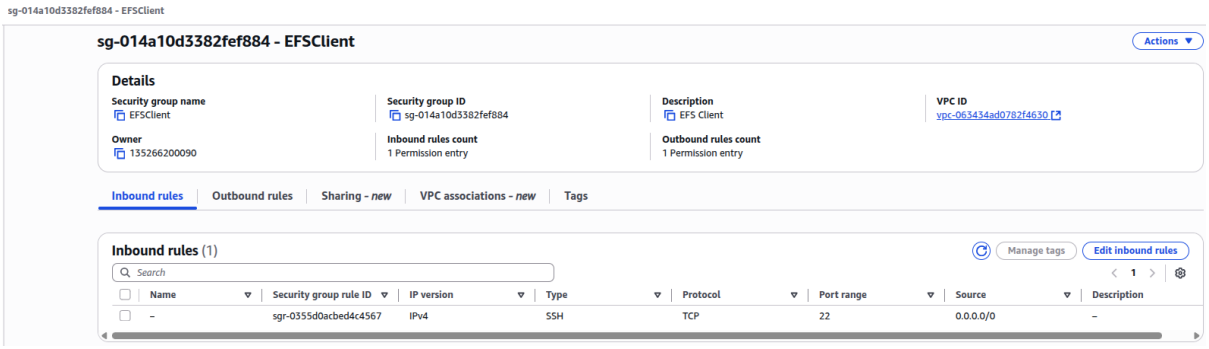
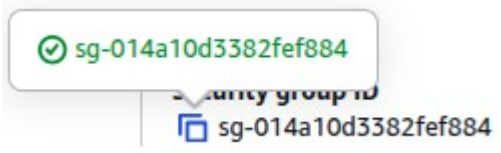
Kaustubh Gupta
A029 BTech IT A1

Lab-4. B (Module 5):
Introducing Amazon Elastic File System.

Task1 : Creating a security group to access your EFS file system

View the security group and copy EFD Client Security group ID to clipboard





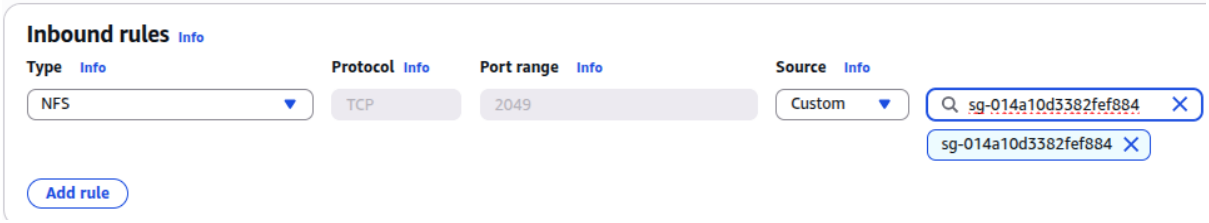
Now create a new security group with below specifications

Security group name: `EFS Mount Target`

Description: `Inbound NFS access from EFS clients`

VPC: *Lab VPC*

Also add an inbound rule to the target



Security group is created successfully

Task2: Creating an EFS file system

In customize screen of new EFS file system

Step 1:

Kaustubh Gupta
A029 BTech IT A1

Uncheck ☐ Enable Automatic backups.

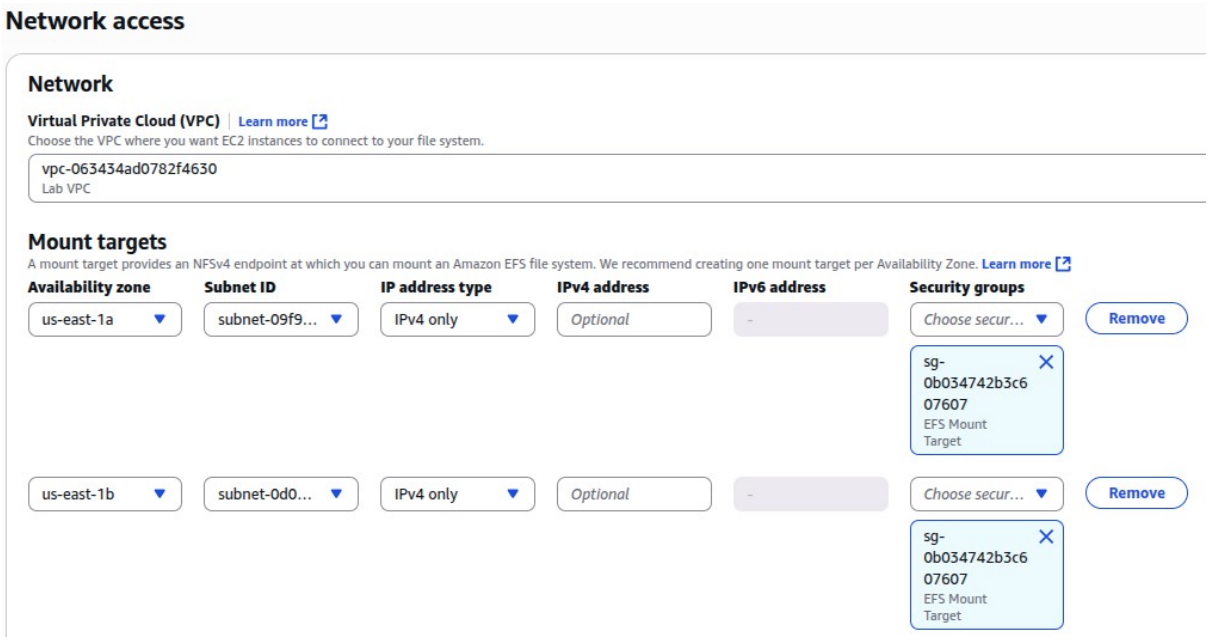
Lifecycle management:

- for **Transition into IA** Select *None*.

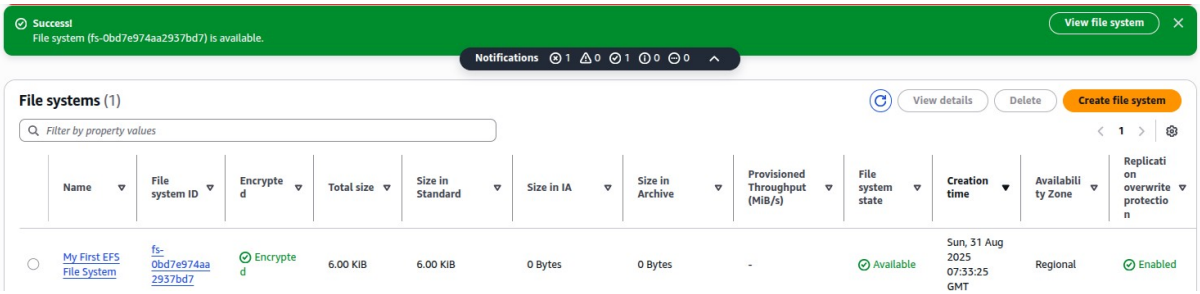
In the **Tags** *optional* section, configure:

- **Key:** `Name`
- **Value:** `My First EFS File System`

Step 2:

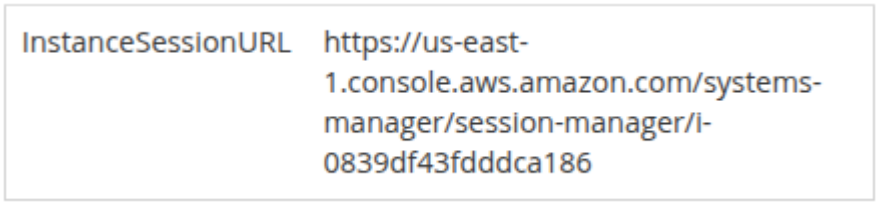


Now choose create



Task3: Connecting to your EC2 instance

Click on ℹ AWS Details to reveal our Instance session URL. Open it



Terminal windows will be opened on the new tab. You are now be connected to the instance

Task4: Creating a new directory and mounting the EFS file system

Kaustubh Gupta
A029 BTech IT A1

Run below command in terminal session to install required utilities

```
sudo su -l ec2-user
sudo yum install -y amazon-efs-utils
```

```
sh-5.2$ sudo su -l ec2-user
sudo yum install -y amazon-efs-utils
[ec2-user@ip-10-0-1-23 ~]$
```

Create a new directory efs. This will be our mount point

```
[ec2-user@ip-10-0-1-23 ~]$ sudo mkdir efs
[ec2-user@ip-10-0-1-23 ~]$
```

We need to attach First EFS file system with NFS client

Using the NFS client:

```
sudo mount -t nfs4 -o nfsvers=4.1,rsize=1048576,wsize=1048576,hard,timeo=600,retrans=2,noresvport fs-0bd7e974aa2937bd7.efs.us-east-1.amazonaws.com:/ efs
```

```
[ec2-user@ip-10-0-1-23 ~]$ sudo mount -t nfs4 -o nfsvers=4.1,rsize=1048576,wsize=1048576,hard,timeo=600,retrans=2,noresvport fs-0bd7e974aa2937bd7.efs.us-east-1.amazonaws.com:/ efs
[ec2-user@ip-10-0-1-23 ~]$
```

Now get Info about Disk Space

```
[ec2-user@ip-10-0-1-23 ~]$ sudo df -hT
Filesystem                                      Type      Size  Used Avail Use% Mounted on
devtmpfs                                        devtmpfs  4.0M     0  4.0M   0% /dev
tmpfs                                           tmpfs     475M     0  475M   0% /dev/shm
tmpfs                                           tmpfs     190M  436K  190M   1% /run
/dev/xvda1                                      xfs       8.0G  1.6G  6.4G  20% /
tmpfs                                           tmpfs     475M     0  475M   0% /tmp
/dev/xvda128                                    vfat       10M  1.3M  8.7M  13% /boot/efi
tmpfs                                           tmpfs      95M     0   95M   0% /run/user/0
fs-0bd7e974aa2937bd7.efs.us-east-1.amazonaws.com:/ nfs4      8.0E     0  8.0E   0% /home/ec2-user/efs
```

Task5: Examining the performance behavior of your new EFS file system

Examine write performance characteristics by below command

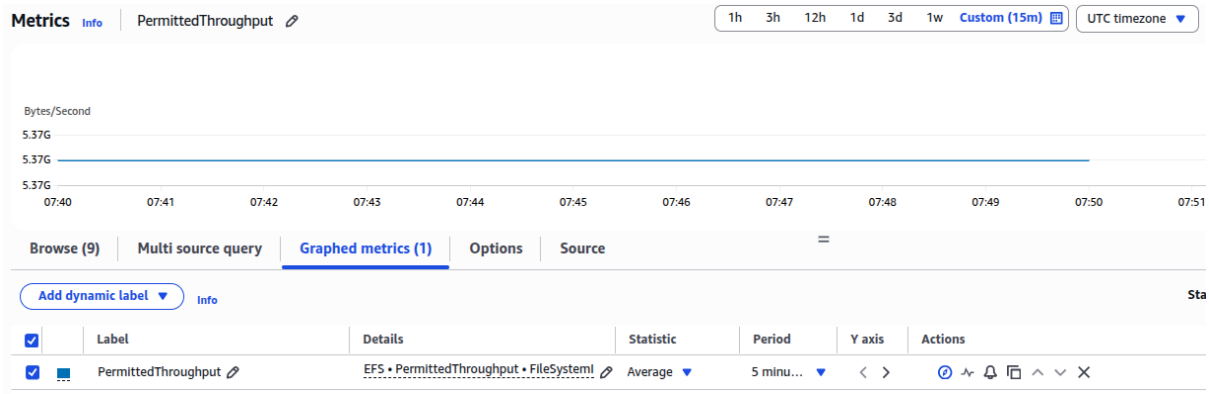
```
sudo fio --name=fio-efs --filesize=10G --filename=./efs/fio-efs-test.img --bs=1M --
nrfiles=1 --direct=1 --sync=0 --rw=write --iodepth=200 --ioengine=libaio
```

```
[ec2-user@ip-10-0-1-23 ~]$ sudo fio --name=fio-efs --filesize=10G --filename=./efs/fio-efs-test.img --bs=1M --nrfiles=1 --direct=1 --sync=0 --rw=write --iodepth=200 --ioengine=libaio
fio-efs: (g=0): rw=write, bs=(R) 1024KiB-1024KiB, (W) 1024KiB-1024KiB, (T) 1024KiB-1024KiB, ioengine=libaio, iodepth=200
fio-3.32
Starting 1 process
fio-efs: Laying out IO file (1 file / 10240MiB)
Jobs: 1 (f=1): [W(1)][98.8%][w=23.0MiB/s][w=23 IOPS][eta 00m:01s]
fio-efs: (groupid=0, jobs=1): err= 0: pid=27588: Sun Aug 31 07:52:38 2025
  write: IOPS=121, BW=121MiB/s (127MB/s)(10.0GiB/84552msec); 0 zone resets
    slat (usec): min=64, max=587, avg=116.10, stdev=33.92
    clat (msec): min=39, max=3290, avg=1650.70, stdev=192.88
     lat (msec): min=40, max=3290, avg=1650.82, stdev=192.88
    clat percentiles (msec):
     |  1.00th=[  776],  5.00th=[ 1620], 10.00th=[ 1636], 20.00th=[ 1636],
     | 30.00th=[ 1636], 40.00th=[ 1653], 50.00th=[ 1653], 60.00th=[ 1653],
     | 70.00th=[ 1653], 80.00th=[ 1670], 90.00th=[ 1670], 95.00th=[ 1687],
     | 99.00th=[ 2433], 99.50th=[ 2869], 99.90th=[ 3205], 99.95th=[ 3239],
     | 99.99th=[ 3272]
   bw (  KiB/s): min=96256, max=135168, per=99.89%, avg=123879.33, stdev=3476.58, samples=166
   iops        : min=   94, max=  132, avg=120.98, stdev= 3.40, samples=166
  lat (msec)   : 50=0.01%, 100=0.09%, 250=0.27%, 500=0.29%, 750=0.31%
  lat (msec)   : 1000=0.29%, 2000=97.22%, >=2000=1.51%
  cpu          : usr=0.81%, sys=0.73%, ctx=12580, majf=0, minf=9
  IO depths    : 1=0.1%, 2=0.1%, 4=0.1%, 8=0.1%, 16=0.2%, 32=0.3%, >=64=99.4%
     submit    : 0=0.0%, 4=100.0%, 8=0.0%, 16=0.0%, 32=0.0%, 64=0.0%, >=64=0.0%
     complete  : 0=0.0%, 4=100.0%, 8=0.0%, 16=0.0%, 32=0.0%, 64=0.0%, >=64=0.1%
     issued rwts: total=0,10240,0,0 short=0,0,0,0 dropped=0,0,0,0
     latency   : target=0, window=0, percentile=100.00%, depth=200

Run status group 0 (all jobs):
  WRITE: bw=121MiB/s (127MB/s), 121MiB/s-121MiB/s (127MB/s-127MB/s), io=10.0GiB (10.7GB), run=84552-84552msec
[ec2-user@ip-10-0-1-23 ~]$
```

Monitor Permitted Throughput value

Kaustubh Gupta
A029 BTech IT A1



Lab Completed

Total score	15/15
[Task 1] Security Group created	5/5
[Task 2] EFS file system created	5/5
[Task 5] Flexible IO was run	5/5