NFS Server

NFS (Network File System) is a distributed file system protocol that allows a computer to access files over a network as if they were on its local storage. It was originally developed by Sun Microsystems in the 1980s and has since become a standard for network file sharing.

Packages Required: nfs-utils
Port: 2049
Configuration file: /etc/exports
service: nfs-server.service

Server-Side Configuration
==========

Step:1 Install necessary package:

yum install nfs-utils

```
[root@localhost ~]# yum install nfs-utils
CentOS Stream 9 - BaseOS                                        426 kB/s | 8.2 MB     00:19
CentOS Stream 9 - AppStream                                     230 kB/s |  20 MB     01:28
CentOS Stream 9 - Extras packages                               5.8 kB/s |  17 kB     00:02
Last metadata expiration check: 0:00:01 ago on Sat 06 Jul 2024 03:51:33 PM IST.
Dependencies resolved.
================================================================================================
 Package                      Architecture       Version                  Repository          Size
================================================================================================
Installing:
 nfs-utils                    x86_64             1:2.5.4-26.el9           baseos             460 k
Upgrading:
 device-mapper                x86_64             9:1.02.197-2.el9         baseos             141 k
 device-mapper-event          x86_64             9:1.02.197-2.el9         baseos              34 k
 device-mapper-event-libs     x86_64             9:1.02.197-2.el9         baseos              32 k
 device-mapper-libs           x86_64             9:1.02.197-2.el9         baseos             179 k
 krb5-libs                    x86_64             1.21.1-2.el9             baseos             766 k
 libipa_hbac                  x86_64             2.9.5-1.el9              baseos              39 k
 libldb                       x86_64             2.9.0-1.el9              baseos             190 k
 libsmbclient                 x86_64             4.20.1-1.el9             baseos              75 k
 libsss_certmap               x86_64             2.9.5-1.el9              baseos              93 k
```

Step:2 Create a directory and share it to the client

 # mkdir /nfs-share
 # cd /nfs_share/

```
[root@localhost ~]# mkdir /nfs_share
[root@localhost ~]# cd /nfs_share/
```

Step:3 Copy to /etc*.conf in a directory

 # cp /etc/*.conf /nfs_share/

```
[root@localhost nfs_share]# cp /etc/*.conf /nfs_share/
```

Step:4 Next will configuration to /etc/exports and will enter on client IP Address

 # vi /etc/exports

```
/nfs_share 192.168.48.129(rw)
~
~
~
```

Step:5 Next will restart the service and will stop at firewalld and again set enforcing will check the status

 # systemctl restart nfs-server.service
 # systemctl stop firewalld.service
 # setenforce 0

```
[root@localhost nfs_share]# systemctl restart nfs-server.service
[root@localhost nfs_share]# systemctl stop firewalld.service
[root@localhost nfs_share]# setenforce 0
```

Step:6 Verify the available shares from Server

 # showmount -e localhost

```
[root@localhost nfs_share]# showmount -e localhost
Export list for localhost:
/nfs_share 192.168.48.129
```

Client-Side Configuration
==========

Step:1 Install necessary package:

yum install nfs-utils

```
[root@localhost ~]# yum install nfs-utils
CentOS Stream 9 - BaseOS                                        3.0 MB/s | 8.2 MB     00:02
CentOS Stream 9 - AppStream                                     3.1 MB/s |  20 MB     00:06
CentOS Stream 9 - Extras packages                               4.3 kB/s |  17 kB     00:03
Last metadata expiration check: 0:00:01 ago on Sat 06 Jul 2024 03:57:54 PM IST.
Dependencies resolved.
================================================================================================
 Package                    Architecture       Version                    Repository         Size
================================================================================================
Installing:
 nfs-utils                  x86_64             1:2.5.4-26.el9             baseos            460 k
Upgrading:
 device-mapper              x86_64             9:1.02.197-2.el9           baseos            141 k
 device-mapper-event        x86_64             9:1.02.197-2.el9           baseos             34 k
 device-mapper-event-libs   x86_64             9:1.02.197-2.el9           baseos             32 k
 device-mapper-libs         x86_64             9:1.02.197-2.el9           baseos            179 k
 krb5-libs                  x86_64             1.21.1-2.el9               baseos            766 k
 libipa_hbac                x86_64             2.9.5-1.el9                baseos             39 k
 libldb                     x86_64             2.9.0-1.el9                baseos            190 k
 libsmbclient               x86_64             4.20.1-1.el9               baseos             75 k
 libsss_certmap             x86_64             2.9.5-1.el9                baseos             93 k
 libsss_idmap               x86_64             2.9.5-1.el9                baseos             45 k
 libsss_nss_idmap           x86_64             2.9.5-1.el9                baseos             49 k
```

Step:2 Create a Directory

mkdir /nfs_client

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

Step:3 Next will stopped the firewalld and set enforcing will check the status

 # systemctl stop firewalld.service
 # setenforce 0

```
[root@localhost ~]# systemctl stop firewalld.service
[root@localhost ~]# setenforce 0
```

Step:4 Check the available shares in client side and IP address server

 # showmount -e 192.168.48.128

```
[root@localhost ~]# showmount -e 192.168.48.128
Export list for 192.168.48.128:
/nfs_share 192.168.48.129
```

Step:5 mount the NFS Share

 # mount 192.168.48.128:/nfs_share /nfs_client

```
[root@localhost ~]# mount 192.168.48.128:/nfs_share /nfs_client
```

Step:6 Next to check mounted file system

df -h

```
[root@localhost ~]# df -h
Filesystem                Size  Used Avail Use% Mounted on
devtmpfs                  4.0M     0  4.0M   0% /dev
tmpfs                     873M     0  873M   0% /dev/shm
tmpfs                     349M  9.2M  340M   3% /run
/dev/mapper/cs-root        17G  4.1G   13G  24% /
/dev/sda1                1014M  283M  732M  28% /boot
tmpfs                     175M  100K  175M   1% /run/user/0
/dev/sr1                  8.2G  8.2G     0 100% /run/media/root/CentOS-Stream-9-BaseOS-x86_64
192.168.48.128:/nfs_share  17G  4.1G   13G  24% /nfs_client
```

Step:7 Next will listed the client side

ls -l

```
[root@localhost nfs_client]# ls -l
total 220
-rw-r--r--. 1 root root   769 Jul  6 15:53 appstream.conf
-rw-r--r--. 1 root root    55 Jul  6 15:53 asound.conf
-rw-r--r--. 1 root root 28974 Jul  6 15:53 brltty.conf
-rw-r--r--. 1 root root  1371 Jul  6 15:53 chrony.conf
-rw-r--r--. 1 root root 27839 Jul  6 15:53 dnsmasq.conf
-rw-r--r--. 1 root root   117 Jul  6 15:53 dracut.conf
-rw-r--r--. 1 root root    20 Jul  6 15:53 fprintd.conf
-rw-r--r--. 1 root root    38 Jul  6 15:53 fuse.conf
-rw-r--r--. 1 root root     9 Jul  6 15:53 host.conf
-rw-r--r--. 1 root root  5799 Jul  6 15:53 idmapd.conf
-rw-r--r--. 1 root root  8892 Jul  6 15:53 kdump.conf
-rw-r--r--. 1 root root   880 Jul  6 15:53 krb5.conf
-rw-r--r--. 1 root root    28 Jul  6 15:53 ld.so.conf
```

Step:8 Next will create file in client side and not created the file but reason is permission only read and write

 # cd /nfs_client/
 # touch file

```
[root@localhost ~]# cd /nfs_client/
[root@localhost nfs_client]# touch file
touch: cannot touch 'file': Permission denied
```

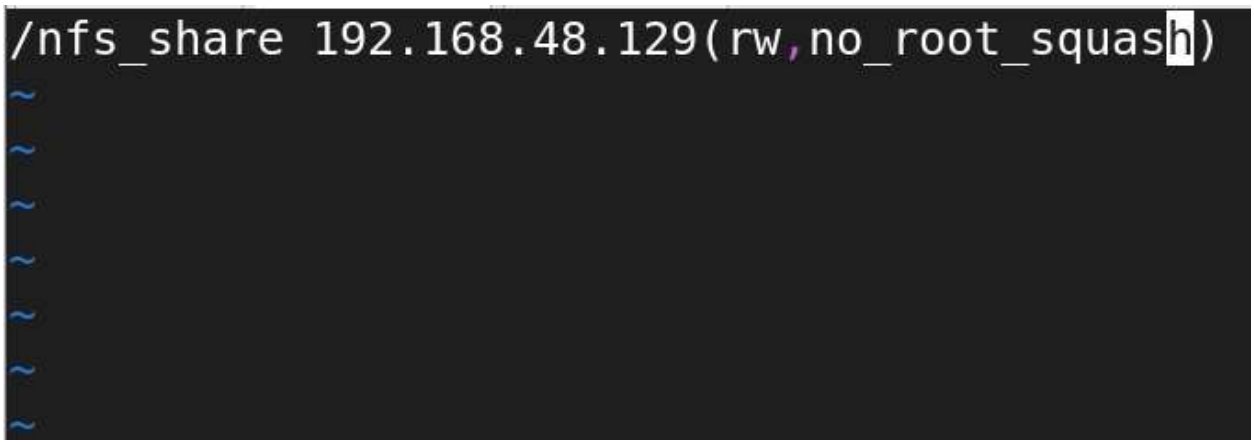
Step:9 Next will update the permission 777 in directory server side and will create the file client side

 # chmod 777 /nfs_share/
 # touch naveen
 # ls -li naveen

```
[root@localhost nfs_client]# touch naveen
[root@localhost nfs_client]# ls -li n
naveen         nfs.conf       nfsmount.conf  nsswitch.conf
[root@localhost nfs_client]# ls -li naveen
582791 -rw-r--r--. 1 nobody nobody 0 Jul  6 17:01 naveen
```

Step:10 Next will changed the configuration file for server side and will create the client side changed user and group

 # vi /etc/exports



 # touch file14
 # ls -li file14