Practical Exercise 9-1: Working with Network Interfaces

This Practical Exercise will take students through the use of the ifconfig utility to manage a network interface as well as configuring the configuration file for interfaces.

Open VirtualBox and start the openSUSE VM. Run snapshot 15-1 for the correctly configured environment. To run snapshot 15-1:
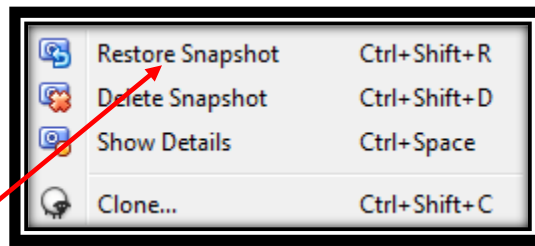
1. Open the Oracle VM VirtualBox manager by double clicking this icon on your desktop:
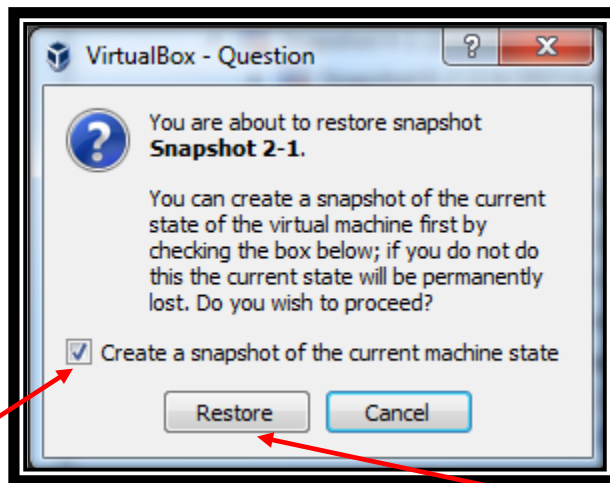

2. Click "Snapshots" in the top right of the Oracle VM Virtualbox Manager.


3. In the right side box populated with snapshots scroll up and find the one titled "Snapshot 15-1" and right click on it. The following box should appear:

4. Select "Restore Snapshot" and the following pop-up should appear:
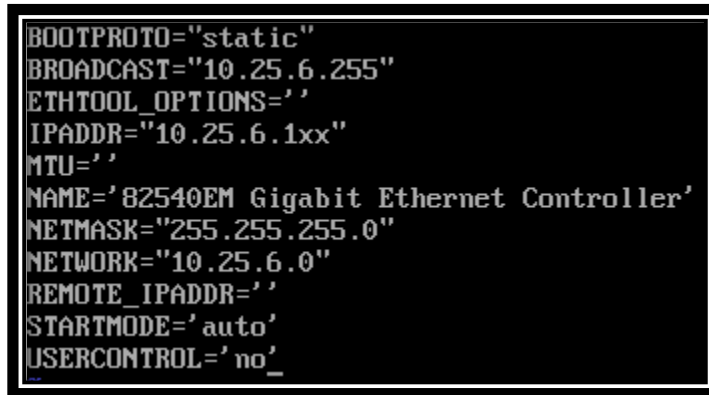

5. Uncheck the "Create a Snapshot of the current machine state" box and then click the "Restore" button.

6. You should now see in the left box the openSUSE (Snapshot 15-1) with a status of "Powered Off." Power it on by double clicking it.
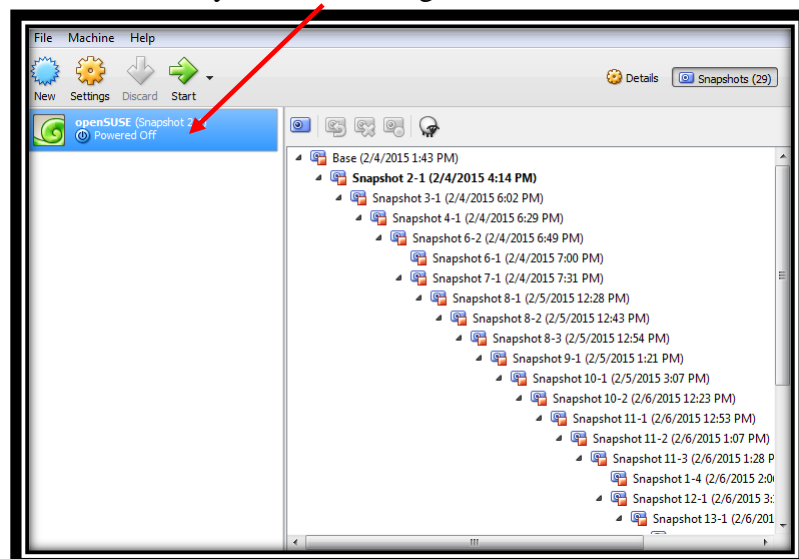
7. A separate window should open and you should see the openSUSE Linux OS booting.

8. Press **CTRL+ALT+F1** and login with the username: **root** and password: **student**.

9. At the shell prompt, enter **ifconfig**. Record the following information about your Ethernet interface:

   - MAC address:
   - IP address:
   - Broadcast address:
   - Subnet mask:

10. At the shell prompt, enter **cd /etc/sysconfig/network** directory.

11. Use the **ls** command to identify the configuration file for your network board.

12. Enter **cat ifcfg-enp0s3** command to view the contents of the configuration file for your Ethernet network interface. We will not be changing the settings in this file as of yet.

13. Change the IP address assigned to your Ethernet network interface by entering **ifconfig enp0s3 10.25.6.1xx netmask 255.255.255.0 broadcast 10.25.6.255** at the shell prompt. (The xx will be your student position number. If you are at student position 01 your IP address will be 10.25.6.101. If at position 02 your IP address would be 10.25.6.102, etc.)

14. Enter **ifconfig** and verify that the change was applied.

15. Reboot the system by entering **reboot**.

16. Press **CTRL+ALT+F1** and login with the username: **root** and password: **student**.

17. Enter **ifconfig** at the prompt. Are your settings the same as prior to rebooting? They should not be as using ifconfig is not a way to make interface settings persistent.

18. Let's go through the process to make the interface settings persistent. To do this we will have to modify the interfaces configuration file. In this case the ifcfg-enp0s3 file located in the /etc/sysconfig/network directory.

19. Enter **vi /etc/sysconfig/network/ifcfg-enp0s3**.

20. Notice all of the settings that can be modified.

21. Hit the **Insert** button and modify the settings to look like this:

```
BOOTPROTO="static"
BROADCAST="10.25.6.255"
ETHTOOL_OPTIONS=''
IPADDR="10.25.6.1xx"
MTU=''
NAME='82540EM Gigabit Ethernet Controller'
NETMASK="255.255.255.0"
NETWORK="10.25.6.0"
REMOTE_IPADDR=''
STARTMODE='auto'
USERCONTROL='no'
```

22. Remember the xx in the IPADDR for the last octet is your student position.

23. Press the **ESC** button and enter a **colon (:)** then enter **wq**.

24. Enter **ifconfig** at the prompt. Weird, the settings didn't change.

25. Let's turn the enp0s3 interface off and then on again. Enter **ifdown enp0s3** and once the prompt returns enter **ifup enp0s3**.

26. Once the prompt returns enter **ifconfig** again. You should see the new settings for the interface applied.

27. Lets now see if the settings will stay, enter **reboot** to restart the system.

28. Press **CTRL+ALT+F1** and login with the username: **root** and password: **student**.

29. Enter **ifconfig** at the prompt. Are your settings the same as prior to rebooting? They should be now as the interface will be configured with the settings in the configuration file in /etc/sysconfig/network/ifcfg-enp0s3.

30. Do not close out this Virtual Image as it will be used in the next exercise.

--End of Practical Exercise--