

**LAB**

**LINUX SYSTEM ADMINISTRATION**

**Copyright © (2022-2023) All Rights Reserved**

**Dr. Matthew Kisow**

VERSION 2

06-JUN-2023

**LAB:** LAB07-01

**OBJECTIVE**: The objective of this lab is to learn how to navigate, create and delete files and folders, symbolic links, and structure from the command line.

**INSTRUCTIONS**: These labs will test your ability to actively research how to perform a required action on a Linux operating system. All questions asked (below) should be included in a lab report. This lab report should be written in Microsoft Word and include a numbered list corresponding to the task (below). This list must include a clear screenshot of the command and its output. Please follow the instructions for submitting this assignment on Blackboard.

* You should be logged in as ***labuser1*** with the password ‘P@$$w0rd’
* You must be in the **/labs/CH07** folder to complete this lab.

**TREES AND FILE LISTINGS**

1. Using the ***tree*** command, map the structure of the ***CH07*** folder.
2. Interrogate each folder:
   1. What are these folders' groups and user ownership?
   2. Are there any symbolic links?
   3. What do those links look like?
3. Interrogate the inodes of the files in the ***Hikaru Sulu*** and ***Montgomery Scott*** folders.
   1. What is the inode of the ***USS Excelsior*** file in both folders?
   2. What kind of link is this?
   3. What do you notice about the pathname of the symbolic link in the ***Hikaru Sulu*** folder?
4. Interrogate the inodes of the files in the ***Christopher Pike*** and ***James T. Kirk*** folders.
   1. What is the inode of the ***USS Enterprise*** file in both folders?
   2. What kind of link is this?
5. Navigate to the 'Montgomery Scott' folder.
   1. Create a link to the ***USS Enterprise-A*** in the ***James T. Kirk*** folder.
6. Navigate to the ***Nyota Uhura*** folder.
   1. Using the ***touch*** command, update the date and time stamp of the ***USS Leondegrance*** file to January 1, 2288.
   2. Create an empty file called ***USS Gallant*** in this folder.

**CREATING FOLDERS**

1. Create the following folder structure under the 'Starfleet Federation' folder.

Starfleet Federation/

|-- Federation Ships

‘-- Personnel

|-- Captains

‘-- Officers

* 1. How many commands did you type?

1. Remove the ***Personnel*** directory.
2. Create nine directories in the ***numbered*** directory numbered one through nine, with nine sub-directories numbered one through nine in each.

numbered

|-- 1

|   |-- 1

|   .

|   .

|   .

|   ‘--9

.

.

.

‘--9

|-- 1

|-- 2

|-- 3

.

.

.

‘--9

* 1. Were you able to create it using one command?

**DIFFERENCE**

1. Using the diff command, what is the difference between directories one and three?

**MOVING AND REMOVING OBJECTS**

1. Recreate the folder structure you removed in step 8.
2. From the root of the ***CH07*** folder, move the Starfleet captains under the ***Starfleet Federation/Personnel/Capitans*** folder.
3. Under each Starfleet Captain, move the ship file under the ***Starfleet Federation/Federation Ships*** folder and create a symbolic link under each Captain to their ship. Use the diagram (below) to help you.

**NOTE**: Recall that the ***USS Enterprise*** under ***James T. Kirk*** is a hard link, and the ***USS Excelsior*** is a soft link or symbolic-link under ***Hikaru Sulu***. Remove these links first, then recreate them once the ship has been moved to the 'Federation Ships' directory.

/Starfleet Federation/

|-- Federation Ships

|   |-- USS Discovery

|   |-- USS Enterprise

|   |-- USS Enterprise-A

|   |-- USS Excelsior

|   `-- USS Leondegrance

`--Personnel

|-- Captains

|   |-- Christopher Pike

|   |   |-- USS Discovery -> /Lab Files/CH07-A/Starfleet Federation/Federation Ships/USS Discovery

|   |   `--USS Enterprise -> /Lab Files/CH07-A/Starfleet Federation/Federation Ships/USS Enterprise

|   |-- Hikaru Sulu

|   |   `--USS Excelsior -> /Lab Files/CH07-A/Starfleet Federation/Federation Ships/USS Excelsior

|   |-- James T. Kirk

|   |   |-- USS Enterprise -> /Lab Files/CH07-A/Starfleet Federation/Federation Ships/USS Enterprise

|   |   `--USS Enterprise-A -> /Lab Files/CH07-A/Starfleet Federation/Federation Ships/USS Enterprise-A

|   |-- Montgomery Scott

|   |   `--USS Excelsior -> /Lab Files/CH07-A/Starfleet Federation/Federation Ships/USS Excelsior

|   `-- Nyota Uhura

|   `--USS Leondegrance -> /Lab Files/CH07-A/Starfleet Federation/Federation Ships/USS Leondegrance

`--Officers

**SEARCHING**

1. Find all text files in the ***difference*** directory and sub-directories. Once done, pipe the output to the tree command.
2. Find all .html files in the ***difference*** directory and sub-directories with the word:
   1. "Hello" in them.
   2. "Zeus" in them.
   3. "Aphrodite" in them.
   4. "<head>" in them.
3. Find all .txt files in the ***difference*** directory and sub-directories with the word:
   1. "fox" in them.
   2. "7h3" in them.