

Practical Exercise 9-2: Working with Network Commands

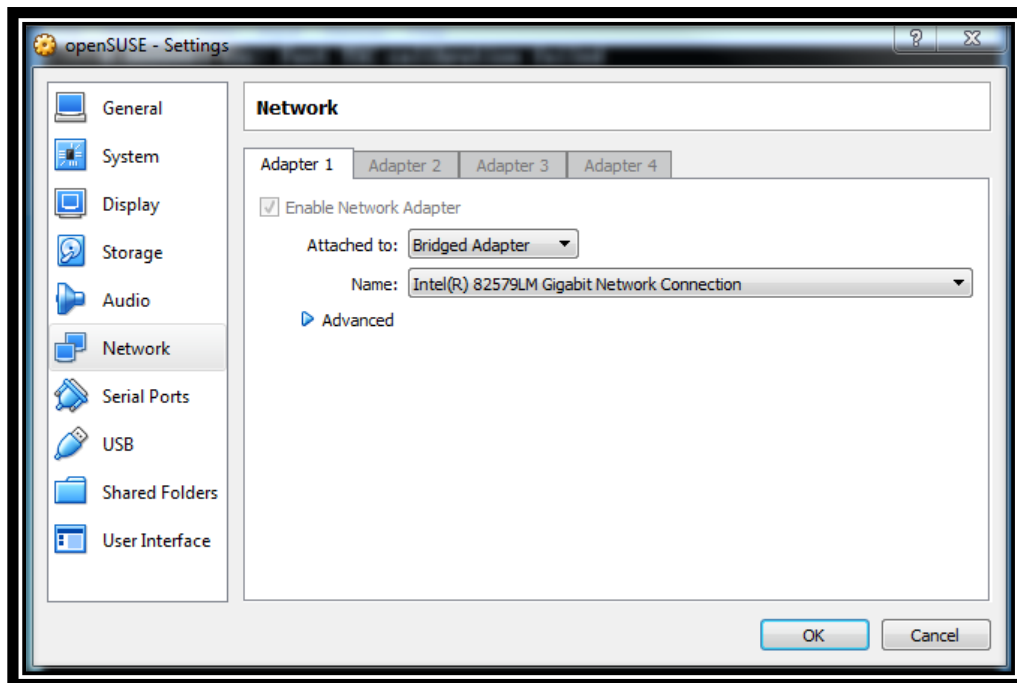
This Practical Exercise will take students through the use of the route utility to establish the default gateway. Students will also use the routes file to establish the default gateway.

Open VirtualBox and start the openSUSE VM. Run snapshot 15-1 for the correctly configured environment. To run snapshot 15-1:

1. Bring the VirtualBox window back up that you used in Exercise 9-1. If the screen has gone black click your mouse anywhere in the window and press **CTRL-ALT**. You should be at a root command prompt.
2. In this Practical Exercise we will also have to bridge the network adapter for virtual box to the hosts network interface card. To do this at the bottom right of the Virtual Box window find the icon with two computer screens:



3. Right click the icon and select the network settings.
4. Under the Adapter 1 tab ensure the "Enable Network Adapter" box is checked. Set the "Attached to" to Bridged Adapter. Once that is done the Name should auto populate.



5. Press OK and the Network Settings window will close.
6. If you remember we do not set the gateway within the interfaces configuration file, the gateway is a global setting that will be set in the routes file in the `/etc/sysconfig/networks` directory.
7. You can see the routes by entering **route** at the command prompt.
8. The default gateway can be set via the route utility. Enter **route add default gw 10.25.6.254**.
9. Enter **route** again and notice the new entry in the route table for default.
10. Enter **reboot** to restart the system.
11. Press **CTRL+ALT+F1** and login with the username: **root** and password: **student**.
12. Enter **route** at the prompt again. Is the default route still in the routing table? It shouldn't be as using the route utility will not make that entry in the table persistent.
13. Let's set the default gateway and make it persistent.
14. Enter **cd /etc/sysconfig/network**.
15. Enter **ls**. Notice there is no routes file. No problem, we can make it and add the default gateway.
16. Enter **vi routes**.
17. Press the **Insert** button and enter **default** on the top line and then hit the **Tab** button. Enter the default gateway next which is **10.25.6.254** and hit the **Tab** button. Enter the subnet mask next which is **255.255.255.0** and hit the **Tab** button. Enter the interface next which is **enp0s3**. See the image below for what the entries in the file will look like:



```
default 10.25.6.254 255.255.255.0 enp0s3
```

18. Hit the **Esc** button and then enter a **colon (:)** and enter **wq**.
19. At the prompt enter **ls** and you should see the routes file.

20. Enter **route** at the command prompt. You should not see the default route entry in the routing table. That is because the interface will need to be turned off and back on to apply the settings in the routes file.
21. Enter **ifdown enp0s3** to power the enp0s3 interface off.
22. Once the prompt reappears enter **ifup enp0s3** to turn the enp0s3 back on.
23. Enter **route** again and you should see the default settings from the routes file at the top of the table.
24. The question now though is this; will the default gateway remain in that routing table after a reboot? Only one way to find out enter **reboot** to reboot the system.
25. Once the system comes back up. Press **CTRL+ALT+F1** and login with the username: **root** and password: **student**.
26. Enter **route** at the prompt. You should still see the default settings from the routes table at the top establishing the default gateway.
27. Lets verify we can reach the default gateway by pinging it. Enter **ping 10.25.6.254**. You should see that packets are reaching the default gateway and you are receiving packets back. Press **CTRL-C** to stop the ping utility.
28. Do not power down this image as it will be used in the next exercise.

--End of Practical Exercise--