Storage Assignment-EFS

Amazon Elastic File System (Amazon EFS) provides serverless, fully elastic file storage so that you can share file data without provisioning or managing storage capacity and performance. Amazon EFS is built to scale on demand to petabytes without disrupting applications, growing and shrinking automatically as you add and remove files. Because Amazon EFS has a simple web services interface, you can create and configure file systems quickly and easily. The service manages all the file storage infrastructure for you, meaning that you can avoid the complexity of deploying, patching, and maintaining complex file system configurations.

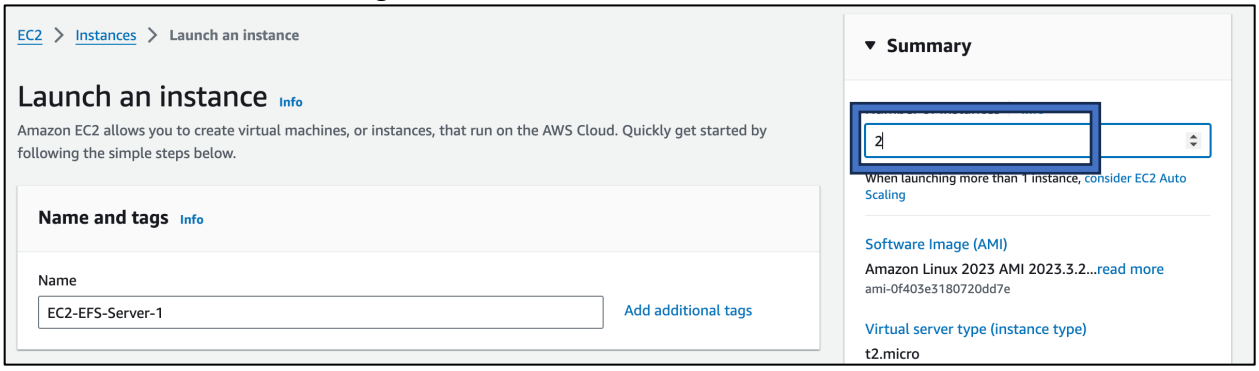
Amazon EFS supports the Network File System version 4 (NFSv4.1 and NFSv4.0) protocol, so the applications and tools that you use today work seamlessly with Amazon EFS. Amazon EFS is accessible across most types of Amazon Web Services compute instances, including Amazon EC2, Amazon ECS, Amazon EKS, AWS Lambda, and AWS Fargate.

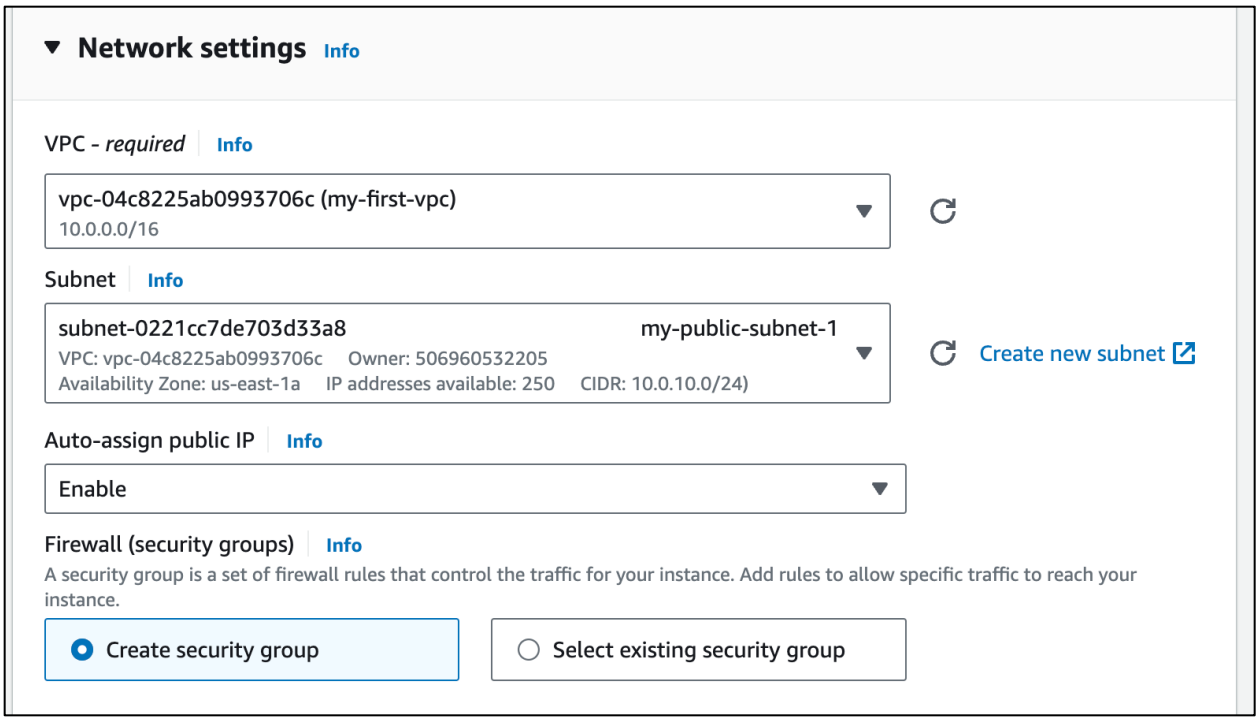
Continue reading if you are interested to learn more about EFS. Click here.

Let's see what EFS is and create an EFS (just like EBS) along with the EC2.

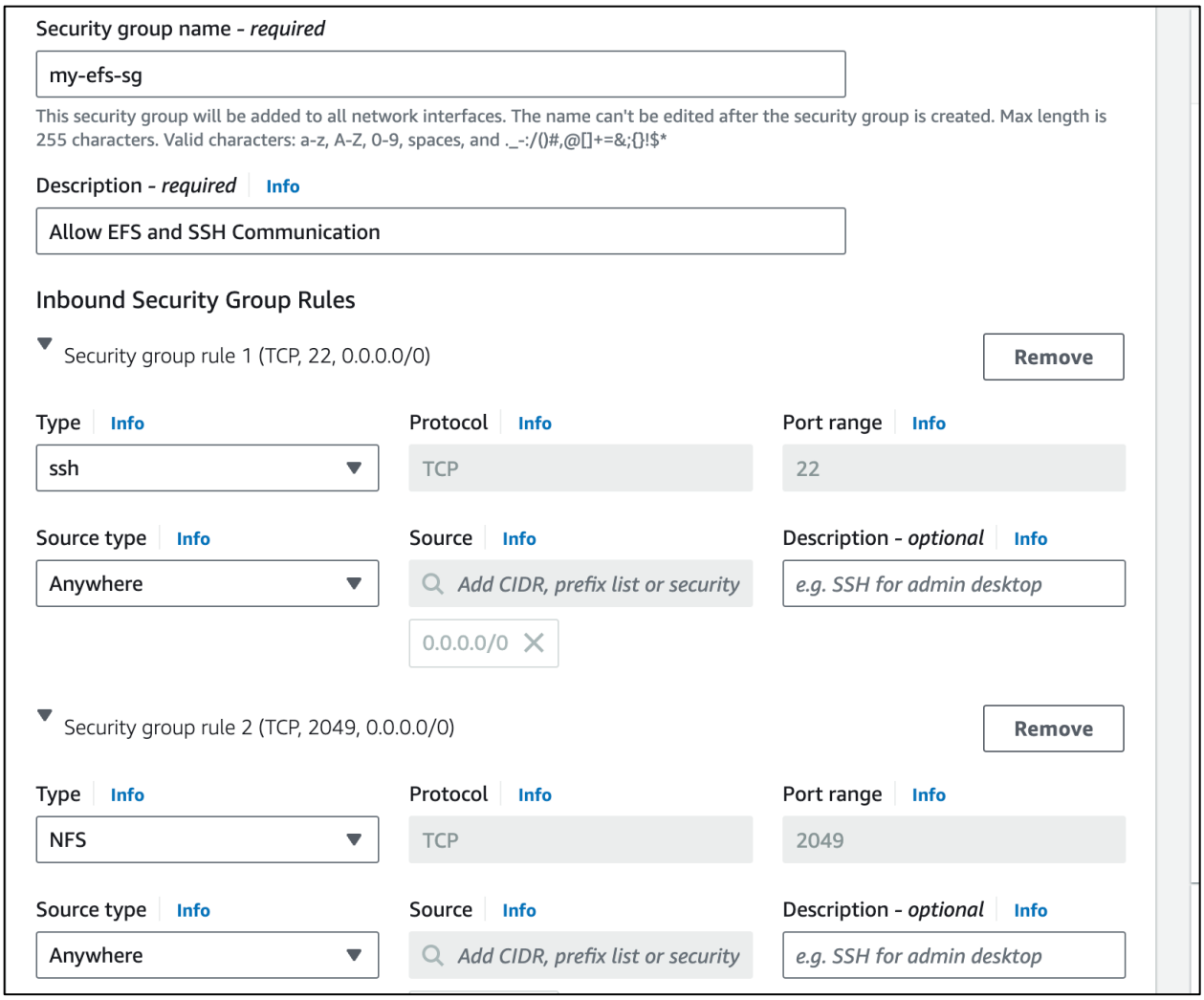
a) We will create **two** ec2 servers with the below configurations. Most of them are same except few.

Observer that we are creating two servers at a time.

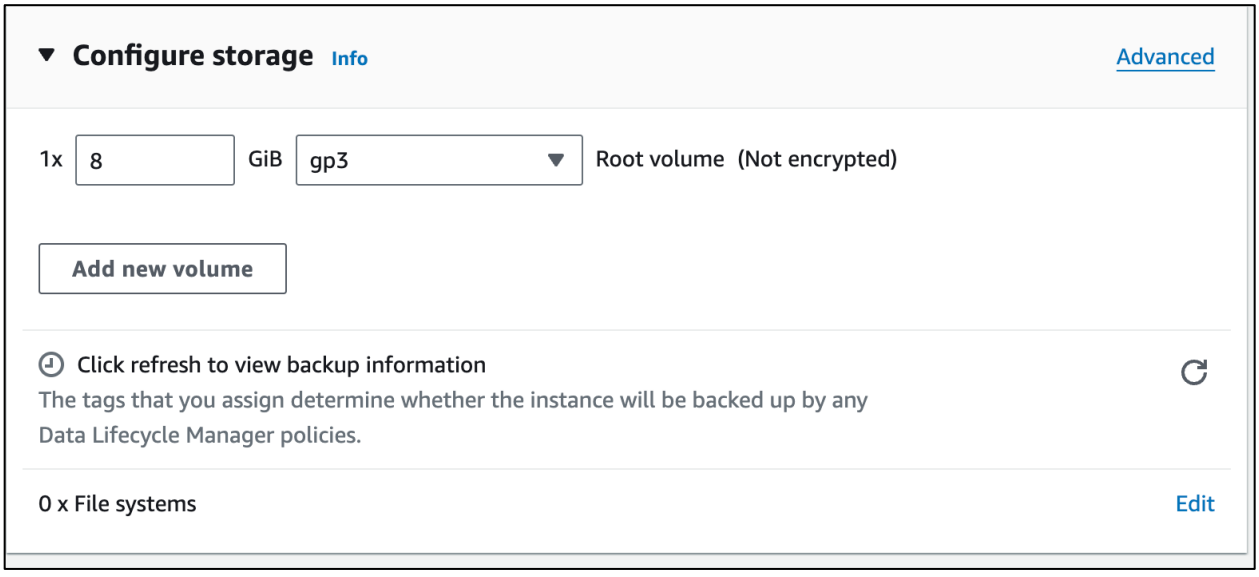




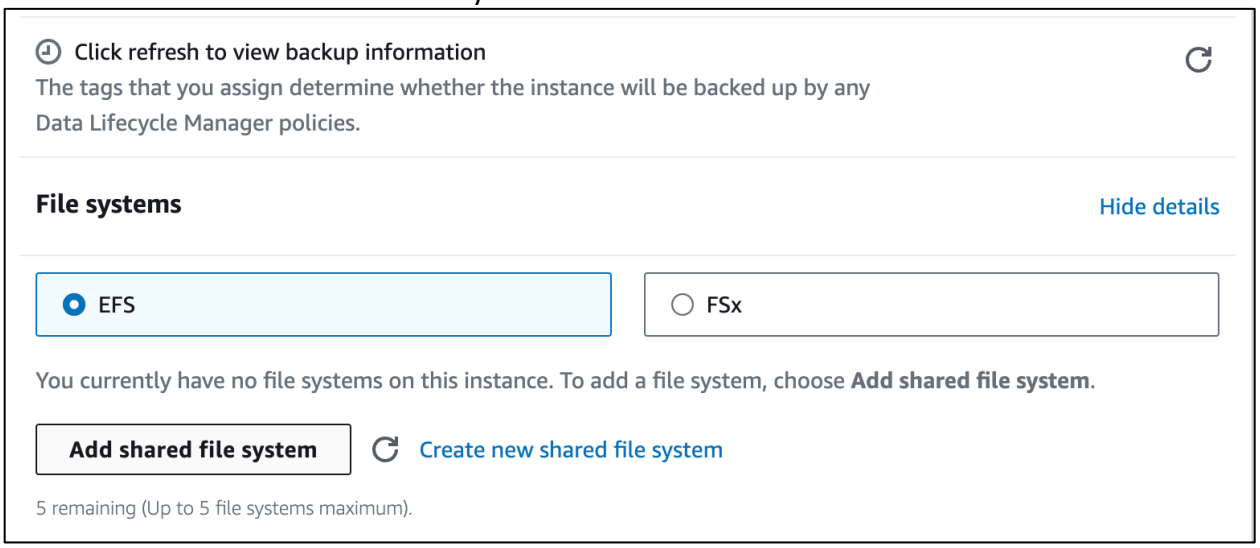
See that We have added the NFS type in the second security group rule. This allows communication from NFS to EC2.

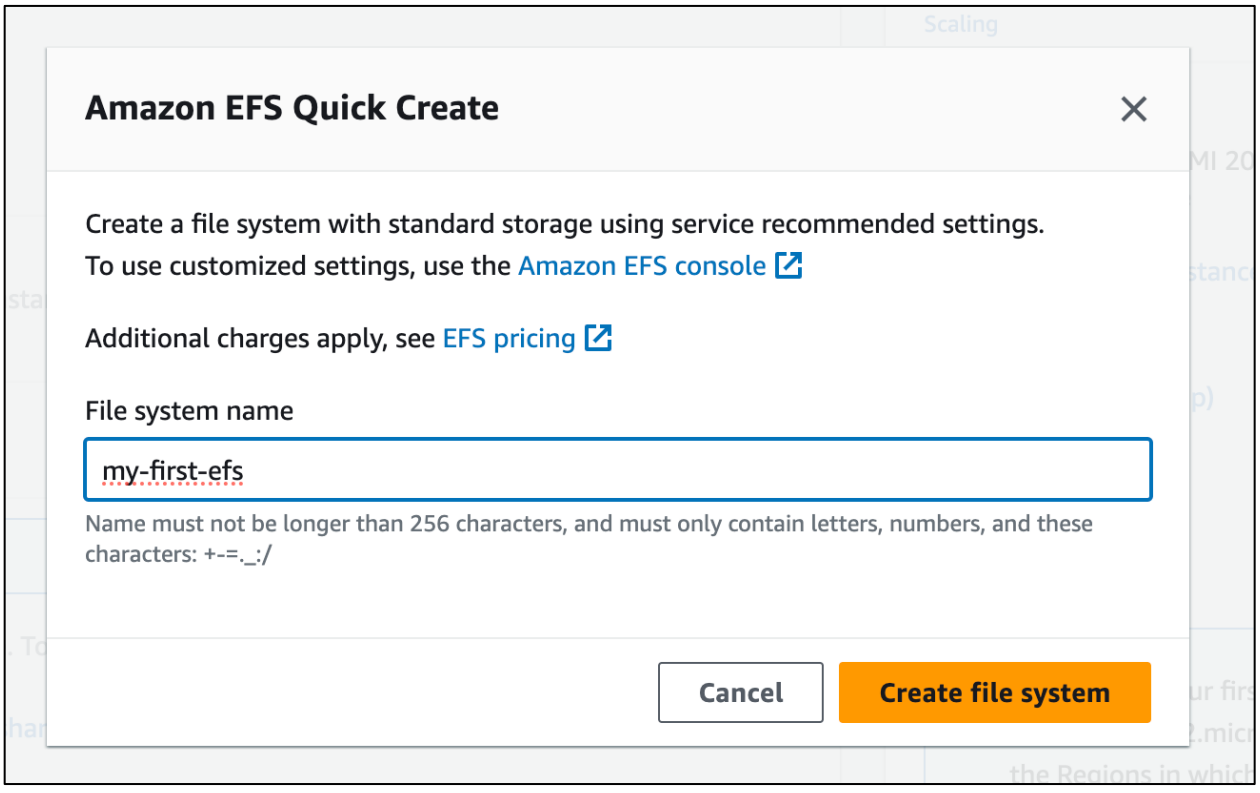


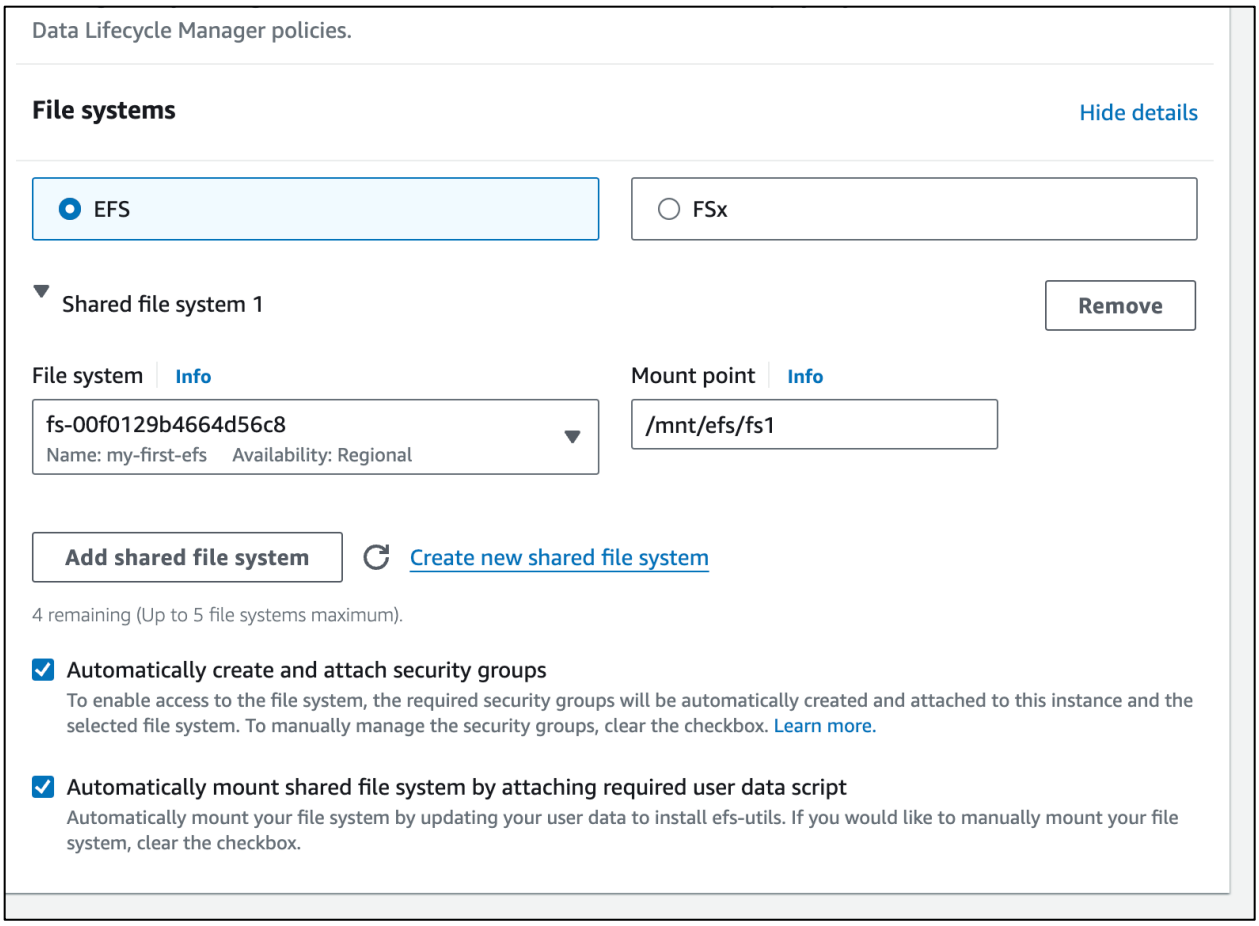
Click on the Edit Button below.



Click on the Create new shared file system.

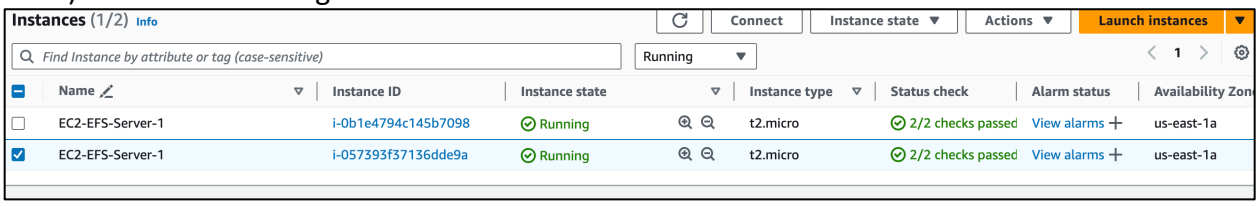




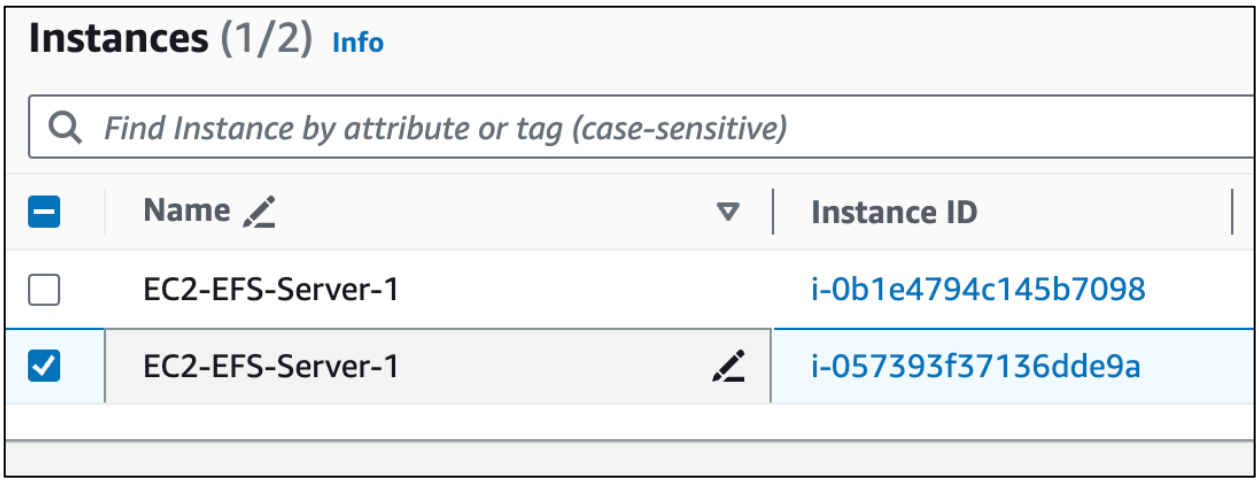


Once the file system is created, launch the instances.

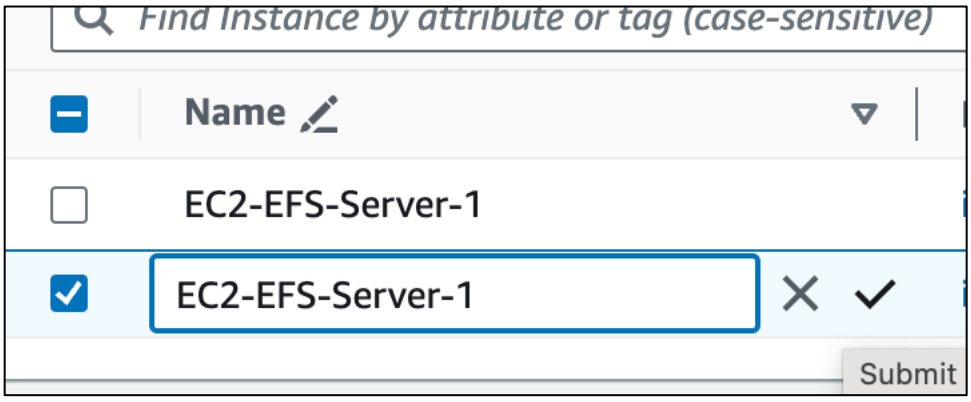
b) We have to change the name of the second server for identification.

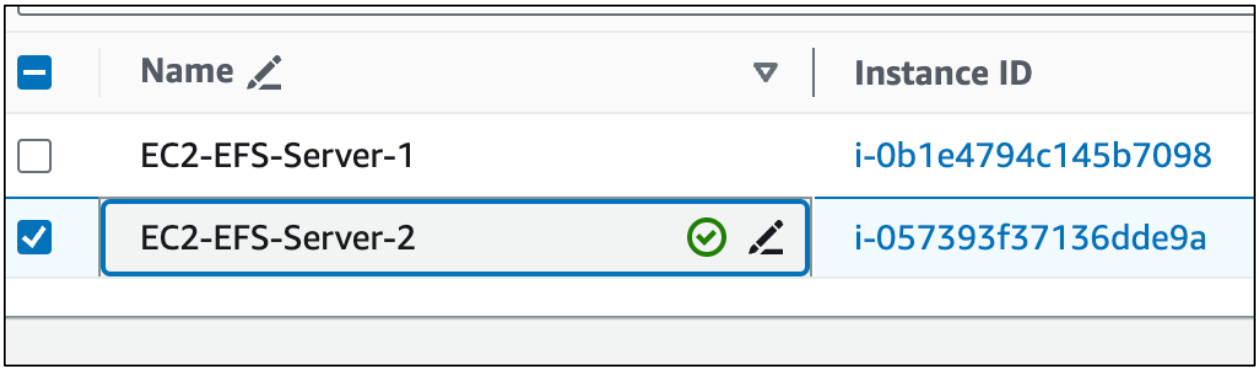


Hover your mouse exactly as shown(left to instance-id) to see the pencil icon. Click on that and

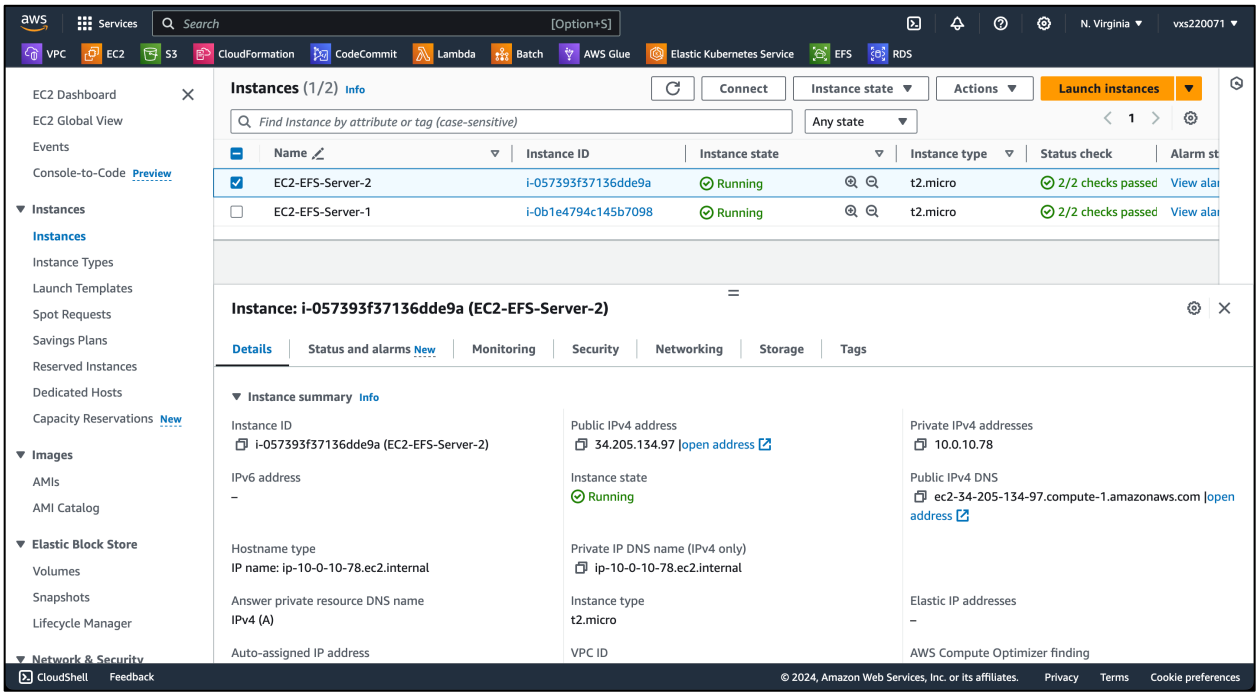


You will see the option to change the name. Change it to server-2.





Note: After the successful creation of two servers, share the screenshot of each server. The below screenshot can be taken as reference.



c) Login to the server, we have learned how to login to the first ec2 server in the EBS assignment.

After successful login, run the below command as shown. You will see that the EFS is attached and mounted to the directory /mnt/efs/fs2. You can store any amount of data in this folder as EFS virtually provides unlimited storage.

The stored data can be viewed/used in our second ec2 server. Let's test and see how this works.

```
(base) venkatgirisasanapuri@Venkatgiris-Air Downloads % ssh -i "devops_project.pem" ec2-user@ec2-3-231-160-193.compute-
1.amazonaws.com
The authenticity of host 'ec2-3-231-160-193.compute-1.amazonaws.com (3.231.160.193)' can't be established.
ED25519 key fingerprint is SHA256:e6aq197HXWL/7sohr3THihnRsALnHBo84PI+94gI8ws.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'ec2-3-231-160-193.compute-1.amazonaws.com' (ED25519) to the list of known hosts.
   ,     #_
   ~\_  ####_        Amazon Linux 2023
  ~~  \_#####\
  ~~     \###|
  ~~       \#/ ___   https://aws.amazon.com/linux/amazon-linux-2023
   ~~       V~' '->
    ~~~         /
      ~~._.   _/
         _/ _/
       _/m/'
[ec2-user@ip-10-0-10-151 ~]$ 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  1.6G  6.5G  20% /
tmpfs           475M     0  475M   0% /tmp
/dev/xvda128     10M  1.3M  8.7M  13% /boot/efi
127.0.0.1:/     8.0E     0  8.0E   0% /mnt/efs/fs1
tmpfs            95M     0   95M   0% /run/user/1000
[ec2-user@ip-10-0-10-151 ~]$
```

d) I am going to create a test file in our server 1. Run the below commands.

sudo su - (This command allows you to login as a super user in ec2 server for added permissions.)

cat > testfile (This command is used to create a test file and allow us to add some text. After adding your text, use control+d to successfully save it.)

cat testfile (This command is used to view the content of the testfile.)

```
[ec2-user@ip-10-0-10-151 ~]$ sudo su -
[root@ip-10-0-10-151 ~]# cd /mnt/efs/fs1/
[root@ip-10-0-10-151 fs1]# cat > testfile
This is Cloud Computing Class.
EFS is a great application isn't it?
[root@ip-10-0-10-151 fs1]# cat testfile
This is Cloud Computing Class.
EFS is a great application isn't it?
[root@ip-10-0-10-151 fs1]#
```

Note: This is a deliverable. The above screenshot is of the first server.

e) Now, let's login to the second server and see if the same test file is there or not. Open a new tab and login to the second server. (same process)

Run the commands as shown in the below screenshot.

Here,

ls (is to list files in the directory)

```
[ec2-user@ip-10-0-10-41 ~]$ 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  1.6G  6.5G  20% /
tmpfs           475M     0  475M   0% /tmp
/dev/xvda128     10M  1.3M  8.7M  13% /boot/efi
127.0.0.1:/     8.0E     0  8.0E   0% /mnt/efs/fs1
tmpfs            95M     0   95M   0% /run/user/1000
[ec2-user@ip-10-0-10-41 ~]$ cd /mnt/efs/fs1/
[ec2-user@ip-10-0-10-41 fs1]$ ls
testfile
[ec2-user@ip-10-0-10-41 fs1]$ cat testfile
This is Cloud Computing Class.
EFS is a great application isn't it?
[ec2-user@ip-10-0-10-41 fs1]$
```

Note: This is a deliverable. The above screenshot is of the second server.

Observe that we have not created any file or have saved any data in this second server.

We were still able to see the data. This is the Use of file systems. (Ex: university labs work the similar way)

Important:

Once the lab is finished, make sure to terminate the two EC2 instances and the EFS.
Search for EFS in the AWS console and delete it.