



```
joe@dhcp-server:~$ sudo apt install nfs-kernel-server
```

```
[sudo] password for joe:
```

```
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 93 not upgraded.
```

```
Need to get 521 kB of archives.
```

```
After this operation, 1,973 kB of additional disk space will be used.
```

```
Do you want to continue? [Y/n] █
```



```
joe@dhcp-server:~$ echo "Is it running"
```

```
Is it running
```

```
joe@dhcp-server:~$ █
```

```

-kb]
_rpc      3800  0.0  0.4  8104  4212  ?      Ss  15:56  0:00  /sbin/rpcbind
-f -w
root      4261  0.0  0.0    0    0  ?      I<  15:56  0:00  [rpciod]
root      4397  0.0  0.2  3100  2076  ?      Ss  15:56  0:00  /usr/sbin/rpc
.idmapd
statd     4398  0.0  0.2  4772  2232  ?      Ss  15:56  0:00  /sbin/rpc.statd
root      4406  0.0  0.2  5536  2744  ?      Ss  15:56  0:00  /usr/sbin/nfsd
root      4407  0.0  0.0  5132   408  ?      Ss  15:56  0:00  /usr/sbin/rpc
.mountd
root      4412  0.0  0.0    0    0  ?      S   15:56  0:00  [lockd]
root      4413  0.0  0.0    0    0  ?      S   15:56  0:00  [nfsd]
root      4414  0.0  0.0    0    0  ?      S   15:56  0:00  [nfsd]
root      4415  0.0  0.0    0    0  ?      S   15:56  0:00  [nfsd]
root      4416  0.0  0.0    0    0  ?      S   15:56  0:00  [nfsd]
root      4417  0.0  0.0    0    0  ?      S   15:56  0:00  [nfsd]
root      4418  0.0  0.0    0    0  ?      S   15:56  0:00  [nfsd]
root      4419  0.0  0.0    0    0  ?      S   15:56  0:00  [nfsd]
root      4420  0.0  0.0    0    0  ?      S   15:56  0:00  [nfsd]
joe       4769  0.0  0.2  6608  2344  pts/0  S+  16:11  0:00  grep -E --col
or=auto nfs|lock|rpc|portmap
joe@dhcp-server:~$

```



```
joe@dhcp-server:~$ echo "Try to start the service"
```

```
Try to start the service
```

```
joe@dhcp-server:~$ sudo service nfs-kernel-server start
```

```
[sudo] password for joe:
```

```
joe@dhcp-server:~$ sudo service nfs-kernel-server status
```

```
● nfs-server.service - NFS server and services
```

```
Loaded: loaded (/lib/systemd/system/nfs-server.service; enabled; vendor pr>
```

```
Active: active (exited) since Fri 2025-01-10 15:56:41 UTC; 15min ago
```

```
Main PID: 4409 (code=exited, status=0/SUCCESS)
```

```
CPU: 4ms
```

```
Jan 10 15:56:41 dhcp-server systemd[1]: Starting NFS server and services...
```

```
Jan 10 15:56:41 dhcp-server exportfs[4408]: exportfs: can't open /etc/exports f>
```

```
Jan 10 15:56:41 dhcp-server systemd[1]: Finished NFS server and services.
```

```
lines 1-9/9 (END)
```



joe@dhcp-server: ~



```
joe@dhcp-server:~$ sudo vi /etc/exports
```



```
joe@dhcp-server:~$ sudo service nfs-kernel-server restart
```

```
joe@dhcp-server:~$ sudo service nfs-kernel-server status
```

```
● nfs-server.service - NFS server and services
```

```
Loaded: loaded (/lib/systemd/system/nfs-server.service; enabled; vendor preset: enabled)
```

```
Active: active (exited) since Fri 2025-01-10 17:00:17 UTC; 10s ago
```

```
Process: 4896 ExecStartPre=/usr/sbin/exportfs -r (code=exited, status=1/FAILURE)
```

```
Process: 4897 ExecStart=/usr/sbin/rpc.nfsd (code=exited, status=0/SUCCESS)
```

```
Main PID: 4897 (code=exited, status=0/SUCCESS)
```

```
CPU: 3ms
```

```
Jan 10 17:00:17 dhcp-server systemd[1]: Starting NFS server and services...
```

```
Jan 10 17:00:17 dhcp-server exportfs[4896]: exportfs: Failed to stat /data/stuff_to_share: No such file or directory
```

```
Jan 10 17:00:17 dhcp-server systemd[1]: Finished NFS server and services.
```

```
lines 1-11/11 (END)
```

```
joe@dhcp-server:~$ echo "We didn't create that directory"
```

```
We didn't create that directory
```

```
joe@dhcp-server:~$ sudo mkdir -p /data/stuff_to_share
```

```
joe@dhcp-server:~$ echo "We may also need to change permissions on it at some point"
```

```
We may also need to change permissions on it at some point
```

```
joe@dhcp-server:~$ sudo service nfs-kernel-server restart
```

```
joe@dhcp-server:~$
```



```
joe@dhcp-server:~$ sudo service nfs-kernel-server status
```

```
● nfs-server.service - NFS server and services
```

```
Loaded: loaded (/lib/systemd/system/nfs-server.service; enabled; vendor preset: enabled)
```

```
Active: active (exited) since Fri 2025-01-10 17:01:25 UTC; 8s ago
```

```
Process: 4943 ExecStartPre=/usr/sbin/exportfs -r (code=exited, status=0/SUCCESS)
```

```
Process: 4944 ExecStart=/usr/sbin/rpc.nfsd (code=exited, status=0/SUCCESS)
```

```
Main PID: 4944 (code=exited, status=0/SUCCESS)
```

```
CPU: 5ms
```

```
Jan 10 17:01:25 dhcp-server systemd[1]: Starting NFS server and services...
```

```
Jan 10 17:01:25 dhcp-server systemd[1]: Finished NFS server and services.
```

```
joe@dhcp-server:~$ echo "looks ok"
```

```
looks ok
```

```
joe@dhcp-server:~$ cat /var/lib/nfs/etab
```

```
/data/stuff_to_share 144.38.199.80/28(rw, sync, wdelay, hide, nocrossmnt, secure, root_squash, no_all_squash, no_subtree_check, secure_locks, acl, no_pnfs, anonuid=65534, anongid=65534, sec=sys, rw, secure, root_squash, no_all_squash)
```

```
joe@dhcp-server:~$ █
```



```
joe@dhcp-server:~$ cd /data/stuff_to_share/
```

```
joe@dhcp-server:/data/stuff_to_share$ ls
```

```
joe@dhcp-server:/data/stuff_to_share$ sudo touch file_made_on_nfs_server
```

```
joe@dhcp-server:/data/stuff_to_share$ echo "made that file here"
```

```
made that file here
```

```
joe@dhcp-server:/data/stuff_to_share$ █
```



joe@mycoolhost: ~



joe@dhcp-server: /data/stuff\_to\_share



joe@mycoolhost: ~



```
joe@mycoolhost:~$ echo "This is my nfs client now!"
```

```
This is my nfs client now!
```

```
joe@mycoolhost:~$ sudo apt install nfs-common
```

```
joe@mycoolhost:~$ ps aux | egrep 'rpc|nfs'
root      354  0.0  0.0      0      0 ?        I<    2024  0:00 [rpciod]
_rpc     430  0.0  0.4   8104   4016 ?        Ss    2024  0:08 /sbin/rpcbind -f -w
root     438  0.0  0.2   3100   2076 ?        Ss    2024  0:00 /usr/sbin/rpc.idmapd
root     439  0.0  0.2   5472   2676 ?        Ss    2024  0:00 /usr/sbin/nfsdclld
root     596  0.0  0.0   5132    368 ?        Ss    2024  0:00 /usr/sbin/rpc.mountd
statd    600  0.0  0.2   4772   2136 ?        Ss    2024  0:00 /sbin/rpc.statd
root     664  0.0  0.0      0      0 ?        S     2024  0:00 [nfsd]
root     665  0.0  0.0      0      0 ?        S     2024  0:00 [nfsd]
root     666  0.0  0.0      0      0 ?        S     2024  0:00 [nfsd]
root     667  0.0  0.0      0      0 ?        S     2024  0:00 [nfsd]
root     668  0.0  0.0      0      0 ?        S     2024  0:00 [nfsd]
root     669  0.0  0.0      0      0 ?        S     2024  0:00 [nfsd]
root     670  0.0  0.0      0      0 ?        S     2024  0:00 [nfsd]
root     671  0.0  0.0      0      0 ?        S     2024  0:00 [nfsd]
joe     38318 0.0  0.2   6608   2452 pts/0   S+    17:04  0:00 grep -E --color=auto rpc|nfs
joe@mycoolhost:~$
```



```
joe@mycoolhost:~$ showmount -e 144.38.199.82
```

```
Export list for 144.38.199.82:
```

```
/data/stuff_to_share 144.38.199.80/28
```

```
joe@mycoolhost:~$ echo "I can see the share on the server"
```

```
I can see the share on the server
```

```
joe@mycoolhost:~$
```

```
joe@mycoolhost:~$ echo "Create a local mount point"
```

```
Create a local mount point
```

```
joe@mycoolhost:~$ sudo mkdir -p /remote/mynfs
```

```
joe@mycoolhost:~$ df -h
```

Filesystem	Size	Used	Avail	Use%	Mounted on
tmpfs	96M	1.1M	95M	2%	/run
/dev/sda2	8.8G	6.2G	2.2G	75%	/
tmpfs	479M	0	479M	0%	/dev/shm
tmpfs	5.0M	0	5.0M	0%	/run/lock
tmpfs	96M	4.0K	96M	1%	/run/user/1000

```
joe@mycoolhost:~$ echo "Not mounted yet"
```

```
Not mounted yet
```

```
joe@mycoolhost:~$ █
```

```
joe@mycoolhost:~$ sudo mount -t nfs 144.38.199.82:/data/stuff_to_share /remote/mynfs/
```

```
joe@mycoolhost:~$ df -h
```

Filesystem	Size	Used	Avail	Use%	Mounted on
tmpfs	96M	1.1M	95M	2%	/run
/dev/sda2	8.8G	6.2G	2.2G	75%	/
tmpfs	479M	0	479M	0%	/dev/shm
tmpfs	5.0M	0	5.0M	0%	/run/lock
tmpfs	96M	4.0K	96M	1%	/run/user/1000
144.38.199.82:/data/stuff_to_share	8.8G	6.7G	1.7G	80%	/remote/mynfs

```
joe@mycoolhost:~$ echo "Yay it is mounted"
```

```
Yay it is mounted
```

```
joe@mycoolhost:~$ █
```

```
joe@mycoolhost:/remote/mynfs$ ls
```

```
file_made_on_nfs_server
```

```
joe@mycoolhost:/remote/mynfs$ echo "I can see the file that was made on the server"
```

```
I can see the file that was made on the server
```

```
joe@mycoolhost:/remote/mynfs$ sudo touch file_made_on_client
```

```
touch: cannot touch 'file_made_on_client': Permission denied
```

```
joe@mycoolhost:/remote/mynfs$ ls -lah
```

```
total 8.0K
```

```
drwxr-xr-x 2 root root 4.0K Jan 10 17:02 .
```

```
drwxr-xr-x 3 root root 4.0K Jan 10 17:05 ..
```

```
-rw-r--r-- 1 root root    0 Jan 10 17:02 file_made_on_nfs_server
```

```
joe@mycoolhost:/remote/mynfs$ echo "Ouch! We can't make a file. Why? We are writing as root and root does not have privileges on the remote server, they are squashed"
```

```
Ouch! We can't make a file. Why? We are writing as root and root does not have privileges on the remote server, they are squashed
```

```
joe@mycoolhost:/remote/mynfs$ █
```





```
joe@dhcp-server: /data/stuff_to_share$ echo "Back on server"
```

```
Back on server
```

```
joe@dhcp-server: /data/stuff_to_share$ sudo vi /etc/exports
```





joe@dhcp-server: /data/stuff\_to\_share



joe@dhcp-server: /data/stuff\_to\_share



joe@mycoolhost: /remote/my nfs



```
joe@dhcp-server: /data/stuff_to_share$ sudo service nfs-kernel-server restart
```

```
joe@dhcp-server: /data/stuff_to_share$
```



```
joe@mycoolhost:/remote/mynfs$ echo "Try again on client"
```

```
Try again on client
```

```
joe@mycoolhost:/remote/mynfs$ sudo touch file_made_on_client
```

```
joe@mycoolhost:/remote/mynfs$ ls
```

```
file_made_on_client  file_made_on_nfs_server
```

```
joe@mycoolhost:/remote/mynfs$ echo "yay"
```

```
yay
```

```
joe@mycoolhost:/remote/mynfs$
```

```
joe@mycoolhost:/remote/mynfs$ echo "how to unmount?"
```

```
how to unmount?
```

```
joe@mycoolhost:/remote/mynfs$ df
```

Filesystem	1K-blocks	Used	Available	Use%	Mounted on
tmpfs	97952	1048	96904	2%	/run
/dev/sda2	9186644	6484480	2213924	75%	/
tmpfs	489752	0	489752	0%	/dev/shm
tmpfs	5120	0	5120	0%	/run/lock
tmpfs	97948	4	97944	1%	/run/user/1000
144.38.199.82:/data/stuff_to_share	9186688	6956416	1742080	80%	/remote/mynfs

```
joe@mycoolhost:/remote/mynfs$ sudo umount /remote/mynfs
```

```
umount.nfs4: /remote/mynfs: device is busy
```

```
joe@mycoolhost:/remote/mynfs$ echo "It is buzy cuz we are in it"
```

```
It is buzy cuz we are in it
```

```
joe@mycoolhost:/remote/mynfs$
```

```
joe@mycoolhost:~$ sudo umount /remote/mynfs
```

```
joe@mycoolhost:~$ df
```

Filesystem	1K-blocks	Used	Available	Use%	Mounted on
tmpfs	97952	1048	96904	2%	/run
/dev/sda2	9186644	6484480	2213924	75%	/
tmpfs	489752	0	489752	0%	/dev/shm
tmpfs	5120	0	5120	0%	/run/lock
tmpfs	97948	4	97944	1%	/run/user/1000

```
joe@mycoolhost:~$
```



joe@mycoolhost: ~



joe@dhcp-server: /data/stuff\_to\_share



joe@mycoolhost: ~



```
joe@mycoolhost:~$ echo "Make it so this auto mounts at boot time"
```

```
Make it so this auto mounts at boot time
```

```
joe@mycoolhost:~$ sudo vi /etc/fstab █
```

```
# /etc/fstab: static file system information.
#
# Use 'blkid' to print the universally unique identifier for a
# device; this may be used with UUID= as a more robust way to name devices
# that works even if disks are added and removed. See fstab(5).
#
# <file system> <mount point> <type> <options> <dump> <pass>
# / was on /dev/sda2 during curtin installation
/dev/disk/by-uuid/b9d575b0-c3ac-4021-8aee-db7293e11b05 / ext4 defaults 0 1
/swap.img none swap sw 0 0

#dont edit anything above this line
144.38.199.82:/data/stuff_to_share /remote/mynfs/ nfs bg,rw,tcp 0 0
```



```
joe@mycoolhost:~$ df
```

Filesystem	1K-blocks	Used	Available	Use%	Mounted on
tmpfs	97952	1048	96904	2%	/run
/dev/sda2	9186644	6484480	2213924	75%	/
tmpfs	489752	0	489752	0%	/dev/shm
tmpfs	5120	0	5120	0%	/run/lock
tmpfs	97948	4	97944	1%	/run/user/1000

```
joe@mycoolhost:~$ sudo mount -a
```

```
joe@mycoolhost:~$ df
```

Filesystem	1K-blocks	Used	Available	Use%	Mounted on
tmpfs	97952	1048	96904	2%	/run
/dev/sda2	9186644	6484480	2213924	75%	/
tmpfs	489752	0	489752	0%	/dev/shm
tmpfs	5120	0	5120	0%	/run/lock
tmpfs	97948	4	97944	1%	/run/user/1000
144.38.199.82:/data/stuff_to_share	9186688	6956416	1742080	80%	/remote/mynfs

```
joe@mycoolhost:~$ echo "yay, it works"
```

```
yay, it works
```

```
joe@mycoolhost:~$ █
```