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# Module 2- Linux Fundamentals

## **Exercise Manual**

Complete the following exercises.

Exercise 1: Login, Use Linux, and Logout

Exercise 2: Locate and Use Help Resources

Exercise 3: Use the Linux Shell and Command Line

Exercise 4: Describe and Use Common Linux Commands

Exercise 5: Understand and View Processes

Exercise 6: Manage Runlevels

Exercise 7: Shut Down and Restart the Server

## **Feedback**

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

Subject: *Bridging NetWare to Linux Module 2*

## **Exercise 1 Login, Use Linux, and Logout**

### Prerequisites

- You will need an OES Linux server to perform these exercises.

If you do not meet this requirement, you may want to come back and perform this exercise after installing OES Linux in Module 4.

A VMware 5 virtual machine for Open Enterprise Server SP1 for Linux from the course web page.

- If using VMware, configure the hotkey to use **Ctrl-Alt-Shift** instead of Ctrl-Alt.

**Ctrl-Alt** is used by Linux to access the virtual consoles.

Complete the following:

### **Login to Linux**

1. Boot the OES Linux server.
2. Login to the OES Linux server:

Username: **admin**

Password: **novell**

**Access the Virtual Consoles**

1. Switch to the first virtual terminal by pressing **Ctrl+Alt+F1**.
2. Login as **admin** with a password of **novell**.
3. Switch to the second virtual terminal by pressing **Ctrl+Alt+F2**.

Notice that you are not logged in as admin.

4. Press **Ctrl+Alt+F1** to switch back to the first terminal.

Notice you are still logged in as admin.

**Logout of Linux**

1. From the first virtual terminal, logout by entering: **exit**
2. Switch back to the graphical user interface by pressing **Ctrl+Alt+F7**.
3. Logout of the graphical console.
  - a. Click on the KDE Menu (Green sphere with red N).
  - b. Select **Logout**.

***Use the Linux Desktop (KDE)***

1. Login as admin with a password of novell.
2. Click on the KDE Menu (Green sphere with red N).
3. Select Internet.
4. Select Web Browser.
5. Select Mozilla.
6. Enter: localhost  
You should now see the OES welcome page.
7. Close the browser.
8. Select the KDE Menu (Green sphere with red N).
9. Select System.
10. Select YaST.
11. Enter the root password: novell  
You should now see YaST.
12. Close YaST, select Close.
13. Start the file manager Konqueror by selecting the blue house icon on the Kicker.

14. View the navigation area by selecting the red folder icon on the left side of the Konqueror window.

***(End of Exercise)***

## **Exercise 2    Locate and Use Help Resources**

### ***Use man pages***

1. Launch a terminal (monitor icon with shell)
2. Find the man pages for the command `info` by entering: **whatis info**
3. Read the first section (executable programs and shell commands) of the man pages of the command `info` by entering: **man 1 info**
4. Scroll through the text with the up arrow key and down arrow key.
5. When you are finished reviewing the information, press **q** to quit.

### ***Use info***

1. Access the info page for the `ls` command, enter: **info ls**
2. Move the cursor to Note Common options, press **Tab**.
3. Go to the note by pressing **Enter**.
4. Return to the previous reference by pressing **l** (lowercase L).

5. Exit the info by pressing **q**.

***Use the SUSE HelpCenter***

1. Launch the GUI based help, select the *lifesaver* icon on the kicker.
2. Create a search index by selecting the Search tab.
3. Start the creation by selecting **Yes**.
4. Confirm the creation by selecting **OK**.
5. After the creation process finishes, press **Close**.
6. Get help about the Apache web server, enter apache in the text field above the Search tab and select **Search**.
7. Select the link for *Chapter 22. The Apache Web Server*.
8. After reviewing the information, close the SUSE HelpCenter window.

***(End of Exercise)***

## ***Exercise 3 Use the Linux Shell and Command Line***

### ***Use the command history***

1. Open a terminal.
2. View the history cache by entering **history**.
3. Press the up arrow key until you see a command that you would like to execute, then press Enter.
4. Type h and press Page Up once.

You should see *history* displayed on the command line.

### ***Use the command line tab completion***

1. From a terminal, change the current directory to:  
*/etc*
2. Use tab completion to display the contents of the novell-release file, enter the following:
  - a. **cat /no**
  - b. Press **Tab**, the remainder of the filename should display.
  - c. Press **Enter**.

You should see the contents of the file  
novell-release displayed.

***(End of Exercise)***

## **Exercise 4 Describe and Use Common Linux Commands**

Complete the following from a terminal:

1. Display your userid, enter:

**whoami**

2. Display the current directory, enter:

**pwd**

3. Change the current directory to /etc, enter: **cd /etc**

4. List the files in the directory, enter:

**ls**



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You can also use the **dir** command.

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5. List the contents of the hosts file, enter:

**cat hosts**

6. Clear the screen, enter:

**clear**



This is equivalent to the NetWare clear screen (**cls**). You can also use Ctrl-l (lowercase L) in Linux to clear the terminal screen.

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7. List the last 10 lines of the hosts file, enter:

**tail hosts**

8. List all configuration files under /etc, enter:

**ll \*.conf**



ll is an alias for ls -l.

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9. Change back to your home directory, enter:

**cd ~**



You can also enter just **cd** without the tilde.

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### Display operating system information

1. Display the man page for uname, enter:

**man uname**

2. Look for the options to display the following:

- Kernel name
- Kernel release number

- Kernel version number
  - Machine hardware name
3. Close the man page, enter **q** (for quit).



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You can also use **uname --help**.

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4. Display the above information using **uname**.

Create a directory and copy the hosts files from /etc

1. From your home directory, create a directory called backup, enter: **mkdir backup**



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The command **md** also works.

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2. Change to the backup directory, enter: **cd backup**
3. Copy the files, enter **cp /etc/hosts\* .**



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Using the dot for the current directory is equivalent to using: **cp /etc/hosts\* /home/admin/backup**

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4. Verify the copy, enter: **ll**
5. Now, copy the /var/log/ directories and all subdirectories to /home/admin/backup, enter:

**cp -r /var/log/ .**

6. Verify that all the subdirectories below /var/log were also copied.
7. Rename the hosts file to hosts.backup, enter:

**cd ~/backup** (make sure you are in the backup directory under your home directory)

**mv hosts hosts.backup**

### ***Create and Execute a Shell Script***

1. From the desktop, press **Alt-F2**.
2. Enter: **kate**
3. Enter the following to create a shell script that will clear the display, display the current user, and the date:

```
#!/bin/sh
# Script to clear the display, show the name of
current user logged in.
# Display today's date
clear
echo "The Current User is: $USER"
echo "Today is: ";date
```

4. Save the file as **myscript.sh**.

5. Change the permissions to executable, enter:  
**chmod +x myscript.sh**
6. Execute the script, enter: **./myscript.sh**

You should see the terminal display clear and the current user and date displayed.

***(End of Exercise)***

## **Exercise 5    Understand and View Processes**

Complete the following:

1. Open a terminal.
2. View all process with information on who owns the process, enter: **ps aux**
3. View processes in real-time, enter: **top**
4. Press **q** to exit top.
5. View process graphically, enter: **ksysguard**
6. Select the **Process Table** tab.
7. Select the checkbox next to Tree to view the process trees.
8. From the pull-down menu, select **User Processes**.
9. Close ksysguard.
10. Start the program xeyes by entering: **xeyes**
11. Stop the process by pressing: **Ctrl-Z**
12. Move the xeyes process into the background by entering: **bg**
13. Now, view the xeyes process information, enter: **ps aux | grep xeyes**



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`ps aux` displays all processes and then `|` (pipes) that command to `grep` which searches the input from `ps aux` for the string “xeyes” and returns just those processes with that string.

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14. Now end the process, enter: **killall xeyes**



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**killall** can be used when you know the process name. Otherwise, you can use **kill** with the process ID.

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15. Now view all processes, enter: **ps aux | less**

16. Scroll through the output by pressing the **Down Arrow** and **Up Arrow** keys.

17. Return to the command line by typing: **q**

18. Close the terminal by entering: **exit**

*(End of Exercise)*

## **Exercise 6    Manage Runlevels**

Complete the following:

1. From the KDE desktop, open a terminal window; then su to root (**su -**) with a password of **novell**.
2. Check the previous and current runlevels by entering: **runlevel**

List the runlevels:

Notice that the previous runlevel is listed as N, which means that there was no previous runlevel set.

3. Change to runlevel 3 by entering: **telinit 3**  
The KDE desktop (X windows) is terminated and you are left at a terminal login prompt.
4. Log in as **root** with a password of **novell**.
5. Check the previous and current runlevel by entering **runlevel**.

List the runlevels:

6. Switch to runlevel 5 by entering **init 5**.

The GUI login screen appears.

7. Log in as **admin** with a password of **novell**.

*(End of Exercise)*

## ***Exercise 7 Shut Down and Restart the Server***

Logout of the graphical desktop

1. From the N (KDE Menu), select **Logout**.

The xdm (graphical login) appears.

2. Select **Menu** (Alt-M).
3. Select **Shutdown** (Alt-S).
4. (Optional) Try additional methods of shutting down the server, such as the following:
  - shutdown -h now
  - halt
  - init 0
  - Ctrl-Alt-Del
5. (Optional) Try additional methods of restarting the server, such as the following:
  - shutdown -r now
  - reboot
  - init 6
  - Ctrl-Alt-Del

***(End of Exercise)***

