Lab 04

CLOUD COMPUTING

CS-4075

Course Instructor:

Sir Zaheer Sani

Name: Zeeshan Ali

Roll No: 20i-2465

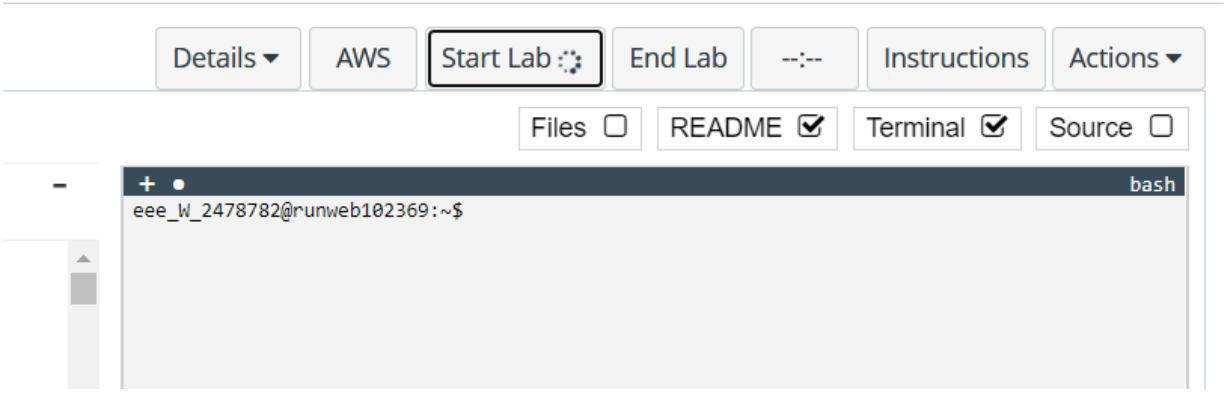
Section: SE-A

Due Date: Nov 15, 2023

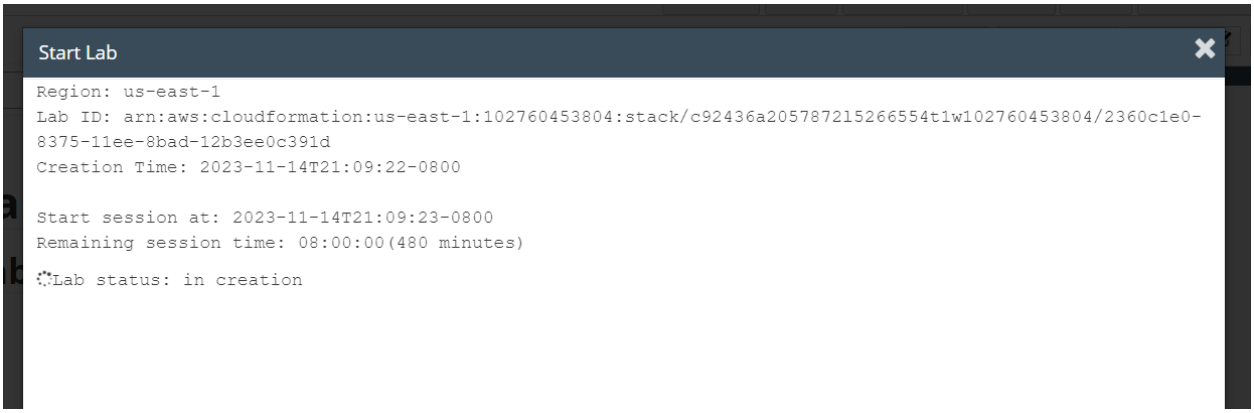
Lab 4

Accessing the AWS Management Console

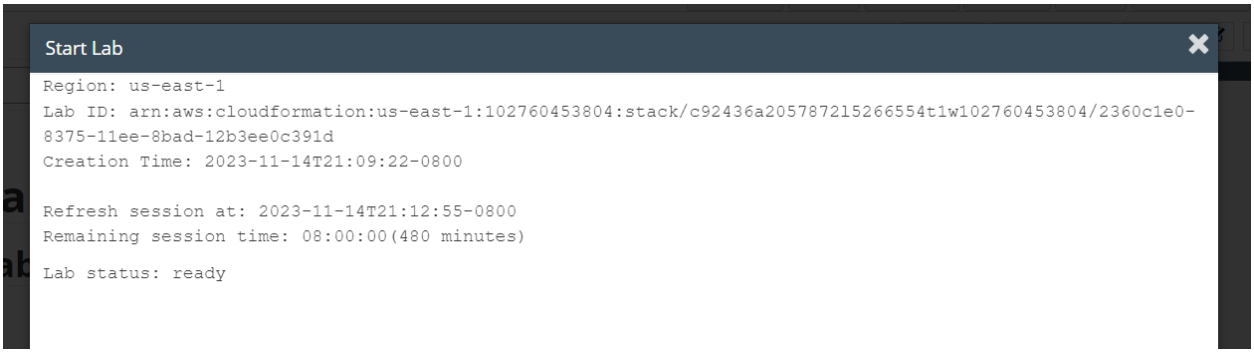
1. At the top of these instructions, click Start Lab to launch your lab.



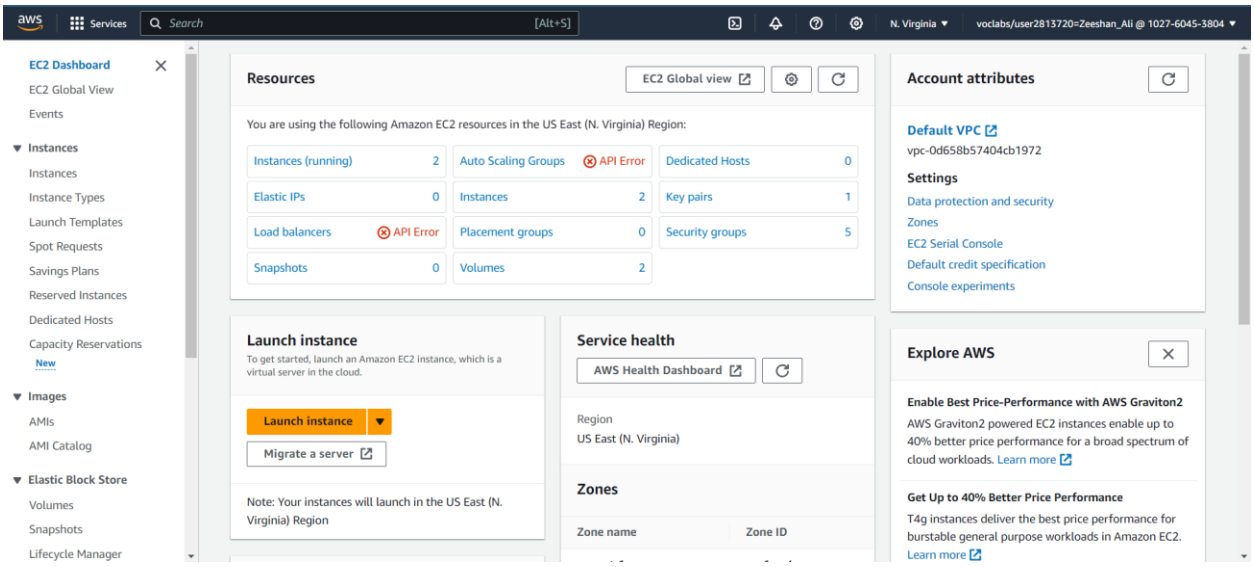
A Start Lab panel opens displaying the lab status.



2. Wait until you see the message "**Lab status: ready**", then click the **X** to close the Start Lab panel.

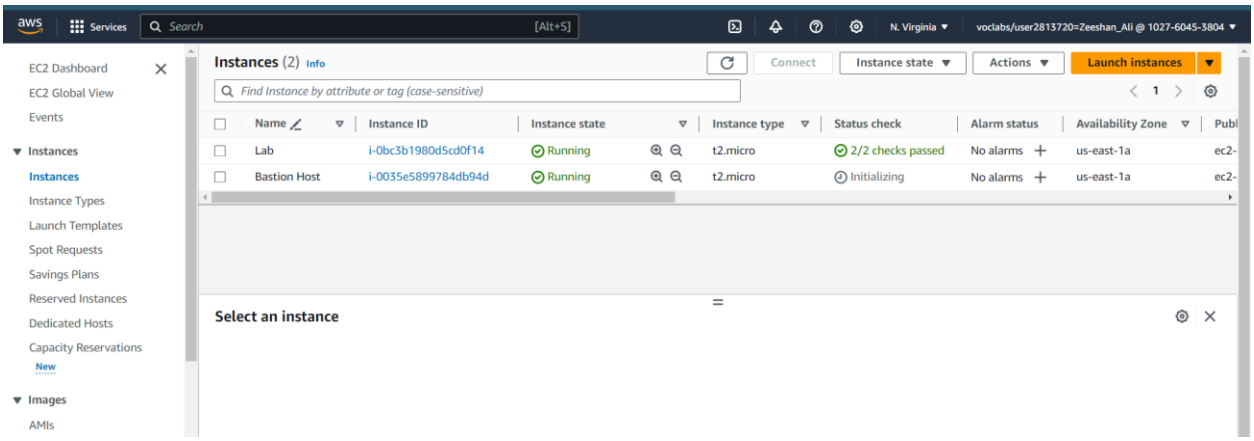


3. At the top of these instructions, click AWS



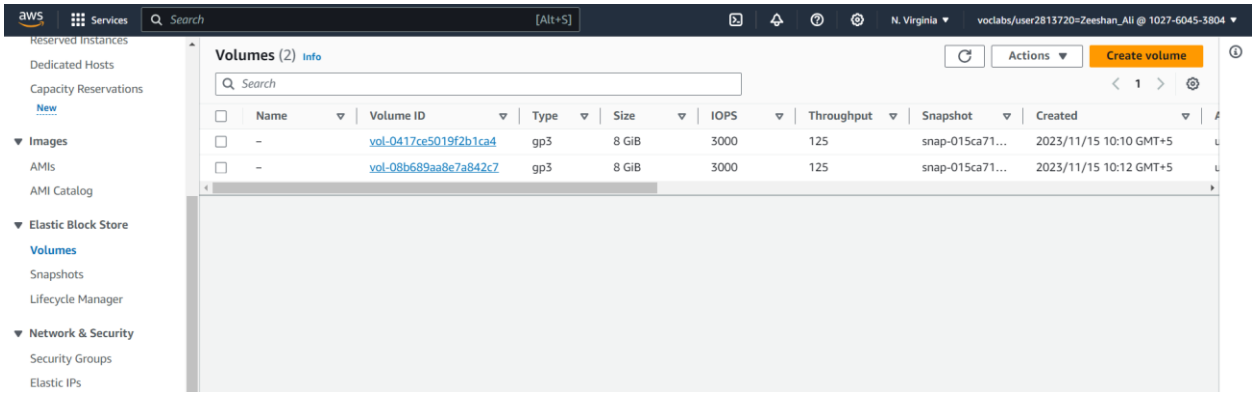
Task 1: Create a New EBS Volume

5. In the **AWS Management Console**, on the **Services** menu, click **EC2**.
6. In the left navigation pane, choose **Instances**.

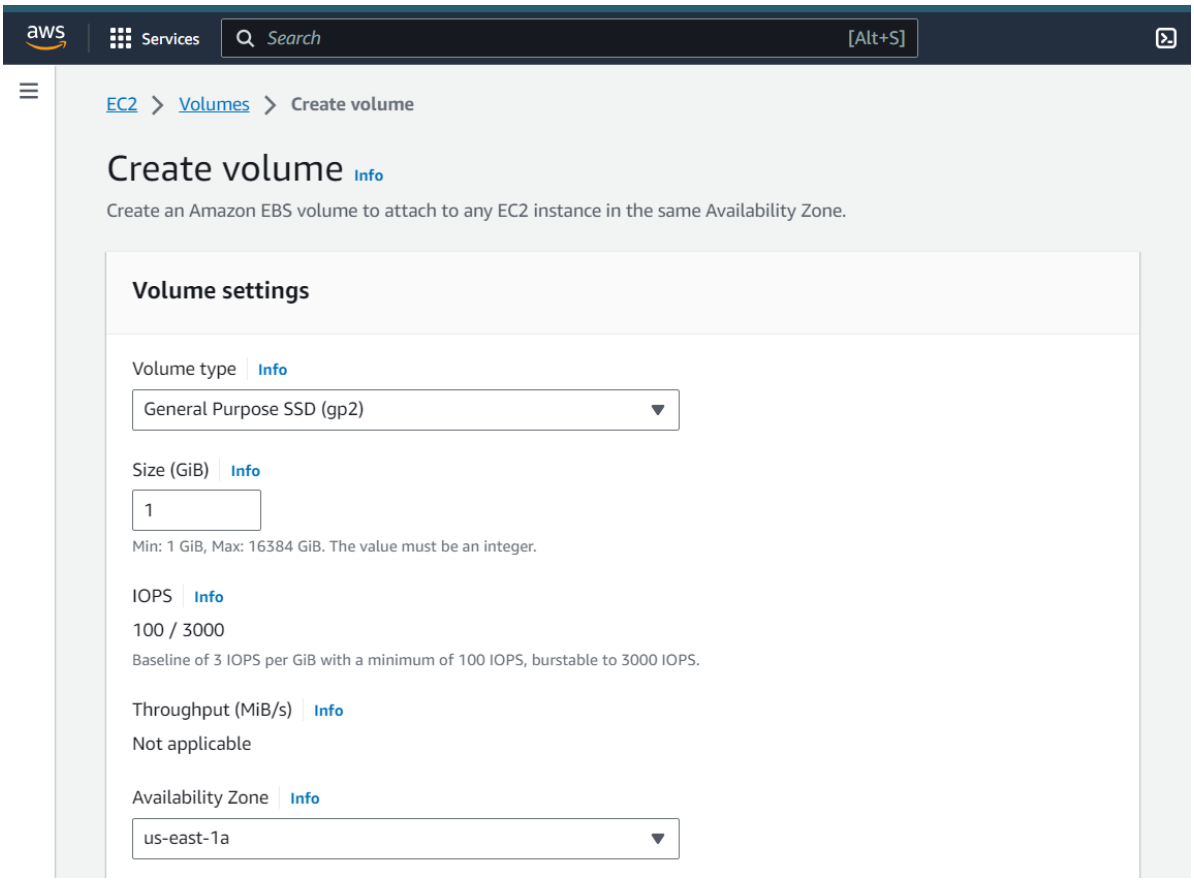


An Amazon EC2 instance named **Lab** has already been launched for your lab.

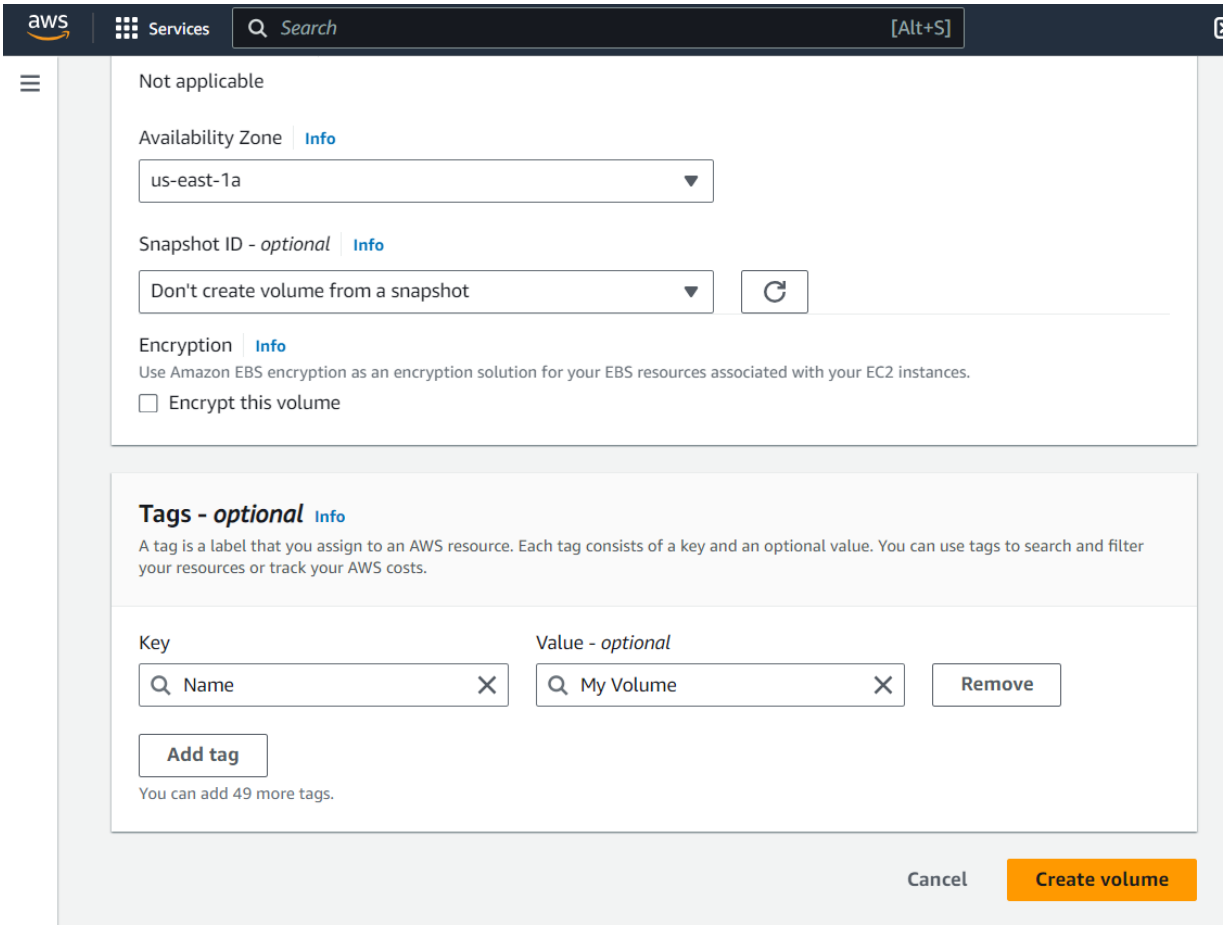
7. Note the **Availability Zone** of the instance. It will look similar to *us-east-1a*.
8. In the left navigation pane, choose **Volumes**.



9. Choose **Create volume** then configure:
    - **Volume Type:** *General Purpose SSD (gp2)*
    - **Size (GiB):** `1`. **NOTE**: You may be restricted from creating large volumes.
    - **Availability Zone:** Select the same availability zone as your EC2 instance.
    - Choose **Add Tag**
    - In the Tag Editor, enter:
        - **Key:** `Name`
        - **Value:** `My Volume`

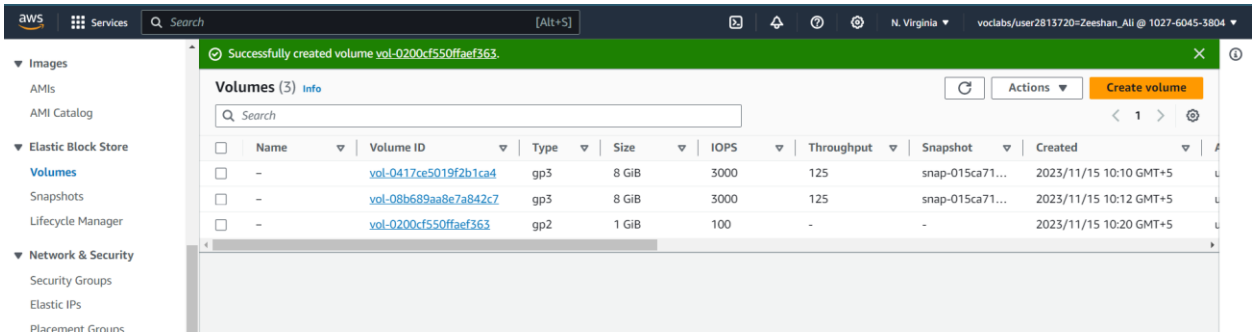


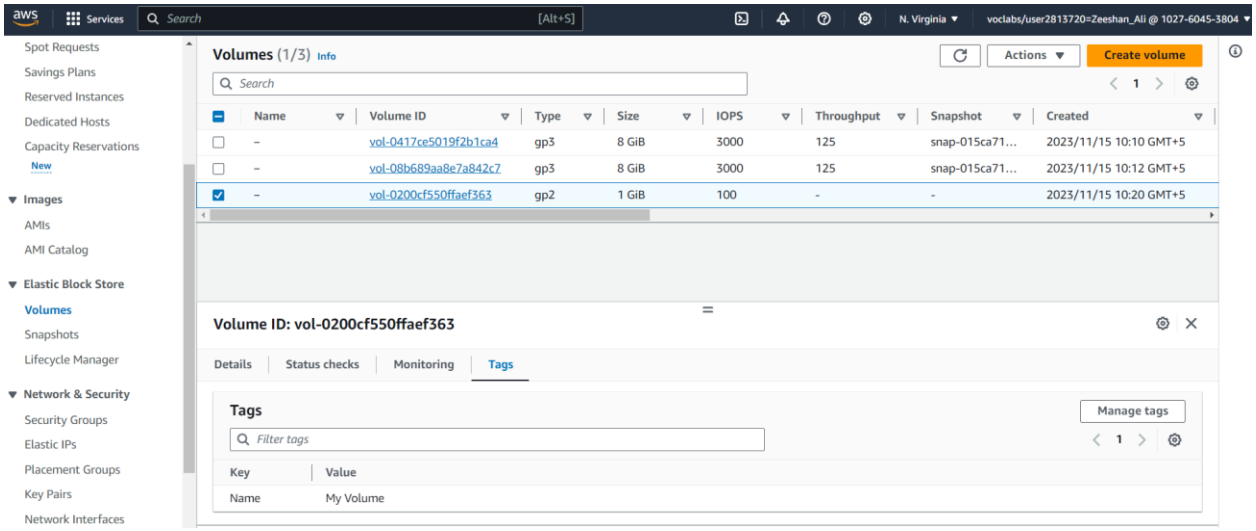
10. Choose **Create Volume**



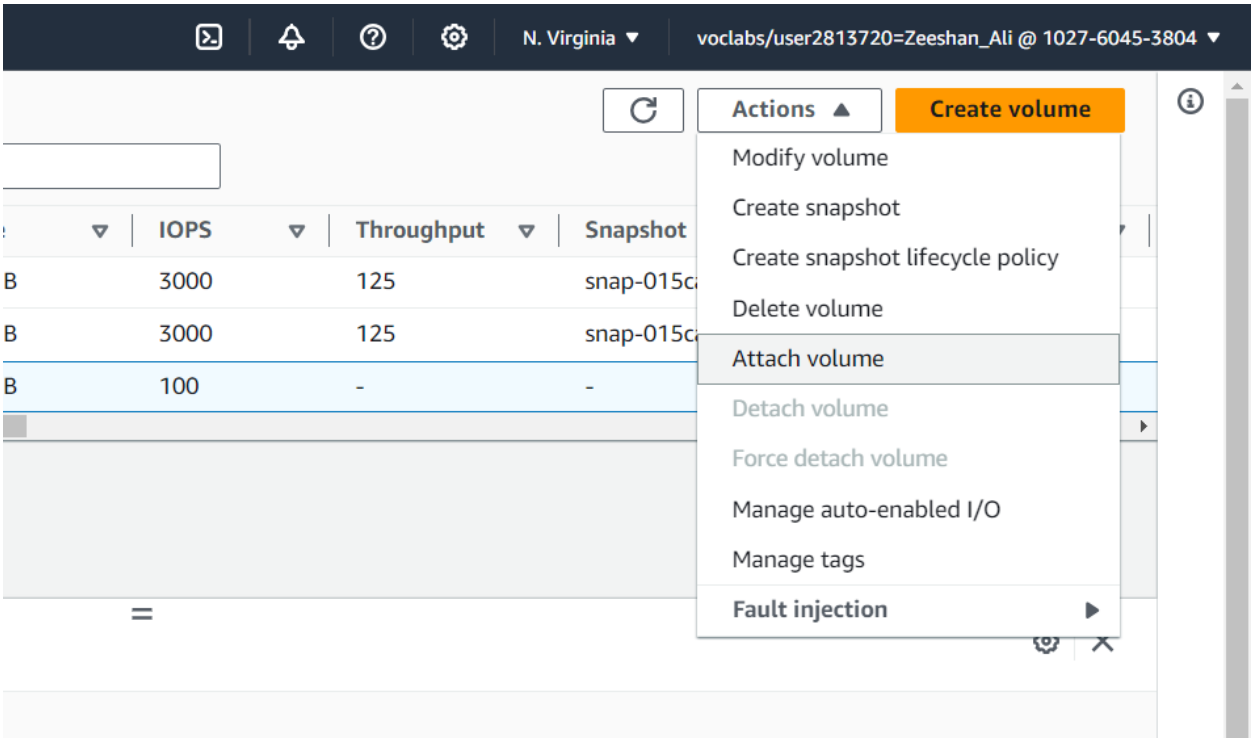
Task 2: Attach the Volume to an Instance

11. Select **My Volume**.

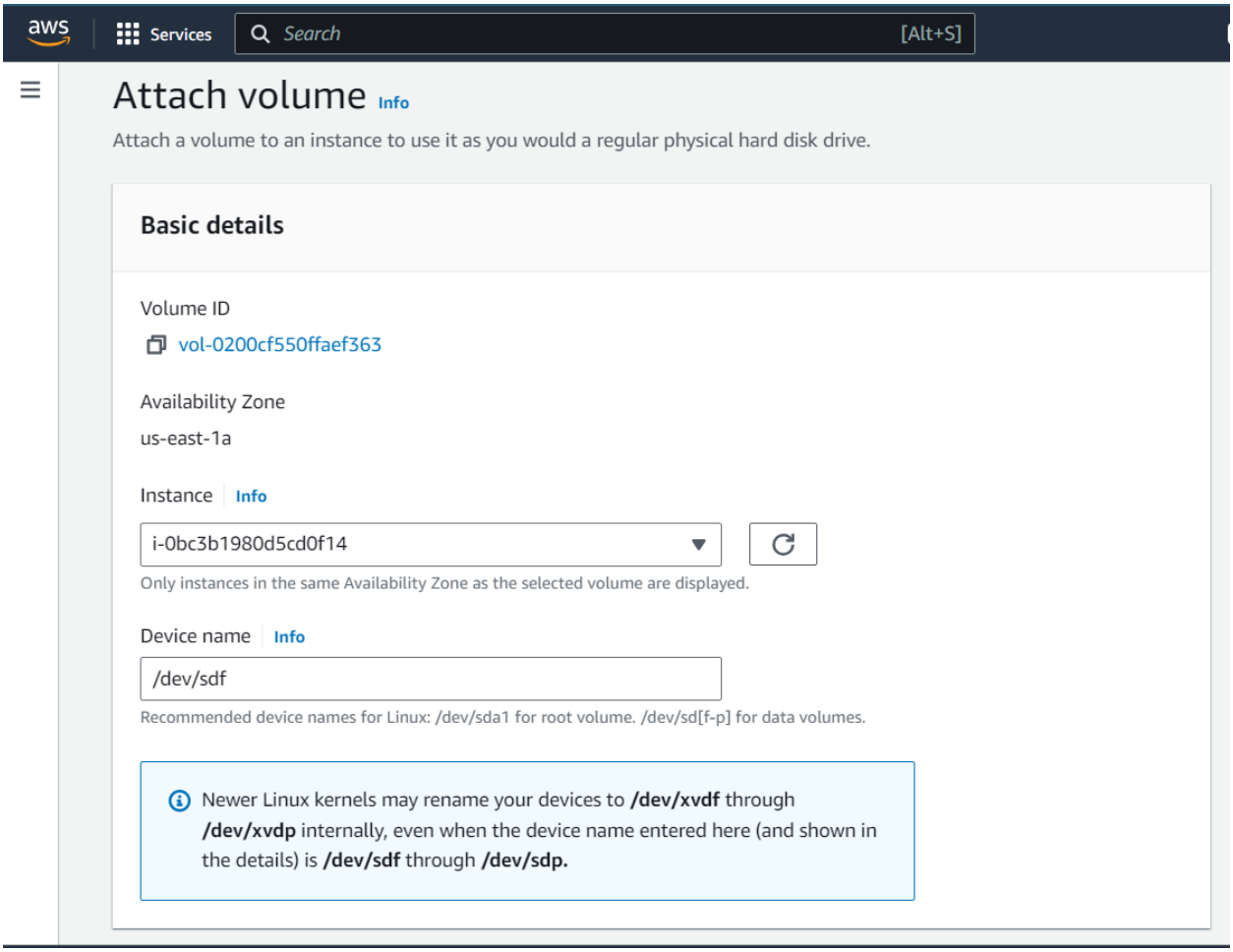


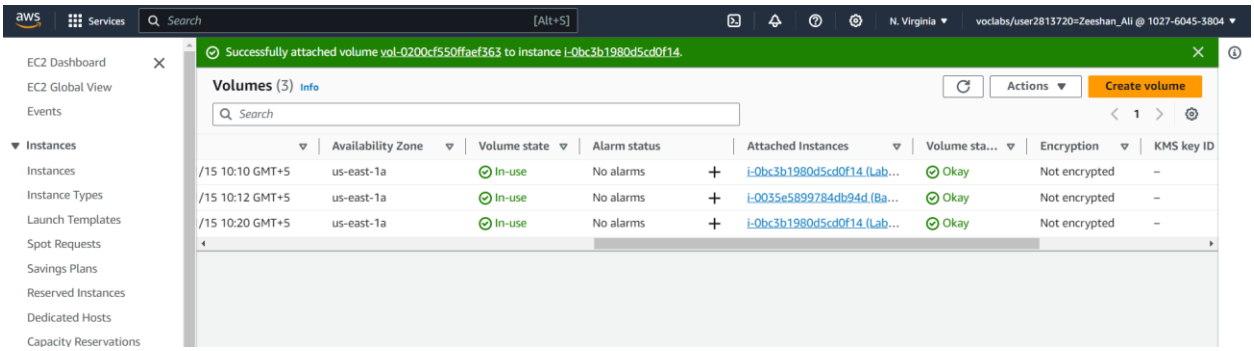


12. In the **Actions** menu, choose **Attach volume**.



13. Choose the **Instance** field, then select the instance that appears (Lab).
14. Choose **Attach volume** The volume state is now *In-use*.

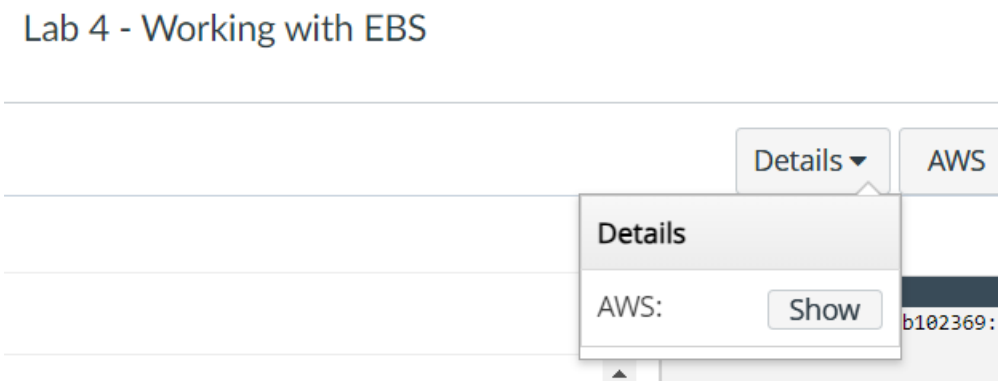




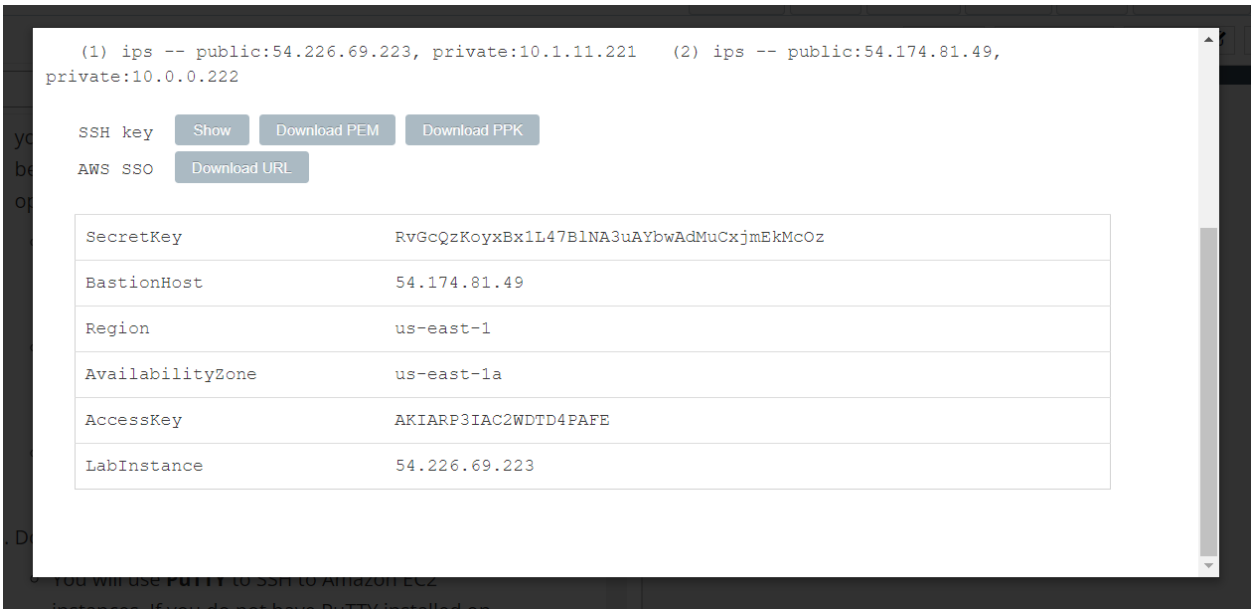
Task 3: Connect to Your Amazon EC2 Instance

Windows Users: Using SSH to Connect

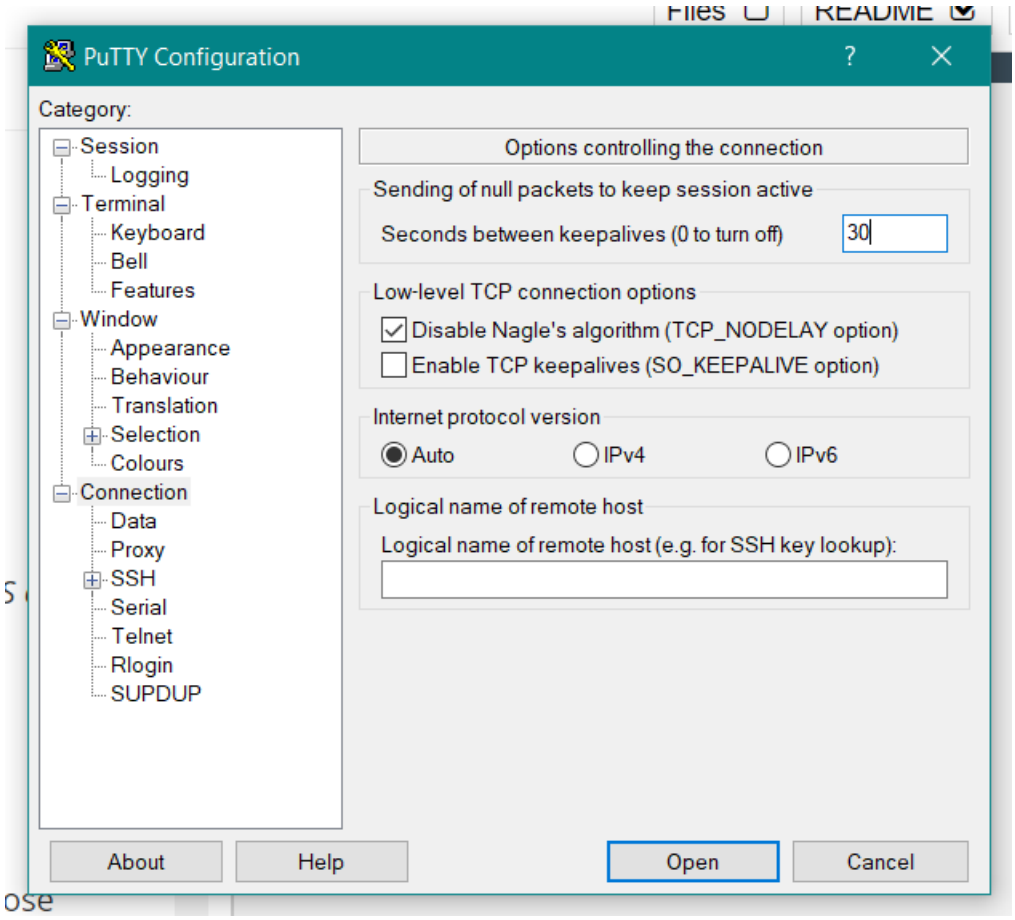
15. Read through the three bullet points in this step before you start to complete the actions, because you will not be able see these instructions when the Details panel is open.
    - Choose the Details drop down menu above these instructions you are currently reading, and then choose Show. A Credentials window will open.



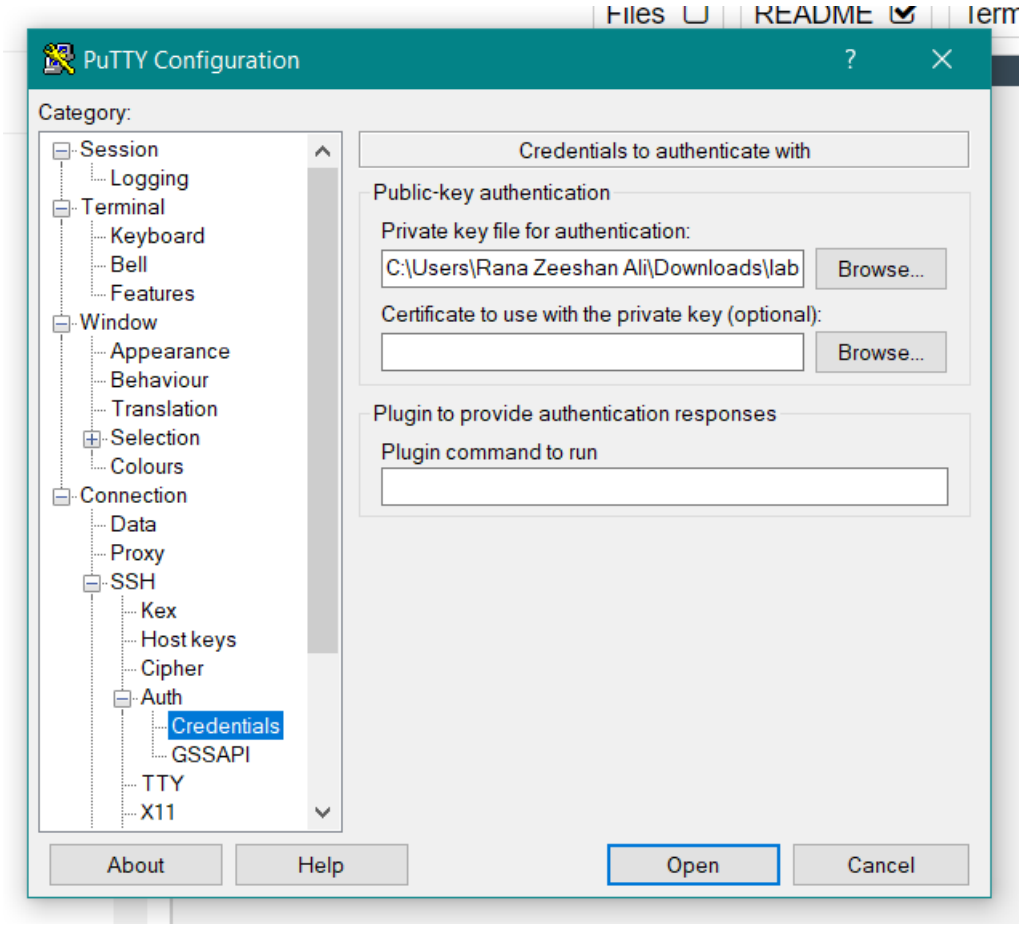
    - Choose the **Download PPK** button and save the **labsuser.ppk** file. Typically your browser will save it to the Downloads directory.
    - Then exit the Details panel by choosing the **X**.



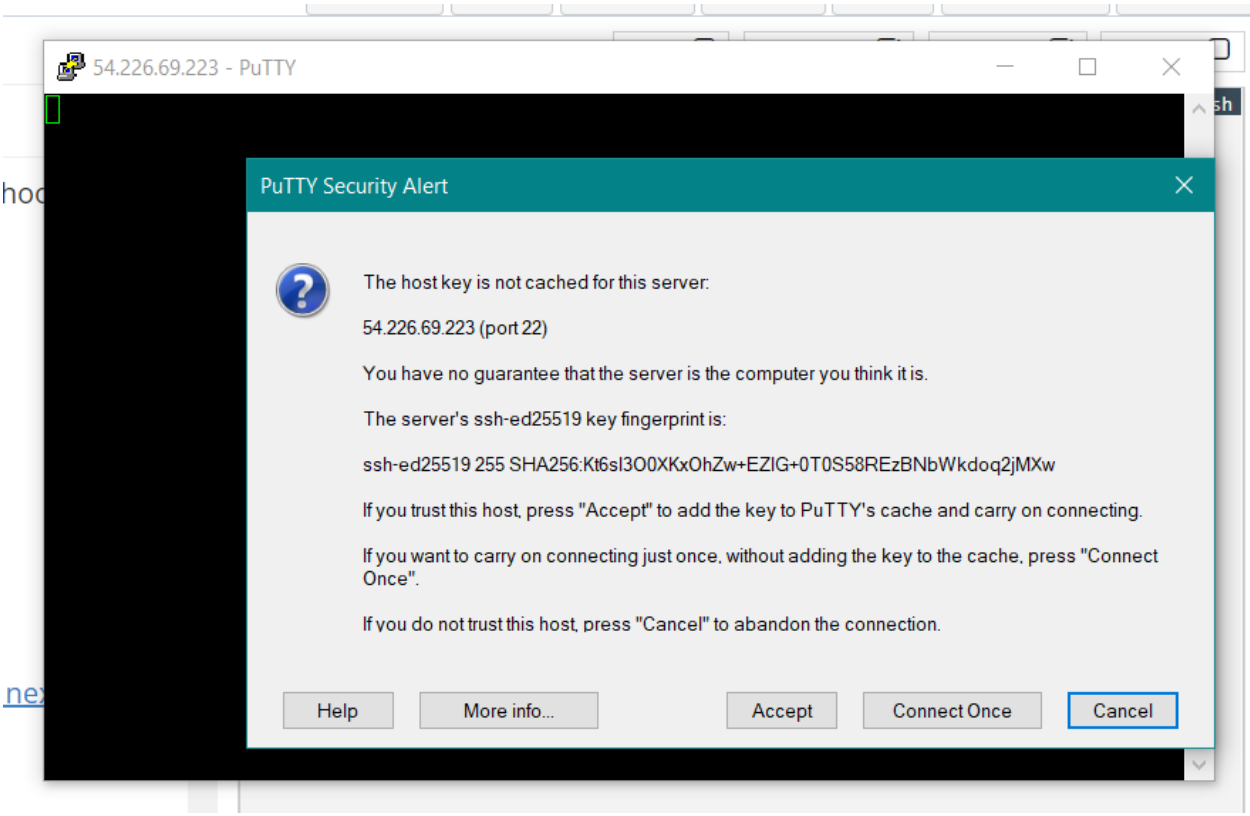
16. Download needed software.
    - You will use **PuTTY** to SSH to Amazon EC2 instances. If you do not have
17. Open **putty.exe**
18. Configure PuTTY to not timeout:
    - Choose **Connection**
    - Set **Seconds between keepalives** to `30`



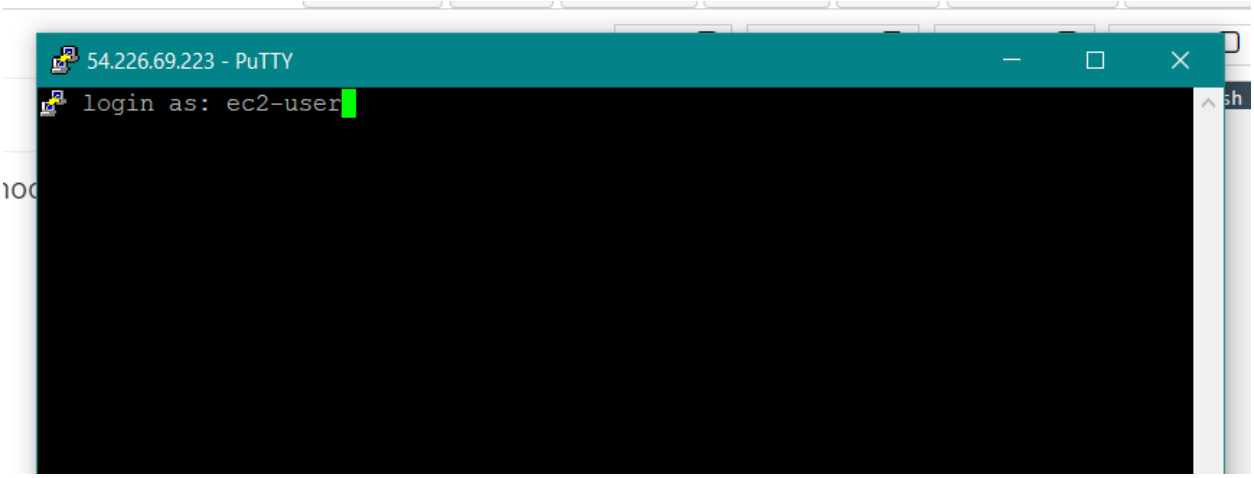
19. Configure your PuTTY session:
    - Choose **Session**
    - **Host Name (or IP address):** Paste the *Public DNS or IPv4 address* of the Lab instance that you noted earlier.
    - Back in PuTTY, in the **Connection** list, expand **SSH**
    - Choose **Auth** and expand **Credentials**
    - Under **Private key file for authentication:** Choose **Browse**
    - Browse to the *labsuser.ppk* file that you downloaded, select it, and choose **Open**
    - Choose **Open** again



20. To trust and connect to the host, choose **Accept**.

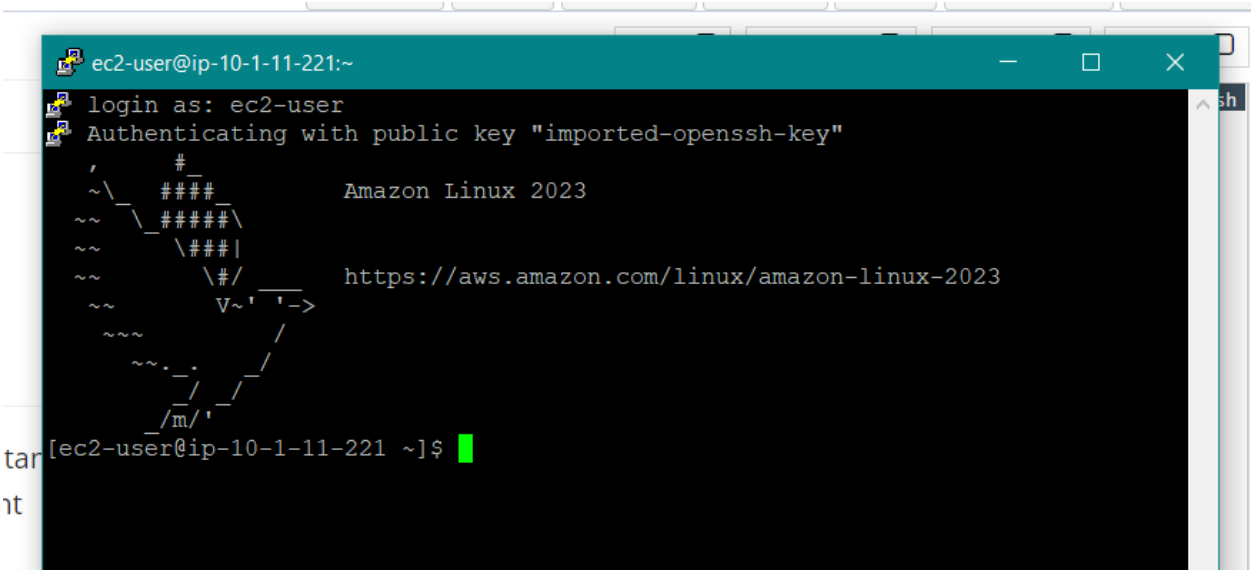


21. When prompted **login as**, enter: `ec2-user`

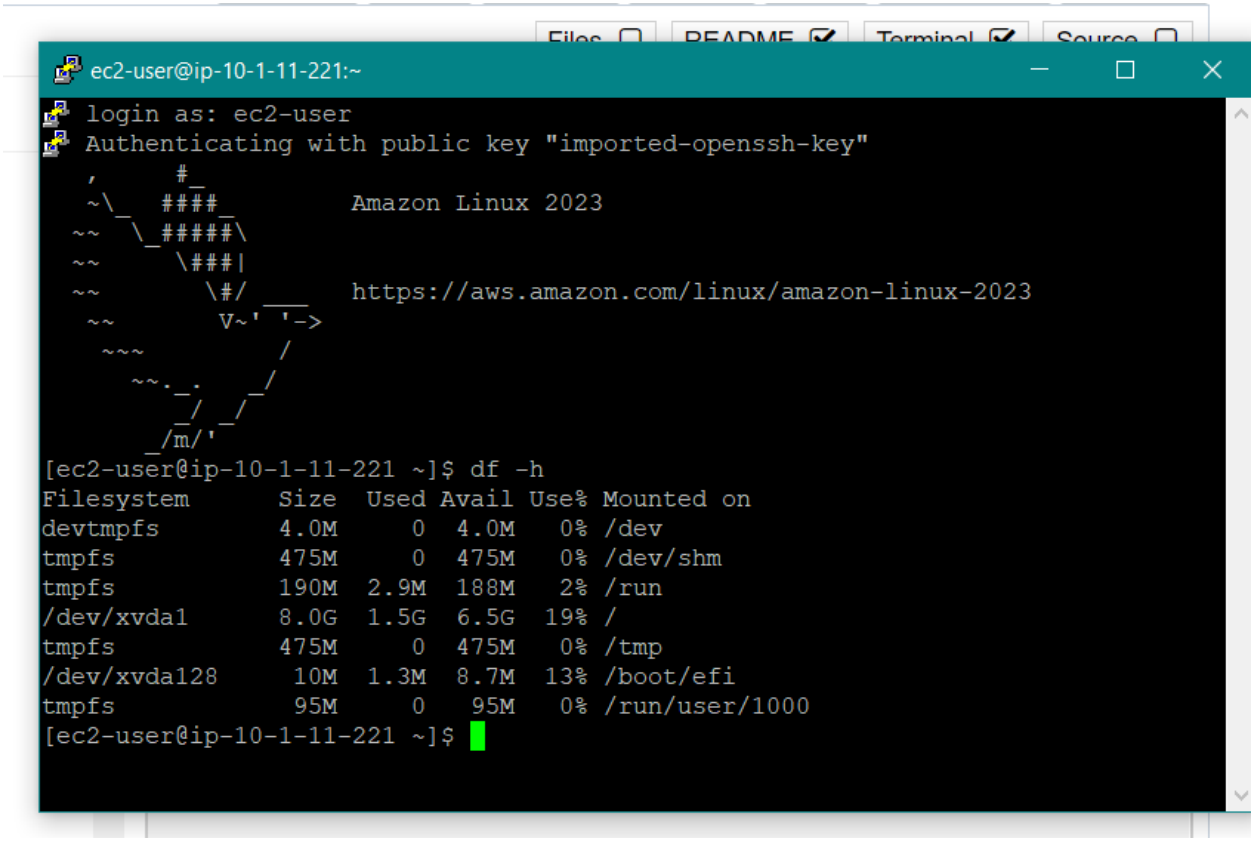


Task 4: Create and Configure Your File System

30. View the storage available on your instance:



You should see output similar to:



This shows the original 8GB disk volume. Your new volume is not yet shown.

31. Create an ext3 file system on the new volume:

```
[ec2-user@ip-10-1-11-221 ~]$ sudo mkfs -t ext3 /dev/sdf
mke2fs 1.46.5 (30-Dec-2021)
Creating filesystem with 262144 4k blocks and 65536 inodes
Filesystem UUID: 7e548fd9-facf-4869-8973-78a4f858e5f6
Superblock backups stored on blocks:
        32768, 98304, 163840, 229376

Allocating group tables: done
Writing inode tables: done
Creating journal (8192 blocks): done
Writing superblocks and filesystem accounting information: done
```

32. Create a directory for mounting the new storage volume:
33. Mount the new volume:

    To configure the Linux instance to mount this volume whenever the instance is started, you will need to add a line to */etc/fstab*.

34. View the configuration file to see the setting on the last line:

```
[ec2-user@ip-10-1-11-221 ~]$ sudo mkdir /mnt/data-store
[ec2-user@ip-10-1-11-221 ~]$ sudo mount /dev/sdf /mnt/data-store
[ec2-user@ip-10-1-11-221 ~]$ echo "/dev/sdf   /mnt/data-store ext3 defaults,noat
ime 1 2" | sudo tee -a /etc/fstab
/dev/sdf   /mnt/data-store ext3 defaults,noatime 1 2
[ec2-user@ip-10-1-11-221 ~]$ cat /etc/fstab
#
UUID=66eb3733-37f3-4398-9990-e97c15b01e5b     /           xfs    defaults,noatim
e  1   1
UUID=A208-E305        /boot/efi       vfat    defaults,noatime,uid=0,gid=0,umask
=0077,shortname=winnt,x-systemd.automount 0 2
/dev/sdf   /mnt/data-store ext3 defaults,noatime 1 2
```

35. View the available storage again:

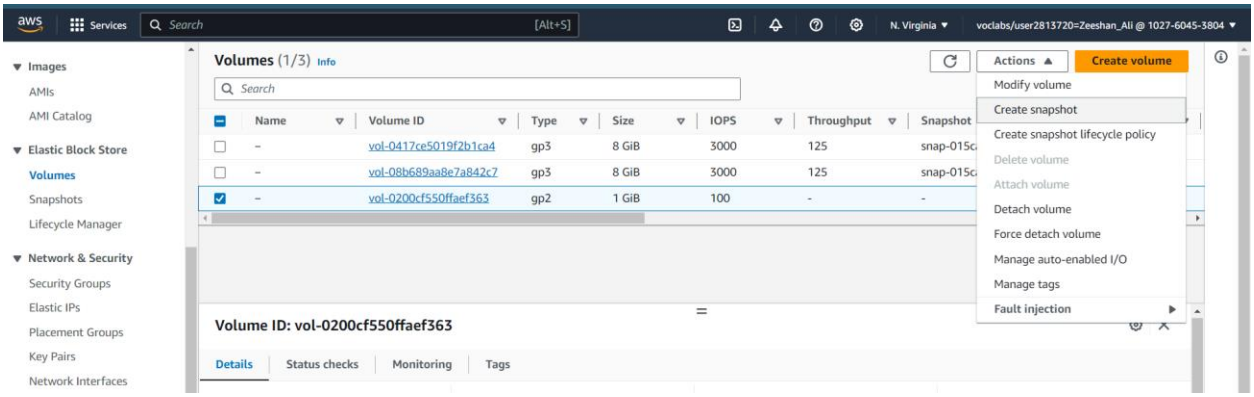
```
[ec2-user@ip-10-1-11-221 ~]$ df -h
Filesystem      Size  Used Avail Use% Mounted on
devtmpfs        4.0M     0  4.0M   0% /dev
tmpfs           475M     0  475M   0% /dev/shm
tmpfs           190M  2.9M  188M   2% /run
/dev/xvda1      8.0G  1.5G  6.5G  19% /
tmpfs           475M     0  475M   0% /tmp
/dev/xvda128     10M  1.3M  8.7M  13% /boot/efi
tmpfs            95M     0   95M   0% /run/user/1000
/dev/xvdf       975M   60K  924M   1% /mnt/data-store
```

36. On your mounted volume, create a file and add some text to it.

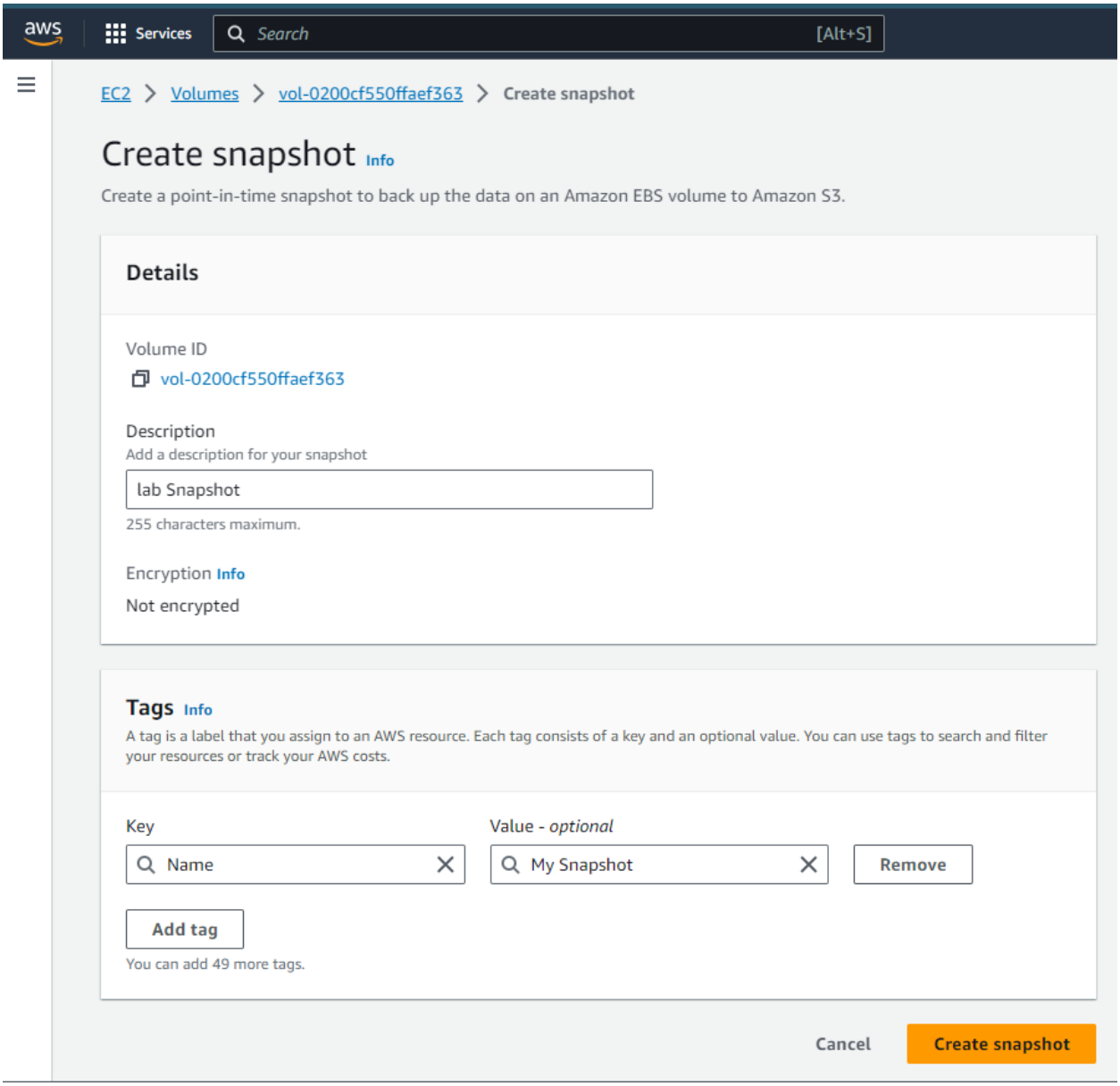
```
[ec2-user@ip-10-1-11-221 ~]$ sudo sh -c "echo some text has been written > /mnt/data-stor
e/file.txt"
[ec2-user@ip-10-1-11-221 ~]$ cat /mnt/data-store/file.txt
some text has been written
[ec2-user@ip-10-1-11-221 ~]$
```

Task 5: Create an Amazon EBS Snapshot

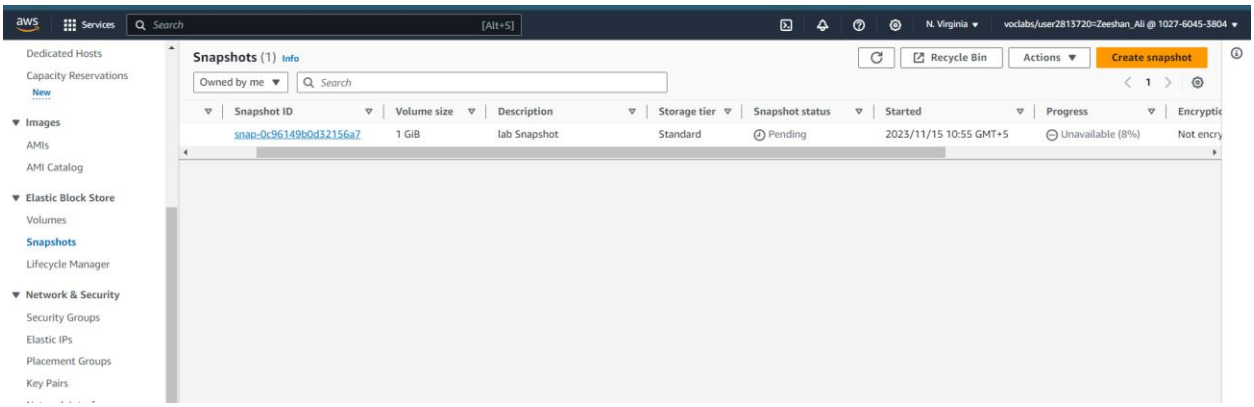
38. In the **AWS Management Console**, choose **Volumes** and select **My Volume**.
39. In the **Actions** menu, select **Create snapshot**.



40. Choose **Add tag** then configure:
    - **Key:** Name
    - **Value:** My Snapshot
    - Choose **Create snapshot**



41. In the left navigation pane, choose **Snapshots**.



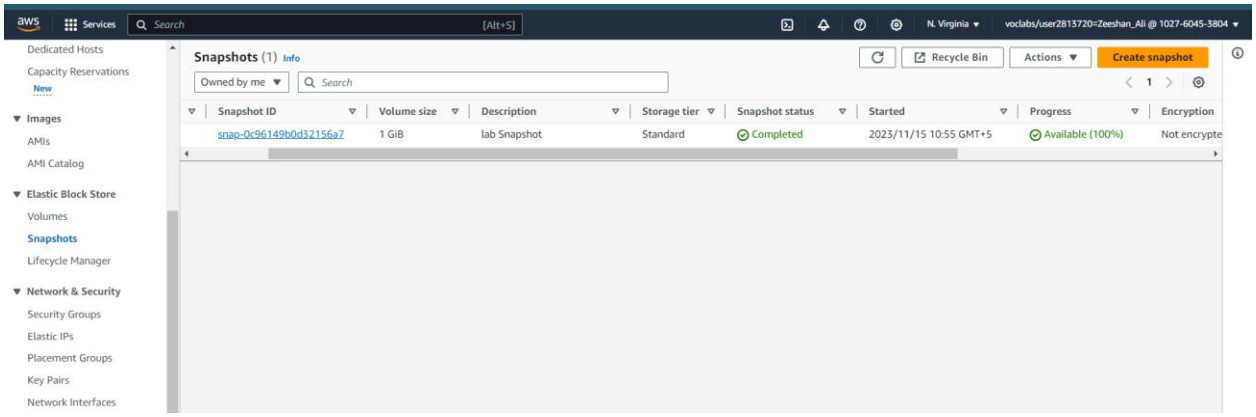
42. In your remote SSH session, delete the file that you created on your volume.
43. Verify that the file has been deleted.

```
some text has been written
[ec2-user@ip-10-1-11-221 ~]$ sudo rm /mnt/data-store/file.txt
[ec2-user@ip-10-1-11-221 ~]$ ls /mnt/data-store/
lost+found
[ec2-user@ip-10-1-11-221 ~]$ sudo rm /mnt/data-store/file.txt
rm: cannot remove '/mnt/data-store/file.txt': No such file or directory
[ec2-user@ip-10-1-11-221 ~]$ ls /mnt/data-store/
lost+found
```

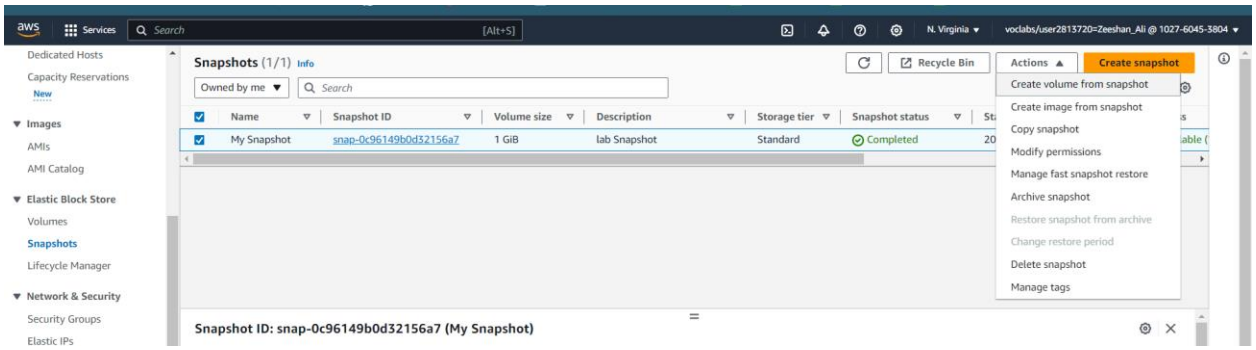
Task 6: Restore the Amazon EBS Snapshot

Create a Volume Using Your Snapshot

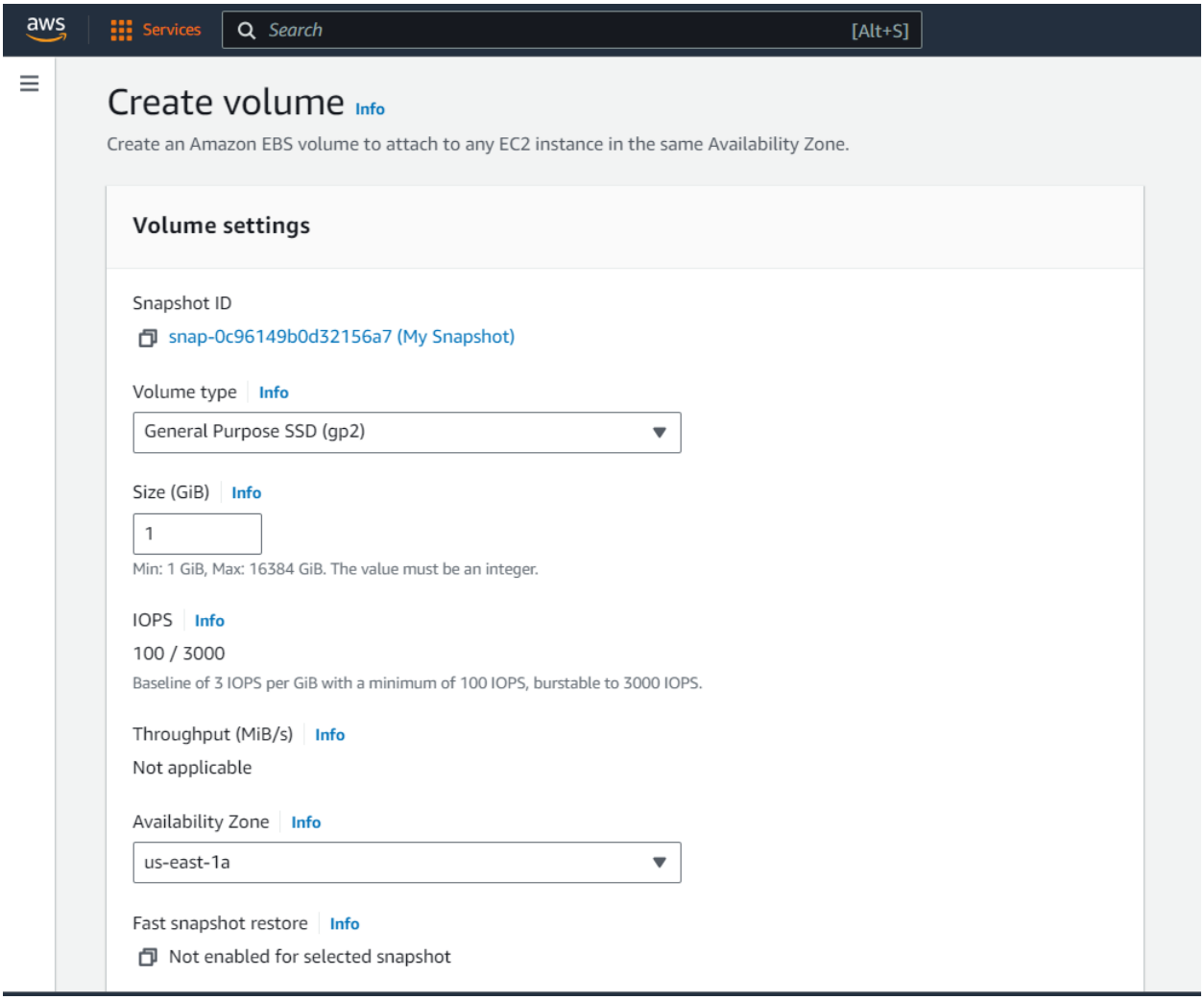
44. In the **AWS Management Console**, select **My Snapshot**.

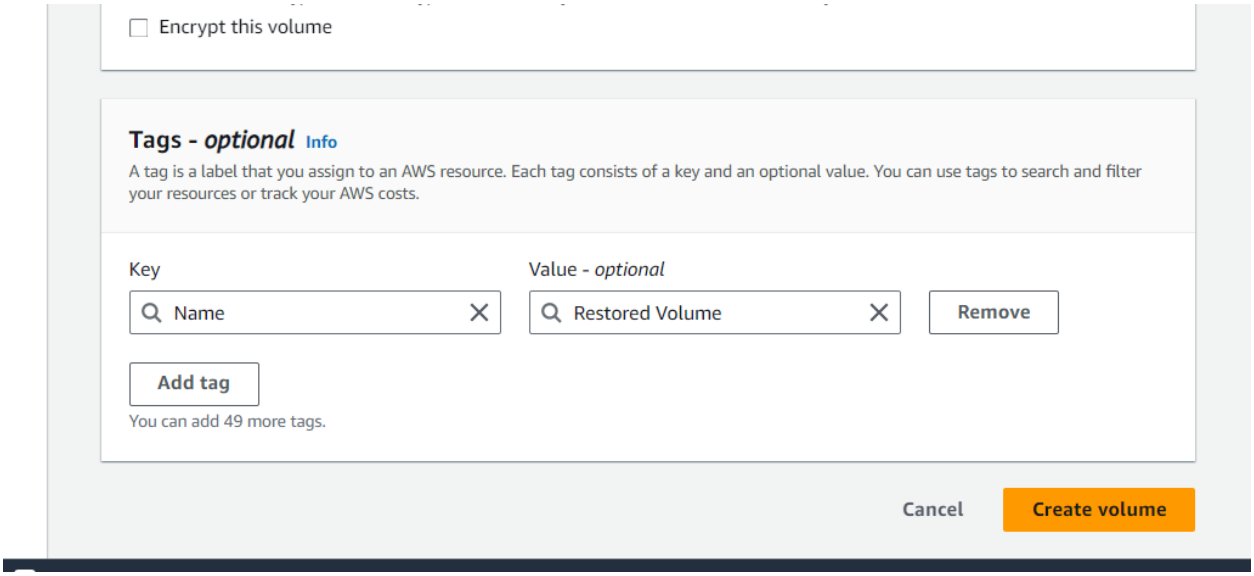


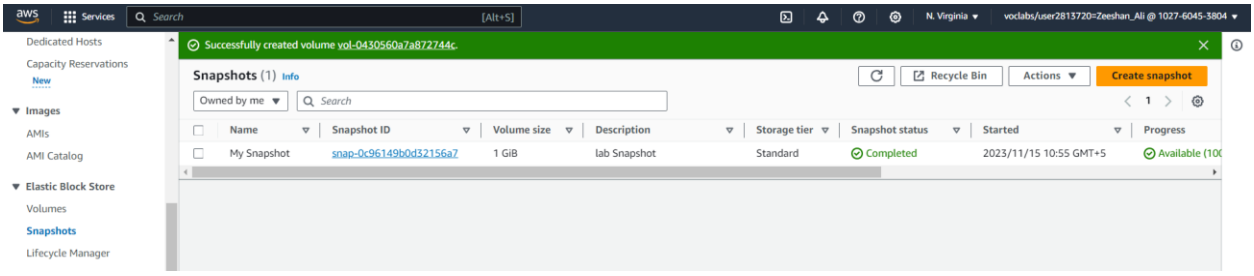
45. In the **Actions** menu, select **Create volume from snapshot**.



46. For **Availability Zone** Select the same availability zone that you used earlier.
47. Choose **Add tag** then configure:
    - **Key:** Name
    - **Value:** Restored Volume
    - Choose **Create volume**

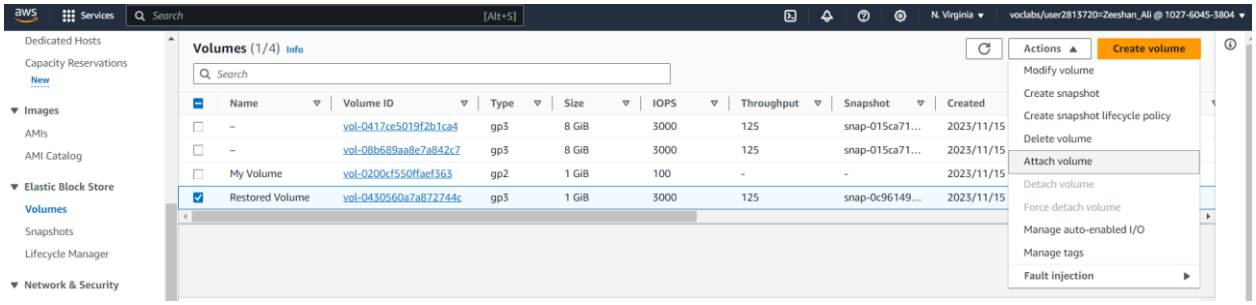




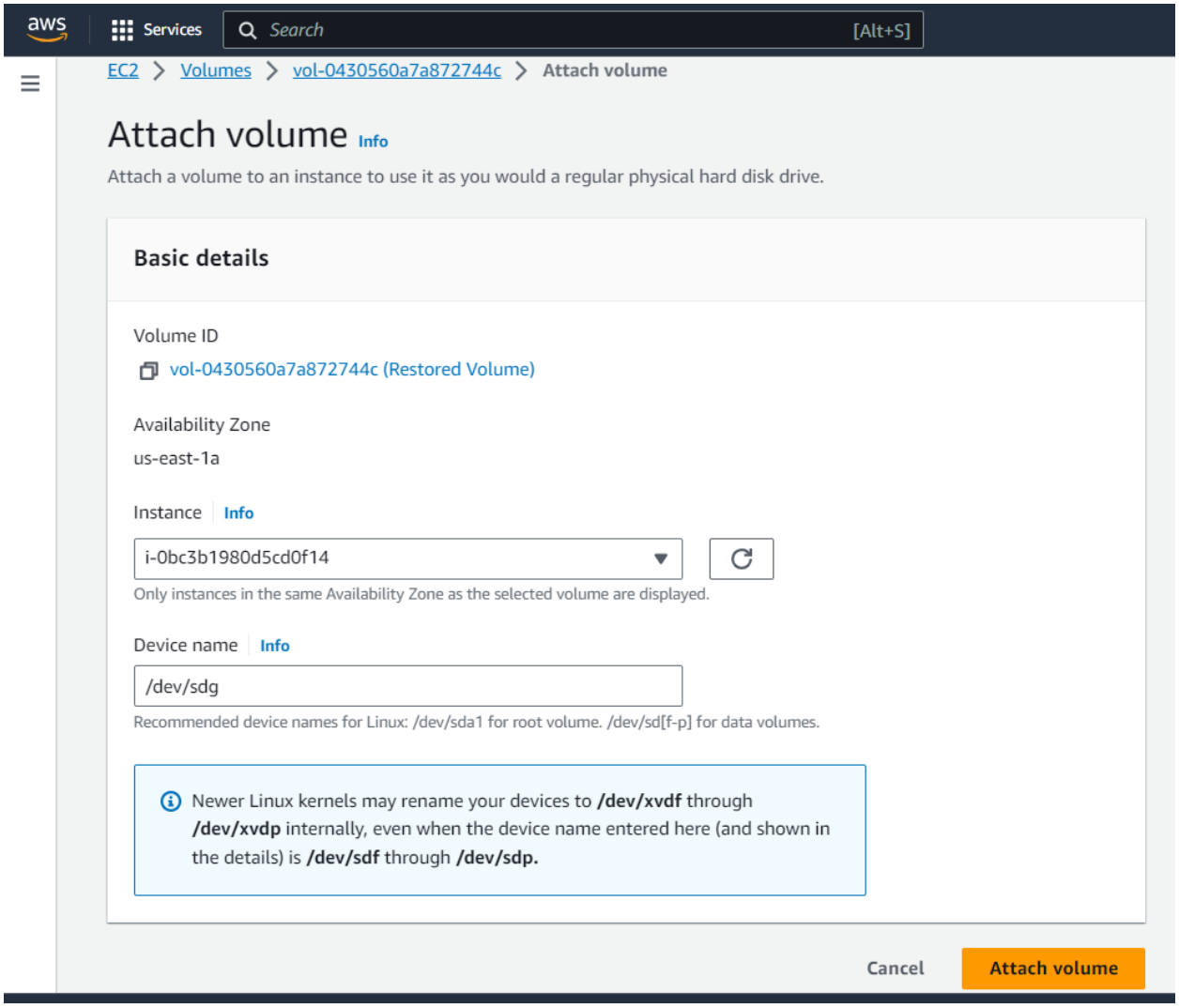


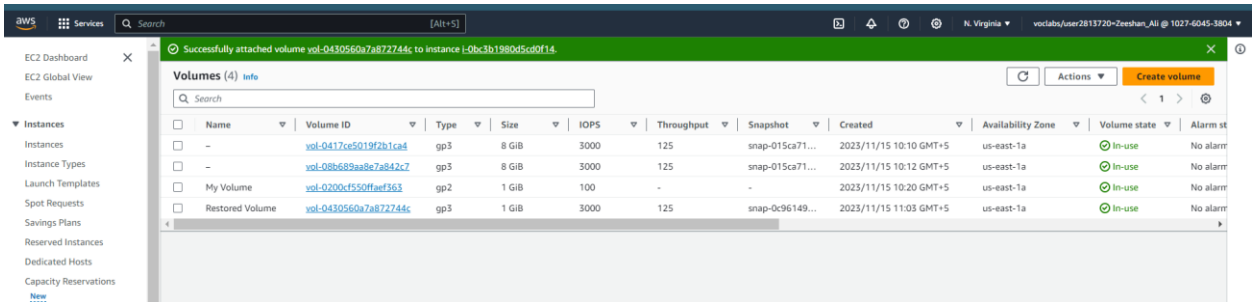
Attach the Restored Volume to Your EC2 Instance

48. In the left navigation pane, choose **Volumes**.
49. Select **Restored Volume**.
50. In the **Actions** menu, select **Attach volume**.



51. Choose the **Instance** field, then select the (Lab) instance that appears.
52. Choose **Attach volume**





Mount the Restored Volume

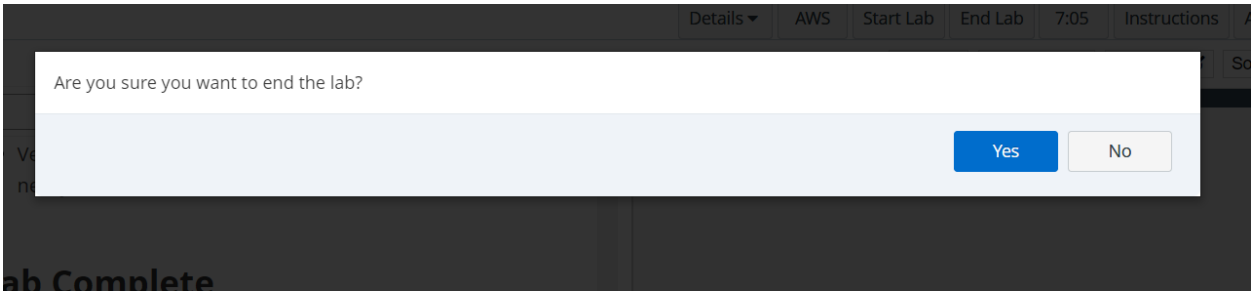
53. Create a directory for mounting the new storage volume:

54. Mount the new volume:
55. Verify that volume you mounted has the file that you created earlier. You should see file.txt.

```
[ec2-user@ip-10-1-11-221 ~]$ sudo mkdir /mnt/data-store2
[ec2-user@ip-10-1-11-221 ~]$ sudo mount /dev/sdg /mnt/data-store2
[ec2-user@ip-10-1-11-221 ~]$ ls /mnt/data-store2/
file.txt  lost+found
[ec2-user@ip-10-1-11-221 ~]$
```

Lab Complete

56. Choose End Lab at the top of this page and then click **Yes** to confirm that you want to end the lab.



57. Choose the **X** in the top right corner to close the panel.