Commands for Managing Linux Volumes and AWS EBS

1. Introduction to Linux Volumes and AWS EBS

- List block devices:

  lsblk

- Check attached EBS volumes (after attaching via AWS Console):

  lsblk

2. Physical vs Logical Volumes in Linux

- List block devices:

  lsblk

- Create physical volumes (LVM context):

  sudo pvcreate /dev/xvdf /dev/xvdg

- Create a volume group:

  sudo vgcreate my_vg /dev/xvdf /dev/xvdg

- Create a logical volume:

  sudo lvcreate -L 10G -n my_lv my_vg

- Format the logical volume:

  sudo mkfs.ext4 /dev/my_vg/my_lv

- Mount the logical volume:

  sudo mkdir /mnt/lvm_volume

  sudo mount /dev/my_vg/my_lv /mnt/lvm_volume

3. Mounting Volumes in Linux

- List block devices (to identify the device):

lsblk

- Format the device:

sudo mkfs -t ext4 /dev/xvdf

- Create a mount point:

sudo mkdir /mnt/myvolume

- Mount the volume:

sudo mount /dev/xvdf /mnt/myvolume

- Verify the mount (check filesystem usage):

df -h

- Make mount persistent (edit /etc/fstab):

sudo nano /etc/fstab

- Add the line:

/dev/xvdf /mnt/myvolume ext4 defaults,nofail 0 2

- Unmount the volume:

sudo umount /mnt/myvolume

- Remount the volume:

sudo mount /dev/xvdf /mnt/myvolume

4. Managing AWS EBS on EC2 Instances

- List block devices (to verify EBS attachment):

lsblk

- Format the EBS volume:

sudo mkfs -t ext4 /dev/xvdf

- Create a mount point:

sudo mkdir /mnt/ebs_volume

- Mount the EBS volume:

sudo mount /dev/xvdf /mnt/ebs_volume

- Verify the mount (check filesystem usage):

  df -h

- Make the EBS volume mount persistent (edit /etc/fstab):

  sudo nano /etc/fstab

- Add the line:

/dev/xvdf /mnt/ebs_volume ext4 defaults,nofail 0 2

- Unmount the EBS volume:

  sudo umount /mnt/ebs_volume

5. Introduction to LVM (Logical Volume Manager)

- Install LVM tools (if needed):

  sudo apt-get install lvm2

- Initialize physical volumes (create PVs):

  sudo pvcreate /dev/xvdf /dev/xvdg

- Create a volume group (VG):

  sudo vgcreate my_vg /dev/xvdf /dev/xvdg

- Create a logical volume (LV):

  sudo lvcreate -L 10G -n my_lv my_vg

- Format the logical volume:

  sudo mkfs.ext4 /dev/my_vg/my_lv

- Mount the logical volume:

  sudo mkdir /mnt/lvm_volume

  sudo mount /dev/my_vg/my_lv /mnt/lvm_volume

- Extend the logical volume (on the fly):

  sudo lvextend -L +5G /dev/my_vg/my_lv

- Resize the filesystem:

  sudo resize2fs /dev/my_vg/my_lv

6. Using LVM with EBS for Dynamic Storage Management

- Initialize new EBS volumes as physical volumes:

  sudo pvcreate /dev/xvdf /dev/xvdg /dev/xvdh

- Extend the volume group:

  sudo vgextend my_vg /dev/xvdg /dev/xvdh

- Extend the logical volume:

  sudo lvextend -L +30G /dev/my_vg/my_lv

- Resize the filesystem:

  sudo resize2fs /dev/my_vg/my_lv

- Verify the logical volume and filesystem:

  sudo lvdisplay

  df -h