

How to use LVM to add USBs, sdcards etc.

1. Use diskparted etc. to format all disks
2. Only insert the primary disk. Install Ubuntu 24 or higher using advanced LVM option. This will create an LVM volume using the boot disk.
3. Insert all other disks. Format them as ext4 (internal Linux disk only) but do not mount them.
4. Use **sudo lvmdiskscan** to verify that primary and other disks are recognized by LVM
5. Use **sudo pvs** to see all lvm2 physical volumes, which at this point should be only the boot disk.
6. Use **sudo pvcreate device1 device 2 etc.** for all the other disks that you wish to join with the boot disk (do not include boot disk) i.e. **sudo pvcreate /dev/sdb /dev/mmcblk0p1**
7. Use **sudo vgextend volgrp dev1 dev2 etc** to add the new disks to the volume group i.e. **sudo vgextend ubuntu-vg /dev/mmcblk0p1 /dev/sdb**
8. Now extend the logical volume to include all the space on the new disk. This will require identifying and using the filesystem name, not the group name so to obtain it run **sudo df -h /home**, **sudo df -h /opt** or similar. Get **/dev/mapper/...** result under Filesystem
9. Expand logical volume to all available space in volume group with: **sudo lvextend -l +100%FREE /dev/mapper/vg_cloud-LogVol00**
10. Use **resizefs** command to make it take effect: **sudo resize2fs /dev/mapper/vg_cloud-LogVol0**
11. **sudo lvextend -l +100%FREE /dev/mapper/vg_cloud-LogVol00** combines 9 and 10

References:

1. <https://www.digitalocean.com/community/tutorials/an-introduction-to-lvm-concepts-terminology-and-operations>
2. <https://www.digitalocean.com/community/tutorials/how-to-use-lvm-to-manage-storage-devices-on-ubuntu-18-04>
3. <https://www.linuxtechi.com/extend-lvm-partitions/>