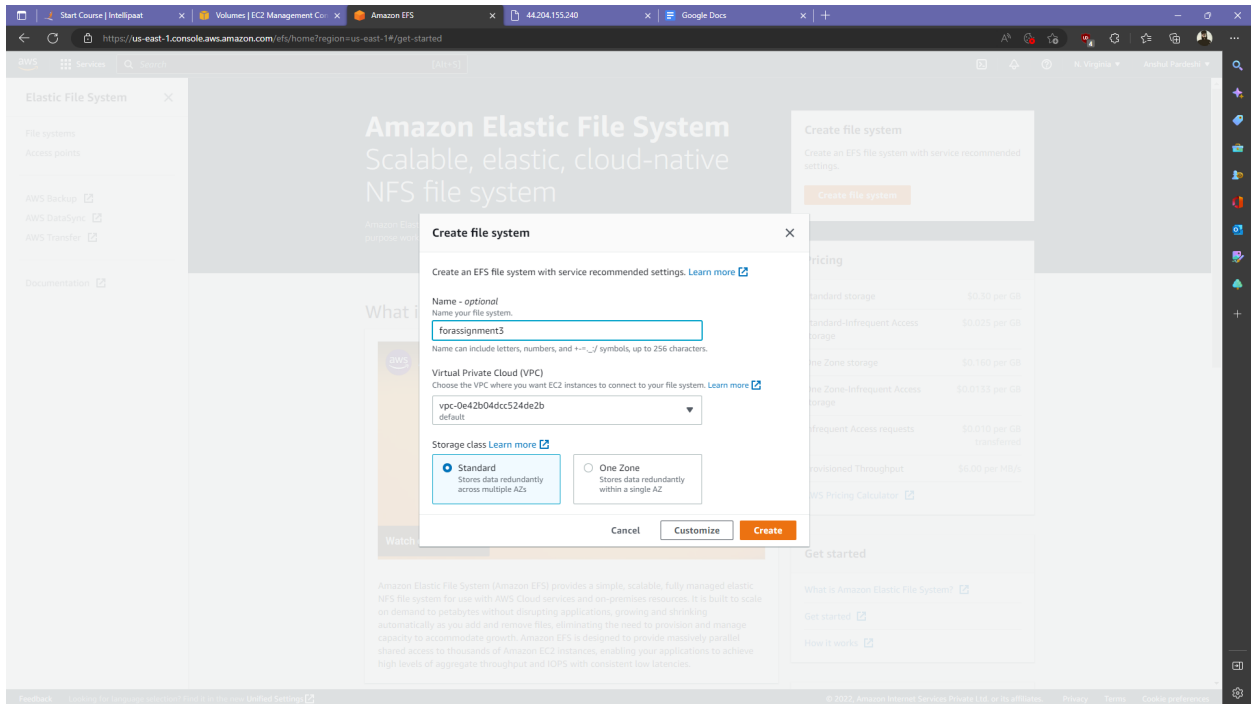


## Module-2: EC2 and EFS Assignment - 3

You have been asked to:

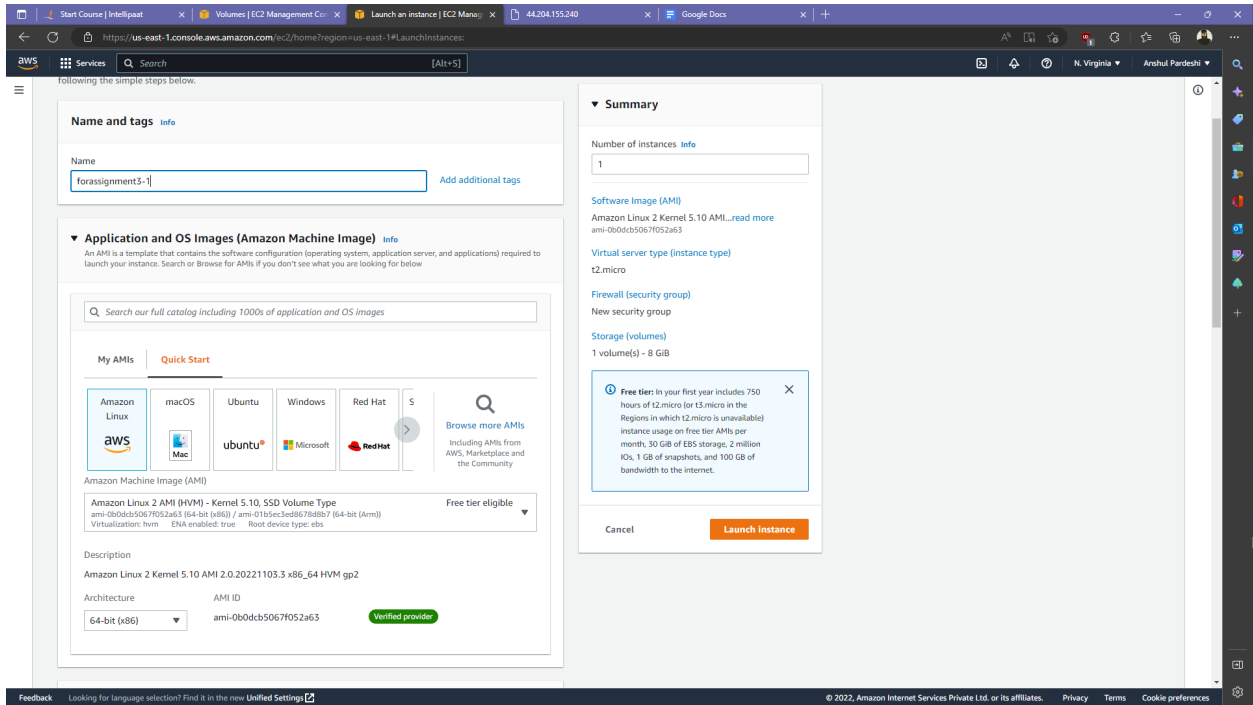
1. Create an EFS and connect it to 3 different EC2 instances. Make sure all instances have different Operating Systems. For instance, Ubuntu, Red Hat Linux and Amazon Linux 2.

### Create a File System

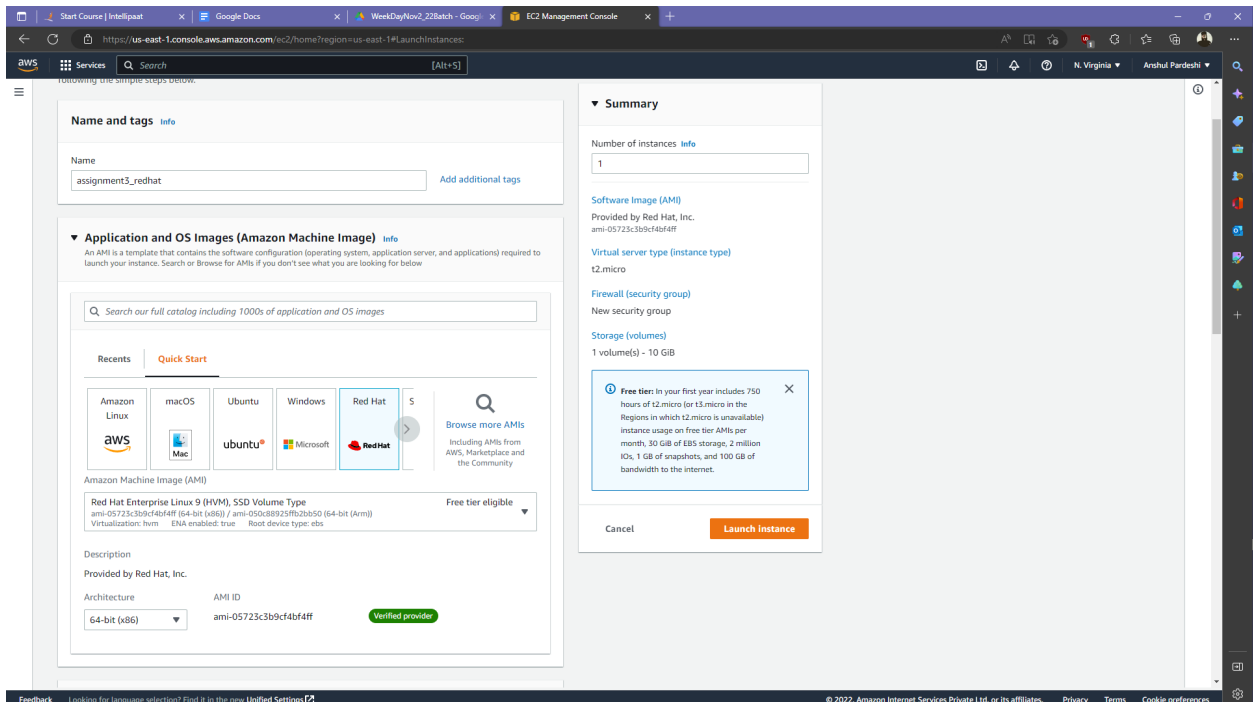


## Launch ec2 instances with three different AMI:

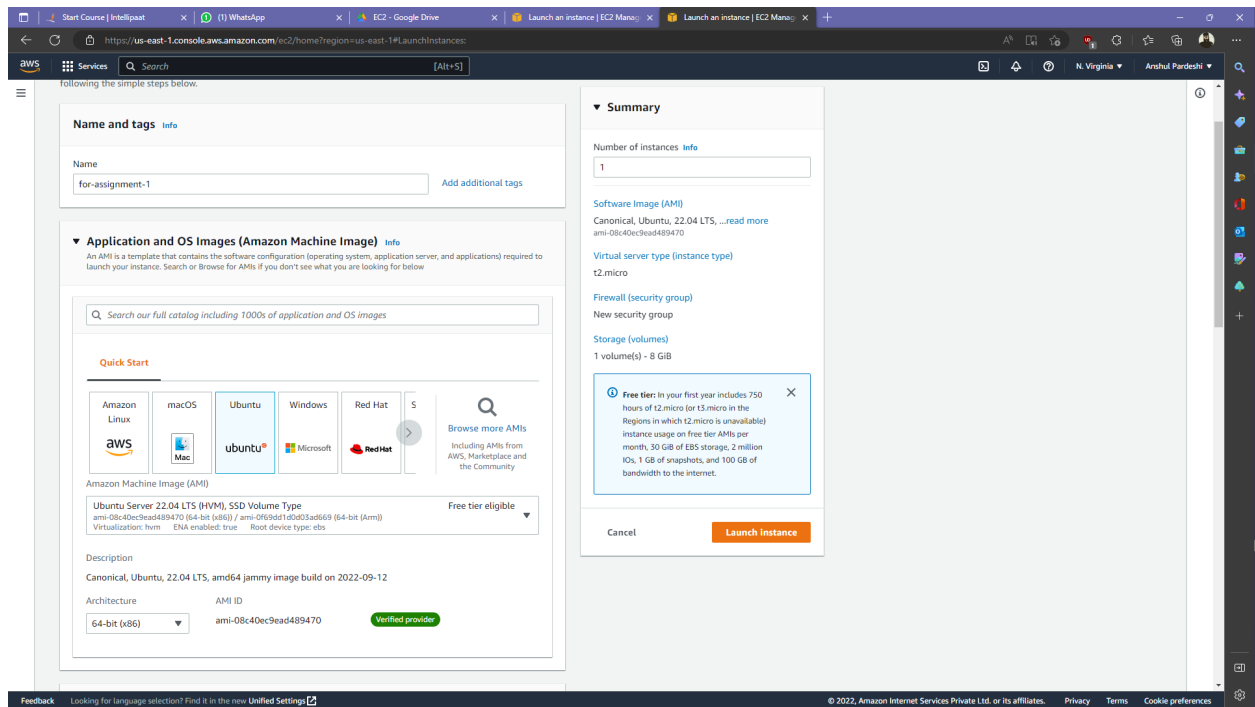
### 1. With Amazon Linux



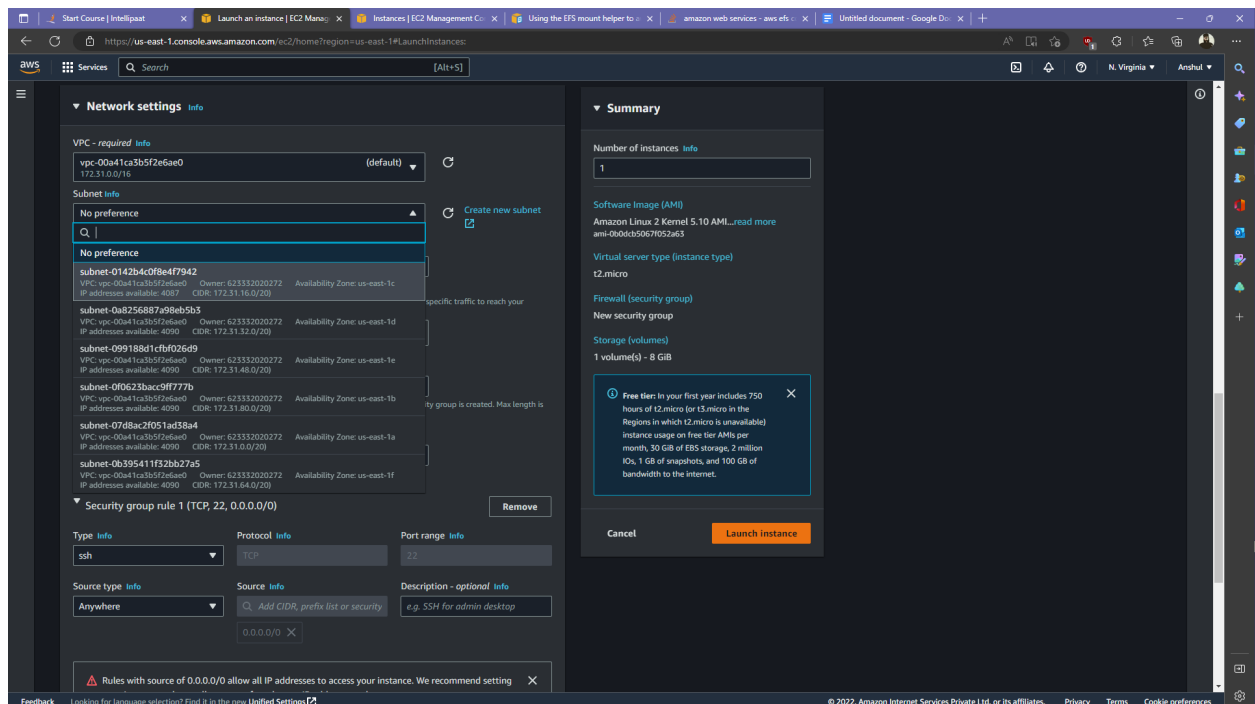
### 2. Red Hat



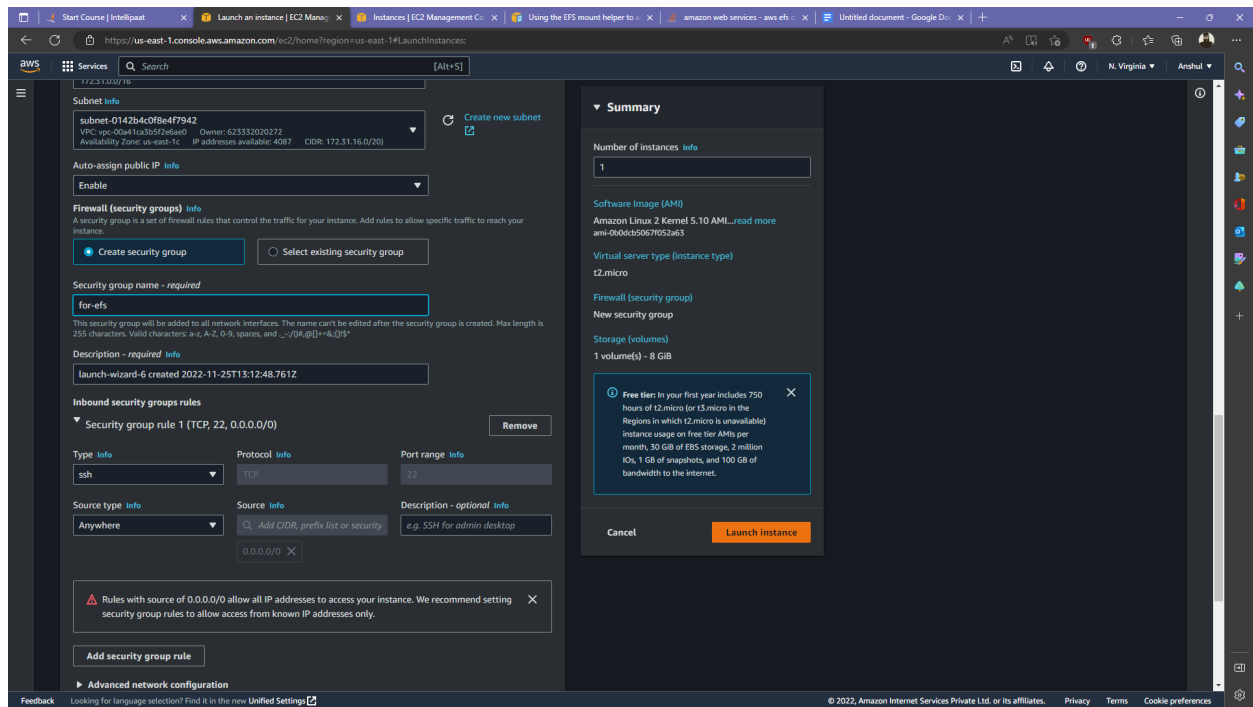
### 3. Ubuntu



Choose any one subnet by clicking on edit in network settings while making all the three instances

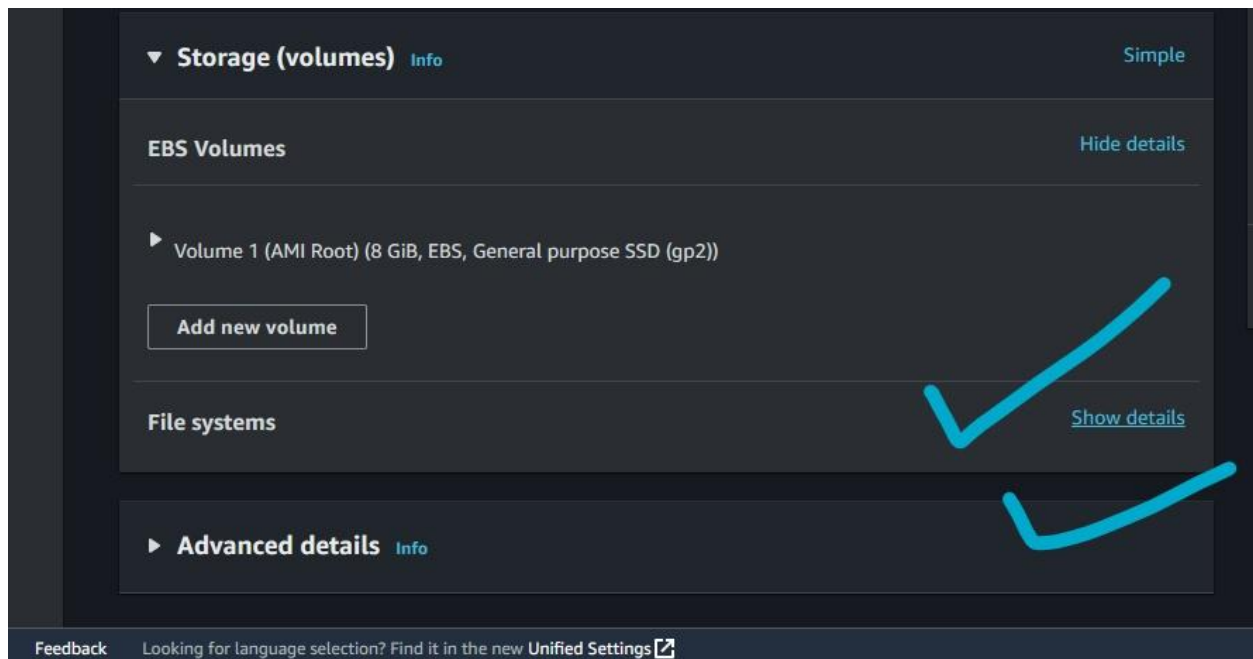


Create a security group to be chosen while creating all 3 instances



Now to attach EFS in the instance, follow following procedure in all three instances:

In Storage, in front of 'File Systems', click on 'Show Details'.



Now, select 'EFS' and 'add shared file system'.

Here if you've only one EFS in that VPC it will be mounted automatically.

If not, select the created EFS for this assignment in all three cases.

The screenshot shows the 'Storage (volumes)' section in the AWS Management Console. It includes a 'Simple' tab, an 'EBS Volumes' section with 'Volume 1 (AMI Root) (8 GiB, EBS, General purpose SSD (gp2))' and an 'Add new volume' button, and a 'File systems' section. In the 'File systems' section, the 'EFS' radio button is selected and circled in blue. Below it, a message states: 'You currently have no file systems on this instance. To add a file system, choose **Add shared file system**.' The 'Add shared file system' button is also circled in blue. To its right is a 'Create new shared file system' link. At the bottom of this section, it says '5 remaining (Up to 5 file systems maximum)'. The 'Advanced details' section is collapsed. A blue checkmark is placed next to the 'Add shared file system' button. The footer contains a 'Feedback' link and a message about language selection.

▼ **Storage (volumes)** [Info](#) Simple

**EBS Volumes** [Hide details](#)

▶ Volume 1 (AMI Root) (8 GiB, EBS, General purpose SSD (gp2))

[Add new volume](#)

**File systems** [Hide details](#)

☒ EFS ☐ FSx

You currently have no file systems on this instance. To add a file system, choose **Add shared file system**.

[Add shared file system](#) [Create new shared file system](#)

5 remaining (Up to 5 file systems maximum).

▶ **Advanced details** [Info](#)

**Feedback** Looking for language selection? Find it in the new [Unified Settings](#)

EFS mounted.

File systems

Hide details

EFS

FSx

Shared file system 1

Remove

File system

Info

fs-050a7b1b237d73f91

Name: For-Assignment

Availability: Regional

Mount point

Info

/mnt/efs/fs1

Add shared file system

Create new shared file system

4 remaining (Up to 5 file systems maximum).

☒

Automatically create and attach security groups

To enable access to the file system, the required security groups will be automatically created and attached to this instance and the selected file system. To manually manage the security groups, clear the checkbox. [Learn more.](#)

☒

Automatically mount shared file system by attaching required user data script

Automatically mount your file system by updating your user data to install efs-utils. If you would like to manually mount your file system, clear the checkbox.

Advanced details

Info

Feedback

Looking for language selection? Find it in the new [Unified Settings](#)

Optional, not in the Task:

To connect instances use PuTTY config:

Copy IP of instance which you would like to connect

The screenshot displays the AWS Management Console interface. The left sidebar shows the navigation menu with categories like EC2 Dashboard, Events, Tags, Limits, Instances, Images, Elastic Block Store, Network & Security, and Key Pairs. The main content area shows the 'Instances (1/5) info' page. A table lists the instances, with columns for Name, Instance ID, Instance state, Instance type, Status check, Alarm status, Availability Zone, Public IPv4 DNS, Public IPv4 address, and Elastic IP. The instance 'forefs' is selected, and its details are shown in the 'Instance summary' panel on the right. The 'PuTTY Configuration' dialog box is open, showing the 'Session' tab with the host name '54.226.134.61' and port '22'. The 'Instance summary' panel shows details for the selected instance, including its IP address, hostname, and VPC ID.

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public IPv4 address	Elastic IP
forefs	i-0896284ea9b031dcf	Running	t2.micro	2/2 checks passed	No alarms	us-east-1c	ec2-54-226-222-71.co...	54.226.222.71	-

**Instance summary info**

Instance ID: i-0402e62279e72d365 (server-2)

IPv6 address: -

Hostname type: IP name: ip-172-31-25-138.ec2.internal

Answer private resource DNS name: IPv4 (A)

Auto-assigned IP address: 54.226.134.61 [Public IP]

IAM Role: -

**Public IPv4 address copied**

54.226.134.61 | open address

Private IP DNS name (IPv4 only): ip-172-31-25-138.ec2.internal

Instance type: t2.micro

VPC ID: vpc-00a41ca3b5f2efae0

Subnet ID: -

Private IPv4 addresses: 172.31.25.138

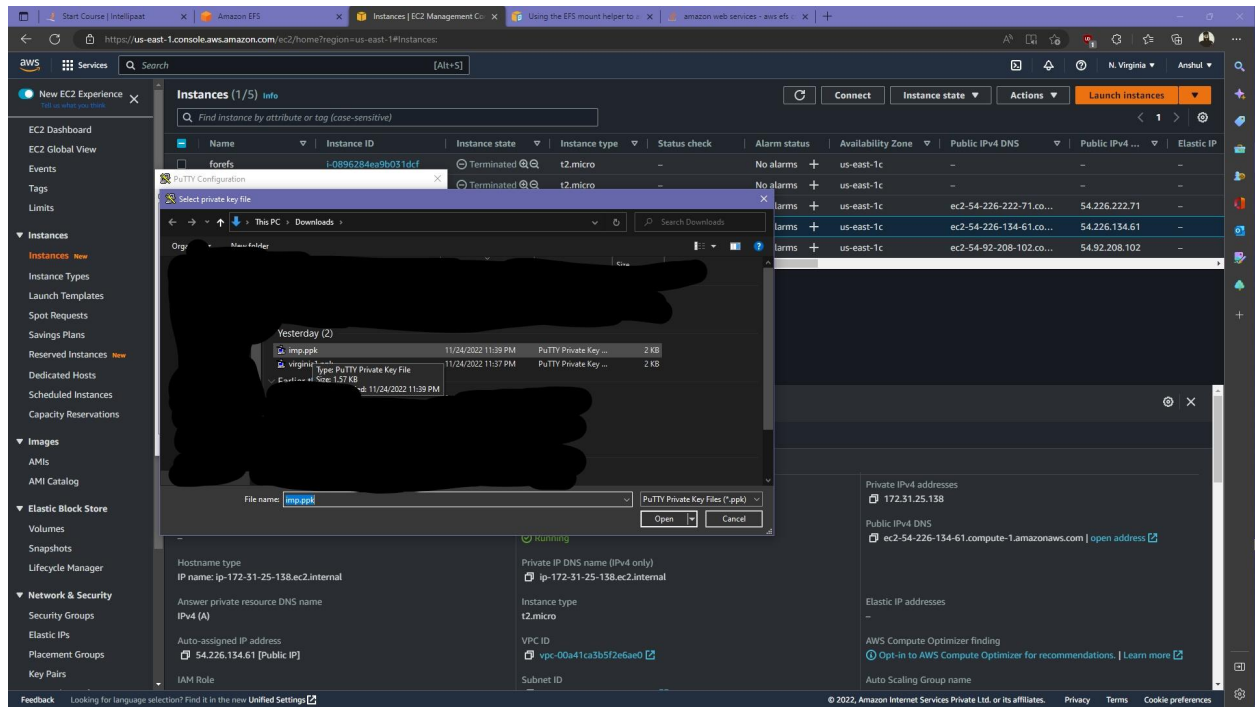
Public IPv4 DNS: ec2-54-226-134-61.compute-1.amazonaws.com | open address

Elastic IP addresses: -

AWS Compute Optimizer finding: Opt-in to AWS Compute Optimizer for recommendations. | Learn more

Auto Scaling Group name: -

Using PuTTYgen generate key using .pem used while choosing keypair while making an instance and upload it in SSH>>Auth>>Credentials





After getting in to connected instance,  
Update using: `sudo apt-get update` or `yum update` or any other subsequent update command.

RedHat:

```
sudo yum -y install git
sudo yum -y install rpm-build
git clone https://github.com/aws/efs-utils
cd efs-utils
sudo yum -y install make
sudo yum -y install rpm-build
sudo make rpm
sudo yum -y install ./build/amazon-efs-utils*.rpm
```

---

Ubuntu: `sudo apt-get install nfs-common -y`

---

Amazon Linux : `sudo yum install amazon-efs-utils -y`

Then search for connected efs mount location using: `df -h` , `df -t`  
Here mount location was `/mnt/efs/fs1`

For instance 1 say Amazon Linux upload a file at this mount location:  
`Cd /mnt/efs/fs1`  
`Touch file1.txt`

Then check whether the above file is reflected in other instances by connecting them using the same putty config procedure to mount location and list. You'll observe that files have been reflected.

```
ubuntu@ip-172-31-25-138:~$  
# login as: ubuntu  
# Authenticating with public key "imported-openssh-key"  
# Passphrase for key "imported-openssh-key":  
Welcome to Ubuntu 22.04.1 LTS (GNU/Linux 5.15.0-1019-aws x86_64)  
  
 * Documentation:  https://help.ubuntu.com  
 * Management:    https://landscape.canonical.com  
 * Support:       https://ubuntu.com/advantage  
  
System information as of Fri Nov 25 12:53:46 UTC 2022  
  
System load:  0.91552734375   Processes:    110  
Usage of /:   28.0% of 7.57GB   Users logged in:  0  
Memory usage: 26%            IPv4 address for eth0: 172.31.25.138  
Swap usage:   0%  
  
0 updates can be applied immediately.  
  
*** System restart required ***  
  
The programs included with the Ubuntu system are free software;  
the exact distribution terms for each program are described in the  
individual files in /usr/share/doc/*/copyright.  
  
Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by  
applicable law.  
  
To run a command as administrator (user "root"), use "sudo <command>".  
See "man sudo_root" for details.  
  
ubuntu@ip-172-31-25-138:~$ sudo apt-get update  
  
ubuntu@ip-172-31-25-138:~$  
# login as: ubuntu  
# Authenticating with public key "imported-openssh-key"  
# Passphrase for key "imported-openssh-key":  
Welcome to Ubuntu 22.04.1 LTS (GNU/Linux 5.15.0-1019-aws x86_64)  
  
 * Documentation:  https://help.ubuntu.com  
 * Management:    https://landscape.canonical.com  
 * Support:       https://ubuntu.com/advantage  
  
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Usage of /:   28.0% of 7.57GB   Users logged in:  0  
Memory usage: 26%            IPv4 address for eth0: 172.31.25.138  
Swap usage:   0%  
  
0 updates can be applied immediately.  
  
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Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by  
applicable law.  
  
To run a command as administrator (user "root"), use "sudo <command>".  
See "man sudo_root" for details.  
  
ubuntu@ip-172-31-25-138:~$ sudo apt-get update  
Hit:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy InRelease  
Hit:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates InRelease  
Hit:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports InRelease  
Hit:4 http://security.ubuntu.com/ubuntu jammy-security InRelease  
Reading package lists... Done  
ubuntu@ip-172-31-25-138:~$ df -h  
Filesystem                Size      Used Avail Use% Mounted on  
/dev/root                  7.6G  2.2G  5.5G  29% /  
tmpfs                      484M      0  484M   0% /dev/shm  
tmpfs                     194M  960K  193M   1% /run  
tmpfs                      5.0M      0   5.0M   0% /run/lock  
/dev/xvda15                1.0M      0    1.0M   0% /boot/efi  
fs-0a1a76e3a752b7f1.efs.us-east-1.amazonaws.com:/  8.0E      0   8.0E   0% /mnt/efs/fs1  
tmpfs                      97M      0    97M   0% /run/user/1000  
ubuntu@ip-172-31-25-138:~$
```

```

[ec2-user@ip-172-31-20-236 ~]$ sudo yum install amazon-efs-utils
++ jobs -p
++ exit 0
cp build/rpmbuild/RPMS/x86_64/amazon-efs-utils-1.34.2-1.el9.noarch.rpm
Updating Subscription Management repositories.
Unable to read consumer identity
This system is not registered with an entitlement server. You can use subscription-
manager to register.
Last metadata expiration check: 0:07:45 ago on Fri 25 Nov 2022 12:52:59 PM UTC.
Dependencies resolved.
=====
Package Arch Version Repository Size
-----
Installing:
amazon-efs-utils noarch 1.34.2-1.el9 @commandline 52 k
Installing dependencies:
stunnel x86_64 5.62-2.el9 rhel-9-baseos-chui-rpms 167 k
Transaction Summary
-----
Install 2 Packages
Total size: 219 k
Total download size: 167 k
Installed size: 556 k
Downloading Packages:
stunnel-5.62-2.el9.x86_64.rpm 2.7 MB/s | 167 kB 00:00
-----
Total 1.8 MB/s | 167 kB 00:00
Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
Preparing : 1/1
Installing : stunnel-5.62-2.el9.x86_64 1/2
Running scriptlet: stunnel-5.62-2.el9.x86_64 1/2
Installing : amazon-efs-utils-1.34.2-1.el9.noarch 2/2
Running scriptlet: amazon-efs-utils-1.34.2-1.el9.noarch 2/2
Verifying : stunnel-5.62-2.el9.x86_64 1/2
Verifying : amazon-efs-utils-1.34.2-1.el9.noarch 2/2
Installed products updated.

Installed:
amazon-efs-utils-1.34.2-1.el9.noarch stunnel-5.62-2.el9.x86_64

Complete!
[ec2-user@ip-172-31-20-236 efs-utils]$ df -h
Filesystem Size Used Avail Use% Mounted on
devtmpfs 447M 0 447M 0% /dev
tmpfs 479M 0 479M 0% /dev/shm
tmpfs 192M 12M 180M 7% /run
/dev/xvda1 9.4G 1.4G 8.0G 15% /
/dev/xvda3 494M 201M 293M 41% /boot
/dev/xvda2 200M 20K 200M 1% /efi
fs-Data763a732b77f3.efs.us-east-1.amazonaws.com/ 8.0G 0 8.0G 0% /mnt/efs
fs/fs1 94M 0 94M 0% /run/u
tmpfs 1000
[ec2-user@ip-172-31-20-236 efs-utils]$ cd /mnt/efs/fs1
[ec2-user@ip-172-31-20-236 fs1]$ ls
file1.txt
[ec2-user@ip-172-31-20-236 fs1]$

```