Amazon Elastic File System (Amazon EFS) Report

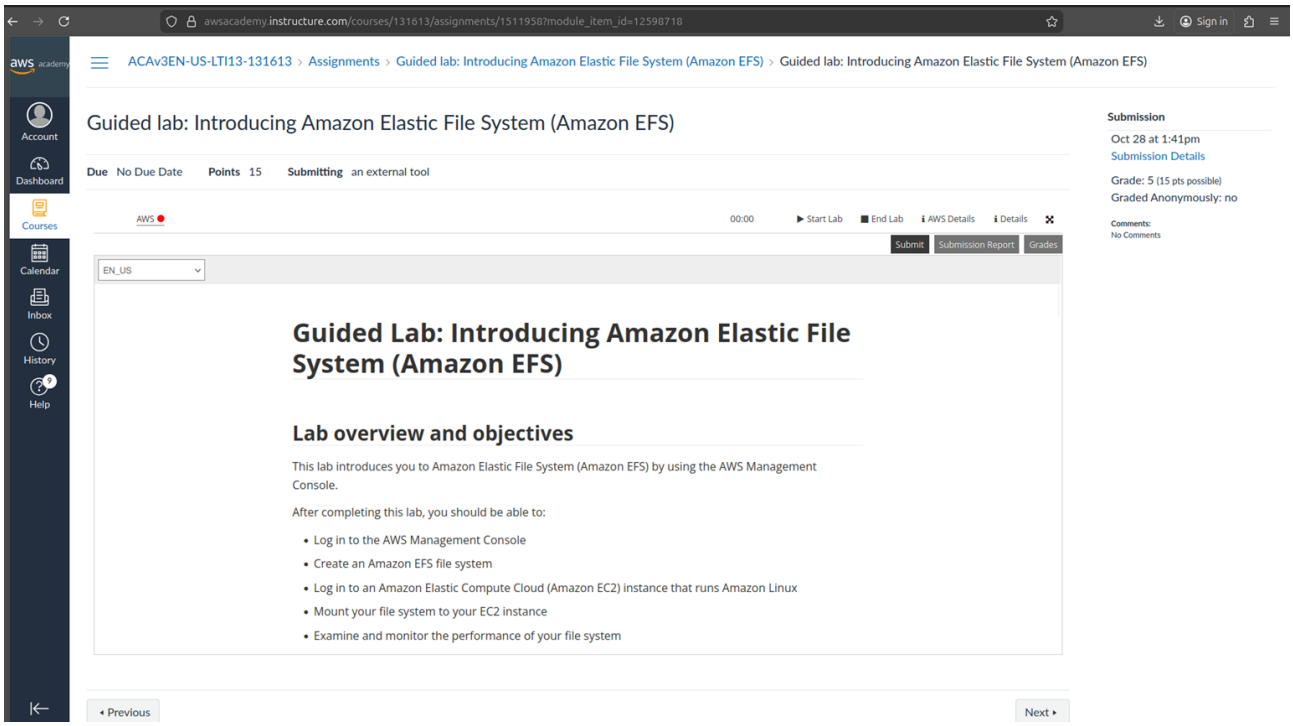
Lab: Introducing Amazon Elastic File System (Amazon EFS)

Objectives

- Access the AWS console, create an EFS file system, and launch an Amazon Linux EC2 instance.
- Connect to the EC2 instance and mount the EFS file system.
- Review and monitor the file system's performance.

Lab Environment Setup

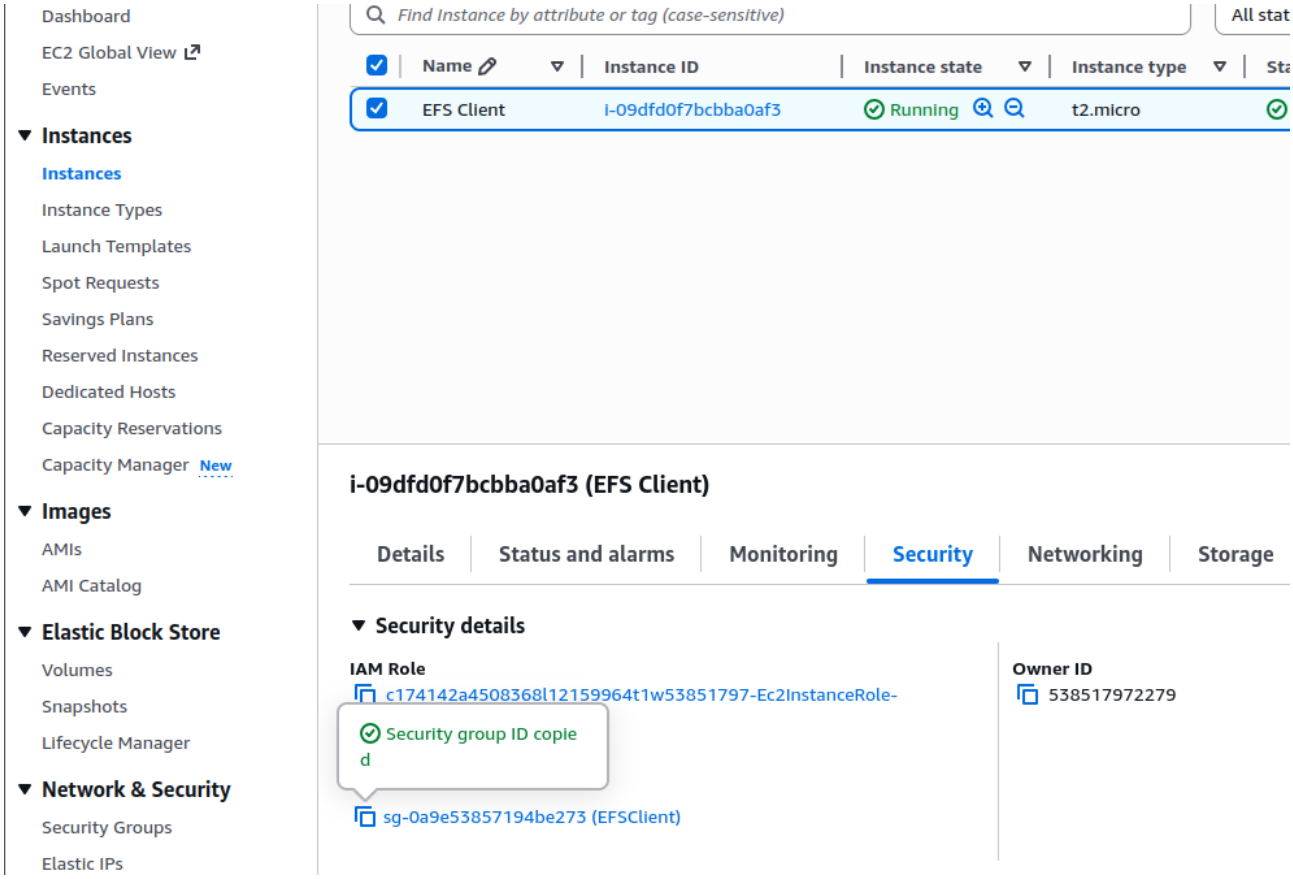
- This lab introduces you to Amazon Elastic File System (Amazon EFS) by using the AWS Management Console.
- A timer-based lab session was started using the "Start Lab" button.
- Pop-up windows were allowed in the browser to open the AWS Management Console in a new tab.
- Resources were named exactly as specified in the instructions to ensure the lab scoring script works properly.



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

Steps:

1. At the top of the AWS Management Console, in the search box, search for and choose EC2.
2. In the navigation pane on the left, choose **Security Groups**.
3. Copy the **Security group ID** of the *EFSClient* security group to your text editor.The Group ID should look similar to *sg-03727965651b6659b*.

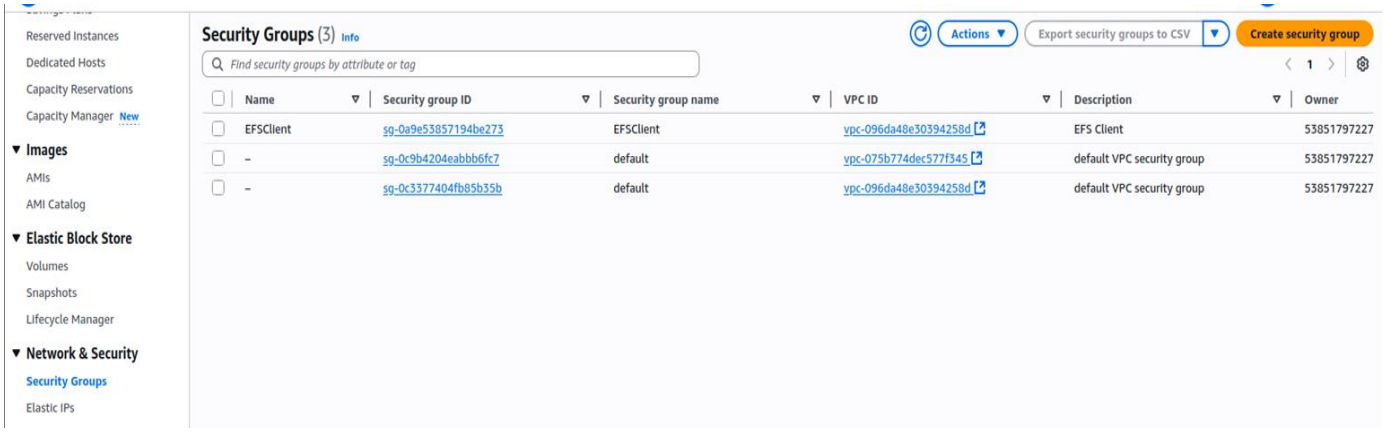


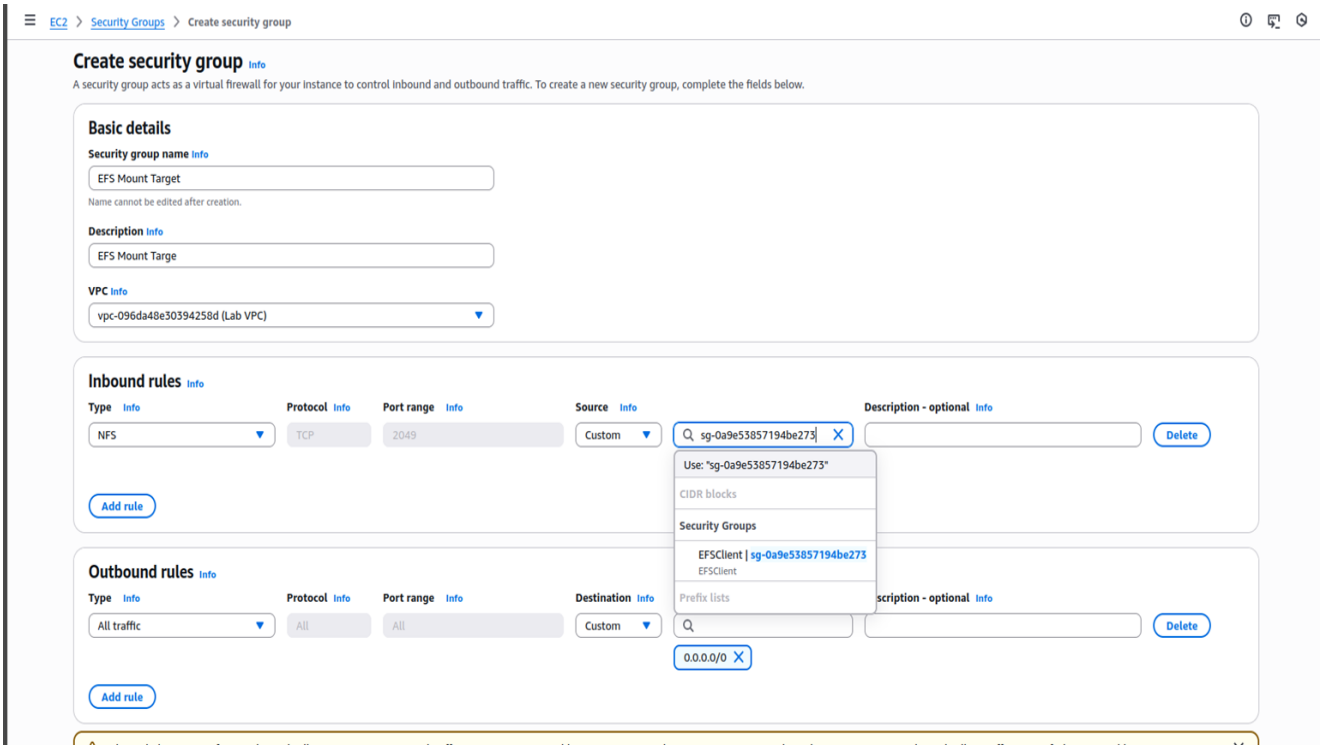
4. Choose **Create security group** then configure:

- **Security group name:** EFS Mount Target
- **Description:** Inbound NFS access from EFS clients
- **VPC:** *Lab VPC*

5. 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 2: Creating an EFS file system

Steps:

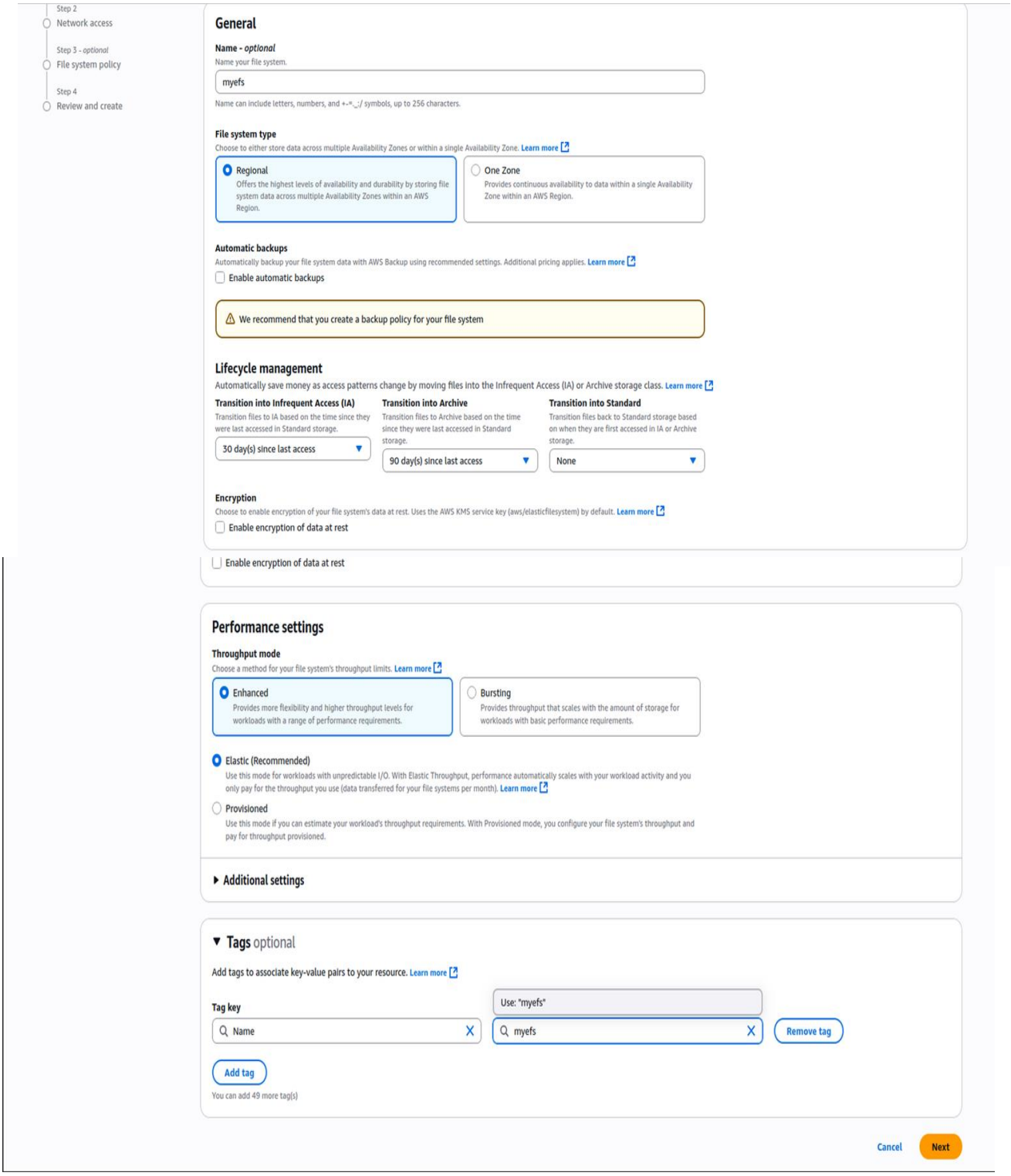
1. At the top of the AWS Management Console, in the search box, search for and choose EFS.
2. Choose **Create file system**.
3. In the **Create file system** window, choose **Customize**.
4. On **Step 1**:

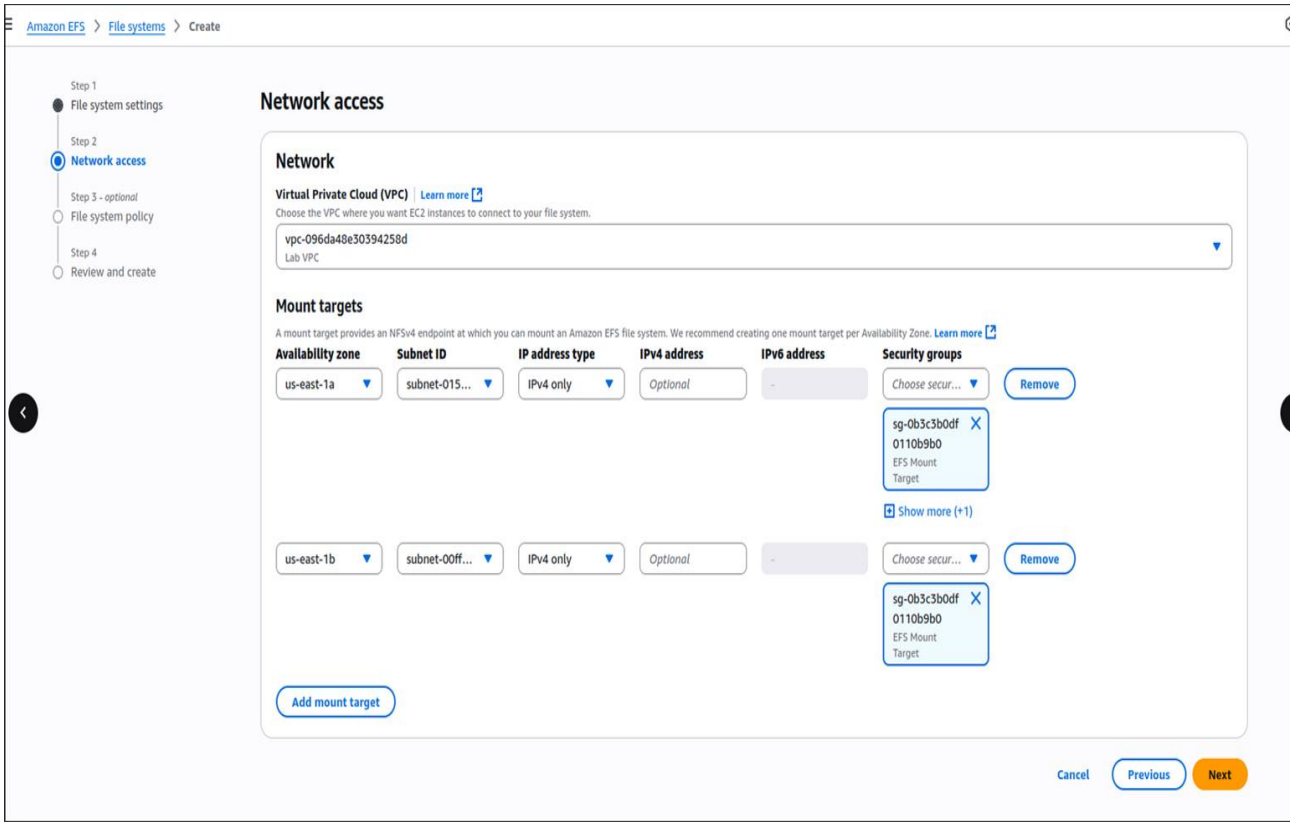
- Uncheck Enable Automatic backups.
- **Lifecycle management**:
- for **Transition into IA** Select *None*.
- In the **Tags** *optional* section, configure:
- **Key:** Name
- **Value:** myefs

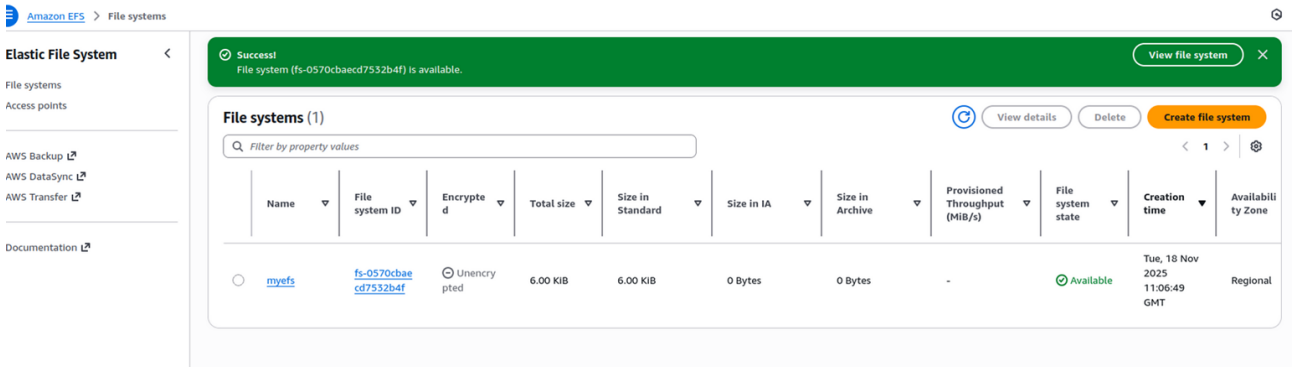
5. Choose Next.
6. For **VPC**, select *Lab VPC*.
7. Detach the default security group from each *Availability Zone* mount target by choosing the check box on each default security group.
8. Attach the **EFS Mount Target** security group to each *Availability Zone* mount target by choosing **EFS Mount Target** for each Availability Zone.
9. Choose **Next**.
10. On **Step 3**, choose Next.
11. On **Step 4:**

    Review your configuration.

    Choose Create.


Step 2
Network access
Step 3 - optional
File system policy
Step 4
Review and create
General
Name - optional
Name your file system.
myefs
Name can include letters, numbers, and +-=._:/ symbols, up to 256 characters.
File system type
Choose to either store data across multiple Availability Zones or within a single Availability Zone. Learn more
Regional
Offers the highest levels of availability and durability by storing file system data across multiple Availability Zones within an AWS Region.
One Zone
Provides continuous availability to data within a single Availability Zone within an AWS Region.
Automatic backups
Automatically backup your file system data with AWS Backup using recommended settings. Additional pricing applies. Learn more
Enable automatic backups
We recommend that you create a backup policy for your file system
Lifecycle management
Automatically save money as access patterns change by moving files into the Infrequent Access (IA) or Archive storage class. Learn more
Transition into Infrequent Access (IA)
Transition files to IA based on the time since they were last accessed in Standard storage.
30 day(s) since last access
Transition into Archive
Transition files to Archive based on the time since they were last accessed in Standard storage.
90 day(s) since last access
Transition into Standard
Transition files back to Standard storage based on when they are first accessed in IA or Archive storage.
None
Encryption
Choose to enable encryption of your file system's data at rest. Uses the AWS KMS service key (aws/elasticfilesystem) by default. Learn more
Enable encryption of data at rest
Enable encryption of data at rest
Performance settings
Throughput mode
Choose a method for your file system's throughput limits. Learn more
Enhanced
Provides more flexibility and higher throughput levels for workloads with a range of performance requirements.
Bursting
Provides throughput that scales with the amount of storage for workloads with basic performance requirements.
Elastic (Recommended)
Use this mode for workloads with unpredictable I/O. With Elastic Throughput, performance automatically scales with your workload activity and you only pay for the throughput you use (data transferred for your file systems per month). Learn more
Provisioned
Use this mode if you can estimate your workload's throughput requirements. With Provisioned mode, you configure your file system's throughput and pay for throughput provisioned.
Additional settings
Tags optional
Add tags to associate key-value pairs to your resource. Learn more
Tag key
Use: "myefs"
Name
myefs
Remove tag
Add tag
You can add 49 more tag(s)
Cancel
Next

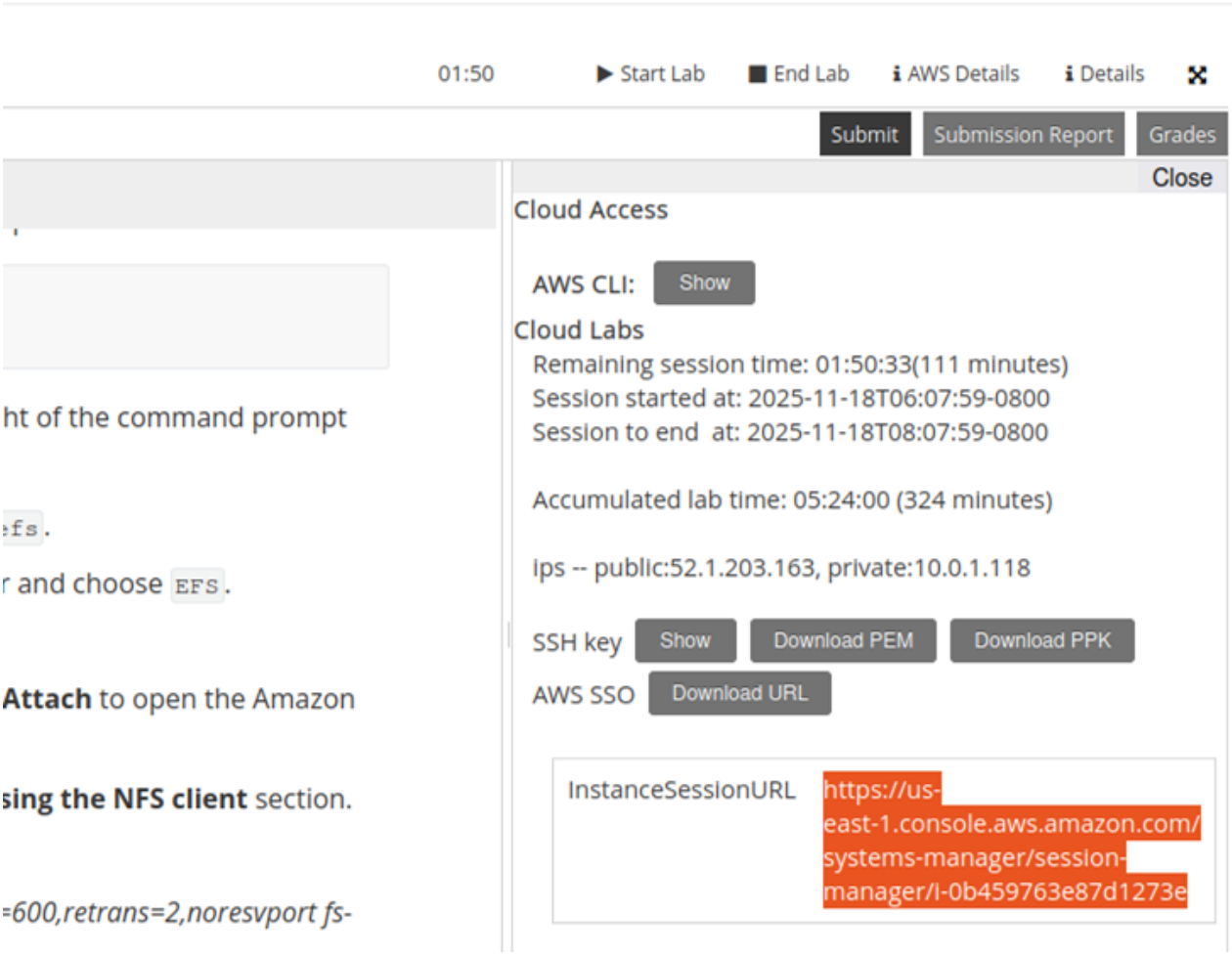




Task 3: Connecting to your EC2 instance

1. To connect to the **EC2 instance**, from the top of this page, choose **i AWS Details** and copy the value for *InstanceSessionURL* .
2. Paste it into the new browser tab or window to connect to the EC2 instance using AWS Systems Manager Session Manager.

   You should now be connected to the instance.



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

1. In your EC2 terminal session, run the following command to install the required utilities:

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

2. Run the following command to create directory for mount: `sudo mkdir efs`.

3. At the top of the AWS Management Console, in the search box, search for and choose EFS.

4. Choose **myefs.**

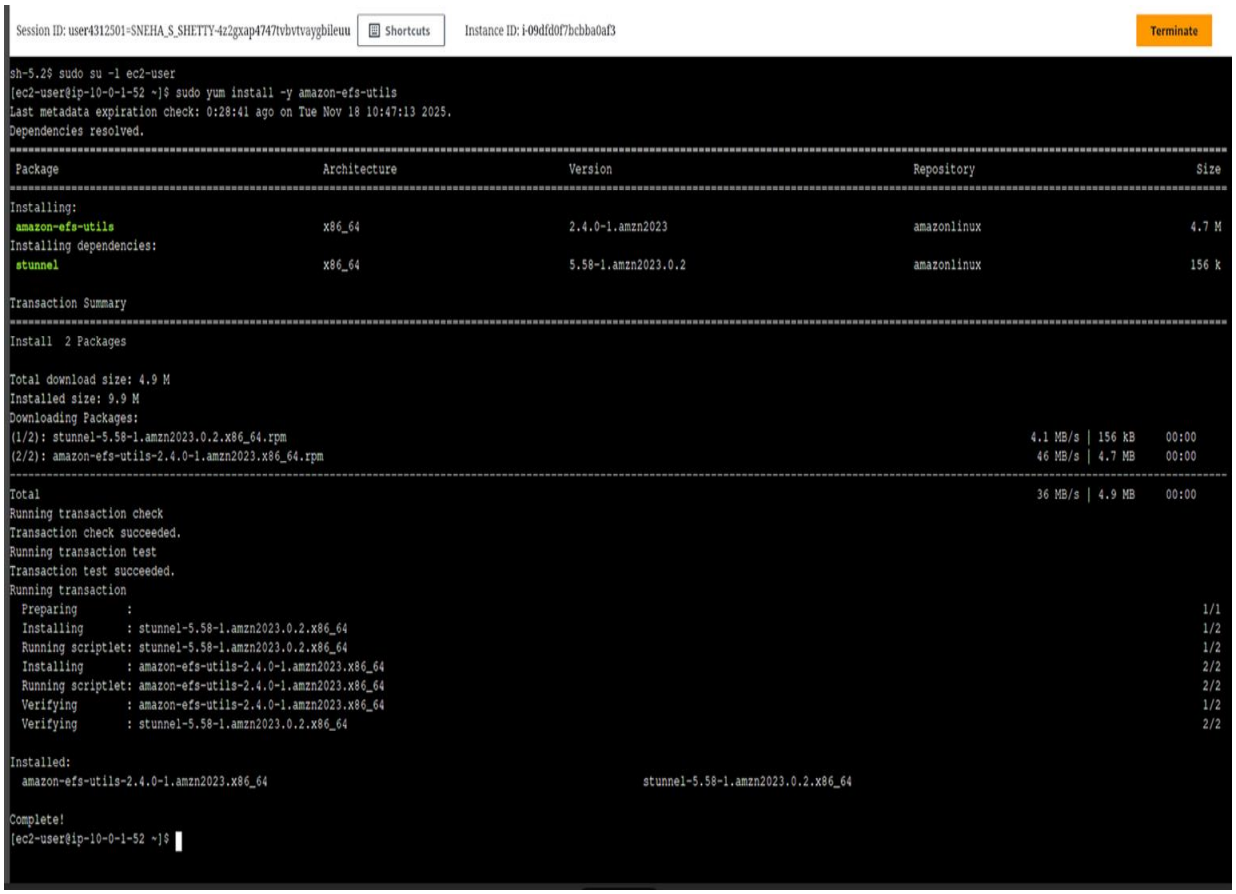
5. In the **Amazon EFS Console**, on the top right corner of the page, choose **Attach** to open the Amazon EC2 mount instructions.

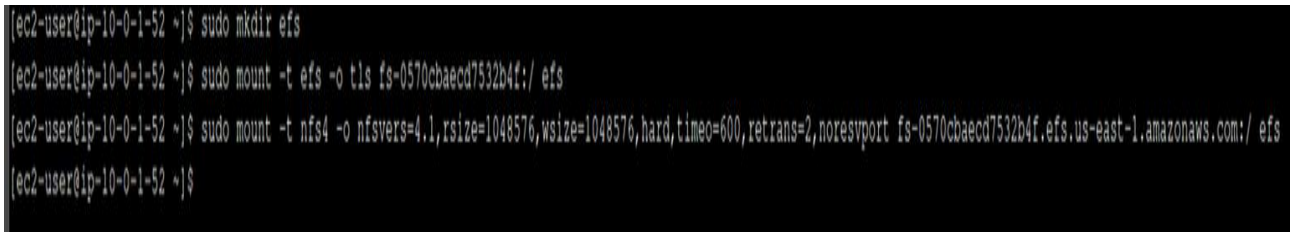
6. In your EC2 terminal session, Copy and run the entire command in the **Using the NFS client section.**

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

7. Get a full summary of the available and used disk space usage by entering:

```
sudo df -hT
```





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

Monitoring performance by using Amazon CloudWatch

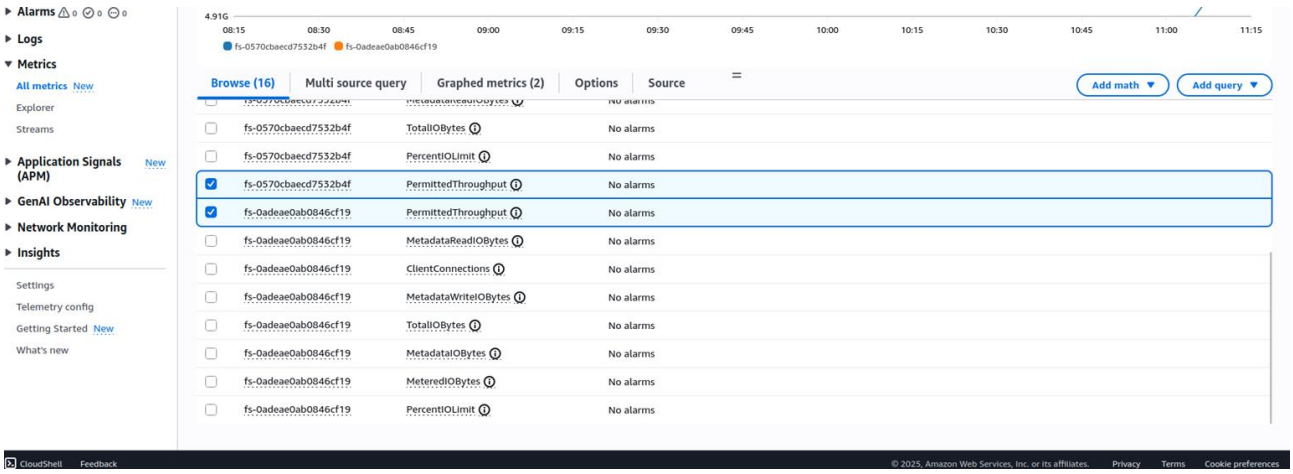
1. At the top of the AWS Management Console, in the search box, search for and choose `CloudWatch`.

2. In the navigation pane on the left, choose **All Metrics**.

3. In the **All metrics** tab, choose **EFS**.

4. Choose **File System Metrics**.

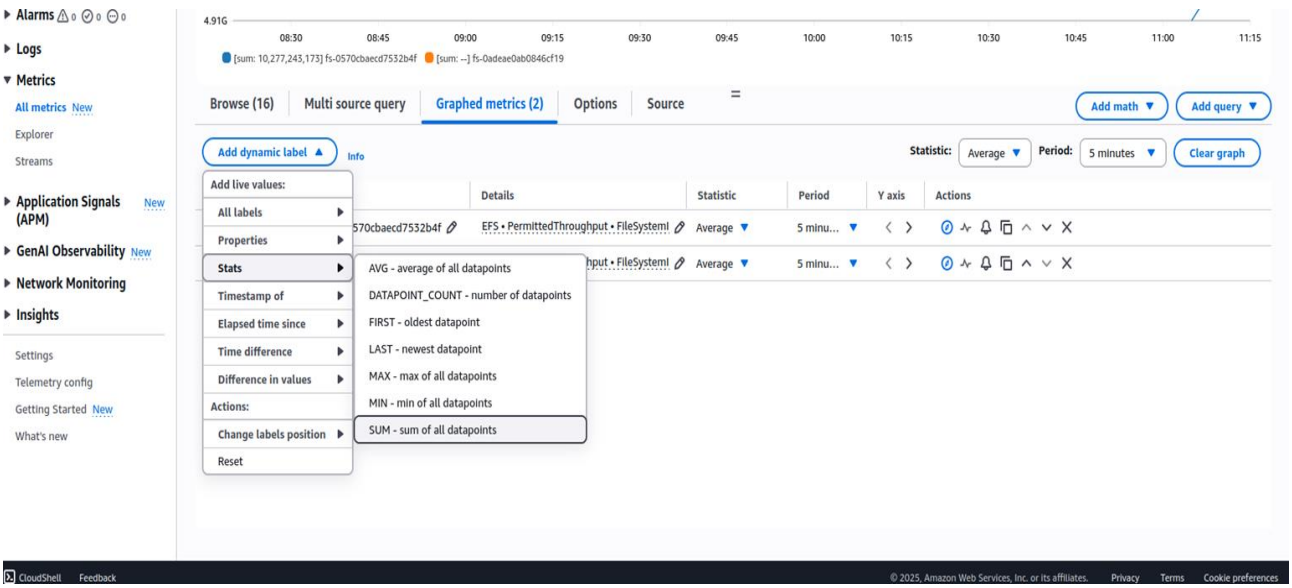
5. Select all the options that has the **PermittedThroughput** Metric Name.



6. Choose the **Graphed metrics** tab.

7. On the **Statistics** column, select **Sum**.

8. On the **Period** column, select **1 Minute**.



9. Note the the peak value, which is around 7.6G. Take this number (in bytes) and divide it by the duration in seconds (60 seconds). The result gives you the write throughput (B/s) of your file system during your test.