

NFS (Network File System) Setup Guide

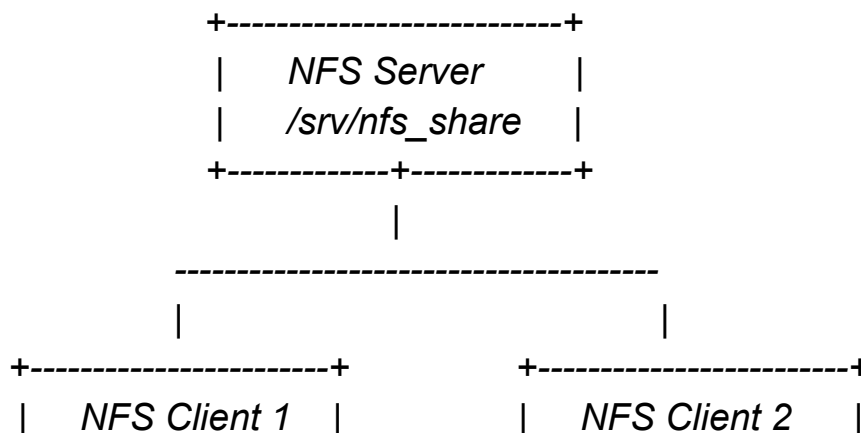
Overview

NFS (Network File System) allows multiple clients to access and share files on a remote server over a network, behaving as if the files are local. It is ideal for centralizing file storage and ensuring consistent data across servers without manually copying files.

Key Points:

- *Server stores files.*
- *Clients mount the server's shared directories.*
- *Changes made by clients reflect immediately on the server.*
- *Default NFS port: **2049**.*

Architecture Diagram



| /mnt/nfs | | /mnt/nfs |
+-----+ +-----+

Server Setup (Ubuntu)

1 *Install NFS Server Packages*

```
sudo apt update  
sudo apt install nfs-kernel-server -y
```

2 *Create Shared Directory*

```
sudo mkdir -p /mnt/nfs-share  
sudo chown nobody:nogroup /mnt/nfs-share  
sudo chmod 777 /mnt/nfs-share
```

3 *Configure NFS Exports*

Edit */etc/exports* file:

```
sudo nano /etc/exports
```

Add the following line:

```
/mnt/nfs-share 192.168.1.0/24(rw,sync,no_subtree_check)
```

- *192.168.1.0/24* → Replace with your client network.
- *rw* → Read/Write access.

- **sync** → Writes are committed immediately.

4 Apply NFS Configuration

```
sudo exportfs -a  
sudo systemctl restart nfs-kernel-server
```

5 Adjust Firewall

```
sudo ufw allow from 192.168.1.0/24 to any port nfs  
sudo ufw reload
```

Client Setup (Ubuntu)

1 Install NFS Client Packages

```
sudo apt update  
sudo apt install nfs-common -y
```

2 Create Mount Directory

```
sudo mkdir -p /mnt/nfs-client
```

3 Mount the NFS Share

```
sudo mount 192.168.1.10:/mnt/nfs-share /mnt/nfs-client
```

- Replace **192.168.1.10** with your NFS server IP.

4 Make Mount Permanent (Optional)

Add to **/etc/fstab**:

```
192.168.1.10:/srv/nfs_share /mnt/nfs nfs defaults 0 0
```

Mount Verification

To confirm the NFS share is mounted correctly on the client:

1 Check mounted file systems:

```
mount | grep nfs
```

2 Or use the **df** command:

```
df -h | grep /mnt/nfs
```

*Expected Output: The NFS server path should be listed as mounted on **/mnt/nfs**.*

Testing NFS Setup

- On the client, create a test file:

```
touch /mnt/nfs-client/testfile.txt
```

- Check on the server if the file exists:

```
ls /mnt/nfs-share
```

Notes

- *NFS is better than SCP for shared storage because it allows **real-time access** and **multi-client collaboration**.*
*AWS Equivalent Service: **Amazon EFS (Elastic File System)**.*