

File Server Project-4

 Project	 Description
NFS Server Configuration	 Set up an NFS server to share directories between Linux systems. Configure proper access control and persistent mounts.

PART-1: Launch EC2 Instances

Need:

1 EC2 → NFS Server

- AMI: Amazon Linux 2023 / AL2
- Security Group:
 - Allow NFS **TCP/UDP 2049**
 - Add 2G Volume for NFS-Share

```
root@ip-172-31-12-9:~#
[root@ip-172-31-12-9 ~]# sudo mount -a
[root@ip-172-31-12-9 ~]# lsblk
NAME      MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS
xvda      202:0    0   8G  0 disk
└─xvda1   202:1    0   8G  0 part /
└─xvda127 259:0    0   1M  0 part
└─xvda128 259:1    0  10M 0 part /boot/efi
xvdb      202:16   0   2G  0 disk /nfs-shabbir
[root@ip-172-31-12-9 ~]#
```

1 or more EC2 → NFS Clients

- Same VPC (recommended)

PART-2: Install NFS Server (on Amazon Linux)

Step 1: Update system

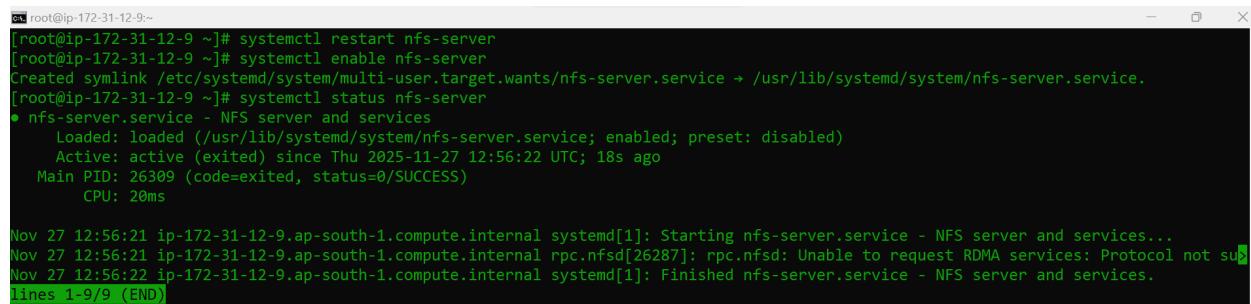
```
yum update -y
```

Step 2: Install NFS utilities

```
yum install nfs-utils -y
```

Step 3: Enable & start NFS service

```
systemctl restart nfs-server  
systemctl enable nfs-server  
systemctl status nfs-server
```



A terminal window showing the configuration of the NFS service. The user runs three commands: `systemctl restart nfs-server`, `systemctl enable nfs-server`, and `systemctl status nfs-server`. The output shows the service is loaded, active (exited), and has a main PID of 26309. The log shows the service starting and finishing successfully.

```
[root@ip-172-31-12-9 ~]# systemctl restart nfs-server  
[root@ip-172-31-12-9 ~]# systemctl enable nfs-server  
Created symlink /etc/systemd/system/multi-user.target.wants/nfs-server.service → /usr/lib/systemd/system/nfs-server.service.  
[root@ip-172-31-12-9 ~]# systemctl status nfs-server  
● nfs-server.service - NFS server and services  
   Loaded: loaded (/usr/lib/systemd/system/nfs-server.service; enabled; preset: disabled)  
   Active: active (exited) since Thu 2025-11-27 12:56:22 UTC; 18s ago  
     Main PID: 26309 (code=exited, status=0/SUCCESS)  
        CPU: 20ms  
  
Nov 27 12:56:21 ip-172-31-12-9.ap-south-1.compute.internal systemd[1]: Starting nfs-server.service - NFS server and services...  
Nov 27 12:56:21 ip-172-31-12-9.ap-south-1.compute.internal rpc.nfsd[26287]: rpc.nfsd: Unable to request RDMA services: Protocol not supported  
Nov 27 12:56:22 ip-172-31-12-9.ap-south-1.compute.internal systemd[1]: Finished nfs-server.service - NFS server and services.  
lines 1-9/9 (END)
```

PART-3: Configure NFS Exports

Edit `/etc/exports`:

```
vim /etc/exports
```

Add:

```
nfs-shabbir *(rw, sync, no_root_squash, no_subtree_check)  
:wq  
systemctl status nfs-server
```

Meaning:

- **rw** = read/write
- **no_root_squash** = allow root access
- **sync** = write sync
- **no_subtree_check** = improves performance

Apply changes:

```
exportfs -r  
exportfs -v
```

```
[root@ip-172-31-12-9:~]# showmount -e  
Export list for ip-172-31-12-9.ap-south-1.compute.internal:  
/nfs-shabbir *  
[root@ip-172-31-12-9:~]# exportfs -r  
[root@ip-172-31-12-9:~]# exportfs -v  
/nfs-shabbir <world>(sync,wdelay,hide,no_subtree_check,sec=sys,rw,secure,no_root_squash,no_all_squash)  
[root@ip-172-31-12-9:~]#
```

PART-4 : Configure NFS Client

Install NFS utilities

On client EC2:

```
Yum install nfs-utils -y
```

PART-5: Make Mount Persistent (fstab)

Edit /etc/fstab on client:

```
vim /etc/fstab
```

Add:

```
172.3.12.9:/nfs-shabbir /nfs_clinet nfs defaults,_netdev 0 0
```

Reload fstab (test safely):

```
mount -a
```

On Client:

```
[root@nfs-client:~]# df -hT
Filesystem          Type      Size  Used  Avail Use% Mounted on
devtmpfs            devtmpfs  4.0M   0    4.0M  0% /dev
tmpfs               tmpfs     479M   0    479M  0% /dev/shm
tmpfs               tmpfs     192M  444K  191M  1% /run
/dev/xvda1           xfs      8.0G  1.7G  6.4G  21% /
tmpfs               tmpfs     479M   0    479M  0% /tmp
/dev/xvda128         vfat     10M   1.3M  8.7M  13% /boot/efi
tmpfs               tmpfs     96M   0    96M  0% /run/user/1000
172.31.12.9:/nfs-shabbir nfs4  2.0G  46M  1.9G  3% /nfs-client
[root@nfs-client ~]# lsblk
```



PROJECT COMPLETED

- ✓ NFS Server on Amazon Linux
- ✓ Exported shared directory
- ✓ Access control configured
- ✓ Client mount
- ✓ Persistent mounts (fstab)