

# Install and Configure NFS Server

## Introduction to NFS Setup

Objective: Learn how to install, configure, and manage an NFS server on machine X and mount the NFS share on a client machine Y. This guide will cover installation, configuration, and testing steps.

## Step-by-Step Installation on the NFS Server (Machine X)

### 1. Update Package Lists:

```
sudo apt update
```

### 2. Install NFS Server:

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

```
ubuntu@ip-172-31-15-90:~$ sudo apt install nfs-kernel-server -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  keyutils libnfsidmap1 nfs-common rpcbind
Suggested packages:
  watchdog
The following NEW packages will be installed:
  keyutils libnfsidmap1 nfs-common nfs-kernel-server rpcbind
0 upgraded, 5 newly installed, 0 to remove and 0 not upgraded.
Need to get 569 kB of archives.
After this operation, 2022 kB of additional disk space will be used.
Get:1 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 libnfsidmap1 amd64 1:2.6.4-3ubuntu5 [48.2 kB]
Get:2 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 rpcbind amd64 1.2.6-7ubuntu2 [46.5 kB]
Get:3 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 keyutils amd64 1.6.3-3build1 [56.8 kB]
Get:4 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 nfs-common amd64 1:2.6.4-3ubuntu5 [248 kB]
Get:5 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 nfs-kernel-server amd64 1:2.6.4-3ubuntu5 [169 kB]
Fetched 569 kB in 0s (18.9 MB/s)
Selecting previously unselected package libnfsidmap1 amd64
```

### 3. Create the Directory to be Shared:

```
sudo mkdir /sample
```

### 4. Set Permissions for the Directory:

- Change ownership:

```
sudo chown nobody:nogroup /sample
```

- Set permissions:

```
sudo chmod 777 /sample
```

```
ubuntu@ip-172-31-15-90:~$ sudo mkdir /sample
ubuntu@ip-172-31-15-90:~$ sudo chmod 777 /sample
ubuntu@ip-172-31-15-90:~$
```

5. Edit the NFS Exports File:

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

- Add this line to share the directory:

```
/sample 65.0.27.81(rw,sync,no_subtree_check)
```

6. Export the NFS Shares:

```
sudo exportfs -a
```

7. Restart the NFS Server:

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

8. Check the NFS Server Status:

```
sudo systemctl status nfs-kernel-server
```

## Setting Up the NFS Client (Machine Y)

1. Update Package Lists:

```
sudo apt update
```

2. Install NFS Client Package:

```
sudo apt install nfs-common
```

```
ubuntu@ip-172-31-3-40:~$ sudo apt install nfs-common -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  keyutils libnfsidmap1 rpcbind
Suggested packages:
  watchdog
The following NEW packages will be installed:
  keyutils libnfsidmap1 nfs-common rpcbind
0 upgraded, 4 newly installed, 0 to remove and 0 not upgraded.
Need to get 400 kB of archives.
After this operation, 1416 kB of additional disk space will be used.
Get:1 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 libnfsidmap1 amd64 1:2.6.4-3ubuntu5 [48.2 kB]
Get:2 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 rpcbind amd64 1.2.6-7ubuntu2 [46.5 kB]
Get:3 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 keyutils amd64 1.6.3-3build1 [56.8 kB]
Get:4 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 nfs-common amd64 1:2.6.4-3ubuntu5 [248 kB]
Fetched 400 kB in 0s (15.2 MB/s)
Selecting previously unselected package libnfsidmap1:amd64.
(Reading database ... 67936 files and directories currently installed.)
Preparing to unpack .../libnfsidmap1_1%3a2.6.4-3ubuntu5_amd64.deb ...
Unpacking libnfsidmap1:amd64 (1:2.6.4-3ubuntu5) ...
Selecting previously unselected package rpcbind.
```

3. Create a Mount Point for the NFS Share:

```
sudo mkdir /mnt
```

4. Mount the NFS Share:

```
sudo mount 13.234.122.91:/sample /mnt
```

5. Verify the Mount:

```
df -h
```

## Testing the NFS Share on the Client Machine

1. Access the Mount Point:

```
cd /mnt
```

2. Create a Folder and File to Test Access:

```
sudo mkdir test_folder
```

```
sudo touch test_file.txt
```

3. Troubleshooting Tips:

- If you cannot create folders or files in /mnt, check permissions on the NFS server's shared directory.
- Ensure the NFS client has the correct mount options and network access to the NFS server.
- Verify the NFS service is running properly on the server using:  

```
sudo systemctl status nfs-kernel-server
```
- Check the /etc/exports file on the NFS server to ensure the configuration is correct.