**Title: Setup Static IP addresses**

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**OS: Ubuntu 16.10**

**Setup:**

To get started on being able to ping two different virtual machines with VirtualBox then go ahead and download the latest version from this url: <https://www.virtualbox.org/wiki/Downloads> . Make sure that everything has been downloaded correctly. For this tutorial, I will be using a Windows host machine with enough resources for two virtual machines. The first machine will be named master1 and the second will be master2. Each will have 10 GB in storage and 2 GB in RAM. Do the following:

* Go to settings->General->Advanced
  + And change the Shared Clipboard to: Bidirectional
  + And change Drag’n’Drop to: Bidirectional
* Go to settings->System
  + Uncheck the floppy and move it down below hard disk.
* Go to settings->System->Processor
  + Make sure that the Enable PAE/NX is unchecked.
* Go to settings->Storage
  + Click the cd under Controller: IDE, and on the far right click the other cd and pick your virtual optical disk drive. This is where you can add your OS image.
* Go to settings->Network
  + Go to Adapter 2, click the checkbox next “Enable Network Adapter”.
  + Next switch the Attached to from Not Attached to Host-Only Adapter.
  + Next, change the Promiscuous Mode under the Advanced settings to Allow VMs.
  + Then click the “ok” button at the bottom.

**Part 1:**

* Click on the start button for each of the virtual machines and proceed with the installation. Once the installation has finished, power down the machines and go back into the settings to change the boot order in the “System” option. Un-check the optical option and move it below the hard disk. We’re going to do this part on both virtual machines.

**Part 2:**

* Do the following for both of the virtual machines.
* Type: sudo passwd
  + Enter a password for your account and then one for root.
* Type: ifconfig
  + Here you will see the network devices for your system.
* Type: nano /etc/network/interfaces
  + You will see the auto lo device in the file, you will enter the following underneath the last line.
  + auto enp0s8
  + iface enp0s8 inet static
  + address 192.168.100.100
  + netmask 255.255.255.0
* Type: service networking restart
* Type: ifup enp0s8
* So, for master1 can have the 192.168.100.100, and for master2 can have 192.168.100.101. Don’t make the last number bigger than 299, or you will get errors trying to restart the device.
* You should now be able to ping either machine at their static IP address.
  + Type: ping 192.168.100.101 on the first machine.
    - This should return a connection data transfer.

**Other:**

You should now be able to ping either machine from each one. If not, then try to fix the errors as best as you can, and use google. Now if you don’t want to setup an IP address you can just ping the enp0s8 device IP address instead.

Here are some other commands and or knowledge that might be useful down the road. You can use this command for adding an IP address: sudo ip ad add 10.0.0.10/24 dev eth0, the /24 tells the computer that the last 8 bits of the 32 can change. You can just do the opposite as well with this command: ip ad del 10.0.0.40/32 dev eth0.

The NAT stands for network address translation, the NAT virtualizes the internet protocol and decreases the number of IP addresses an organization needs. The Host-only adapter can connect to multiple virtual machines that are running on the same machine. The Bridged Adapter can allow the host machine be able to putty into the virtual machine.

Here is just some of the basic information to know about the networking for any operating system that is running on VirtualBox. The /etc/hosts file maps hostnames to IP addresses, and is where you can add other IP address to associated hostnames. This works well when you want to replace IP addresses for hostname’s, basically like a shortcut. The interfaces file that is located at /etc/network/interfaces is where you can associate a network device with a static IP address.