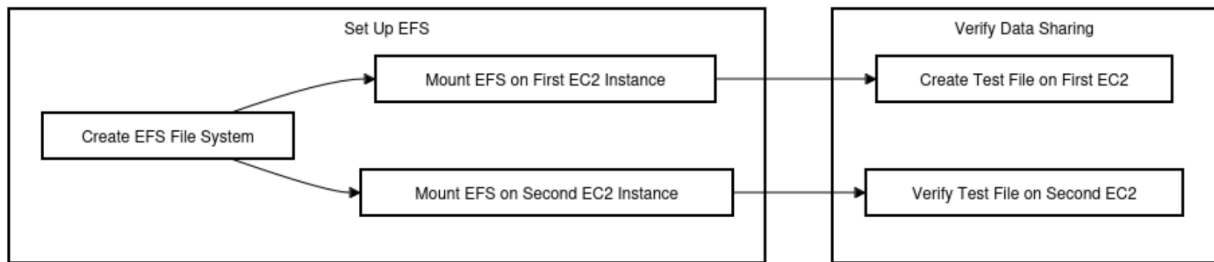


Task :Set Up EFS and Verify Data Sharing Between Two EC2 Instances.

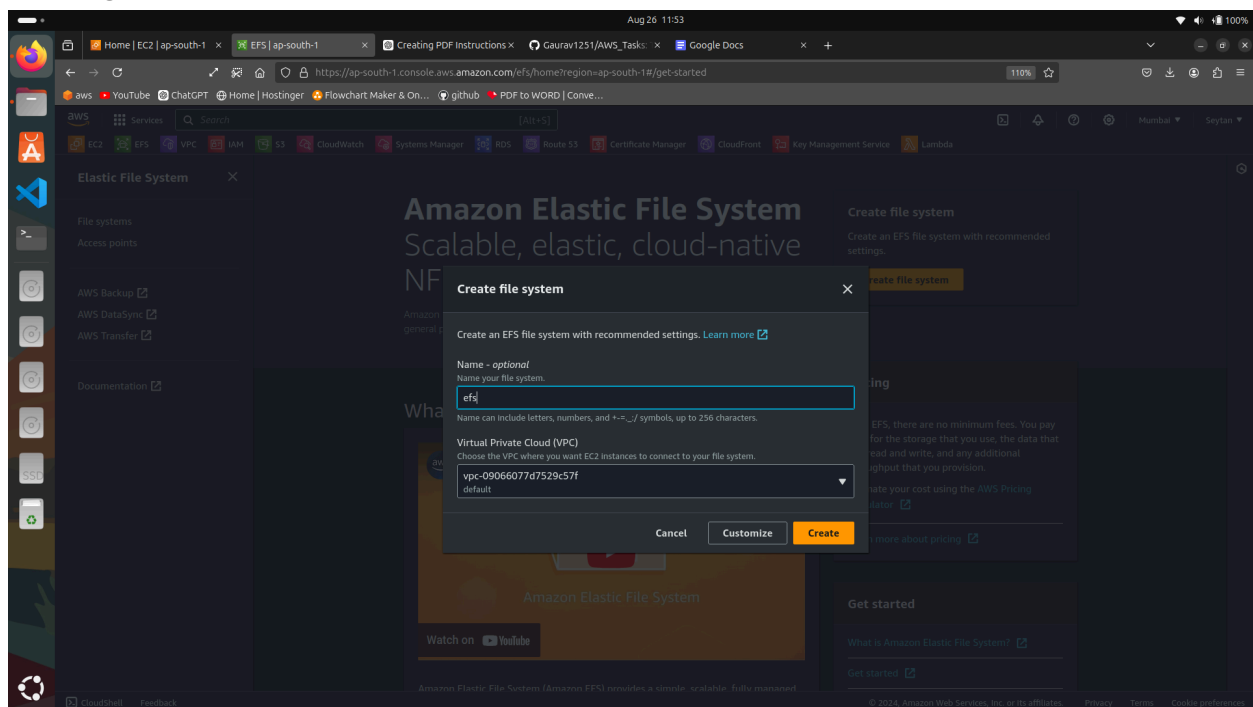
Diagrammatic Representation:



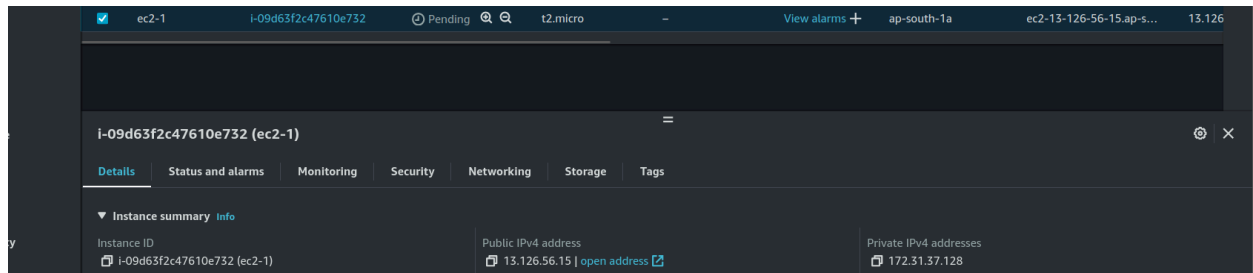
Step 1:Create an EFS in AWS.

What is an EFS?

→EFS stands for Elastic File System, a scalable file storage service provided by AWS. It allows multiple instances to access a file system concurrently, adapting automatically to changes in storage needs.



Step 2: Now Create 1st Ec2 instance, and get its access over terminal by using this command→ssh -i private_key_pair.pem user@public_ip of instance.



Step 3: Now install the nfs-common package
sudo apt install nfs-common -y

To access Amazon EFS, you typically need to install the **nfs-common** package on your Linux instance. This package provides the necessary NFS (Network File System) client utilities to mount and interact with the EFS file system.

What is NFS ?

→NFS, or Network File System, is a protocol that allows a computer to access files over a network as if they were on its local storage. It enables file sharing between systems and is commonly used in environments where multiple machines need to access shared data, such as with Amazon EFS.

```
ubuntu@ip-172-31-34-145:~$ sudo apt install nfs-common -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  keyutils libnfsidmap1 rpcbind
Suggested packages:
  watchdog
The following NEW packages will be installed:
  keyutils libnfsidmap1 nfs-common rpcbind
0 upgraded, 4 newly installed, 0 to remove and 0 not upgraded.
Need to get 400 kB of archives.
After this operation, 1416 kB of additional disk space will be used.
Get:1 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 libnfsidmap1 amd64 1:2.6.4-3ubuntu5 [48.2 kB]
Get:2 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 rpcbind amd64 1:2.6-7ubuntu2 [46.5 kB]
Get:3 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 keyutils amd64 1.6.3-3build1 [56.8 kB]
Get:4 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 nfs-common amd64 1:2.6.4-3ubuntu5 [248 kB]
Fetched 400 kB in 0s (15.6 MB/s)
Selecting previously unselected package libnfsidmap1:amd64.
(Reading database ... 67741 files and directories currently installed.)
Preparing to unpack .../libnfsidmap1_1%3a2.6.4-3ubuntu5_amd64.deb ...
Unpacking libnfsidmap1:amd64 (1:2.6.4-3ubuntu5) ...
```

Step 4:Now create a mounting directory in ec2 instance.

mkdir efs

Now copy the mounting dns from efs via attach button.

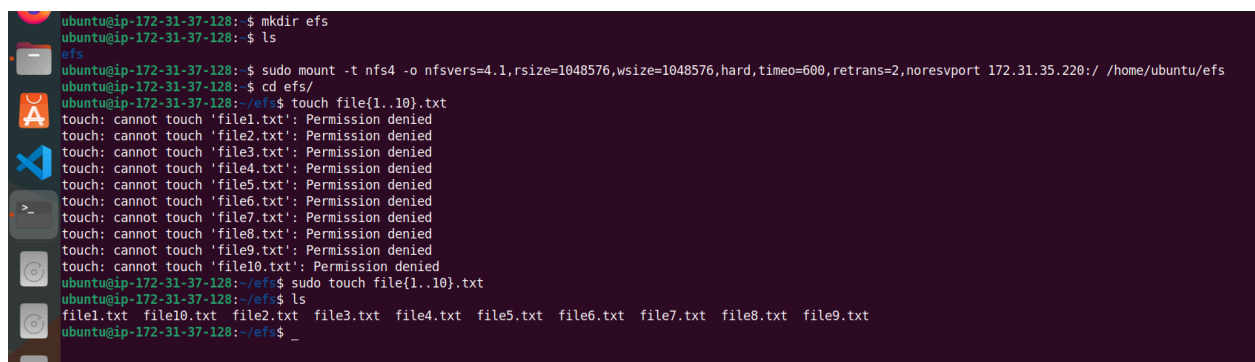
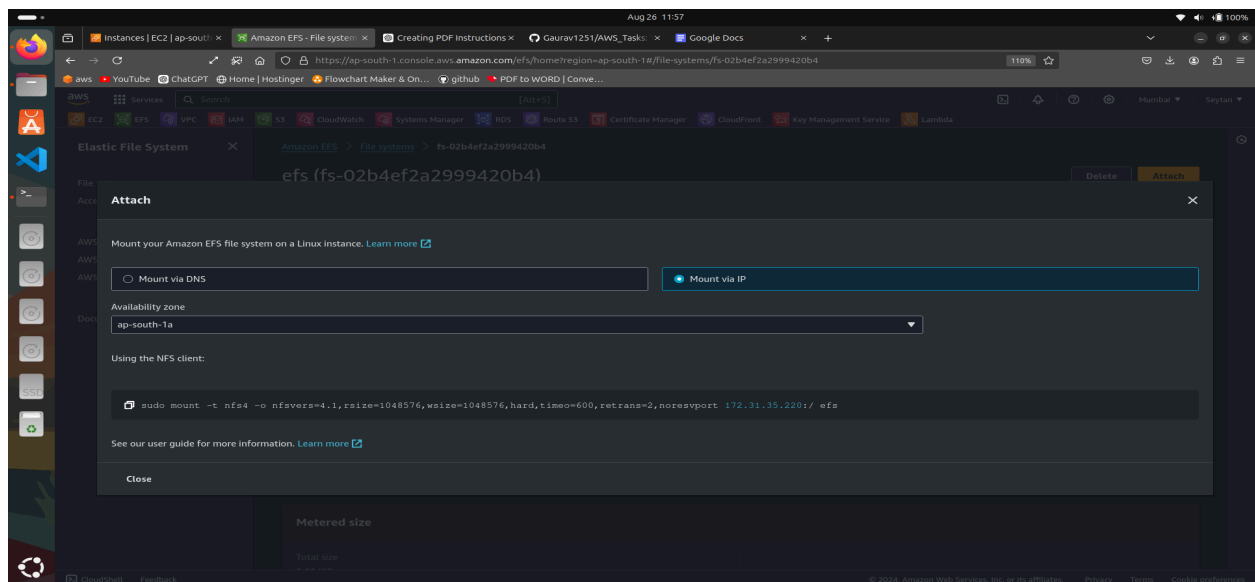
Command → **sudo mount -t nfs4 -o nfsvers=4.1**

<EFS-DNS-Name>:/ /path of efs dir on ec2 instance.

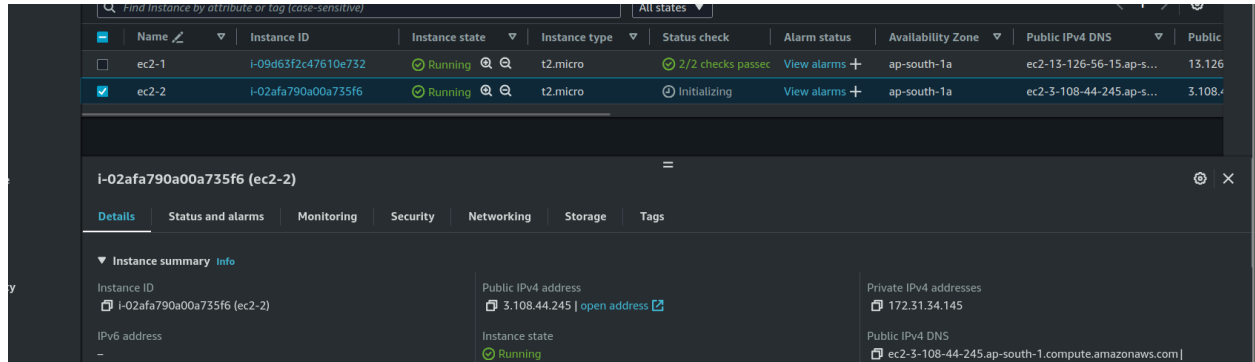
After this do cd efs then create some files in that efs directory.

cd efs

Touch file{1..10}.txt



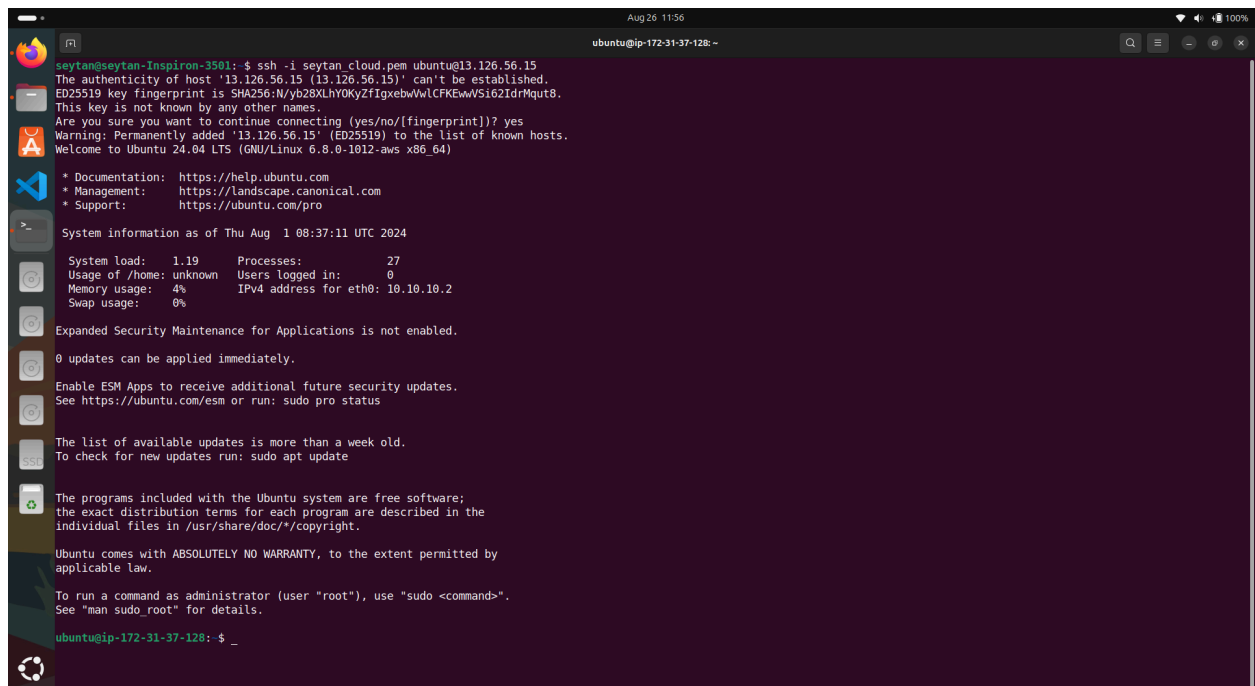
Step 5: Now Create another ec2 instance and gets its access over terminal.



The screenshot shows the AWS Management Console. At the top, there's a search bar and a filter for 'All states'. Below is a table of EC2 instances. The second instance, 'ec2-2' with ID 'i-02afa790a00a735f6', is selected. Below the table, the details for this instance are shown, including its state (Running), type (t2.micro), and network configuration.

| Name | Instance ID | Instance state | Instance type | Status check | Alarm status | Availability Zone | Public IPv4 DNS | Public |
|-------|---------------------|----------------|---------------|-------------------|---------------|-------------------|--------------------------|--------|
| ec2-1 | i-09d63f2c47610e732 | Running | t2.micro | 2/2 checks passed | View alarms + | ap-south-1a | ec2-13-126-56-15.ap-s... | 13.126 |
| ec2-2 | i-02afa790a00a735f6 | Running | t2.micro | Initializing | View alarms + | ap-south-1a | ec2-3-108-44-245.ap-s... | 3.108 |

| i-02afa790a00a735f6 (ec2-2) | | |
|--|---|---|
| Details | Status and alarms | Monitoring |
| Instance summary Instance ID: i-02afa790a00a735f6 (ec2-2) IPv6 address: - | Public IPv4 address: 3.108.44.245 open address Instance state: Running | Private IPv4 addresses: 172.31.34.145 Public IPv4 DNS: ec2-3-108-44-245.ap-south-1.compute.amazonaws.com |



The screenshot shows a terminal window with an SSH session. The user 'seytan@seytan-Inspiron-3501' has connected to 'ubuntu@13.126.56.15'. The terminal displays the Ubuntu 24.04 LTS welcome message, system information, and update status.

```
seytan@seytan-Inspiron-3501: $ ssh -i seytan.cloud.pem ubuntu@13.126.56.15
The authenticity of host '13.126.56.15 (13.126.56.15)' can't be established.
ED25519 key fingerprint is SHA256:N/yb28XLhY0KyZf1gxebwWlCFKEwWSi62IdrMqut8.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '13.126.56.15' (ED25519) to the list of known hosts.
Welcome to Ubuntu 24.04 LTS (GNU/Linux 6.8.0-1012-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:        https://ubuntu.com/pro

System information as of Thu Aug  1 08:37:11 UTC 2024

System load:  1.19   Processes:           27
Usage of /home: unknown   Users logged in:   0
Memory usage:  4%    IPv4 address for eth0: 10.10.10.2
Swap usage:    0%

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

The list of available updates is more than a week old.
To check for new updates run: sudo apt update

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-172-31-37-128: $
```

Step 6: Now here also install the nfs-common package.

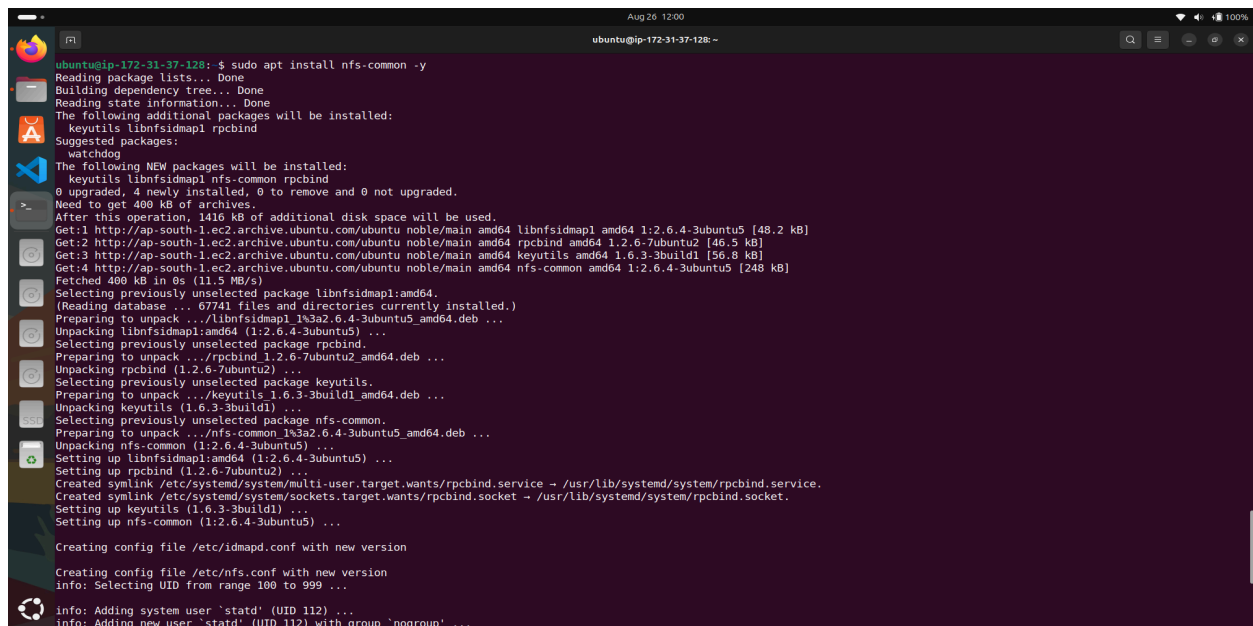
Make directory efs

mkdir efs

Now copy the mounting dns from efs via attach button for 2nd instance .

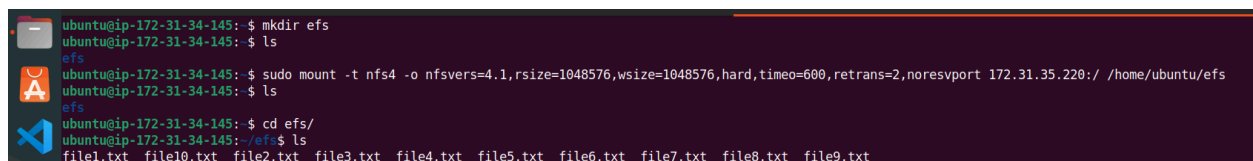
Command → **sudo mount -t nfs4 -o nfsvers=4.1**

<EFS-DNS-Name>:/ /path of efs dir on ec2 instance.



```
ubuntu@ip-172-31-37-128:~$ sudo apt install nfs-common -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  keyutils libnfsidmap1 rpcbind
Suggested packages:
  watchdog
The following NEW packages will be installed:
  keyutils libnfsidmap1 nfs-common rpcbind
0 upgraded, 4 newly installed, 0 to remove and 0 not upgraded.
Need to get 400 kB of archives.
After this operation, 1416 kB of additional disk space will be used.
Get:1 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 libnfsidmap1 amd64 1:2.6.4-3ubuntu5 [48.2 kB]
Get:2 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 rpcbind amd64 1.2.6-7ubuntu2 [46.5 kB]
Get:3 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 keyutils amd64 1.6.3-3build1 [56.8 kB]
Get:4 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 nfs-common amd64 1:2.6.4-3ubuntu5 [248 kB]
Fetched 400 kB in 9s (11.5 MB/s)
Selecting previously unselected package libnfsidmap1:amd64.
(Reading database ... 67741 files and directories currently installed.)
Preparing to unpack .../libnfsidmap1_1%3a2.6.4-3ubuntu5_amd64.deb ...
Unpacking libnfsidmap1:amd64 (1:2.6.4-3ubuntu5) ...
Selecting previously unselected package rpcbind.
Preparing to unpack .../rpcbind_1.2.6-7ubuntu2_amd64.deb ...
Unpacking rpcbind (1.2.6-7ubuntu2) ...
Selecting previously unselected package keyutils.
Preparing to unpack .../keyutils_1.6.3-3build1_amd64.deb ...
Unpacking keyutils (1.6.3-3build1) ...
Selecting previously unselected package nfs-common.
Preparing to unpack .../nfs-common_1%3a2.6.4-3ubuntu5_amd64.deb ...
Unpacking nfs-common (1:2.6.4-3ubuntu5) ...
Setting up rpcbind (1.2.6-7ubuntu2) ...
Created symlink /etc/systemd/system/multi-user.target.wants/rpcbind.service → /usr/lib/systemd/system/rpcbind.service.
Created symlink /etc/systemd/system/sockets.target.wants/rpcbind.socket → /usr/lib/systemd/system/rpcbind.socket.
Setting up keyutils (1.6.3-3build1) ...
Setting up nfs-common (1:2.6.4-3ubuntu5) ...
Creating config file /etc/idmapd.conf with new version
Creating config file /etc/nfs.conf with new version
info: Selecting UID from range 100 to 999 ...
info: Adding system user 'statd' (UID 112) ...
info: Adding new user 'statd' (UID 112) with group 'nogroup' ...
```

Step 7: Verify the files on ec2 2nd instance efs created by the ec2 1st instance.



```
ubuntu@ip-172-31-34-145:~$ mkdir efs
ubuntu@ip-172-31-34-145:~$ ls
efs
ubuntu@ip-172-31-34-145:~$ sudo mount -t nfs4 -o nfsvers=4.1,rsz=1048576,wsz=1048576,hard,timeo=600,retrans=2,noresvport 172.31.35.220:/ /home/ubuntu/efs
ubuntu@ip-172-31-34-145:~$ ls
efs
ubuntu@ip-172-31-34-145:~$ cd efs/
ubuntu@ip-172-31-34-145:~/efs$ ls
file1.txt file10.txt file2.txt file3.txt file4.txt file5.txt file6.txt file7.txt file8.txt file9.txt
```

Conclusion: By successfully setting up an EFS and attaching it to multiple EC2 instances, you ensure seamless data sharing across instances. This task demonstrates the ability to create a scalable, shared storage solution in AWS, which is essential for managing distributed applications and ensuring consistency of data across different compute environments.