Linux Fundamentals

Lab Book

Document Revision History

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| --- | --- | --- | --- |
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Getting Started

## Overview

This lab book is a guided tour for learning Linux. It comprises ‘To Do’ assignments. Follow the steps provided and work out the ‘To Do’ assignments.

## Setup Checklist

Here is what is expected on your machine for the lab to work.

Minimum System Requirements

* Intel Pentium 90 or higher (P166 recommended)
* Microsoft Windows 95, 98, or NT 4.0, 2k, XP.
* Memory: 32MB of RAM (64MB or more recommended)

Please ensure that the following is done:

* RHEL 6 is installed on your system.

Instructions

* For all coding standards refer Appendix A. All lab assignments should refer coding standards.
* Create a directory by your name in drive <drive>. In this directory, create a subdirectory Linux\_assignment. For each lab exercise create a directory as lab <lab number>

Learning More (Bibliography if applicable)

* Red Hat Enterprise Linux 6 Administration by [Sander van Vugt](http://www.amazon.in/s/ref=dp_byline_sr_book_1?ie=UTF8&field-author=Sander+van+Vugt&search-alias=stripbooks).

1. Login and Exploration

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| **Goals** | Login into the Linux system and get familiar with its environment |
| **Time** | 30 Minutes |

1. Log into the system using your user name and password. If X windows is installed on your machine you will be default get a graphical interface. Else you will end with a command line interface.
2. Right click on desktop, select terminal and perform the following,

* Execute following commands and get familiar with the terminal.
  + $ls: lists files from the current directory.
  + $pwd: shows the path of current working directory.
* Write command to
  + Displayuser’s logged into the system.
  + Display information of current user.
  + Display who has logged in and what are they doing.
  + Check the name of current running operating system
  + Display both version of operating system and machine name.

1. Using su command switch to another users account, check his present working directory and revert back to existing account. If you have access to root account, from root user, switch to normal user account and find the difference in the process.
2. Logout from the system.
   1. If you are using GUI, you can use systems->logout.
   2. If you are using CLI, you can use ‘logout’ command to log out from the system.
3. Linux File System

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| **Goals** | Write commands to move across file system and to grant/remove file permissions. |
| **Time** | 30 Minutes |

1. To display the current working directory, the command is:

**pwd**

The output is as follows.

/home/trg1

1. Display the path to and name of your HOME directory.
2. Display the login name using which you have logged into the system
3. List the names of all the files in your home directory.
4. Use the long listing format to display the files in your directory.
5. Give the execute permission for the user for a file chap1.
6. Give the execute permission for user, group and others for a file add.c.
7. Remove the execute permission from user; give read permission to group and others for a file aa.c.
8. Give execute permission for users for a.c, kk.c, nato and myfile using single command.
9. Change the directory to root directory. Check the system directories, like bin, etc, usr etc.
10. Manipulating Files

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| **Goals** | Write commands to create,delete or manipulate files. |
| **Time** | 120 Minutes |

1. Give appropriate command to create a directory called C\_prog under your home directory. (Note: Check the directory using ls)
2. Create the following directories under your home directory. (Note: Check using ls)

newdir

newdirectory

1. List the names of all the files, including the contents of the sub directories under your home directory.
2. Remove the directory called newdirectory from your working directory.
3. Create a directory called temp under your home directory.
4. Remove the directory called newdir under your home directory and verify the above with the help of the directory listing command.
5. Create another directory directorynew under the temp directory.
6. Change the directory to your home directory.
7. From your home directory, change the directory to directorynew using relative and absolute path.
8. Remove the directory called c\_prog, which is in your home directory.
9. Change to the directory /etc and display the files present in it.
10. Copy the file linux.txtin your home directory to Linux.txt.

(Note: check using ls, both files should exist.)

1. List the contents of linux.txtandLinux.txtwith a single command.
2. From your home directory, copy all the files to the directory created under the temp sub directory.
3. Move the file linux.txt to the directory temp as linux2.txt.
4. Remove the file called linux.txtfrom the home directory.
5. Finding and Processing Files

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| **Goals** | Write commands to find/locate files. |
| **Time** | 30 Minutes |

Perform the following tasks:

1. Find path of all “.txt” files using locate command.
2. Display only the first matched “.txt” file from the system.
3. Display file paths which either end with “.html” or “.Html”.
4. Display the statistics of database which locate uses.
5. Find all the files which have 777 as permission.
6. Display any files which are modified in less than 10 minutes.
7. Find all the directories only from the current directory.
8. Display files which are of type directory and has 422 file as permission.
9. Display the files whose owner is user1 or which belongs to group group1.
10. Create a folder called backup. Move all the ordinary files to backup folder if it is accessed in more than two days.
11. Use Gnome search tool to find files,

* Click on places and then click on search for files option.
* Search file by demonstrating various options like,
  + Date modified less than.
  + Date modified more than.
  + Size atleast.
  + Size at most.
  + File is empty.
  + Owned by user.
  + Owned by group.
  + Name matched regular expression.
  + Show hidden and backup files.

1. Editing Text

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| **Goals** | Working with editor in Linux |
| **Time** | 20 Minutes |

1. Create a file using Vi. Enter the following text:

*A network is a group of computers that can communicate with each other, share resources, and access remote hosts or other networks. Netware is a computer network operating system designed to connect, manage, and maintain a network and its services. Some of the network services are Netware Directory Services (NDS), file system, printing and security.*

1. Change the word “Netware” in the second line to “Novell Netware”.
2. Insert the text “(such as hard disks and printers)” after “share resources” in the first line.
3. Append the following text to the file:

“Managing NDS is a fundamental administrator role because NDS provides a single point for accessing and managing most network resources.”

1. User Management Essentials

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| **Goals** | Write commands to manage users. |
| **Time** | 20 Minutes |

Using user Management Essentials

1. Add user with username as user1.Check the existence of user1 in /etc/passwd file.
2. Add a new group with name as dbgroup. Check its existence in /etc/group file.
3. Add a new user with name, user2 and add him to dbgroup.
4. Modify name of user1 as dbuser1.
5. Try deleting dbgroup and demonstrate if it can delete or no.
6. Delete user, user2 and then try deleting dbgroup. Make sure by deleting user2, home directory from local file system is removed.
7. Create a new group called admin and move user2 to admin group.
8. Standard I/O Operations

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| **Goals** | Perform standard IO operations |
| **Time** | 60 Minutes |

1. Redirect the content of the help document ls, into a file called as lsdoc using >.
2. Display the content of the lsdoc page wise.
3. Display only the first 4 lines of the lsdoc file.
4. Display only the last 7 lines of the file lsdoc.
5. Redirect the output of a command as input to another command using |.
6. Redirect the input from a file to a command for processing using <.