

AWS - EFS (Elastic File System)

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Practical:1

1. Create EFS file system

The screenshot shows the AWS Elastic File System console. On the left, there's a navigation menu with options like 'File systems', 'Access points', 'AWS Backup', 'AWS DataSync', 'AWS Transfer', and 'Documentation'. The main area displays 'File systems (1)' with a table containing one entry:

Name	File system ID	Encryption	Total size	Size in Standard	Size in IA	Size in Archive	Provisioned Throughput (MiB/s)	File system state	Creation time	Availability Zone
efsdemo2024	fs-05032813fef273025	Encrypted	6.00 KiB	6.00 KiB	0 Bytes	0 Bytes	-	Available	Thu, 29 Aug 2024 00:27:16 GMT	ap-south-1a

Buttons for 'View details', 'Delete', and 'Create file system' are visible at the top right of the table.

2. Create EC2 instance for ap-south-1a availability zone (Mumbai)

The screenshot shows the AWS EC2 console. The left navigation menu includes 'EC2 Dashboard', 'EC2 Global View', 'Events', 'Instances', 'Instance Types', 'Launch Templates', 'Spot Requests', 'Savings Plans', 'Reserved Instances', 'Dedicated Hosts', 'Capacity', 'Reservations', 'Images', 'AMI Catalog', 'Elastic Block Store', 'Volumes', 'Snapshots', 'Lifecycle Manager', 'Network & Security', 'Security Groups', and 'Elastic IP Addresses'. The main area displays 'Instances (1/3)' with a table containing three entries:

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public IP
ebsdemo	i-0bfb1bdec39da394	Stopped	t2.micro	-	View alarms	ap-south-1b	-	-
EBSvolume	i-07ead9fc821a3a39	Stopped	t2.micro	-	View alarms	ap-south-1a	-	-
efsdemo-ap-south-1a	i-0a44195e9f20de2d2	Running	t2.micro	2/2 checks passed	View alarms	ap-south-1a	ec2-3-110-29-169.ap-s...	3.110.29

Below the table, the details for the instance 'i-0bfb1bdec39da394 (ebsdemo)' are shown. The 'Instance summary' section includes:

- Instance ID: i-0bfb1bdec39da394 (ebsdemo)
- IPV6 address: -
- Hostname type: IP name: ip-172-31-7-222.ap-south-1.compute.internal
- Answer private resource DNS name: IP(v4) (A)
- Public IPv4 address: -
- Instance state: Stopped
- Private IP DNS name (IPv4 only): ip-172-31-7-222.ap-south-1.compute.internal
- Instance type: t2.micro
- Private IPv4 addresses: 172.31.7.222
- Public IPv4 DNS: -
- Elastic IP addresses: -

3. Create EC2 instance for ap-south-1b availability zone (Mumbai)

Instances (1/4)

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public IP
ebsdemo	i-0bfb1bdec39da394	Stopped	t2.micro	-	View alarms +	ap-south-1b	-	-
ebsdemo-ap-south-1b	i-0abdbae872a80a7e3	Running	t2.micro	-	View alarms +	ap-south-1b	ec2-3-7-69-24.ap.south...	3.7.69.2
EBSvolume	i-07fead9fc821a3a39	Stopped	t2.micro	-	View alarms +	ap-south-1a	-	-
efsdemo-ap-south-1a	i-0a44195e9f20de2d2	Running	t2.micro	2/2 checks passed	View alarms +	ap-south-1a	ec2-3-110-29-169.ap.s...	3.110.25

i-0bfb1bdec39da394 (ebsdemo)

Details | Status and alarms | Monitoring | Security | Networking | Storage | Tags

▼ Instance summary info	
Instance ID i-0bfb1bdec39da394 (ebsdemo)	Public IPv4 address -
IPv6 address -	Private IPv4 addresses 172.31.7.222
Hostname type IP name: ip-172-31-7-222.ap-south-1.compute.internal	Instance state ⊖ Stopped
Answer private resource DNS name ipv4(A)	Private IP DNS name (IPv4 only) ip-172-31-7-222.ap-south-1.compute.internal
	Instance type t2.micro
	Elastic IP addresses



4. Connect the server

```
root@ip-172-31-32-56:~  
login as: ec2-user  
Authenticating with public key "aws&devops"  
  
#_#  
~\##### 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.  
~~~ https://aws.amazon.com/linux/amazon-linux-2023/  
~~~  
[ec2-user@ip-172-31-32-56 ~]$ sudo su -  
[root@ip-172-31-32-56 ~]#
```

```
root@ip-172-31-9-160:~  
login as: ec2-user  
Authenticating with public key "aws&devops"  
Last login: Thu Aug 29 00:54:07 2024 from 182.70.127.235  
  
#  
~\#### Amazon Linux 2  
~~\#####  
~~\###| AL2 End of Life is 2025-06-30.  
~~\#/   
~~V~' '->  
~~~~  
~~~~ A newer version of Amazon Linux is available!  
~~.-.  
~/ / / /  
_/m/'
```

```
[ec2-user@ip-172-31-9-160 ~]$ sudo su -  
Last login: Thu Aug 29 00:54:16 UTC 2024 on pts/0  
[root@ip-172-31-9-160 ~]#
```

5. Mount Security Group on Created EFS files

Metered size	Monitoring	Tags	File system policy	Access points	Network	Replication
Network						 
Availability zone (AZ-ID)	Mount target ID	Subnet ID	Mount target state	IP address	Network interface ID	Security groups
ap-south-1a (aps1-az1)	fsmt-03f53218d34a02146	subnet-0f046199fcb3702a1	Available	172.31.38.21	eni-055f7d89a830f4586	sg-0f9bb710f1c580139 (efs-demo)
ap-south-1b (aps1-az3)	fsmt-0fd419d19c74b2cc7	subnet-0893f612bd1fca4d6	Available	172.31.10.239	eni-02ca323715759a555	sg-0f9bb710f1c580139 (efs-demo)
ap-south-1c (aps1-az2)	fsmt-0191115fa9e9290d5	subnet-0628e23d65d366d84	Available	172.31.24.88	eni-0bb37f9ef4b8b6e90	sg-0f9bb710f1c580139 (efs-demo)

6. Mount EFS file system for both the EC2 instances

```
root@ip-172-31-32-56:~  
login as: ec2-user  
Authenticating with public key "aws&devops"  
#  
#####  
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.  
https://aws.amazon.com/linux/amazon-linux-2023/  
ec2-user@ip-172-31-32-56 ~]$ sudo su -  
root@ip-172-31-32-56 ~]$ mkdir akash-efs  
root@ip-172-31-32-56 ~]$ sudo mount -t nfs4 -o nfsvers=4.1,rsize=1048576,wsz=1048576,hard,timeo=600,retrans=2,noresvport fs-05032813fef273025.efs.ap-south-1.amazonaws.com:/ efs  
mount.nfs4: mount point efs does not exist  
root@ip-172-31-32-56 ~]$ sudo mount -t nfs4 -o nfsvers=4.1,rsize=1048576,wsz=1048576,hard,timeo=600,retrans=2,noresvport fs-05032813fef273025.efs.ap-south-1.amazonaws.com:/ akash-efs  
root@ip-172-31-32-56 ~]$ df -h  
Filesystem  
Size Used Avail Use% Mounted on  
devtmpfs 467M 0 467M 0% /dev  
tmpfs 477M 0 477M 0% /dev/shm  
tmpfs 477M 464K 476M 1% /run  
tmpfs 477M 0 477M 0% /sys/fs/cgroup  
dev/xvda1 8.0G 1.8G 6.3G 23% /  
tmpfs 96M 0 96M 0% /run/user/1000  
tmpfs 96M 0 96M 0% /run/user/0  
fs-05032813fef273025.efs.ap-south-1.amazonaws.com:/ 8.0E 0 8.0E 0% /root/akash-efs  
root@ip-172-31-32-56 ~]$
```

Check devops.txt which is created on ap-south-1a availability zone

```
root@ip-172-31-9-160:~  
#  
#####  
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.  
https://aws.amazon.com/linux/amazon-linux-2023/  
[ec2-user@ip-172-31-9-160 ~]$ sudo su -  
Last login: Thu Aug 29 00:54:16 UTC 2024 on pts/0  
[root@ip-172-31-9-160 ~]$ mkdir akash-efs  
[root@ip-172-31-9-160 ~]$ sudo mount -t nfs4 -o nfsvers=4.1,rsize=1048576,wsz=1048576,hard,timeo=600,retrans=2,noresvport fs-05032813fef273025.efs.ap-south-1.amazonaws.com:/ efs  
mount.nfs4: mount point efs does not exist  
[root@ip-172-31-9-160 ~]$ sudo mount -t nfs4 -o nfsvers=4.1,rsize=1048576,wsz=1048576,hard,timeo=600,retrans=2,noresvport fs-05032813fef273025.efs.ap-south-1.amazonaws.com:/ akash-efs  
[root@ip-172-31-9-160 ~]$ df -h  
Filesystem  
Size Used Avail Use% Mount  
devtmpfs 467M 0 467M 0% /dev  
tmpfs 477M 0 477M 0% /dev/  
shm 477M 464K 476M 1% /run  
tmpfs 477M 0 477M 0% /sys/  
fs/cgroup 8.0G 1.8G 6.3G 23% /  
/dev/xvda1 96M 0 96M 0% /run/  
user/1000 96M 0 96M 0% /run/  
tmpfs 96M 0 96M 0% /run/  
user/0 96M 0 96M 0% /run/  
fs-05032813fef273025.efs.ap-south-1.amazonaws.com:/ 8.0E 0 8.0E 0% /root/akash-efs  
[root@ip-172-31-9-160 ~]$ df -h  
Filesystem  
Size Used Avail Use% Mounted on  
devtmpfs 467M 0 467M 0% /dev  
tmpfs 477M 0 477M 0% /dev/shm  
tmpfs 477M 464K 476M 1% /run  
tmpfs 477M 0 477M 0% /sys/fs/cgroup  
/dev/xvda1 8.0G 1.8G 6.3G 23% /  
tmpfs 96M 0 96M 0% /run/user/1000  
tmpfs 96M 0 96M 0% /run/user/0  
fs-05032813fef273025.efs.ap-south-1.amazonaws.com:/ 8.0E 0 8.0E 0% /root/akash-efs  
[root@ip-172-31-9-160 ~]$
```

7. Check devops.txt which is created on ap-south-1a availability zone

```
root@ip-172-31-32-56:~/akash-efs
[root@ip-172-31-32-56 ~]# mkdir akash-efs
[root@ip-172-31-32-56 ~]# sudo mount -t nfs4 -o nfsvers=4.1,rsize=1048576,wsiz=1048576,hard,timeo=600,retrans=2,noresvport fs-05032813fef273025.efs.ap-south-1.amazonaws.com:/ efs
mount.nfs4: mount point efs does not exist
[root@ip-172-31-32-56 ~]# sudo mount -t nfs4 -o nfsvers=4.1,rsize=1048576,wsiz=1048576,hard,timeo=600,retrans=2,noresvport fs-05032813fef273025.efs.ap-south-1.amazonaws.com:/ akash-efs
[root@ip-172-31-32-56 ~]# df -h
```

Filesystem	Size	Used	Avail	Use%	Mounted on
devtmpfs	467M	0	467M	0%	/dev
tmpfs	477M	0	477M	0%	/dev/shm
tmpfs	477M	464K	476M	1%	/run
tmpfs	477M	0	477M	0%	/sys/fs/cgroup
/dev/xvda1	8.0G	1.8G	6.3G	23%	/
tmpfs	96M	0	96M	0%	/run/user/1000
tmpfs	96M	0	96M	0%	/run/user/0
fs-05032813fef273025.efs.ap-south-1.amazonaws.com:/	8.0E	0	8.0E	0%	/root/akash-efs

```
[root@ip-172-31-32-56 ~]# cd /root/akash-efs
-bash: cd: /root/akash-efs: No such file or directory
[root@ip-172-31-32-56 ~]# cd /root/akash-efs
[root@ip-172-31-32-56 akash-efs]# ls -ltr
total 0
[root@ip-172-31-32-56 akash-efs]# cat > devops.txt
terraform
[root@ip-172-31-32-56 akash-efs]# ls -ltr
total 4
-rw-r--r-- 1 root root 10 Aug 29 01:31 devops.txt
[root@ip-172-31-32-56 akash-efs]# pwd
/root/akash-efs
[root@ip-172-31-32-56 akash-efs]# cat devops.txt
terraform
[root@ip-172-31-32-56 akash-efs]#
```

8. Check devops.txt file on different availability zone (ap-south-1b)

```
root@ip-172-31-9-160:~/akash-efs
Last login: Thu Aug 29 00:54:16 UTC 2024 on pts/0
[root@ip-172-31-9-160 ~]# mkdir akash-efs
[root@ip-172-31-9-160 ~]# sudo mount -t nfs4 -o nfsvers=4.1,rsize=1048576,wsiz=1048576,hard,timeo=600,retrans=2,noresvport fs-05032813fef273025.efs.ap-south-1.amazonaws.com:/ efs
mount.nfs4: mount point efs does not exist
[root@ip-172-31-9-160 ~]# sudo mount -t nfs4 -o nfsvers=4.1,rsize=1048576,wsiz=1048576,hard,timeo=600,retrans=2,noresvport fs-05032813fef273025.efs.ap-south-1.amazonaws.com:/ akash-efs
[root@ip-172-31-9-160 ~]# df -h
```

Filesystem	Size	Used	Avail	Use%	Mount
ed on					
devtmpfs	467M	0	467M	0%	/dev
tmpfs	477M	0	477M	0%	/dev/
shm					
tmpfs	477M	464K	476M	1%	/run
tmpfs	477M	0	477M	0%	/sys/
fs/cgroup					
/dev/xvda1	8.0G	1.8G	6.3G	23%	/
tmpfs	96M	0	96M	0%	/run/
user/1000					
tmpfs	96M	0	96M	0%	/run/
user/0					
fs-05032813fef273025.efs.ap-south-1.amazonaws.com:/	8.0E	0	8.0E	0%	/root
/akash-efs					

```
[root@ip-172-31-9-160 ~]# df -h
```

Filesystem	Size	Used	Avail	Use%	Mounted on
devtmpfs	467M	0	467M	0%	/dev
tmpfs	477M	0	477M	0%	/dev/shm
tmpfs	477M	464K	476M	1%	/run
tmpfs	477M	0	477M	0%	/sys/fs/cgroup
/dev/xvda1	8.0G	1.8G	6.3G	23%	/
tmpfs	96M	0	96M	0%	/run/user/1000
tmpfs	96M	0	96M	0%	/run/user/0
fs-05032813fef273025.efs.ap-south-1.amazonaws.com:/	8.0E	0	8.0E	0%	/root/akash-efs

```
[root@ip-172-31-9-160 ~]#
[root@ip-172-31-9-160 ~]#
[root@ip-172-31-9-160 ~]# cd /root/akash-efs
[root@ip-172-31-9-160 akash-efs]# ls -ltr
total 4
-rw-r--r-- 1 root root 10 Aug 29 01:31 devops.txt
[root@ip-172-31-9-160 akash-efs]# cat devops.txt
terraform
[root@ip-172-31-9-160 akash-efs]#
```

9. Create another file aws.txt on ap-south-1b zone and check which is available on ap-south-1a zone.

```
[root@ip-172-31-9-160 ~]#  
[root@ip-172-31-9-160 ~]# cd /root/akash-efs  
[root@ip-172-31-9-160 akash-efs]# ls -ltr  
total 4  
-rw-r--r-- 1 root root 10 Aug 29 01:31 devops.txt  
[root@ip-172-31-9-160 akash-efs]# cat devops.txt  
terraform  
[root@ip-172-31-9-160 akash-efs]# cat > aws.txt  
hello  
[root@ip-172-31-9-160 akash-efs]# ls -ltr  
total 8  
-rw-r--r-- 1 root root 10 Aug 29 01:31 devops.txt  
-rw-r--r-- 1 root root 6 Aug 29 01:45 aws.txt  
[root@ip-172-31-9-160 akash-efs]#
```

```
fs-05032813fef273025.efs.ap-south-1.amazonaws.com:/ 8.0E  
[root@ip-172-31-32-56 ~]# cd /roo/akash-efs  
-bash: cd: /roo/akash-efs: No such file or directory  
[root@ip-172-31-32-56 ~]# cd /root/akash-efs  
[root@ip-172-31-32-56 akash-efs]# ls -ltr  
total 0  
[root@ip-172-31-32-56 akash-efs]# cat > devops.txt  
terraform  
[root@ip-172-31-32-56 akash-efs]# ls -ltr  
total 4  
-rw-r--r-- 1 root root 10 Aug 29 01:31 devops.txt  
[root@ip-172-31-32-56 akash-efs]# pwd  
/root/akash-efs  
[root@ip-172-31-32-56 akash-efs]# cat devops.txt  
terraform  
[root@ip-172-31-32-56 akash-efs]# cat aws.txt  
hello  
[root@ip-172-31-32-56 akash-efs]#
```