Project 7:Introducing Amazon Elastic File System (Amazon EFS)

AWS Elastic File System.

Group 2

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Access and Configure AWS CLI

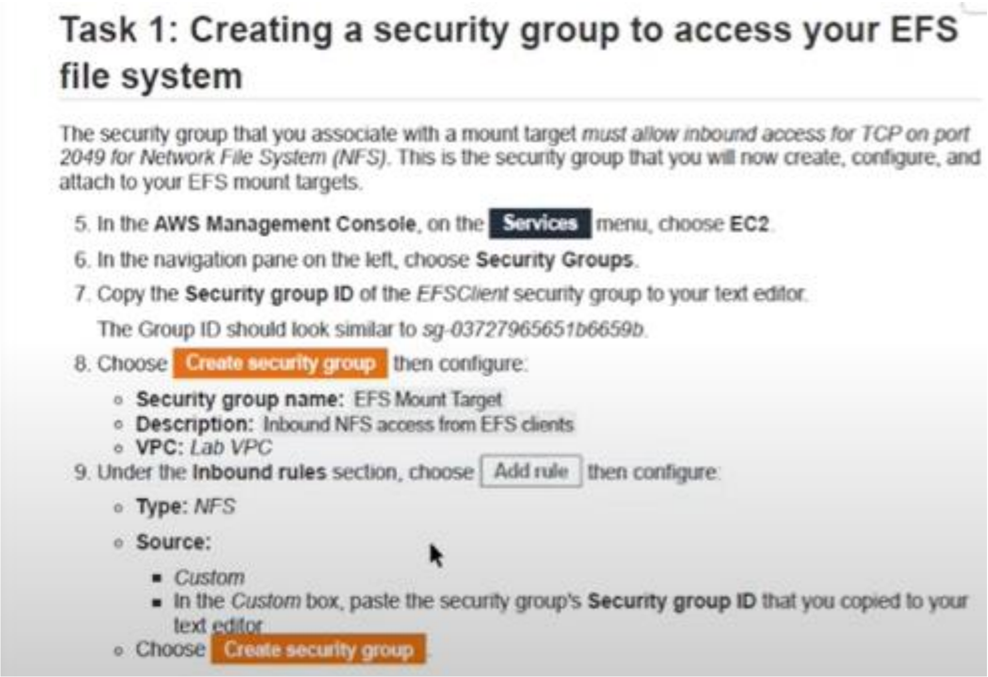
1. Open the Lab Environment o Start your lab session as directed.

2. Run the Lab o Initiate the lab session by clicking the "Run Lab" button.

3. Access AWS CLI

- Navigate to the AWS Details panel.
- Locate the AWS CLI section and click "Show" to reveal the CLI credentials.

Task 1: Create a Security Group for EFS Access



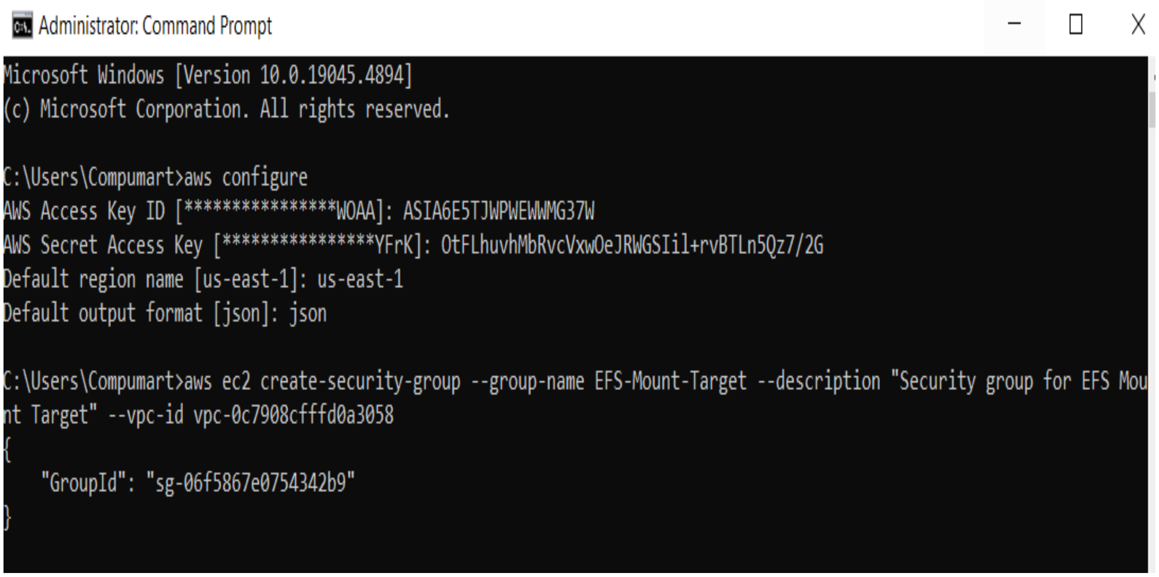
Task 1: Creating a security group to access your EFS file system

The security group that you associate with a mount target *must allow inbound access for TCP on port 2049 for Network File System (NFS)*. This is the security group that you will now create, configure, and attach to your EFS mount targets.

5. In the **AWS Management Console**, on the **Services** menu, choose **EC2**.
6. In the navigation pane on the left, choose **Security Groups**.
7. Copy the **Security group ID** of the *EFSClient* security group to your text editor.

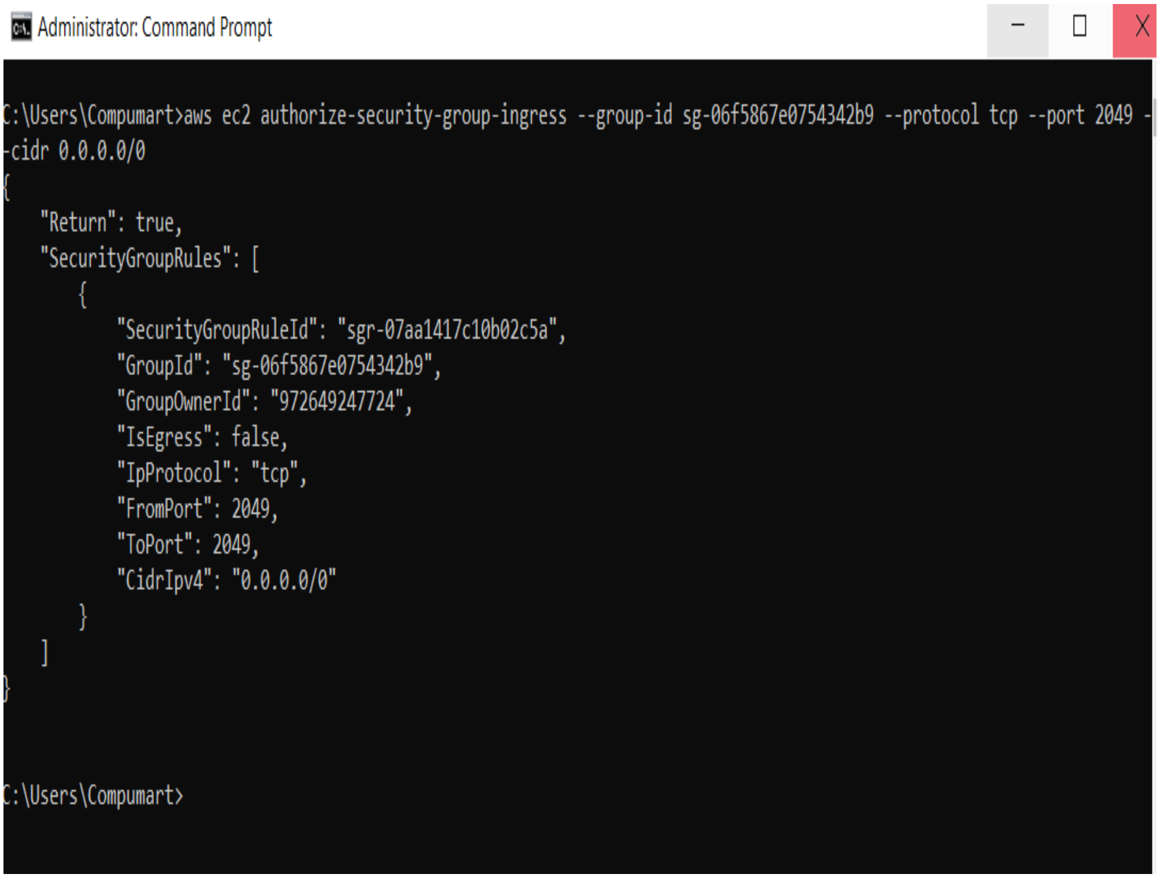
   The Group ID should look similar to *sg-03727965651b6659b*.
8. Choose **Create security group** then configure:
   - **Security group name:** EFS Mount Target
   - **Description:** Inbound NFS access from EFS clients
   - **VPC:** *Lab VPC*
9. Under the **Inbound rules** section, choose **Add rule** then configure:
   - **Type:** *NFS*
   - **Source:**
     - *Custom*
     - In the *Custom* box, paste the security group's **Security group ID** that you copied to your text editor
   - Choose **Create security group**

Task 1.1: Creating a Security Group using AWS CLI



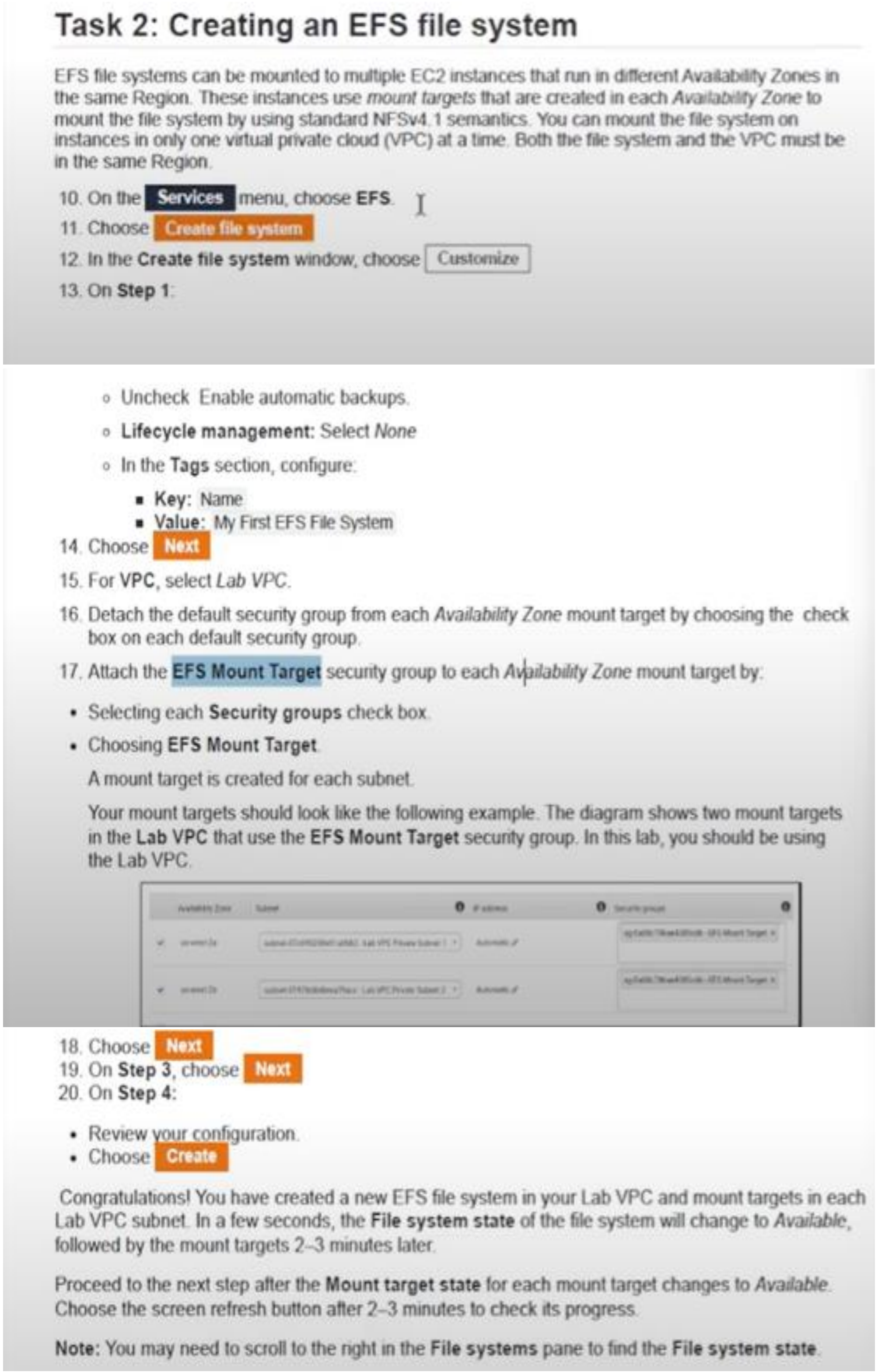
```
Microsoft Windows [Version 10.0.19045.4894]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Compumart>aws configure
AWS Access Key ID [****************WOAA]: ASIA6E5TJWPWEWWMG37W
AWS Secret Access Key [****************YFrK]: OtFLhuvhMbRvcVxwOeJRWGSIil+rvBTLn5Qz7/2G
Default region name [us-east-1]: us-east-1
Default output format [json]: json

C:\Users\Compumart>aws ec2 create-security-group --group-name EFS-Mount-Target --description "Security group for EFS Mou
nt Target" --vpc-id vpc-0c7908cfffd0a3058
{
    "GroupId": "sg-06f5867e0754342b9"
}
```

Task 1.2: Adding Inbound Rules to Allow Access via NFS



```
C:\Users\Compumart>aws ec2 authorize-security-group-ingress --group-id sg-06f5867e0754342b9 --protocol tcp --port 2049 -
-cidr 0.0.0.0/0
{
    "Return": true,
    "SecurityGroupRules": [
        {
            "SecurityGroupRuleId": "sgr-07aa1417c10b02c5a",
            "GroupId": "sg-06f5867e0754342b9",
            "GroupOwnerId": "972649247724",
            "IsEgress": false,
            "IpProtocol": "tcp",
            "FromPort": 2049,
            "ToPort": 2049,
            "CidrIpv4": "0.0.0.0/0"
        }
    ]
}


C:\Users\Compumart>
```

Task 2: Creating an Amazon EFS File System



Task 2: Creating an EFS file system

EFS file systems can be mounted to multiple EC2 instances that run in different Availability Zones in the same Region. These instances use *mount targets* that are created in each *Availability Zone* to mount the file system by using standard NFSv4.1 semantics. You can mount the file system on instances in only one virtual private cloud (VPC) at a time. Both the file system and the VPC must be in the same Region.

10. On the **Services** menu, choose **EFS**.
11. Choose **Create file system**
12. In the **Create file system** window, choose **Customize**
13. On **Step 1**:
    - Uncheck Enable automatic backups.
    - **Lifecycle management:** Select *None*
    - In the **Tags** section, configure:
        - **Key:** Name
        - **Value:** My First EFS File System
14. Choose **Next**
15. For **VPC**, select *Lab VPC*.
16. Detach the default security group from each *Availability Zone* mount target by choosing the check box on each default security group.
17. Attach the **EFS Mount Target** security group to each *Availability Zone* mount target by:

- Selecting each **Security groups** check box.
- Choosing **EFS Mount Target**.

A mount target is created for each subnet.

Your mount targets should look like the following example. The diagram shows two mount targets in the **Lab VPC** that use the **EFS Mount Target** security group. In this lab, you should be using the Lab VPC.

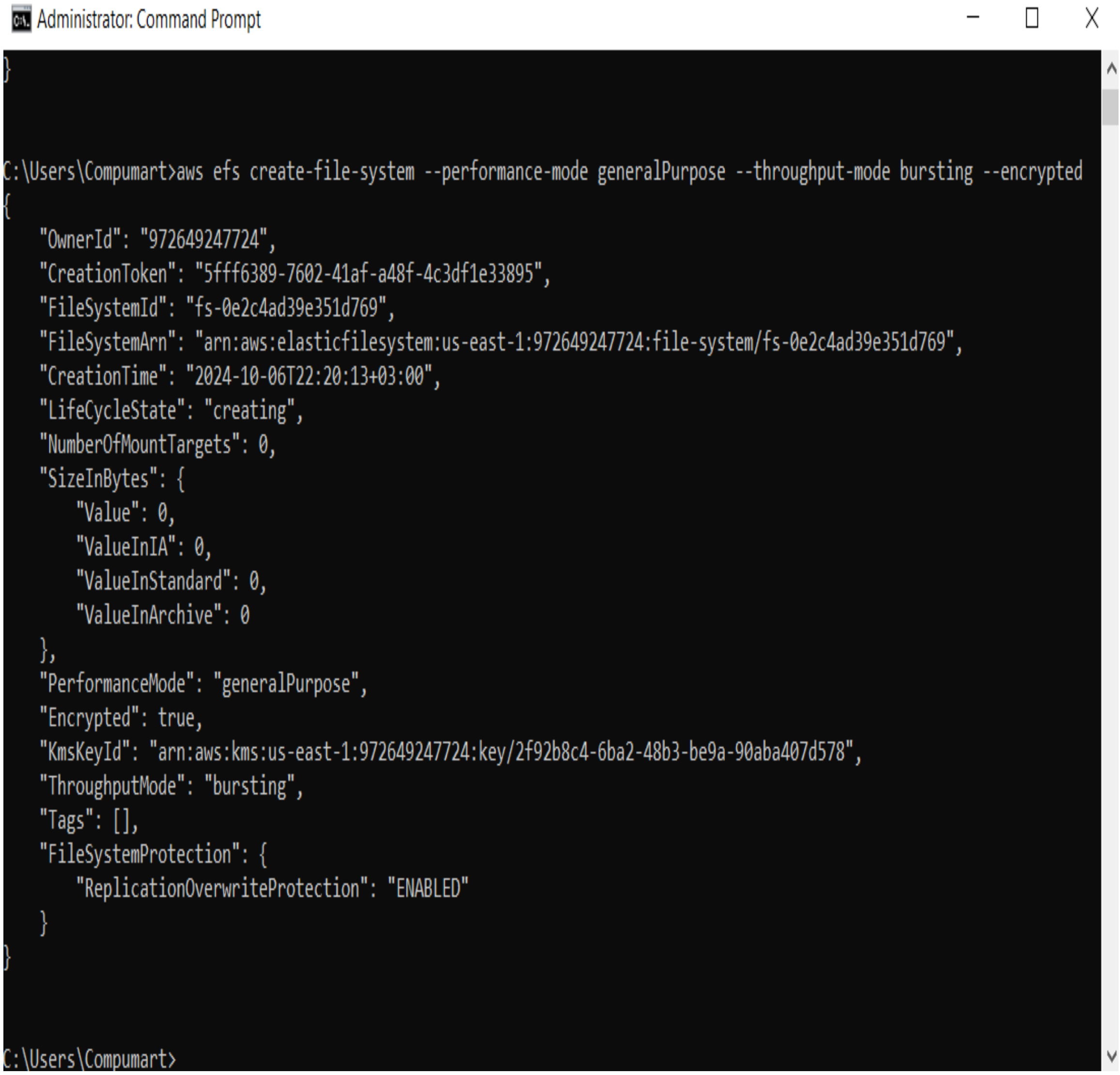
18. Choose **Next**
19. On **Step 3**, choose **Next**
20. On **Step 4:**

- Review your configuration.
- Choose **Create**

Congratulations! You have created a new EFS file system in your Lab VPC and mount targets in each Lab VPC subnet. In a few seconds, the **File system state** of the file system will change to *Available*, followed by the mount targets 2–3 minutes later.

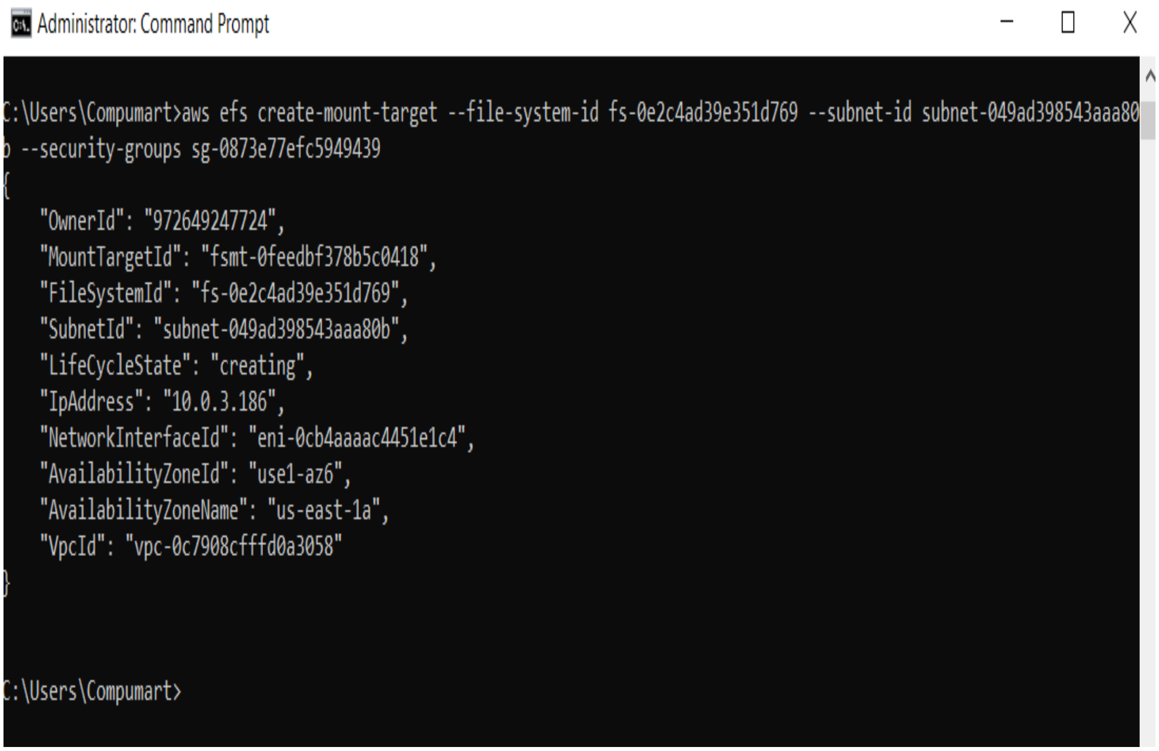
Proceed to the next step after the **Mount target state** for each mount target changes to *Available*. Choose the screen refresh button after 2–3 minutes to check its progress.

Note: You may need to scroll to the right in the **File systems** pane to find the **File system state**.



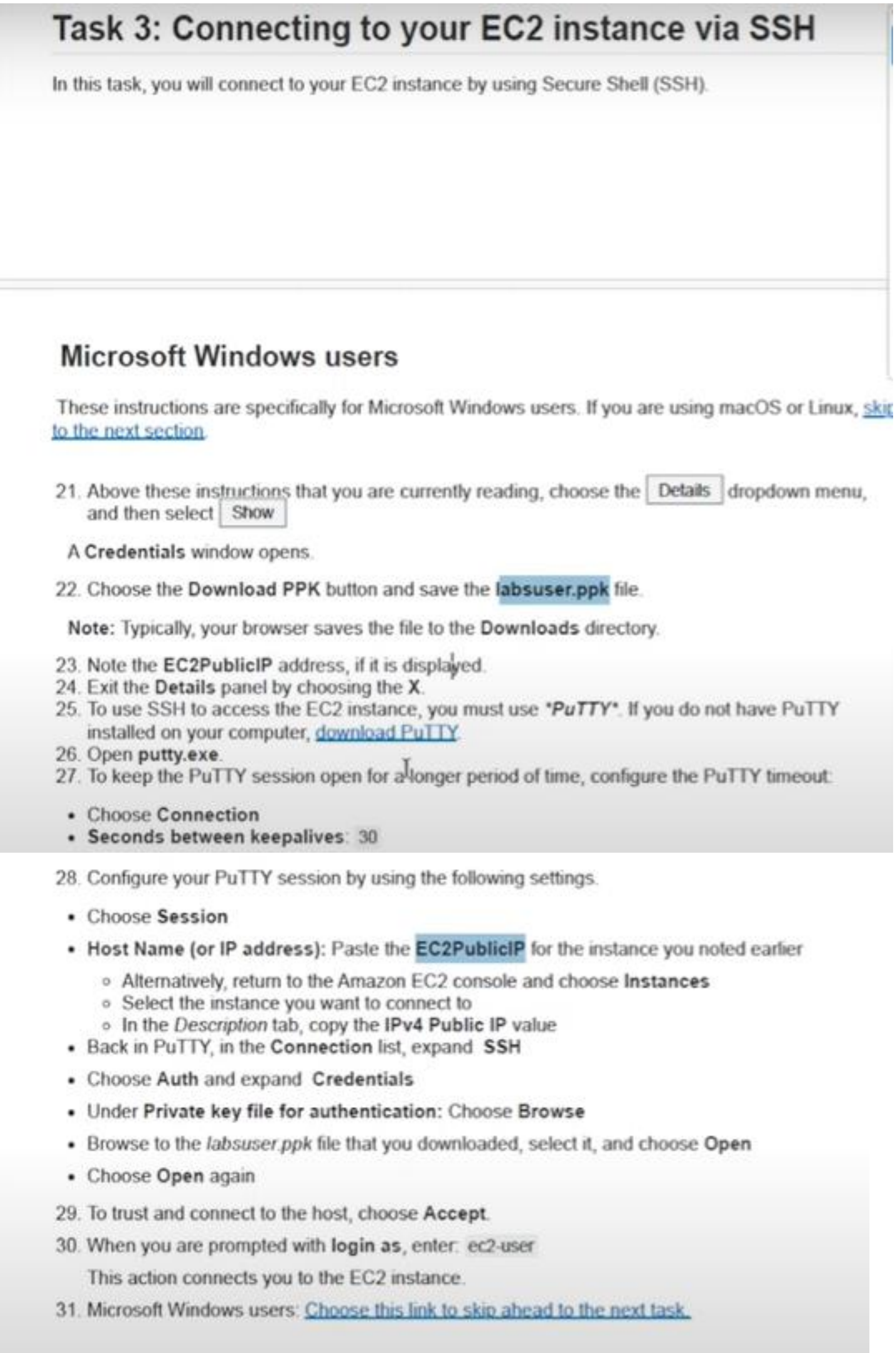
```
}


C:\Users\Compumart>aws efs create-file-system --performance-mode generalPurpose --throughput-mode bursting --encrypted
{
    "OwnerId": "972649247724",
    "CreationToken": "5fff6389-7602-41af-a48f-4c3df1e33895",
    "FileSystemId": "fs-0e2c4ad39e351d769",
    "FileSystemArn": "arn:aws:elasticfilesystem:us-east-1:972649247724:file-system/fs-0e2c4ad39e351d769",
    "CreationTime": "2024-10-06T22:20:13+03:00",
    "LifeCycleState": "creating",
    "NumberOfMountTargets": 0,
    "SizeInBytes": {
        "Value": 0,
        "ValueInIA": 0,
        "ValueInStandard": 0,
        "ValueInArchive": 0
    },
    "PerformanceMode": "generalPurpose",
    "Encrypted": true,
    "KmsKeyId": "arn:aws:kms:us-east-1:972649247724:key/2f92b8c4-6ba2-48b3-be9a-90aba407d578",
    "ThroughputMode": "bursting",
    "Tags": [],
    "FileSystemProtection": {
        "ReplicationOverwriteProtection": "ENABLED"
    }
}


C:\Users\Compumart>
```

2.2 Ading Mount Targets for the EFS File System



```
:\Users\Compumart>aws efs create-mount-target --file-system-id fs-0e2c4ad39e351d769 --subnet-id subnet-049ad398543aaa80
b --security-groups sg-0873e77efc5949439
{
    "OwnerId": "972649247724",
    "MountTargetId": "fsmt-0feedbf378b5c0418",
    "FileSystemId": "fs-0e2c4ad39e351d769",
    "SubnetId": "subnet-049ad398543aaa80b",
    "LifeCycleState": "creating",
    "IpAddress": "10.0.3.186",
    "NetworkInterfaceId": "eni-0cb4aaaac4451e1c4",
    "AvailabilityZoneId": "use1-az6",
    "AvailabilityZoneName": "us-east-1a",
    "VpcId": "vpc-0c7908cfffd0a3058"
}


:\Users\Compumart>
```

Task 3: Connect to the EC2 Instance.



Task 3: Connecting to your EC2 instance via SSH

In this task, you will connect to your EC2 instance by using Secure Shell (SSH).

Microsoft Windows users

These instructions are specifically for Microsoft Windows users. If you are using macOS or Linux, skip to the next section.

21. Above these instructions that you are currently reading, choose the Details dropdown menu, and then select Show

A **Credentials** window opens.

22. Choose the **Download PPK** button and save the **labsuser.ppk** file.

Note: Typically, your browser saves the file to the **Downloads** directory.

23. Note the **EC2PublicIP** address, if it is displayed.
24. Exit the **Details** panel by choosing the **X**.
25. To use SSH to access the EC2 instance, you must use ***PuTTY***. If you do not have PuTTY installed on your computer, download PuTTY.
26. Open **putty.exe**.
27. To keep the PuTTY session open for a longer period of time, configure the PuTTY timeout:

- Choose **Connection**
- **Seconds between keepalives**: `30`

28. Configure your PuTTY session by using the following settings.

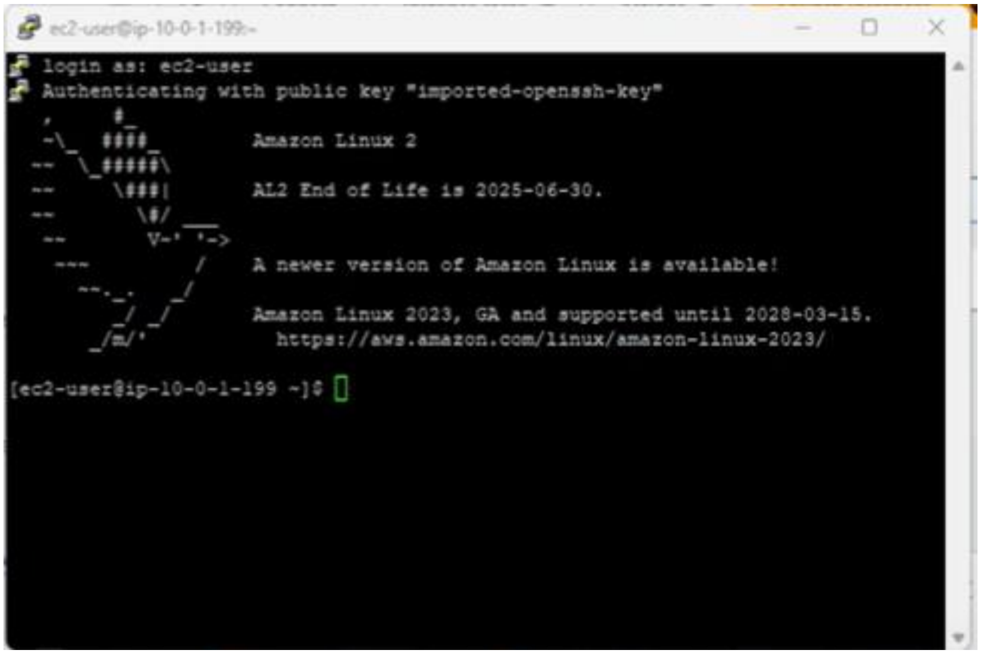
- Choose **Session**
- **Host Name (or IP address):** Paste the **EC2PublicIP** for the instance you noted earlier
  - Alternatively, return to the Amazon EC2 console and choose **Instances**
  - Select the instance you want to connect to
  - In the *Description* tab, copy the **IPv4 Public IP** value
- 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

29. To trust and connect to the host, choose **Accept**.
30. When you are prompted with **login as**, enter: `ec2-user`

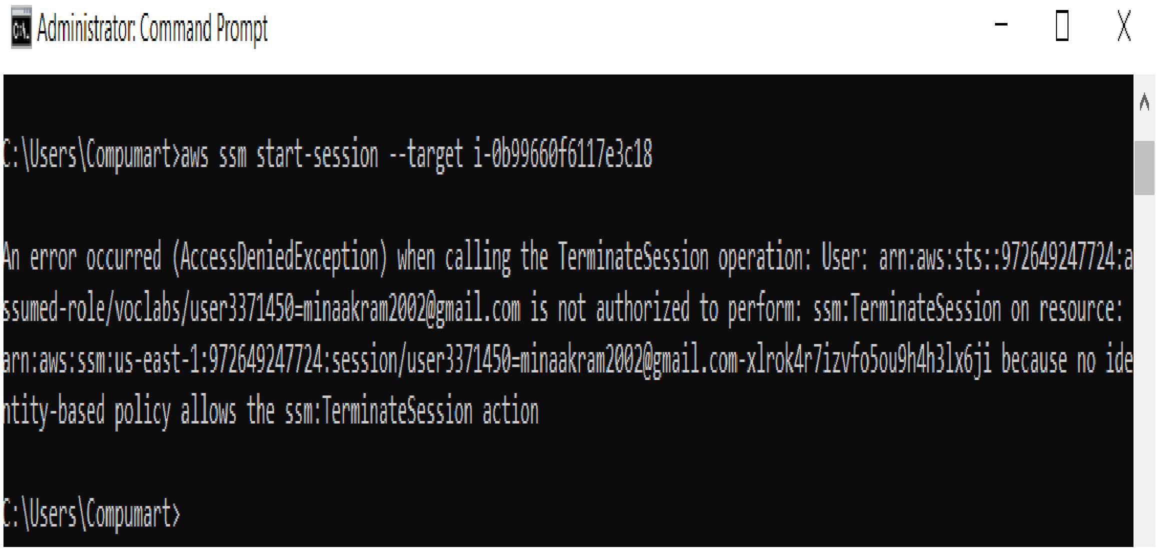
This action connects you to the EC2 instance.

31. Microsoft Windows users: Choose this link to skip ahead to the next task.

Connect to the EC2 Instance using Session Manager.



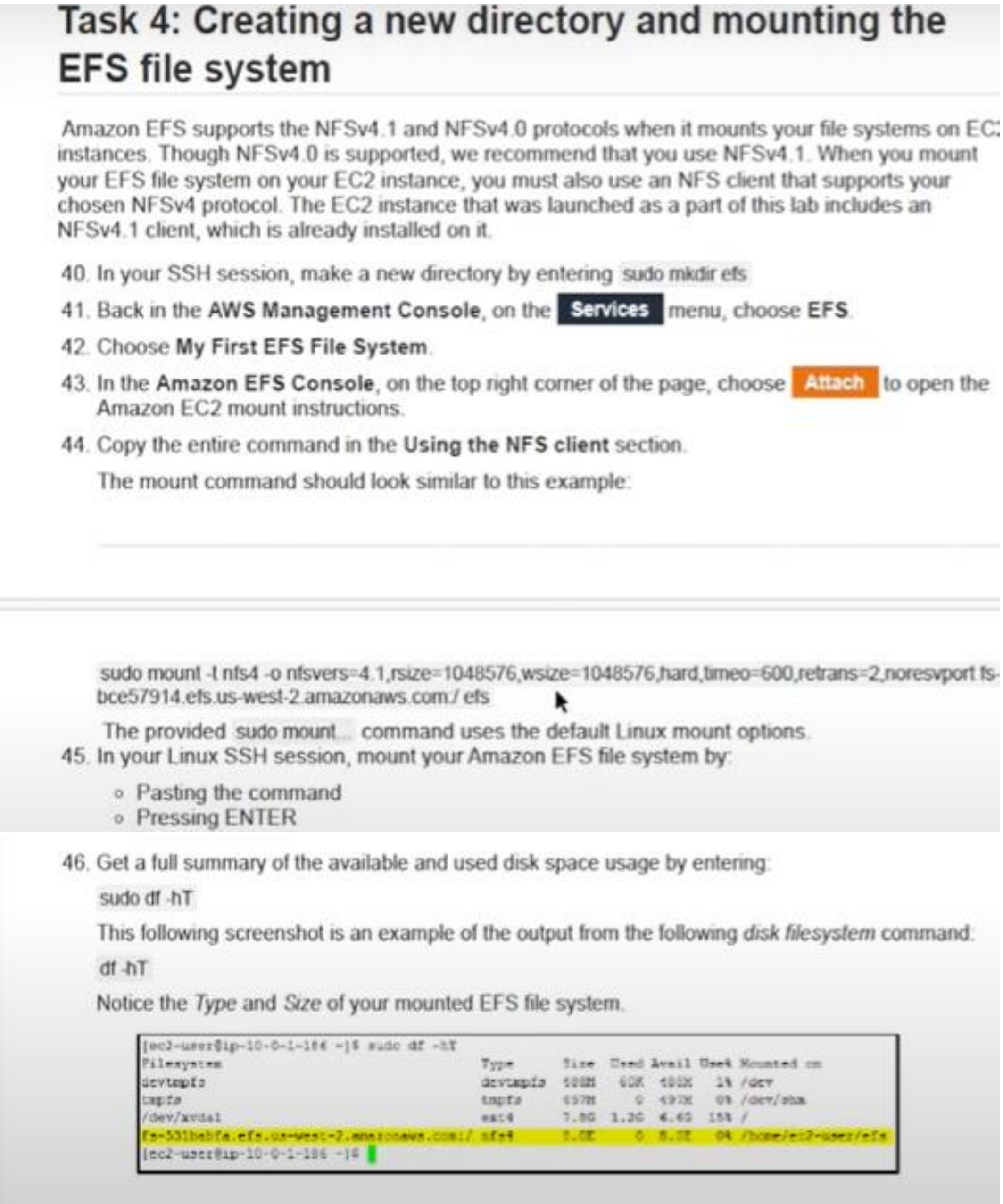
```
login as: ec2-user
Authenticating with public key "imported-openssh-key"
   ,     #_
   ~\_  ####_        Amazon Linux 2
  ~~  \_#####\
  ~~     \###|       AL2 End of Life is 2025-06-30.
  ~~       \#/ ___
   ~~       V~' '->
    ~~~         /    A newer version of Amazon Linux is available!
      ~~._.   _/
         _/ _/       Amazon Linux 2023, GA and supported until 2028-03-15.
       _/m/'           https://aws.amazon.com/linux/amazon-linux-2023/

[ec2-user@ip-10-0-1-199 ~]$ 
```



```
C:\Users\Compumart>aws ssm start-session --target i-0b99660f6117e3c18

An error occurred (AccessDeniedException) when calling the TerminateSession operation: User: arn:aws:sts::972649247724:a
ssumed-role/voclabs/user3371450=minaakram2002@gmail.com is not authorized to perform: ssm:TerminateSession on resource:
arn:aws:ssm:us-east-1:972649247724:session/user3371450=minaakram2002@gmail.com-xlrok4r7izvfo5ou9h4h3lx6ji because no ide
ntity-based policy allows the ssm:TerminateSession action

C:\Users\Compumart>
```

Task 4: Mounting the EFS File System

Install the required tools.



Task 4: Creating a new directory and mounting the EFS file system

Amazon EFS supports the NFSv4.1 and NFSv4.0 protocols when it mounts your file systems on EC2 instances. Though NFSv4.0 is supported, we recommend that you use NFSv4.1. When you mount your EFS file system on your EC2 instance, you must also use an NFS client that supports your chosen NFSv4 protocol. The EC2 instance that was launched as a part of this lab includes an NFSv4.1 client, which is already installed on it.

40. In your SSH session, make a new directory by entering `sudo mkdir efs`
41. Back in the **AWS Management Console**, on the **Services** menu, choose **EFS**.
42. Choose **My First EFS File System**.
43. In the **Amazon EFS Console**, on the top right corner of the page, choose **Attach** to open the Amazon EC2 mount instructions.
44. Copy the entire command in the **Using the NFS client** section.

    The mount command should look similar to this example:

```
sudo mount -t nfs4 -o nfsvers=4.1,rsize=1048576,wsize=1048576,hard,timeo=600,retrans=2,noresvport fs-bce57914.efs.us-west-2.amazonaws.com:/ efs
```

The provided `sudo mount...` command uses the default Linux mount options.

45. In your Linux SSH session, mount your Amazon EFS file system by:
    - Pasting the command
    - Pressing ENTER
46. Get a full summary of the available and used disk space usage by entering:

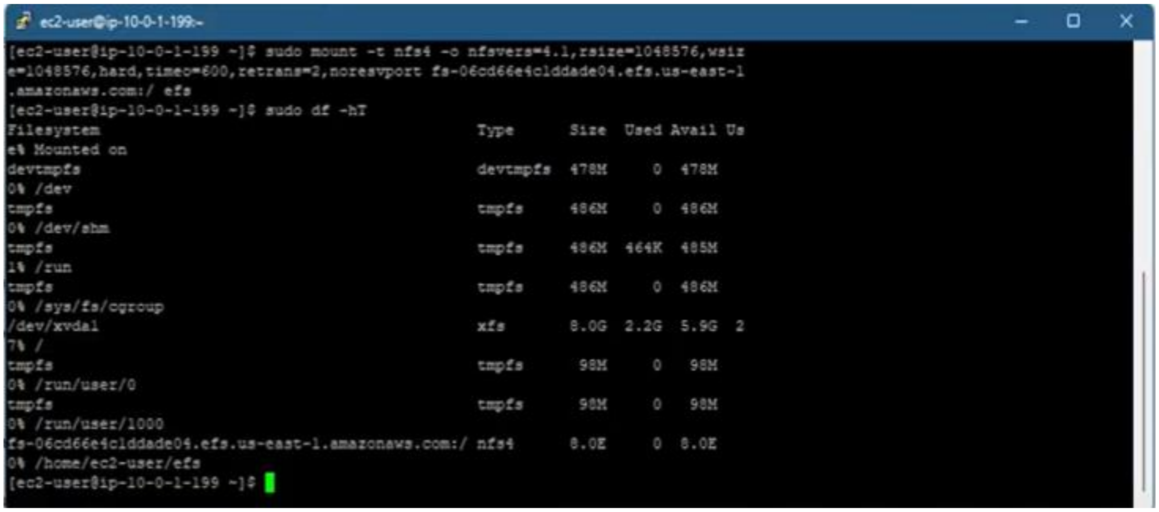
    `sudo df -hT`

    This following screenshot is an example of the output from the following *disk filesystem* command:

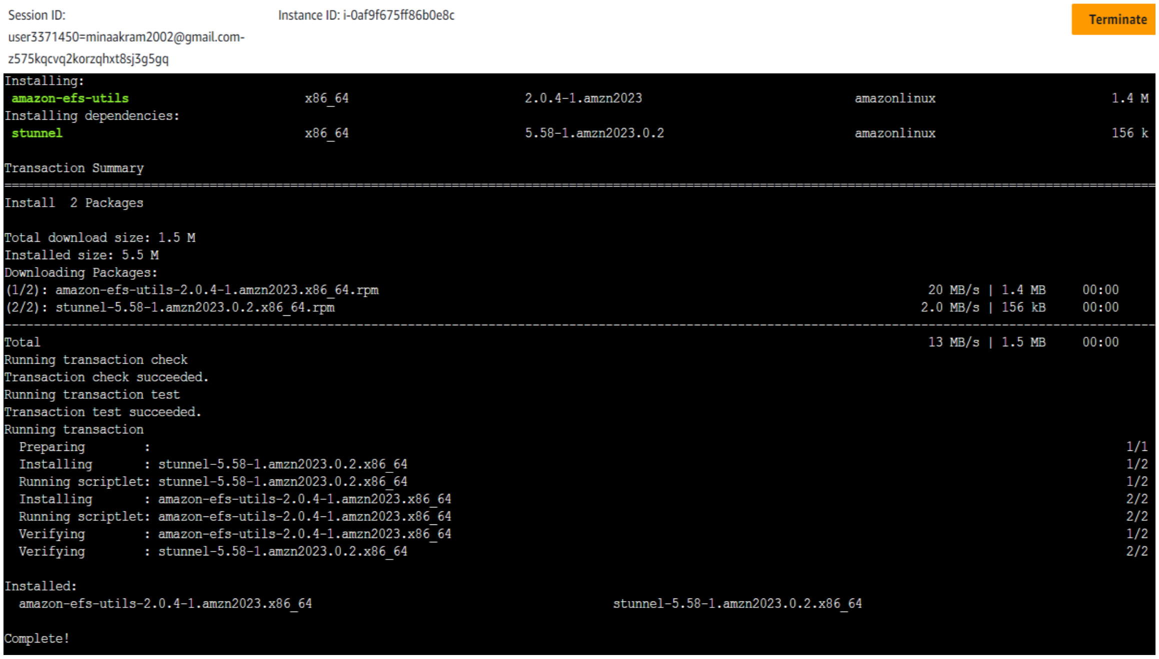
    `df -hT`

    Notice the *Type* and *Size* of your mounted EFS file system.

```
[ec2-user@ip-10-0-1-186 ~]$ sudo df -hT
Filesystem                                 Type      Size  Used Avail Use% Mounted on
devtmpfs                                   devtmpfs  488M   60K  488M   1% /dev
tmpfs                                      tmpfs     497M     0  497M   0% /dev/shm
/dev/xvda1                                 ext4      7.8G  1.2G  6.6G  15% /
fs-531bebfa.efs.us-west-2.amazonaws.com:/ nfs4      8.0E     0  8.0E   0% /home/ec2-user/efs
[ec2-user@ip-10-0-1-186 ~]$
```



```
[ec2-user@ip-10-0-1-199 ~]$ sudo mount -t nfs4 -o nfsvers=4.1,rsize=1048576,wsiz
e=1048576,hard,timeo=600,retrans=2,noresvport fs-06cd66e4clddade04.efs.us-east-1
.amazonaws.com:/ efs
[ec2-user@ip-10-0-1-199 ~]$ sudo df -hT
Filesystem                                        Type      Size  Used Avail Us
e% Mounted on
devtmpfs                                          devtmpfs  478M     0  478M
0% /dev
tmpfs                                             tmpfs     486M     0  486M
0% /dev/shm
tmpfs                                             tmpfs     486M  464K  485M
1% /run
tmpfs                                             tmpfs     486M     0  486M
0% /sys/fs/cgroup
/dev/xvda1                                        xfs       8.0G  2.2G  5.9G  2
7% /
tmpfs                                             tmpfs      98M     0   98M
0% /run/user/0
tmpfs                                             tmpfs      98M     0   98M
0% /run/user/1000
fs-06cd66e4clddade04.efs.us-east-1.amazonaws.com:/ nfs4      8.0E     0  8.0E
0% /home/ec2-user/efs
[ec2-user@ip-10-0-1-199 ~]$
```

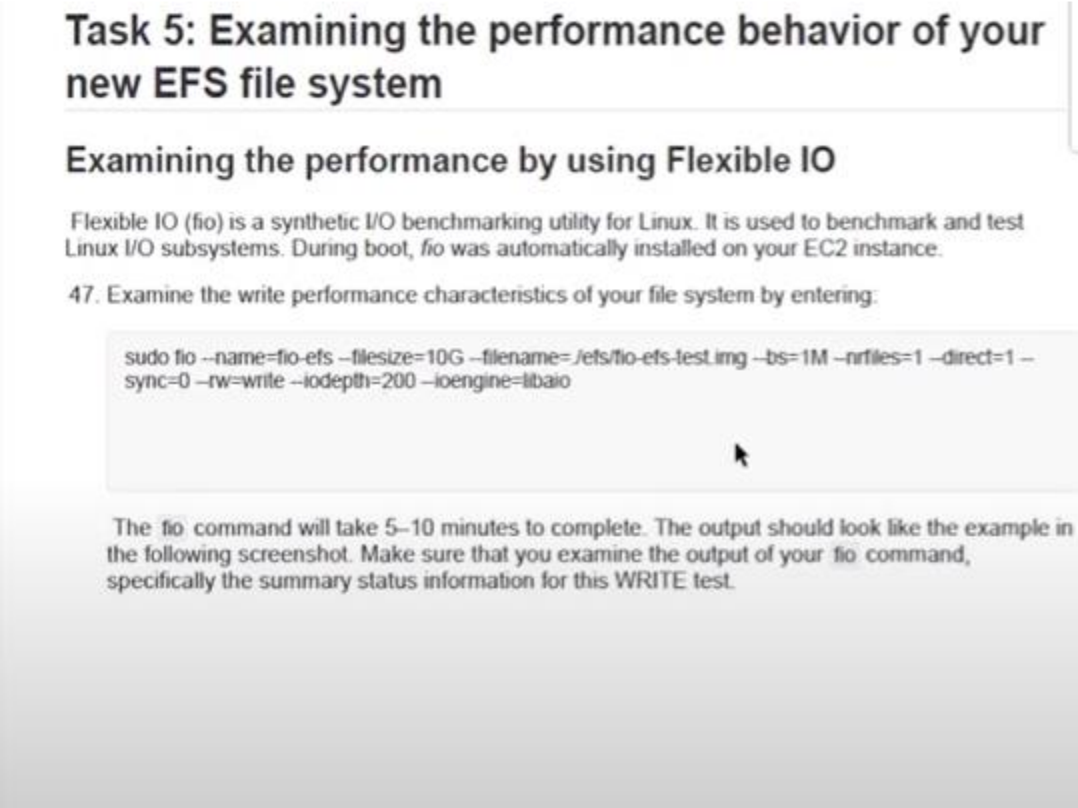


Session ID: user3371450=minaakram2002@gmail.com-z575kqcvq2korzqhxt8sj3g5gq

Instance ID: i-0af9f675ff86b0e8c

```
Installing:
 amazon-efs-utils              x86_64                  2.0.4-1.amzn2023                        amazonlinux                    1.4 M
Installing dependencies:
 stunnel                       x86_64                  5.58-1.amzn2023.0.2                     amazonlinux                    156 k

Transaction Summary
===================================================================================================================================
Install  2 Packages

Total download size: 1.5 M
Installed size: 5.5 M
Downloading Packages:
(1/2): amazon-efs-utils-2.0.4-1.amzn2023.x86_64.rpm                                               20 MB/s | 1.4 MB     00:00
(2/2): stunnel-5.58-1.amzn2023.0.2.x86_64.rpm                                                    2.0 MB/s | 156 kB     00:00
-----------------------------------------------------------------------------------------------------------------------------------
Total                                                                                              13 MB/s | 1.5 MB     00:00
Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
  Preparing        :                                                                                                          1/1
  Installing       : stunnel-5.58-1.amzn2023.0.2.x86_64                                                                       1/2
  Running scriptlet: stunnel-5.58-1.amzn2023.0.2.x86_64                                                                       1/2
  Installing       : amazon-efs-utils-2.0.4-1.amzn2023.x86_64                                                                 2/2
  Running scriptlet: amazon-efs-utils-2.0.4-1.amzn2023.x86_64                                                                 2/2
  Verifying        : amazon-efs-utils-2.0.4-1.amzn2023.x86_64                                                                 1/2
  Verifying        : stunnel-5.58-1.amzn2023.0.2.x86_64                                                                       2/2

Installed:
  amazon-efs-utils-2.0.4-1.amzn2023.x86_64                                   stunnel-5.58-1.amzn2023.0.2.x86_64

Complete!
```

Task 5: Examining the Performance of the EFS File System



Task 5: Examining the performance behavior of your new EFS file system

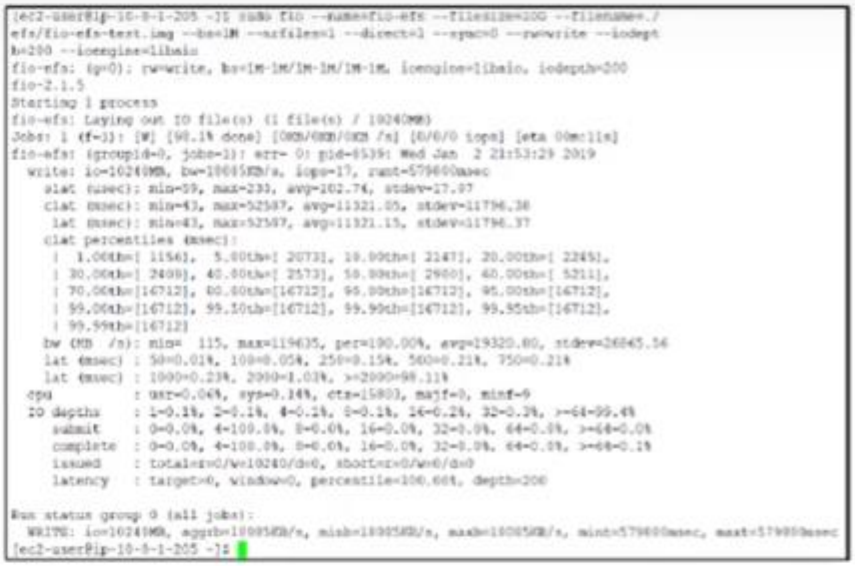
Examining the performance by using Flexible IO

Flexible IO (fio) is a synthetic I/O benchmarking utility for Linux. It is used to benchmark and test Linux I/O subsystems. During boot, *fio* was automatically installed on your EC2 instance.

47. Examine the write performance characteristics of your file system by entering:

```
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
```

The fio command will take 5–10 minutes to complete. The output should look like the example in the following screenshot. Make sure that you examine the output of your fio command, specifically the summary status information for this WRITE test.

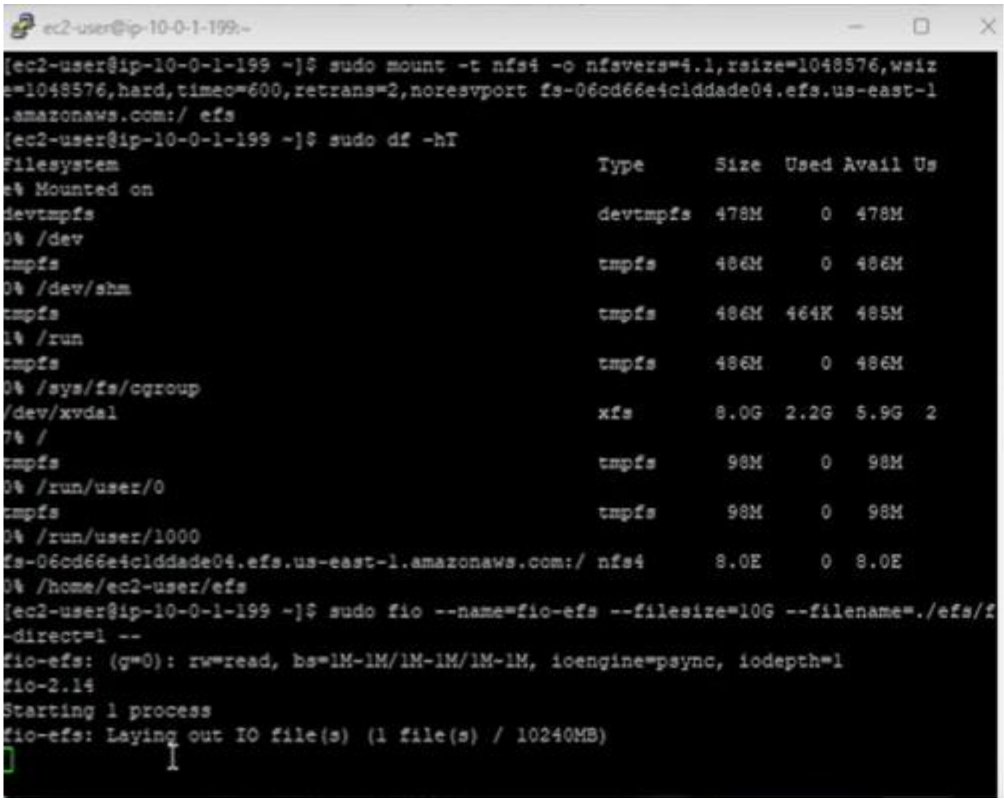


```
[ec2-user@ip-10-0-1-205 ~]$ sudo fio --name=fio-efs --filesize=10G --filename=./
efs/fio-efs-test.img --bs=1M --nrfiles=1 --direct=1 --sync=0 --rw=write --iodept
h=200 --ioengine=libaio
fio-efs: (g=0): rw=write, bs=1M-1M/1M-1M/1M-1M, ioengine=libaio, iodepth=200
fio-2.1.5
Starting 1 process
fio-efs: Laying out IO file(s) (1 file(s) / 10240MB)
Jobs: 1 (f=1): [W] [98.1% done] [0KB/0KB/0KB /s] [0/0/0 iops] [eta 00m:11s]
fio-efs: (groupid=0, jobs=1): err= 0: pid=8539: Wed Jan  2 21:53:29 2019
  write: io=10240MB, bw=18085KB/s, iops=17, runt=579800msec
    slat (usec): min=59, max=233, avg=102.74, stdev=17.07
    clat (msec): min=43, max=52587, avg=11321.05, stdev=11796.38
     lat (msec): min=43, max=52587, avg=11321.15, stdev=11796.37
    clat percentiles (msec):
     |  1.00th=[ 1156],  5.00th=[ 2073], 10.00th=[ 2147], 20.00th=[ 2245],
     | 30.00th=[ 2409], 40.00th=[ 2573], 50.00th=[ 2900], 60.00th=[ 5211],
     | 70.00th=[16712], 80.00th=[16712], 90.00th=[16712], 95.00th=[16712],
     | 99.00th=[16712], 99.50th=[16712], 99.90th=[16712], 99.95th=[16712],
     | 99.99th=[16712]
    bw (KB  /s): min=  115, max=119635, per=100.00%, avg=19320.80, stdev=26845.56
    lat (msec) : 50=0.01%, 100=0.05%, 250=0.15%, 500=0.21%, 750=0.21%
    lat (msec) : 1000=0.23%, 2000=1.03%, >=2000=98.11%
  cpu          : usr=0.06%, sys=0.14%, ctx=15803, 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    : total=r=0/w=10240/d=0, short=r=0/w=0/d=0
     latency   : target=0, window=0, percentile=100.00%, depth=200

Run status group 0 (all jobs):
  WRITE: io=10240MB, aggrb=18085KB/s, minb=18085KB/s, maxb=18085KB/s, mint=579800msec, maxt=579800msec
[ec2-user@ip-10-0-1-205 ~]$
```

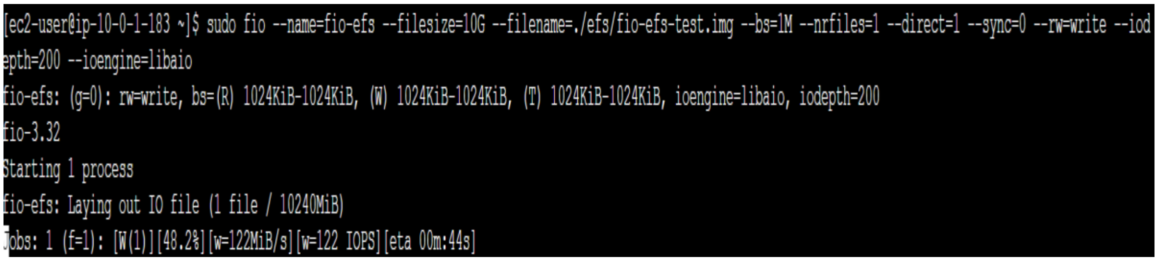
Monitoring performance by using Amazon CloudWatch

48. In the **AWS Management Console**, on the **Services** menu, choose **CloudWatch**.
49. In the navigation pane on the left, choose **Metrics**.
50. In the **All metrics** tab, choose **EFS**.
51. Choose **File System Metrics**.
52. Select the row that has the **PermittedThroughput** Metric Name.

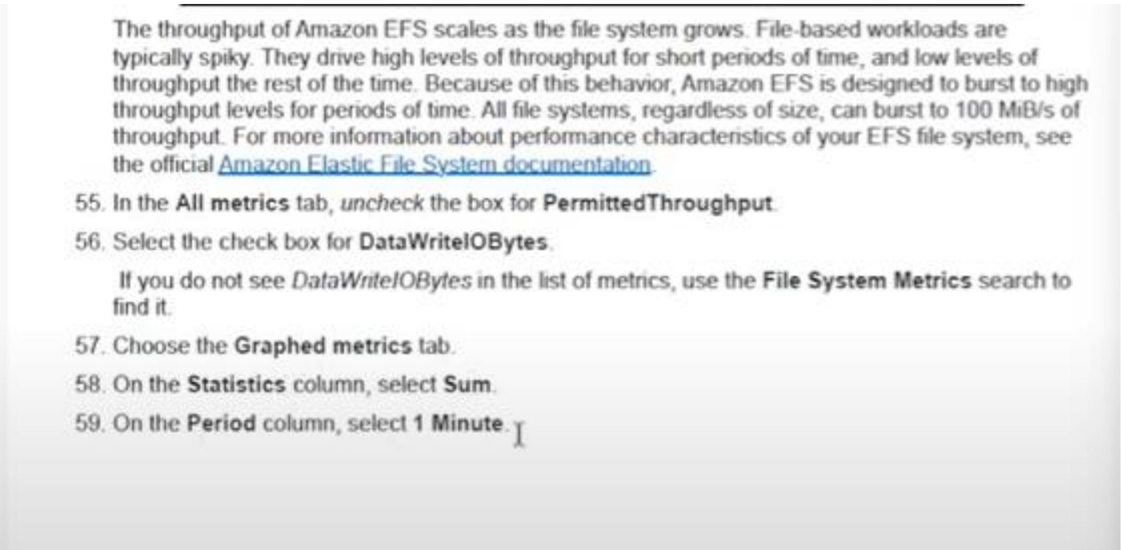
    You might need to wait 2–3 minutes and refresh the screen several times before all available metrics, including **PermittedThroughput**, calculate and populate.
53. On the graph, choose and drag around the data line. If you do not see the line graph, adjust the time range of the graph to display the period during which you ran the `fio` command.



```
[ec2-user@ip-10-0-1-199 ~]$ sudo mount -t nfs4 -o nfsvers=4.1,rsize=1048576,wsiz
e=1048576,hard,timeo=600,retrans=2,noresvport fs-06cd66e4clddade04.efs.us-east-1
.amazonaws.com:/ efs
[ec2-user@ip-10-0-1-199 ~]$ sudo df -hT
Filesystem                                         Type      Size  Used Avail Us
e% Mounted on
devtmpfs                                           devtmpfs  478M     0  478M
0% /dev
tmpfs                                              tmpfs     486M     0  486M
0% /dev/shm
tmpfs                                              tmpfs     486M  464K  485M
1% /run
tmpfs                                              tmpfs     486M     0  486M
0% /sys/fs/cgroup
/dev/xvda1                                         xfs       8.0G  2.2G  5.9G  2
7% /
tmpfs                                              tmpfs      98M     0   98M
0% /run/user/0
tmpfs                                              tmpfs      98M     0   98M
0% /run/user/1000
fs-06cd66e4clddade04.efs.us-east-1.amazonaws.com:/ nfs4      8.0E     0  8.0E
0% /home/ec2-user/efs
[ec2-user@ip-10-0-1-199 ~]$ sudo fio --name=fio-efs --filesize=10G --filename=./efs/f
-direct=1 --
fio-efs: (g=0): rw=read, bs=1M-1M/1M-1M/1M-1M, ioengine=psync, iodepth=1
fio-2.14
Starting 1 process
fio-efs: Laying out IO file(s) (1 file(s) / 10240MB)
```



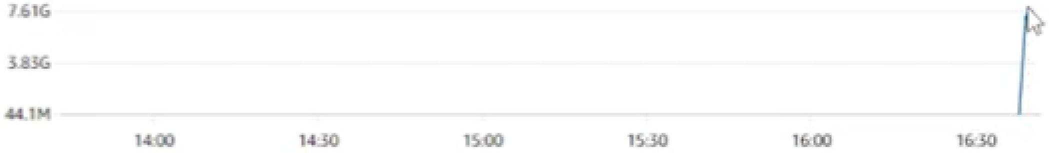
```
[ec2-user@ip-10-0-1-183 ~]$ sudo fio --name=fio-efs --filesize=10G --filename=./efs/fio-efs-test.img --bs=1M --nrfiles=1 --direct=1 --sync=0 --rw=write --iod
epth=200 --ioengine=libaio
fio-efs: (g=0): rw=write, bs=(R) 1024KiB-1024KiB, (W) 1024KiB-1024KiB, (T) 1024KiB-1024KiB, ioengine=libaio, iodepth=200
fio-3.32
Starting 1 process
fio-efs: Laying out IO file (1 file / 10240MiB)
Jobs: 1 (f=1): [W(1)][48.2%][w=122MiB/s][w=122 IOPS][eta 00m:44s]
```

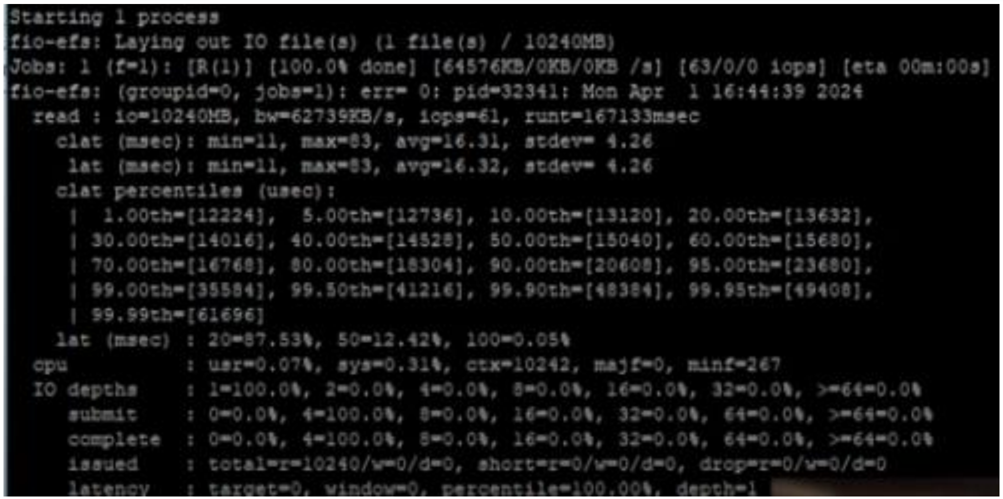


The throughput of Amazon EFS scales as the file system grows. File-based workloads are typically spiky. They drive high levels of throughput for short periods of time, and low levels of throughput the rest of the time. Because of this behavior, Amazon EFS is designed to burst to high throughput levels for periods of time. All file systems, regardless of size, can burst to 100 MiB/s of throughput. For more information about performance characteristics of your EFS file system, see the official Amazon Elastic File System documentation.

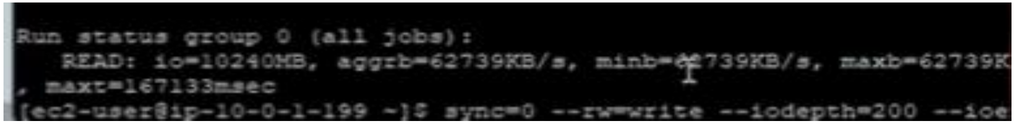
55. In the **All metrics** tab, *uncheck* the box for **PermittedThroughput**.
56. Select the check box for **DataWriteIOBytes**.

    If you do not see *DataWriteIOBytes* in the list of metrics, use the **File System Metrics** search to find it.
57. Choose the **Graphed metrics** tab.
58. On the **Statistics** column, select **Sum**.
59. On the **Period** column, select **1 Minute**.

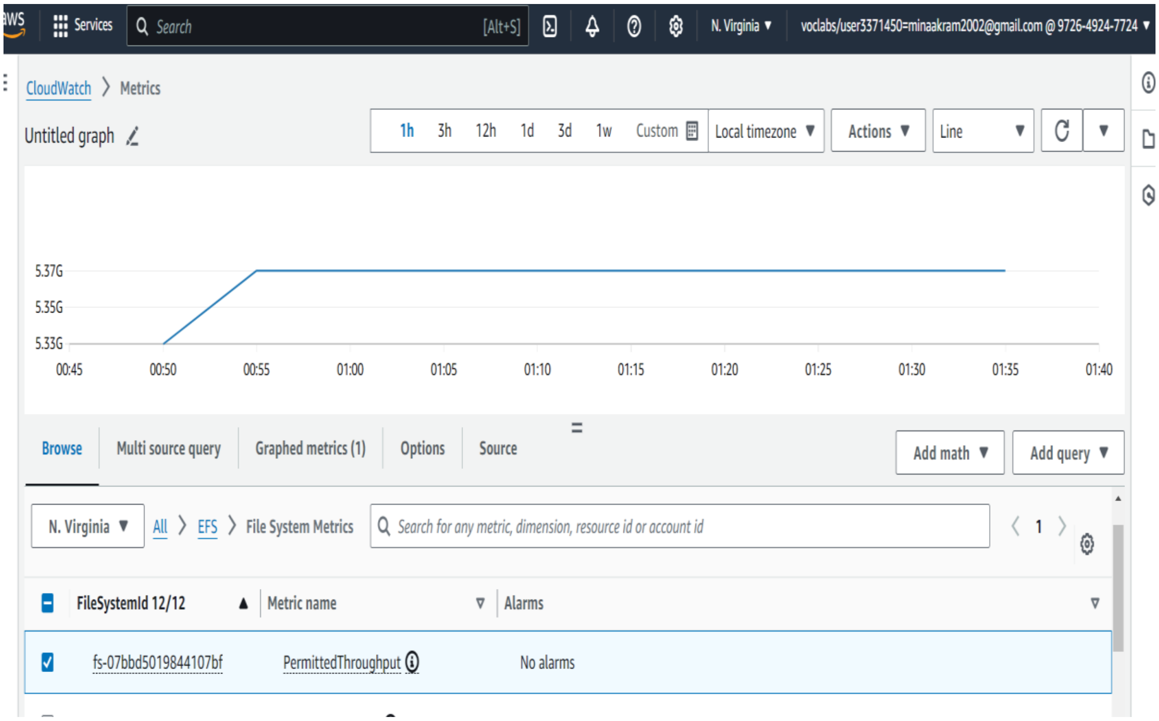




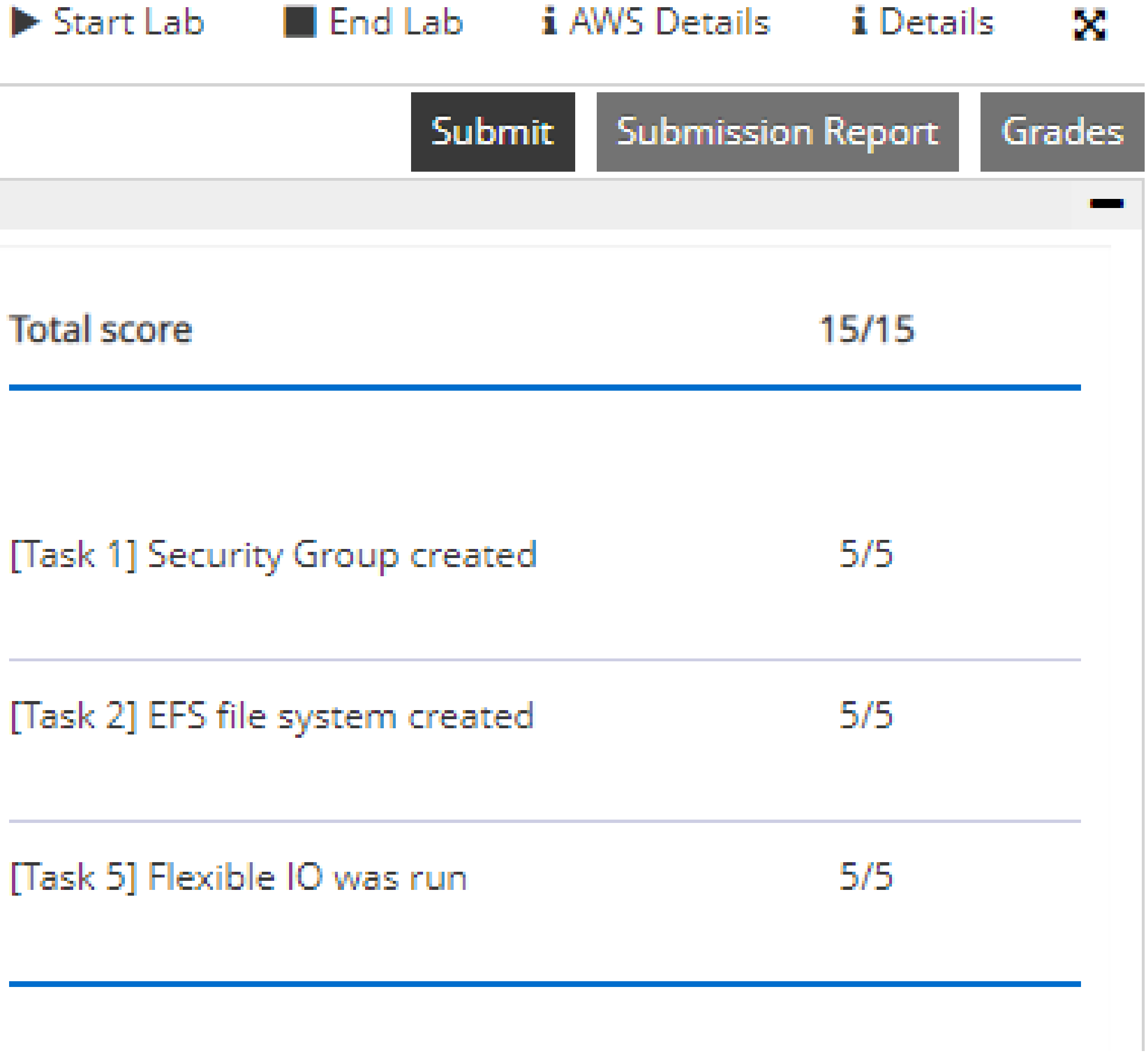
```
Starting 1 process
fio-efs: Laying out IO file(s) (1 file(s) / 10240MB)
Jobs: 1 (f=1): [R(1)] [100.0% done] [64576KB/0KB/0KB /s] [63/0/0 iops] [eta 00m:00s]
fio-efs: (groupid=0, jobs=1): err= 0: pid=32341: Mon Apr  1 16:44:39 2024
  read : io=10240MB, bw=62739KB/s, iops=61, runt=167133msec
    clat (msec): min=11, max=83, avg=16.31, stdev= 4.26
     lat (msec): min=11, max=83, avg=16.32, stdev= 4.26
    clat percentiles (usec):
     |  1.00th=[12224],  5.00th=[12736], 10.00th=[13120], 20.00th=[13632],
     | 30.00th=[14016], 40.00th=[14528], 50.00th=[15040], 60.00th=[15680],
     | 70.00th=[16768], 80.00th=[18304], 90.00th=[20608], 95.00th=[23680],
     | 99.00th=[35584], 99.50th=[41216], 99.90th=[48384], 99.95th=[49408],
     | 99.99th=[61696]
    lat (msec) : 20=87.53%, 50=12.42%, 100=0.05%
  cpu          : usr=0.07%, sys=0.31%, ctx=10242, majf=0, minf=267
  IO depths    : 1=100.0%, 2=0.0%, 4=0.0%, 8=0.0%, 16=0.0%, 32=0.0%, >=64=0.0%
     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=0.0%
     issued    : total=r=10240/w=0/d=0, short=r=0/w=0/d=0, drop=r=0/w=0/d=0
     latency   : target=0, window=0, percentile=100.00%, depth=1
```



```
Run status group 0 (all jobs):
   READ: io=10240MB, aggrb=62739KB/s, minb=62739KB/s, maxb=62739K
, maxt=167133msec
[ec2-user@ip-10-0-1-199 ~]$ sync=0 --rw=write --iodepth=200 --ioe
```



▬ FileSystemId 12/12 ▲	Metric name	Alarms
☑ fs-07bbd5019844107bf	PermittedThroughput	No alarms



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