

## Note

### 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.

First I'll create 2 **Security Groups**

Security group ID	Security group name	VPC ID
sg-08f157e3635e53c67	SSH	vpc-6e06fb13
sg-04c9680134251a99f	EFS/NFS	vpc-6e06fb13

**SSH** - Allows SSH connection from anywhere

**EFS/NFS** - Allows NFS traffic (typically on port 2049) from default VPC's CIDR `172.31.0.0/16`. This is aimed at enabling the instance to communicate with the EFS **mount target**.

Your VPCs (1/1)				
Find resources by attribute or tag				
<input checked="" type="checkbox"/>	Name	VPC ID	State	IPv4 CIDR
<input checked="" type="checkbox"/>	Default	vpc-6e06fb13	Available	172.31.0.0/16

I'll create an **EFS** filesystem called **EFS\_for3Instance** at Amazon EFS > Filesystems > Create file system

	Name	File system ID	Encrypted	Total size	Size in Standard / One Zone
<input type="radio"/>	EFS_for3Instance	fs-035a12e0097bf3b55	Encrypted	6.00 KiB	6.00 KiB

I'll click on **EFS\_for3Instance** and navigate to **Network** tab to replace the **Security Group** associated with **Mount Targets** with the one I create **EFS/NFS**

Mount target state	IP address	Network interface ID	Security groups
Available	172.31.46.11	eni-03d739a4e3de4df65	sg-04c9680134251a99f (EFS/NFS)
Available	172.31.12.118	eni-0db2128f2e1ea5633	sg-04c9680134251a99f (EFS/NFS)
Available	172.31.92.220	eni-0f9f6cefde5809c2d	sg-04c9680134251a99f (EFS/NFS)
Available	172.31.23.143	eni-04aacad85afab368d	sg-04c9680134251a99f (EFS/NFS)
Available	172.31.56.138	eni-0d4ca5a76228ab710	sg-04c9680134251a99f (EFS/NFS)
Available	172.31.65.40	eni-0fa4eb63a599577d5	sg-04c9680134251a99f (EFS/NFS)

I click the button **Attach** to get the **EFS's** mount command. In this case is the following:

```
sudo mount -t nfs4 -o
nfsvers=4.1,rsize=1048576,wsiz=1048576,hard,timeo=600,retrans=2,noresvport fs-
035a12e0097bf3b55.efs.us-east-1.amazonaws.com:/ efs
```

I will now create 3 EC2 Instances Ubuntu, Red Hat and Amazon Linux.  
They will all have the same **Security Groups** that I created attached

**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

Common security groups [Info](#)

SSH sg-08f157e3635e53c67 X  
VPC: vpc-6e06fb13

EFS/NFS sg-04c9680134251a99f X  
VPC: vpc-6e06fb13

☒ Hide all selected

Security groups that you add or remove here will be added to or removed from all your network interfaces.

For the EC2 instance to work I need to install **Amazon EFS client** in them. Since all 3 instances have different OS the commands are different


Followed AWS Doc:

<https://docs.aws.amazon.com/efs/latest/ug/installing-amazon-efs-utils.html#installing-other-distro>

I'll do this installation at the time I launch the Instance through Advance details - User data

User data - *optional* [Info](#)

Upload a file with your user data or enter it in the field.

 Choose file

Commands to run here

## Ubuntu's - *User data*

```
#!/bin/bash
sudo apt-get update
sudo apt-get -y install git binutils
git clone https://github.com/aws/efs-utils
cd /efs-utils
./build-deb.sh
sudo apt-get -y install ./build/amazon-efs-utils*deb

# Create the directory where the EFS will be mounted
sudo mkdir /efs

# Mount the EFS filesystem
sudo mount -t nfs4 -o
nfsvers=4.1,rsz=1048576,wsz=1048576,hard,timeo=600,retrans=2,noresvport fs-
035a12e0097bf3b55.efs.us-east-1.amazonaws.com:/ /efs
```

## Red Hat's - *User data*

```
#!/bin/bash
sudo yum -y install git
git clone https://github.com/aws/efs-utils
cd /efs-utils
sudo yum -y install make
sudo yum -y install rpm-build
sudo make rpm
sudo yum -y install ./build/amazon-efs-utils*rpm

# Create the directory where the EFS will be mounted
sudo mkdir /efs

# Mount the EFS filesystem
sudo mount -t nfs4 -o
nfsvers=4.1,rsz=1048576,wsz=1048576,hard,timeo=600,retrans=2,noresvport fs-
035a12e0097bf3b55.efs.us-east-1.amazonaws.com:/ /efs
```

## Amazon Linux 2's - User data

```
#!/bin/bash
```

```
# Install amazon-efs-utils
```

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

```
# Create the directory where the EFS will be mounted
```

```
sudo mkdir /efs
```

```
# Mount the EFS filesystem
```

```
sudo mount -t nfs4 -o
```

```
nfsvers=4.1,rsize=1048576,wsz=1048576,hard,timeo=600,retrans=2,noresvport fs-035a12e0097bf3b55.efs.us-east-1.amazonaws.com:/ /efs
```

<input type="checkbox"/>	Name ▾	Instance ID	Instance state ▾	Instance type ▾	Status check
<input type="checkbox"/>	Amazon Linux	<a href="#">i-0b82a8bbc4ffd74a9</a>	✔ Running 🔍	t2.micro	✔ 2/2 checks pa
<input type="checkbox"/>	Red Hat	<a href="#">i-0618a09fb05dabca2</a>	✔ Running 🔍	t2.micro	✔ 2/2 checks pa
<input type="checkbox"/>	Ubuntu	<a href="#">i-001831b0ae9f5d253</a>	✔ Running 🔍	t2.micro	✔ 2/2 checks pa

Now I'll connect to each instance to check:

Ubuntu:

```
ubuntu@ip-172-31-44-213:~$ df -h
Filesystem                Size      Used Avail Use% Mounted on
/dev/root                  7.6G      1.8G   5.8G  24% /
tmpfs                      483M          0   483M   0% /dev/shm
tmpfs                      194M      860K   193M   1% /run
tmpfs                      5.0M          0   5.0M   0% /run/lock
/dev/xvda15                105M       6.1M    99M   6% /boot/efi
fs-035a12e0097bf3b55.efs.us-east-1.amazonaws.com:/ 8.0E          0   8.0E   0% /efs
tmpfs                      97M       4.0K    97M   1% /run/user/1000
ubuntu@ip-172-31-44-213:~$ sudo touch /efs/fromUbuntu
ubuntu@ip-172-31-44-213:~$ ls /efs
fromUbuntu
ubuntu@ip-172-31-44-213:~$
```

I see the mounted EFS and create a test file `fromUbuntu` inside

Amazon Linux:

```
[ec2-user@ip-172-31-33-93 ~]$ df -h
Filesystem                Size      Used Avail Use% Mounted on
devtmpfs                  4.0M          0   4.0M   0% /dev
tmpfs                      475M          0   475M   0% /dev/shm
tmpfs                      190M       2.8M   188M   2% /run
/dev/xvda1                 8.0G       1.5G   6.5G  19% /
tmpfs                      475M          0   475M   0% /tmp
fs-035a12e0097bf3b55.efs.us-east-1.amazonaws.com:/ 8.0E          0   8.0E   0% /efs
tmpfs                      95M          0    95M   0% /run/user/1000
[ec2-user@ip-172-31-33-93 ~]$ ls /efs/
fromUbuntu
[ec2-user@ip-172-31-33-93 ~]$
```

Red Hat:

```
[ec2-user@ip-172-31-46-93 ~]$ df -h
Filesystem                                Size  Used Avail Use% Mounted on
devtmpfs                                  4.0M   0  4.0M   0% /dev
tmpfs                                     385M   0  385M   0% /dev/shm
tmpfs                                     154M   6.1M 148M   4% /run
/dev/xvda4                                9.4G   1.4G  8.0G  15% /
/dev/xvda3                                495M  153M  343M  31% /boot
/dev/xvda2                                200M   8.0K  200M   1% /boot/efi
fs-035a12e0097bf3b55.efs.us-east-1.amazonaws.com:/ 8.0E   0  8.0E   0% /efs
tmpfs                                     77M    0   77M   0% /run/user/1000
[ec2-user@ip-172-31-46-93 ~]$ ls /efs
fromUbuntu
[ec2-user@ip-172-31-46-93 ~]$
```

Everything works as expected