

**LAB**

**LINUX SYSTEM ADMINISTRATION**

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VERSION 2

20-JUN-2023

**LAB:** LAB19-01

**OBJECTIVE**: The objective of this lab is to learn how to set up a new logical volume, expand a logical volume and write to a logical volume.

**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/CH19 folder to complete this lab.
* Devices used: /dev/sdd, /dev/sde

**CREATING A LOGICAL VOLUME**

1. Using the ***lsblk*** command, locate the two 128Mb disks.
2. Using the ***pvcreate***[[1]](#footnote-2) command, take the first disk */dev/sdd* and create a physical volume on this disk.
3. Using the ***pvdisplay***[[2]](#footnote-3) command, verify the previous command.
4. Using the ***vgcreate***[[3]](#footnote-4)command, create a volume group called vg1 on */dev/sdd*
5. Using the ***vgdisplay***[[4]](#footnote-5) command, verify the previous command.
6. Using the ***lvcreate***[[5]](#footnote-6) command, create a 124Mb logical volume on vg1 with the name CIT220
7. Force those changes using the ***vgchange --available y***[[6]](#footnote-7)command.
8. Make an ext4 filesystem on the new logical volume at */dev/vg1/CIT220*, do not reserve blocks and apply the label CIT220-LVM to the volume[[7]](#footnote-8).

**NOTE**: If prompted, the warning (below) is normal; choose ***y*** to continue:

WARNING: ext4 signature detected on /dev/vg1/CIT220 at offset 1080. Wipe it? [y/n]:

1. Mount the new logical volume:
   1. Make a new folder called LAB19-01-LVM under the folder */labs/CH19*
   2. Update the filesystem table and mount the new volume at */labs/CH19/*LAB19-01-LVM.
   3. Using the mount command, mount the filesystem[[8]](#footnote-9).

**EXTENDING A LOGICAL VOLUME**

1. Using the ***pvcreate***[[9]](#footnote-10) command, take the second disk */dev/sde* and create a physical volume on this disk.
2. Using the ***vgdisplay***[[10]](#footnote-11) command, list the volume group vg1.
   1. Note the VG size.
3. Using the ***vgextend***[[11]](#footnote-12) command, extend the volume group vg1 onto the */dev/sde* physical volume.
4. Using the ***pvdisplay***[[12]](#footnote-13) command, list the physical volumes.
5. Using the ***lvextend***[[13]](#footnote-14)command, extend the */dev/vg1/CIT220* volume by +124Mb
6. Using the ***vgdisplay***[[14]](#footnote-15)command, list the volume group vg1.
   1. Did the VG size change?
7. Using the ***lsblk*** command, locate the two 128Mb disks.
   1. Ensure the extents have been expanded.
8. Set the volume ownership and permissions:
   1. Change the ownership of the LAB19-01-LVM folder to labuser1:labusers1[[15]](#footnote-16).
   2. Set the permissions of the LAB19-01-LVM folder to 02770.

**EXTRA CREDIT**

1. Using the ***resize2fs*** command, expand the size of the /dev/mapper/vg1-CIT220 volume.
   1. Using the ***df -h*** command, show a before snapshot of the LVM.
   2. What commands did you use?
   3. Did you use sudo?
   4. Using the ***df -h*** command, show a post snapshot of the LVM.

1. You will have to use the ***sudo*** command for these steps. [↑](#footnote-ref-2)
2. You will have to use the ***sudo*** command for these steps. [↑](#footnote-ref-3)
3. You will have to use the ***sudo*** command for these steps. [↑](#footnote-ref-4)
4. You will have to use the ***sudo*** command for these steps. [↑](#footnote-ref-5)
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6. You will have to use the ***sudo*** command for these steps. [↑](#footnote-ref-7)
7. You will have to use the ***sudo*** command for these steps. [↑](#footnote-ref-8)
8. You will have to use the ***sudo*** command for these steps. [↑](#footnote-ref-9)
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14. You will have to use the ***sudo*** command for these steps. [↑](#footnote-ref-15)
15. You will have to use the ***sudo*** command for these steps. [↑](#footnote-ref-16)