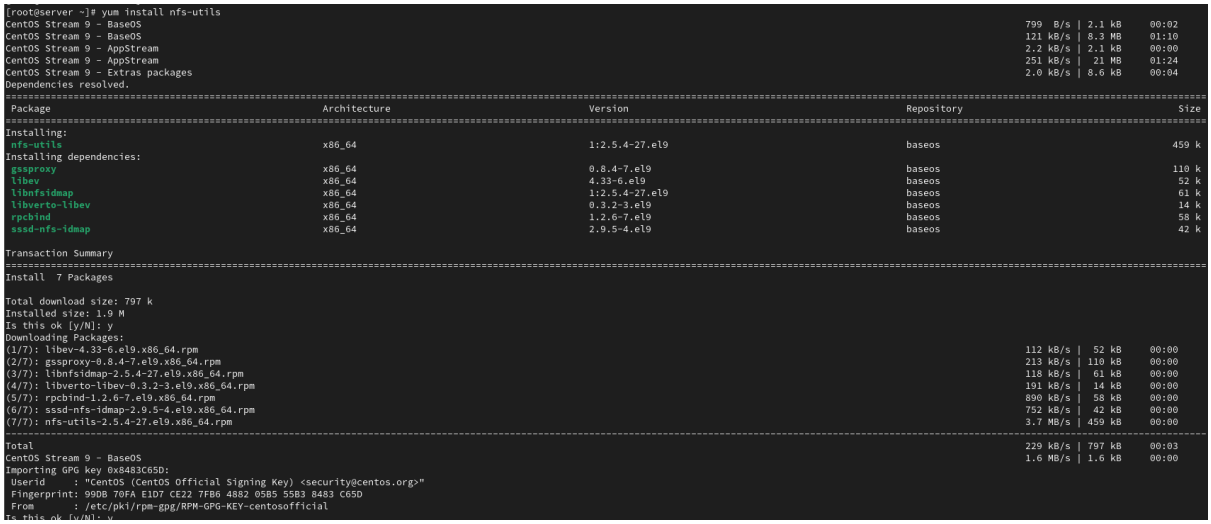
NFS

To set up NFS (Network File System) on a Linux server and client, follow these steps:

Steps to Configure NFS on Linux

Step 1: Install NFS Packages

 # sudo yum install nfs-utils



Step 2: Configure the NFS Export Directory on the Server

Create the Directory to Share

For example, create a directory called /nfs_share:

 # mkdir -p /nfs_share

```
[root@server ~]# mkdir /nfs_share
```

```
[root@server ~]# cp -r Newfolder /nfs_share
```

Set Permissions for the Directory

 # chmod 755 /nfs_share *

Edit the /etc/exports File to Configure the Share

Open /etc/exports in a text editor:

 # vi /etc/exports

Add the following line to specify the shared directory, IP range, and permissions:

/nfs_share 192.168.1.0/24(rw,sync,no_root_squash)

(or)

/nfs_share 192.168.1.0/24(rw,sync)

```
[root@server ~]# ifconfig
ens33: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 192.168.88.128  netmask 255.255.255.0  broadcast 192.168.88.255
        inet6 fe80::20c:29ff:fecc:ff84  prefixlen 64  scopeid 0x20<link>
        ether 00:0c:29:cc:ff:84  txqueuelen 1000  (Ethernet)
        RX packets 45654  bytes 64890963 (61.8 MiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 4249  bytes 340939 (332.9 KiB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0
```

```
/nfs_share 192.168.88.131(rw,sync)
```

Apply the Export Configurations

 # exportfs -ra

Step 3: Start and Enable the NFS Server

 # systemctl start nfs-server

 # systemctl enable nfs-server

```
[root@server ~]# systemctl status nfs-server.service
○ nfs-server.service - NFS server and services
     Loaded: loaded (/usr/lib/systemd/system/nfs-server.service; disabled; preset: disabled)
     Active: inactive (dead)
       Docs: man:rpc.nfsd(8)
             man:exportfs(8)
[root@server ~]# systemctl start nfs-server.service
[root@server ~]# systemctl enable nfs-server.service
Created symlink /etc/systemd/system/multi-user.target.wants/nfs-server.service → /usr/lib/systemd/system/nfs-server.service.
```

Step 4: Configure Firewall Rules on the Server

Allow NFS traffic through the firewall:

 # sudo firewall-cmd --zone=public --add-service=nfs --permanent

 # sudo firewall-cmd –reload

```
[root@server ~]# sudo firewall-cmd --zone=public --add-service=nfs --permanent
success
[root@server ~]# sudo firewall-cmd --reload
success
```

Step 5: Mount the NFS Share on the Client

Create a Mount Point on the Client

 # mkdir -p /nfs_client

```
[root@client ~]# mkdir /nfs_client
```

Mount the NFS Share

Replace server_ip with the IP address of your NFS server:

 # sudo mount server_ip:/nfs_share /nfs_client

```
[root@client nfs_client]# mount 192.168.88.128:/nfs_share /nfs_client/
```

Verify the Mount

 # df -h /nfs_client

```
[root@client nfs_client]# df -h
```

Step 6: Optional - Configure Permanent Mounting on Client

Edit the /etc/fstab file on the client to mount the NFS share at boot:

 # vi /etc/fstab

Add this line to the file:

server_ip:/nfs_share /mnt/nfs_share nfs defaults 0 0

```
192.168.88.128:/nfs_share /nfs_client nfs defaults 0 0
~
```

The NFS share should now be accessible from the client!

AUTOFS

Basic Automount of an NFS Share in client

Objective: Automatically mount an NFS share when accessed.

Ensure NFS server is set up and a share is available. (Assuming a share at <NFS_SERVER_IP>:/srv/nfs)

Step-1: Install the autofs package:

 # yum install autofs

```
[root@client myauto]# yum install autofs
Last metadata expiration check: 0:05:43 ago on Thursday 14 November 2024 08:31:14 PM.
Package autofs-1:5.1.7-58.el9.x86_64 is already installed.
Dependencies resolved.
Nothing to do.
Complete!
```

Step-2: Create a dir

 # mkdir autofs

Step-3: Edit /etc/auto.master and add:

 # vi /etc/auto.master

 # /autofs /etc/auto.misc

```
[root@client myauto]# vi /etc/auto.master
```

```
#
/misc   /etc/auto.misc
/autofs /etc/auto.misc
#
# NOTE: mounts done from a ho
```

Step-4: Edit /etc/auto.misc and add

 # vi /etc/auto.misc

 # myauto -fstype=nfs 192.168.88.128:/NFS_Server

```
myauto          -fstype=nfs             192.168.88.128:/NFS_Server
```

Step-5: Restart autofs:

 # systemctl restart autofs

Access the directory to see if it auto mounts:

 # cd /autofs

 # ls myauto

```
[root@client /]# cd /autofs/
[root@client autofs]# ls
[root@client autofs]# cd myauto
[root@client myauto]# ls
file1  squash
```

#df -h

```
tmpfs                     175M   96K  175M   1% /run/user/1000
/dev/sr1                  8.2G  8.2G     0 100% /run/media/siddhar
192.168.88.128:/NFS_Server   17G  5.4G   12G  32% /autofs/myauto
[root@client myauto]#
```

Expected Outcome: The directory should automatically mount and show the contents of the NFS share.

Set an Automount Timeout

Objective: Customize the automount timeout.

Step -1: Edit /etc/auto.master and add:

set a timeout of 60 seconds:

 # vi /etc/auto.master

 # /autofs /etc/auto.misc --timeout=60

```
/misc   /etc/auto.misc
/autofs /etc/auto.misc --timeout=60
```

Step-2: Restart autofs:

 # systemctl restart autofs

```
[root@client /]# systemctl restart autofs
```

Step-3: Access the directory to ensure it mounts:

 # cd /autofs

 # ls myauto

```
[root@client /]# cd autofs
[root@client autofs]# ls myauto
1  file1  squash
[root@client autofs]#
```

 # df -h

```
[root@client autofs]# df -h
Filesystem                 Size  Used Avail Use% Mounted on
devtmpfs                   4.0M     0  4.0M   0% /dev
tmpfs                      871M     0  871M   0% /dev/shm
tmpfs                      349M  9.0M  340M   3% /run
/dev/mapper/cs-root         17G   11G  6.1G  65% /
/dev/sda1                 1014M  503M  512M  50% /boot
192.168.88.128:/nfs_share   17G  5.4G   12G  32% /nfs_client
tmpfs                      175M   96K  175M   1% /run/user/1000
/dev/sr1                   8.2G  8.2G     0 100% /run/media/siddharrth/CentOS-Stream-9-BaseOS-x86_64
192.168.88.128:/NFS_Server  17G  5.4G   12G  32% /autofs/myauto
[root@client autofs]# cd ..
[root@client /]# df -h
Filesystem                 Size  Used Avail Use% Mounted on
devtmpfs                   4.0M     0  4.0M   0% /dev
tmpfs                      871M     0  871M   0% /dev/shm
tmpfs                      349M  9.0M  340M   3% /run
/dev/mapper/cs-root         17G   11G  6.1G  65% /
/dev/sda1                 1014M  503M  512M  50% /boot
192.168.88.128:/nfs_share   17G  5.4G   12G  32% /nfs_client
tmpfs                      175M   96K  175M   1% /run/user/1000
/dev/sr1                   8.2G  8.2G     0 100% /run/media/siddharrth/CentOS-Stream-9-BaseOS-x86_64
[root@client /]#
```