

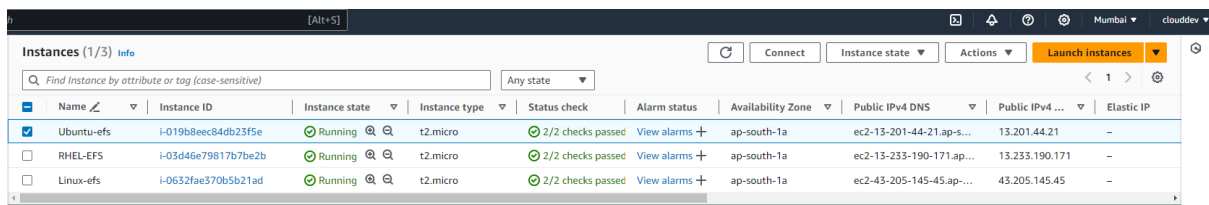
## EC2-and-EFS-Assignment---3

### Tasks To Be Performed:

1. Create an EFS and connect it to 3 different EC2 instances. Make sure that all instances have different operating systems. For instance, Ubuntu, Red Hat Linux and Amazon Linux 2.

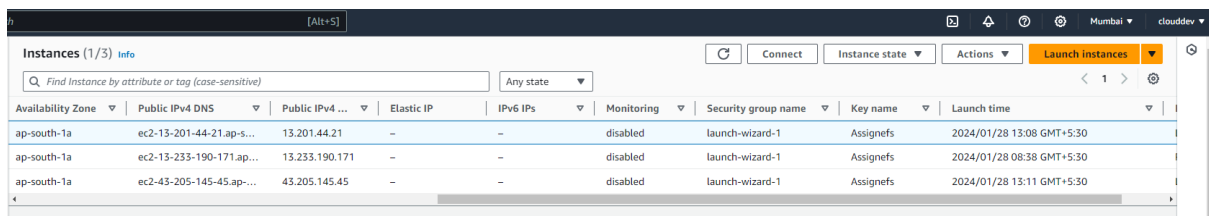
### Solution:

1. Create 3 instances – Ubuntu, Red Hat Linux & Amazon Linux 2



This screenshot shows the 'Instances' page in the AWS Management Console. It displays a list of three EC2 instances: 'Ubuntu-efs', 'RHEL-EFS', and 'Linux-efs'. All instances are in the 'Running' state, using the 't2.micro' instance type, and are located in the 'ap-south-1a' availability zone. Each instance has a '2/2 checks passed' status and a 'View alarms' link.

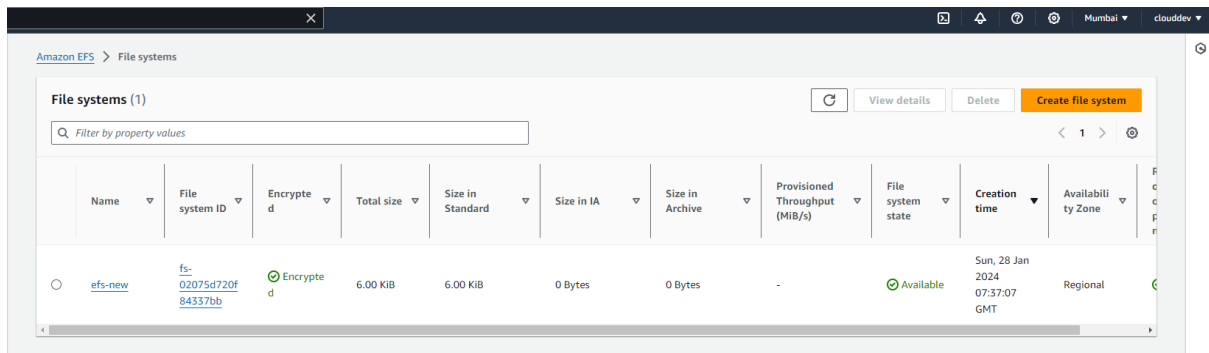
Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public IPv4 ...	Elastic IP
Ubuntu-efs	i-019b8eec84db23f5e	Running	t2.micro	2/2 checks passed	View alarms	ap-south-1a	ec2-13-201-44-21.ap-s...	13.201.44.21	-
RHEL-EFS	i-03d46e79817b7be2b	Running	t2.micro	2/2 checks passed	View alarms	ap-south-1a	ec2-13-233-190-171.ap...	13.233.190.171	-
Linux-efs	i-0632fae570b5b21ad	Running	t2.micro	2/2 checks passed	View alarms	ap-south-1a	ec2-43-205-145-45.ap...	43.205.145.45	-



This screenshot shows the 'Instance details' page for the 'Ubuntu-efs' instance. It provides a detailed view of the instance's configuration, including its availability zone, public IPv4 DNS, public IPv4 address, elastic IP, IPv6 IPs, monitoring status, security group name, key name, and launch time.

Availability Zone	Public IPv4 DNS	Public IPv4 ...	Elastic IP	IPv6 IPs	Monitoring	Security group name	Key name	Launch time
ap-south-1a	ec2-13-201-44-21.ap-s...	13.201.44.21	-	-	disabled	launch-wizard-1	Assignefs	2024/01/28 13:08 GMT+5:30
ap-south-1a	ec2-13-233-190-171.ap...	13.233.190.171	-	-	disabled	launch-wizard-1	Assignefs	2024/01/28 08:38 GMT+5:30
ap-south-1a	ec2-43-205-145-45.ap...	43.205.145.45	-	-	disabled	launch-wizard-1	Assignefs	2024/01/28 13:11 GMT+5:30

2. EFS created



This screenshot shows the 'File systems' page in the AWS Management Console. It displays a list of one EFS file system, 'efs-new', which is in the 'Available' state. The file system is encrypted and has a total size of 6.00 KiB. It was created on Sun, 28 Jan 2024 at 07:37:07 GMT in the 'Regional' availability zone.

Name	File system ID	Encrypte d	Total size	Size in Standard	Size in IA	Size in Archive	Provisioned Throughput (MiB/s)	File system state	Creation time	Availabili ty Zone
efs-new	fs-02075d720f84337bb	Encrypte d	6.00 KiB	6.00 KiB	0 Bytes	0 Bytes	-	Available	Sun, 28 Jan 2024 07:37:07 GMT	Regional

a. Updated the Security Group of EC2 instances with EFS file share

Throughput mode  
Elastic

Lifecycle management  
Transition into Infrequent Access (IA): 30 day(s) since last access  
Transition into Archive: 90 day(s) since last access  
Transition into Standard: None

Availability zone  
Regional

Encrypted  
780e67d9-8021-4f39-b048-e6972faddcbb (aws:elasticfilesystem)

File system state  
Available

DNS name  
fs-02075d720f84337bb.efs.ap-south-1.amazonaws.com

Replication overwrite protection  
Enabled

Metered size

Monitoring

Tags

File system policy

Access points

Network

Replication

Network

Manage

Availability zone	Mount target ID	Subnet ID	Mount target state	IP address	Network interface ID	Security groups
ap-south-1a	fsmt-0a0f8b17ad58039f4	subnet-0b895ec3681a4139a	Available	172.31.40.116	eni-0e89ae450e603d811	sg-028f25dcc19804421 (default), sg-0bed6e3811fed581c (launch-wizard-1)
ap-south-1b	fsmt-04aca5a3811cd7f2d	subnet-004851a6b5c1fc69e	Available	172.31.6.110	eni-0a7554835df3bbc45	sg-028f25dcc19804421 (default), sg-0bed6e3811fed581c (launch-wizard-1)
ap-south-1c	fsmt-018119757d0c9432d	subnet-0a3ecae18971687de	Available	172.31.16.232	eni-0034c8ea1eedfct9e	sg-028f25dcc19804421 (default), sg-0bed6e3811fed581c (launch-wizard-1)

b. Security Group updated with NFS protocol inbound rule

EC2 > Security Groups > sg-0bed6e3811fed581c - launch-wizard-1

sg-0bed6e3811fed581c - launch-wizard-1

Actions

Details

Security group name  
launch-wizard-1

Security group ID  
sg-0bed6e3811fed581c

Description  
launch-wizard-1 created 2024-01-28T03:07:45.355Z

VPC ID  
vpc-082ae6f8f88e99c77c

Owner  
590184123293

Inbound rules count  
2 Permission entries

Outbound rules count  
2 Permission entries

Inbound rules

Outbound rules

Tags

Inbound rules (2)

Manage tags

Edit inbound rules

Search

	Name	Security group rule...	IP version	Type	Protocol	Port range	Source	Description
<input type="checkbox"/>	-	sg-0c047dd68334eba...	IPv4	SSH	TCP	22	0.0.0.0/0	-
<input type="checkbox"/>	-	sg-0781baecd4abc5da	IPv4	NFS	TCP	2049	0.0.0.0/0	-

## EFS Mounted in UBUNTU server

```
aws Services Q Search [Alt+S] Mumbai clouddev
ubuntu@ip-172-31-46-240:~$ df -Th
Filesystem                Type      Size  Used Avail Use% Mounted on
/dev/root                 ext4       7.6G  1.8G  5.8G  24% /
tmpfs                    tmpfs      475M    0  475M   0% /dev/shm
tmpfs                    tmpfs      190M   876K  190M   1% /run
tmpfs                    tmpfs       5.0M    0   5.0M   0% /run/lock
/dev/xvda15              vfat      105M   6.1M   99M   6% /boot/efi
tmpfs                    tmpfs       95M   4.0K   95M   1% /run/user/1000
fs-02075d720f84337bb-efs.ap-south-1.amazonaws.com:/ nfs4 8.0G    0  8.0G   0% /home/ubuntu/ubuntu-efs
ubuntu@ip-172-31-46-240:~$ history
 1  sudo apt-get update
 2  sudo apt-get install nfs-common -y
 3  pwd
 4  sudo mkdir ubuntu-efs
 5  ls
 6  sudo mount -t nfs4 -o nfsvers=4.1,rsize=1048576,wsize=1048576,hard,timeo=600,retr=2,sec=opn fs-02075d720f84337bb-efs.ap-south-1.amazonaws.com:/ /home/ubuntu/ubuntu-efs
 7  sudo mount -t nfs4 -o nfsvers=4.1,rsize=1048576,wsize=1048576,hard,timeo=600,retr=2,sec=opn fs-02075d720f84337bb-efs.ap-south-1.amazonaws.com:/ /home/ubuntu/ubuntu-efs
 8  clear
 9  df -Th
10  history
ubuntu@ip-172-31-46-240:~$
```

## EFS Mounted in Amazon Linux server

The screenshot shows an AWS CloudShell terminal window with the following content:

```

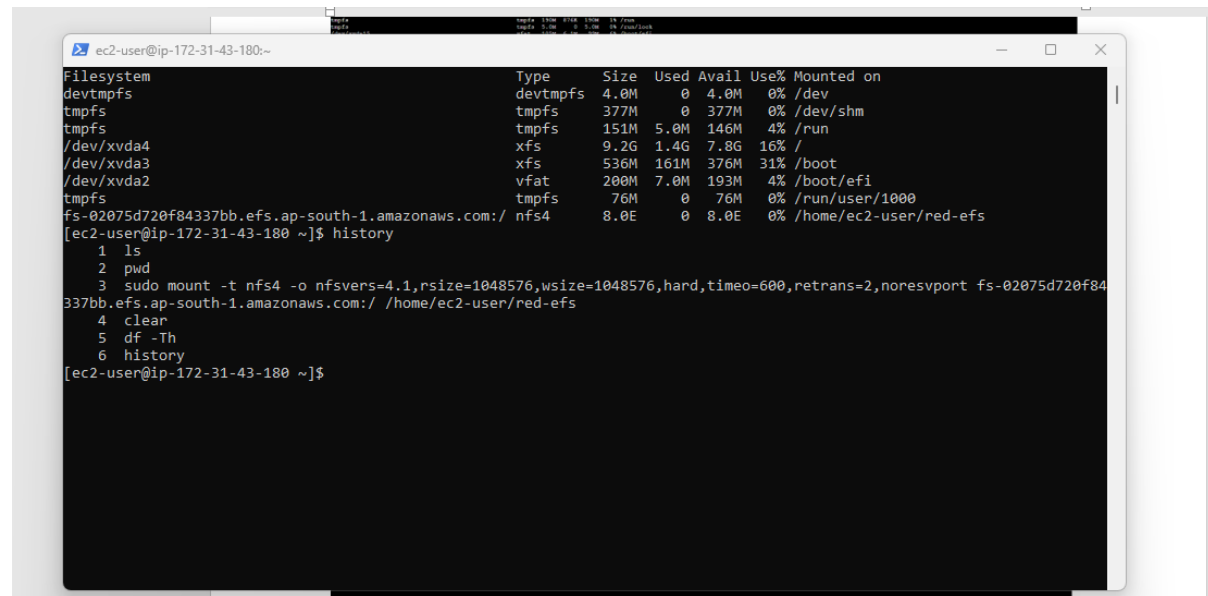
aws  Services  Search  [Alt+J]
[ec2-user@ip-172-31-32-130 ~]$ df -Th
Filesystem                Type      Size  Used Avail Use% Mounted on
devtmpfs                  4.0M      0  4.0M   0% /dev
tmpfs                     475M      0  475M   0% /dev/shm
tmpfs                     190M     29M  160M  15% /run
/dev/xvda1                 xfs       8.0G  1.6G  6.5G   1% /
tmpfs                     475M      0  475M   0% /tmp
/dev/xvda128              vfat      10M   1.3M  8.7M  13% /boot/efi
tmpfs                     93M      0   93M   0% /run/user/1000
fs-02075d720f84337bb.efs.ap-south-1.amazonaws.com:/ nfse4 8.0E   0 8.0E   0% /home/ec2-user/linux-efs
[ec2-user@ip-172-31-32-130 ~]$ history
 1 sudo yum update
 2 sudo yum install nfs-utils
 3 pwd
 4 sudo mkdir linux-efs
 5 sudo mount -t nfse4 -o nfsvers=4.1,raize=1048576,waize=1048576,hard,timeo=600,retrana=2,noresport fs-02075d720f84337bb.efs.ap-south-1.amazonaws.com:/ /home/ubuntu/linux-efs
 6 sudo mount -t nfse4 -o nfsvers=4.1,raize=1048576,waize=1048576,hard,timeo=600,retrana=2,noresport fs-02075d720f84337bb.efs.ap-south-1.amazonaws.com:/ /home/ec2-user/linux-efs
 7 df -Th
 8 clear
 9 df -Th
10 history
[ec2-user@ip-172-31-32-130 ~]$
  
```

At the bottom of the terminal window, the following information is displayed:

```

i-0632fae370b5b21ad (Linux-efs)
Public IP: 43.205.145.45 Private IP: 172.31.12.150
  
```

## EFS Mounted in RedHat Linux server



A terminal window titled "ec2-user@ip-172-31-43-180:~" displays the output of the `df -h` command, showing disk usage for various filesystems. The output is as follows:

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
devtmpfs	devtmpfs	4.0M	0	4.0M	0%	/dev
tmpfs	tmpfs	377M	0	377M	0%	/dev/shm
tmpfs	tmpfs	151M	5.0M	146M	4%	/run
/dev/xvda4	xfs	9.2G	1.4G	7.8G	16%	/
/dev/xvda3	xfs	536M	161M	376M	31%	/boot
/dev/xvda2	vfat	200M	7.0M	193M	4%	/boot/efi
tmpfs	tmpfs	76M	0	76M	0%	/run/user/1000
fs-02075d720f84337bb.efs.ap-south-1.amazonaws.com:/	nfs4	8.0E	0	8.0E	0%	/home/ec2-user/red-efs

Below the table, the user enters the command `history`, which shows the following sequence of commands:

- 1 ls
- 2 pwd
- 3 sudo mount -t nfs4 -o nfsvers=4.1,rsize=1048576,wsz=1048576,hard,timeo=600,retrans=2,noresvport fs-02075d720f84337bb.efs.ap-south-1.amazonaws.com:/ /home/ec2-user/red-efs
- 4 clear
- 5 df -Th
- 6 history

The terminal prompt is now `[ec2-user@ip-172-31-43-180 ~]$`.