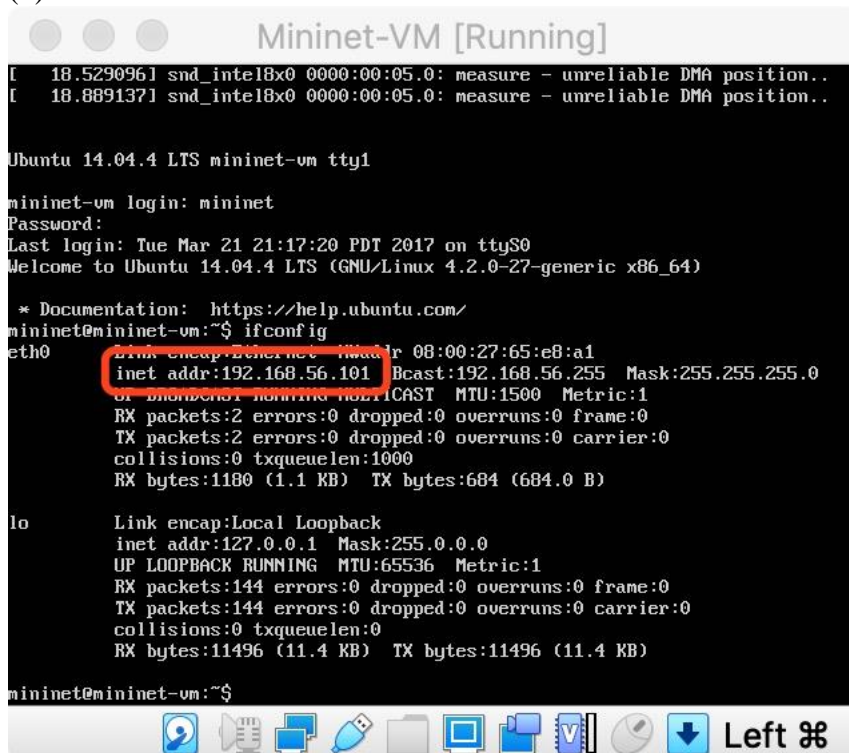
If the ip address is like this one, we need to shutdown the machine and set the network.





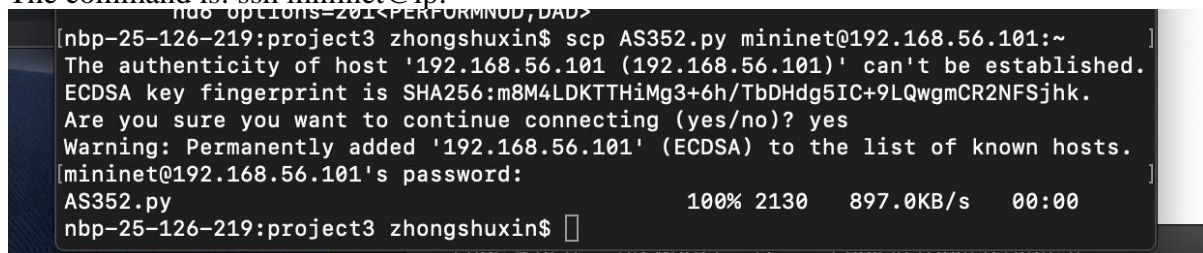
Then restart the machine and input ifconfig again, the ip address will change as shown in the below screenshot.

(4)



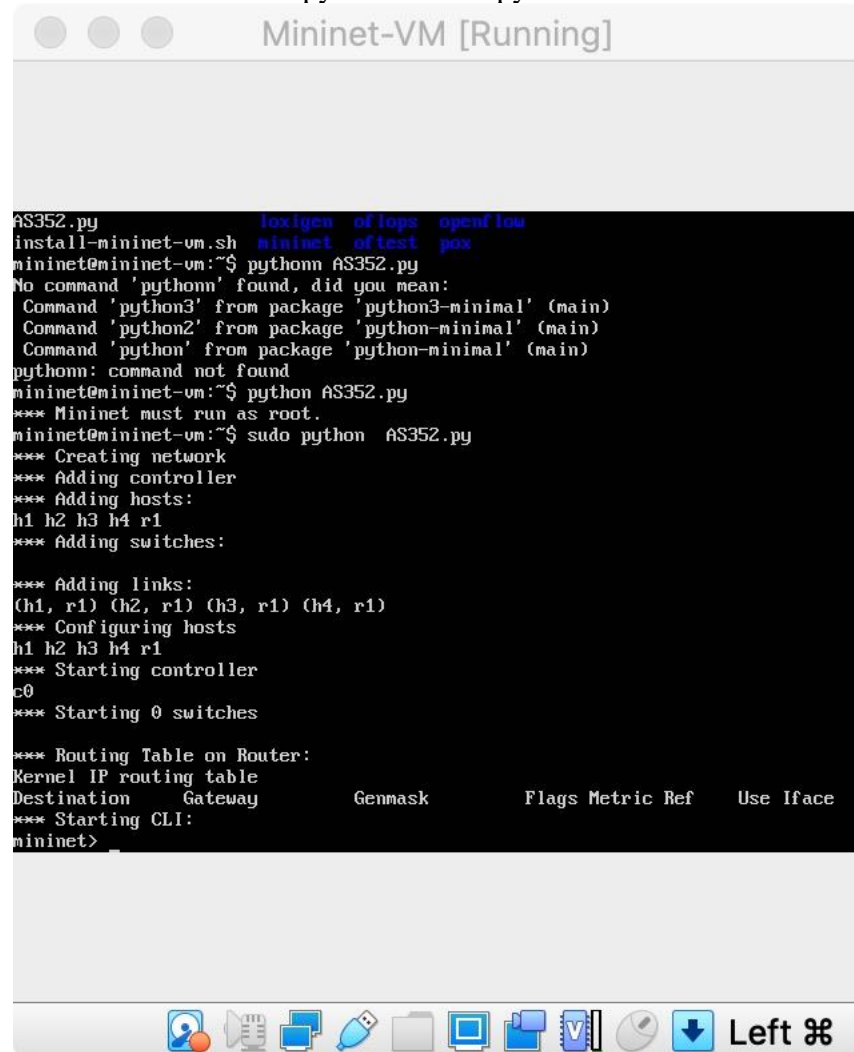
(5) in your own computer, open the terminal, and use ssh to transfer the file to the virtual machine.

The command is: `ssh mininet@ip:~`



(6) mininet must run as root:

The command is `sudo python AS352.py`



```
AS352.py
install-mininet-vm.sh  foxigen  oflops  openflow
mininet@mininet-vm:~$ pythonm AS352.py
mininet@mininet-vm:~$ pythonm AS352.py
No command 'pythonm' found, did you mean:
  Command 'python3' from package 'python3-minimal' (main)
  Command 'python2' from package 'python-minimal' (main)
  Command 'python' from package 'python-minimal' (main)
pythonm: command not found
mininet@mininet-vm:~$ python AS352.py
*** Mininet must run as root.
mininet@mininet-vm:~$ sudo python AS352.py
*** Creating network
*** Adding controller
*** Adding hosts:
h1 h2 h3 h4 r1
*** Adding switches:

*** Adding links:
(h1, r1) (h2, r1) (h3, r1) (h4, r1)
*** Configuring hosts
h1 h2 h3 h4 r1
*** Starting controller
c0
*** Starting 0 switches

*** Routing Table on Router:
Kernel IP routing table
Destination      Gateway         Genmask         Flags Metric Ref    Use Iface
*** Starting CLI:
mininet>
```