# Assignment #6: Linux File System (Part 2) [3%]

This assignment relates to the following Course Learning Requirements:

CLR 2 – Using the knowledge of the purpose and function of operating system components, explore commands that provide and configure system information.

CLR 3 – Work with the GUI and command-line interfaces.

Objective of this Assignment:

This assignment covers swap file systems as well as mounting and unmounting partitions

# Pre-Assignment Instructions:

1. Launch the VMWare Workstation and run the Ubuntu Virtual Machine instance from last week.
2. Launch the Terminal Window.

**Note: Root privilege is needed for executing most of the commands in this lab.**

**Assignment Tasks:**

Follow the exercises by entering the commands and recording the results into the word file provided in this assignment. Once completed, upload the Word file to Brightspace.

Note: Whenever you are unsure of a command, you can look up the definition and usage using the keyword **man** (short for **manual page**) and the command name.

**Exercise #1: Creating a linux filesystem**

Use the **mkfs** command to format your newly created two primary partitions (/dev/sdb1 and /dev/sdb2) in Lab5.

Record the command you use:

\_\_\_\_\_\_\_\_\_\_\_\_mkfs /dev/sdb1 & mkfs /dev/sdb2\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Note: If no filesystem type is specified with mkfs, mkfs will default to ext2.

**Exercise #2: Creating a swap filesystem**

When working with swap space we use two commands. One command is used to create a swap filesystem, which is used by the virtual memory system to temporarily store data. The command is **mkswap** and the syntax is:

**mkswap device\_name**

Record the command you use to create a swap filesystem on the swap partition (/dev/sdb6) you created in Lab5:

\_\_\_\_\_\_\_\_\_\_\_mkswap /dev/sdb6\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

The second command is used to activate the swap space, so that the virtual memory system can use the swap space. The command is swapon and the syntax is:

**swapon device\_name**

Record the command you use to activate the swap partition:

\_\_\_\_\_swapon /dev/sdb6\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

To verify the swap partitions that are currently active, use the following command:

**swapon -s**

Note: No argument is required.

Record the output of the above command

Filename Type Size Used Priority

/swapfile file 2191356 0 -2

/dev/sdb6 partition 204796 0 -3

**Exercise #3: Mount & unmount a Linux filesystem**

Create a log file:

Redirect the output of **fdisk** -l to the log file named ~/fslab6 (if you login as root, ~/fslab6 means /root/fslab6) using the following command:

**fdisk –**l **> ~/fslab6**

Append an empty line into the log file using

**echo "" >> ~/fslab6**

A newly created filesystem is not recorded in the /etc/fstab file. Therefore, we need to mount the filesystem manually. In this exercise we mount the Linux partition that we created in lab5.

The syntax of the mount command is: **mount –t** type device mount-point

To mount the newly created Linux partition:

1. Create a mount point

**mkdir /mnt/new**

1. Mount the newly created primary partition from lab5.

**mount -t ext4 /dev/sdb1 /mnt/new**

(/dev/sdb1 is the newly created primary partition in lab5)

1. List the directory contents. Since this a new partition you will see only one directory that is created by mkfs: lost+found.

**ls /mnt/new**

Add to log file:

1. Append the output of the mount command to ~/fslab6

**mount >> ~/fslab6**

1. Append an empty line.

**echo "" >> ~/fslab6**

1. Unmount the filesystem located on the partition

**umount /mnt/new**

**Exercise #4: Mount & unmount a USB Memory Stick**

Attach a USB Memory Stick to a USB Port. Manual mounting is only needed when Ubuntu is not set up with Automatic mounting.

1. Append an empty line.

**echo "" >> ~/fslab6**

1. Create a mount point called usb

**mkdir /media/usb**

1. Look for the USB drive that is physically attached

**fdisk -l**

(let’s say the device you want to mount is /dev/sdb2)

1. Mount the USB Drive formatted with FAT16 or FAT32

**mount -t vfat /dev/sdb2 /media/usb -o uid=1000,gid=100,utf8,dmask=027,fmask=137**

1. Append the output of the mount command to ~/fslab6

**mount >> ~/fslab6**

1. Unmount the USB drive

**umount /media/usb**

**Exercise #5: Mount a partition automatically during start-up**

Use vim to insert a new line at the end of the /etc/fstab file to automatically mount the first primary partition (/dev/sdb1) you created in lab5 at the mount point /mnt/blank when the system boots up. Be very careful when editing this file.

Add to log file:

**cat /etc/fstab >> ~/fslab6**

Append the new /etc/fstab file to ~/fslab6

Print a copy of the log file, ~/fslab6, and hand it in along with your lab6 document before the due date.