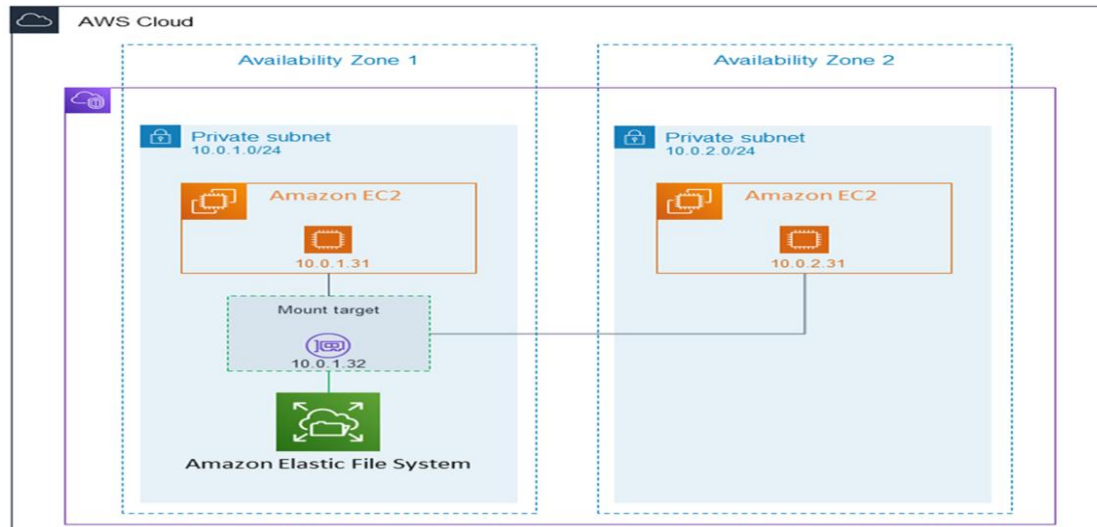


Elastic File Storage

Amazon Elastic File System (EFS) is a scalable and fully managed file storage service provided by Amazon Web Services (AWS). It allows you to create and configure file systems that can be accessed concurrently from multiple EC2 instances, providing a highly available and scalable storage solution for your applications and workloads.



Amazon EFS supports **for only Amazon Linux instance**:

Step 1: Launching EC2 Instances

1. Sign in to AWS Management Console.
2. Go to the EC2 dashboard.
3. Click on "Launch Instance".
4. Configure instance details:
 - Instance Name: **EFS-1**
5. Choose an Amazon Machine Image (AMI) **for Linux**.
6. Select instance type: t2.micro.
 - Key Pair: EFS
 - **Network: Choose Subnet-1a**
 - Security Group: **Create a new security group (SG) and add NFS and allow from anywhere.**

7. Launch the instance.

8. Repeat the above steps to launch another instance named **EFS-2** in **Subnet-1b** with the same configuration.

Launch an instance

Key pair name - required
Ke2 [Create new key pair](#)

Network settings [Info](#)

VPC - required [Info](#)
vpc-0d1325c8014a7178b (default) [Create new VPC](#)

Subnet [Info](#)
subnet-02e8d41cf03965d25 [Create new subnet](#)

Auto-assign public IP [Info](#)
Enable

Firewall (security groups) [Info](#)
A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.
☒ Create security group ☐ Select existing security group

Security group name - required
launch-wizard-32-SGG2

Description - required [Info](#)
This security group will be added to all network interfaces. The name can't be edited after the security group is created. Max length is 255 characters. Valid characters: a-z, A-Z, 0-9, spaces, and _-./!@#%&*~:[]{}|`^"@'

Summary

Number of instances [Info](#)
1

Software Image (AMI)
Amazon Linux 2023 AMI 2023.10...[read more](#)
ami-0532be01f26a3de55

Virtual server type (instance type)
t2.micro

Firewall (security group)
New security group

Storage (volumes)
1 volume(s) - 8 GiB

[Cancel](#) [Launch instance](#) [Preview code](#)

Anywhere [Add CIDR, prefix list or security group](#) [e.g. SSH for admin desktop](#)

0.0.0.0/0 [X](#)

Security group rule 3 (TCP; 80; 0.0.0.0/0) [Remove](#)

Type [Info](#)
HTTP

Protocol [Info](#)
TCP

Port range [Info](#)
80

Source type [Info](#)
Anywhere

Source [Info](#)
[Add CIDR, prefix list or security group](#)

Description - optional [Info](#)
e.g. SSH for admin desktop

0.0.0.0/0 [X](#)

Security group rule 4 (TCP; 2049; 0.0.0.0/0) [Remove](#)

Type [Info](#)
NFS

Protocol [Info](#)
TCP

Port range [Info](#)
2049

Source type [Info](#)
Anywhere

Source [Info](#)
[Add CIDR, prefix list or security group](#)

Description - optional [Info](#)
e.g. SSH for admin desktop

0.0.0.0/0 [X](#)

Rules with source of 0.0.0.0/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only. [X](#)

Summary

Number of instances [Info](#)
1

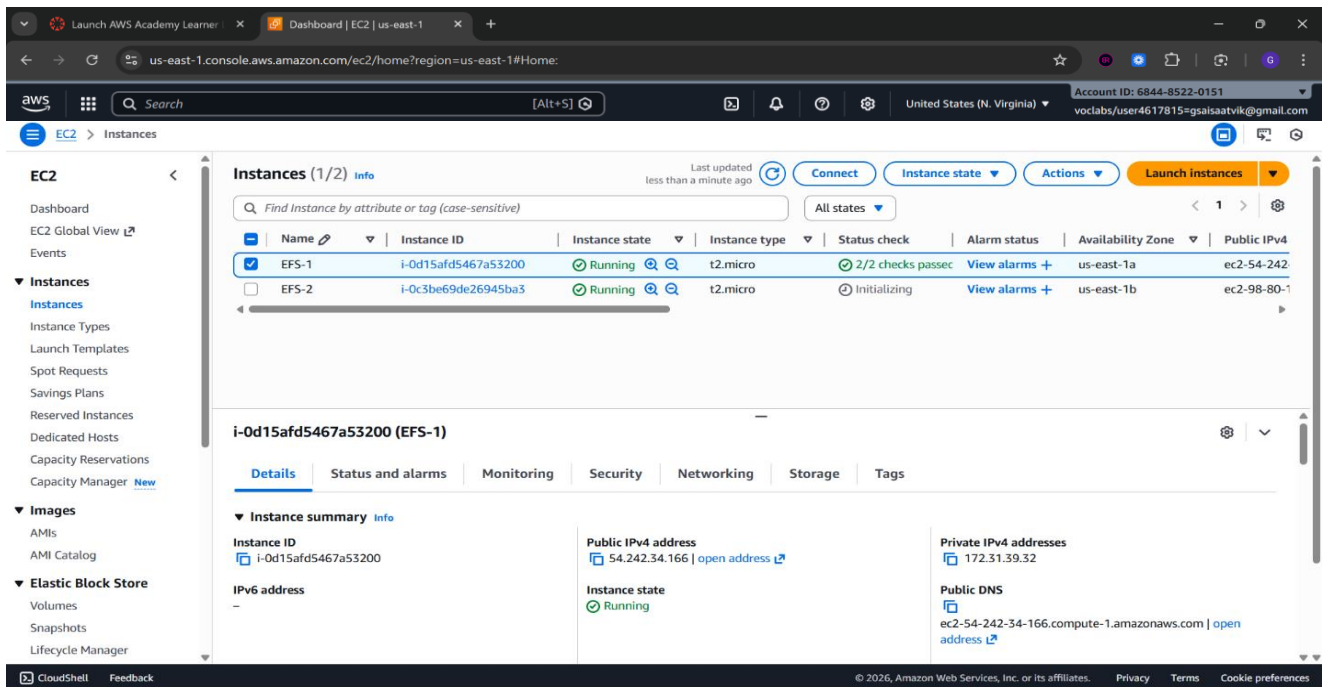
Software Image (AMI)
Amazon Linux 2023 AMI 2023.10...[read more](#)
ami-0532be01f26a3de55

Virtual server type (instance type)
t2.micro

Firewall (security group)
New security group

Storage (volumes)
1 volume(s) - 8 GiB

[Cancel](#) [Launch instance](#) [Preview code](#)



Step 2: Creating an EFS File System

1. Go to the EFS service in the AWS Management Console.

2. Click on "Create file system".

3. Specify details:

- Name: Optional
- VPC: Default
- Enable region button.

Click on "Next".

4. In the Network settings:

- Delete all security groups.
- **Select the newly created security group (NFS).**---which is created while creating instance

Click on "Next" and review the configuration.

Click on "Create file system".

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Amazon EFS

Elastic File System

File systems

Access points

AWS Backup

AWS DataSync

AWS Transfer

Documentation

Amazon Elastic File System

Scalable, elastic, cloud-native NFS file system

Amazon Elastic File System (Amazon EFS) provides a simple, scalable, elastic file system for general purpose workloads for use with AWS Cloud services and on-premises resources.

Create file system

Create an EFS file system with recommended settings.

Create file system

Pricing

With EFS, there are no minimum fees. You pay only for the storage that you use, the data that you read and write, and any additional throughput that you provision.


Estimate your cost using the [AWS Pricing Calculator](#)

[Learn more about pricing](#)

Get started

[What is Amazon Elastic File System?](#)

What is Amazon Elastic File System?



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Amazon EFS > File systems > Create

File system settings

Step 1: File system settings

Step 2: Network access

Step 3 - optional: File system policy

Step 4: Review and create

General

Name optional

Name: FEES-tem.

EFS

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

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

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us-east-1:console.aws.amazon.com/ec2/home?region=us-east-1#home

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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-Od1325c8014a7178b
default

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-0...	IPv4 only	Optional	-	Choose se...	Remove
					<div>sg- Odd6af10fc db275b9 launch- wizard-32- SGG1</div>	
us-east-1b	subnet-0...	IPv4 only	Optional	-	Choose se...	Remove
					<div>sg- 02822ef7e 53fcc5fb launch- wizard-32- SGG2</div>	

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us-east-1:console.aws.amazon.com/ec2/home?region=us-east-1#home

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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

File system policy - optional

Policy options

Select one or more of these common policy options, or create a custom policy using the editor. [Learn more](#)

- ☐ Prevent root access by default*
- ☐ Enforce read-only access by default*
- ☐ Prevent anonymous access
- ☐ Enforce in-transit encryption for all clients

* Identity-based policies can override these default permissions.

► Grant additional permissions

Policy editor (JSON)

Clear

Manual changes will prevent the use of the policy options on the left until the editor is cleared.

Cancel

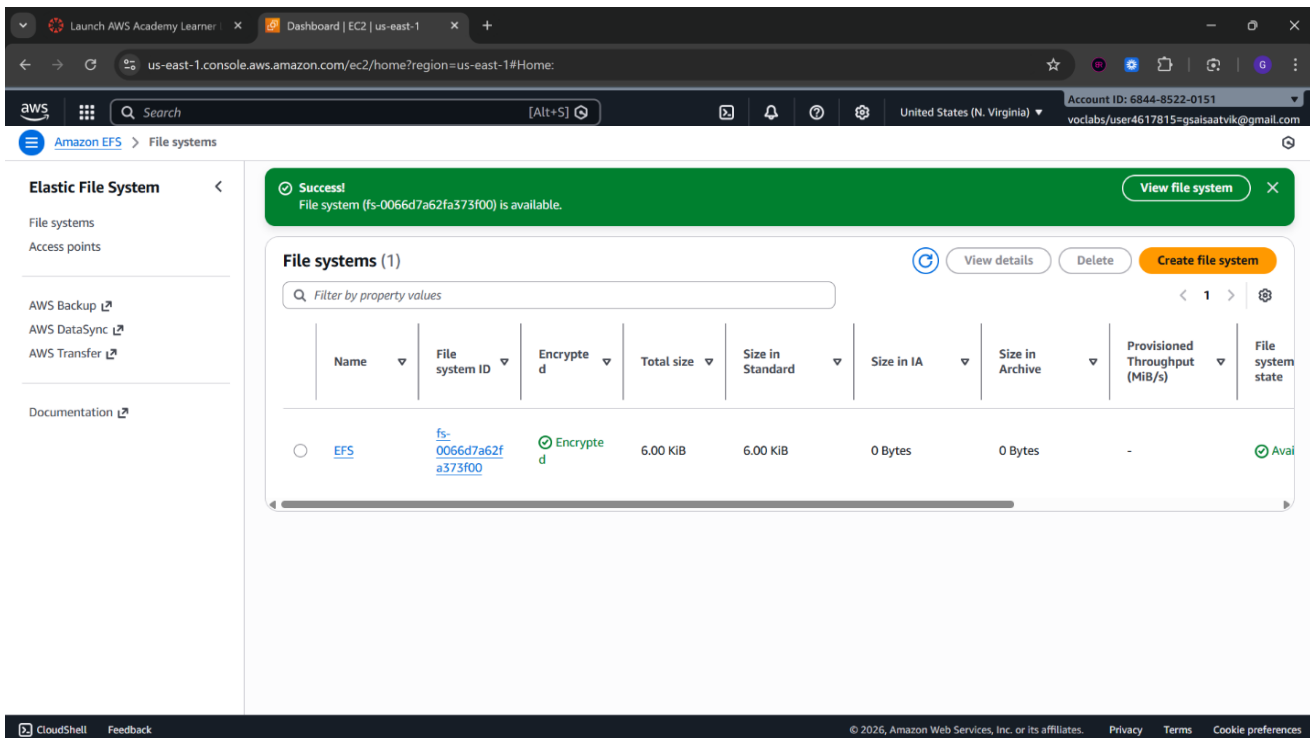
Previous

Next

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Step 3: Accessing the two EC2 instances named EFS-1 & EFS -2 in **two different PowerShell** sessions and performing the specified tasks:

Accessing EFS-1 Instances in Two Different PowerShell Sessions:

1. Open Two PowerShell Sessions:

- Open two separate PowerShell windows or tabs on your local machine.

For each Instance:

2. SSH into the Instance:

- Use the SSH command to connect to the EFS-1 instance

```
ssh -i [path-to-your-keypair.pem] ec2-user@[instance-public-ip]
```

3. Switch to Root User:

- Gain root access by executing the following command:

```
sudo su
```

4. Create a Directory:

- Make a directory named "efs" using the following command:

```
mkdir efs
```

5. Install Amazon EFS Utilities:

- Use yum package manager to install the Amazon EFS utilities:

```
yum install -y amazon-efs-utils
```

6. List Files:

- Execute the following command to list files in the current directory:

```
ls
```

7. Verify Installation (Optional):

- Optionally, you can verify the installation of the Amazon EFS utilities by checking the version:

```
efs-utils --version
```

Repeat Steps 2-7 for ----- EFS-2 Instance.

By following these steps, you'll have accessed each EFS-1 instance in separate PowerShell sessions, switched to the root user, created a directory named "efs," installed the Amazon EFS utilities, and listed files in the directory. This setup allows you to configure and manage each instance individually as needed.

us-east-1:console.aws.amazon.com/ec2/home?region=us-east-1#Home:

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EC2 > Instances > i-Od15afd5467a53200 > Connect to instance

Connect Info

Connect to an instance using the browser-based client.

EC2 Instance Connect | Session Manager | SSH client | EC2 serial console

Instance ID
i-Od15afd5467a53200 (EFS-1)

Connection type

☒ **Connect using a Public IP**
Connect using a public IPv4 or IPv6 address

☐ **Connect using a Private IP**
Connect using a private IP address and a VPC endpoint

Public IPv4 address
54.242.34.166

☐ **IPv6 address**
-

Username
Enter the username defined in the AMI used to launch the instance. If you didn't define a custom username, use the default username, ec2-user.

ec2-user

Note: In most cases, the default username, ec2-user, is correct. However, read your AMI usage instructions to check if the AMI owner has changed the default AMI username.

[Cancel](#) [Connect](#)

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```
#
#_#
#### Amazon Linux 2023
~~~\#####
~~~\###|
~~~\#/
~~~\~/
~~~\~/
~~~\~/
~/m/

[ec2-user@ip-172-31-7-61 ~]$ sudo su
[root@ip-172-31-7-61 ec2-user]# sudo mkdir efs
[root@ip-172-31-7-61 ec2-user]# ls
efs
[root@ip-172-31-7-61 ec2-user]# yum install -y amazon-efs-utils
```

i-0c3be69de26945ba3 (EFS-2)

PublicIPs: 98.80.191.176 PrivateIPs: 172.31.7.61

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```
Amazon Linux 2023
https://aws.amazon.com/linux/amazon-linux-2023

[ec2-user@ip-172-31-39-32 ~]$ sudo su
[root@ip-172-31-39-32 ec2-user]# mkdir efs
[root@ip-172-31-39-32 ec2-user]# ls
efs
[root@ip-172-31-39-32 ec2-user]# yum install -y amazon-efs-utils
Amazon Linux 2023 Kernel Livepatch repository 218 kB/s | 30 kB 00:00
Dependencies resolved.

Package Architecture Version Repository Size
Installing:
amazon-efs-utils x86_64 2.4.1-1.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: 10 M

i-0d15afd5467a53200 (EFS-1)
PublicIPs: 54.242.34.166 PrivateIPs: 172.31.39.32
```

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Step 4: Attaching EFS to EC2 Instances

1. Go to the EFS service in the AWS Management Console.
2. Click on the target EFS file system.
3. Click on the "Attach" button.
4. Choose "**Mount via DNS**" option.
5. Copy the displayed command.,on both ec2 instances(powershell)
6. Paste and execute the copied command in the terminal to mount the EFS file system onto the instance.

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```
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-2.4.1-1.amzn2023.x86_64 2/2
Running scriptlet: amazon-efs-utils-2.4.1-1.amzn2023.x86_64 2/2
Verifying : amazon-efs-utils-2.4.1-1.amzn2023.x86_64 1/2
Verifying : stunnel-5.58-1.amzn2023.0.2.x86_64 2/2

=====
WARNING:
A newer release of "Amazon Linux" is available.

Available Versions:

Version 2023.10.20260120:
Run the following command to upgrade to 2023.10.20260120:

dnf upgrade --releasever=2023.10.20260120

Release notes:
https://docs.aws.amazon.com/linux/al2023/release-notes/relnotes-2023.10.20260120.html

=====

Installed:
amazon-efs-utils-2.4.1-1.amzn2023.x86_64 stunnel-5.58-1.amzn2023.0.2.x86_64

Complete!
[root@ip-172-31-7-61 ec2-user]#
```

i-0c3be69de26945ba3 (EFS-2)

PublicIPs: 98.80.191.176 PrivateIPs: 172.31.7.61

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Amazon EFS > File systems > fs-0066d7a62fa373f00

Elastic File System < EFS (fs-0066d7a62fa373f00) Delete Attach

File systems Access points

Attach

Mount your Amazon EFS file system on a Linux instance. [Learn more](#)

☒ Mount via DNS ☐ Mount via IP

Using the EFS mount helper:

```
sudo mount -t efs -o tls fs-0066d7a62fa373f00:/ efs
```

Using the NFS client:

```
sudo mount -t nfs4 -o nfsvers=4.1,rsize=1048576,wsiz=1048576,hard,timeo=600,retrans=2,noresvport fs-0066d7a62fa373f00.efs.us-east-1.amazonaws.com:/ efs
```

See our user guide for more information. [Learn more](#)

Close

Metered size

Total size

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Step 5: Verify and Test EFS

1. Change the directory to EFS on both instances.
2. Create a file on one instance.
3. Verify that the file automatically synchronizes and appears on the other instance.

```
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Running scriptlet: amazon-efs-utils-2.4.1-1.amzn2023.x86_64 2/2
Verifying : amazon-efs-utils-2.4.1-1.amzn2023.x86_64 1/2
Verifying : stunnel-5.58-1.amzn2023.0.2.x86_64 2/2

WARNING:
A newer release of "Amazon Linux" is available.

Available Versions:
Version 2023.10.20260120:
Run the following command to upgrade to 2023.10.20260120:
    dnf upgrade --releasever=2023.10.20260120

Release notes:
https://docs.aws.amazon.com/linux/al2023/release-notes/relnotes-2023.10.20260120.html

Installed:
amazon-efs-utils-2.4.1-1.amzn2023.x86_64 stunnel-5.58-1.amzn2023.0.2.x86_64

Complete!
[root@ip-172-31-7-61 ec2-user]# sudo mount -t efs -o tls fs-0066d7a62fa373f00:/ efs
[root@ip-172-31-7-61 ec2-user]# cd efs
[root@ip-172-31-7-61 efs]# ls
f1
[root@ip-172-31-7-61 efs]# touch f2
[root@ip-172-31-7-61 efs]# ls
f1 f2
[root@ip-172-31-7-61 efs]#
```

i-0c3be69de26945ba3 (EFS-2)
PublicIPs: 98.80.191.176 PrivateIPs: 172.31.7.61

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By above steps, we can successfully create EC2 instances, configured them, created an EFS file system, and attached it to the instances in the same availability zone in the Mumbai region. Now, the instances can seamlessly access and share files stored in the EFS file system.