

? How to Mount NFS Storage on Linux (with Proper Permissions)

Purpose

Mount a remote NFS share on a Linux server for use by **Docker containers**, ensuring stable operation, correct permissions, and automatic remounting.

1. Install NFS Client on the Server

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

2. Create a Local Mount Directory

Create a local directory where the NFS share will be mounted:

```
sudo mkdir -p /srv/nfs-mount
sudo chown $(whoami):$(whoami) /srv/nfs-mount
```

“ (You can replace `/srv/nfs-mount` with your preferred path.)

3. Mount the NFS Share (Manual Test)

Example:

```
sudo mount -t nfs4 192.168.100.11:/mnt/hdd-storage/my-nfs-share /srv/nfs-mount
```

- `nfs4`: Use NFS version 4 for better performance and locking.
 - `proto=tcp`: Reliable transport protocol.
 - `hard`: Wait for server recovery instead of failing immediately.
 - `timeo=600`: Timeout setting for NFS operations.
 - `retrans=2`: Retry failed operations twice.
 - `sec=sys`: Default authentication method.
 - `_netdev`: Ensure mount occurs only after network is ready.
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4. Verify That the Mount Worked

```
mount | grep nfs
```

You should see output like:

```
192.168.100.11:/mnt/hdd-storage/my-nfs-share on /srv/nfs-mount type nfs4 (...)
```

5. Make the Mount Persistent (Auto-Mount on Boot)

Edit your `/etc/fstab` file:

```
sudo nano /etc/fstab
```

Add the following line at the bottom:

```
192.168.100.11:/mnt/hdd-storage/my-nfs-share /srv/nfs-mount nfs4
rw,relatime,hard,proto=tcp,timeo=600,retrans=2,sec=sys,_netdev 0 0
```

Save and exit (`Ctrl+O`, `Enter`, `Ctrl+X`).

6. Test the fstab Entry Without Rebooting

```
sudo mount -a
```

7. Using the NFS Mount with Docker

When running your containers, bind-mount the NFS storage into the container:

```
docker run -d \  
  --name my-container \  
  -v /srv/nfs-mount:/app/data \  
  my-docker-image
```

This will allow your Docker containers to directly access the NFS storage.

? Summary

- **Use NFSv4** (`nfs4`) whenever possible.
 - **Always** include `_netdev` in your `/etc/fstab` entries.
 - **Use `hard` mounts** to protect container file operations during NFS issues.
 - **Bind-mount** NFS paths carefully into containers.
 - **Avoid** using NFS for database storage unless network latency is extremely low.
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?? Useful Commands

- Check NFS mounts: `mount | grep nfs`
 - Manual remount all: `sudo mount -a`
 - Test connectivity: `ping nfs-server-ip`
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? Additional Notes

- If the NFS server reboots, containers **may pause** temporarily.
 - If using `docker-compose.yml`, you can map volumes to `/srv/nfs-mount`.
 - For production, consider creating a **systemd mount unit** for better recovery behavior.
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