
Module 6 - Manage the Network

Exercise Manual

Complete the following exercises.

Exercise 1: Configure Network Boards

Exercise 2: Manage Network Boards

Exercise 3: Determine Network Connectivity

Feedback

E-mail *training@novell.com* with the following:

Subject: *Bridging NetWare to Linux Module 6*

Exercise 1 Configure Network Boards

Depending on the utility, you will see a Network Board referred to by various terms:

network board = network interface card (NIC) =
network card = network board = ethernet device =
net interface

Complete the following:

1. Open a Terminal.
2. Switch user to root, enter: **su -**
3. Enter root's password.
4. Display the IP Address, enter: **ip address show**
5. Now display the network interface configuration, enter: **ifconfig**
6. You can also view and configure network boards using a GUI. From the OES Linux Desktop, select the **YaST** icon.



You can also launch YaST from the N (KDE Menu) > System > YaST.



TIP: From the desktop, if the mouse pointer changes from an arrow to a pointing hand, only a single click is required to launch the icon. YaST also utilizes single clicks, however does not change the mouse pointer.

7. Enter root's password.
8. Single click **Network Devices**.
9. Single click **Network Card**.

The Network card configuration window appears.

There are two sections.

- The top section displays network cards that are not configured.
- The bottom section displays network cards that are already configured.



TIP: In the top section, you need to highlight the unconfigured device and then choose **Configure**. In the bottom section, you cannot highlight the device, but just select **Change** and then you will be taken to a list of devices that you can change.

10. Select **Change**.
11. Highlight the top interface card and select **Edit**.

12. Familiarize yourself with how to configure IP Address and Subnet Mask.



TIP: With OES Linux, if you change the IP Address, you will need to change the IP Address in the services configuration files that refer to it. The presentation portion of this course contains the TID number for the document that provides details on how to do this.

13. Select Host name and name server.

The Host name and name server configuration appear.

14. The Host Name field contains the name of the server. The default value is linux. The name server fields also contain the IP Address and Domain for the DNS servers. Select **OK**.
15. Select **Routing**.
16. Review the options and select **OK**.
17. To add a Secondary IP Address, select **Advanced**.
18. Select **Virtual Aliases**.
19. Select **Add**.
20. For the Alias Name, enter: **www**
21. For the IP Address, enter: **10.0.1.10**

22. For the Netmask, enter: **255.0.0.0**

23. Select **OK**.

24. Select **OK**.

25. Select **Next**.

26. Select **Finish**.

(End of Exercise)

Exercise 2 Manage Network Boards

Complete the following:

1. YaST stores the configuration information in `/etc/sysconfig/network`. Change to this directory, enter: **cd /etc/sysconfig/network**
2. List the directory, enter: **ll**
3. Display the adapter you just configured. The file will begin with `ifcfg-eth-id-<MAC address>`.
Enter: **cat ifcfg-eth-id**

Now press **Tab** to complete the rest of the filename, which is the MAC address of your network board.

Press **Enter**.

4. Review the output for the Secondary IP Address that you just added.
5. If you have the need to restart all network boards on the server, there is no need to reboot the server like some operating system, you can enter the following: **rcnetwork restart**



You will find that as you build your skill set on Linux that the tendency to reboot to fix a problem will go away. Restarting a reconfigured or failed service usually resolves the issue on Linux.

6. To deactivate a single network board, such as eth0, you can enter: **ifdown eth0**
7. To activate eth0, enter: **ifup eth0**

(End of Exercise)

Exercise 3 Determine Network Connectivity

Complete the following:

1. Open a Terminal.
2. Enter: **ping -c3 10.0.1.10**



You can also configure the newly added secondary IP Address with a DNS entry and ping it by name, but that is beyond the scope of this course.

3. Now enter: **ping 10.0.1.10**
4. You will notice that the default behavior is to continue to ping the device. This is helpful when you want to troubleshoot a device that is not responding and view the ping results to see if the problem has been resolved. To stop the command, enter: **Ctrl-C**
5. Now let's look at listening network connections and statistics, enter: **netstat**
6. You may have noticed a lot of information scrolled by, therefore it is helpful to pipe the output of netstat to the less command. Enter: **netstat | less**
7. Scroll through the output with *arrow* and *page* keys. To quit, press **Q**.

8. To display network routes, enter: **netstat -r**
9. Now switch user to root, enter: **su -**
10. Enter root's password.
11. You can check connectivity across multiple routers with the traceroute command.

However, if you isolated your server on a private network as specified in this training, you can just try the command: **traceroute 10.0.1.1** to see how the output is formatted.

You will want to try this command on a your network to see more meaningful information.

12. Lookup the man pages for the following commands and test them out on a network that has DNS setup:
 - arp
 - dig

(End of Exercise)

