😊 AMAZON ELASTIC FILE SYSTEM

Amazon Elastic File System (Amazon EFS) is a scalable and fully managed cloud-based file storage service provided by Amazon Web Services (AWS). It is designed to provide scalable and elastic file storage for use with AWS Cloud services and on-premises resources. Amazon EFS is built on a distributed architecture that allows it to grow and shrink automatically as you add or remove files, making it suitable for a wide range of applications and workloads.

Key features of Amazon EFS include:

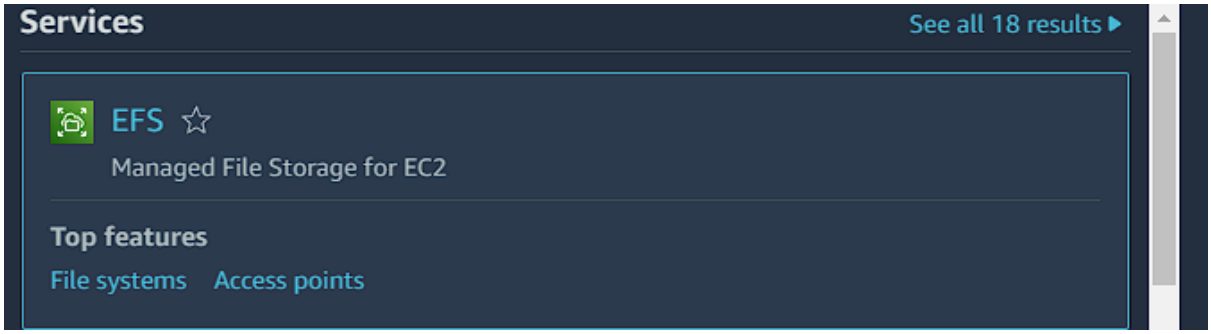
1. **Scalability:** Amazon EFS can scale horizontally to petabytes of data, allowing you to accommodate growing storage needs without manual intervention.
2. **Performance:** It is designed to provide low-latency, high-throughput performance, making it suitable for a variety of applications, including big data analytics, media processing, and content management.
3. **Shared File System:** Amazon EFS allows multiple Amazon EC2 instances to access the same file system simultaneously. This makes it well-suited for workloads that require shared access to data.
4. **Fully Managed:** AWS takes care of the operational aspects of the file system, such as hardware provisioning, software configuration, and maintenance. This allows you to focus on your applications and data.
5. **Integration:** Amazon EFS can be easily integrated with other AWS services, such as Amazon EC2 instances, AWS Lambda, and more. It supports the Network File System version 4 (NFSv4) protocol.
6. **Multi-AZ Durability:** Amazon EFS is designed for high durability by storing data across multiple availability zones (AZs), providing fault tolerance and redundancy.

Amazon EFS is suitable for a wide range of use cases, including web serving and content management, big data analytics, database backups, development and testing, and container storage. It's a flexible and reliable option for applications that require shared file storage in the AWS cloud environment.

😁 TO BEGIN WITH THE LAB:

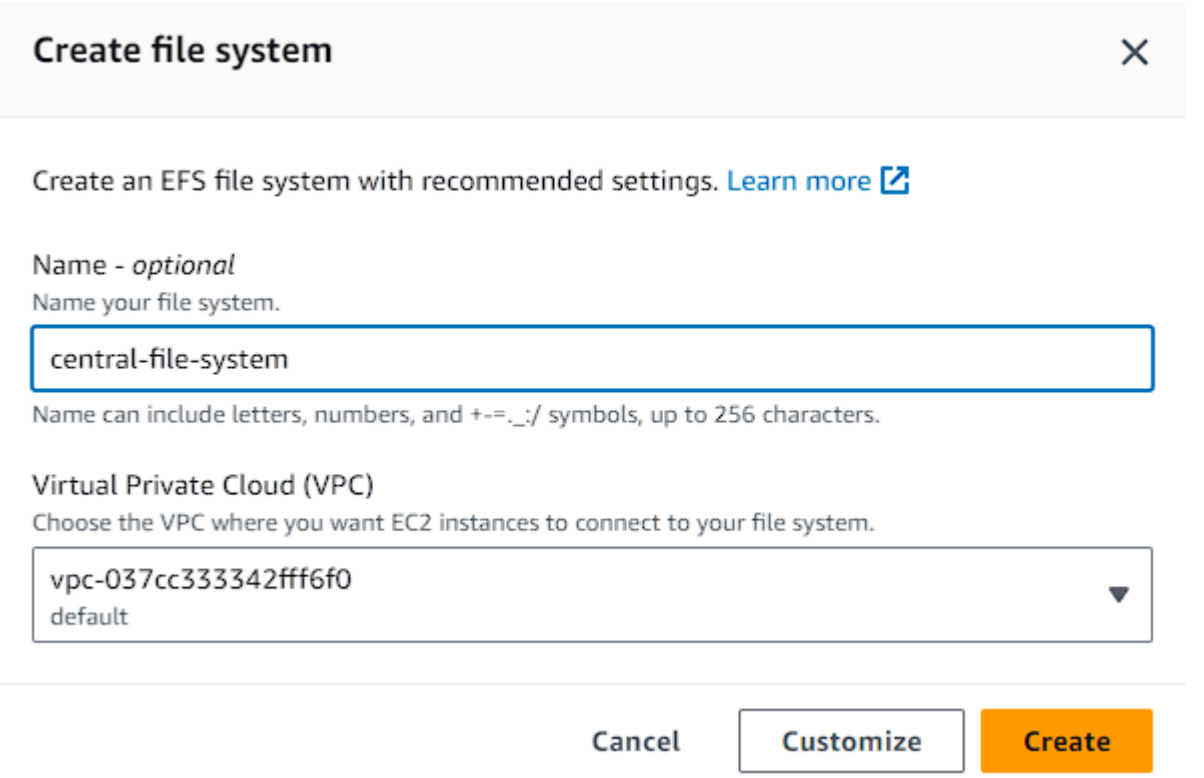
🤓 STEP 1: CREATE EFS

1. On the console search for Elastic file system (EFS) service. Open this service accordingly.

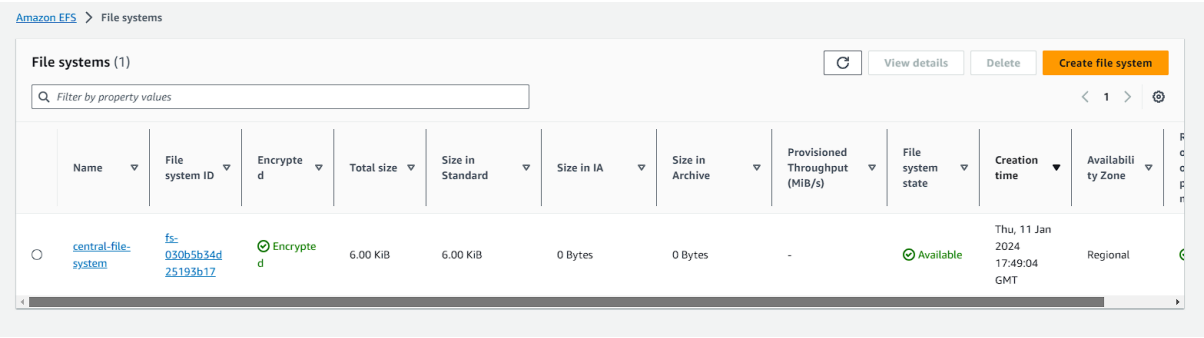


2. This is the dashboard for EFS.

3. Now click on Create file system.
4. Give it a name and choose default VPC. Then click on Create.

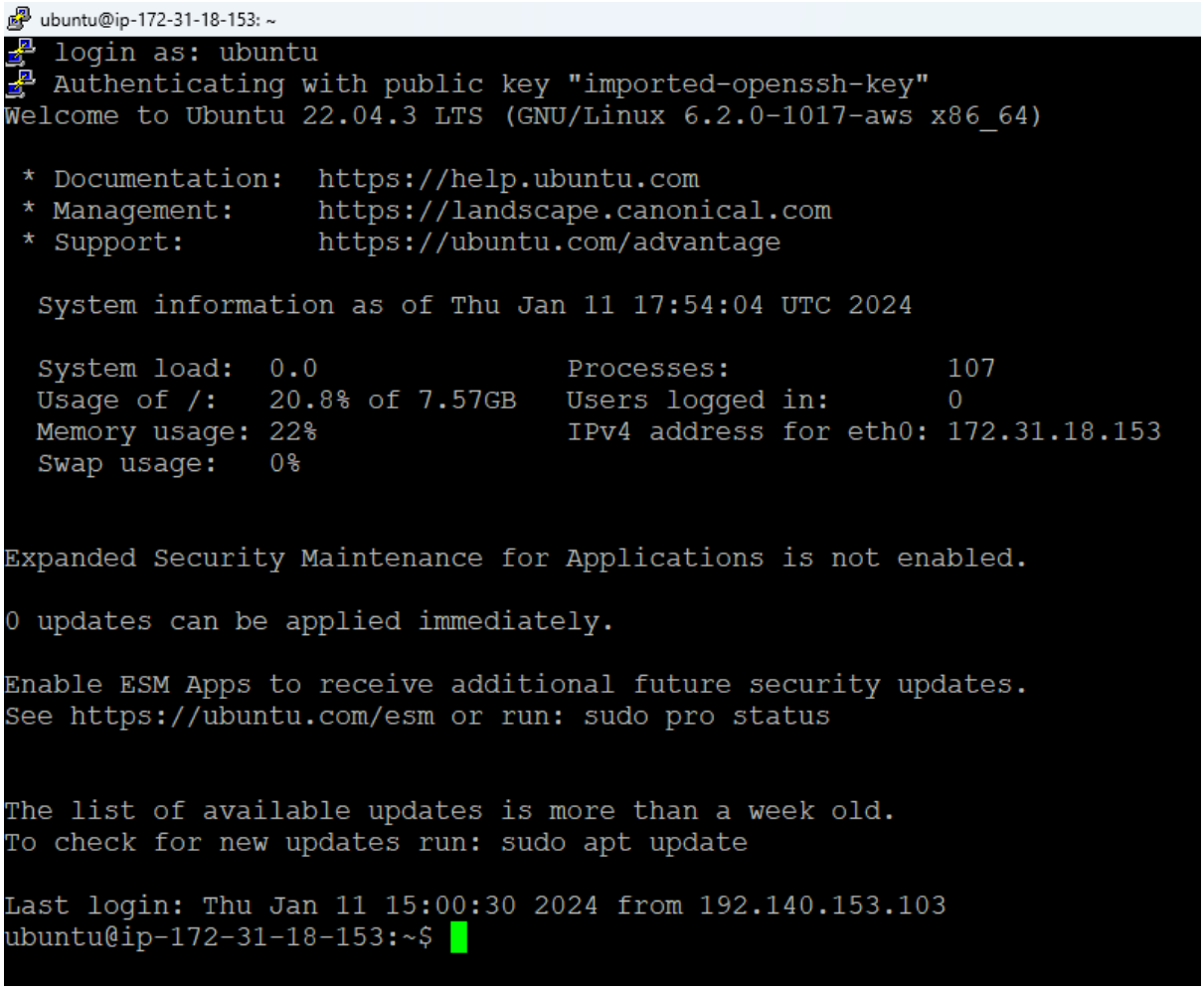


5. Now your file system is available.



STEP 2: LAUNCH EC2 INSTANCE AND INSTALL EFS

1. Now go to EC2 and log in to one of your instances using Putty.



2. Now you have to install EFS on this instance for that use this link to go to AWS official documentation and copy the commands to install EFS. https://docs.aws.amazon.com/efs/latest/ug/installing-amazon-efs-utils.html#installing-other-distro
3. So, these are the set of commands, you can find them on the link.
4. You have to run each of these commands one by one.
5. Once your installation is completed and the EFS is installed on your instance.

2. (Optional) Apply updates before installing the package with the following command:

```
sudo apt-get update
```

Install updates as needed.

3. Install `git` and `binutils`, using the following command. `binutils` is required for building DEB packages,

```
sudo apt-get -y install git binutils
```

4. Clone `amazon-efs-utils` from GitHub using the following command.

```
git clone https://github.com/aws/efs-utils
```

To build and install the `amazon-efs-utils` DEB package

1. Navigate to the directory that contains the `amazon-efs-utils` package.

```
cd /path/efs-utils
```

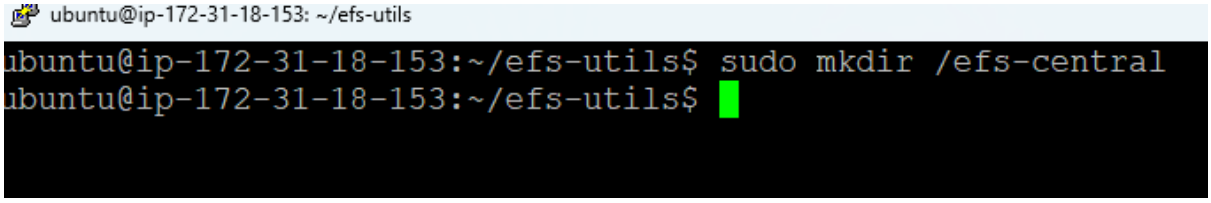
2. Build `amazon-efs-utils` using the following command:

```
./build-deb.sh
```

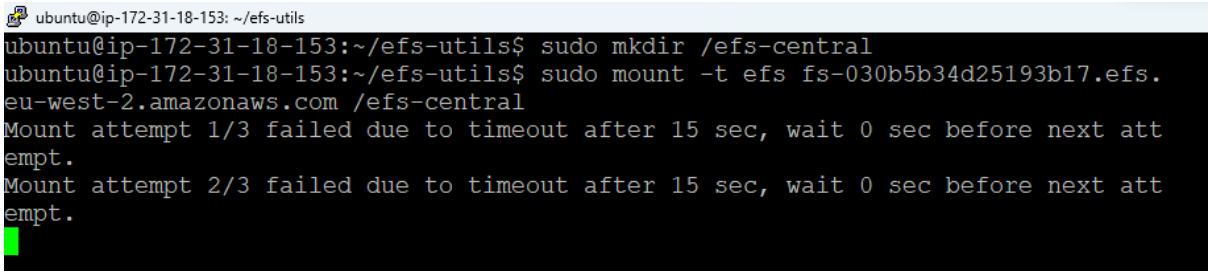
3. Install the package with the following command.

```
sudo apt-get -y install ./build/amazon-efs-utils*deb
```

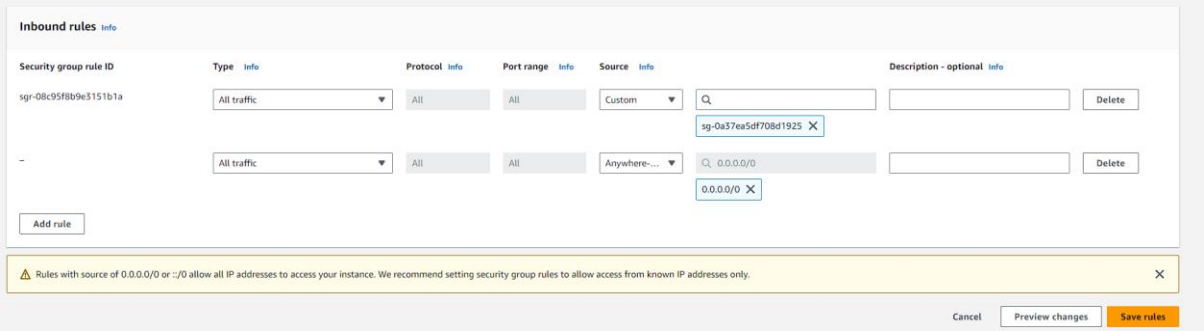
6. Now you have to create a directory as a mount point so the EFS can connect onto this machine.



7. Once the directory is created now you have to mount the EFS to your instance. For that copy your DNS of the EFS and paste it here. Then press enter.
8. Here as you can see that the mount attempt is failing. It is because the default security group does not have the proper inbound rule assigned.



9. So, now go back to the console and go to your default security group. There you need to allow all traffic from everywhere.



10. Once you have adjusted the security the group you will see that the mounting has been successful.

```
ubuntu@ip-172-31-18-153: ~/efs-utils
ubuntu@ip-172-31-18-153:~/efs-utils$ sudo mkdir /efs-central
ubuntu@ip-172-31-18-153:~/efs-utils$ sudo mount -t efs fs-030b5b34d25193b17.efs.
eu-west-2.amazonaws.com /efs-central
Mount attempt 1/3 failed due to timeout after 15 sec, wait 0 sec before next att
empt.
Mount attempt 2/3 failed due to timeout after 15 sec, wait 0 sec before next att
empt.
ubuntu@ip-172-31-18-153:~/efs-utils$
```

11. Now come out of the utils folder and go to efs-central folder.
12. There you need to change some settings, then create a .txt file.
13. Then list that file and you will be able to see the content of the files.

```
ubuntu@ip-172-31-18-153:~/efs-utils$ cd ..
ubuntu@ip-172-31-18-153:~$ cd /efs-central
ubuntu@ip-172-31-18-153:/efs-central$ sudo chmod 777 /efs-central
ubuntu@ip-172-31-18-153:/efs-central$ echo "This is the EFS system" > file.txt
ubuntu@ip-172-31-18-153:/efs-central$ ls
file.txt
ubuntu@ip-172-31-18-153:/efs-central$ more file.txt
This is the EFS system
ubuntu@ip-172-31-18-153:/efs-central$
```

14. Now you are going to log in to another instance which in another availability zone and install the EFS in it too.
15. The steps are the same as before.
16. After installing you have to mount the EFS too.
17. Once you have done that you will be able to see this .txt file on that instance too.

```
ubuntu@ip-172-31-37-157: /efs-central
ubuntu@ip-172-31-37-157:/efs-central$ ls
file.txt
ubuntu@ip-172-31-37-157:/efs-central$ more file.txt
This is the EFS system
ubuntu@ip-172-31-37-157:/efs-central$
```