

Amazon Elastic File System (Amazon EFS) Report

Lab: Introducing Amazon Elastic File System (Amazon EFS)

Objectives

- ⑩ Access the AWS console, create an EFS file system, and launch an Amazon Linux EC2 instance.
- ⑩ Connect to the EC2 instance and mount the EFS file system.
- ⑩ Review and monitor the file system's performance.

Lab Environment Setup

- ⑩ This lab introduces you to Amazon Elastic File System (Amazon EFS) by using the AWS Management Console.
- ⑩ A timer-based lab session was started using the “Start Lab” button.
- ⑩ Pop-up windows were allowed in the browser to open the AWS Management Console in a new tab.
- ⑩ Resources were named exactly as specified in the instructions to ensure the lab scoring script works properly.

The screenshot shows a web browser window for the AWS Academy platform. The URL is awsacademy.instructure.com/courses/131613/assignments/1511958/module_item_id=12598718. The page title is "ACAv3EN-US-LT13-131613 > Assignments > Guided lab: Introducing Amazon Elastic File System (Amazon EFS) > Guided lab: Introducing Amazon Elastic File System (Amazon EFS)".

The main content area displays the assignment details:

- Due: No Due Date
- Points: 15
- Status: Submitting an external tool

A progress bar indicates "AWS" is 100% complete. To the right, there is a "Submission" section showing the submission date as Oct 28 at 1:41pm, submission details, grade (5/15), and grading status (Graded Anonymously: no). Below this are "Comments" (No Comments).

The central content area contains the following text:

Guided Lab: Introducing Amazon Elastic File System (Amazon EFS)

Lab overview and objectives

This lab introduces you to Amazon Elastic File System (Amazon EFS) by using the AWS Management Console.

After completing this lab, you should be able to:

- Log in to the AWS Management Console
- Create an Amazon EFS file system
- Log in to an Amazon Elastic Compute Cloud (Amazon EC2) instance that runs Amazon Linux
- Mount your file system to your EC2 instance
- Examine and monitor the performance of your file system

At the bottom of the page are navigation links: "Previous" and "Next".

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*.

The screenshot shows the AWS EC2 Instances page. On the left, there's a navigation pane with sections like Dashboard, EC2 Global View, Events, Instances (with sub-options like Instances, Instance Types, Launch Templates, etc.), Images, Elastic Block Store, and Network & Security. The main area shows a table of instances. A single row is selected for an instance named "EFS Client" with the ID "i-09dfd0f7bcbba0af3". Below the table, a modal window is open for this specific instance. The modal has tabs for Details, Status and alarms, Monitoring, Security (which is selected), Networking, and Storage. Under the Security tab, there's a section for "Security details" which includes an IAM Role (c174142a4508368l12159964t1w53851797-Ec2InstanceRole-) and a "Security group ID copied" message with a tooltip pointing to the ID "sg-0a9e53857194be273 (EFSClient)". To the right of the modal, there's an "Owner ID" field showing "538517972279".

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

- ⑩ **Security group name:** EFS Mount Target
- ⑩ **Description:** Inbound NFS access from EFS clients
- ⑩ **VPC:** Lab VPC

5. Under the **Inbound rules** section, choose **Add rule** then configure:

⑩ Type: NFS

⑩ Source:

⑩ Custom

⑩ In the *Custom* box, paste the security group's **Security group ID** that you copied to your text editor

⑩ Choose **Create security group**.

Security Groups (3) <small>Info</small>					
<small>Find security groups by attribute or tag</small>					
	Name	Security group ID	Security group name	VPC ID	Description
	EFSClient	sg-0a9e53857194be273	EFSClient	vpc-096da48e30394258d	EFS Client
	-	sg-0cb4204eabb6fc7	default	vpc-075b774dec577f345	default VPC security group
	-	sg-0c3377404fb85b35b	default	vpc-096da48e30394258d	default VPC security group

EC2 > Security Groups > Create security group

Create security group Info

A security group acts as a virtual firewall for your instance to control inbound and outbound traffic. To create a new security group, complete the fields below.

Basic details

Security group name Info
EFS Mount Target
Name cannot be edited after creation.

Description Info
EFS Mount Targe

VPC Info
vpc-096da48e30394258d (Lab VPC)

Inbound rules Info

Type	Protocol	Port range	Source	Description - optional
NFS	TCP	2049	Custom	<input type="text" value="sg-0a9e53857194be273"/> <small>X</small> <small>Delete</small>
<small>Add rule</small>				

Outbound rules Info

Type	Protocol	Port range	Destination	Description - optional
All traffic	All	All	Custom	<input type="text" value="0.0.0.0/0"/> <small>X</small> <small>Delete</small>
<small>Add rule</small>				

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**:

⑩ Uncheck Enable Automatic backups.

⑩ **Lifecycle management**:

⑩ for **Transition into IA** Select *None*.

⑩ In the **Tags optional** section, configure:

⑩ **Key:** Name

⑩ **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.

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 into Archive	Transition into Standard
Transition files to IA based on the time since they were last accessed in Standard storage.	Transition files to Archive based on the time since they were last accessed in Standard storage.	Transition files back to Standard storage based on when they are first accessed in IA or Archive storage.
<input type="button" value="30 day(s) since last access"/>	<input type="button" value="90 day(s) since last access"/>	<input type="button" value="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	<input type="text" value="Name"/> <input type="button" value="X"/>	<input type="text" value="myefs"/> <input type="button" value="X"/>	<input type="button" value="Remove tag"/>
<input type="button" value="Add tag"/>			

You can add 49 more tag(s)

Cancel
Next

Amazon EFS > File systems > Create

Step 1
File system settings

Step 2
Network access

Step 3 - optional
File system policy

Step 4
Review and create

Network access

Network
Virtual Private Cloud (VPC) | Learn more

Choose the VPC where you want EC2 instances to connect to your file system.

vpc-096da48e30394258d
Lab VPC

Mount targets
A mount target provides an NFSv4 endpoint at which you can mount an Amazon EFS file system. We recommend creating one mount target per Availability Zone. Learn more

Availability zone	Subnet ID	IP address type	IPv4 address	IPv6 address	Security groups
us-east-1a	subnet-015...	IPv4 only	Optional	-	<input type="button" value="Choose secur..."/> <input type="button" value="Remove"/> <div style="border: 1px solid #ccc; padding: 5px; display: inline-block;"> sg-0b3c3b0df 0110b9b0 EFS Mount Target </div> <input type="checkbox"/> Show more (+1)
us-east-1b	subnet-00ff...	IPv4 only	Optional	-	<input type="button" value="Choose secur..."/> <input type="button" value="Remove"/> <div style="border: 1px solid #ccc; padding: 5px; display: inline-block;"> sg-0b3c3b0df 0110b9b0 EFS Mount Target </div>

Amazon EFS > File systems

Elastic File System

Success
File system (fs-0570cbaecd7532b4f) is available.

File systems (1)

Filter by property values

Name	File system ID	Encrypted	Total size	Size in Standard	Size in IA	Size in Archive	Provisioned Throughput (MiB/s)	File system state	Creation time	Availability Zone
myefs	fs-0570cbaecd7532b4f	<input type="radio"/> Unencrypted	6.00 KIB	6.00 KIB	0 Bytes	0 Bytes	-	<input type="radio"/> Available	Tue, 18 Nov 2025 11:06:49 GMT	Regional

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.

The screenshot shows the AWS Cloud Access interface. At the top, there are buttons for 'Start Lab', 'End Lab', 'AWS Details', 'Details', 'Submit', 'Submission Report', and 'Grades'. A 'Close' button is also present. Below these, a 'Cloud Access' section displays session information: 'Remaining session time: 01:50:33(111 minutes)', 'Session started at: 2025-11-18T06:07:59-0800', and 'Session to end at: 2025-11-18T08:07:59-0800'. It also shows 'Accumulated lab time: 05:24:00 (324 minutes)'. Under 'AWS CLI:', there is a 'Show' button. Under 'Cloud Labs', there are buttons for 'SSH key' (with 'Show', 'Download PEM', and 'Download PPK'), 'AWS SSO' (with 'Download URL'), and an 'InstanceSessionURL' field containing the value <https://us-east-1.console.aws.amazon.com/systems-manager/session-.../manager/l-0b459763e87d1273e>.

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,wszie=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
```

The screenshot shows a terminal session in a CloudShell window. The session ID is user4312501-SNEHA_S_SHETTY-4z2gxap4747vbvtvaygbileuu. The instance ID is i-09dfdf0f7bcbba0af3. The terminal window has tabs for 'Shortcuts' and 'Terminate'. The command run was 'sudo yum install -y amazon-efs-utils'. The output shows the transaction summary for installing 'amazon-efs-utils' and 'stunnel'. It includes details like package name, architecture, version, repository, and size. The transaction summary also shows the total download size, installed size, and the progress of the download.

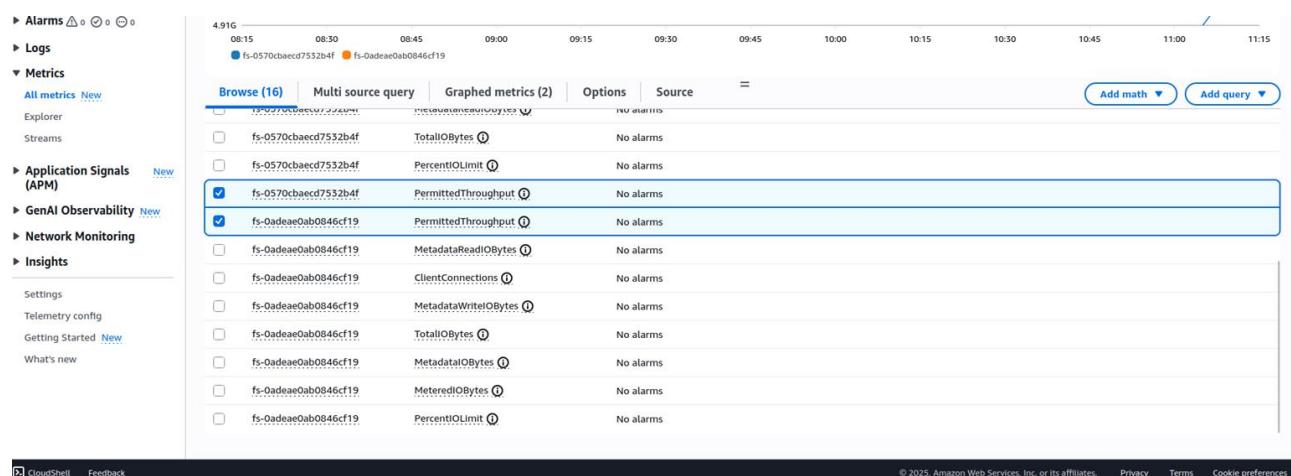
```
Session ID: user4312501-SNEHA_S_SHETTY-4z2gxap4747vbvtvaygbileuu [ Shortcuts ] Instance ID: i-09dfdf0f7bcbba0af3 [ Terminate ]  
  
sh-5.2$ sudo su -l ec2-user  
[ec2-user@ip-10-0-1-52 ~]$ sudo yum install -y amazon-efs-utils  
Last metadata expiration check: 0:28:41 ago on Tue Nov 18 10:47:13 2025.  
Dependencies resolved.  
=====  
Package           Architecture      Version       Repository      Size  
=====  
Installing:  
amazon-efs-utils          x86_64        2.4.0-1.amzn2023      amazonlinux    4.7 M  
Installing dependencies:  
stunnel                  x86_64        5.58-1.amzn2023.0.2  amazonlinux    156 k  
  
Transaction Summary  
=====  
Install 2 Packages  
  
Total download size: 4.9 M  
Installed size: 9.9 M  
Downloading Packages:  
(1/2): stunnel-5.58-1.amzn2023.0.2.x86_64.rpm           4.1 MB/s | 156 kB     00:00  
(2/2): amazon-efs-utils-2.4.0-1.amzn2023.x86_64.rpm       46 MB/s | 4.7 MB     00:00  
=====  
36 MB/s | 4.9 MB     00:00  
  
Total  
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-2.4.0-1.amzn2023.x86_64      2/2  
  Running scriptlet: amazon-efs-utils-2.4.0-1.amzn2023.x86_64 2/2  
  Verifying   : amazon-efs-utils-2.4.0-1.amzn2023.x86_64      1/2  
  Verifying   : stunnel-5.58-1.amzn2023.0.2.x86_64          2/2  
  
Installed:  
amazon-efs-utils-2.4.0-1.amzn2023.x86_64                         stunnel-5.58-1.amzn2023.0.2.x86_64  
  
Complete!  
[ec2-user@ip-10-0-1-52 ~]$
```

```
[ec2-user@ip-10-0-1-52 ~]$ sudo mkdir efs  
[ec2-user@ip-10-0-1-52 ~]$ sudo mount -t efs -o tls fs-0570cbaecd7532b4f:/ efs  
[ec2-user@ip-10-0-1-52 ~]$ sudo mount -t nfs4 -o nfsvers=4.1,rsize=1048576,wszie=1048576,hard,timeo=600,retrans=2,noresvport fs-0570cbaecd7532b4f.efs.us-east-1.amazonaws.com:/ efs  
[ec2-user@ip-10-0-1-52 ~]$
```

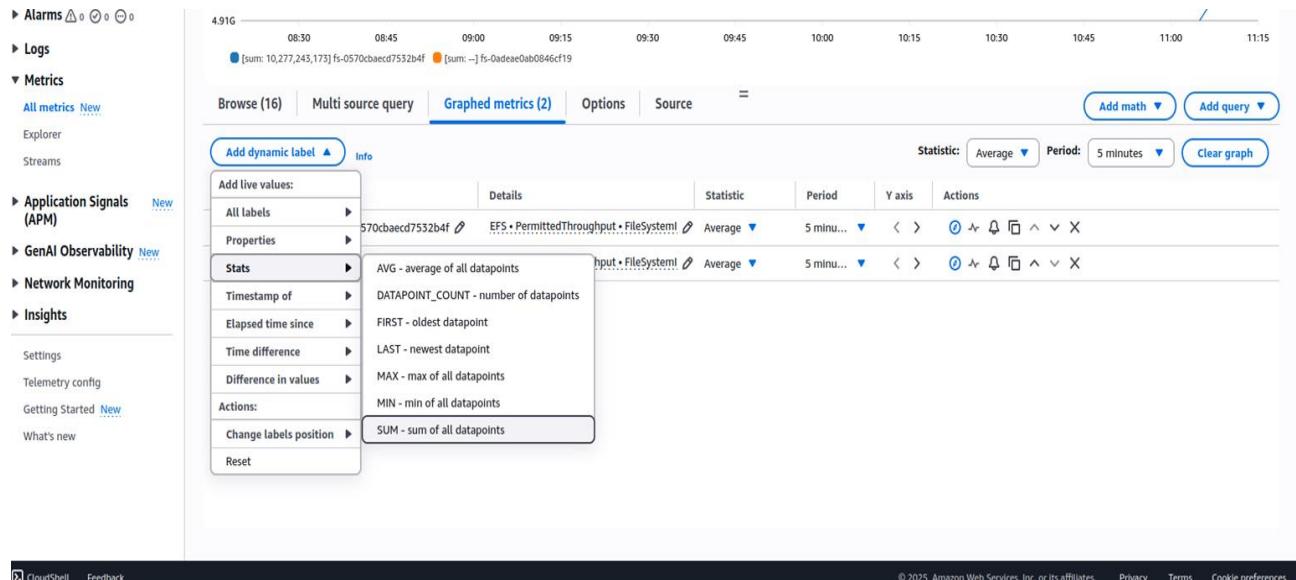
Task 5: Examining the performance behavior of your new EFS file system

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 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.

