How to Mount NFS Storage for Docker Containers

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.
- `hard` : Wait for server recovery instead of failing immediately.
- `timeo=600` : Timeout setting for NFS.
- `retrans=2` : Retry failed operations twice.
- `sec=sys` : Default authentication security.
- `_netdev` : Only mount after network is ready.

4. Verify That the Mount Worked

```
mount | grep nfs
```

You should see:

```
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:

```
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
```

No errors = success

---

7. Using the NFS Mount with Docker

When running your containers, **bind-mount** your 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 `/etc/fstab` .
- **Use** `hard` **mounts** to protect container file operations during NFS server issues.
- **Bind-mount** the NFS path inside containers carefully.
- **Avoid** using NFS for databases unless network latency is very low.

?? Useful Commands

- Mount NFS manually: `sudo mount -t nfs4 server:/path /mountpoint`
- Check current NFS mounts: `mount | grep nfs`
- Reload fstab: `sudo mount -a`

? Additional Notes

- If the NFS server reboots, containers may pause if heavily dependent on storage.
- When using Compose (`docker-compose.yml`), define volumes mapped to NFS mount points.
- For production, consider using **systemd mount units** for even better recovery handling.

Revision #1
Created 27 April 2025 02:36:22 by joliveira
Updated 27 April 2025 02:36:45 by joliveira